1.0 Introduction

This Comprehensive Conservation Plan (CCP or Plan) is designed to guide management of the Refuge for the next fifteen 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 Service legal mandates, policies, goals, and National Environmental Policy Act (NEPA) compliance. The EA 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 management alternatives (including current management) on the physical, biological, and socio-economic environments described in the CCP. The final CCP was developed through modifications made after the public review process of the Draft Plan and is now considered current management.

Photo 1-1. Prairie Habitat in Buffalo Lake NWR USFWS

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, System) and the laws, policies, and guidance that sets 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 socio-economic environment; and the current management programs on the refuge. Chapter 4, Management Direction, describes the goals, objectives, and strategies for the Service's preferred alternative (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 Plan

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 (Improvement Act). The CCP will enhance the management of Buffalo Lake NWR 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 their 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, step-down plans, and 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, include the following:

- Manage and enhance the natural diversity, abundance, and ecological functions of Buffalo Lake NWR's habitats in support of national and regional plans with special emphasis on restoration and conservation of short-grass prairie habitats.
- In support of national and regional plans, promote management actions that will maintain healthy and viable native wildlife and fish populations representative of the High Plains Ecoregion, with special emphasis on waterfowl, other migratory birds, and threatened and endangered species.
- Provide the public with opportunities for quality wildlife-dependent recreation, environmental education and interpretation that leads visitors to a greater understanding and enjoyment of fish, wildlife and their habitats on Buffalo Lake NWR and throughout the National Wildlife Refuge System.
- Develop and maintain both administrative and public use facilities which reduces human impacts on the natural environment in support the Refuge purposes, goals and objectives.

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 the issues-from all sides. 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 Buffalo Lake NWR 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, Acquisition and Management

During the 1930's, the government purchased large tracts of sub-marginal lands and turned them over to various government agencies for rehabilitation and administration under the authorization of the Bankhead-Jones Farm Tenant Act. That Act, authorized the Department of Agriculture to purchased sub-marginal agricultural lands for such uses as forestry, grazing, and public recreation. The area that now comprises the Buffalo Lake NWR was originally acquired in 1937 by the U.S. Department of Agriculture, Soil Conservation Service (SCS), under provisions of the Bankhead-Jones Farm Tenant Act of 1937, and managed by the U.S. Forest Service. During this time, the area was managed for grazing purposes and the Tierra Blanca Water Conservation Project was developed to provide flood control and aquatic recreation for the south-central Texas Panhandle.

Photo1- 1. Historical Recreational Activities in Buffalo Lake NWR USFWS

In November 1958, the project was transferred to the Department of the Interior under Presidential Executive Order #10787 and a year later (on November 17, 1959) it was made a National Wildlife Refuge by Secretarial Order #28423. It has been managed as a component of the Refuge System since that time. Historically, Buffalo Lake has been a popular attraction for both people and large numbers of waterfowl. The local populous referred to the lake as "the Playground of the Panhandle." Visitor use, the majority of which occurred in the late spring and summer months, often exceeded one-half million people annually. Waterfowl numbers began building up in late October and sometimes reached peak numbers in excess of one million ducks and 40,000 geese by mid-December (USFWS, 1962-1968). In the past, recreational and wildlife uses have been accommodated with a reasonable degree of compatibility because of opposing seasons of use.

The total land area for the Buffalo Lake NWR is 7,677 acres. The Umbarger Dam impounds a 2,300 acre reservoir when filled to spillway elevation. The lake capacity at spillway level is

approximately 18,000 acre-feet. The availability of a dependable water supply is an inherent problem to any water-based recreational facility or waterfowl management unit.

After the dam was constructed in 1939, the area was closed to the public. Once the Service assumed management in 1958, efforts were devoted largely to the enhancement of waterfowl and other wildlife values of the project. It was not until 1966 that any major attempt was made to rehabilitate and improve recreational facilities on the refuge for public use as a fishing and picnicking area; boat ramps and public restrooms were added and new roads were developed along with more than 100 new picnicking and camping sites. Approximately $200,000 was spent on these recreational improvements between 1966 and 1968. Most public use occurred on the north and west shore of the upper half of the lake and was usually restricted to the late fall and winter primarily because of severe weather conditions. At the time of the transfer, the recreational facilities (buildings, docks, cabins, boat rental) were maintained by a concessionaire. By 1966, more than half a million people were using the lake for recreational purposes.

