

2. The Planning Process

2.1 Preparing a Comprehensive Conservation Plan

The purpose of the CCP for the San Diego NWR (Otay-Sweetwater Unit and Del Mar Mesa Vernal Pool Unit) is to guide the management of the Refuge over the next 15 years. The CCP was developed in association with the preparation of an accompanying EA to meet the dual compliance requirements of the Improvement Act and NEPA. Preparation of the CCP was guided by the Improvement Act, as well as the Service's Refuge Planning Policy, as outlined in Part 602, FW 1, 3, and 4 of the Service Manual. Service policy, the Improvement Act, and NEPA each provide specific guidance for how the CCP process and/or the associated environmental analysis of alternatives should be conducted. For example, the Service is required to actively seek public involvement in the preparation of CCPs and associated environmental documents, such as EAs. In addition, the associated environmental document must provide equal and full analysis of a "reasonable" range of alternatives, or different approaches to refuge management, that can reasonably be implemented to achieve refuge purposes and goals and help fulfill the Refuge System mission. The range of management alternatives must include a "no action" alternative that reflects current conditions and management strategies on the Refuge. The management alternatives analyzed in this document, including the proposed action (Alternative D), are described in detail in Chapter 4.

Key steps in the CCP and parallel NEPA processes include:

- preplanning;
- public scoping and involvement;
- identifying issues, opportunities, and concerns;
- defining and revising vision statement and refuge goals;
- developing and evaluating alternatives;
- identifying the preferred alternative;
- preparing the draft CCP/EA;
- revising draft documents and releasing the Final CCP;
- implementing the CCP; and
- monitoring and adapting management practices as necessary.

Figure 2-1 shows the overall CCP process in a linear cycle, but this process is actually a non-sequential movement among the steps, with many revisions occurring during plan development.

2.2 Preplanning

Preplanning for this CCP began in July 2005 with the establishment of a core planning team. The team consists of the Refuge Manager, Refuge Planner, Refuge Wildlife Biologist, and other members of the San Diego NWR Complex. Appendix B lists the members of the planning team, as well as other participants who provided important insight regarding planning issues and ongoing Refuge management. The State was invited to participate as a core team member, but was not available to participate at this level due to time constraints. However, the State did participate as part of an extended planning team that also included biologists from the Carlsbad Fish and Wildlife Office and the Regional Office (Region 8) of Fish and Wildlife, the Sweetwater Authority biologist, and representatives from the U.S. Geological Survey (USGS).

