

# Desert National Wildlife Refuge Complex

*Draft Comprehensive Conservation Plan  
and Environmental Impact Statement*

**Volume 1**



**Disclaimer**

CCPs provide long term guidance for management decisions and set forth goals, objectives, and strategies needed to accomplish refuge purposes and identify the Service's best estimate of future needs. These plans detail program planning levels that are sometimes substantially above current budget allocations and, as such, are primarily for Service strategic planning and program prioritization purposes. The plans do not constitute a commitment for staffing increases, operational and maintenance increases, or funding for future land acquisition.

# **Desert National Wildlife Refuge Complex**

## **Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges**

### *Draft Comprehensive Conservation Plan and Environmental Impact Statement Volume I – July 2008*

#### **National Wildlife Refuge System Mission**

*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.*

#### **Refuge Purposes**

*...for the protection, enhancement, and maintenance of wildlife resources, including bighorn sheep... (Public Land Order 4079, dated August 31, 1966, as amended by P.L. 106-65).*

*...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants... (ESA, 16 USC Sec. 1534).*

*...suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species... (16 USC Sec. 460k-1).*

*...the Secretary...may accept and use...real...property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors... (Refuge Recreation Act, as amended, 16 USC Sec. 460k-2).*

*...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds... (16 USC 715d).*

U. S. Fish and Wildlife Service  
California and Nevada Region  
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July 2008

**Desert National Wildlife Refuge Complex  
Ash Meadows, Desert, Moapa Valley, and Pahranaagat  
National Wildlife Refuges  
Draft Comprehensive Conservation Plan  
and Environmental Impact Statement  
Clark, Lincoln, and Nye Counties, Nevada**

Type of Action: Administrative

Lead Agency: U.S. Department of the Interior, Fish and Wildlife Service

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**Abstract:** The Draft Comprehensive Conservation Plan and Environmental Impact Statement (Draft CCP/EIS) provides a description of the preferred alternative and other alternatives developed for each refuge, the refuges' affected environments, and environmental consequences of implementing the alternatives. The alternatives for each refuge address wildlife, habitat, and cultural resources management and opportunities for compatible recreation to help achieve refuge purposes, visions, and goals. The Final CCP, Final EIS, and Record of Decision (ROD) will identify and describe the selected alternative for each refuge. The purpose of this Draft CCP/EIS is to inform the public of the environmental effects of the Proposed Action and provide an opportunity for public comment. All comments received during the public comment period will be considered by the U.S. Fish and Wildlife Service (Service) in preparation of the Final CCP and Final EIS.

The Desert National Wildlife Refuge Complex (Desert Complex) consists of four National Wildlife Refuges (NWRs): Ash Meadows, Desert, Moapa Valley, and Pahranaagat. Three alternatives, including a Preferred Alternative and a No Action Alternative, are described, compared, and assessed for Ash Meadows and Moapa Valley NWRs, and four alternatives, including a Preferred Alternative and a No Action Alternative, are described, compared, and assessed for Desert and Pahranaagat NWRs. In each case, Alternative A is the No Action Alternative, as required by the National Environmental Policy Act regulations. The alternatives for each refuge are summarized below.

**Ash Meadows NWR**

**Alternative A – No Action:** This alternative assumes no change from past and current management programs and serves as the baseline with which all other action alternatives are compared. There would be no major changes in habitat management or the current visitor services program under this alternative.

**Alternative B – Improve Habitat for Endemic Species on Portions of the Refuge and Increase Visitor Services:** This alternative provides management actions to improve species management on portions of the Refuge through habitat restoration and enhancement, modification of hydrology, and invasive plant control. Visitor services would be improved through implementation of Visitor Services, Outreach, and Environmental Education Plans.

**Alternative C (Preferred Alternative) – Improve Habitat for Endemic Species Throughout Refuge and Increase Visitor Services:** This alternative would expand the management actions identified in Alternative B to improve habitat throughout the Refuge. Visitor services would be similar to Alternative B, except for an increase in off-site programs and a reduction in roadway and parking area improvements.

### Desert NWR

**Alternative A – No Action:** This alternative assumes no change from past and current management programs and serves as the baseline with which all other action alternatives are compared. There would be no major changes in habitat management or the current visitor services program under this alternative.

**Alternative B – Minor Improvement in Wildlife and Habitat Management and Moderate Increase in Visitor Services:** This alternative provides management actions to improve bighorn sheep management and expand wildlife diversity. Visitor services would be improved through expanded environmental education and interpretive programs and an increase in visitor facilities.

**Alternative C (Preferred Alternative) – Moderate Improvement in Wildlife and Habitat Management and Minor Increase in Visitor Services:** This alternative would reduce some management actions compared with Alternative B, but would increase monitoring and habitat protection efforts. Bighorn sheep management would be improved, and a Sheep Management Plan would be prepared to guide future management. Visitor services would be improved similar to Alternative B; however, an auto tour route and wildlife viewing trails would not be constructed under this alternative.

**Alternative D – Moderate Improvement in Wildlife and Habitat Management and Limited Increase in Visitor Services:** This alternative would implement fewer management actions than Alternatives B and C with regard to visitor services, and wildlife management would be similar to Alternative C with a slight increase in habitat protection.

### Moapa Valley NWR

**Alternative A – No Action:** This alternative assumes no change from past and current management programs and serves as the baseline with which all other action alternatives are compared. There would be no major changes in habitat management or the current visitor services program under this alternative.

**Alternative B – Improve Habitat and Wildlife Management on Portions of the Refuge and Increase Visitor Services:** This alternative improves habitat and wildlife management on portions of the Refuge compared with Alternative A. The alternative includes actions to restore habitat, gather baseline and population data, manage water resources, and remove invasive species. Visitor services would be expanded through opening of the Refuge to the public on a limited basis. New facilities would be constructed to accommodate the increase in visitors, and the environmental education and interpretation programs would be improved.

**Alternative C (Preferred Alternative) – Improve Habitat and Wildlife Management Throughout the Refuge and Expand Visitor Services:** This alternative includes Refuge-wide habitat restoration efforts and would include expansion of the Refuge boundary. Visitor services would be improved beyond Alternative B by opening the Refuge daily to the public and providing more visitor service programs.

## **Pahrnagat NWR**

**Alternative A – No Action:** This alternative assumes no change from past and current management programs and serves as the baseline with which all other action alternatives are compared. There would be no major changes in habitat management or the current visitor services program under this alternative.

**Alternative B – Limited Improvements in Water Resource and Habitat Management and Minor Increase in Visitor Services:** This alternative would include management actions to expand water monitoring, invasive plant removal efforts, foraging habitat for sandhill cranes, and bird surveys. A new refugium for Pahrnagat roundtail chub is also considered under this alternative pending a feasibility assessment. Visitor services would be improved to accommodate an increase in visitors and monitor visitor use.

**Alternative C – Minor Improvements in Water Resource and Habitat Management and Minor Increase in Visitor Services:** This alternative would expand upon the management actions in Alternative B and provide increased invasive species control, additional species inventories, additional grain crops for foraging, improved water resources management, and additional restoration of springs and riparian habitat. Visitor services would also be improved similar to Alternative B, except the campground would be converted to a day use area.

**Alternative D (Preferred Alternative) – Moderate Improvements in Water Resource and Habitat Management and Moderate Increase in Visitor Services:** This alternative would expand upon management actions presented in Alternatives B and C, including restoring additional foraging habitat for sandhill cranes, acquiring additional water rights, expanding monitoring efforts for wildlife, and expanding invasive plant control efforts. Visitor services would be similar to Alternative C, except vehicle access would not be allowed in the day use area.

# *Reader's Guide*

The U.S. Fish and Wildlife Service (Service) will manage the Desert National Wildlife Refuge Complex (Desert Complex) in accordance with an approved Comprehensive Conservation Plan (CCP). This CCP provides long-range guidance on refuge management through its vision, goals, objectives, and strategies. The CCP also provides a basis for a long-term adaptive management process that will include monitoring the progress of management actions, evaluating and adjusting management actions based on new information or techniques, and revising management and monitoring plans accordingly. Additional step-down planning will be required prior to implementation of the various data gathering, restoration, wildlife management, and major visitor service proposals included in the CCP.

In accordance with the Service's CCP Policy, the CCP and Environmental Impact Statement (EIS) have been combined into one document, referred to as the CCP/EIS. The Draft CCP/EIS provides information on each alternative and the anticipated impacts of each management action that could occur from implementation of the CCP. The Draft CCP/EIS will be available for public review for a limited time, within which the Service will hold public meetings in the communities near the refuges to solicit public comments and provide additional information on the document. The Service will then review public comments and prepare the Final CCP/EIS, which will provide responses to public comments and revisions to the Draft CCP/EIS. The following chapter and appendix descriptions are provided to assist readers in locating and understanding the various components of this combined document.

## **Volume 1:**

**Chapter 1, Introduction and Background**, includes the purpose of and need for a CCP; an overview of policies, regulations, and relevant planning documents; the regional context, establishment, and purposes of the Ash Meadows, Desert, Moapa Valley, and Pahrangat National Wildlife Refuges (NWRs); and vision and goals for future management of the refuges.

**Chapter 2, Comprehensive Conservation Planning Process**, includes an overview of the CCP process and key issues identified through public, agency, and tribal scoping.

**Chapter 3, Alternatives**, describes the various management alternatives proposed for the four refuges. Three alternatives are presented for Ash Meadows and Moapa Valley NWRs, and four alternatives are described for Desert and Pahrangat NWRs. Each alternative represents a different approach to achieving the vision, goals, and objectives for the refuges. Alternative A (No Action) for each refuge describes current management practices. Alternative C is the Preferred Alternative for Ash Meadows, Desert, and Moapa Valley NWRs, and Alternative D is the Preferred Alternative for Pahrangat NWR. This chapter also highlights the common features of each refuge's set of alternatives and the management actions eliminated from further consideration.

**Chapter 4, Affected Environment**, describes the existing physical and biological environment, cultural resources, visitor services, and socioeconomic conditions. This setting represents baseline conditions for the analysis provided in Chapter 5. This chapter provides descriptions of the regional and refuge-specific environments.

**Chapter 5, Environmental Consequences**, describes the potential impacts of each of the alternatives on the resources, uses, and conditions outlined in Chapter 4. This chapter also provides a description of cumulative impacts.

**Chapter 6, Compliance, Consultation, and Coordination with Others**, discusses compliance with the National Environmental Policy Act; summarizes public involvement, interagency coordination, and tribal consultation; and acknowledges those agencies, organizations, and individuals who provided significant contributions to the CCP process.

## **Volume 2:**

**Appendix A, Index**, indicates where the concepts or subject areas that may be of interest to the reader are discussed in the document.

**Appendix B, References**, provides bibliographic references for the citations in this document as well as references for documents that provide background information for the refuges, but that are not specifically cited.

**Appendix C, List of Preparers and Contributors**, contains the names and project roles of those individuals directly involved in writing and preparing the Draft CCP/EIS. The names and positions of those who contributed in other ways to the preparation of the document are also included.

**Appendix D, Distribution List**, contains the list of federal, tribal, state, and local agencies; nongovernmental organizations; libraries; and individuals who received planning updates, summaries, and other mailings associated with this planning effort, including the release of the Draft CCP/EIS.

**Appendix E, Applicable Laws, Policies, and Regulations**, outlines the various federal laws, Executive Orders, regulations, and other guidance pertinent to implementation of the CCP.

**Appendix F, Goals, Objectives, and Strategies for Preferred Alternative**, discusses the goals, objectives, and strategies for each refuge's Preferred Alternative, including rationale for the proposed management actions.

**Appendix G, Compatibility Determinations for Existing and Proposed Refuge Uses**, describe uses, anticipated impacts, stipulations, and a determination of compatibility or non-compatibility for all existing and proposed visitor services on the four refuges.

**Appendix H, Biological Resources**, provides descriptions of special-status species that occur on the refuges, identifies potential for special-status species to occur, provides a list of management priority bird species, and provides lists of wildlife observed on each refuge.

**Appendix I, Wilderness Review**, provides the wilderness inventory for Ash Meadows, Moapa Valley, and Pahrangat NWRs and the existing wilderness proposal for Desert NWR.

**Appendix J, Desert NWR Bighorn Sheep Discussion**, describes bighorn sheep presence on Desert NWR, including historic sheep counts and population estimates.

**Appendix K, CCP Implementation**, addresses step-down planning, funding, phasing, monitoring, and adaptive management practices as they relate to the various habitat and wildlife management actions included in the preferred alternatives. It also provides cost estimates for proposed visitor services programs and addresses current and future staffing for the refuges.

**Appendix L, Land Protection Plan and Conceptual Management Plan for Moapa Valley NWR**, includes copies of the plans for expansion of the Moapa Valley NWR acquisition boundary.