The management activities of this refuge contribute to the objectives of the Central Flyway Management Program and the Playa Lakes Joint Venture. The refuge serves the objectives of its establishment by providing quality habitat to maintain the health and condition of the birds wintering at Buffalo Lake NWR. The condition of the birds over the winter months affects their spring migration and reproductive success each year. The Central Flyway is an extensive geographical area from Alaska and central Arctic Canada to South America. Many factors within the lands of the Central Flyway can affect migratory bird resources. Conversely, management activities that occur on refuges can have wide ranging effects on the bird populations of the entire Central Flyway. Factors influencing the bird use of this area include the activities of other countries, regional farming practices, the activities of Federal and State agencies, private organizations, local governments, the influence of treaties affecting wildlife and wildlands, and natural factors such as climate and local precipitation.

Conservation efforts also began focusing on species other than migratory waterfowl. While Buffalo Lake NWR and other nearby refuges (Muleshoe and Grulla) were established as habitat for migrating waterfowl, these areas also provide habitats for other migratory, resident, and threatened or endangered species which in many cases have now become management priorities. Buffalo Lake NWR provides over 4,000 acres of shortgrass prairie habitat in public ownership. Private land stewardship initiatives, like the High Plains Partnership and Playa Lakes Joint Venture, have recently become the focus of agencies like the Service as the key to protecting and possibly restoring water resources and habitat values of the native short and mixed grass prairies and preventing fish and wildlife declines in the High Plains region.

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 then 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.

Buffalo Lake NWR was established on November 17, 1959 under Secretarial Order #2843, using the authority of the Migratory Bird Conservation Act (16 U.S.C. 712d). Refuge Purposes include:

> *"...for use as an inviolate sanctuary, ... for any other management purposes, ... for migratory birds."* Migratory Bird Conservation Act (16 U.S.C. 712d)
>
> *"...for use and administration under applicable laws as a refuge for migratory birds and other wildlife...."* Secretarial Order 2843

1.3 Planning Context

The Buffalo Lake NWR is part of a national system of more than 561 refuges. The U.S. Fish and Wildlife Service place an emphasis on managing individual refuges in a manner that reflects the National Wildlife Refuge System mission. As a result, the 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, inter-jurisdictional 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 office, 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, 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, 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 over 561 refuges and 37 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 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 inter-jurisdictional fish, and marine mammal populations that is strategically distributed and carefully managed to meet important life history needs of these species across their ranges;*
- *conserve those ecosystems, plant communities, wetlands of national or international significance, and landscapes and seascapes that are unique, rare, declining, or underrepresented in existing protection efforts;*
- *provide and enhance opportunities to participate in compatible wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation);* and
- *foster understanding and instill appreciation of the diversity and interconnectedness of fish, wildlife, and plants and their habitats.*

1.3.2.1 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 A. Key laws and policies directly related to comprehensive conservation planning are discussed below.

National Wildlife Refuge System Improvement Act of 1997

The National Wildlife Refuge System Administration Act, as amended, 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 System or the purposes of the Refuge.

The 1997 amendments 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 System
- Maintain the biological integrity, diversity, and environmental health of the System
- Coordinate, interact, and cooperate with adjacent landowners and State fish and wildlife agencies
- Maintain adequate water quantity and quality to meet refuge and 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 System
- Provide opportunities for compatible priority wildlife-dependent public uses with the 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 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 on a refuge. The refuge manager must find a use appropriate before undertaking a compatibility review of the use. An appropriate use as defined

by the Appropriate Use Policy (603 FW 1 of the Service Manual) is a proposed or existing use on a refuge that meets at least one of the following four conditions:

- The use is a wildlife-dependant recreational use as identified in the Improvement Act.
- The use contributes to the fulfilling of the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Improvement Act was signed into law.
- The use involves the take of fish and wildlife under State regulations.
- The use has been found to be appropriate as specified in Section 1.11 (603 FW 1 of the Service Manual).

