# 4.0 Management Direction

This chapter describes the management direction, including goals, objectives, and strategies, for the Wichita Mountains Wildlife Refuge.

## 4.1 Overview of Goals, Objectives, and Strategies

Goals and objectives are the unifying elements of successful Refuge management. They identify and focus management priorities, provide a context for resolving issues, guide specific projects, provide rationale for decisions, and offer a defensible link among management actions, Refuge purpose(s), Service policy, and the National Wildlife Refuge System mission. Goals define general targets in support of the vision, followed by objectives that direct effort into incremental and measurable steps toward achieving those goals. Finally, strategies identify specific tools or actions to accomplish objectives. The goals are organized into four broad categories of ecoregion, habitat and wildlife, public use, and facilities.

## 4.2 Ecoregion Goal, Objectives, and Strategies

### 4.2.1 Refuge-Wide Management

**Goal 1**

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

**Objective 1: Climate Change**

Throughout the life of the CCP, reduce the Refuge carbon footprint by implementing management activities that reduce energy and water consumption and concurrently educate the public.

***Rationale:*** 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 and decision making…Each bureau and office of the Department will consider and analyze potential climate change impacts when undertaking long-range planning exercises, when setting priorities for scientific research and investigations, when developing multi-year management plans, and/or when making major decisions regarding the potential utilization of resources under the Department's purview. Departmental activities covered by this Order include, but are not limited to, programmatic and long-term environmental reviews undertaken by the Department, management plans and activities developed for public lands, planning and management activities associated with oil, gas and mineral development on public lands, and planning and management activities for water projects and water resources" (U.S. Secretary of the Interior 2001). Secretarial Order 3226 applies to comprehensive conservation plans and step-down management plans such as habitat management plans.

**Strategies:**

1. Participate in the Great Plains Landscape Conservation Cooperative and other climate changes studies and initiatives.

2. Continue to pursue, improve, or add energy conservation projects, including the use of a thermal water solar project at Camp Doris, photovoltaic panels at the Visitor Center, high-efficiency HVAC systems with SEER ratings of 15 and above, Energy Star-rated windows in residences, and a white PVC membrane roof with a dense polystyrene roof insulation (with an R-value of 20) on the maintenance shop.
3. Maintain at least 12 hybrid or high-efficiency Refuge fleet vehicles that use alternative fuel sources.
4. Continue to recycle paper, newsprint, cardboard, aluminum, plastic, tin, light ballasts, incandescent lights, batteries, toner cartridges, tires, and steel scrap.
5. Continue to use compact fluorescent light bulbs in all Refuge facilities.
6. Continue to pursue, improve, or add water conservation projects for administrative buildings and residences, including retrofitting facilities with water-wise equipment that adjusts flows to waterlines, showers, and faucets, and on-demand water heaters.
7. Continue to monitor local climate, such as through the National Oceanic and Atmospheric Administration (NOAA) U.S. Climate Reference Network monitoring stations.
8. Work through partnerships to prepare for potential precipitation and temperature changes, such as by increasing connectivity to adjacent lands.
9. Use adaptive management techniques to prepare for or adapt to water shortages.
10. Maintain historic land uses (namely, grazing and fire) at historic (mid-19$^{th}$ century) frequencies and patterns. Chemically or mechanically remove invasive species to maintain heterogeneity, biological diversity, and the integrity of the landscape's resiliency for change.

### Objective 2: Air Quality

Throughout the life of the CCP, minimize potential effects to air quality by following guidelines for maintaining Class 1 airsheds through planning and conducting management activities using methods that mitigate smoke, dust, spray drift, and emissions.

***Rationale:*** The Wichita Mountains Wilderness is considered a Class 1 Airshed. Any wilderness area 5,000 acres or larger and designated prior to 1977 carries this designation. Under the Prevention of Significant Deterioration provisions of the Clean Air Act, the Federal land manager has "…an affirmative responsibility to protect the air quality related values (including visibility) of any Class 1 area and to consider, in consultation with the Environmental Protection Agency (EPA), whether a proposed major emitting facility will have an adverse impact on such values." The Interagency Monitoring of Protected Visual Environments Program (IMPROVE) establishes visibility levels, identifies sources of existing impairment, and documents long-term trends to track progress toward meeting the national visibility goal stated in the Clean Air Act (CAA). In addition to the IMPROVE air monitoring station, the Oklahoma Department of Environmental Quality operates an Atmospheric Mercury Monitoring Station. The Refuge manages air quality because of and in accordance with the Federal Clean Air Act (42 U.S.C. §§ 7401-7671q); the Regional Haze Rule, 40 CFR § 51.309; the Interim Air Quality Policy on Wildland and Prescribed Fires (April 1998); Title 252 of Oklahoma Administrative Code,

Chapter 100, Air Pollution Control; the Oklahoma Forestry Code in Title 2 Article 16 of the Oklahoma Statutes; and the Oklahoma Voluntary Smoke Management Plan.