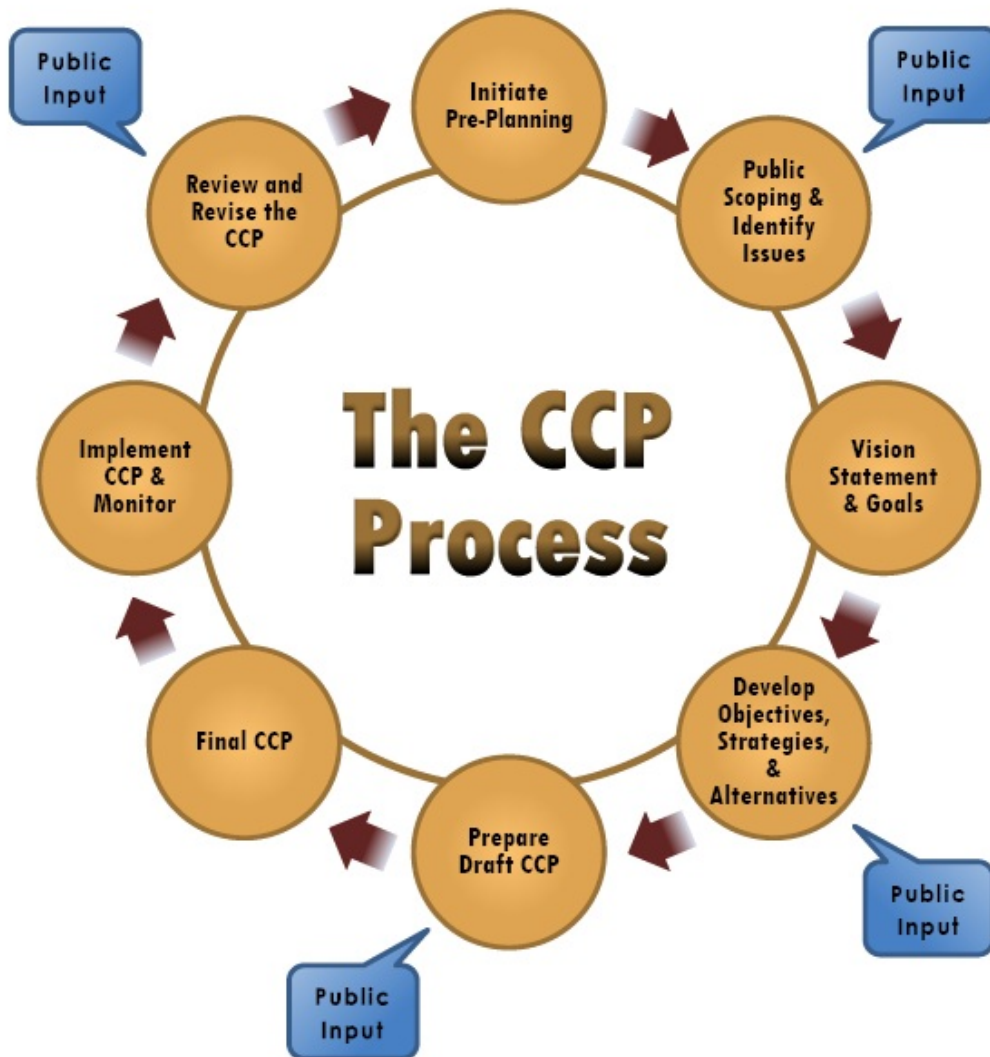


Figure 2-1. Comprehensive Conservation Planning Process

One of the first tasks of the core planning team was to identify preliminary issues, concerns, and opportunities. To do this, the team relied on information derived from wildlife and habitat monitoring and field experience associated with the past management of the Refuge. Through this process, three primary areas of focus were identified: habitat management, endangered species recovery, and wildlife-dependent recreation. These areas of focus were presented to the public during the scoping process to encourage input regarding the future management of the Refuge.

2.3 Public Involvement in Planning

Public involvement is an essential component of the CCP and NEPA process. The public is invited to participate from the initiation of the planning effort through plan implementation. The planning effort for the San Diego NWR CCP began in May 2006 when over 1,000 newsletters (referred to as "Planning Updates") were distributed to local, State, and Federal agencies; special districts; tribes;

interested organizations; adjacent property owners; potential user groups; and other interested members of the public. The Planning Update described the planning process and requested input regarding the future management of the Refuge. The CCP was officially initiated on May 24, 2006, when the Notice of Intent to prepare a CCP for the San Diego NWR was published in the *Federal Register* (71 FR 100 [24 May 2006]).

Two public scoping meetings were held in June 2006 to further develop and ascertain Refuge planning issues. More than 70 individuals, representing the interests of public agencies, private property owners, hunters, trail users, environmental organizations, land conservancies, and others, attended these meetings. Many others contributed written comments either electronically or by mail in response to the *Federal Register* notice, the appeal for input provided in the Planning Update, and the press release that was issued regarding the planning effort and the scoping meetings. More than 150 different issues ranging from law enforcement and fire management to public use and habitat protection were addressed in these comment letters. Once all of these issues were compiled, a second Planning Update was distributed in December 2006 to provide the public with the results of the initial scoping process.

Many of the comments received during the scoping process focused on public use, particularly trail use and hunting. Due to the considerable public interest related to these topics, a Public Use Workshop was held on January 6, 2007, and a follow-up Trail Planning Workshop was held in February 2008.