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# Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
afy	acre-feet per year
AMR	appropriate management response
BIDEH	biological integrity, diversity, and environmental health
BLM	U.S. Bureau of Land Management
BMP	best management practice
CCDAQM	Clark County Department of Air Quality Management
CCP	Comprehensive Conservation Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGTO	Consolidated Group of Tribes and Organizations
CO	carbon monoxide
Desert Complex	Desert National Wildlife Refuge Complex
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FMU	Fire Management Unit
FY	fiscal year
GIS	geographic information system
GPS	global positioning system
HMA	Herd Management Area
IBA	Important Bird Area
I-15	Interstate 15
IDT	Interdisciplinary Team
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IWJV	Intermountain West Joint Venture
LVVWD	Las Vegas Valley Water District
mg/L	milligrams per liter
MOU	Memorandum of Understanding
MSHCP	Multiple Species Habitat Conservation Plan
msl	mean sea level
MVWD	Moapa Valley Water District
mya	million years ago
NAAQS	National Ambient Air Quality Standards
NAFB	Nellis Air Force Base
NAWMP	North American Waterfowl Management Plan
NDEP	Nevada Department of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources

## *Acronyms and Abbreviations, cont.*

NEPA	National Environmental Policy Act
NNHP	Nevada Natural Heritage Program
NO <sub>2</sub>	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTTR	Nevada Test and Training Range
NWR	National Wildlife Refuge
NWRS	National Wildlife Refuge System
O <sub>3</sub>	ozone
PEC	Preferred Equities Corporation
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
PM <sub>10</sub>	particulate matter less than 10 microns
RNA	Research Natural Area
ROD	Record of Decision
Service	U.S. Fish and Wildlife Service
SNWA	Southern Nevada Water Authority
SO <sub>2</sub>	sulfur dioxide
SR	State Route
SSURGO	Soil Survey Geographic Database
STATSGO	State Soil Geographic Database
SWCA	SWCA Environmental Consultants
TNC	The Nature Conservancy
USAF	U.S. Air Force
USC	United States Code
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WRCC	Western Regional Climate Center

*Chapter 1.  
Introduction and  
Background*



Canyon Springs cliff face overlook at Desert National Wildlife Refuge



# *Chapter 1. Introduction and Background*

## **1.1 Introduction**

The Desert National Wildlife Refuge Complex (Desert Complex) is located in southern Nevada and consists of four separate refuges: Ash Meadows National Wildlife Refuge (NWR), Desert NWR, Moapa Valley NWR, and Pahranaagat NWR (Figure 1.1-1). The Desert Complex encompasses more than 1.6 million acres in Clark, Lincoln, and Nye Counties, Nevada. The four refuges represent some of the best-quality Mojave Desert wetland, riparian, and montane ecosystems and are home to species of plants and animals found nowhere else on earth.

The U.S. Fish and Wildlife Service (Service) officially began the process of developing a Comprehensive Conservation Plan (CCP) and an Environmental Impact Statement (EIS) for the Desert Complex during fall 2001. The National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act) directs the Service to develop a CCP for all of the refuges by 2012. Development of the CCP and EIS is a multi-year process that will produce a single plan for the four refuges in the Desert Complex. The CCP will guide overall refuge management for its lifetime (approximately 15 years), at which time it will be reviewed and updated as necessary.

This Draft CCP/EIS describes the preferred alternative and other alternatives developed for each refuge, the refuges' affected environments, and the environmental consequences of implementing the alternatives. The alternatives for each refuge address wildlife, habitat, and cultural resources management and opportunities for compatible recreation to help achieve refuge purposes, visions, and goals. The Final CCP, Final EIS, and Record of Decision (ROD) will identify and describe the selected alternative for each refuge.

## **1.2 Proposed Action**

At the Draft EIS stage, the Service's Proposed Action is to implement the preferred alternative for each refuge. Details of the specific goals, objectives, and management actions comprising the preferred alternatives are provided in Chapter 3. At the Final EIS stage, the Service's Proposed Action will be to select and implement the CCP and an alternative for each refuge. The selected alternative can be the preferred alternative, one of the other alternatives, or a new alternative derived from a combination of the existing alternatives. The Service will adopt the selected alternative when the ROD is signed. Future projects implemented after adoption of the alternative and as part of implementation of the CCP will be evaluated in subsequent NEPA documents. These projects are discussed at a programmatic-level in this EIS, except where sufficient details are known to evaluate the actions at a project-specific level.

### **1.3 Purpose of and Need for the Comprehensive Conservation Plan**

The purpose of developing the CCP for the Refuge is to provide managers with a 15-year strategy for achieving refuge purposes and contributing toward the mission of the National Wildlife Refuge System (NWRS), consistent with the sound principals of fish and wildlife conservation and legal mandates. The CCP is flexible; it will be revised periodically to ensure that its goals, objectives, strategies, and timetables are still valid and appropriate.

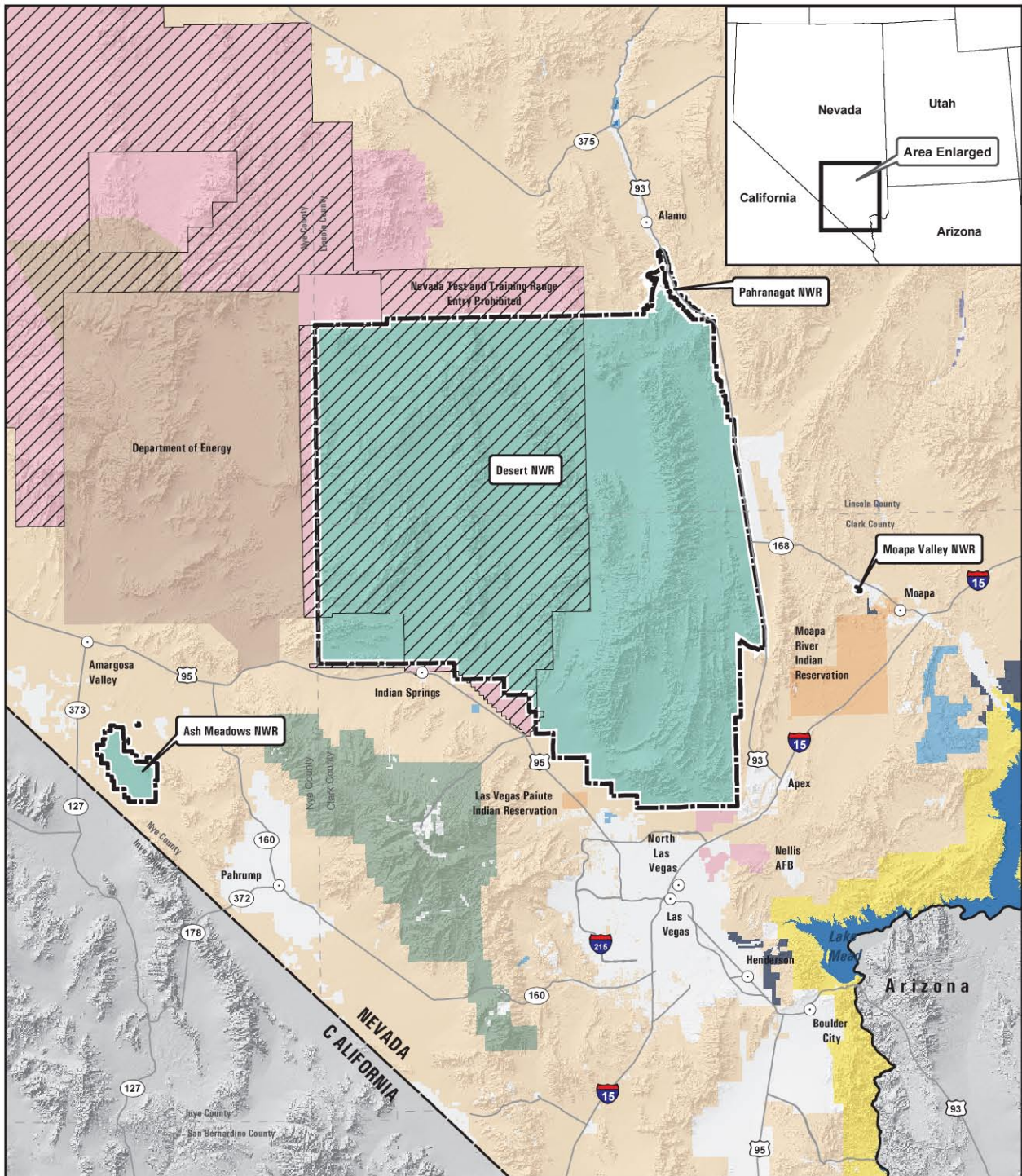
The Refuge Improvement Act of 1997 requires that the Service develop a CCP for each refuge by 2012 and that refuges be managed in a way that ensures the long-term conservation of fish, wildlife, plants, and their habitats and provides for compatible wildlife-dependent recreation. The purposes for developing a CCP are to:

- Provide a clear statement of direction for the future management of the refuges;
- Provide long-term continuity in management;
- Communicate the Service's management priorities for the refuges to its conservation partners, neighbors, visitors, and the general public;
- Provide an opportunity for the public to help shape the future management of the refuges;
- Ensure that management programs on the refuges are consistent with the mandates of the NWRS and the purposes for which each refuge was established;
- Ensure that the management of the refuges fully considers resource priorities and management strategies identified in other federal, state, and local plans;
- Provide a basis for budget requests to support the refuge's needs, staffing, operations, maintenance, and capital improvements; and
- Evaluate existing and proposed uses of each refuge to ensure that they are compatible with the refuge purpose(s) as well as the maintenance of biological integrity, diversity, and environmental health.

### **1.4 Legal and Policy Guidance**

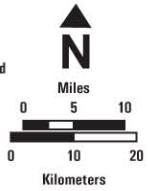
Legal mandates and Service policies govern the Service's planning and management of the NWRS. A list and brief description of the policies can be found at the "Division of Congressional and Legislative Affairs" Web site (<http://laws.fws.gov>). In addition, the Service has developed draft or final policies to guide NWRS planning and management. These policies can be found at the "NWRS Policies" Web site (<http://www.fws.gov/refuges/policymakers/nwrpolicies.html>).

The main sources of legal and policy guidance for the CCP and EIS are described below. Additional laws and policies guiding the CCP and EIS are listed in Appendix E.



- |                            |                           |  |                                |
|----------------------------|---------------------------|--|--------------------------------|
| ○ City/Town                | Bankhead-Jones            | Department of Energy                     | Nevada State                   |
| — Highways                 | Bureau of Indian Affairs  | Fish and Wildlife Service (Administered) | Private                        |
| — Approved Refuge Boundary | Bureau of Land Management | Forest Service                           | Water                          |
| — County Boundary          | Bureau of Reclamation     | National Park Service                    | Nevada Test and Training Range |
| — State Boundary           | Department of Defense     |  |                                |

Land ownership based on BLM and FWS data



**Figure 1.1-1**  
**Desert National Wildlife Refuge Complex**

### *National Wildlife Refuge System Overview*

The NWRS is the largest system of lands in the world dedicated to the conservation of fish and wildlife. Operated and managed by the Service, it currently includes 545 refuges with a combined area of more than 94 million acres. The majority of refuge lands (more than 77 million acres) are located in Alaska. The remaining acreage is scattered across the other 49 states and several island territories. About 20.6 million acres are managed as wilderness under the Wilderness Act of 1964.

The NWRS was established in 1903, when President Theodore Roosevelt protected an island with nesting pelicans, herons, ibis, and roseate spoonbills in Florida's Indian River from feather collectors decimating their colonies. He established Pelican Island as the nation's first bird sanctuary and 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 for multiple uses, refuges are specifically managed for fish and wildlife conservation.

### *National Wildlife Refuge System Mission and Goals*

The mission of the NWRS, established by the Refuge Improvement Act, is:

*"To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."*

The goals of the NWRS, as established by the National Wildlife Refuge System Mission, Goals, and Purposes Policy (601 FW 1), are to:

- 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).
- Foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.

### *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 Refuge Improvement Act (16 United States Code [USC] 668dd–668ee). Section 4(a)(3) of the Refuge Improvement Act states, “With respect to the [NWRS], it is the policy of the United States that – (A) each refuge shall be managed to fulfill the mission of the [NWRS], as well as the specific purposes for which that refuge was established...”

The Refuge 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 Refuge Administration Act, as amended, clearly establishes wildlife conservation as the core NWRS mission. House Report 105–106, accompanying the Refuge Improvement Act, states “...the fundamental mission of our System is wildlife conservation: ...wildlife and wildlife conservation must come first.” In contrast to other systems of federal lands, which are managed on a sustained-yield basis for multiple uses, the NWRS is a primary-use network of lands and waters. First and foremost, refuges are managed for fish, wildlife, plants, and their habitats. In addition, units of the NWRS are legally closed to all public access and use, including economic uses, unless and until they are officially opened through an analytical, public process called the refuge compatibility process. With the exception of refuge management activities, which are not economic in nature, all other uses are subservient to the NWRS’ primary wildlife management responsibility, and they must be determined compatible before being authorized.

The Refuge Improvement Act provides clear standards for management, use, planning, and growth of the NWRS. Its passage followed the promulgation of Executive Order (EO) 12996 (April 1996), Management of Public Uses on National Wildlife Refuges, reflecting the importance of conserving natural resources for the benefit of present and future generations of people. The Refuge Improvement Act recognizes that wildlife-dependent recreational uses, including 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. Section 5(C) and (D) of the Refuge Improvement Act states “compatible wildlife-dependent recreational uses are the priority general public uses of the Refuge System and shall receive priority consideration in planning and management; and when the Secretary determines that a proposed wildlife-dependent recreational use is a compatible use within a refuge, that activity should be facilitated, subject to such restrictions or regulations as may be necessary, reasonable, and appropriate.”

The Refuge Improvement Act also directs the Service to maintain adequate water quantity and quality to fulfill the NWRS mission and refuge purposes and to acquire, under state law, water rights that are needed for refuge purposes.

### *Compatibility Policy*

Lands within the NWRS are different from other multiple-use public lands in that they are closed to all public uses unless specifically and legally opened. The Refuge Improvement Act states “. . . the Secretary shall not initiate or permit a new use of a Refuge or expand, renew, or extend an existing use of a [refuge], unless the Secretary has determined that the use is a compatible use and that the use is not inconsistent with public safety.” The Refuge Improvement Act also states that “. . . compatible wildlife-dependent recreational uses [hunting, fishing, wildlife observation and photography, or environmental education and interpretation] are the priority general public uses of the [NWRS] and shall receive priority consideration in [refuge] planning and management.”

