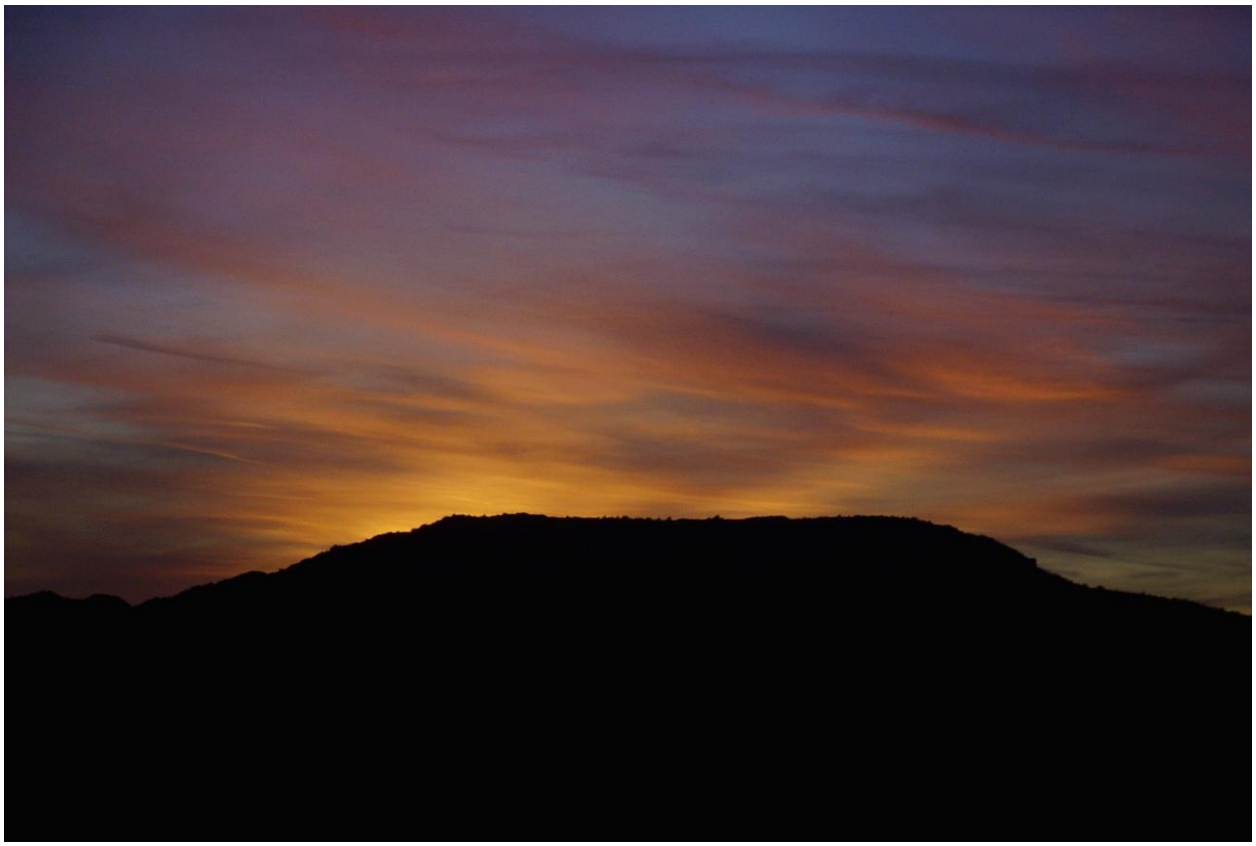

*Sunset on Elk Mountain. Photo by Walter Munsterman*

# 1.0 Introduction

This Comprehensive Conservation Plan (CCP) is designed to guide management of the Wichita Mountains Wildlife Refuge (Refuge) for the next 15 years. The CCP provides a description of the desired future conditions and long-range guidance to accomplish the purposes for which the Refuge was established. The CCP and accompanying Environmental Assessment (EA) address U.S. Fish and Wildlife Service (Service) legal mandates, policies, goals, and National Environmental Policy Act (NEPA) compliance. The EA (Appendix A) presents a range of alternatives for habitat and wildlife management, visitor services, and facilities management that consider issues and opportunities on the Refuge. It also identifies, describes, and compares the consequences (or impacts) of implementing three management alternatives (including current management) on the physical, biological, and socioeconomic environments described in the CCP. The final decision for the EA is a Finding of No Significant Impact (FONSI), which is documented in Appendix A.

The CCP is divided into five chapters. Chapter 1, Introduction, provides information about why the Service is developing this CCP; a brief overview of the Refuge, including its establishment, authorizing legislation, and description of its purposes and information on the National Wildlife Refuge System (Refuge System, NWRS); and the laws, policies, and guidance that set the stage for management direction. Chapter 2, The Planning Process, explains the process used to develop the CCP consistent with planning requirements. Chapter 3, Refuge Resources and Current Management explains the landscape setting; physical, biological, and socioeconomic environment; and the current management programs on the Refuge. Chapter 4, Management

Direction, describes the goals, objectives, and strategies for the Service's proposed action (Alternative B). Finally, Chapter 5, Plan Implementation and Monitoring, describes the various tools the Refuge will use to implement the management direction presented in this CCP.