A third Planning Update was issued in March 2008 to solicit public input related to the draft Refuge goals and preliminary management alternatives that were developed as a result of the initial scoping process. Throughout the planning process, Refuge staff has also attended meetings held by various organizations interested in learning more about the San Diego CCP; coordinated with representatives from the County and City of San Diego, City of Chula Vista, CDFW, Caltrans, Bureau of Land Management (BLM), U.S. Forest Service, various special districts, and interested tribes; and met with various elected officials regarding the CCP.

This draft CCP/EA represents the next step in the public involvement process. The public review process for this document will once again give interested parties the opportunity to provide comments and suggestions for how the Refuge should be managed.

2.4 Overview of Issues and Public Scoping Comments

The planning team identified issues, concerns, and opportunities internally and through discussions with other Federal, State, and local agencies; wildlife and habitat professionals; and other key contacts. In addition, a wide range of issues, concerns, and recommendations were expressed during the public scoping process and at subsequent public workshops. All of this input was compiled by the Service and taken into consideration during the development of management alternatives described in the draft CCP/EA. This input was also used to further refine Refuge goals.

The issues raised and comments received during the scoping process fall into several categories, including wildlife and habitat management, public use, cultural resources, Refuge operations (e.g., law enforcement, fire management, regulatory signage, maintenance), and the approved Refuge boundary and future acquisitions. A summary of the key issues and comments compiled during the public scoping process and subsequent public workshops is provided here and presented in detail in Appendix C.

Wildlife/Habitat Management

- Comprehensively plan for habitat and wildlife conservation, management, and monitoring within the Refuge acquisition boundary, regardless of ownership.
- Incorporate as appropriate the statewide and South Coast Region conservation actions described in the California Wildlife Action Plan.
- Restore and/or enhance native habitats and expand or reintroduce populations of listed and sensitive species that are supported by these habitats.
- Control invasive plant and animal species.
- Monitor water quality and quantity.
- Ensure adequate water availability to support Refuge resources.

Listed and Sensitive Species Conservation

- Restore and enhance habitat for listed species currently or historically present on the Refuge.
- Conduct systematic mapping of the rare plant species present on the Refuge.
- Identify the actions that should be taken to sustain and restore priority species and the habitats that support these species over the next 15 years.

Public Use

- Open the Refuge to a full range of wildlife-dependent recreational uses.
- Designate as multiple use trails those trails that support the county's regional trail system.
- Develop a trail sign plan for all designated trails within the Refuge to ensure adequate wayfinding and to provide information related to trail accessibility, length, permitted uses, and appropriate trail conduct.
- Consider wildlife needs, conflicts with other users, and the proximity of the Refuge to developed areas when evaluating requests to allow hunting and other uses on the Refuge.
- Provide a visitor center to accommodate educational and research activities.

Cultural Resources

- Identify and protect important cultural resources.

Refuge Operations

- Improve conditions on Millar Ranch Road through the Refuge to reduce safety issues for adjacent residents and other road users.
- Clearly post all Refuge boundaries, and identify and secure entry points being used for unauthorized access onto the Refuge.
- Work in cooperation with other agencies to address off-road vehicle trespass, homeless and migrant encampments, illegal dumping, and other law enforcement issues.
- In partnership with private property owners, implement actions that will prevent vehicular access onto Refuge lands through adjacent private parcels.
- Consider including prescribed burns as an appropriate action for facilitating habitat restoration and maintenance and for reducing the presence of hazardous fuels.
- Develop a volunteer program to assist the Refuge in habitat enhancement and restoration projects, trail maintenance, and conducting environmental education programs.
- Encourage research within the Refuge that will benefit Refuge resources and management, including research that focuses on wildland-urban interface issues.

- Ensure that adequate staffing and funding is available to implement the Refuge's obligations for habitat conservation, maintenance, and monitoring under the MSCP.
- Ensure that any new Refuge facilities are designed to be energy efficient.