In accordance with the Refuge Improvement Act, the Service has adopted a Compatibility Policy (603 FW 2) that includes guidelines for determining if a use proposed on an NWR is compatible with the purposes for which the refuge was established. A compatible use is defined in the policy as a proposed or existing wildlife-dependent recreational use or any other use of an NWR that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the NWRS mission or the purposes for which the refuge was established and contributes to the maintenance of biological integrity, diversity, and environmental health. The Policy also includes procedures for documentation and periodic review of existing refuge uses.

The Compatibility Policy does not apply to overflights above a refuge or to activities authorized, funded, or conducted by a federal agency (other than the Service), which has primary jurisdiction over a refuge or portion of a refuge, if the management of those activities is in accordance with a Memorandum of Understanding between the Secretary or the Director and the head of the federal agency with primary jurisdiction over the refuge governing the use of the refuge.

The first step in determining if a use is compatible is to determine if the use is appropriate (called an appropriateness finding). The Service evaluates each use to determine if it is appropriate based on the NWRS mission and refuge purpose(s). If a use is not appropriate, the use is not further considered, and a compatibility determination is not required. If a use is determined to be appropriate, the Service must prepare a compatibility determination. When a determination is made as to whether a proposed use is compatible or not, this determination is provided in writing and is referred to as a compatibility determination.

An opportunity for public review and comment is required for all compatibility determinations. For compatibility determinations prepared concurrently with a CCP or step-down management plan, the opportunity for public review and comment is provided during the

public review period for the draft plan and associated National Environmental Policy Act (NEPA) document. A summary of the appropriateness findings and the compatibility determinations prepared in association with this CCP/EIS are provided in Appendix G.

*Biological Integrity, Diversity, and Environmental Health Policy*

Section 4(a)(4)(B) of the Refuge Improvement Act states, “in administering the [NWRS], the Secretary shall...ensure that the biological integrity, diversity, and environmental health of the [NWRS] are maintained for the benefit of present and future generations of Americans...” This legislative mandate represents an additional directive to be followed while achieving refuge purposes and the NWRS mission. The Act requires the consideration and protection of a broad spectrum of fish, wildlife, plant, and habitat resources found on a refuge. Service policy guiding implementation of this statutory requirement provides a refuge manager with an evaluation process to analyze his/her refuge and recommend the best management direction to prevent further degradation of environmental conditions and, where appropriate, and in concert with refuge purposes and NWRS mission, to restore lost or severely degraded resource components. Within the Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3[3.7B]), the relationships among biological integrity, diversity, and environmental health; NWRS mission; and refuge purposes are explained as follows: “...each refuge will be managed to fulfill refuge purpose(s) as well as to help fulfill the [NWRS] mission, and we will accomplish the purpose(s) and our mission by ensuring that the biological integrity, diversity, and environmental health of each refuge are maintained and where appropriate, restored.”

When evaluating the appropriate management direction for refuges, refuge managers will use sound professional judgment to determine their refuge’s contribution to biological integrity, diversity, and environmental health at multiple landscape scales. Sound professional judgment incorporates field experience, an understanding of the refuge’s role within an ecosystem, and the knowledge of refuge resources, applicable laws, and best available science, including consultation with resource experts both inside and outside the Service.

The priority public uses of the NWRS are not in conflict with this policy when they have been determined to be compatible. The directives of this policy do not envision or necessitate the exclusion of visitors or the elimination of visitor use structures from refuges; however, maintenance and/or restoration of biological integrity, diversity, and environmental health may require spatial or temporal zoning of visitor use programs and associated infrastructures. General success in maintaining or restoring biological integrity, diversity, and environmental health will produce higher-quality opportunities for providing wildlife-dependent recreational uses.

*Draft Wilderness Stewardship Policy Pursuant to the  
Wilderness Act of 1964*

This policy updates guidance on administrative and public activities on wilderness and proposed wilderness within the NWRS. The purpose of the policy is to prescribe how the Service:

*“preserves the character and qualities of designated wilderness while managing for the refuge establishing purpose(s), maintains outstanding opportunities for solitude and primitive and unconfined type of recreation, and conducts minimum requirements analyses before taking any action that may impact wilderness character.”*

The policy emphasizes recreational uses that are compatible and wilderness-dependent. The policy clarifies conditions upon which generally prohibited uses (motor vehicles, motorized equipment, mechanical transport, structures, and installations) may be necessary for wilderness protection. It confirms that:

*“We will generally not modify habitat, species population levels, or natural ecological processes in refuge wilderness unless doing so maintains or restores ecological integrity that has been degraded by human influence or is necessary to protect or recover threatened or endangered species.”*

*National Environmental Policy Act of 1969*

The National Environmental Policy Act of 1969 (42 USC Secs. 4321 et seq.) requires that federal agencies prepare an EIS for major federal actions that significantly affect the quality of the human environment. This EIS has been prepared consistent with the requirements of NEPA, the Council on Environmental Quality (CEQ) NEPA regulations (40 Code of Federal Regulations [CFR] Secs. 1500 et seq.), and the U.S. Department of Interior’s (DOI’s) NEPA procedures (Department Manual, Part 516).

The Service is the NEPA lead agency responsible for EIS preparation. The Draft EIS and CCP were prepared with the assistance of a third-party contractor, SWCA Environmental Consultants (SWCA). The Service served as lead agency and independently reviewed, modified, and approved the contractor’s work. Several cooperating agencies provided reviews of the document prior to the Draft EIS and CCP and contributed to various portions of the process, including U.S. Air Force (USAF), Nevada Department of Wildlife (NDOW), U.S. Bureau of Land Management (BLM), National Park Service (NPS), and the Consolidated Group of Tribes and Organizations (CGTO) Document Review Committee.



## **1.5 Relationship to Regional Conservation Goals**

In addition to the mission and goals of the NWRs, the Service assists others in meeting conservation goals established by government and non-government agencies, when and where possible. These goals can be found in management or conservation plans that have been prepared for the region, state, county, or local area and relate to the species and habitats found on the refuges. A brief description of related plans and their goals or objectives is provided below.

### **1.5.1 Nevada Wildlife Action Plan**

As a requirement of the State Wildlife Grant program, passed by Congress in 2001, each state was required to develop a Comprehensive Wildlife Conservation Strategy by October 2005. NDOW completed the Nevada Wildlife Action Plan in September 2005 with the assistance of other organizations, including The Nature Conservancy (TNC), the Lahontan Audubon Society, and the Nevada Natural Heritage Program (NDOW 2005a). The Wildlife Action Plan “is intended to serve as a plan of action for state wildlife conservation and funding by targeting the species of greatest conservation need and the key habitats on which they depend, and lays out strategies for conserving wildlife in each of the key habitats.”

The Nevada Wildlife Action Plan is designed to provide scientific support for CCP development, input on impact analyses, and support for implementation of management actions. Partnerships and close coordination between NDOW and the Service are key to incorporating the Nevada Wildlife Action Plan into the CCP process.

### **1.5.2 Continental and Regional Bird Conservation Plans**

#### *Continental Plans*

The Partners in Flight North American Landbird Conservation Plan provides a continental synthesis of priorities and objectives to guide landbird conservation actions at national and international scales (Rich et al. 2004). This plan covers 448 species of native landbirds that regularly breed in the United States and Canada, including species that are threatened by habitat loss, have declining populations, or have limited distribution. This plan also highlights the need for stewardship of the species and landscapes characteristic of each portion of the continent, identifying 158 species that are particularly representative of large avifaunal biomes, and whose needs should be considered in conservation planning. Recommended actions vary from region to region, and each region should prepare a step-down management plan.

The U.S. Shorebird Conservation Plan is a coordinated national initiative for shorebird conservation (Brown et al. 2001). The plan is intended to provide an overview of the current status of shorebirds, the conservation challenges facing them, current opportunities for integrated conservation, broad goals for the conservation of shorebird species and subspecies, and specific programs necessary to meet the overall vision of restoring stable and self-sustaining populations of all shorebirds.

The North American Waterbird Conservation Plan provides an overarching continental framework and guide for conserving waterbirds (Kushlan et al. 2002). It sets forth goals and priorities for waterbirds in all habitats from the Canadian Arctic to Panama, from Bermuda through the U.S. Pacific Islands, at nesting sites, during annual migrations, and during nonbreeding periods. It advocates continent-wide monitoring; provides an impetus for regional conservation planning; proposes national, state, provincial and other local conservation planning and action; and gives a larger context for local habitat protection. The goal of these activities is to assure healthy populations and habitats for the waterbirds of the Americas.

### *Regional or Statewide Plans*

Several bird conservation or management plans have been prepared for the Intermountain West or Nevada to provide more specific management direction for bird species identified in the continental plans. The 2005 Coordinated Implementation Plan for Birds in Nevada (Nevada Bird Plan) provides a framework for implementing the North American Waterfowl Management Plan (NAWMP) in the Intermountain West (Service 1986) and develops a more specific plan for the state of Nevada (Nevada Steering Committee 2005). The Nevada Bird Plan incorporates shorebird, waterbird, and landbird conservation priorities for the Intermountain West as well as objectives of the 1986 NAWMP. The Nevada Bird Plan also provides guidance for the Intermountain West Joint Venture (IWJV) Management Board in considering and ranking various habitat protection, restoration, and enhancement projects for funding by the North American Wetlands Conservation Act and other programs.

The Nevada Bird Plan incorporates priority species and habitat objectives identified in the Partners in Flight Bird Conservation Plan for Nevada (Nevada Partners in Flight 1999), the Intermountain West Regional Shorebird Plan (Oring and Oring 2000), the Intermountain West Waterbird Conservation Plan (Ivey and Herziger 2005), and NAWMP, as well as from other conservation organizations, particularly TNC's Ecoregional Conservation Blueprint for the Great Basin (Nachlinger et al. 2001). The Nevada Bird Plan distills these planning documents into lists of priority bird species and develops statewide goals and measurable objectives for 12 major habitat types over a six-year period (2004 to 2010). Statewide goals and objectives from the Nevada Bird Plan that are most likely to apply to the four refuges in the Desert Complex include:

- **Wetlands Goal**: Protect and maintain existing wetland habitats in good condition, and restore and improve degraded wetland habitats whenever opportunities arise.
- **Wetlands Objective**: Permanently protect and/or restore 25,000 acres of high-quality wetlands and associated habitats in Nevada.
- **Lowland Riparian Goal**: Protect, restore, and enhance lowland riparian systems wherever possible.
- **Lowland Riparian Objective**: Permanently protect and/or restore 300 linear miles of lowland riparian habitat in Nevada.

- **Mesquite/Catclaw Goal:** Minimize the loss of mesquite and catclaw habitats wherever possible.
- **Mesquite/Catclaw Objective:** Permanently protect and/or restore 8,000 acres of mesquite and catclaw habitat in Clark County and other areas of southern Nevada affected by growth and development.
- **Pinyon-Juniper Goal:** Manage pinyon-juniper stands for habitat quality and diversity of succession to maintain a diverse population of pinyon-juniper-obligate bird species.
- **Pinyon-Juniper Objective:** Implement alternative management on 75,000 acres of pinyon-juniper forest in Nevada to support diversity of successional stages.

The Service will incorporate these statewide goals and objectives into the management planning for each refuge. Each of the above goals and objectives was considered in the development of alternatives for the four refuges in the Desert Complex. Step-down management plans will provide more specific details and management actions that describe how the Service will help achieve the statewide goals and objectives. Refuge staff will coordinate with the Service's Ecological Services branch to implement the Nevada Bird Plan and NAWMP goals and objectives.

### **1.5.3 Clark County Multiple Species Habitat Conservation Plan**

The Service acted as lead agency during preparation of an EIS for the Clark County Multiple Species Habitat Conservation Plan (MSHCP). County-wide conservation actions identified in the MSHCP may be implemented on the Desert NWR and Moapa Valley NWR. In addition, funding has been provided for research on the refuges through the MSHCP. The MSHCP was established to provide a means to address the conservation needs of sensitive biological resources (plants and wildlife) on non-federal lands in Clark County, Nevada (Clark County and Service 2000). The MSHCP and EIS were prepared in accordance with the Federal Endangered Species Act (ESA) (Section 10a) and NEPA. The purpose of the MSHCP was to obtain a permit or permits from the Service to allow the take of currently listed threatened and endangered species and of species proposed for listing as threatened or endangered for projects implemented on non-federal properties. The purpose of the MSHCP in terms of conservation of species is to:

*“achieve a balance between long-term conservation and recovery of the diversity of natural habitats and native species of plants and animals that make up an important part of the natural heritage of Clark County and the orderly and beneficial use of land in order to promote the economy, health, well being, and custom and culture of the growing population of Clark County.”*

Conservation measures were identified in the MSHCP with the intent that they would be implemented as a cooperative effort of the applicable federal, state and local agencies. These measures may be implemented on the refuges in Clark County and include actions to inform and educate the public, implement adaptive management, restore and enhance habitat, protect habitat, and modify underlying management actions. Due to the lack of available data for several of the species identified in the MSHCP, the 2000 version was designed to be Phase I, and Phase II would follow once additional data become available. Adaptive management would allow for modifications in the proposed conservation measures as new data become available.

#### **1.5.4 Recovery Plan for the Endangered and Threatened Species of Ash Meadows**

The Service prepared the Recovery Plan for the Endangered and Threatened Species of Ash Meadows in cooperation with members from the Eastern Mohave Desert Fishes Recovery Team (Service 1990a). The purpose of the plan is to provide background information on the threatened and endangered species that occur in Ash Meadows, identify criteria for their delisting or downlisting, and identify actions needed to recover the species. The plan's objective was to delist all listed species in Ash Meadows except for the Devils Hole pupfish, which could only be downlisted to threatened due to its specific habitat requirements. The Ash Meadows NWR was established specifically for protecting threatened and endangered species; therefore, the plan's goals and strategies are central to the Refuge's purpose. These goals and strategies were considered during the CCP planning process and were incorporated into the alternatives for the Refuge.