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

Compatibility Policy

Lands within the Refuge System are different from other multiple use public lands in that they are closed to all public uses unless specifically and legally opened. The 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."

In accordance with the Improvement Act, the Service has adopted a Compatibility Policy (603 FW 2 of the Service Manual) that includes guidelines for determining if a use proposed on a national wildlife refuge 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 a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the refuge. Sound professional judgment is defined as a finding, determination, or decision that is consistent with the principles of sound fish and wildlife management and administration, available science and resources (funding, personnel, facilities, and other infrastructure), and applicable laws.

The Service strives to provide priority public uses when they are compatible. If financial resources are not available to design, operate, and maintain a priority use, the refuge manager will take reasonable steps to obtain outside assistance from the State and other conservation interests.

Biological Integrity, Diversity, and Environmental Health Policy

The 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 refuge and recommend the best management direction to prevent further degradation of environmental conditions and 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 Setting the Stage for Planning: Identifying the Landscape Level Context

1.3.3.1 Climate Change

Department of the Interior Secretarial Order 3226, signed January 19, 2001 and reinstated on February 22, 2010 by Secretarial Order 3289 Amendment No. 1, 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. Data for the Southwest show an increase in temperature between 1.1°C to 1.7°C (34°F to 35°F) during the past century and project an increase in temperature of 4.5°C to 6.1°C in the future. The last ten years have been the warmest decade on record, during which global sea level has risen about 20 cm (8 inches). The increase of carbon dioxide (CO2) 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" (Reichle et al. 1999). 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 CO2. The Department of Energy report concludes that ecosystem protection is important to carbon sequestration and may reduce or prevent loss of carbon currently stored in the terrestrial biosphere (Reichle et al. 1999). One Service activity in particular - prescribed burning - releases CO2 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).

The Service's strategic approach to climate change will emphasize three strategies that are often used to describe responses to climate change- Adaptation, Mitigation, and Education. *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 our agency's "carbon footprint" by using less energy, consuming fewer materials, and altering land management practices, such as water pumping and feed/production. Mitigation is also achieved through terrestrial carbon sequestration. *Education* is helping people learn and discover, thereby creating awareness and empathy, and ultimately leading to changes in human behavior. It is a fundamental conservation tool and a public service responsibility. In the context of climate change, education means helping Service employees, our national and international partners, and constituencies (e.g. the public, Congress) understand that climate change is real and happening now; it threatens fish and wildlife resources we have come to value; and each of us can do something meaningful to reduce the threats.

Climate change could have a number of possible effects on the Refuge in addition to a general temperature increase, including: desertification, reduced rainfall and surface water supplies, deterioration of water quality, decreased habitat availability for many species, changes in vegetation communities, modification of migratory bird patterns, loss of breeding grounds for ducks and other waterfowl, loss of some species along with the introduction of new species, and significantly increases energy costs. Possible effects were a substantive consideration in the development of the objectives and strategies in this CCP. Implementation of all the strategies for monitoring and surveys will emphasize identification and analysis of the effects of climate change on the various habitats and species. Also, implementation of all strategies will emphasize energy conservation and/or use of alternative energy source when feasible.

Managers and resource specialists on the refuge need to be aware of the possibility of change due to global warming. When feasible, documenting long-term vegetation, species, and hydrologic changes should become a part of research and monitoring programs on the refuge. Adjustments

in refuge management direction may be necessary over the course of time to adapt to a changing climate.

1.3.3.2 National Conservation Plans and Initiatives

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

In administering the Refuge System, the Service will ensure that the CCP complements national and international efforts to conserve fish, wildlife, and their habitats, and increases support for the Refuge System and participation from conservation partners and the public.