## 1.1 Purpose and Need for the CCP

The purpose of comprehensive conservation planning is to provide long-range guidance for the management of national wildlife refuges, as mandated by the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act). The CCP will enhance the management of the Wichita Mountains Wildlife Refuge by:

- providing a clear statement of direction for the future management of the Refuge;
- providing long-term continuity in Refuge management;
- communicating the Service's management priorities for the Refuge to its partners, neighbors, visitors, and the general public;
- providing an opportunity for the public to help shape the future management of the Refuge;
- ensuring that management programs on the Refuge are consistent with the mandates of the Refuge System and the purposes for which the Refuge was established;
- ensuring that the management of the Refuge is consistent with Federal, State, and local plans; and
- providing a basis for budget requests to support the Refuge's needs for staffing, operations, maintenance, and capital improvements.

The CCP is needed to provide guidance and rationale for management actions and will be used by the Refuge Manager and staff as a reference document when developing work plans and step-down plans and when making management decisions. Through the development of goals, objectives, and strategies, this CCP describes how the Refuge contributes to the overall mission of the National Wildlife Refuge System, fulfills the purposes designated for the Refuge, and uses the best available science for adaptive management.

The goals established for the Refuge are (see Chapter 4):

***Ecoregion***

Improve ecoregion conservation through comprehensive and strategic Refuge management and participation with landscape management partnerships.

***Habitat and Wildlife***

Preserve the biological integrity of southern mixed-grass prairie and Crosstimbers habitats to enhance long-term resiliency of these habitats.

Manage to preserve the natural character of those Refuge lands designated as Research Natural Areas.

***Public Use***

Visitors enjoy a world-class, wildlife-focused experience through public use opportunities that educate and increase the quality of life for current and future generations, and promote the long-term health of the Refuge.

***Wilderness***

Manage to preserve the wilderness character of those Refuge lands designated by Congress as part of the National Wilderness Preservation System.

***Facilities***

Administer safe, well-maintained, and energy-efficient facilities that allow the public and staff to enjoy and support the purpose of the Refuge and the mission of the Refuge System.

***Cultural Resources***

Identify and protect the archaeological, historical, and cultural resources on the Refuge for the benefit of present and future generations.

This CCP, with its management direction laid out in specific objectives and strategies, is needed for several reasons. The CCP is needed to provide a vision for the Refuge and provide management direction for conducting scientific research, restoration, maintenance, and management of compatible public uses of Refuge resources for the next 15 years. The CCP is also needed to ensure that the Refuge continues to conserve fish, wildlife, and habitat in the face of climate change and related stressors.

By preparing this CCP, documenting our goals and objectives, and involving our partners and the public in the process, we can gain a better understanding of concerns regarding the Refuge's management and threats to its natural resources. Sustaining the nation's fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. This CCP will help explain how the Wichita Mountains Wildlife Refuge fits into the larger landscape and our role in protecting our natural resources for present and future generations.

## 1.2 Refuge Overview: History of Establishment and Acquisition

The Wichita Mountains Wildlife Refuge is a tract of 59,020 acres embracing a major portion of the ancient Wichita Mountains in southwestern Oklahoma. The land was originally established as a Forest Reserve by President William McKinley in 1901. By proclamation of President Theodore Roosevelt, dated June 2, 1905, and based on a special act of Congress approved January 24, 1905, the land was further designated as a National Game Preserve "for the protection of game animals and birds and shall be recognized as a breeding place thereof." The land was administered by the U.S. Forest Service until 1936, when it was transferred to the Bureau of Biological Survey, one of the predecessor agencies of the present day U.S. Fish and Wildlife Service. Shortly thereafter, the area was renamed the Wichita Mountains Wildlife Refuge for administration under the National Wildlife Refuge System.

Originally, the Refuge consisted of 58,652 acres. During the 1950s, 367 acres were reallocated from Fort Sill Military Base under congressional mandate. This has been the only land exchange

or boundary change to the Refuge since its acquisition in 1901. The Refuge's current boundaries include 59,020 acres. The Refuge does not currently have a Land Protection Plan in place.

On October 23, 1970, the Wichita Mountains Wilderness (Wilderness) was established by Public Law 91-504. The Wilderness area consists of two units totaling 8,570 acres. The Charons Garden Unit (5,723 acres) is located in the southwestern portion of the Refuge; the North Mountain Unit (2,847 acres) is located in the north-central part of the Refuge. The North Mountain Wilderness Area was superimposed on the North Mountain Research Natural Area. The Wilderness Act of 1964 (Pub. L. 88-577) provides the following purposes for wilderness:

(i) to secure an enduring resource of wilderness;

(ii) to protect and preserve the wilderness character of areas within the National Wilderness Preservation System, and;

(iii) to administer [the area] for the use and enjoyment of the American people in a way that will leave them unimpaired for future use and enjoyment as wilderness.