The criteria identified in the plan for recovering species include restoring them to their historic ranges, establishing self-sustaining populations, removing threats from their habitats, restoring historic water flows in historic channels and discharge rates from springs, establishing two Devils Hole pupfish refugia, and restoring plant and aquatic communities to historic structure and composition. Several actions were identified to help meet those criteria:

1. Secure habitat and water sources for the Ash Meadows ecosystem.
2. Conduct research on the biology of the species.
3. Conduct management activities within essential habitat.
4. Reestablish populations and monitor new and existing populations.
5. Determine or verify recovery objectives.

### **1.5.5 Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem**

The Service prepared the Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem to recover and protect aquatic species in the Muddy River area, particularly the Moapa dace (Service 1996). The purpose of the plan is to provide background information on the rare aquatic species, identify criteria for their delisting or downlisting, and identify actions needed to recover the species. Criteria and actions are provided for the Moapa dace, with the expectation that those actions would also aid in the recovery of other rare species. The plan's objective is to delist the Moapa dace and other listed species in the Muddy River area. Moapa Valley NWR was established specifically for protecting threatened and endangered species; therefore, the plan's goals and strategies are central to the Refuge's purpose. These goals and strategies were considered during the CCP planning process and were incorporated into the alternatives for the Refuge.

The criteria identified in the plan for fully recovering and delisting the Moapa dace include restoring the adult dace population to 6,000 individuals in the five spring systems and the upper Muddy River for five consecutive years; restoring 75 percent of the historical habitat in the five spring systems and the upper Muddy River to provide spawning, nursery, cover, and/or foraging habitat; and control or eradicate nonnative fish and parasites so that they no longer adversely affect the long-term survival of the Moapa dace. These criteria may be modified as new data become available for the species.

Several actions were identified to help meet those criteria:

1. Protect instream flows and historic habitat within the upper Muddy River and tributary spring systems.
2. Conduct restoration/management activities.
3. Monitor Moapa dace population.
4. Research population health.
5. Provide public information and education.

### **1.5.6 Final Recovery Plan for the Southwestern Willow Flycatcher**

The endangered southwestern willow flycatcher is known to nest on two refuges within the Desert Complex: Ash Meadows and Pahranaagat. The Service approved a Recovery Plan for the Southwestern Willow Flycatcher in August 2002 (Service 2002b). The plan was prepared by the Southwestern Willow Flycatcher Recovery Team, Technical Subgroup, with the assistance of several individuals. The purpose of the plan is to identify recovery criteria for the flycatcher's downlisting and ultimately for its delisting and to identify management actions that may contribute to the flycatcher's recovery, including costs and timeframes. The recovery objectives for the southwestern willow flycatcher are to downlist the species to

threatened status and delist it once certain criteria have been met. The delisting criteria include increasing the total known population to a minimum of 1,950 territories or approximately 3,900 individuals with a geographic distribution that allows properly functioning metapopulations, protecting the species from threats into the distant future, and securing sufficient habitat to maintain the metapopulations over time. Suitable habitat for the southwestern willow flycatcher occurs at Ash Meadows, Moapa Valley, and Pahranaagat NWR.

Nine types of recovery actions were identified in the plan:

1. Increase and improve occupied, suitable, and potential breeding habitat.
2. Increase metapopulation stability.
3. Improve demographic parameters.
4. Minimize threats to wintering and migration habitat.
5. Survey and monitor.
6. Conduct research.
7. Provide public education and outreach.
8. Assure implementation of laws, policies, and agreements that benefit the flycatcher.
9. Track recovery progress.

Implementation of these actions is anticipated to allow the species to be downlisted to threatened by 2020, and the species could be delisted within 10 years after downlisting. The Service considered these actions in the CCP planning process and incorporated applicable measures into alternatives for each of the appropriate refuges. Specific actions to aid in recovery of the southwestern willow flycatcher will be identified in step-down management plans.

### **1.5.7 Recovery Plan for the Aquatic and Riparian Species of Pahranaagat Valley**

The Service approved the Recovery Plan for the Aquatic and Riparian Species of Pahranaagat Valley in May 1998 (Service 1998b). The recovery plan covers three native, endangered species: Pahranaagat roundtail chub, Hiko White River springfish, and White River springfish. The primary threats to the species include habitat alteration, introduction of nonnative species, and disease. The objective of the recovery plan is to delist the three species. Recovery criteria vary for each species, but generally include establishing self-sustaining populations and reducing impacts to the species and their habitat so the species are no longer threatened with extinction or an irreversible population decline.

Management actions to achieve those criteria include:

1. Maintaining and enhancing aquatic and riparian habitats in Pahranaagat Valley.
2. Developing and implementing monitoring plans.
3. Providing public information and education.
4. Establishing and maintaining populations at Dexter National Fish Hatchery, Key Pittman Wildlife Management Area, and Pahranaagat National Wildlife Refuge.
5. According to the recovery plan, the species would be able to be delisted by 2015 if the recovery criteria are met.

The goals and strategies of the plan were considered in the CCP planning process and in development of alternatives for the Pahranaagat NWR. The Service will incorporate applicable strategies into the management of the Refuge.

### **1.5.8 Nevada Bighorn Sheep Management Plan**

The Bighorn Sheep Management Plan (NDOW 2001) is a planning document to guide bighorn sheep management and conservation. The plan focuses on habitat management and conservation efforts to increase populations across the state of Nevada. Bighorn sheep populations in Nevada have experienced a severe decline since the late 19th century. The sheep previously were found in almost every mountain range across the state, but their populations are now scattered between a few mountain ranges, with a large population on the Desert NWR.

The Bighorn Sheep Management Plan identifies policies to protect existing habitat, improve forage and water availability, increase population numbers, allow bighorn sheep hunting, and increase public awareness and appreciation for the bighorn sheep. For each of these policies, the plan describes specific management actions and strategies to implement. NDOW is tasked with implementing this plan, and the Service has incorporated many of the strategies into management of the Desert NWR.

### **1.5.9 Nevada Bat Conservation Plan**

The Nevada Bat Conservation Plan is an effort of the Nevada Bat Working Group to develop a comprehensive plan for 23 species of bat found in Nevada (Altenbach et al. 2002). The plan provides information on the current status of bat conservation efforts and identifies strategies for improving and standardizing those efforts. Guidelines for bat conservation are provided in the plan and are intended to educate public and private land managers about bat conservation. Because bats occur on each of the four refuges in the Desert Complex, strategies identified in the Nevada Bat Conservation Plan may be incorporated into refuge management.

### **1.5.10 Integrated Natural Resources Management Plan**

The Integrated Natural Resource Management Plan (INRMP) for the Nellis Air Force Base (NAFB) and Nevada Test and Training Range (NTTR) provides guidance for the conservation of natural resources on NTTR and NAFB properties (NAFB 2007). The USAF developed these guidelines within the context of the military mission of NTTR and NAFB because the military mission takes precedence over all guidance provided by the INRMP. However, the INRMP is executed within the constraints of existing laws and in a manner that sustains the ranges for future missions.

The USAF established a primary goal to “maintain ecosystem integrity and dynamics on NAFB and NTTR without compromising the military mission” (NAFB 2007). This goal ensures that implementation of mission actions maintains ecosystem integrity to promote good stewardship by supporting existing biodiversity, ensuring sustainable use of the installation, and minimizing management costs and efforts. USAF natural resource managers and mission planners are provided with guidance from the INRMP to enable them to establish mission actions that minimize impacts to natural resources at NAFB and the NTTR. Because a portion of the NTTR overlays the Desert NWR, the USAF has a joint responsibility with the Service, through a Memorandum of Understanding, to ensure minimal impacts to natural resources that occur within the boundaries of the Refuge. The Service and USAF work together to protect and conserve the resources on the Refuge.

## **1.6 Prioritizing Wildlife and Habitat Management on Refuges**

Refuge management priorities derive from the NWRS mission, individual refuge purpose(s), laws that specify Service trust resources, and the mandate to maintain the biological integrity, diversity, and environmental health of the public’s refuges. These mandates are consistent with the Refuge Administration Act, as amended by the Refuge Improvement Act. Management on a refuge should first and foremost address the individual refuge purpose, using that purpose to direct its efforts toward the appropriate trust resources. In addition, management should address maintenance and, where appropriate, restoration of biological integrity, diversity, and environmental health. In this approach, the refuge contributes to the goals of the NWRS (601 FW 1) and achievement of the NWRS mission.

Purposes are the essential objective of our refuge stewardship. They are the legislative, legal, and administrative foundations for administration and management of a unit of the NWRS. This includes establishment of goals and objectives and authorization of public uses, which must be shown to be compatible with the refuge purpose(s) before they are allowed.

Service trust species are designated by various statutes governing the Service, as well as treaties that the Service is charged with implementing. These trust species include migratory birds, interjurisdictional fish, marine mammals, and federally listed



threatened and endangered species (Table 1.6-1). Although the refuge purpose is the first and highest obligation, management for trust species, when appropriate, is an added responsibility of refuges and is a priority for management on a refuge (601 FW 1.9B). Furthermore, management for trust species directly supports the NWRS mission.

**Table 1.6-1. U.S. Fish and Wildlife Service Trust Species**

<i>Trust Species</i>	<i>Legislative Authority</i>	<i>Examples</i>
Threatened and Endangered Species	Endangered Species Act (16 USC Secs. 1531–1544)	Desert tortoise, Devils Hole pupfish, Moapa dace
Migratory Birds	Migratory Bird Treaty Act (16 USC 703–711) Bald and Golden Eagle Protection Act (16 USC 668a-668d)	Ducks, songbirds, raptors, and shorebirds
Marine Mammals	Marine Mammal Protection Act (16 USC 13611407)	West Indian manatee, polar bear, Pacific walrus, and sea otter
Interjurisdictional Fish	Anadromous Fish Conservation Act (16 USC 757a-757g)	Anadromous species of salmon, paddlefish, and sturgeon

An additional directive to be followed while achieving refuge purposes and the NWRS mission is that related to biological integrity, diversity, and environmental health (BIDEH). This requires that we consider and protect the broad spectrum of native fish, wildlife, plant, and habitat resources found on a refuge: “In administering the [NWRS], the Secretary shall...ensure that the biological integrity, diversity, and environmental health of the [NWRS] are maintained for the benefit of present and future generations of Americans...” (Refuge Improvement Act, Section 4(a)(4)(B)).

The Policy on BIDEH (601 FW 3.3) is the Service’s statement of how it will implement this mandate. The policy provides information and guidance to refuge managers to prevent degradation of BIDEH. It also offers ways to restore lost or severely degraded ecological components, where appropriate.

## 1.7 Refuge Establishment and Management

Each refuge in the Desert Complex was established separately and has different management purposes. This section presents a brief discussion of each refuge’s location, history, purpose, vision, and goals. Refuge purposes are a key aspect of refuge planning because management activities must be compatible with the refuge’s purpose(s). The purpose of a refuge is “...specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing,

authorizing, or expanding a refuge, refuge unit or refuge subunit” (Refuge Planning Policy, 602 FW 1.6). Each refuge’s purpose or purposes are identified in the following overview of the refuges.

### **1.7.1 Ash Meadows National Wildlife Refuge**

#### *Location*

Ash Meadows NWR encompasses approximately 24,000 acres of land in southern Nye County, Nevada (Figure 1.7-1). It is located approximately 90 miles northwest of Las Vegas and 30 miles west of Pahrump. The entire Refuge is located in Amargosa Valley and is only a few miles northeast of Death Valley National Park’s eastern entrance from Death Valley Junction. U.S. Highway 95 runs just north of the Refuge.

#### *Land Status*

The Service owns approximately 13,828 acres of land within the approved Refuge boundary, including a 382-acre access easement. The Refuge’s approved boundary also includes: approximately 9,700 acres of lands administered by the BLM, some of which is managed by the Service under a cooperative agreement; approximately 676 acres of private land; and 40 acres of land managed by the NPS. The entire boundary of the Refuge abuts BLM-managed lands that are designated as the Ash Meadows Area of Critical Environmental Concern (ACEC) and are set aside for protection of the endemic species found at Ash Meadows.

#### *History of Establishment and Acquisition*

The Ash Meadows area has been modified and influenced by human use for at least 4,000 years (Otis Bay and Stevens Ecological Consulting 2006). A key recent alteration occurred in the early 1960s when the extensive marshland in Carson Slough was destroyed by a peat-mining operation. This mining eliminated approximately 2,000 acres of habitat supporting one of the largest concentrations of waterfowl in southern Nevada. This marsh was also occupied by the Ash Meadows Amargosa pupfish, Ash Meadows speckled dace, and the now-extinct Ash Meadows killifish (Fisher 1983; R. Miller 1948).

Large-scale habitat alteration occurred again in Ash Meadows in the late 1960s when Spring Meadows Ranch, Inc. began a ranching operation (Sanchez 1981). For the next several years land was leveled for crop production, and aquatic habitats were altered for water diversion. Groundwater was pumped so excessively that the feeding and reproducing habitat of the nearby Devils Hole pupfish was dangerously decreased; simultaneously, the population of this fish declined to fewer than 150 individuals. The U.S. Supreme Court ruled that removal of groundwater would have to be limited to avoid eliminating or diminishing the value of Devils Hole, a component of the Death Valley National Monument (Service 1980). During the late 1970s, Spring Meadows Ranch, Inc. ceased operations and sold its holdings to Preferred Equities Corporation (PEC), which proposed developing the area into a municipal, agricultural, and recreational community for 50,000 people. Nye County and the State of Nevada

approved plans for completion of part of this development, which was named Calvada Lakes. In 1984 TNC purchased all of PEC's land (12,614 acres) in Ash Meadows.