Approved Refuge Boundary/Future Acquisitions

- Consider amending the acquisition boundary to address changes in development patterns and habitat conditions.
- Acquire and protect wildlife corridors to ensure continued wildlife movement between protected habitat areas.
- Accelerate the acquisition of properties within the approved acquisition boundary to avoid the permanent loss of potential Refuge lands to development.
- Set acquisition priorities to ensure that adequately sized contiguous blocks of native habitat are acquired to support native plants and wildlife, as well as to better support priority public uses such as hunting and wildlife observation.
- Analyze the effect of continued acquisition within the approved Refuge boundary on essential public facilities and planned public roadways within the region.
- Consider the impacts of continued land acquisition on the availability of aggregate mineral resources.

2.5 Management Concerns and Opportunities

In addition to the issues raised during the public scoping process, the planning team, with input from other partners, also identified several challenges, threats, and/or opportunities that will likely affect Refuge management over the next 15 years and beyond. These challenges include a number of factors of global or regional significance (e.g., climate change, the increasing prevalence of invasive plant species in the San Diego region, degraded air quality, uncertainty over the long-term availability of surface water and groundwater within riparian areas, increased wildfire frequency) that cannot be altered simply by the actions taken on an individual Refuge. Instead, individual Refuge responses to these factors will have to be evaluated from time to time to determine if adjustments in current management practices are required to adapt to changing conditions. Additional challenges identified by the planning team include the lack of connectivity among the various Refuge landholdings and the lack of direct access to many of the Refuge lands from dedicated public streets. All of these challenges, which are described in the following text, were considered during the development of the alternatives presented in Chapter 4.

Climate Change

The Intergovernmental Panel on Climate Change (IPCC) defines climate change as “a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer” (IPCC 2007). Based on long-term, independent records of weather data from various sources, scientists have confirmed that the earth is warming, precipitation patterns are changing, sea level is rising, and extreme weather events are increasing. These records indicate that the average temperature in the U.S. has increased by about 1.5°F since 1895 (Menne et al. 2009). This increase however has not been constant over time. Temperatures generally rose until about 1940 and then declined until about 1980 when a rapid increase in temperature was observed with 80 percent of the total increase occurring after 1980. In its Summary for Policymakers (IPCC 2007), the IPCC states “warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.” Such temperature

changes can have different consequences worldwide from sea-level rise to greater meteorological fluctuations.

Increases in minimum, average, and maximum temperatures, changes in total precipitation, and increased storm intensity can have significant effects on species and habitat quality. These changes can influence fire frequency, ground and surface water elevations, invasive plant presence, soil stability, and vegetation and species composition. Recognizing that changing climate will have a variety of effects on the natural resources being conserved on refuges, the Secretary of the Interior (Secretarial Order 3289) has directed the Service to consider the effects of climate change on Refuge management, particularly during the CCP planning process. Anticipated effects may include species range shifts, species extinctions, phenological changes, and increases in primary productivity. The effects of climate change on refuge resources, facilities, and management activities are critical components of all refuge management decisions.

Addressing the effects of climate change requires coordination among a variety of agencies at all levels of government. The Service, in its strategic plan for responding to climate change (USFWS 2010a), has established a basic framework for how we will work as part of the larger conservation community to help ensure the sustainability of fish, wildlife, plants, and habitats in the face of accelerating climate change. The three major strategies in the plan for addressing climate change are:

- 1) **Adaptation:** Minimizing the impact of climate change on fish and wildlife through the application of cutting-edge science in managing species and habitats;
- 2) **Mitigation:** Reducing levels of greenhouse gases in the Earth's atmosphere; and
- 3) **Engagement:** Joining forces with others to seek solutions to the challenges and threats to fish and wildlife conservation posed by climate change.

