

1. Introduction

1.1 Introduction and Background

The Sonny Bono Salton Sea National Wildlife Refuge Complex (Complex or NWRC) consists of the Sonny Bono Salton Sea National Wildlife Refuge (NWR) and Coachella Valley NWR. Although both Refuges are located within the 8,000-square-mile Salton Basin of the Colorado Desert (Figure 1-1), the purposes of these two Refuges are as different as the habitats and species they protect.

The Sonny Bono Salton Sea NWR, which consists of 37,660 acres, is situated at the south end of the Salton Sea, about 20 miles north of El Centro in Imperial County, California (Figure 1-2). The purpose of this Refuge is to protect and manage habitat to support migratory birds, particularly waterfowl, and other wildlife.



Thousands of shorebirds, seabirds, and waterfowl stop-over or winter at the Salton Sea (Mark Stewart/USFWS)

About 75 miles to the northwest is the 3,577-acre Coachella Valley NWR, located 10 miles east of Palm Springs in Riverside County, California (Figure 1-3). The purpose of this Refuge is to protect and contribute to the long-term survival of the federally threatened Coachella Valley fringe-toed lizard (*Uma inornata*) and federally endangered Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *cochellae*), both endemic to the active sand habitats in the Coachella Valley.

The U.S. Fish and Wildlife Service (Service) prepared this Comprehensive Conservation Plan (CCP) for the Sonny Bono Salton Sea NWR and Coachella Valley NWR to guide the management of these Refuges over the next 15 years. The CCP describes future Refuge conditions and provides long-range management direction for achieving the purposes for which each Refuge was established.



Active sand dune habitat in the Coachella Valley supports a variety of listed and sensitive species (USFWS)

The CCP also addresses a range of Service legal mandates, policies, and goals, as described below. 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 effects to the environment of all actions they take. In accordance with NEPA, a joint draft CCP/environmental assessment (EA) was prepared to analyze the potential effects to the environment of managing the Sonny Bono Salton Sea NWRC under several different management alternatives. The Environmental Assessment and FONSI are provided as Appendix F.

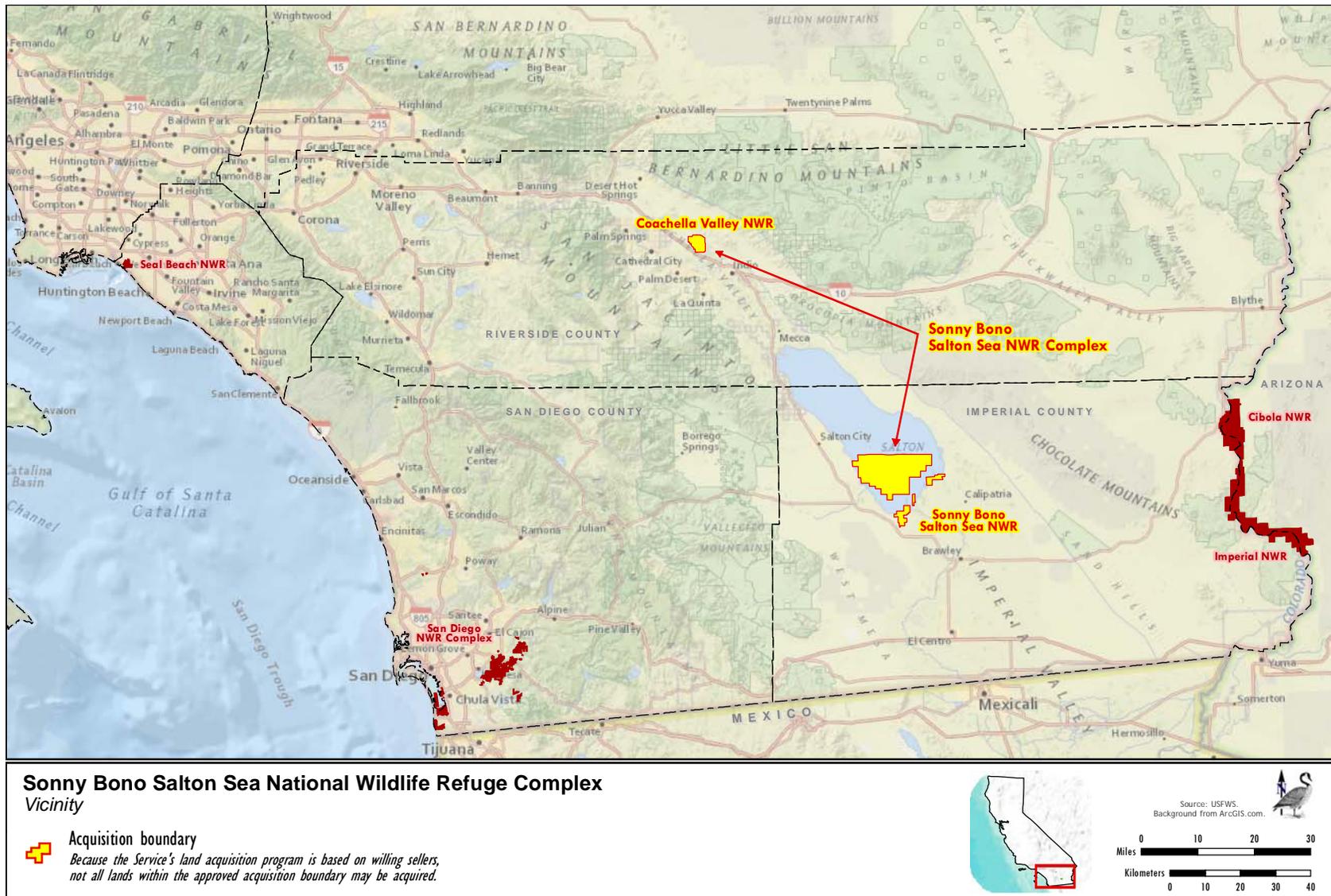


Figure 1-1. Vicinity Map - Sonny Bono Salton Sea National Wildlife Refuge Complex