The long history of preservation of the Wichita Mountains Wildlife Refuge has protected this unique vast land as a reminder of southwestern Oklahoma's natural condition prior to European settlement.

*Wichita Mountains Wildlife Refuge Entrance Sign. Photo by Walter Munsterman*

### 1.2.1 Refuge Purpose

National wildlife refuges are established under a variety of legislative acts and administrative orders and authorities. These orders and authorities include one or more specific purposes for

which the refuge lands are acquired. The purposes are of key importance in refuge planning and are the foundation for management decisions. The purposes of a refuge are 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.

By law, refuges are to be managed to achieve their purposes and, unless otherwise indicated by the establishing document, the following rules apply:

- Purposes dealing with the conservation, management, and restoration of fish, wildlife, and plants, and their habitats take precedence over other management and administration purposes.
- When in conflict, the purpose of an individual refuge may supersede the Refuge System mission.
- Where a refuge has multiple purposes related to fish, wildlife, and plant conservation, the more specific purpose will take precedence in instances of conflict.
- When an additional unit is acquired under a different authority than that used to establish the original unit, the addition takes on the purpose(s) of the original unit, but the original unit does not take on the purpose(s) of the addition.

Wichita Mountains Wildlife Refuge was established "for the protection of game animals and birds and shall be recognized as a breeding place thereof." Preservation of wilderness is also a purpose for those portions of the Refuge designated as Wilderness.

## 1.3 Planning Context

The Wichita Mountains Wildlife Refuge is part of a national system of more than 550 refuges. The U.S. Fish and Wildlife Service places an emphasis on managing individual refuges in a manner that reflects the National Wildlife Refuge System mission. As a result, the Wichita Mountains Wildlife Refuge Comprehensive Conservation Plan must contribute to meeting the overall system mission and goals.

### 1.3.1 The U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service is the principal Federal agency responsible for conserving, protecting, and enhancing fish and wildlife and their habitats for the continuing benefit of the American people. The Service has a primary responsibility to manage and protect Federal trust species, which includes migratory birds, threatened species, endangered species, interjurisdictional fish, marine mammals, and other species of concern. In addition to the National Wildlife Refuge System, the Service also operates national fish hatcheries, fishery resource offices, and Ecological Services field stations. The Service enforces Federal wildlife laws, manages migratory bird populations, restores nationally significant fisheries, administers the Endangered Species Act, conserves and restores wildlife habitat such as wetlands, and helps Native American tribal governments and foreign governments with their conservation efforts. It also oversees the Federal Assistance Program, which distributes hundreds of millions of dollars in excise taxes on fishing and hunting equipment to State fish and wildlife agencies.

The mission of the U.S. Fish and Wildlife Service is:

*"working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people"*

### 1.3.2 The National Wildlife Refuge System

The National Wildlife Refuge System (Refuge System) is the only existing system of federally owned lands managed chiefly for the conservation of wildlife. Founded in 1903 by President Theodore Roosevelt with the designation of Pelican Island as a refuge for brown pelicans, the Refuge System consists of over 150 million acres in more than 560 refuges and 38 wetland management districts in all 50 states and U.S. territories. National wildlife refuges host a tremendous variety of plants and animals supported by a variety of habitats ranging from arctic tundra and prairie grasslands to subtropical estuaries. Most national wildlife refuges are strategically located along major bird migration corridors, ensuring that ducks, geese, and songbirds have rest stops on their annual migrations. Many refuges are integral to the protection and survival of plant and animal species listed as endangered. The Refuge System is the world's largest collection of lands and waters set aside specifically for the conservation of wildlife and ecosystem protection.

The mission of the Refuge System is:

> *"... to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans"* (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57).

The goals of the Refuge System 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); and*
- *foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.*