As part of the Service's strategy, the NWRS initiated a national inventory and monitoring program to compile data that can be used to develop a long-term understanding of the effects of changing climate on fish and wildlife. The data will also be available for assessing the success of conservation actions taken on the ground to address the effects of climate change on fish and wildlife. Additional discussion of climate change is provided in Chapter 3.

Invasive Species

Non-native plant and animal species introduced into areas where conditions are favorable for their establishment have the potential to affect native species in many ways, including predation, competition (in which exotic species outcompete native species when natural predators and/or competitors are not present), changing the physiognomy of the habitat in such a way as to interfere with essential behavior such as foraging, or altering ecological processes (e.g., exotic annual grasses and unnaturally frequent fire exacerbating one another in a positive feedback loop). Under these circumstances, non-native species can cause harm to the environment, the economy, or human health. Non-native species that cause harm are collectively referred to as invasive species (National Invasive Species Council 2008). Invasive species are considered one of the most pervasive threats to habitat management in the NWRS. The Service recently established a pilot program to map selected invasive plant species on several refuges in the NWRS, including the San Diego NWR. Conducting inventories of priority invasive species is an integral component of invasive species management and is critical to improving our understanding of, confronting, and deterring the invasive species threat. Without inventory data, we will not be able to address the full extent of the problem, nor can we fully understand how and at what locations management will be most effective.

The types of invasive plant species occurring on the San Diego NWR range from non-native annual grasses and annual weeds that invade burned areas and other disturbed sites to non-native woody shrubs that displace native willows (*Salix* sp.). Invasive animal species of concern include a wide range of vertebrates, including feral pigs (*Sus scrofa*); invertebrates of several phyla; and aquatic and terrestrial species, such as bullfrogs (*Rana catesbeiana*). More information about the various invasive species that threaten habitat quality on the Refuge is provided in Chapter 3.

Air Quality

Various research studies indicate that there may be a connection between degraded air quality and the persistence of invasive plant species in native habitat areas. Studies on the effects of elevated levels of carbon dioxide (CO₂) indicate that the long-term success of exotic annual grass may be enhanced in the presence of elevated levels of CO₂ (Smith et al. 2000), and nitrogen deposition resulting from emissions of oxides of nitrogen (NO_x) from fossil fuel combustion may enhance the growth of invasive plants in coastal sage scrub vegetation (Allen et al. 1998, Fenn et al. 2003). In addition, research indicates that air pollution, along with other factors, appears to be a predictor of species distribution in coastal sage scrub (Westman 1981). Westman found a decreased presence of white sage (*Salvia apiana*) and wishbone plant (*Mirabilis californica*) in areas subject to high levels of oxidants, while also identifying an increased presence of the invasive, non-native grass *Schismus barbatus* in these same areas. Developing a better understanding of how air quality may be influencing the distribution of species in certain habitats will be important as we attempt to manage the wide range of invasive plants present on the Refuge.

Wildland Fires

The vast majority of the wildlife habitat on San Diego NWR consists of highly flammable vegetation, both native and exotic. Fires occurring in wildlife habitat directly kill animals and plants, and they greatly modify the vegetation community and thus the quality and quantity of habitat for wildlife. Fire has historically been a natural phenomenon in arid shrublands of southern California, and the native plants and animals have evolved life history strategies to enable their populations to persist despite large areas of periodic devastation of habitat. However, the effects of fire in southern California today are more deleterious to wildlife and habitats than they were prior to European colonization of the area for three reasons. The first is that fires occur more frequently today than they did prehistorically (Keeley and Fotheringham 2001). Unnaturally frequent fires do not allow sufficient time for plants to accumulate resources to survive a subsequent fire or for seed banks to repopulate an area after fire. Additionally, the burned habitat may not have time to develop sufficiently between fires to support animals that require relatively mature habitats.

A second reason stems from the fact that non-native annual plants now dominate large areas of the landscape. Such non-native plant communities recover more quickly than native plant communities, outcompeting native perennial plants, suppressing their recruitment and growth, and facilitating the conversion of the vegetation community from coastal sage scrub or chaparral to non-native grassland.

