Chapter 5: Plan Implementation and Monitoring

The CCP will serve as the primary management reference document for refuge planning, operations, and management for the next 15 years or until it is formally revised or amended within that period.

The effectiveness of any management plan is dependent on a multitude of factors that change over time. This chapter describes a number of these factors in further detail, including the funding, staff, projects, compliance requirements, partnerships, monitoring, and additional planning associated with CCP implementation. Adaptive management will also be necessary to meet new, unforeseen challenges, and to take advantage of new opportunities.

As noted in the inside cover of this document, this plan does not constitute a commitment for additional staffing or increases in operational and maintenance resources. These decisions are at the discretion of Congress in overall appropriations, and in budget allocation decisions made at the national and regional levels of the Service.

5.1. Personnel and Budget Needs

Table 5-1 and 5-2 show the existing and additional staff needed to implement the projects identified later in this chapter.

5.1.1. Personnel

5.1.1.1. Existing Personnel

In fiscal year 2010, Buffalo Lake NWR had a staff consisting of 5 employees, including 4 permanent full-time and 1 temporary full-time. The Refuge also hires approximately 1 intern and 2 volunteers to conduct its work each year.

Table 5-1. Existing Personnel

Function / Program	Title	Series	Grade	Type
e.g., Administration	Refuge Manager	0485	12	FT Permanent
Biology	Biologist	0486	7/9/11	FT Permanent
Maintenance	Mechanic	4749	8	PT Permanent
Biology	Interns (2)	0404	3/4	FT Seasonal
Visitor Services	Volunteers (2)	NA	NA	PT Seasonal
Administrative	Technician			FT Permanent

5.1.1.2. Additional Personnel Needs

Table 5-2. identifies staff needed, beyond current levels, to fully implement the management direction presented in this plan. The Outdoor recreation Planner and Law Enforcement Officer could be shared between Buffalo Lake NWR and nearby Muleshoe NWR.

Table 5-2. Additional Personnel Needs Beyond Current Levels

Function / Program	Title	Series	Grade	Type
Outdoor Recreation Planner	Outdoor Recreation Planner	0023	7/9/11	FT Permanent
Law Enforcement	Officer	1801	5/7/9	FT Permanent
Assistant Refuge Manager	Assistant Refuge Manager	0485	7/9/11	FT Permanent

5.1.2. Budget

5.1.2.1. Existing Budget

The Refuge's base operational budget in fiscal year 2010 was $462,918. Additional funds necessary to operate refuge programs were received for annual maintenance $55000, fire operations. Table 5-3 reflects the funds needed to maintain current programs in the short-term. Long-term adjustments to the base operational budget reflect not only short-term adjustments, but also implementation of projects currently identified in the Refuge Operational Needs System (RONS) and Service Asset Maintenance Management (SAMMS) databases.

Table 5-3. Existing Budget

Source	Short-Term Needs (1-3 years)	Long-Term Needs (3-15 years)
Refuge Base Operational Budget	$269,807	$720,000
Annual Maintenance	$126,468	$5,883,492
Fire Operations	All fire operation funds are through Wichita Mountains National Wildlife Refuge. Overtime and hours the Refuge staff spent on fires were funded through the Refuge base	Same as short term

Source	Short-Term Needs (1-3 years)	Long-Term Needs (3-15 years)
	operational fund.	
Visitors Services	$66,643	$333,215
Total Budget	**$462,918**	**$6,936,707**

Refuge Operational Needs System

The Refuge Operational Needs System (RONS) is the mechanism that the refuge uses to justify needed funds and personnel for new programs and projects necessary to meet legal mandates, refuge plans, and departmental and Service directives. This database is used by all refuges to compete for dollars needed to adequately fund programs. The needs currently listed in the Refuge's RONS database date back to 2008. There are 4 projects totaling $262,072 and 2 staff positions. Additional RONS projects will be submitted for funding in order to achieve the management direction identified in this plan.

Service Asset Maintenance Management System

The Service Asset Maintenance Management System (SAMMS) is a database the Refuge uses to document and justify significant maintenance projects and equipment replacement. The refuge's SAMMS project list currently has 37 projects identified for a total of $5,883,492. Additional SAMMS projects will be submitted for funding in order to achieve the management direction identified in this plan.