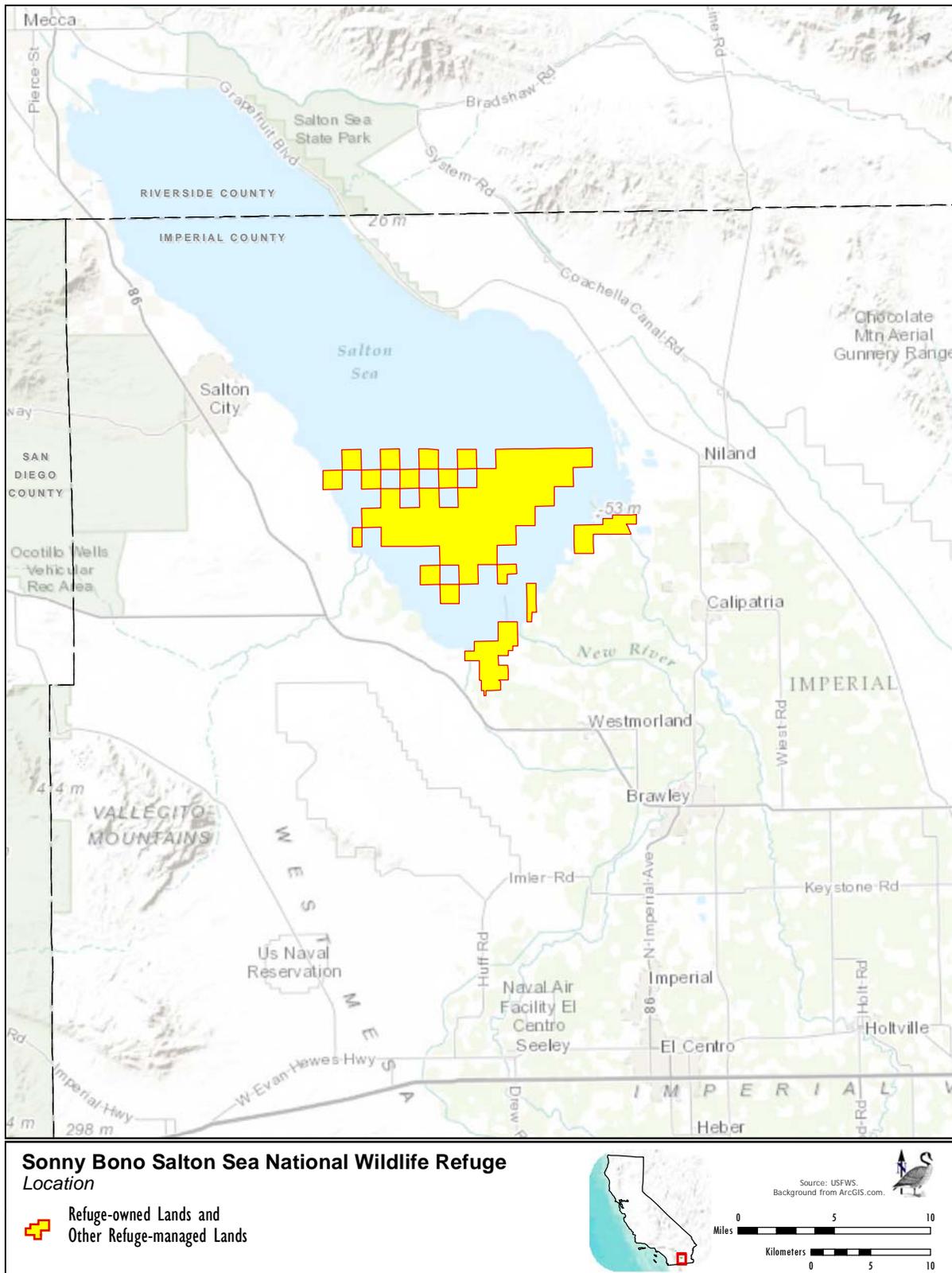


Figure 1-2. Location Map - Sonny Bono Salton Sea National Wildlife Refuge

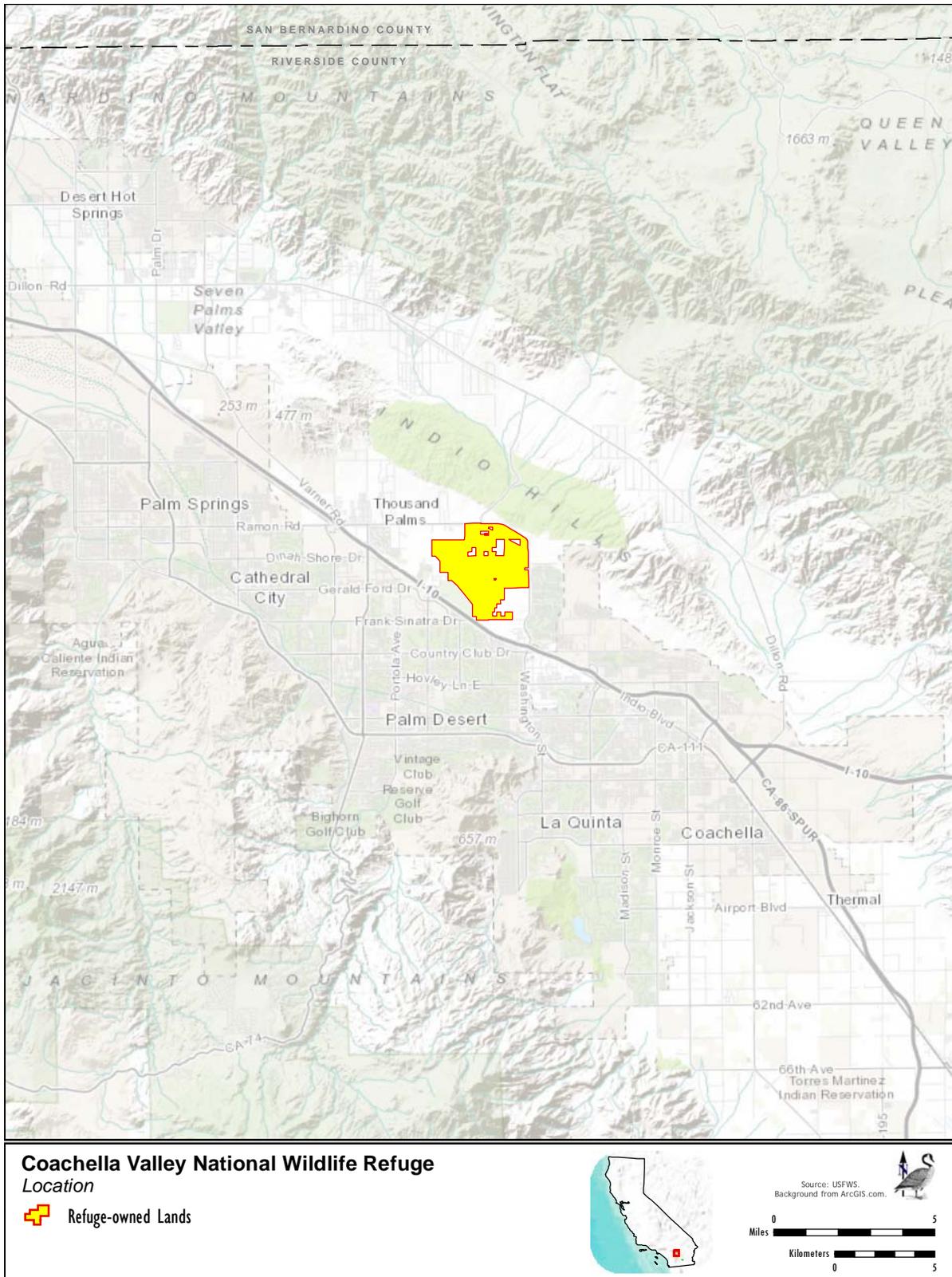


Figure 1-3. Location Map - Coachella Valley National Wildlife Refuge

1.2 Purpose and Need

The purpose and need for the Sonny Bono Salton Sea NWRC CCP is to provide guidance to the Refuge Manager and others for how the Refuges within the Complex should be managed to best achieve the purposes for which they were established and to contribute to the mission of the National Wildlife Refuge System (Refuge System or NWRS). This CCP addresses the management of wildlife, fish, and plant resources and their related habitats, while also considering opportunities for compatible wildlife-dependent recreational use. It is through the CCP process that the overarching wildlife, public use, and/or management needs for these Refuges, as well as any issues affecting the management of Refuge resources and public use programs, are identified; and 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.