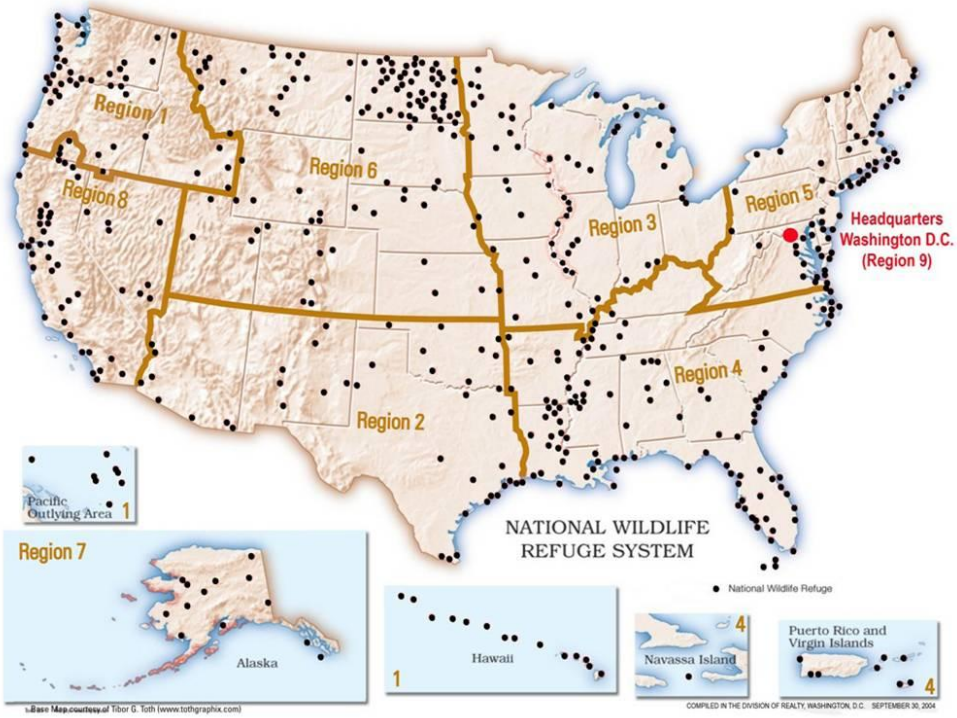


Figure 1-1. The National Wildlife Refuge System

### 1.3.2.1 Legal and Policy Guidance

Refuge management and administrative activities are dictated, in large part, by the legislation that created the unit and its purposes and goals. However, other laws, regulations, and policies also guide management. The Refuge is guided by the mission and goals of the Refuge System, Service policy, Federal laws and Executive orders, and international treaties. A complete list of the laws, policies, treaties, and executive orders that pertain to the conservation and protection of natural and cultural resources on national wildlife refuges is provided in Appendix G. Key laws and policies directly related to comprehensive conservation planning are discussed in the following text.

***National Wildlife Refuge System Improvement Act of 1997***

The National Wildlife Refuge System Administration Act, as amended by the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act), states that each refuge shall be managed to fulfill both the mission of the Refuge System and the purposes for which the individual refuge was established. It also requires that any use of a refuge be a compatible use—a use that will not materially interfere with nor detract from, in the sound professional judgment of the refuge manager, fulfillment of the mission of the Refuge System or the purposes of the refuge.

The 1997 amendments made to the National Wildlife Refuge System Administration Act of 1966 identified a number of principles to guide management of the Refuge System. They include the following:

- Conserve fish, wildlife, and plants, and their habitats within the Refuge System
- Maintain the biological integrity, diversity, and environmental health of the Refuge System

- Coordinate, interact, and cooperate with adjacent landowners and State fish and wildlife agencies
- Maintain adequate water quantity and quality to meet refuge and Refuge System purposes and acquire necessary water rights
- Maintain hunting, fishing, wildlife observation, wildlife photography, interpretation, and environmental education as the priority general public uses of the Refuge System
- Provide opportunities for compatible priority wildlife-dependent public uses within the Refuge System
- Provide enhanced consideration for priority wildlife-dependent public uses over the other general public uses in planning and management
- Provide increased opportunities for families to experience priority general public uses, especially traditional outdoor activities such as fishing and hunting
- Monitor the status and trends of fish, wildlife, and plants in each refuge

The Refuge Improvement Act establishes the responsibilities of the Secretary of the Interior for managing and protecting the Refuge System; requires a CCP for each refuge by the year 2012; and provides guidelines and directives for the administration and management of all areas in the Refuge System, including wildlife refuges, areas for the protection and conservation of fish and wildlife threatened with extinction, wildlife ranges, game ranges, wildlife management areas, and waterfowl production areas.

To maintain the health of individual refuges and the National Wildlife Refuge System as a whole, managers must anticipate future conditions. Managers must endeavor to avoid adverse impacts and take positive actions to conserve and protect refuge resources. Effective management also depends on acknowledging resource relationships and acknowledging that refuges are parts of larger ecosystems. Refuge managers work together with partners—including other refuges, Federal and State agencies, tribal and other governments, and nongovernmental organizations and groups—to protect, conserve, enhance, or restore all native fish, wildlife (including invertebrates), plants, and their habitats.

### *Appropriate Use Policy*

This policy describes the initial decision process the Refuge Manager follows when first considering whether to allow a proposed use or to revisit the compatibility of an existing use on a refuge. The Refuge Manager must find a use appropriate before undertaking a Compatibility Determination (CD) review of the use.

Chapter 5 of this CCP includes additional information on appropriateness of Refuge uses.

### *Compatibility Policy*

In accordance with the Refuge Improvement Act of 1997, no uses for which the Service has authority to regulate may be allowed on a unit of the National Wildlife Refuge System unless it is determined to be compatible. A compatible use is a proposed or existing wildlife-dependent recreation use or any other use of a national wildlife refuge that, in the sound professional judgment of the refuge manager, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purposes of the national wildlife refuge.

Additional information regarding CDs is provided in Chapter 5, and the CDs prepared in association with this CCP are provided in Appendix F.