Finally, movement of animals and plants from one area to another is greatly constrained by habitat loss due to development in southern California, such that likelihood of recolonization of burned habitat from non-burned habitat is reduced. San Diego NWR's current and proposed fire management practices, policies, personnel, and facilities are described in Chapter 4.

Human Activity

San Diego NWR is located within San Diego County, which supports a human population of just over three million people. Several million of these people live within easy driving distance of the Refuge, which receives a significant but unquantified amount of visitation (estimated at 22,000 visitors annually) by a variety of recreationists. Some of the Refuge visitors participate in permitted recreational activities such as trail use and organized Refuge events, while others participate in unpermitted activities such as fishing, off-roading, geocaching, paint-ball shooting, and allowing dogs to roam unleashed. The proximity of the Refuge to development also results in other illegal activities such as dumping trash and other waste, releasing unwanted pets, habitation (homeless camps), encroachment of backyard gardens from adjacent residential lots onto the Refuge, vandalism of facilities and habitat, and theft of Refuge equipment. All of these activities are potentially or actually deleterious to wildlife and habitats. San Diego's human population will continue to increase, and it is reasonable to assume that deleterious activities are likely to continue and could potentially increase. Completion of this plan will assist in enabling Refuge staff to manage these activities more effectively and thus reduce their harmful effects.

Refuge Connectivity and Access

As illustrated in Figures 1-2 and 1-3, the San Diego NWR currently consists of a combination of a few large blocks of non-contiguous land, along with several smaller isolated parcels. These disconnected lands that comprise the Refuge are separated by private property and/or lands being conserved by other public or non-profit entities. The management problems associated with the current assemblage of Refuge lands (e.g., reduced defensibility, fragmentation of habitats, increased edge effects, and inadequate habitat linkages between various conserved habitats) are compounded by limited accessibility to these lands from existing public roads. This accessibility issue adversely affects the ability of Refuge staff to efficiently manage and monitor sensitive habitats and species, as well as to provide defined access points for accommodating compatible public use.

The extent of wildland-urban interface within the San Diego NWR, which is due in large part to the number of non-contiguous parcels that constitute the Refuge, provides opportunities for unauthorized access onto the Refuge by adjacent residents and others. This situation exacerbates illegal actions, including dumping, trail cutting, vandalism, fires, homeless camps, and disturbance of wildlife by people and pets.

Opportunities

Despite the issues and threats described here, opportunities exist for protecting the Refuge's habitat quality, listed species populations, and other trust species. These opportunities include:

- 1) the potential to cooperatively manage conserved lands in the vicinity of the Refuge involving, as appropriate, other Federal, State, and local agencies; tribes; land conservancies; and private landowners to reduce overall costs, improve the ability to control illegal access, and share knowledge that will result in more effective management of habitat and species; and
- 2) the potential to partner with other agencies and educational and research institutions to conduct research on specific species, species interactions, methods for optimizing restoration, better control of invasive plants, and other topics that would provide information essential for the management of the highly diverse habitats included within the Refuge.

While climate change and degraded air quality are difficult to address at the Refuge level, adaptive management provides an important tool for adjusting current management practices in response to changes on the Refuge related to these issues. Information learned and shared by other partners or acquired through research projects will assist Refuge staff in determining how best to address changing management needs on the Refuge.

2.6 Development of a Refuge Vision

A vision statement, which is developed or reviewed for each individual refuge unit as part of the CCP process, is defined as “A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the Refuge System mission and specific refuge purposes, and other mandates” (Service Manual, 602 FW 1.5 (Z)). The Refuge vision provides a descriptive picture of how the Refuge will look in the future and describes the desired future conditions in the long term (more than 15 years). The Refuge vision is presented in Chapter 1.