The 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. For the Service, adaptations are planned, science-based management actions, including regulatory and policy changes, that we take to help reduce the impacts of climate change on fish, wildlife, and their habitats. Adaptation forms the core of the Service's response to climate change and is the centerpiece of our Strategic Plan (USFWS, 2010). Mitigation involves reducing our "carbon footprint" by using less energy, consuming fewer materials, and appropriately altering our land management practices, such as wildlife food production. Mitigation is also achieved through biological carbon sequestration, the process in which CO_2 from the atmosphere is taken up by plants through photosynthesis and stored as carbon in tree trunks, branches and roots. Engagement involves reaching out to Service employees; local, national and international partners in the public and private sectors; key constituencies and stakeholders; and everyday citizens to join forces and seek solutions to the challenges to fish and wildlife conservation posed by climate change.

Our goal is to achieve carbon neutrality as an organization by 2020 (USFWS, 2010). 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.

USFWS Migratory Bird Program Strategic Plan 2004–2014
"A Blueprint for the Future of Migratory Birds"

This plan was developed by the Service's Migratory Bird Program with the main goal "…to increase the percent of species of migratory birds that are at healthy and sustainable levels." The plan identifies "focal species" that are considered to be of a priority emphasis in the overall context of landscape-scale integrated bird conservation. These species share a high conservation need and are representative of larger groups of birds that share similar or the same conservation

needs. The plan also calls for partnerships inside and outside the Service essential to the implementation of action plans.

Waterbird Conservation for the Americas: the 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 utilizing aquatic habitats in 29 nations throughout North America, Central America, the islands and pelagic waters of the Caribbean Sea and western Atlantic, the U.S.-associated Pacific Islands and pelagic waters of the Pacific.

North American Waterfowl Management Plan (2004)

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 expanded to include Mexico in 1994. The NAWMP was updated in 1998 and again in 2004 and is scheduled for revision in 2012. The essence of the original plan was that waterfowl populations could only recover through habitat conservation at a continental scale. The NAWMP identified general objectives for habitat conservation in five key priority regions, with the acknowledgement that each region would convert the objectives into local action plans. Regional partnerships, called joint ventures (JVs), are the implementing mechanisms of the NAWMP. A JV is a collaborative, regional partnership of government agencies, non-profit organizations, corporations, tribes, and individuals that conserves habitat for priority bird species, other wildlife, and people. There are 18 habitat-based and three species-based JV's in the U.S. today. Cumulatively, they have conserved 17.3 million acres of habitat for waterfowl and migratory birds. Within the Gulf Coast Joint Venture are six initiative areas. Buffalo Lake NWR occurs in the Playa Lakes Joint Venture initiative area whose mission is to "conserve playas, other wetlands associated landscapes through partnerships for the benefit of birds, other wildlife and people".

North American Landbird Conservation Plan (2004)

Partners in Flight (PIF) is a cooperative effort involving partnerships among Federal, State and local government agencies; philanthropic foundations; professional organizations; conservation groups; industry; the academic community; and private individuals. Partners in Flight was created in 1990 in response to growing concerns about declining populations of many landbird species and to emphasize the conservation of birds not covered by existing conservation initiatives. Bird conservation plans are developed in each region to identify species and habitats most in need of conservation, to establish objectives and strategies and to implement and monitor progress on the plans.

The North American Landbird Conservation Plan summarizes the conservation status of landbirds across North America, illustrating broad patterns based on comprehensive,

biologically-based species assessment. The plan identifies species most in need of attention at the continental scale, recognizing the additional species will need attention in each region and outlines ways in which continental scale issues and objectives relate to regional conservation efforts. The plan identifies 100 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.

Buffalo Lake NWR occurs within the PIF Physiographic area #55, the Pecos and Staked Plains, which covers the western panhandle of Texas, the west end of the panhandle of Oklahoma, and extensive areas in eastern New Mexico. These high and dry plains are covered with a short-grass prairie dominated by gramma and buffalo grasses. There are also extensive areas of shinnery, a mid-grass prairie with low shrubs. The area grades into taller grass to the east, to Trans-Pecos shrub savannah to the south, and more chaparral and piñon-juniper in the Mesas and Plains area to the west. The northern border of Oklahoma is established as an arbitrary northern limit.