A 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 uses of the Refuge 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.

This CCP also fulfills the 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 (16 United States Code [USC] 668dd-668ee) (Improvement Act). 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.

A plan to guide management of the Sonny Bono Salton Sea NWR has not been updated since 1972; as a result, limited guidance is currently available for how best to achieve Refuge purposes and other mandates. General management direction for the Coachella Valley NWR is currently provided within the Coachella Valley Multiple Species Habitat Conservation Plan (CVAG 2007a). This CCP sets forth specific Refuge goals and objectives and describes the strategies to be implemented to achieve these goals and objectives. The guidance provided is based on specific Refuge purposes, Federal laws, NWRS goals, and Service policies.

Although the CCP addresses all management actions and activities occurring or proposed to occur on the Refuge, some of these actions or activities are broadly stated, while others, such as implementation of an Integrated Pest Management Plan, Predator Management Plan, and restoration of Red Hill Bay, are described in sufficient detail to ensure adequate consideration of potential effects on the environment as required by NEPA.

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. Unlike other public lands, which are managed under a multiple-uses mandate (e.g., National forests managed by the U.S. Forest Service [USFS] and lands administered by the 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 Refuge System consists of over 550 units that provide more than 150 million acres of habitat for native plants, fish, and wildlife, including threatened and endangered species.

In 1903, 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 wildlife sanctuaries during his tenure. This small network of sanctuaries continued to expand, later becoming the NWRS, whose mission 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" (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 carefully 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); and
- 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 Refuges within the Sonny Bono Salton Sea NWRC are summarized in Table 1-1 and addressed in greater detail in Appendix J.

| Table 1-1 Federal Laws and Executive Orders Applicable to the Management of the Sonny Bono Salton Sea NWRC | |
|--|--|
| Agency Coordination | |
| <ul style="list-style-type: none"> • Executive Order No. 12372, Intergovernmental Review of Federal Programs | |
| Refuge Uses | |
| <ul style="list-style-type: none"> • The National Wildlife Refuge System Administration Act of 1966 (16 USC 668dd-668ee), National Wildlife Refuge System Improvement Act of 1997 (P.L.105-57) • The Refuge Recreation Act of 1962, as amended • Fish and Wildlife Improvement Act of 1978 • Executive Order No. 12996, Management and General Public Use of the NWRS | |
| Biological Resources | |
| <ul style="list-style-type: none"> • Endangered Species Act of 1973 (16 USC 1531 et seq.), as amended (ESA) • Fish and Wildlife Act of 1956 (16 USC 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 (10, Jan. 2001) • Migratory Bird Treaty Act of 1918, as amended (MBTA) • The Bald and Golden Eagle Protection Act of 1940 (16 USC 668 et seq.) • Fish and Wildlife Coordination Act of 1958 | |
| Water Quality | |
| <ul style="list-style-type: none"> • Clean Water Act of 1972, Section 404 (33 USC 1344 et seq.), as amended • Clean Water Act, Section 401 | |
| Air Quality | |
| <ul style="list-style-type: none"> • Clean Air Act of 1970, as amended (P.L. 91-604; 42 USC 1857 et seq.) | |

| Table 1-1 Federal Laws and Executive Orders Applicable to the Management of the Sonny Bono Salton Sea NWRC | |
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| Resource Protection | |
| <ul style="list-style-type: none"> • National Environmental Policy Act of 1969 (42 USC 4321 et seq.) (NEPA) • Executive Order 13112, Invasive Species • Federal Noxious Weed Act of 1990 • Executive Order No. 11990, Protection of Wetlands • Emergency Wetlands Resources Act of 1986 • Executive Order No. 11988, Floodplain Management • Farmland Protection Policy Act (7 USC 4201 et seq.) | |
| Cultural Resources | |
| <ul style="list-style-type: none"> • Antiquities Act of 1906 • Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.)(NAGPRA) • Executive Order 13007, Indian Sacred Sites (24 May, 1996) • American Indian Religious Freedom Act 1978 (42 USC 1996) • Executive Order No. 11593, Protection and Enhancement of the Cultural Environment • Archaeological Resources Protection Act of 1979 (16 USC 470aa-47011), as amended (ARPA) • National Historic Preservation Act of 1966 (16 USC 470 et seq.; 36 CFR 800), as amended (NHPA) • Archaeological and Historic Preservation Act of 1974 (16 USC 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) | |
| Human Rights | |
| <ul style="list-style-type: none"> • Executive Order 12898, Environmental Justice • Architectural Barriers Act of 1968, as amended (42 USC 4151 et seq.) | |
| Contaminants and Hazardous Materials | |
| <ul style="list-style-type: none"> • Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (P.L. 96-510; 42 USC 9601, et seq.) (CERCLA) • Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (P.L. 80-104; 7 USC 136 et seq.) | |

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 NWRS is derived from 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 (P.L.105-57). The Improvement Act intends that each refuge be managed to fulfill the mission of the Refuge System, as well as the specific purposes for which that refuge was established. As stated in the Refuge Administration Act, as amended by Improvement

Act, “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 Refuge Administration Act, as amended, clearly establishes wildlife conservation as the core NWRS mission. House Report 105-106, accompanying the Improvement Act, states that “the fundamental mission of our Refuge System is wildlife conservation: wildlife and wildlife conservation must come first.” In contrast to other systems of public lands, the NWRS is a primary-use network of lands and waters. First and foremost, refuges are managed for fish and wildlife, plants, and their habitats.

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, which can be found in the land use management series (600) of the U.S. Fish and Wildlife Service Manual (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). |
| 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 NWRS. |
| Appropriate Use Policy (603 FW 1) | Describes the initial decision process the Refuge Manager follows when considering whether 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 are included with the compatibility determinations in Appendix E of this CCP. |

| Table 1-2 Key Service Policies Related to the Management of National Wildlife Refuges | |
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| Policy | Purpose |
| Compatibility Policy (603 FW 2) | Details the formal process for determining if a use proposed on a refuge 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 (CD). Appendix E contains the CDs for the uses on Sonny Bono Salton Sea NWR and the Coachella Valley NWR. The draft CDs were made available for public comment along with the draft CCP. |
| 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 inventories for Refuge System lands to determine if these lands 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 purpose(s). The wilderness inventory for the Sonny Bono Salton Sea NWRC is provided in Appendix M. |

1.4.2 National Environmental Policy Act (NEPA) of 1969

As the basic national charter for the protection of the environment, NEPA 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 EA or Environmental Impact Statement (EIS) document that an agency has addressed these issues.