**Strategies:**

1. Conduct prescribed burns under appropriate conditions, as outlined in the Fire Management Plan (FMP).
2. Implement the State of Oklahoma's Voluntary Smoke Management Guidelines.
3. Apply all chemical treatments with a boom or wand that direct spray toward the plant of concern and limit spray drift. Limit aerial pesticide application. Follow the 2013 Integrated Pest Management Plan.
4. Manage round-ups to minimize dust by wetting working pens and lanes.
5. Coordinate monitoring efforts with the Service's Denver Air Quality Branch, including the IMPROVE station.
6. Consider a strategy of bio-utilization of woody biomass.
7. Increase dust abatement efforts such as spraying roads to minimize dust when traveling backcountry roads. Use containment curtains when performing construction activities.
8. Establish a shuttle route or interpretive tours to reduce Refuge traffic. This may include parking vehicles at the Visitor Center, nearby museums, and other high traffic areas and transporting those visitors to recreation sites and/or providing Refuge tours.
9. Increase hybrid and alternative fuel use.
10. Enhance bicycling opportunities (see Objective 6: Bicycling)

### Objective 3: Fragmentation and Land Protection

By 2020, improve landscape connectivity and conservation by expanding the Refuge or increasing efforts with partners and surrounding landowners.

***Rationale:*** The fragmentation and loss of habitat is the single most important issue facing wildlife conservation worldwide. The Wichita Mountains Wildlife Refuge is surrounded by various land uses that will change over time and have an effect on wildlife that use the Refuge. As wildlife habitat is lost outside the Refuge, the functional capacity of the Refuge to support its current populations will be reduced. Furthermore, wildlife may begin to rely on corridors to connect disjunct habitat fragments and the Refuge. There is a need to protect areas adjacent to the Refuge to act as buffers to habitat fragmentation and loss.

In April 2009, the Service, working together with the U.S. Geological Survey (USGS), initiated an effort to identify a framework for implementing landscape conservation. This framework would serve as the foundation to locate and develop conservation-science partnerships called Landscape Conservation Cooperatives (LCCs). Partnerships to establish conservation corridors or land acquisitions would increase the ecological footprint of the Refuge. With increased boundaries, the Refuge would be better able to manage towards a larger, more viable herd of bison and secure habitats to maintain diversity. Conservation corridors are physical connections between disconnected fragments of plant and animal habitat. Without such connections, some

species would be unable to reach necessary resources like food, water, mates, and shelter. Also, these corridors sometimes support the largest diversities in the landscape.

**Strategies:**

1. Participate in the Great Plains Landscape Conservation Cooperative.
2. Work with The Nature Conservancy (TNC) and other partners for the identification and protection of established regional corridors.
3. Hire a biologist on the Refuge to work with local landowners to assist in efforts to expand Refuge conservation.
4. Identify and prioritize future protection efforts towards connecting valuable habitat fragments.
5. Develop a Preliminary Project Proposal (PPP) and, upon approval, a Land Protection Plan (LLP) to explore opportunities for Refuge expansion through land acquisitions or other means.

### Objective 4: Riparian Areas

Throughout the life of the CCP, manage and promote riparian area conservation on and off Refuge.

***Rationale:*** The Wichita Mountains Wildlife Refuge is at a higher elevation than the surrounding area and is thereby situated at the top of the watershed. Protection of riparian areas benefits water quality, soil stability, and wildlife diversity for the Refuge, as well as the surrounding ecosystem. Riparian areas serve as corridors or physical connections between disconnected fragments of plant and animal habitat.

**Strategies:**

1. Construct and/or maintain concrete low water crossings or bridges where roads cross streams to protect riparian resources and prevent or minimize erosion. Design low water crossings to minimize potential impediments to fish passage.
2. Work with partners to develop tactics and outreach for the maintenance of riparian corridors outside of Refuge.
3. Hire a biologist on the Refuge to work with local landowners to assist in efforts to expand conservation of riparian areas outside of Refuge boundaries.
4. Prioritize future protection efforts towards connecting valuable habitat fragments in identified corridors.