5.1.2.2. Additional Budget Needs

Table 5-4 identifies budget needs, beyond current levels, to fully implement the management direction presented in this plan.

Table 5-4. Additional Budget Needs Beyond Current Levels

Source	Additional Budget Needs
Refuge Base Operational Budget	-
Salary	$150,000
Moist Soil Management	$25,000
Fire Operations	$10,000
Total Additional Budget Needed	**$185,000**

If the refuge could fund fire operations, then the prescribed fire program would increase on the refuge especially in areas where prescribed burning is the only management tool that is available to achieve habitat and wildlife objectives.

5.2 Appropriate Refuge Uses and Compatibility

5.2.1 Appropriate Refuge Uses

As described in Chapter 1, all uses of a national wildlife refuge over which the Service has jurisdiction must be evaluated under the Appropriate Refuge Uses policy (603 FW 1).

If an existing use is not appropriate, the refuge manager will eliminate or modify the use as expeditiously as practicable. If a new use is not appropriate, the refuge manager will deny the use without determining compatibility. If a use is determined to be an appropriate refuge use, the refuge manager will then determine if the use is compatible (see Compatibility Policy in next section). Although a use may be both appropriate and compatible, the refuge manager retains the authority to not allow the use or modify the use. Uses that have been administratively determined to be appropriate are the six wildlife-dependent recreational uses (hunting, fishing, wildlife observation and photography, environmental education, and interpretation) and take of fish and wildlife under State regulations.

5.2.2 Compatibility Determinations

Compatibility determinations (CD's) are not required for refuge management activities (e.g., conducting bird surveys) except economic activities (e.g., haying). Economic uses of a natural resource must contribute to achieving refuge purposes and the Refuge System mission. They are also not required where statute directs mandatory approval of the activity, as in the case of facilities for national defense. If a use is found to be incompatible, the Refuge will follow normal administrative procedures for stopping the action.

CD's for existing wildlife observation and photography, and environmental education and interpretation must be re-evaluated with the preparation or revision of a comprehensive conservation plan or at least every 15 years. Compatibility determinations for all other uses must be re-evaluated every 10 years or earlier if conditions change or significant new information relative to the use and its effects becomes available. Refuge managers must complete a written compatibility determination for each use, or collection of like-uses, that is signed by the manager and the Regional Refuge Chief.

Compatibility Determinations for current Buffalo Lake NWR activities are found in Appendix D.

5.3. Intra-Service Section 7 (Endangered Species Act Consultation)

An Intra-Service Section 7 consultation was conducted for the implementation of CCP objectives and strategies with the Arlington Ecological Services Field Office (see Appendix G).

5.4. Step-Down Management Plans

Implementation of this CCP will be accomplished, in part, through various step-down management plans. Each step-down plan has its own program focus, identifying and directing

the implementation of strategies (i.e., actions, techniques, and tools) designed to achieve programmatic objectives outlined in the plan.

5.4.1. Current Step-Down Plans

There is no current step down management plans for Buffalo Lake NWR.

5.4.2. Future Step-Down Plans

The following list of step-down management plans that will be drafted to guide management of specific Refuge programs:

5.4.2.1. Habitat Management Step-Down Plans

Grassland Habitat Management Plan

With water availability becoming more and more difficult, the inevitable wildlife emphasis gradually turning from waterfowl in favor of grassland species necessitates the development of a Grassland Habitat Management Plan. This step down plan should further refine the management tools related to grassland habitat. The Grassland Habitat Management Plan will guide grassland inventory and assessment in regards to potential future conditions. This step-down management plan supports achievement of Habitat Goal 1: Objective 1 as identified in Chapter 4: Management Direction.

Fire Management Plan

The Fire Management Plan (FMP) will address the prescribed fire activities on the refuge in order to mimic natural fire ecology in grassland habitats. The FMP will discuss the reduction of vegetation litter and buildup, increase biodiversity of plants, and reduce woody invasion of plants, while replicating historical natural fire events. This plan will also address wildfire response activities. This step-down management plan supports achievement of Habitat Goal 1: Objective 2 as identified in Chapter 4: Management Direction.