The CCP process must comply with the provisions of NEPA through the concurrent preparation of an EA or EIS. The NEPA document can accompany the draft CCP or be integrated into the draft CCP. The Sonny Bono Salton Sea NWRC CCP was 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 was integrated into the CCP process at the earliest possible time, an EA was integrated directly into the draft CCP. The EA and FONSI prepared for this CCP are provided as Appendix F.

1.5 Sonny Bono Salton Sea National Wildlife Refuge Complex

1.5.1 Location

The Sonny Bono Salton Sea NWRC, which includes the Sonny Bono Salton Sea NWR and the Coachella Valley NWR, is located in the southern end of the State of California within the low-lying Colorado Desert subregion of the Sonoran Desert bioregion. Separated by a distance of about 75 miles, these Refuges are situated within the Salton Basin (refer to Figure 1-1), also known as the Salton Trough, which extends for approximately 200 miles from San Geronio Pass in the north through the Coachella, Imperial, and Mexicali valleys to the Gulf of California.

1.5.1.1 Sonny Bono Salton Sea NWR

The Sonny Bono Salton Sea NWR is located within and adjacent to the southern and southeastern portions of the Salton Sea in the northern portion of the Imperial Valley, Imperial County, California. The Refuge consists of approximately 37,900 acres; however, most of this area is currently located below the surface of the Salton Sea. The lands managed within the Refuge occur in three general locations as described below and illustrated in Figure 1-4.

- 1) Approximately 32,405 acres are located in the southern portion of the Salton Sea, including 23,425 acres of Federal land controlled by the Bureau of Reclamation and administered by the Service and 8,980 acres owned in fee title by the United States and under the jurisdiction of and managed by the Service. When the Refuge was established in 1930, this area consisted of both wetland and upland habitat; however, these lands were subsequently flooded by the Salton Sea.

- 2) Approximately 3,782 acres are included in Unit 1, located along the southern edge of the Salton Sea. Within this area, about 3,226 acres are located just to the south of Bruchard Bay and include a combination of open water, managed wetlands, and upland areas, some of which are actively



Unit 1 provides foraging and loafing areas for thousands of wintering geese (Mark Stewart/USFWS)

- farmed to create foraging areas for snow geese [*Chen caerulescens caerulescens*], Ross' geese [*Chen rossii*], and other waterfowl. To the northeast are an additional 556 acres, most of which were until recently submerged beneath the Salton Sea. Of the lands included within Unit 1, about 560 acres are owned in fee title by the United States and under the jurisdiction and management of the Service, about 2,980 acres are leased from the Imperial Irrigation District (IID), and approximately 240 acres are owned by the State of California (Caltrans) and managed by the Service through an agreement with the State.
- 3) Approximately 2,026 acres, which include the Refuge headquarters and a variety of managed uplands and wetlands, are located along the southeastern edge of the Salton Sea near the terminus of the Alamo River (Unit 2). Of the 2,026 acres of Refuge lands within Unit 2, approximately 164 acres (including the 3.44-acre refuge headquarters site) are federally owned and under the jurisdiction and management of the Service, about 1,247 acres are leased from IID, and 615 acres are leased from the California Department of Fish and Wildlife (CDFW).

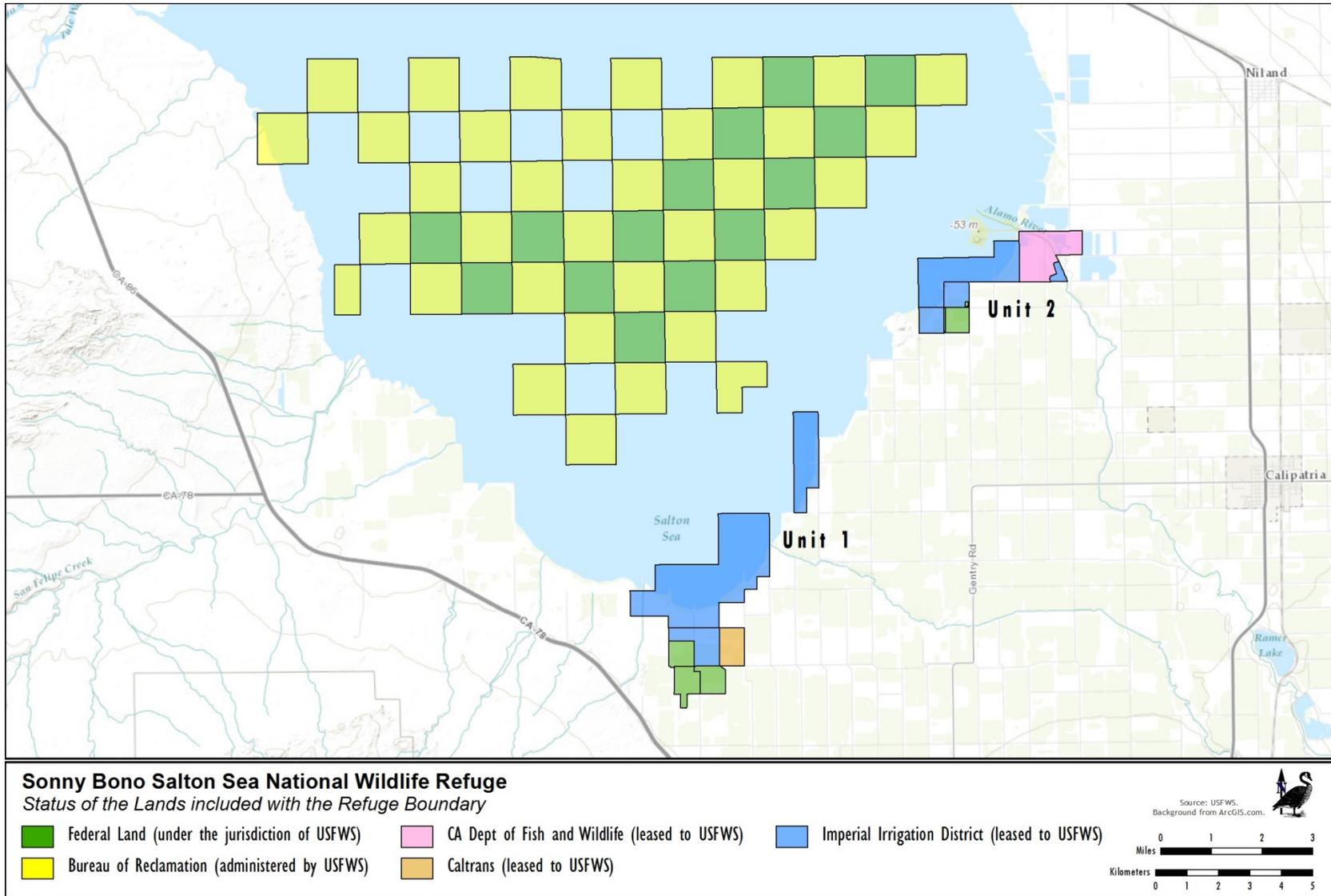


Figure 1-4. Land Status Map – Sonny Bono Salton Sea NWR

1.5.1.2 Coachella Valley NWR

The 3,577-acre Coachella Valley NWR is located in the Coachella Valley in eastern Riverside County to the north of Interstate 10 (I-10) near the communities of Bermuda Dunes and Thousand Palms. The Refuge is bounded on the south by Avenue 38, on north by Ramon Road, and on the east by Washington Street (refer to Figure 1-3). All of the lands included within the Refuge are federally owned and under the jurisdiction of and managed by the Service.