***Biological Integrity, Diversity, and Environmental Health Policy***

The Refuge Improvement Act directs the Service to "ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans..." To implement this directive, the Service has issued the Biological Integrity, Diversity, and Environmental Health Policy (601 FW 3 of the Service Manual), which provides policy for maintaining and restoring, where appropriate, the biological integrity, diversity, and environmental health of the Refuge System. The policy is an additional directive for refuge managers to follow while achieving the refuge purpose(s) and Refuge System mission. It provides for the consideration and protection of the broad spectrum of fish, wildlife, and habitat resources found on refuge and associated ecosystems. Further, it provides refuge managers with an evaluation process to analyze their refuges and recommend the best management direction to prevent further degradation of environmental conditions and to restore lost or severely degraded components where appropriate and in concert with refuge purposes and the Refuge System mission. When evaluating the appropriate management direction for refuges, refuge managers will use sound professional judgment to determine their refuges' contribution to biological integrity, diversity, and environmental health at multiple landscape scales.

### 1.3.3 Landscape Level Planning Context

#### 1.3.3.1 Climate Change

Department of the Interior Secretarial Order 3226 states that "there is a consensus in the international community that global climate change is occurring and that it should be addressed in governmental decision making… This Order ensures that climate change impacts are taken into account in connection with Departmental planning decision making." Additionally, it calls for the incorporation of climate change into long-term planning documents such as this CCP.

The U.N. Intergovernmental Panel on Climate Change (IPCC) reports that direct temperature measurements at weather stations world-wide suggest that the surface of Earth has warmed, on average, 1.0 °C (1.8 °F) in the last 100 years (IPCC 2007). The data for the Southwest Region show an increase in temperature between 1.1 °C and 1.7 °C during the past century and project an increase of 4.5 °C to 6.1 °C in future. The last 10 years have been the warmest decade on record, during which global sea level has risen about 20 centimeters (cm). The increase of carbon dioxide ($CO_2$) within the earth's atmosphere has been linked to the gradual rise in surface temperature commonly referred to as global warming. The IPCC also concludes that substantial increases in global average temperatures will cause major changes in ecosystem structure and function, species' ecological interactions, and species' geographical ranges. These projected changes have enormous implications for management of fish, wildlife, and their habitats around the world.

The U.S. Department of Energy's *Carbon Sequestration Research and Development* defines carbon sequestration as "...the capture and secure storage of carbon that would otherwise be emitted to or remain in the atmosphere." Conserving natural habitat for wildlife is the heart of

any long-range plan for national wildlife refuges. The actions proposed in this CCP would conserve or restore land and habitat and would thus retain existing carbon sequestration on the Refuge. This, in turn, contributes positively to efforts to mitigate human-induced global climate change. Vegetated land is a tremendous factor in carbon sequestration. Terrestrial biomes of all sorts—grasslands, forests, wetlands, tundra, and desert—are effective both in preventing carbon emission and acting as a biological "scrubber" of atmospheric $CO_2$. The Department of Energy report's conclusions noted that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere. One Service activity in particular—prescribed burning—releases $CO_2$ directly into the atmosphere from the biomass consumed during combustion. However, there is actually no net loss of carbon since new vegetation quickly germinates and sprouts to replace the burned-up biomass and sequesters or assimilates an approximately equal amount of carbon as was lost to the air (Dai et al. 2006).

In September 2010, the Service released a strategic approach to climate change, *Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change* (see next section). Accordingly, possible climate change effects and mitigations at the Refuge scale were considered in the development of the objectives and strategies in this CCP. Implementation of all strategies will emphasize energy conservation and/or use of alternative energy sources when feasible. Additional information on possible climate change impacts to the Refuge are discussed in Chapter 3.

#### 1.3.3.2 National Plans and Initiatives

***USFWS Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change (2010)***

The U.S. Fish and Wildlife Service climate change strategy establishes a basic framework within which the Service will work as part of the larger conservation community to help ensure the sustainability of fish, wildlife, plants, and habitats in the face of accelerating climate change. The plan is implemented through a dynamic action plan that details specific steps the Service will take during the next five years to implement the Strategic Plan. The plan focuses on three key strategies to addressing climate change: adaptation, mitigation, and engagement. *Adaptation* is an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. It refers to the management actions we take to reduce the impacts of climate change—reactive and anticipatory. *Mitigation* is human intervention to reduce the sources or enhance the sinks of greenhouse gases. It involves reducing our agency's "carbon footprint" by using less energy, consuming fewer materials, and altering land management practices, such as wildlife food production. Mitigation is also achieved through terrestrial carbon sequestration. *Engagement* is seeking coordinated solutions to threats to fish and wildlife conservation posed by climate change. By building knowledge and sharing information in a comprehensive and integrated way, the Service and its partners and stakeholders will increase understanding of global climate change impacts and will be motivated to craft and support legislation and policy that address climate change and consider its impacts to fish and wildlife.

Our goal is to achieve carbon neutrality as an organization by 2020 (USFWS 2010c). By building knowledge and sharing information in a comprehensive and integrated way, the Service, its partners, and stakeholders will increase our understanding of global climate change impacts and

use our combined expertise and creativity to help wildlife resources adapt in a climate-changed world.

### *North American Waterbird Conservation Plan (2002)*

This plan provides a continental-scale framework for the conservation and management of 210 species of waterbirds, including seabirds, coastal waterbirds, wading birds, and marshbirds. These waterbirds utilize aquatic habitats in 29 nations throughout North America, Central America, and islands and pelagic waters of the Caribbean Sea and western Atlantic, and the U.S.-associated Pacific Islands and pelagic waters of the Pacific.