U. S. Shorebird Conservation Plan (Brown et al 2001)
This Shorebird Conservation Plan seeks to stabilize populations of all shorebirds that are in decline because of factors affecting habitat in the United States. 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. Ultimately, the goal of the Conservation Plan is to restore and maintain shorebird populations throughout the western hemisphere through an international partnership.

1.3.3.3 Regional Plans and Initiatives

North American Bird Conservation Initiative: Bird Conservation Region Descriptions (2000)
The purpose of the North American Bird Conservation Initiative (NABCI) is to ensure the long-term health of North America's native bird populations by increasing the effectiveness of existing and new bird conservation initiatives, enhancing coordination among the initiatives, and fostering greater cooperation among the continent's three national governments and their people. In 1999, the U.S. NABCI approved a framework for delineating ecologically-based planning, implementation, and evaluation units for cooperative bird conservation in the U.S. and Canada known as Bird Conservation Regions (BCRs). Bird Conservation Regions are ecologically distinct regions in North America with similar bird communities, habitats, and resource management issues. Bird Conservation Regions (BCRs) are part of the North American Bird Conservation Initiative (NABCI). There are 67 BCRs identified, 35 of which fall entirely or partially within the United States.

TNC Southern Shortgrass Prairie Ecoregional Plan
The Southern Short-grass Prairie Ecoregion, as defined for this assessment, occupies more than 107,000 square miles of northeastern New Mexico, northern Texas, and small portions of western Oklahoma and southern Colorado. The Southern Short-grass Prairie Ecoregion lies

within the Southwest Plateau and Plains Dry Steppe and Shrub Province described by Bailey (1995). It is bordered on the north by the Central Short-grass Prairie Ecoregion, on the south by the Edwards Plateau and Chihuahuan Desert ecoregions, on the east by the Central Mixed-grass Prairie and Crosstimbers and Southern Tall-grass Prairie ecoregions, and on the west by the Southern Rocky Mountains and Arizona-New Mexico Mountains ecoregions. This large ecoregion harbors a varied landscape but is typified by flat to rolling plains, dissected on the east and west by canyons and caprock escarpments. Elevations range from less than 250 meters (above mean sea level) to an altitude of more than 2,500 meters on isolated volcanic peaks. The western portion of the ecoregion is characterized by plateaus of the High Plains, punctuated by escarpments, while the eastern portion harbors the Rolling Plains. Soils range from dry Aridisols to rich, deep Mollisols (Figure 2). Surficial geology ranges from the Permian red clay and sand beds of the Western Rolling Plains, to the Tertiary Ogallala Formation underlying much of the southern High Plains, to the Quaternary basalt flows of the Capulin High Plains and Quaternary sand and loess deposits overlying much of the Llano Estacado. Average annual rainfall amounts decrease from a high of about 900 millimeters in the east to about 300 millimeters in the southwestern part of the ecoregion. Annual mean daily average temperature varies between 10°C (50°F) and 17°C (63°F). Portions of the Pecos, Canadian, Red, Colorado and Brazos Rivers are located within the ecoregion. This generally rural region has few large cities; the largest are Amarillo, Lubbock, Abilene, Odessa-Midland, and Wichita Falls in Texas, and Clovis and Las Vegas in New Mexico.