1.5.2 Refuge Setting

1.5.2.1 Sonny Bono Salton Sea NWR

The Sonny Bono Salton Sea NWR is located in the rain shadow of the Peninsular Ranges; consequently, the climate is generally very hot and dry. Much of the Salton Trough, where the Refuge is situated, is below sea level. These low-lying lands historically provided an area for Colorado River floodwaters to flow, resulting in the periodic formation of an extensive freshwater lake known as Lake Cahuilla. Today, the Salton Sea, a saline lake that receives most of its water from agricultural drainage occupies only a portion of the Salton Trough.

The Imperial Valley is geographically located at the confluence of numerous bird migration pathways as birds fly north and south along the California coast, the Peninsular Mountain Range, California's Central Valley, or the Colorado River corridor through the Imperial Valley and into mainland Mexico. It is in this setting that birds migrate through or winter at the Sonny Bono Salton Sea NWR foraging or loafing in the highly productive wetland and cropland areas of the Refuge. The Refuge also serves as a summer nesting area for several species of seabirds and shorebirds, and provides habitat to support the Federal endangered Yuma Ridgway's rail (*Rallus obsoletus yumanensis*), formally referred to as the Yuma clapper rail.

1.5.2.2 Coachella Valley NWR

The Coachella Valley NWR is located in the eastern portion of Riverside County (refer to Figure 1-1) within the Coachella Valley, a broad, low elevation, northwest-southeast trending valley comprising the westernmost limits of the Sonoran Desert (CVAG 2007b). At the western edge of the valley, the San Jacinto and San Gorgonio Mountains nearly meet forming the San Gorgonio Pass, which funnels nearly continuous winds from the cooler coastal basins inland. Desert washes draining out of the Little San Bernardino Mountains to the north of the Valley provide alluvial sand that is picked up by wind blowing through the pass and deposited within the Coachella Valley. Over the years, large areas of the Valley's natural desert habitats have been converted to agriculture fields or community developments, leaving limited areas undeveloped to support desert blow-sand habitats such as those protected within the Coachella Valley NWR.

1.5.3 Ecosystem Context

To the extent possible, the management actions proposed in CCPs should assist in achieving the conservation goals established in existing national and regional plans, California's Wildlife Action Plan, and landscape-scale plans covering the same watershed or ecosystem in which the Refuge resides (602 FW 3.3). CCPs should also consider the larger landscape-level planning that is occurring in various regions of the country through Landscape Conservation Cooperatives (LCCs). The Refuges of the Sonny Bono Salton Sea NWRC are included within the Desert LCC, which encompasses portions of five states: California, Nevada, Arizona, New Mexico, and Texas, as well as a substantial portion of Northern Mexico. The area is topographically complex, including three different deserts (i.e., Mojave, Sonoran, Chihuahuan), grasslands and valley bottoms, and isolated mountain ranges. The richness of the topography supports a diverse species composition; including many endemic species.

The LCCs provide a forum for information sharing that will help scientists and resource managers deal with uncertainties on the landscape and provide tools to compare and contrast the implications of management alternatives. LCC partners 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.

Other regional planning efforts that have the potential to influence the management practices within the Refuge Complex are summarized below.

Sonoran Joint Venture Bi-national Bird Conservation

The Sonoran Joint Venture is a partnership of diverse organizations and individuals from the southwestern United States and northwestern Mexico that share a common commitment to bird conservation within the region. The Strategic Plan for the Sonoran Joint Venture presents a regional strategy to protect, conserve, restore, and enhance bird populations and their habitats. The strategic plan and the Joint Venture's actions in general are intended to address and integrate the conservation recommendations of the North American Waterfowl Management Plan, Partners in Flight North American Landbird Conservation Plan (Rich et al. 2004), North American Waterbird Conservation Plan (Kushlan et al. 2002), and other bird conservation plans for the areas included within this joint venture. Bird conservation plans are discussed further in Chapter 4.

Sonny Bono Salton Sea NWR and Coachella Valley NWR are located within the Arid Borderlands Region of the Sonoran Joint Venture Bird Conservation Plan. This plan identifies 81 areas within this Region as focus areas (Sonoran Joint Venture 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 Salton Sea is identified as one of these focus areas.

California Wildlife Action Plan

The Refuge Complex is included within California's Colorado Desert Region as designated by the California Wildlife Action Plan (California Department of Fish and Game [CDFG] 2007). The Plan's conservation actions that apply to the management of the Sonny Bono Salton Sea NWR include maintaining and restoring the Salton Sea ecosystem in a form that provides vitally important aquatic habitats. Conservation actions relevant to the Coachella Valley NWR include eradicating or controlling invasive species and implementing actions such as monitoring recreational uses, trespass, and other activities that could impact the habitats and species protected on the Refuge.

Habitat Conservation Plans/Natural Community Conservation Plans

Habitat Conservation Plans (HCPs) are Federal planning documents required as part of an application for an incidental take permit under the Endangered Species Act of 1973 (ESA). They describe the anticipated effects of the proposed taking; how those impacts will be minimized, or mitigated; and how the HCP is to be funded. The preparation of HCPs, which are authorized under section 10(a)(1)(B) of the ESA, provide for partnerships with non-Federal parties to conserve the ecosystems upon which listed species depend, ultimately contributing to their recovery.

Natural Community Conservation Plans (NCCP) are planning documents prepared to provide for effective protection and conservation of the State of California's wildlife resource while continuing to allow appropriate development, growth, and other activities. The purposes of NCCPs, as described in the Fish and Game Code section 2801, are to provide for the conservation of biological diversity by protecting biological communities.

To address a range of species for which future development proposals could result in incidental take, the Service and the State often work together to develop multiple species habitat conservation plans that can adequately address the requirements of both the ESA and the State's requirements for protecting the natural biological communities of California.