The Ash Meadows NWR was established on June 18, 1984, through the purchase of 11,177 acres of former agricultural lands from TNC. According to the Service's 1984 Environmental Assessment: Proposed Acquisition to Establish Ash Meadows National Wildlife Refuge, the purpose of the acquisition was "... to protect the endemic, endangered, and rare organisms (plants and animals) found in Ash Meadows ...". Since the original acquisition from TNC in 1984, an additional 2,309 acres have been acquired from several different landowners.

The Refuge provides habitat consisting of spring-fed wetlands and alkaline desert uplands for at least 25 plants and animals found nowhere else in the world. The Ash Meadows NWR has a greater concentration of endemic life than any other local area in the United States and the second greatest concentration in all of North America.

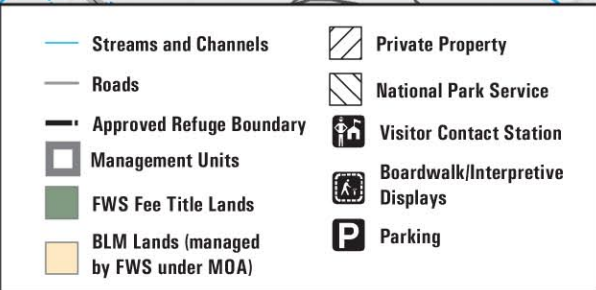
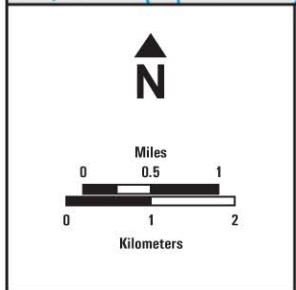
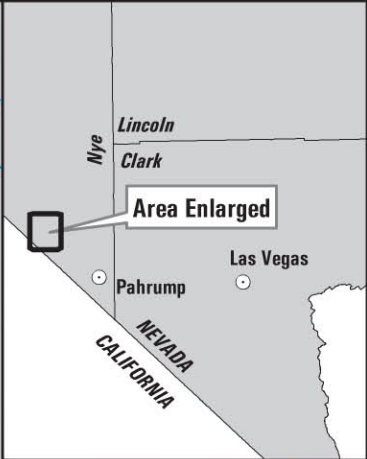
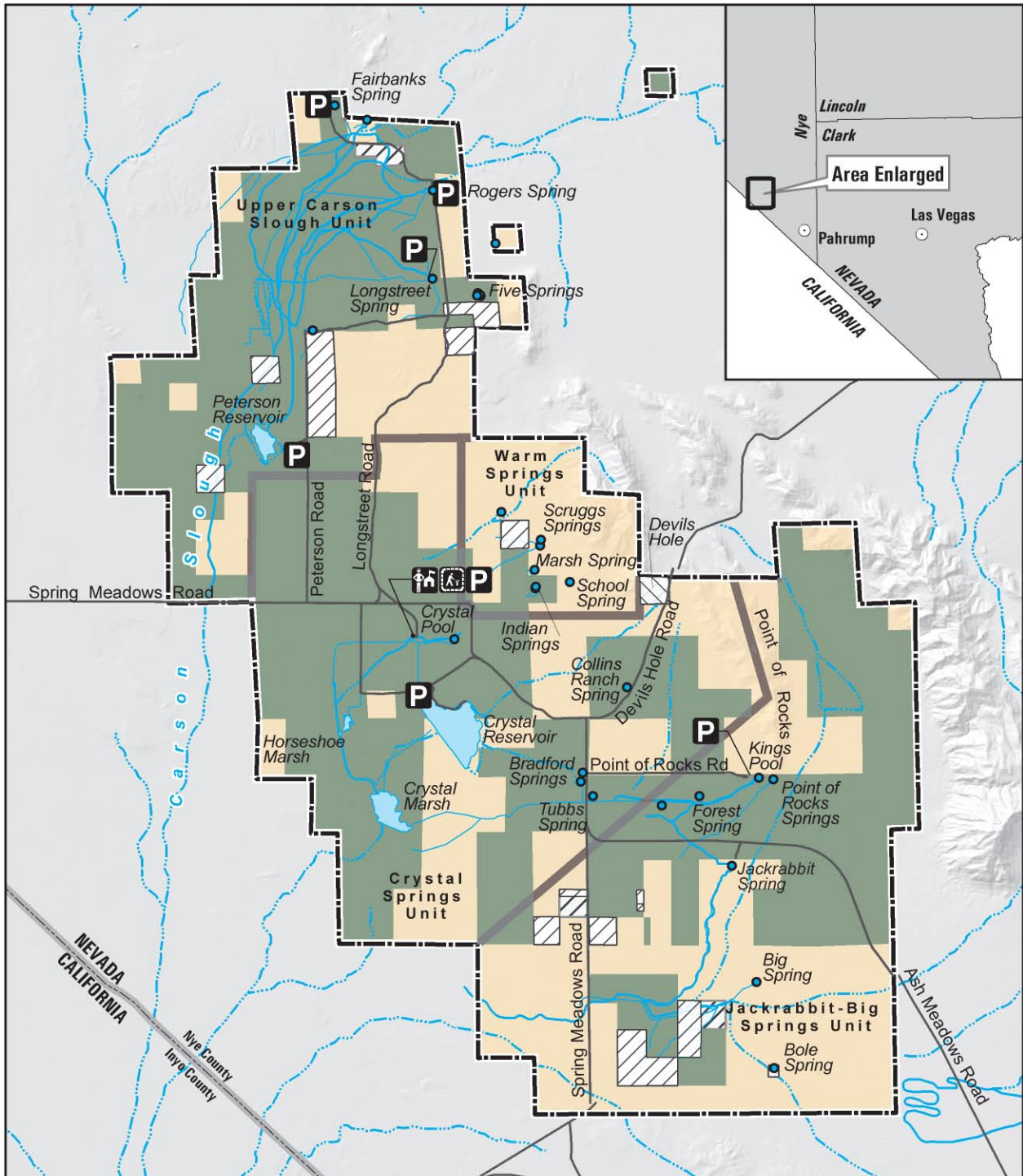
Many of the Refuge's seeps, springs, pools, and streams supporting sensitive species have been destroyed or altered by human activities in the last 100 years. Habitat alterations during agricultural, municipal, and mining development caused the extinction of one fish species, at least one snail species, and possibly an endemic mammal species (Ash Meadows montane vole, *Microtus montanus nevadensis*). NDOW is currently aiding the Refuge in evaluating the status of the montane vole on the Refuge.

The natural Devils Hole population of pupfish is on NPS-managed land within the Refuge boundary. Devils Hole was added as a unit to Death Valley National Park in 1952. The Refuge once supported two refugia populations of Devils Hole pupfish. Plans are under way to develop a new refugium on the Refuge for the species.

Ash Meadows NWR currently provides habitat used by seven listed species: southwestern willow flycatcher (endangered), Yuma clapper rail (endangered), Devils Hole pupfish (endangered), Ash Meadows Amargosa pupfish (endangered), Warm Springs pupfish (endangered), Ash Meadows speckled dace (endangered), and Ash Meadows naucorid (threatened). Five of these listed species are endemic to the Refuge area (Appendix H).

### *Historic Conditions*

The Ash Meadows area has been intensively used and modified by humans for at least 4,000 years, including periodic burns and diverting and excavating water sources, and it has been influenced by herbivory by ungulates introduced by Europeans (Otis Bay and Stevens Ecological Consulting 2006). Fire and herbivory on the Refuge likely affected wetlands in the Ash Meadows area. The effects of water diversions for irrigation and agricultural uses have been present for long periods of time and, as a result, have partially obscured pre-settlement conditions at the Refuge, making it difficult to describe historic conditions.



**Figure 1.7-1**  
**Land Status**  
**Ash Meadows NWR**

Based on aerial imagery and an understanding of human disturbances in the past century, historic conditions on the Refuge consisted of a dominance of upland vegetation, with several wet areas traversing the lowland areas with adjacent transitional vegetation (wetland/riparian) (Otis Bay and Stevens Ecological Consulting 2006). Upland vegetation likely consisted of creosote bush scrub and cottontop cactus hillsides with sparse vegetation cover. Wetland and transitional areas likely contained alkali meadows, alkali shrub/scrub, mesquite bosques, and emergent vegetation, depending on the groundwater table and surface water depth. Invasive vegetation has since become dominant in disturbed areas, and wetlands have decreased in size due to water diversions and agricultural uses.

### *Refuge Partnerships*

The Ash Meadows NWR has partnerships with a variety of organizations and other agencies to manage the Refuge and its resources. The Service works with the following organizations and agencies:

- Death Valley Natural History Association: Plans and stocks bookstore at Refuge visitor contact station, funds educational projects, publishes needed material, works on development of future publications, and assists in outreach to local communities.
- NPS (Death Valley National Park): Education staff assists with programs for third- and fourth-graders, fish biologists assist with exotic aquatic removal programs, and a hydrotech assists with water monitoring program.
- Southern Nye County Conservation District: Funds transportation costs for local schools to participate in education programs, assists in outreach to local communities.
- Nuclear Waste and Environmental Advisory Board for the Town of Pahrump: Hosts the Pahrump Earth Day Fair.
- U.S. Geological Survey (USGS) – Reno and Las Vegas Offices: Participate in recovery team and recovery actions.
- Desert Fishes Council: Assists in outreach to scientific community and provide letters of support.
- Local Land Owners: Involved in conservation partnerships.
- Desert Springs Action Committee: Assists in aquatic removal program.
- NDOW: Participates in recovery team and recovery actions, assists in restoration projects, and assists in aquatic removal program.
- Service – Ecological Services: Assists in restoration projects, assists in aquatic removal program, and participates in recovery team and recovery actions.
- Great Basin Bird Observatory: Conducts periodic bird surveys, provides data summary of Ash Meadow study sites, and assists in outreach to birding communities.
- Desert Research Institute: Maintains an on-line weather station and conducts spring snail surveys.

- **Southern Oregon University:** Participates in recovery team, recovery actions, and naucorid restoration.
- **CGTO:** Provides recommendations/feedback on proposed Refuge projects and provides tribal monitors for construction projects.

### *Special Designations*

**Wetland of International Importance.** In 1986, the Ash Meadows NWR was among the first sites in the United States to be designated as a Wetland of International Importance under the Ramsar Convention. Under this international treaty, 118 contracting parties agreed to work together to develop national policies for wetland conservation, to cooperate in managing shared wetlands and their migratory species, and to devote special attention to the conservation of designated sites.

**Important Bird Area (IBA).** IBAs are sites that provide essential habitat for one or more species of bird. To qualify as an IBA, sites must satisfy at least one of the following criteria:

- Support species of conservation concern (e.g., threatened and endangered species);
- Support species with restricted ranges (species vulnerable because they are not widely distributed);
- Support species that are vulnerable because their populations are concentrated in one general habitat type or biome; or
- Support species, or groups of similar species (such as waterfowl or shorebirds), that are vulnerable because they occur at high densities due to their gregarious behavior.

Ash Meadows NWR is one of two routes offering perennial surface water and cover for birds migrating through the western Great Basin (Pahranagat Valley is the other). More than 239 different species of birds have been recorded on the Refuge. Fall and especially spring migration periods produce the greatest diversity and numbers. Spring migration usually occurs in April and May, and fall migration occurs from mid-August through September. In the winter, marshes and reservoirs support the largest variety of water birds. Mesquite and ash tree groves throughout the Refuge harbor resident and migratory birds year-round, including typical southwestern species such as Crissal thrasher, verdin, phainopepla, and Lucy's warbler. Two endangered species success stories, the peregrine falcon and bald eagle, also use Ash Meadows seasonally as a migration stop-over. In addition to migrants, a few pairs of endangered southwestern willow flycatchers use Ash Meadows as breeding habitat from June through August each year.

**Wilderness Status.** In accordance with the Service's Refuge Planning Policy, a wilderness review of the Ash Meadows NWR was conducted during the CCP process (see Appendix I). Ash Meadows NWR was found not suitable for wilderness designation.

### Refuge Purpose

The Ash Meadows NWR derives its purpose from the ESA, which authorized its creation:

*“...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants...” (16 USC Sec. 1534).*

### Vision

A vision statement is a concise statement of what a refuge should be, based primarily on the NWR mission, specific refuge purposes, and other mandates. A vision statement helps articulate the direction the refuge should be heading. The following is Ash Meadows NWR's vision statement:

*The springs, wetlands, and other native habitats of Ash Meadows National Wildlife Refuge support and protect the highest concentration of endemic plant and animal species anywhere in the United States. The Refuge's natural communities are restored to their historic extent and condition, and threatened and endangered species populations are recovered and maintained at sustainable levels through innovative coordination and partnerships. Refuge management continually responds to changes in the environment through adaptive management. Water supplies are ample, reliable, and of appropriate quality and temperature to sustain endemic and other fish and wildlife populations.*

*Researchers are drawn to the Refuge where science-based management and monitoring is used to guide habitat restoration and endangered species recovery efforts and, in the process, further scientific knowledge of fields such as species genetics, regional water flow, geology and even the cultural and historical significance of this long inhabited area. Visitors find sanctuary among the crystal pools and springs nestled among the expansive Mojave Desert landscape.*

*Local residents and visitors enjoy learning about and gaining an appreciation for the Refuge and its unique wildlife and plant species. Local educators recognize the Refuge as an exceptional regional resource for environmental education and for unique wildlife and habitat community tours. Volunteers find a meaningful and personally enriching application for their interests and talents in a responsive and appreciative setting that contributes to the conservation of rare, unique and beautiful species of wildlife and plants for the enjoyment of present and future generations of Americans.*

### *Goals*

The Service developed five goals for the management of Ash Meadows NWR. These goals were used to identify appropriate objectives and strategies and develop alternatives with specific management actions.

**Species Management (Goal 1).** Restore and maintain viable populations of all endemic, endangered, and threatened species within the Refuge's Mojave Desert oasis ecosystem.