### Objective 5: Water Quality

Upon CCP approval, continue to monitor Refuge water quality, mitigate pollutants, and provide education and awareness in coordination with partner agencies.

***Rationale:*** Water is the lifeblood of the National Wildlife Refuge System (Refuge System, NWRS), but it is also a vital component of nearly every aspect of our society, including agriculture, energy production, and municipal drinking supplies. A limited resource, freshwater is increasingly the focus of dispute. Climate change and increasing human populations will only

heighten the demand for clean, fresh water in the future. The challenge for the Service, in light of growing competition for water, is to ensure that sufficient quantities of good quality water are available for fish, wildlife, and plants. Monitoring, mitigations, partnerships, and outreach are needed to identify needs and threats, prioritize work, and to take prescriptive actions, particularly in the case of mercury contamination where remediation is not practical.

**Strategies:**

1. Continue monitoring water quality through the Blue Thumb partnership with the Oklahoma Conservation Commission, mercury monitoring through the Oklahoma Department of Wildlife Conservation (ODWC), Oklahoma Department of Environmental Quality (OKDEQ), the EPA long-term Mercury Deposition Network program, and other partnerships.
2. Provide public outreach for and warnings of mercury contamination.
3. Partner with OKDEQ to expand mercury monitoring to additional Refuge lakes.
4. Follow pesticide labels and use mitigations in Pesticide Use Proposals (PUPs) to apply pesticides in or around water.
5. Conduct a Water Resource Inventory and Assessment (WRIA) to determine water resources management priorities and quality parameters.
6. Develop a Water Resources Management Plan based on the results of the WRIA.

## 4.3 Habitat and Wildlife Goals, Objectives, and Strategies

### 4.3.1 Refuge-Wide Management

**Goal 1**

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

**Objective 1: Water Resources**

Throughout the life of the CCP, manage water resources first and foremost for megafauna and secondarily for fisheries, migratory waterfowl, and shorebird species.

***Rationale:*** The Wichita Mountains Wildlife Refuge is at a higher elevation than the surrounding area and is thereby situated at the top of the watershed. Natural aquatic classes on the Refuge such as creeks and streams are intermittent and seasonal. Man-made reservoirs and ponds account for the largest waterbodies on the Refuge and are the only year-round water source. Since the Refuge is under a fenced system, the large herbivores would not have access to water during dry seasons or drought without these reservoirs.

**Strategies:**

1. Manage lakes at full capacity with occasional drawdowns to control aquatic invasive species, to manage fisheries, and to improve recreational fishing opportunities.
2. Provide habitat opportunities for migratory waterfowl and shorebird species through occasional drawdowns.

3. Stock fish, primarily channel catfish, periodically in the public use lakes.
4. Work with Oklahoma Department of Wildlife Conservation (ODWC) to install fish structures in lakes when and where appropriate.
5. Construct a fish passage structure on West Cache Creek at the Refuge-Fort Sill boundary to improve fish passage. Coordinate with Fort Sill Fish and Wildlife, U.S. Army Corps of Engineers, and ODWC for the design.
6. Conduct a WRIA to determine water resources management priorities and quality parameters.
7. Develop a Water Resources Management Plan based on the results of the WRIA.

**Objective 2: Spring Modification**

Throughout the life of the CCP, continue utilizing modified springs for managing confined Refuge animals.

***Rationale:*** Many of the springs on the Refuge flow at a very low volume. During the hotter months of the year, the water would be either absorbed by the soil or evaporated, not providing a water source substantial enough to sustain the herds of large grazers. Without these springs to aid in dispersal of animals, areas around lakes would become overutilized during dry periods.

**Strategies:**

1. Manage springs minimally to maintain their natural character but also provide sufficient water resources for animal needs.
2. Develop a WRIA to determine the effect of downstream users and drawdown and what affect that might have on Refuge water resources.
3. Develop a Water Resources Management Plan based on the results of the WRIA.

**Objective 3: Water Rights**

Throughout the life of the CCP, maintain existing Refuge water rights with the State.

***Rationale:*** Oklahoma Stream Water Law (Title 82 O.S., sections 105.17 and 105.18) requires a water right holder to beneficially use the water, or the right is subject to reduction or cancellation. The cancellation or loss of these rights could lead to increased downstream use that would overall affect the upstream water resources and wildlife on the Refuge. Therefore, it's in the best interest of the Refuge to continue to maintain State water rights.