The Coachella Valley NWR, which was included within the Coachella Valley Fringe-toed Lizard Preserve in 1986, was incorporated into the Thousand Palms Conservation Area of the Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) in 2007 (CVAG 2007a). In addition to providing core habitat for the Coachella Valley fringe-toed lizard, the Refuge also provides core habitat for Coachella Valley milk-vetch, Coachella Valley giant sand-treader cricket (*Macrobaenetes valgum*), flat-tailed horned lizard (*Phrynosoma mcallii*), Coachella Valley round-tailed ground squirrel (*Xerospermophilus tereticaudus chlorus*), and Palm Springs pocket mouse (*Perognathus longimembris bangsi*). The Coachella Valley MSHCP, which emerged out of the habitat conservation planning process implemented in the 1980s to ensure the long-term protection of the Coachella Valley fringe-toed lizard, provides a regional vision for balanced growth to meet the requirements of Federal and State listed endangered species laws, while promoting enhanced opportunities for recreation, tourism, and job growth.

With the approval of the Coachella Valley MSHCP in 2007, the MSHCP Reserve System was established. This Reserve System includes 21 Conservation Areas, including the Thousand Palms Conservation Area, that collectively are intended to conserve 27 species and 27 natural communities (CVAG 2007c). Management and monitoring activities implemented by the Service on the Coachella Valley NWR that relate to the conservation of listed and covered species and their habitats are expected to be consistent with the management and monitoring objectives and protocols developed as part of the Coachella Valley MSHCP.

In the Imperial Valley, the IID is currently in the process of preparing a HCP and NCCP in consultation with the Service and CDFW (formerly CDFG). The IID's HCP/NCCP permit is anticipated to cover a number of listed and non-listed fish, wildlife, and plant species. Because the Refuge leases land from the IID for management as part of the NWR, it is possible that the objectives of the HCP/NCCP developed for IID Covered Activities could apply to some IID lands currently managed by the Service.

1.5.4 Refuge Purposes

1.5.4.1 Sonny Bono Salton Sea NWR

The Refuge was established in 1930 under the Executive Order 5498 as "a refuge and breeding ground for birds and wild animals." Additional lands were acquired for management as part of the Refuge either through fee title, lease, or other agreement for various purposes, including: "for use as an inviolate sanctuary, or for any other management purpose for migratory birds" (Migratory Bird Conservation Act of 1929 [16 U.S.C. 715 to 715s]); "for the management and control of migratory waterfowl and other wildlife" (Lea Act of 1948 [16 U.S.C. 695-695c; 62 Stat. 238]); and "primarily for the production of crops to provide wintering feed for waterfowl and to aid and assist in the control of depredation by waterfowl to commercial crops in the area" (Fish and Wildlife Act of 1956, as amended [16 U.S.C. 742a-742j, not including 742 d-l; 70 Stat. 1119]).



Snow geese in managed agricultural fields (USFWS)

1.5.4.2 Coachella Valley NWR

The Coachella Valley NWR was established in 1985 “to conserve (A) fish and wildlife which are listed as endangered species or threatened species . . . or (B) plants...” (Endangered Species Act of 1973 [16 U.S.C. §1531 et seq.]).

1.5.5 Refuge Vision Statement and Goals

1.5.5.1 Sonny Bono Salton Sea NWR

Presented here is our vision for the future of the Sonny Bono Salton Sea NWR:

Often described as one of the most important bird areas in the North America, the Salton Sea has been a vital stopover and wintering spot for migratory birds for about a century. Located within the southern end of the Sea, the Sonny Bono Salton Sea NWR continues to play an important role in the monitoring and management of the abundance of birds that annually visit the Sea and adjacent habitats. The predicted changes to the Salton Sea including decreasing water elevations and increasing salinity levels will necessarily influence how management on the Refuge proceeds into the future. In partnership with other agencies and organizations, the Refuge will manage existing and new habitat areas to compensate for the losses in foraging opportunities within the Sea.

Managed fields of lush, green forage will continue to entice wintering snow and Ross’s geese to congregate on Refuge lands rather than adjacent commercial agricultural fields, with the Refuge’s wintering population of sandhill cranes also taking advantage of these resources. Managed open water and shallow seasonal wetlands within and adjacent to the historical footprint of the Sea will provide a range of foraging and loafing habitats for a diverse array of migratory seabirds, shorebirds, waterfowl, and other waterbirds. The continued management of cattail marshes will aid in the recovery of the endangered Yuma Ridgway’s rail, while also providing essential habitat for other secretive marshbirds of concern. Tree rows, restored riparian corridors, and native upland areas will provide breeding and foraging habitat for resident birds and wildlife, as well as migratory songbirds.

Public involvement in and appreciation for ongoing efforts to provide essential habitats for migratory birds, as well as the Refuge’s resident birds and wildlife, will be fostered through continued opportunities for wildlife-oriented recreation, environmental education, and interpretation.

The goals for the Sonny Bono Salton Sea NWR include:

- Goal 1: Protect, manage, enhance, and restore foraging, loafing, and nesting habitats on the Refuge to support migratory birds.
- Goal 2: Protect, manage, and, where appropriate, enhance or restore habitat to support the recovery of federally and State listed threatened and endangered species and other species of concern known to occur on the Refuge.
- Goal 3: Manage and protect remnant native desert scrub habitat, tree rows, and riparian areas on the Refuge to support resident bird and other wildlife species, as well as nesting habitat for Neotropical bird species.

- Goal 4: Work in partnership with other Federal, State, and local agencies and tribes to restore, enhance, and adaptively manage habitat functions that support fish and bird life, as well as to protect other resources of region-wide significance, in and around the Salton Sea.
- Goal 5: Enhance the public's awareness, appreciation, and enjoyment of the Refuge's biological resources by providing opportunities for compatible wildlife-dependent recreational uses.

1.5.5.2 Coachella Valley NWR

Presented here is our vision for the future of the Coachella Valley NWR:

Through the combined forces of rain and wind, sand is created and carried from the little San Bernardino Mountains, through the Indio Hills, and onto the wide alluvial fan that includes the lands within the Coachella Valley NWR. Deposited sand forms active sand dunes and sand fields that are continually being reshaped as natural sand transport processes moves the sand downwind, replacing the lost sand with new sand blowing down from the Indio Hills. As nearly half of the sand dune and sand field habitat (about 200 acres) remaining within the Thousand Palms Conservation Area is conserved within the Coachella Valley NWR, we will strive to protect this habitat, work in partnership with others to protect the natural sand transport processes, and if necessary, actively manage this habitat to mimic the natural processes essential to the long-term persistence of these aeolian sand communities.



Coachella Valley milk-vetch (USFWS)

Management and enhancement of the Refuge's native habitat areas will aid in the recovery of the federally endangered Coachella Valley milk-vetch and threatened Coachella Valley fringe-toed lizard and benefit core habitat areas for the Coachella Valley giant sand-treader cricket, flat-tailed horned lizard, Coachella Valley round-tailed ground squirrel, and Palm Springs pocket mouse. The Coachella Valley NWR, as a partner in a larger effort to conserve the native habitats and listed and sensitive species within the Coachella Valley, will continue to actively participate in the management and monitoring efforts outlined in the Coachella Valley Multiple Species Habitat Conservation Plan and will encourage research on the Refuge that supports Refuge purposes and the goals of the larger conservation planning effort. Support for the protection of the Refuge's unique resources will be achieved through environmental education and a public outreach program that includes permanent off-site and traveling interpretive displays.