### *North American Waterfowl Management Plan (2012)*

The North American Waterfowl Management Plan (NAWMP) is an international plan to conserve waterfowl and migratory birds in North America. It was established in 1986 by Canada and the United States, and it expanded to include Mexico in 1994. The plan was updated in 1998 and 2004 and was revised in 2012. The plan identifies *three overarching goals*: supporting hunting and other uses without imperiling habitat; sustaining habitats sufficient to sustain waterfowl populations and desired levels (while making recreation an added element); and growing the number of waterfowl hunters, other conservationists, and citizens who enjoy and support waterfowl and wetland conservation. Regional partnerships, called Joint Ventures, are the implementing mechanisms of the NAWMP. There are 14 Joint Ventures in the U.S. today. Cumulatively, they have conserved 13,131,754 acres of habitat for waterfowl and migratory birds.

### *North American Landbird Conservation Plan (2004)*

The North American Landbird Conservation Plan provides a continental synthesis of priorities and objectives that guide landbird conservation actions at the national and international scales. When combined with plans written for shorebirds, waterbirds, waterfowl, and other game birds, it can serve as a blueprint for continental habitat conservation under the North American Bird Conservation Initiative (NABCI). The North American Landbird Conservation Plan summarizes broad patterns based on comprehensive, biologically-based species assessment. The plan identifies 101 landbird species that warrant inclusion on the Partners in Flight Watch List due to a combination of threats to their habitats, declining populations, small population sizes, or limited distributions. Of these, 28 species require immediate action to protect small remaining populations, and 44 are in need of management to reverse long-term declines.

Wichita Mountains falls within the Prairie Avifaunal Biome, which historically contained North America’s native grasslands. Landbirds that breed in this biome primarily winter in the Southwestern/Eastern Biomes and throughout Mexico, whereas birds that winter here breed in the Arctic.

### *U. S. Shorebird Conservation Plan (2001)*

The U.S. Shorebird Conservation Plan is designed to complement the existing landscape-scale conservation efforts of the North American Waterfowl Management Plan, Partners in Flight, and the North American Waterbird Conservation Plan. It seeks to stabilize populations of all shorebirds that are in decline because of factors affecting habitat in the United States. Many species of shorebirds face significant threats from habitat loss, disturbance, and habitat

degradation. However, existing information is insufficient to determine how these threats have affected populations. At a regional level, the plan's goal is to ensure that shorebird habitat is available in adequate quantity and quality to support shorebird populations in each region. At the national scale, its goal is to stabilize populations of all shorebird species known or suspected of being in decline due to limiting factors occurring within the U.S. while ensuring that common species are also protected from future threats. Ultimately, the goal of the plan is to restore and maintain self-sustaining shorebird populations throughout the Western Hemisphere through an international partnership. There are 214 species of shorebirds worldwide, 53 of which regularly occur in the United States, and 24 shorebird species have been observed on the Wichita Mountains Wildlife Refuge. *(Brown et al. 2001)*

### *North American Bird Conservation Initiative (NABCI)*

The primary role of the NABCI is to coordinate, not duplicate, the efforts of the four major land bird plans: NAWMP, Partners in Flight (PIF), U.S. Shorebird Conservation Plan, and North America Waterbird Conservation Plan. Many of the birds targeted by these plans share the same habitats. By leveraging the plans' limited resources, both human and financial, this initiative aims to improve the outlook for bird conservation across all of North America. The NABCI, a coalition of U.S., Canadian, and Mexican governmental agencies and private organizations, is the most inclusive framework for bird conservation ever assembled on any continent.

### *North American Grassland Priority Conservation Areas (2005)*

The *North American Central Grassland Priority Conservation Areas* report identifies grasslands priority conservation areas (GPCAs) within North American short, mixed, and desert grasslands, which fall within Canada, the U.S., and Mexico. A combination of Geographic Information System (GIS) data layers of known grasslands' priority-setting initiatives, the input of 36 experts from diverse disciplines, and an assessment of 20 key grassland bird and mammal species were used to identify 55 GPCAs. Of those, 28 were selected as top priority GPCAs (6.8 percent of the study area). Wichita Mountains Wildlife Refuge does not fall within a top priority GPCA, but northwestern Oklahoma contains 4 of the 28 selected high priority GPCAs.

### *NatureServe*

NatureServe is a non-profit conservation organization whose mission is to provide the scientific basis for effective conservation action. NatureServe and its network of natural heritage programs are the leading source for information about rare and endangered species and threatened ecosystems.

NatureServe represents an international network of biological inventories—known as natural heritage programs or conservation data centers—that are operating in all 50 U.S. states, Canada, Latin America, and the Caribbean. Together we not only collect and manage detailed local information on plants, animals, and ecosystems, but also develop information products, data management tools, and conservation services to help meet local, national, and global conservation needs. The objective scientific information about species and ecosystems developed by NatureServe is used by all sectors of society—conservation groups, government agencies, corporations, academia, and the public—to make informed decisions about managing our natural resources. More information is available at www.natureserve.org/aboutUs/index.jsp.