**Habitat (Goal 2).** Restore and maintain the ecological integrity of natural communities within the Ash Meadows NWR.

**Research (Goal 3).** Encourage and provide opportunities for research that supports Refuge and Service objectives.

**Visitor Services (Goal 4).** Provide visitors with wildlife-dependent recreation, interpretation, and environmental education opportunities that are compatible with and foster an appreciation and understanding of Ash Meadows NWR's wildlife and plant communities.

**Cultural Resources (Goal 5).** Manage cultural resources for their educational, scientific, and traditional cultural values for the benefit of present and future generations of refuge users, communities, and culturally affiliated tribes.

## **1.7.2 Desert National Wildlife Refuge**

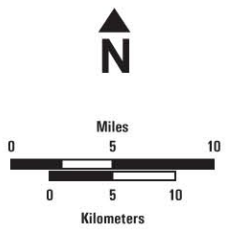
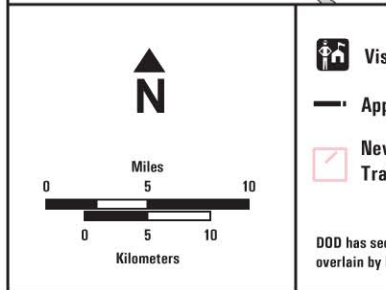
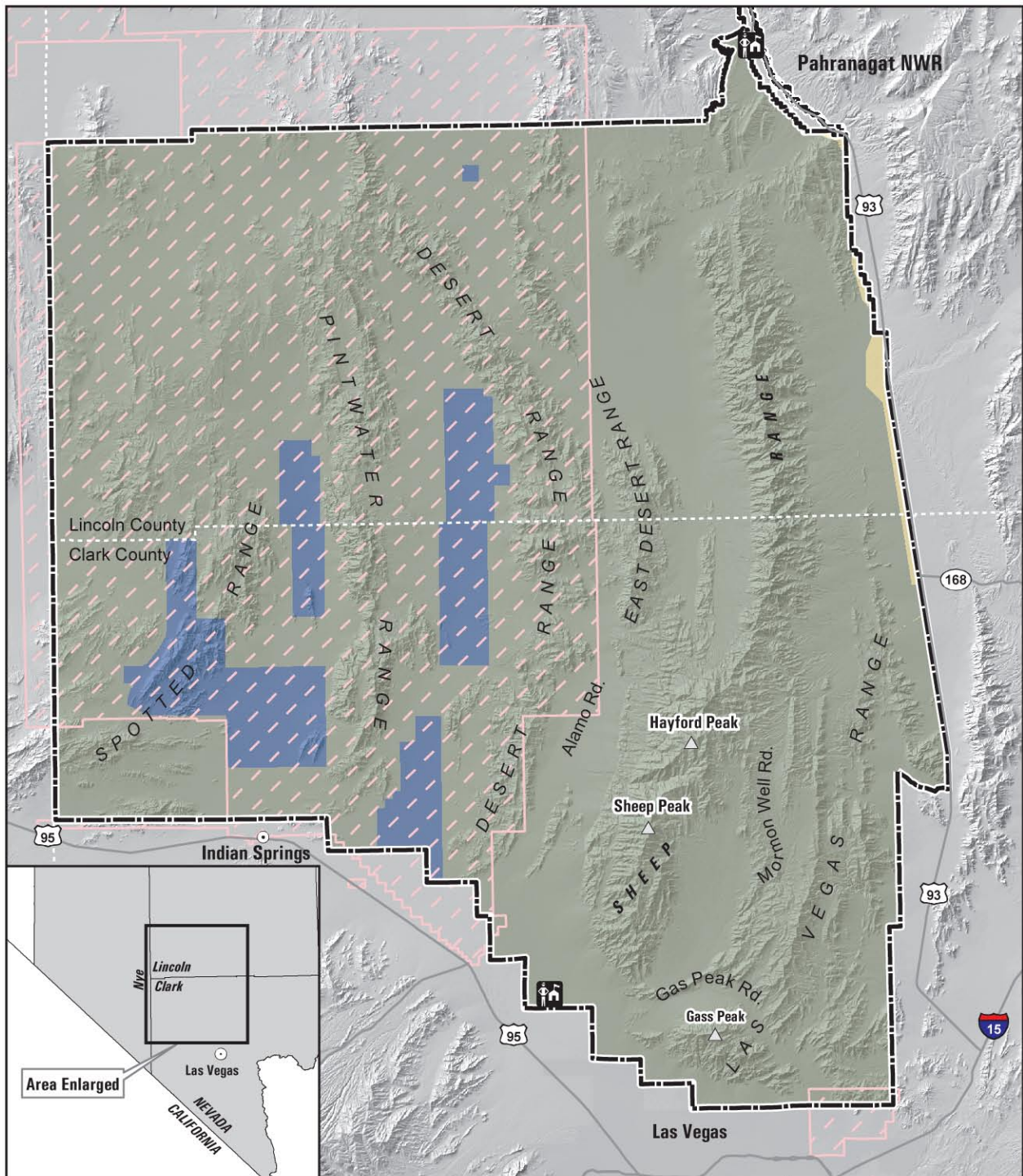
### *Location*

Desert NWR is located about 20 miles north of Las Vegas and encompasses 1.6 million acres of rugged mountain ranges and panoramic valleys in Clark and Lincoln Counties (Figure 1.7-2). It is the largest Refuge in the continental United States and the largest protected area in Nevada. Desert NWR contains six distinct mountain ranges, with elevations ranging from 2,200 feet on valley floors to nearly 10,000 feet in the Sheep Range. The Refuge's wide ranges of elevation and rainfall have created diverse habitats suited to a wide variety of flora and fauna. The southern border of the Refuge will soon abut the northern border of the rapidly expanding city of North Las Vegas. The Refuge is bordered by U.S. Highway 93 on the east and U.S. Highway 95 along the southwest corner. Interstate 15 (I-15) through Las Vegas is located just southeast of the Refuge.

### *History of Establishment and Acquisition*

On May 20, 1936, President Franklin D. Roosevelt established the Desert Game Range for "the conservation and development of natural wildlife resources" (EO 7373). The 2.25 million-acre Game Range, under the joint administration of the Service and BLM, included most of the lands within the current Refuge boundary, but stretched south to include portions of the Spring Mountains, including the area currently occupied by Red Rock Canyon National Conservation Area.





- Visitor Center
  - Approved Refuge Boundary
  - Nevada Test and Training Range
  - Private
  - FWS Lands
  - DOD Lands (FWS secondary jurisdiction)
- DOD has secondary jurisdiction over portion of refuge overlain by Nevada Test and Training Range

**Figure 1.7-2**  
**Land Status**  
**Desert NWR**

In 1939, a 320-acre ranch at Corn Creek was acquired from a private landowner under the authority of the Migratory Bird Conservation Act. This site became the administrative headquarters for the Game Range.

In October of 1940, approximately 846,000 acres of the Desert Game Range were reserved for the use of the War Department (U.S. Department of Defense [DOD]) as an aerial bombing and gunnery range (now known as the NTTR). This order took precedence over, but did not revoke or rescind, EO 7373. However, the Service retained primary jurisdiction of the lands. The USAF's use of a portion of the Desert Game Range was governed by a Memorandum of Understanding (MOU) signed in 1949. The MOU was most recently updated in 1997 on December 22.

The approximately 10,623-acre Nellis Small Arms Range is located 3 miles northwest of NAFB on Range Road (USAF 2007). It is managed by NAFB. The range overlays a small portion of the Desert NWR in the southeast corner. The range is used for small arms training, and most of the land is undeveloped.

Public Land Order 4079, dated August 31, 1966, as amended by Public Law (PL) 106-65 (Sec. 3011[b][3]), established the Desert National Wildlife Range under the sole administration of the Bureau of Sport Fisheries and Wildlife (now the Service). It also reduced the size of the refuge to 1,588,000 acres.

Between 1970 and 1985, 440 acres in the vicinity of Corn Creek were purchased from a variety of private land owners under the authority of the ESA (16 USC Sec. 1534) and Refuge Recreation Act (16 USC Sec. 460k-460).

As stated in a 1977 Desert NWR Environmental Assessment for the proposed acquisition of Corn Creek area lands (Service 1977), the justification for adding lands to the Refuge was for wildlife goals and compatible human use goals, including:

*"1. Preserve and maintain wildlife habitat necessary to support migratory and indigenous wildlife such as the desert bighorn, desert tortoise, quail, doves, owls, nighthawk, hummingbirds, flickers, flycatchers, ravens, wrens, thrashers, warblers, etc. Typical flora includes mesquite, creosote bush, shadscale, cactus and grasses. 2. Protect and enhance habitat for the Pahrump killifish, an endangered species, and others known to be rare. 3. Provide opportunities for wildlife and ecological studies, environmental education, and wildlife interpretation... [and] 4. Maintain open space for public enjoyment."*

The Military Lands Withdrawal Act of 1999 (PL 106–65) transferred primary jurisdiction of 112,000 acres of bombing impact areas on Desert NWR from the Service to DOD. However, the Service retained secondary jurisdiction over these lands. According to PL 106–65 as amended, the Secretary of the Interior must determine, at least every five years, whether it is suitable to open any withdrawn lands for mineral resource entry. The intent of this decision is based on three factors: (1) to protect the public from injury due to ordnance hazards; (2) to ensure national security is not compromised; and (3) to ensure that military programs can be conducted without interruption. PL 106–65 also states that management plans will be developed by the Secretary of the Interior “after consultation with the Secretary of the military department concerned.”

On November 6, 2002, President George W. Bush signed the Clark County Conservation of Public Land and Natural Resources Act of 2002 (PL 107–282), which administratively transferred 26,433 acres of BLM land adjacent to Desert NWR’s east boundary to the Service. Desert NWR’s land base changed again with the passage of the Lincoln County Conservation, Recreation, and Development Act of 2004 (PL 108–424). As part of the Act, administrative jurisdiction over approximately 8,382 acres of land along the eastern boundary of Desert NWR and west of U.S. Highway 93 was transferred from the Service to the BLM for use as a utility corridor. In addition, 8,503 acres of BLM-administered land were transferred to the Service to be managed as part of the Desert NWR. This land is located at the northeastern boundary of the Desert NWR and the western boundary of Pahranaagat NWR.

### *Historic Conditions*

The Desert NWR has been relatively undisturbed by EuroAmericans, except for small areas affected by agricultural uses (e.g., Corn Creek) and other uses (e.g., military operations). As a result, current conditions are likely similar to pre-settlement conditions, with vast acreages of upland vegetation supporting a diversity of flora and fauna and occasional springs and wetlands. Human disturbances, such as grazing, reduction in natural herbivores, and wood harvesting, may have affected the historic conditions on the Refuge (NAFB 2007).

Lower elevation upland habitats include creosote bush and saltbush scrubs in the southern portion, and blackbrush and Great Basin desert scrub in the northern portion (NAFB 2007). Blackbrush may have been more dominant in historic times. Higher-elevation upland habitats include pinyon-pine and pinyon-juniper. Natural artesian springs were more common throughout the Las Vegas Valley, resulting in distinct riparian habitats supporting cottonwoods, willows, and cattails. These spring habitats, as well as the nearby Las Vegas Big Spring and Creek, supported oases in the arid desert landscape.

### *Refuge Partnerships*

Desert NWR has partnerships with a variety of organizations and other agencies to manage the Refuge and its resources. The Service works with the following organizations and agencies:

- NDOW: Coordinates desert bighorn sheep hunt program on the refuge, including setting bag limits for each hunt unit, assists (or takes lead) with annual fall sheep surveys, works with Service and Fraternity of the Desert Bighorn to maintain water developments, conducts wildlife surveys on the Refuge, conducts removal of nonnative aquatic species from Corn Creek ponds, and assists with monitoring Pahrump poolfish refugium populations.
- USAF: Provides a minimum of 20 hours of aircraft support annually, and if available, other support equipment with operating personnel as negotiated on a case-by-case basis for the purposes of aerial patrol, search and rescue, maintenance, wildlife inventory, water hole inspection, and other wildlife management practices on the Refuge; facilitates access to portions of the Refuge within the NTTR for guzzler maintenance; facilitates access to the Refuge during the bighorn sheep hunt; provides a mandatory Range Safety Briefing and Natural/Cultural Resources Briefing for all hunters; and cooperates on cultural resources management and tribal coordination.
- Fraternity of the Desert Bighorn: Assists with maintenance of sheep water developments (including manpower and funding for equipment and helicopter time).
- Southern Nevada Interpretive Association: Staffs and manages visitor contact station on Refuge, provides environmental education programs for school groups at Corn Creek, and leads hikes into back country areas and informational walks around Corn Creek.
- CGTO: Provides recommendations/feedback on proposed refuge projects and tribal monitors for construction projects.
- Service – Ecological Services: Monitors Pahrump poolfish populations, assists with Section 7 consultation, and assists with Refuge surveys for special-status species.
- USGS: Monitors water levels from Corn Creek springs.

### *Special Designations*

**Proposed Wilderness.** In 1974, approximately 1.3 million acres of land within the Refuge were proposed for wilderness designation under the Wilderness Act of 1964 (Appendix I). In the President's message to Congress accompanying the proposal, he recommended that Congress defer action on the proposal until a mineral survey was completed. The Final EIS for the proposal was released in August of 1975. A mineral assessment of the refuge was completed in 1993 as part of the mineral withdrawal, which was later completed in 1999. However, Congress has yet to act on the wilderness proposal, and the area continues to be managed to protect its wilderness values.

Figure 3.3–1 in Chapter 3 (Alternatives) shows the area proposed for wilderness in 1974; Table 1.7-1 shows the wilderness review timeline for the Refuge from the most recent proposal to the original wilderness study report.