The goals for the Coachella Valley NWR include:

- Goal 1: Protect, restore, and enhance Refuge lands to contribute to the recovery of the federally threatened Coachella Valley fringe-toed lizard and endangered Coachella Valley milk-vetch, as well as to conserve other species of concern supported on the Refuge.

- Goal 2: Through participation in a coordinated management effort involving all of the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) partners, sustain the ecological and evolutionary processes necessary to maintain the viability of the natural communities and habitats that support the species identified in the CVMSHCP and manage these communities and habitats adaptively to be responsive to short- and long-term environmental change.
- Goal 3: Enhance the public's awareness, appreciation, and support for the Refuge's listed and sensitive species, as well as the ecological functions and geological processes that sustain these species, through compatible opportunities for environmental interpretation.

1.5.6 History of Refuge Establishment

1.5.6.1 Sonny Bono Salton Sea NWR

Events Leading Up to Refuge Establishment. The geographical area occupied by the current Salton Sea has for most of the last several millennia been a naturally occurring wetland receiving floodwaters from the nearby Colorado River. That was the situation that was repeating itself in the spring of 1905 when Colorado River floodwaters burst through a diversion structure built to bring irrigation water to the Imperial Valley for agricultural development. For most of 18 months, the Colorado River flowed into the Salton Sink. Birds were attracted to the re-flooded wetland, taking advantage of this inland water source, just as they had done in the past, as documented by analysis of bird bones from Native American midden sites in the area. The original massive re-flooding of the Salton Sink gradually abated, but with agriculture expanding in the Imperial Valley and a steady flow of Colorado River irrigation water to supply that need, the Salton Sea would remain a flooded inland sea by virtue of the continuous supply of drainage water flowing from the growing agricultural enterprises within the Valley.

The birds observed at the Salton Sea in 1908 seemed to forecast the unusual and unlikely diversity of birdlife for which the Salton Sea would later become well known. Bird species present at that time included pelagic cormorants (*Phalacrocorax pelagicus*), Brandt's cormorants (*P. penicillatus*), double-crested cormorants (*P. auritus*), pigeon guillemots (*Cephus columba*), tufted puffins (*Fratercula cirrhata*), black oystercatchers (*Haematopus bachmani*), and more commonly phalaropes (*Phalaropus* spp.), long-billed curlews (*Numenius americanus*), great blue herons (*Ardea herodias*) and various species of sandpipers. Many gulls found and used the Sea at this early stage of its new incarnation, but what impressed ornithologist Joseph Grinnell most were the more than 2,000 American white pelicans (*Pelecanus erythrorhynchos*) he discovered nesting on the Salton Sea's Echo Island (Bent 1922).



The Salton Sea is recognized as a Globally Important Bird Area (USFWS)

Secretarial orders dated April 2, 1909, October 19, 1920, and June 4, 1930, issued under the authority of the Reclamation Act of 1902, Section 3, withdrew approximately 80,000 acres of public lands in and around the present day Salton Sea for Reclamation project purposes. The lands withdrawn under the October 19, 1920 Secretarial order included 19,131 acres of land that are now within the boundaries of the Sonny Bono Salton Sea NWR. The purpose of the withdrawn land was to serve as a repository to receive and store agricultural surface and subsurface drainage waters.

The use of the Sea as a repository for agricultural drainage water was also addressed in an Executive order issued by President Coolidge on March 10, 1924, at which time additional lands, those below elevation 244 feet below MSL, were withdrawn and placed in a public water reserve (Public Water Reserve No. 90). In February 1928, President Coolidge issued a subsequent Executive order that withdrew additional lands below elevation 220 feet below MSL as storage for wastes and seepage from irrigated lands in the Imperial Valley (Public Water Reserve No. 114). Both Executive orders for Public Water Reserves Nos. 90 and 114 were revoked in their entirety by Public Land Order 6105, effective March 5, 1982. Of the lands subject to these Executive orders, the public lands (13,740 acres), which were withdrawn under the previously described Secretarial Order, were opened to mineral entry.

Refuge Establishment. As the water level within the Salton Sea increased, so too did the diversity and abundance of bird life in and around the Sea. The importance of this area to birds and wildlife was recognized by the Federal government in 1930, when President Hoover on November 25, 1930 issued Executive order 5498 establishing the “Salton Sea Wild Life Refuge.” Per the Executive order, the 32,766-acre Salton Sea Wild Life Refuge was set aside as a sanctuary and breeding ground for birds and other wildlife. At the time of establishment, nearly 60 percent of the Refuge consisted of open saline lake. The remaining areas included shoreline alkali flats, freshwater marshes, native desert scrub, and farm fields. Although the area was set aside for refuge purposes, the underlying withdrawal of October 19, 1920 remained in place and today, many of these original refuge lands are administered by the Service and held by the Bureau of Reclamation for the Yuma Irrigation Project.

In 1940, management of Federal wildlife refuges was shifted from the Department of Agriculture to the Department of the Interior, and on July 30, 1940, President Franklin D. Roosevelt changed the name of the refuge to the Salton Sea National Wildlife Refuge. The refuge name was changed again in 1998 in memory of Congressman Sonny Bono, who was very active in the efforts to restore the health of the Salton Sea.

The lands and waters managed as part of the Sonny Bono Salton Sea NWR have been acquired at various times under one or more of the following authorities: Executive Order, the Migratory Bird Conservation Act (16 U.S.C. 715-715d, 715e, 715f-715r) of 1929, the Lea Act of 1948 (16 U.S.C. 695-695c), and the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j, not including 742 d-l).

Land Tenure. Between 1930 and 1947, approximately 32,400 acres located in the southern portion of what is now the Salton Sea were managed to protect ducks, geese, and shorebirds. As agricultural development expanded in both the Imperial and Coachella valleys, the inflow of drainage water to the Sea increased, resulting in a significant rise in the water level within the Salton Sea. Today, much of the original land set aside for the Refuge is submerged below the Salton Sea.

In the mid-1940s, the Imperial Irrigation District (IID) made 24,000 acres of land located between what was then the south end of the Salton Sea and private farmlands to the south available for leasing (USFWS 1963). Under the lease agreement, the lands could be reclaimed and improved for Refuge management purposes. The first of the IID lands to be leased were located in the area of the Refuge referred to today as Unit 1 (refer to Figure 1-4). These lands were acquired under the authorities of the Migratory Bird Conservation Act. The lease, which was approved in 1945, involved lands that had either never been farmed or had not been farmed since 1924. As a result, major work (e.g., land leveling, ditch and canal construction) was required to prepare these lands for cultivation.