#### 1.3.3.3 Regional Plans and Initiatives

***TNC Central Mixed-Grass Prairie Ecoregional Plan***

Wichita Mountains Wildlife Refuge lies within the Central Mixed-Grass Prairie Ecoregion, which has long been known as a transition between the mesic tallgrass prairies to the east and the arid shortgrass prairies to the west. The Refuge sits within the Oklahoma Granite Hills/Wichita Mountains landscape, which is a high quality native landscape where the primary ecological forces of climate, soils, weather, grazing, and fire still have the opportunity to interact to yield the dynamic spatial and temporal patterns required by the vast array of native plants, animals, and natural communities. In 2003, The Nature Conservancy (TNC) teamed up with multiple agencies to create a portfolio designed for conservation action within the ecoregion, titled "Conserving the Biological Diversity of the Central Mixed-Grass Prairie." The assessment describes conservation targets and goals for each, at multiple scales. The 57 terrestrial sites and 67 aquatic sites that were gathered in the portfolio should be thought of as areas of biodiversity significance. Conservation action in the ecoregion should be dedicated to building onto, rather than minimizing the loss of, the areas of biodiversity significance identified in this plan.

***A Conservation Blueprint for the Crosstimbers & Southern Tallgrass Prairie Ecoregion (2009)***

The Crosstimbers and Southern Tallgrass Prairie Ecoregion (CSTP) covers more than 49 million acres in Oklahoma, Texas, Arkansas, and Kansas. Ninety-seven percent of the land is privately owned, while 1.8 percent is federally owned, 1 percent is state owned, and 0.2 percent is owned by local governments. The area has hot continental summer temperatures and cool winters, as well as frequent droughts that are broken by severe weather, including intense thunderstorms, high winds, and tornadoes. Rainfall averages 30–40 inches per year. Forests, woodlands, savannas, and grasslands all intermingle in a complex mosaic across the ecoregion landscape. There are 11 major river basins: the Arkansas, Neosho, Cimarron, Canadian, and Red are tributaries of the Mississippi; the Sabine, Trinity, Brazos, Colorado, Guadalupe/San Antonio, and Nueces flow to the Gulf of Mexico. Vegetation in the ecoregion has been highly modified by humans, especially in Texas, as almost all arable lands there were converted to row crop agriculture by the turn of the 20$^{th}$ century. This, plus urbanization (including Dallas, Fort Worth, Austin, San Antonio, Tulsa, and Oklahoma City) means that existing native vegetation tends to be highly to moderately fragmented. Fire suppression within relatively intact portions of the ecoregion has led to increased woody cover and closure of canopy. Oil and gas exploration and production are growing at an exponential rate in the ecoregion. Wichita Mountains Wildlife Refuge falls on the western edge of the ecoregion in the Western Tallgrass and Crosstimbers priority area.

***Partners in Flight Bird Conservation Plan for the Osage Plains (2000)***

Partners in Flight (PIF) is an international coalition of governmental agencies, conservation groups, academic institutions, private business, and everyday citizens with a common goal of allocating resources to bird conservation in North America and the Neotropics. To accomplish this goal, PIF has created Bird Conservation Plans for each physiographic region. The Wichita Mountains are within the geographic boundaries of the 13.7-million acre Rolling Red Plains Physiographic Area, but the Refuge also has significant associations with the adjacent Osage Plains Physiographic Area. The purpose of the PIF Bird Conservation Plan is to identify bird species of greatest conservation need and to outline actions necessary for species' recovery. PIF

published the *Osage Plains Bird Conservation Plan* in 2000 and has yet to complete the plan for the Rolling Red Plains Physiographic Area. According to the plan for the Osage Plains, fire suppression, overgrazing, and the spread of invasive species are the main factors negatively affecting priority bird habitat. Therefore, bird habitat conservation efforts should focus on active management to maintain and restore native plant communities. There are 39 species of conservation priority documented within the Osage Plains Physiographic Area, and 16 of those species are documented on the PIF National Watch List. One of these species of conservation priority is the black-capped vireo, for which the Refuge actively manages.

***Partners in Flight Rolling Red Plains Executive Summary***

The Rolling Red Plains is an area of approximately 34.6 million acres. It contains grassland and grassland/scrub priority habitats that support eight priority bird populations: lesser prairie-chicken, black-capped vireo, McCown's longspur (winter only), mountain plover, Bell's vireo, scaled quail, scissor-tailed flycatcher, and Cassin's sparrow. The area has been highly altered for agriculture, primarily farming, and remaining communities are fragmented or overgrazed. Bird conservation efforts will require strong cooperation with private non-industrial landowners to increase riparian restoration, increase oak motte restoration, and increase management of natural grassland systems. The Rolling Red Plains does not yet have a Bird Conservation Plan.