2.7 Development of Refuge Goals, Objectives, and Strategies

Goals and objectives are the unifying elements of successful Refuge management. They identify and focus management priorities, provide a context for resolving issues and concerns raised during the scoping process, guide specific projects, provide rationale for decisions, and offer a defensible link among management actions, Refuge purpose(s), Service policy, and the NWRS mission. In developing goals and objectives, there is a natural progression from the general to the specific. Goals define general targets in support of the Refuge vision, while objectives address the incremental and measurable steps to be taken to achieve the goals. Finally, strategies identify specific tools, actions, or techniques that would be implemented to accomplish project objectives.

The goals and objectives provide long-term guidance to Refuge managers and staff and help integrate science, improve management practices, and justify compatible use decisions. The Refuge System defines goals as a “...descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units” (Service Manual, 602 FW 1). The goals for the San Diego NWR are presented in Chapter 1.

Each goal is subdivided into one or more objectives. Objectives are defined as “concise statements of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work” (Service Manual, 602 FW 1). The number of objectives per goal can vary depending upon the number needed to satisfy a particular goal. In cases where there are many objectives, an implementation schedule may be developed to better define when and how the strategies presented under each objective would be implemented to ensure that each objective and the overarching goals can be effectively and efficiently achieved. The objectives and strategies for the San Diego NWR are presented in Chapter 6.

2.8 Development of Alternatives

As indicated earlier, each CCP must comply with the provisions of NEPA. To facilitate compliance, the analysis of environmental effects, as required by NEPA, have been integrated directly into the overall CCP process. This includes the requirement to analyze a reasonable range of alternatives or approaches to Refuge management that could be reasonably undertaken to achieve Refuge goals and refuge purposes; help fulfill the Refuge System mission; maintain and, where appropriate, restore the ecological integrity of each refuge and the Refuge System; and resolve identified issues. These alternatives are to consist of different sets of objectives and

strategies for management of the Refuge. NEPA also requires analysis of a “no action” alternative, which constitutes a continuation of current conditions and management practices.

The process of developing alternatives involves analyzing current conditions, identifying various measures that—if implemented—would help achieve Refuge goals, and incorporating, as appropriate, input provided during the public scoping process and other information gathered during subsequent meetings and workshops and from various interested individuals, agencies, and organizations. In Chapter 4 of this draft CCP/EA, a range of alternatives for the San Diego NWR CCP, including a no action and three action alternatives, are presented, and an equal and full assessment of the environmental effects of each of these alternatives is presented in Chapter 5. The four alternatives described in Chapter 4 differ in the extent and focus of the wildlife and habitat management actions to be implemented on the Refuge, as well as in the types and levels of public use opportunities to be provided.

2.9 Selection of the Proposed Action

As part of the CCP planning process, we have identified Alternative D as the preferred alternative based on our preliminary analysis of environmental effects and Refuge issues, goals, and objectives. Following consideration of all the comments received from the public, agencies, tribes, and/or other stakeholders during the public review period, we may choose to implement this alternative as currently stated, implement an action that represents a combination of components from one or more of the alternatives, or implement one of the other alternatives evaluated in the draft CCP/EA. The selected alternative, which will be described in the Final CCP, will be the management alternative that best achieves Refuge purposes, vision, and goals; helps fulfill the Refuge System mission; maintains and, where appropriate, restores the ecological integrity of the Refuge; is consistent with principles of sound fish and wildlife management; and minimizes adverse effects on the environment.

2.10 Plan Implementation

During the 15 years following CCP approval, the CCP will serve as the primary reference document for all Refuge planning, operations, and management. Chapter 6 describes how the approved CCP will be implemented and presents the various wildlife and habitat management and visitor services (public use) objectives and strategies for achieving the Refuge goals and purposes. In addition to management priorities, Chapter 6 also addresses personnel and project funding, current and potential partnerships, step-down management plans needed to implement the CCP, and the monitoring framework that will be used to assess the effectiveness of the plan strategies in achieving Refuge goals and objectives.