**Table 1.7-1. Wilderness Review Timeline for Desert NWR**

<i>Proposal/Study</i>	<i>Area (acres)</i>
Final Environmental Impact Statement (Service 1975)	1,398,900 acres* proposed
Revision to Wilderness Proposal (Service 1971a) due to public hearing	1,460,340 acres* determined suitable
Wilderness Proposal (Service 1971a; October)	1,443,100 acres** determined suitable
Wilderness Study Report (Service 1971b; April)	1,442,000 acres** determined suitable
Draft Wilderness Study Report, pre 1971	1,646,000 acres** determined suitable

\*Acreage includes 76,000 acres of BLM land previously outside the Refuge boundaries.

\*\*Acreage includes 58,000 acres of BLM land previously outside the Refuge boundaries

**Research Natural Areas.** Research natural areas (RNAs) are part of a national network of reserved areas under various ownerships. RNAs are intended to represent the full array of North American ecosystems with their biological communities, habitats, natural phenomena, and geological and hydrological formations.

In RNAs, as in designated wilderness, natural processes are allowed to predominate without human intervention. Under certain circumstances, deliberate manipulation may be used to maintain the unique features for which the RNA was established. Table 1.7-2 lists the RNAs on Desert NWR. Figure 3.3–1 shows their locations on the Refuge.

**Table 1.7-2. Research Natural Areas on Desert NWR**

<i>Name</i>	<i>Plant Community Represented</i>	<i>Area (acres)</i>
Basin	Interior Ponderosa Pine	650
Deathhorse	Grama-Galleta Steppe	3,000
Hayford Peak	Bristlecone Pine	2,000
Papoose Lake	Saltbush	23,680
Pinyon-Juniper	Pinyon-Juniper	500

**Important Bird Area.** In 2004, the Audubon Society designated 24,000 acres of the southern Sheep Range as an IBA, one of 35 in Nevada (National Audubon Society 2004). With a wide range of elevation and aspect, the Sheep Range IBA supports a variety of plant communities, including Mojave scrub, pinyon-juniper woodland, ponderosa pine and aspen forest, as well as scattered springs and seeps. The Sheep Range IBA provides important breeding habitat for flammulated owl, gray flycatcher, black-throated gray warbler, and Grace's warbler. It also represents the northern limit of the Mexican whip-poor-will (McIvor 2005).

### *Refuge Purposes*

Desert NWR has four purposes derived from laws under which it was established:

*"...for the protection, enhancement, and maintenance of wildlife resources, including bighorn sheep..."*  
(Public Land Order 4079, dated August 31, 1966, as amended by PL 106-65).

*"...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants..."* (ESA, 16 USC Sec. 1534).

*"...suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species..."* (16 USC Sec. 460k-1).

*"...the Secretary...may accept and use...real...property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors..."* (Refuge Recreation Act, as amended, 16 USC Sec. 460k-2).

### *Vision*

Desert NWR's vision statement is:

*As the largest refuge in the contiguous United States, Desert National Wildlife Refuge provides the highest quality, intact habitat for desert bighorn sheep and other fish, wildlife, plants and their habitats native to the Great Basin and Mojave Desert ecosystems.*

*This rugged, arid landscape supports a full range of desert habitats from playas on the valley floors through desert scrub and coniferous woodlands to ancient bristlecone pine groves on the mountain peaks. The vast, rugged wild spaces provide wildlife and people a refuge and a place for harmonious recreational opportunities.*

### *Refuge Goals*

The Service developed five goals for management of Desert NWR. These goals were used to identify appropriate objectives and strategies and develop alternatives with specific management actions.

**Bighorn Sheep (Goal 1).** Maintain and, where necessary, restore healthy population levels of bighorn sheep on Desert NWR within each of the six major mountain ranges.

**Wildlife Diversity (Goal 2).** Maintain the existing natural diversity of native wildlife and plants, including special-status species, at Desert NWR.

**Specially designated Areas (Goal 3).** Manage specially designated areas such that they augment the purposes of the Desert NWR.

**Visitor Services (Goal 4).** Visitors understand, appreciate, and enjoy the fragile Mojave/Great Basin Desert ecosystem.

**Cultural Resources (Goal 5).** Manage cultural resources for their educational, scientific, and traditional cultural values for the benefit of present and future generations of refuge users, communities, and culturally affiliated tribes.

### **1.7.3 Moapa Valley National Wildlife Refuge**

#### *Location*

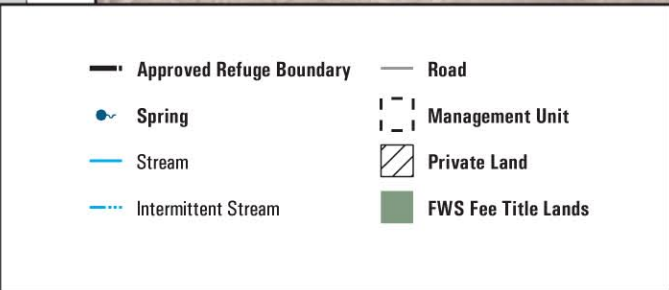
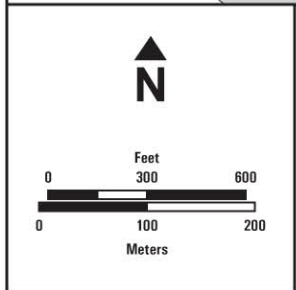
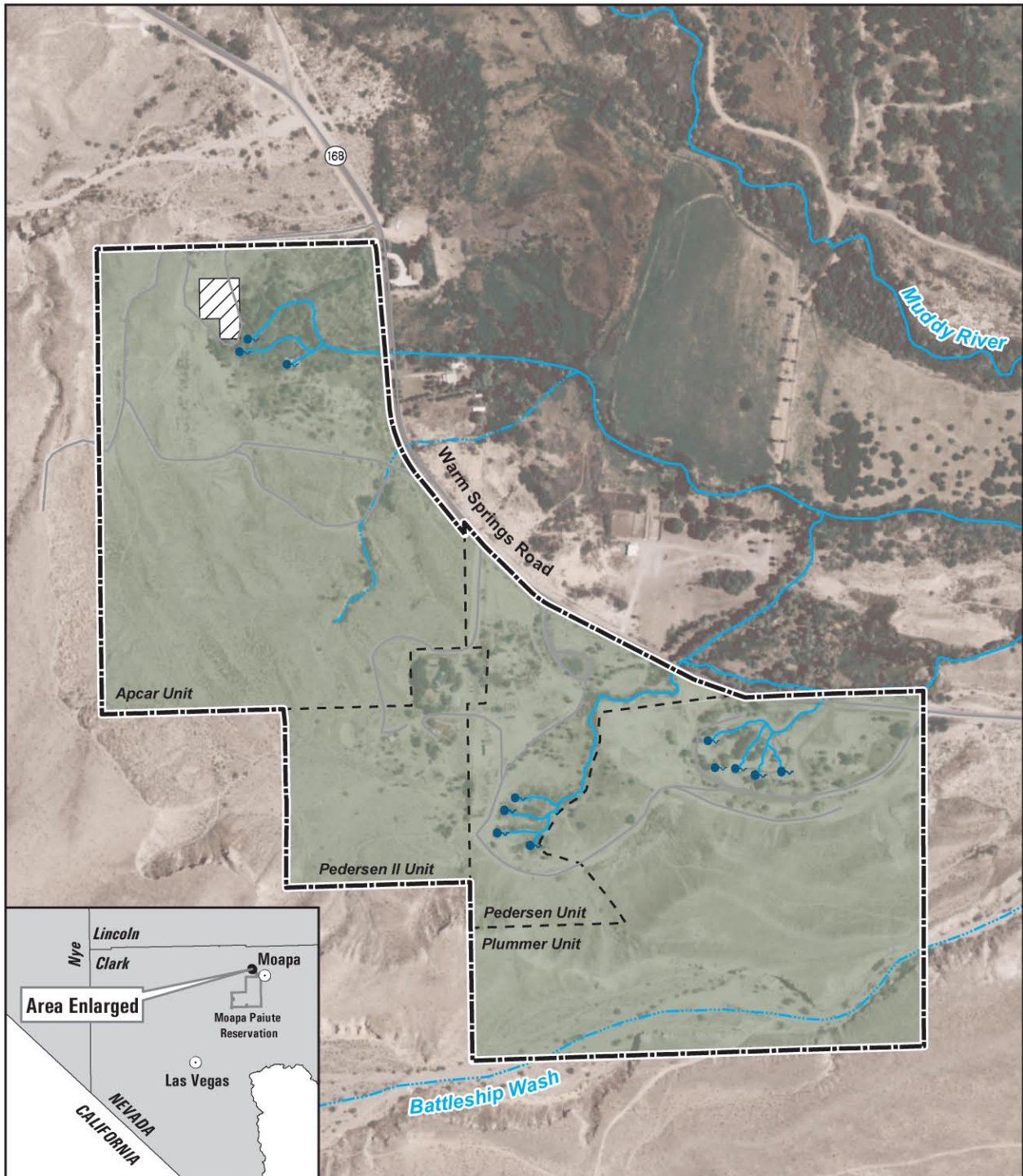
Moapa Valley NWR encompasses 116 acres and is located about 60 miles northeast of Las Vegas in Clark County (Figure 1.7-3). The Refuge is part of a unique system of thermal springs that are part of the headwaters of the Muddy River, which eventually flow into Lake Mead east of Las Vegas. The Refuge is located south of State Highway 168 and the upper Muddy River, between I-15 and U.S. Highway 93. The entire Refuge lies within the upper Moapa Valley. It is bounded on the north by Warm Springs Road, on the south by Battleship Wash, and on the east and west by private property. The Moapa Indian Reservation is located 5 miles south of the Refuge.

#### *History of Establishment and Acquisition*

Moapa Valley NWR was established on September 10, 1979, to secure and protect habitat for the endangered Moapa dace.

As stated in a 1979 Environmental Assessment of Proposed Land Acquisition for Moapa Dace (Service 1979):

*“The U.S. Fish and Wildlife Service proposes: 1. To acquire, in fee or by exchange in the upper Moapa Valley of Clark County, Nevada, approximately 90 acres of land deemed essential habitat of the endangered Moapa dace, *Moapa coriacea*, for the purpose of protecting this fish and enhancing its survival prospects.”*



**Figure 1.7-3**  
**Land Status**  
**Moapa Valley**  
**NWR**



The endemic Moapa dace lives out its lifecycle in the Warm Springs thermal spring complex that includes more than 20 springs located within the Refuge. Historic uses of the spring pools and the surrounding landscape for agricultural and recreational purposes have altered the habitat of the Moapa dace.

The Refuge comprises multiple adjacent but visually distinct units. The original Pedersen Unit was acquired in 1979 and is 30 acres in size. An additional 11 acres were purchased in 2006 from Richard and Lorena Pedersen and are referred to as the Pedersen II Unit. The Plummer Unit was acquired in 1997 and is 28 acres in size, and the Apcar Unit was acquired in 2000 and is 48 acres in size. Each unit has a separate stream system supported by the steady and uninterrupted flow of several springs that surface at various places throughout the Refuge.

Due to the Refuge's small size, fragile habitats, ongoing restoration work, and removal of unsafe structures, the Refuge has been closed to the public since its establishment. Plans to open the Refuge to the public are currently under way as part of this planning process. Agency scientists with the USGS Biological Resources Division and NDOW, as well as local conservation and community organizations, are working with Service staff to restore the historical landscape and habitat on the Refuge, which is critical to the survival of the Moapa dace. Public education and outreach are also important to the recovery of the Moapa dace.

### *Historic Conditions*

The Muddy River area has been affected by human activities associated with development, recreation, agricultural uses, and other land disturbing activities. The Muddy River historically flowed into the Virgin River prior to the construction of Hoover Dam (TNC 2000). It is a remnant of the White River system, which also flowed through Pahrangat NWR. Historically, the streams in the area were bordered by willow and mesquite, but activities in the past century have introduced palm trees and tamarisk into the riparian habitats along streams (Service 1996). Ash and cottonwood are also considered native, although cottonwoods were believed to have been brought into the area by Mormon settlers (TNC 2000).

### *Refuge Partnerships*

Moapa Valley NWR has partnerships with a variety of organizations and other agencies to manage the Refuge and its resources. The Service works with the following organizations and agencies:

- **USGS:** Assists with monitoring Moapa dace and other native and nonnative fish on the Refuge, provides recommendations on restoring habitat for dace, conducts research on Moapa dace and other species that provides critical info for restoration and management, and monitors water levels.
- **NDOW:** Assists with monitoring Moapa dace populations and provides input regarding non-game wildlife regarding habitat restoration efforts.

- Partners in Conservation: Assists in Refuge volunteer events and efforts.
- Muddy River Regional Environmental Implementation Action Committee: Assists in Refuge volunteer events and efforts and assists with removal of nonnative vegetation on the Refuge.
- Service – Ecological Services: Conducts Moapa dace and other nonnative fish population counts and monitoring and assists with trapping and removal of nonnative fish and reptiles from Refuge streams and spring pools.
- CGTO: Provides recommendations/feedback on proposed refuge projects and provides tribal monitors for construction projects.

### *Special Designations*

**Important Bird Area.** Moapa Valley IBA encompasses riparian, mesquite, and Mojave Desert scrub habitat in the Moapa Valley and along the upper reaches of the Muddy River. This area supports a diversity of birds, including breeding populations of the endangered southwestern willow flycatcher. The presence of a rare habitat type in Nevada distinguishes this area from others and warrants its recognition as an IBA.

**Wilderness.** In accordance with the Service’s Refuge Planning Policy, a wilderness review of Moapa Valley NWR was conducted during the CCP process (see Appendix I). Moapa Valley NWR was found not suitable for wilderness designation.