The Refuge lands located within the area referred to today as Unit 2 (refer to Figure 1-4) were acquired for management in 1949 via a lease with IID. These lands were already in agricultural production when they were leased to the Refuge (USFWS 1963). Once acquired by the Refuge, cereal grains were initially cultivated to support geese foraging during the winter. In 1956, the Service acquired 637 acres of upland, including the site of the current Refuge headquarters, from the IID under the authorities of the Lea Act.

In 1964, the Service reached an agreement with CDFG (now CDFW) that allowed the Refuge to manage the habitat within the Hazard Tract (located in the eastern portion of Unit 2) as a waterfowl foraging area. This agreement enabled the Refuge to better achieve its purpose of reducing depredation on commercial cropland. A Refuge office was maintained on Unit 1 until 1964, when the office was moved to higher ground on Unit 2 to avoid the encroaching Salton Sea.

Throughout the 1960s and 1970s, the Service pursued a variety of options for purchasing lands suitable for farming, including various parcels owned by IID and a portion of the Salton Sea Test Base, which was declared surplus government property in 1962. For various reasons, these acquisition efforts either did not work out or were ultimately deemed inappropriate for Refuge use.

Despite a number of unsuccessful attempts to acquire additional farmland, a few parcels have been acquired by the Service to the south of the Salton Sea. These parcels were acquired in the 1970s and 1980s. Approximately 160 acres (referred to as the Union Tract), located in the southeast corner of Unit 2, were acquired in 1972. In 1973, 178 acres in the southeast corner of Unit 1 were acquired, while 160 acres were acquired in 1982 and 193 acres were acquired in 1985 at the southwestern corner of Unit 1. All of these acquisitions expanded the total acreage available to the Refuge for producing green forage for wintering geese and other waterfowl.

As of 2012, the Sonny Bono Salton Sea NWR included about 1,785 acres of manageable habitat; the balance of the Refuge remains inundated by the waters of the Salton Sea. As the Sea continues to recede, additional areas of Refuge land will become exposed.

1.5.6.2 Coachella Valley NWR

Events Leading Up to Refuge Establishment. Before the Coachella Valley was developed for urban uses, there was an estimated 200 square miles of loose, wind-blown sand that provided abundant habitat for species like the Coachella Valley fringe-toed lizard and Coachella Valley milk-vetch (England 1983). The source of this sand is the San Jacinto, San Bernardino, and Little San Bernardino Mountains, as well as the Indio Hills. During torrential rain events, the sandy soils present within these mountainous areas are carried in floodwaters down the Whitewater River and its tributaries to the San Gorgonio Pass, as well as through Thousand Palms Canyon in the Indio Hills to the base of the valley (England 1983). Once deposited, the sand is available to be carried further into the Coachella Valley by strong winds that blow in a southeasterly direction. As the winds dissipate, the sand is deposited within the valley, only to be moved again when winds from the west blow existing sand further to the southeast as new sand is moved into valley. These sand deposits support species endemic to this unique and ever-changing environment.

In the early 1900s, the valley had less than 1,000 permanent residents. With the availability of abundant groundwater, which was later supplemented by delivered Colorado River water, agriculture quickly became a dominant industry in the valley, spurring growth and community development. With mild winter temperatures and beautiful scenery, the area became a popular winter tourist spot, as well as a popular place to build winter homes. As a result, over the years community development and agricultural uses have replaced significant areas of the wind-blown sand habitat.

By 1979, approximately half of this habitat (100 square miles) had been converted to agriculture uses or community development (England 1983). In 2007, this area supported a population of over 418,000 (CVAG 2007b) with significant potential for additional growth.

Refuge Establishment. The loss of large areas of sand dunes and sand fields in the Coachella Valley changed the physical appearance of the landscape, but more significantly changes to the landscape were eliminating habitat essential to the survival of the area's endemic blowsand dependent species. As a result, one of these endemic species, the Coachella Valley fringe-toed lizard, was listed as endangered by the State of California in June 1980, and federally listed as a threatened species in September 1980. At the time of listing, the vast majority of the Coachella Valley was privately owned, making it difficult to protect and manage the blowsand habitat in which the lizard occurred, as well as the sand source areas needed to ensure the long-term persistence of blowsand habitat in the southeastern portion of the valley.



Coachella Valley fringe-toed lizard (Ginny Short)

To prevent the extinction of the Coachella Valley fringe-toed lizard, several public agencies, nonprofit organizations, and groups of concerned citizens (e.g., BLM, USFWS, CDFW, Coachella Valley Ecological Reserve Foundation, The Nature Conservancy), initiated efforts to acquire lands within the Coachella Valley that would protect habitat occupied by the fringe-toed lizard, as well as protect those lands on which the source of the sand for the downwind occupied sand dunes and sand fields were located. Protection focused on three areas including a portion of the Whitewater River floodplain, Edom Hill/Willow Hole (located at the western toe of the Indio Hills), and the Thousand Palms area of the Coachella Valley. By 1982, CDFW had acquired approximately 230 acres of Coachella Valley fringe-toed lizard habitat from willing sellers within the Thousand Palms area of the Coachella Valley and additional acquisitions were proposed for future years.

Efforts to protect sensitive blowsand habitat to support the Coachella Valley fringe-toed lizard continued and in 1985, the Coachella Valley Fringe-toed Lizard Habitat Conservation Plan was completed and subsequently approved by the Service in 1986 (BLM 1986). This was the first HCP developed under the authority of the 1982 amendment to the ESA.

Of the three areas proposed as preserves for the Coachella Valley fringe-toed lizard and its associated blowsand habitat, the Thousand Palms area of the Coachella Valley was the largest, most complicated to establish, and most critical to the continued survival of the lizard (USFWS 1985). As a result, efforts to protect the lizard and its blowsand habitat included appeals by concerned citizens and non-governmental organizations for the Service's involvement in the development of the Preserve. Through these efforts, an appropriation was provided to the Service in the FY 1985 budget to establish a Refuge within the Coachella Valley for the protection of the Coachella Valley fringe-toed lizard. The Service completed a Land Protection Plan (LPP) that addressed the establishment of the Coachella Valley NWR in 1986.

The LPP proposed to acquire approximately 2,000 acres of privately owned lands from willing sellers in the Coachella Valley. The lands to be acquired were to be located within designated Critical Habitat for the Coachella Valley fringe-toed lizard; consist of blowsand habitat known to support the lizard, as well as other plant and animal species characteristic of the Coachella Valley ecosystem; and located within and contribute toward the establishment of the Coachella Valley Preserve. In March 1986, the LPP was amended to permit the acquisition of an additional 1,000 acres of land from The Nature Conservancy for inclusion in the Refuge.

The Coachella Valley NWR was officially established under the authorities of the Endangered Species Act on August 28, 1985 when approximately 1,384 acres were acquired from The Nature Conservancy using Land and Water Conservation Funds. Additional acquisitions involving The Nature Conservancy, State of California, and several private willing sellers occurred between 1986 and 1997. As of September 2012, the total acreage of the Refuge was 3,577.61 acres.