***Central Plains/Playa Lakes Regional Shorebird Conservation Plan (2001)***

The Central Plains/Playa Lakes Region (CP/PLR) includes five Bird Conservation Regions (BCRs) in Texas (excluding the coast), eastern New Mexico and Colorado, western Oklahoma, Kansas and Nebraska, and the southeastern corner of Wyoming. Thirty-eight species of migrating shorebirds forage and rest within the CP/PLR, 13 of which also breed within the region. Within the CP/PLR, 16 shorebird species have been identified as species of primary concern due to low population numbers and/or dependence upon regional uplands, grasslands, interior wetlands, and other habitats. Shorebirds rely upon invertebrate populations at CP/PLR staging areas to replenish body reserves used during migration. Most of the major shorebird habitat management challenges are due to complicated water issues. The CP/PLR plan aims to achieve cooperation between private landowners; state and Federal agencies; natural resource, agriculture, and regulatory agencies; and the Joint Ventures to protect, restore, enhance, and manage shorebird habitat in the CP/PLR.

***The Oaks and Prairies Joint Venture Implementation Plan (2009)***

The Oaks and Prairies Joint Venture (OPJV) is a voluntary partnership of public and private institutions and individuals to strategically coordinate bird conservation in two Bird Conservation Regions (BCRs): the Oaks and Prairies BCR and the Edwards Plateau BCR. The OPJV aims to implement national and international bird conservation plans by 'stepping down' the goals to regional levels. This plan formalizes a work plan and administrative structure of the OPJV to allow it to fulfill its mission of planning for and facilitating bird habitat conservation, research, and outreach to ensure sustainable populations of bird priority species in the Joint Venture area. It is an adaptive conservation plan that will change as more research is conducted and new information is learned.

***Playa Lakes Joint Venture Implementation Planning Guide (2007)***

The Playa Lakes Joint Venture (PLJV) is based on an all-bird planning philosophy to determine how landscapes can support the desired populations of birds as prescribed in national bird plans. This planning guide helps design a landscape that supports multiple PLJV priority birds. The PLJV assess the capacity of the current landscape to support population objectives and determine if additional conservation efforts are needed. Scenarios involving habitat programs are analyzed for their likely effect on target species as well as associated species.

#### 1.3.3.4 State and Local Plans and Initiatives

In administering the Refuge System, the Service will ensure that the CCP complements State and local efforts to conserve fish and wildlife and their habitats. During the development of the CCP, the Service is required to consult and coordinate with affected State conservation agencies, as well as adjoining Federal, local, and private landowners. The Service is required to ensure effective coordination, interaction, and cooperation in a timely and effective manner with the State during the course of acquiring and managing refuges. Under the Refuge Administration Act of 1966 and 43 CFR 24, the Director of the Service and the Secretary of the Interior's designee is required to ensure the Refuge System regulations and management plans are, to the extent practicable, consistent with State laws, regulations, and management plans.

***Oklahoma Comprehensive Wildlife Conservation Strategy***

This wildlife action plan is required to assess the condition of the State's wildlife and habitats, identify the problems they face, and outline the actions that are needed for long-term conservation. The plan identifies a variety of actions aimed at preventing wildlife from declining to the point of becoming endangered. By focusing on conserving the natural lands and clean waters that provide habitat for wildlife, the plan has important benefits for wildlife and people. In addition to specific conservation projects and actions, the plan describes many ways to educate the public and private landowners about effective conservation practices.

#### 1.3.3.5 Species-Specific Plans

***Black-capped Vireo Recovery Plan***

The black-capped vireo (*Vireo atricapillus*), which occurs in mixed deciduous/evergreen shrubland, was listed as endangered in 1987. This small bird breeds in areas with shrubby growth of irregular height and distribution with dense vegetative cover extending to the ground level. The black-capped vireo's historic breeding range is believed to be a strip of land stretching from its northern boundary of south-central Kansas into central Oklahoma, across central Texas, finally reaching its southern boundary in central Coahuila in Mexico. The bird's winter range lies on the Pacific slope of Mexico. Black-capped vireo population decline is a result of rapid habitat losses occurring from development, overbrowsing, and alteration of natural disturbance regimes. Cowbird nest parasitism has also been drastically reducing vireo reproduction in many areas. The U.S. Fish and Wildlife Service published the Black-capped Vireo Recovery Plan in 1991 to outline actions that the Service will take to downlist the species to threatened status by 2020. The plan is designed to preserve, protect, and enhance (in some cases) vireo populations until we can

obtain a better understanding of whether full recovery is possible and, if so, what it will take to fully recover this species.

### 1.3.4 Coordination with the State of Oklahoma

The Service is required to consult and coordinate with affected State conservation agencies, as well as adjoining Federal, local, and private landowners. The Service ensures effective coordination, interaction, and cooperation in a timely and effective manner with the state during the course of acquiring and managing refuges. Under the Refuge Administration Act of 1966 and 43 CFR 24, the Director and the Secretary's designee are required to ensure the Refuge System regulations and management plans are, to the extent practicable, consistent with State laws, regulations, and management plans. As such, the Service will ensure this Plan complements the State of Oklahoma's efforts to conserve fish and wildlife and their habitats and that it increases support for the Refuge System and participation from conservation partners and the public.