Grazing Management Plan

The Grazing Management Plan will be designed to assist in the development of habitat diversity and prairie maintenance. The scientific nature of grazing, which mimics historical grazing by bison and assists in the removal of plant litter from the previous year(s), dictates the necessity of this plan. This step-down management plan supports achievement of Habitat Goal 1: Objective 3 as identified in Chapter 4: Management Direction.

Moist Soil Unit Management Plan

Historically, Buffalo Lake has been a primary stopover point for countless migratory bird species. The Moist Soil Unit Management Plan will ensure that Buffalo Lake will continue to play a major role in supplying migratory birds and resident wildlife with necessary wintering habitat. This step down plan will ensure that existing moist soil units are expanded in order to

meet the ecoregional goals of providing additional waterfowl habitat in the Texas Panhandle. This step-down management plan supports achievement of Habitat Goal 1: Objective 4 as identified in Chapter 4: Management Direction.

Landscape Protection Plan
A Landscape Protection Plan (LPP) would provide opportunities for the Service to acquire surrounding properties, from willing sellers, that promote strategic habitat conservation. This step-down management plan supports achievement of Habitat Goal 1: Objective 6 as identified in Chapter 4: Management Direction.

Integrated Pest Management Plan
An Integrated Pest Management Plan on the refuge will ensure that invasive flora species are controlled and/or eradicated and prevent the introduction of new infestations through ongoing monitoring and control across the refuge. Since approximately two percent of the refuge is impacted by invasive flora species, it is paramount that an adequate management plan is put into place to prevent large scale recruitment of invasive species. This step-down management plan supports achievement of Habitat Goal 1: Objective 8 as identified in Chapter 5: Management Direction.

5.4.2.2. Wildlife Management Step-Down Plans

Strategic Hog Eradication Plan
Feral hog activity is present throughout the Texas Panhandle. While no current population exists on the refuge, there is a feral hog presence throughout the surrounding region. This Strategic Hog Eradication Plan will develop the methods of population control and establishing partners in order to restrict feral hog movements and expansion in the Texas Panhandle and limit the subsequent habitat and resource destruction. This step-down management plan supports achievement of Wildlife Goal 1: Objective 1 as identified in Chapter 4: Management Direction.

Strategic Nuisance Fauna Species Management Plan
The Strategic Nuisance Fauna Species Management Plan will focus on wildlife species, such as prairie dog, deer and some birds that have the potential to exceed the carrying capacity of the refuge. This plan will ensure that the refuge will be able to adequately respond to nuisance species as they expand into the refuge. This step-down management plan supports achievement of Wildlife Goal 1: Objective 2 as identified in Chapter 4: Management Direction.

Invasive Species Management Plan
An Invasive Species Management Plan will direct the refuge staff in monitoring and removal of invasive fauna species throughout the refuge. While it has long been a practice of the refuge to immediately remove invasive fauna species, this plan will insure that invasive species are not having detrimental effects on native habitat and wildlife. This step-down management plan

supports achievement of Wildlife Goal 1: Objective 3 as identified in Chapter 5: Management Direction.

5.4.2.3. Visitor Services Step- Down Management Plans

Visitor Services Plan
A Visitor Services Plan will be used to guide visitor services on Buffalo Lake NWR. It will document approved recreational activities on the refuge and identify the structure of the visitor services program. Additionally, it will outline the improvements that the refuge anticipates will be necessary to ensure that visitors have a quality and memorable experience on the refuge.

Refuge Hunt Plan
A hunting program on the refuge would accomplish two things. First, it will assist in maintaining various wildlife populations on the refuge beneath the carrying capacity of their habitat, thereby eliminating the possibility of over-using food and shelter resources. Second, it allows the public to participate in wildlife-dependent recreation and become included in the active management of the refuge's resources. The refuge hunt plan will be designed so that both these tasks are adequately addressed. This step-down management plan supports achievement of Wildlife Goal 1: Objective 2 and Visitor Services Goal 1: Objective 1 as identified in Chapter 5: Management Direction.

5.4.2.4. Facilities/Infrastructure Step-Down Management Plans

Administrative Facilities Plan
An Administrative Facilities Plan would help the refuge design, organize and facilitate the maintenance and development of needed refuge infrastructure. This step-down management plan supports achievement of Facilities/Infrastructure Goal 1: Objective 1 as identified in Chapter 5: Management Direction.