Partners In Flight Shortgrass Prairie Regional Bird Conservation Plan

Buffalo Lake NWR is located within BCR 18 (Shortgrass Prairie). The shortgrass prairie lies in the rainshadow of the Rocky Mountains, where arid conditions greatly limit the stature and diversity of vegetation. Some of the continent's highest priority birds, including the mountain plover, long-billed curlew, burrowing owl, lark bunting, grasshopper sparrow and McCown's longspur, breed in this area. Southern areas winter large numbers of three longspur species: McCown's, Lapland and chestnut-collared. Reasons for the precarious status of some these birds are poorly understood, but could involve a reduction in the diversity of grazing pressure as bison and prairie dogs have largely been replaced by cattle, and the gradual shift from once expansive prairies to fragmentation by agricultural interests. The BCR, along with BCR 19, hosts an endemic shrub community known as shinnery which in southern portions of the BCR hosts one of the species with the highest threats - the lesser prairie-chicken. A few large rivers, such as the Platte, Arkansas and Canadian, drain out of the Rocky Mountains through this region toward the Mississippi. These rivers created broad, braided and treeless wetlands that are heavily used by migrating waterfowl, shorebirds and cranes. A hydrological simplification has resulted in the invasion of trees and shrubs that support breeding eastern riparian birds, but otherwise greatly reduce the value of the area's wetlands. Playa lakes, the most numerous wetlands in the BCR, are shallow, ephemeral wetlands that, when wet, support many wintering ducks including northern pintail, migrant shorebirds including Baird's and least sandpiper, and migrant black tern and Franklin's gull among other waterbirds. Saline lakes in Texas and New Mexico support

important breeding species, such as the snowy plover and wintering populations of sandhill cranes.

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 and the Secretary'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.

Texas Conservation Action Plan (TCAP) (2012)

The Texas Conservation Action Plan (TCAP) 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 TCAP is scheduled to be completed by the end of this calendar year (2012). The purpose of the TCAP is to provide a statewide "roadmap" for research, restoration, management, and recovery projects addressing Species of Greatest Conservation Need (SGCN) and important habitats. SGCN included terrestrial, freshwater, and marine birds, mammals, reptiles, amphibians, invertebrates, fish, plants and plant communities. The goal of this plan is to conserve and improve the status of these species and, as possible, prevent listings under the Endangered Species Act. These documents can be found at http://www.tpwd.state.tx.us/landwater/land/tcap/.

As part of the State Wildlife Grant Program, the TCAP was initiated by Texas Parks and Wildlife Department (TPWD) to assist the agency and its conservation partners with the development of non-game initiatives and goals to address the needs of wildlife and habitats. This plan provides detailed species status, habitat information, conservation issues, and conservation actions needed in the state's 10 major ecoregions. Buffalo Lake NWR occurs within the High Plains Ecoregion.

Relevant strategies of this CCP and associated step-down management plans will take into account many of the specific conservation actions in the State's plan.

Land and Water Resources Conservation and Recreation Plan (2010)

The Land and Water Resources Conservation and Recreation Plan (LWRCRP) was written in 2005 to guide TPWD in conserving the State's natural and historic heritage and in providing public access to the outdoors. The plan was updated in 2010 and consolidated into four major goals:

1. Practice, encourage, and enable science-based stewardship of natural and cultural resources.
2. Increase access to and participation in the outdoors.
3. Educate, inform, and engage Texas citizens in support of conservation and recreation.
4. Employ efficient, sustainable, and sound business practices.

The goals and objectives are intended to promote stewardship on public and private lands and waters; protect our unique natural and cultural resources; encourage partnerships with all stakeholders; utilize science as the backbone of decision-making; promote participation in the outdoors; instill appreciation of nature in our citizens, young and old; and promote business approaches that leverage industry standards and best management practices to support our mission.

According to the LWRCRP, "…the high population growth and associated development along the coast have fragmented land, converted prairies, changed river flows, decreased water quality, and increased sediment loads and pollutants on marshes and estuaries. Projections indicate continued high growth and increasing fragmentation in most parts of this ecoregion." The Plan recommends that "…many beach areas and mud flats need additional protection." This plan incorporates many relevant strategies, such as monitoring species status and trends, restoring coastal prairie, providing public outreach, protecting cultural and historical resources, maintaining and developing new partnerships, and managing invasive species.

1.3.4 Coordination with the State of Texas and other Entities

The Service will ensure this CCP complements the State of Texas efforts to conserve fish, wildlife, and their habitats, and to increase support for the Refuge System and participation from conservation partners and the public.

This CCP recognizes that both the Service and the TPWD have authorities and responsibilities for management of fish and wildlife species on the refuge. The state's participation and contribution throughout this planning process has provided for ongoing opportunities and open dialogue to improve the ecological conservation of fish and wildlife species and their habitats in Texas. A key part of the planning process is the integration of common objectives, where appropriate.