### *Refuge Purpose*

The purpose of Moapa Valley NWR derives from the ESA:

*“...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants...” (16 USC Sec. 1534).*

### *Vision*

Moapa Valley NWR’s vision is:

*Moapa Valley National Wildlife Refuge supports and protects a healthy, thriving population of Moapa dace at the headwaters of the Muddy River. Stable flows from the Refuge’s numerous warm springs fill meandering channels downstream that provide ideal habitat for dace, Virgin River chub and other species of endemic fish and invertebrates.*

*The spring bank and riparian plant communities provide habitat for southwestern willow flycatcher as well as a rich diversity of migratory and resident songbirds, colonial nesting species, and other native wildlife.*

*Local residents and visitors learn about and enjoy this restored desert oasis. Volunteers take personal satisfaction from contributing to the conservation and protection of Refuge wildlife and the unique spring system nourished habitats on which they depend.*

### *Goals*

The Service developed two goals for management of the Moapa Valley NWR. These goals were used to identify appropriate objectives and strategies and develop alternatives with specific management actions.

**Endemic and Special-Status Species (Goal 1).** Protect and restore, when possible, healthy populations of endemic and special-status species, such as the endangered Moapa dace, within the Muddy River headwaters.

**Visitor Services (Goal 2).** Local communities and others enjoy and learn about the resources of Moapa Valley NWR and participate in its restoration.

## **1.7.4 Pahrnat National Wildlife Refuge**

### *Location*

Pahrnat NWR is located approximately 90 miles north of Las Vegas along U.S. Highway 93 at the southern end of Pahrnat Valley (Figure 1.7-4). It encompasses 5,380 acres of marshes, open water, native grass meadows, cultivated croplands, and riparian habitat in Lincoln County. The town of Alamo is a few miles north of the Refuge.

### *History of Establishment and Acquisition*

Pahrnat NWR was established on August 16, 1963, to provide habitat for migratory birds, especially waterfowl. The Refuge is an important stopping point for numerous migratory birds during their fall and spring migrations. It is also an important tourist attraction for visitors traveling on U.S. Highway 93 to or from Las Vegas.

Public Land Order 3348 in 1964 withdrew an additional 1,466 acres from public domain for incorporation into the Refuge boundary, bringing the acreage of Pahrnat NWR to a total of 5,382 acres. In 1966, the Service also acquired a 347-acre lake bottom on the Refuge.

### *Historic Conditions*

The Pahrnat River has been modified and disturbed as a result of human activities related to agricultural uses and development. The river is primarily fed by spring discharge from Ash and Crystal Springs (Tuttle et al. 1990). Historically, these springs and the river likely contained a thick riparian corridor of ash, cottonwood, and willow. Native upland vegetation includes pinyons and junipers in the mountains and greasewood and sage at lower elevations.

Human activities have channelized, diverted, and dried up portions of the Pahrnagat River drainage. Concrete channels have been installed to control and divert flows for irrigation of agricultural fields north of and within the Refuge. The Pahrnagat River historically flowed into Maynard Lake and was a relic of the White River drainage, which discharged into the Virgin River (Tuttle et al. 1990). The White River drainage has dried up and is represented now by springs located throughout its historic channel. The Pahrnagat River is now an intermittent drainage affected by agricultural uses, and it discharges into three man-made lakes on the Refuge.

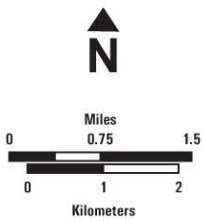
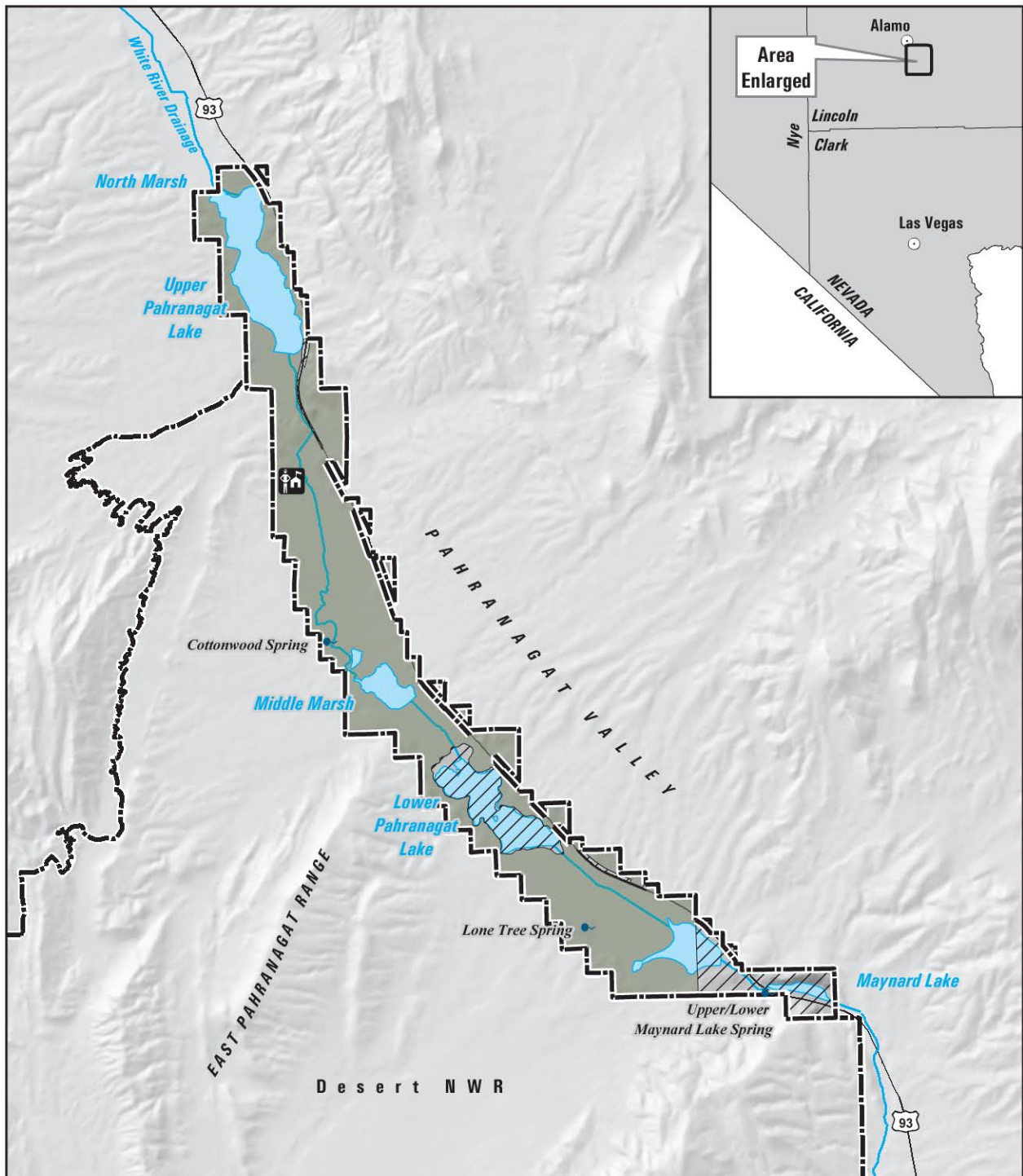
### *Refuge Partnerships*

Pahrnagat NWR has partnerships with a variety of organizations and other agencies to manage the Refuge and its resources. The Service works with the following organizations and agencies:

- **NDOW**: Administers portions of waterfowl and upland game hunt program, conducts periodic wildlife surveys, conducts mid-winter waterfowl surveys, has a cooperative agreement to manage warm-water sport fishery, conducts yellow-billed cuckoo surveys and produces an annual report, conducts southwestern willow flycatcher surveys and produces an annual report, and conducts montane vole genetic research.
- **U.S. Bureau of Reclamation**: Conducts southwest willow flycatcher surveys.
- **Great Basin Bird Observatory**: Conducts breeding bird surveys and administers biologist contract for oversight of preplanning wetland restoration project.
- **CGTO**: Provides recommendations/feedback on proposed refuge management plans and provides tribal monitors for inventory of Black Canyon.
- **Service – Ecological Services**: Conducts spring inventories, killdeer nest monitoring, and spring restoration.
- **BLM**: Researches Russian knapweed treatments.
- **Southern Nevada Water Authority**: Provides native vegetation for stabilization of the Las Vegas Wash.
- **University of New Mexico**: Conducts montane vole genetics research.
- **Northern Arizona University**: Conducts research on cottonwood trees.
- **NPS Exotic Plant Management Team and USGS**: Conduct research on exotic/invasive plant management techniques.

### *Special Designations*

**Important Bird Area.** Pahrnagat Valley is one of two routes that offers surface water and cover for birds migrating through the western Great Basin (Ash Meadows NWR is the other). More than 230 different species of birds use Refuge habitats.



- Approved Refuge Boundary
- Visitor Contact Station
- Spring
- Stream
- Open Water
- FWS Fee Title
- BLM Land

**Figure 1.7-4**  
**Land Status**  
**Pahrnagat**  
**NWR**

Bird abundance and diversity is highest during spring and fall migrations, when large numbers of songbirds, waterfowl, shorebirds, and raptors are present. Common ducks are pintail, teal, mallards, and redhead. Great blue herons are found near lakes, while black-necked stilts and American avocets are found feeding in shallow water. Greater sandhill cranes can be seen from February to March and again in October and November as they migrate between nesting and wintering areas. Red-tailed hawks, northern harriers, Cooper's hawks, and American kestrels are most abundant during winter months, and bald eagles and golden eagles are also winter visitors. Cottonwood-willow habitat provides nesting habitat for warblers, orioles, flycatchers, and finches. The open fields attract shrikes, meadowlarks, blackbirds, and mourning doves. The uplands are home to Gambel's quail, roadrunners, and various sparrow species.

**Wilderness.** In accordance with the Service's Refuge Planning Policy, a wilderness review of Pahranaagat NWR was conducted during the CCP process (see Appendix I). Three small units of Pahranaagat NWR along the western side of the Refuge and adjacent to the proposed desert wilderness on Desert NWR were determined to meet the criteria for wilderness designation.

#### *Refuge Purpose*

The purpose of Pahranaagat NWR derives from the Migratory Bird Conservation Act:

*"...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds..."* (16 USC 715d).

#### *Vision*

Pahranaagat NWR's vision statement is:

*The Pahranaagat National Wildlife Refuge is managed as a sanctuary where present and future generations of people can discover a connection to the rhythms of life. In spring, indigo bush and beavertail cactus bloom at the edges of verdant meadows and wetlands, fed by brimming lakes. The vital, spring-fed waters of this Mojave Desert oasis attract thousands of migratory birds each year. Pahranaagat NWR's seasonal marsh, wet meadows, and alkali flats provide high quality resting and foraging habitat for wintering and migrating waterfowl, shorebirds and other waterbirds along the Pacific Flyway. Riparian gallery forests of willow, cottonwood, and associated plant communities support a flourishing population of southwestern willow flycatcher as well as a rich diversity of migratory and resident songbirds, colonial nesting species and birds of prey. Coveys of Gambel's quail emerge at dusk along with abundant cottontails and jackrabbits as nighthawks, coyotes, and owls*

*begin to hunt. Each fall brings returning waterfowl and waterfowl hunters, while mountain lions follow mule deer down into the valley.*

*Wetlands, wet meadows, upland plant communities, natural springs, and cultural history entice scientists and scholars to study Refuge resources and further human understanding of the processes and environments that are the foundation for the rich diversity of life on Pahrnagat NWR and how humans have interacted with that environment over millennia.*

*Other researchers focus on understanding the role of southwestern wetlands and diversity in the regional and national refuge system, the preeminent example of a habitat conservation system in the United States and perhaps the world. This ever expanding understanding contributes to conservation and management of Mojave Desert environments important to southern Nevada, the southwest, and the United States.*

*Visitors from near and far find sanctuary among the crystal pools and springs as they learn about the Refuge's unique plant and animal communities. Local people take pride in the Refuge, and visitors tell their families and friends about this brilliant desert gem. Educators recognize the Refuge as an exceptional regional resource for environmental education and observation of wildlife and the habitats upon which they depend. Volunteers take great personal satisfaction from applying their interests and abilities to the conservation and interpretation of a unique, natural Mojave Desert community for the enjoyment of present and future generations of Americans.*

### *Goals*

The Service developed four goals for the management of Pahrnagat NWR. These goals were used to identify appropriate objectives and strategies and develop alternatives with specific management actions.

**Wetland Habitat (Goal 1).** Restore and maintain wetland habitat for waterfowl and other migratory birds with an emphasis on spring and fall migration feeding and resting habitat requirements.

**Wildlife Diversity (Goal 2).** Restore and maintain the ecological integrity of natural communities within Pahrnagat NWR and contribute to the recovery of listed and other special-status species.

**Visitor Services (Goal 3).** Provide visitors with compatible wildlife-dependent recreation, interpretation, and environmental education opportunities that foster an appreciation and understanding of Pahrnagat NWR's wildlife and plant communities.

**Cultural Resources (Goal 4).** Manage cultural resources for their educational, scientific, and traditional cultural values for the benefit of present and future generations of refuge users, communities, and culturally affiliated tribes.

## **1.8 Intent of This CCP/EIS**

The CCP/EIS is a programmatic document intended to analyze proposed management actions on a conceptual level, except in those cases where sufficient information is available to provide project-specific analysis. Therefore, the extent of analysis provided for each wildlife/habitat management and/or public use proposal reflects the level of detail currently available for the specific proposal. It is during subsequent project-level planning, referred to as “step-down” planning, that additional studies would be conducted, additional baseline data would be gathered, the appropriate project-level NEPA documentation would be prepared, all necessary permits would be acquired, and final engineering and planning would be conducted. Step-down planning would also include a public involvement component similar to that provided during the CCP process.