5.5. Refuge Projects

The following list of refuge projects have been identified as needed to fulfill the goals and objectives indentified in Chapter 4: Management Direction.

5.5.1. Existing Projects

5.5.1.1 Habitat Management Project

Moist Soil Unit Maintenance

The refuge has identified a need to replace the old, corroding and debilitated infrastructure which provides the water supply for the refuge's moist soil unites. This project, while already in SAMMs but has not yet been funded, supports achievement of Habitat Goal 1: Objective 4 as identified in Chapter 4: Management Direction.

5.5.1.2. Facilities/Infrastructure Projects

Windmill Maintenance

Current SAMMs project for 2012, maintain windmills in operable condition

This step-down management plan supports achievement of Facilities/Infrastructure Goal 1: Objective 1 as identified in Chapter 5: Management Direction.

Water Well Maintenance

Current SAMMs project (unfunded), maintain pumps and related infrastructure in operable condition. This step-down management plan supports achievement of Facilities/Infrastructure Goal 1: Objective 1 as identified in Chapter 5: Management Direction.

Refuge Fence Repair

Current SAMMs project in 2014, replacement of refuge fences (refuge perimeter fencing)

This step-down management plan supports achievement of Facilities/Infrastructure Goal 1: Objective 1 as identified in Chapter 5: Management Direction.

5.5.2 Future Projects

5.5.2.1 Habitat Management Projects

Water In-flow Management and Dam Control

With the long history of controversy since the inception of the dam with a variety of issues such as water rights, dam safety and design, water pollution and public use, the Refuge will be initiating a step down management plan to include National Environmental Policy Act standards and guidelines including an associated decision document (i.e. Finding of No Significant Impact). This process will include a public review period to determine the best suitable action for the dam in an attempt to benefit refuge resources with a realistic budget while maximizing longevity of the dam. The Plan will focus on addressing public safety, recreation, habitat requirements and contaminant concerns.

This project supports achievement of Habitat Goal 1: Objective 5 as identified in Chapter 4: Management Direction.

Vegetation Inventory
This inventory will assist the refuge in establishing a baseline data on existing plant communities and attempt to track any long term trends related to climate change. Because of the desire to participate in adaptive management and to document habitat changes, a thorough understanding of the current flora conditions of Buffalo Lake NWR is necessary. Vegetation surveys and inventories will be conducted utilizing protocols developed by regional, zone, and refuge biologists to provide accurate and defendable information on refuge habitats. This would also develop and establish a decision-based research and monitoring program. This project supports achievement of Climate Change Goal 1: Objectives 1 and 3 as identified in Chapter 4: Management Direction.

5.5.2.2 Wildlife Management Projects

Wildlife Survey
Because of the desire to participate in adaptive management, a thorough understanding of the current fauna conditions of Buffalo Lake NWR is necessary. Wildlife Surveys and inventories will be conducted utilizing survey protocols developed by regional, zone, and refuge biologists to provide accurate and defendable information on refuge habitats and wildlife populations. Results of these surveys will be the basis for management efforts to insure diversity of habitats and species to help achieve the goals of the High Plains Conservation Area.

This project supports achievement of Climate Change Goal 1: Objectives 2 and 3 as identified in Chapter 4: Management Direction.

5.5.2.3 Visitor Services Projects

Sign Management
This project would ensure that refuge signs are maintained and replaced to meet Service requirements while communicating pertinent information regarding the purpose of the refuge, how the refuge is managed and detailed regulations to refuge visitors. Proper sign management will provide each refuge visitor with a quality visit providing information and education and understanding of the refuge purpose.

Objective 1 as identified in Chapter 4: Management Direction.

Refuge Outreach
The refuge will provide more pertinent and important information to news papers, radio and television and other outlets to provide information to the public regarding important events and opportunities for the public. The refuge website will be updated and maintained for accuracy to assist distant visitors in preparing for a visit.

Visitor Services Goal 1: Objectives 2 and 3 as identified in Chapter 4: Management Direction.
Interpretation and Education Program

The refuge will increase the number of interpretation and education days available to regional schools.

Visitor Services Goal 1: Objective 4 as identified in Chapter 4: Management Direction.

Wildlife Viewing Benches and Blinds
The refuge will establish 6 additional viewing blinds and benches and promote the accessibility of such activities and supports achievement of Visitor Services Goal 1: Objective 6 as identified in Chapter 4: Management Direction.

Fishing Pond Development
This project initiates the feasibility study for the proposed fishing pond as found in the proposed action of the Environmental Assessment and supports achievement of Visitor Services Goal 1: Objective 6 as well as Habitat Goal 1: Objectives 4 and 6 as identified in Chapter 4: Management Direction.

Friends Group
The refuge would like to initiate the formation of a friends group to assist with refuge maintenance and wildlife education projects. Though no group or organization now exists for the exclusive benefit of the refuge there are some that could be courted to become a friends group. Such organizations as the High Plains Master Naturalists and the Amarillo chapter of the Audubon Society could provide a source in interested individuals.

5.5.2.4. Facilities/Infrastructure Management Projects

Restroom Facility Update
This project represents the refuge's desire to replace a restroom facility on the birding trail with a chemical vault toilet. While the replacement of this facility will fall under the previously mentioned Facilities Management Plan, this project supports achievement of Facilities/Infrastructure Goal 1: Objective 1 as identified in Chapter 5: Management Direction.

5.6. Partnerships

Because the refuge exists within a dynamic ecosystem and many of its resources are of national and international importance, members of the public, organizations, and other government agencies have interests in the refuge and the work the Service does. Successful implementation of many refuge programs requires active participation by wind energy providers, the State of Texas as well as neighboring landowners. Partnerships are among the best ways for the refuge to accomplish its work and fulfill its mission, and it seeks opportunities with others to do that work.

Wind Energy Research

The refuge has partnered with regional wind energy developers to conduct diurnal avian activity surveys and acoustic monitoring in order to track any changes in habitat and wildlife. The results of this study will provide both the refuge and the wind energy developer the information needed to ensure that wind energy production produces as little impact as possible to wildlife and their habitat in and around the refuge. This partnerships supports achievement of Habitat Goal 1, Objective 7 as identified in Chapter 4: Management Direction.

5.7. Monitoring and Evaluation

Monitoring helps the Refuge track the progress of implementing the plan. The results of monitoring show how objectives are being achieved and measure progress towards accomplishing goals. Proposed monitoring plans will be refined as various step-down management plans are drafted or revised.

The refuge will conduct implementation status monitoring of the CCP in order to evaluate the efficiency and effectiveness of the Plan. The goals of Refuge monitoring are:

- To evaluate, document, and report how well the CCP is applied,
- Determine how well the Plan meets its stated goals, and,
- Determine if the Plan's purpose and direction remain appropriate.

Table 5-5 displays proposed inventory and monitoring projects for fish, wildlife and their habitats, and monitoring indicators for public use. These proposed monitoring techniques will be refined as various step-down management plans are drafted or revised.

Monitoring and evaluating CCP implementation is critical to the refuge's management actions and its ability to continue to meet goals, objectives, and strategies. Adaptive management allows the use of alternative solutions to meet desired conditions. It includes defining measurable objectives, monitoring, learning and making changes, and recognizing uncertainties of outcomes.

5.8. Plan Amendment and Revision

Periodic review and change of this comprehensive conservation plan will be necessary. As knowledge of refuge resources, user groups, and use evolves, changes in management may be identified. Fish and wildlife populations, user groups, adjacent land users, and other management considerations change with time-often in unforeseen ways. Challenges also may be encountered in trying to implement some portions of the CCP. Plan revision is a necessary part of the adaptive management approach used by the Service. This means that objectives and strategies identified to reach goals can be adjusted.

This CCP will be informally reviewed by refuge staff while preparing annual work plans. It may also be reviewed during routine inspections or programmatic evaluations. Results of the reviews

may indicate a need to modify the plan. The monitoring of objectives is an integral part of the CCP, and management activities may be modified if desired results are not achieved. If minor changes are required, the project leader will determine the level of public involvement and associated NEPA documentation. This CCP will be formally revised at least every 15 years.

Table 5-5. Monitoring and Evaluation

Habitat Objectives	Effectiveness Measures	Monitoring Techniques	Reliability	Time Factors	Cost Factors*	Personnel	Link to Regional Monitoring
Develop Land Management Programs to Improve Grassland Habitat	Effective maintenance, enhancing or restoration of refuge grassland habitat	NA	NA		$$	Refuge Staff	NA
Update the Refuge Fire Management Plan	Completion and approval of a Refuge Fire Management Plan	NA	NA	Two years from the date of CCP approval	$	Refuge Staff	NA
Update the Refuge Grazing Management Plan	Completion of a new Grazing Management Plan	NA	NA	Two years from the date of CCP approval	$	Refuge Staff	NA
Enhance the Quality and Quantity of Refuge Wetlands	Increase Moist Soil Units by at Least 120 Acres	GIS Compilation	NA	By 2020	$$$	Refuge Staff	NA
Development of a Pest Management Plan	Restricting	Visually, GIS Compilation	NA	One year from the date of CCP approval	$$	Refuge Staff	NA
Reduce Downstream Water Degradation and Contamination	Completion of a refuge-wide survey of wildlife resources	Water Quality Testing	NA	One year from the date of CCP approval	$$$	Refuge Staff	NA
Update the Refuge Landscape Protection Plan	Completion of the assessment for a Land Protection Plan	NA	NA	One year from the date of CCP approval	$	Refuge Staff	NA
Reduce Human	Establish best management	Visually, Public	NA	One year from the	$	Refuge Staff	NA

Table 5-5. Monitoring and Evaluation

	Effectiveness Measures	Monitoring Techniques	Reliability	Time Factors	Cost Factors*	Personnel	Link to Regional Monitoring
Debris on the Refuge	practices of trash and litter control	Comment		date of CCP approval			
Wildlife Objectives							
Hog Eradication	Completion and approval of a strategic hog eradication program	NA	NA	One year from the date of CCP approval	$	Refuge Staff	NA
Nuisance Fauna Species	Completion and approval of a strategic nuisance species management program	NA	NA	One year from the date of CCP approval	$	Refuge Staff	NA
Invasive Fauna Control	Completion of a refuge-wide survey of wildlife resources	NA	NA	Upon Approval of this CCP	$	Refuge Staff	NA
Climate Change Objectives							
Refuge Habitat Surveys	Complete habitat inventories to develop a comprehensive baseline of refuge resources	NA	NA	Five years from the date of CCP approval	$$	Refuge Staff, Partners	NA
Refuge Wildlife Surveys	Complete wildlife inventories to develop a comprehensive baseline of refuge resources	NA	NA	Five years from the date of CCP approval	$$	Refuge Staff, Partners	NA
Baseline Inventory	Combine results of refuge habitat and wildlife survey	NA	NA	One year from the respective completion of habitat and wildlife surveys	$	Refuge Staff, Partners	NA
Public Use Objectives							
Refuge Sign Inventory	Track location, purpose and condition	Visually	NA	One year from the date of CCP approval	$	Refuge Staff	NA

Table 5-5. Monitoring and Evaluation

	Effectiveness Measures	Monitoring Techniques	Reliability	Time Factors	Cost Factors*	Personnel	Link to Regional Monitoring
Public Communication of Refuge Hours, New Facilities and Big 6 Opportunities	Inform the public on a bi-annual basis of refuge operations	Tracking of public notices	NA	Every six months after the date of CCP approval	$$	Refuge Staff	N A
Public Communication of Special Events	Inform the public in advance of any special events	Tracking of public notices	NA	Two weeks prior to special events	$$	Refuge Staff	N A
Education and Interpretive Days	Maintain at least one annual event, but no more than one monthly	Tracking of education and interpretive days	NA	NA	$	Refuge Staff	N A
Develop and Implement a Refuge Hunt Plan	Completion and approval of a Refuge Hunt Plan	NA	NA	Three years from the date of CCP approval	$	Refuge Staff	N A
Facilities Objectives							
Facility Plan	Completion and approval of a Refuge Facility Plan	NA	NA	Five years from the date of CCP approval	$	Refuge Staff	N A

*Cost factors are highly dependent on budget any given year.

$ - Refuge can accomplish with existing funding

$$ - Some addition funding needed

$$$ - Significant funding needed