**Strategies:**

1. Develop a WRIA to determine the effect of downstream users and drawdown and what affect that might have to Refuge water resources and whether the Refuge water rights are adequate and evaluate the need for increasing water rights.
2. Develop a Water Resources Management Plan based on the results of the WRIA.

**Objective 4: Water Conservation**

Throughout the life of the CCP, continue to participate in Service and State water planning efforts.

***Rationale:*** As the need for water resources throughout Oklahoma and Texas increase, the need for conservation of water and monitoring use will be critical. Climate change models predict prolonged droughts that can have major impacts on water stores on the Refuge and throughout Oklahoma and Texas. Being proactive and participating in water conservation efforts will help the Refuge provide water to wildlife in the foreseeable future.

**Strategies:**

1. Maintain dams and levees on the Refuge to provide water for wildlife.
2. Practice water conservation methods on the Refuge.
3. Develop a WRIA to determine the effect of downstream users and drawdown and what affect that might have to Refuge water resources.
4. Develop a Water Resources Management Plan based on the results of the WRIA.

**Objective 5: Fire Ecology and Management**

Immediately after CCP approval, burn up to 14,000 acres per year to mimic natural fire occurrence and grazing interaction.

***Rationale:*** The Refuge engages in a type of fire management referred to as "patch burning," a heterogeneous-based land management approach that utilizes post-fire regrowth to attract grazing ungulates to a selected area (i.e., rotational grazing without fences). Patch burning closely mimics historical fire-grazing interactions that were responsible for generating and maintaining habitats across the Great Plains (Fuhlendorf et al, 2009). This management approach supports the Refuge System Biological Integrity, Diversity, and Environmental Health policy (601 FW 3). Detailed fire management guidelines and procedures for accomplishing Refuge objectives are described in detail in the most current Refuge Fire Management Plan (FMP).

Prescribed fires are fires, under specific environmental conditions, that help accomplish management objectives. The goals of prescribed fire are to reduce hazardous accumulations of fuels, to perpetuate natural ecological process that benefit fire adapted wildlife occurring within a specific habitat, to reduce the threat of wildfires to human life and resource damage, and to protect property both inside and outside Refuge boundaries.

The Refuge contains 25 burn units. Delineation of burn units is based on natural or man-made features, such as creeks, roads and constructed fire breaks, which facilitate fire containment and control. The Refuge has 40 miles of asphalt roads and 80 miles of dirt roads. These roads, if properly maintained, function as fuel breaks, separating containment units and providing firefighters ingress and egress.

The Refuge is proposing to prescribe burn a minimum of four burn units annually—between 12,000 and 14,000 acres annually depending upon unit size. This is approximately 20-23 percent of the entire Refuge. Approximately 26,500 acres of black-capped vireo nesting (17,929 acres) or potential nesting (8,566 acres) habitat currently occurs on the Refuge. Based, in part, on size and location of fire management units and a targeted fire return interval, the Refuge is planning on a maximum of 27 percent (currently 7,200 acres) of black-capped vireo nesting or potential nesting habitat to be prescribed burned annually, depending on available funding and appropriate burning weather. This will result in a fire return interval of approximately five years on average

for any given burn unit. This return interval corresponds with the targeted five- to eight-year fire return interval identified in the Refuge Fire Management Plan. Wildfires occurring on the Refuge in black-capped vireo habitat during a given year will be included as contributing to total annual burn acreage and will be considered as a component of the annual black-capped vireo habitat burn acreage total. Additionally, all black-capped vireo nesting habitat and potential nesting habitat occurring on land included in cooperative prescribed burns, conducted with adjoining non-Federal landowners, will be calculated and included as contributing to total annual prescribed burn acreage and will be considered as a component of the allotted total annual black-capped vireo habitat burn acreage. Prescribed burning will be conducted from August 1 through April 15 to minimize effects to nesting black-capped vireos to the greatest extent practicable. This burn period will provide the Refuge flexibility to target vegetation during growing or dormant season and to vary fire intensities necessary to achieve management goals, while limiting the amount of occupied black-capped vireo habitat affected by fire.

The need to implement patch burning on the Refuge has been clearly demonstrated in order to maintain and restore habitats for native wildlife species, including the black-capped vireo. Fire exclusion was a high priority on the Refuge from 1901 until 1980 and has resulted in succession of historic oak savannah habitat to a closed canopy forest degraded by an overabundance of encroaching eastern red cedar. The primary mechanism for the creation and maintenance of black-capped vireo nesting habitat has historically been, and continues to be, fire. The Refuge has determined that a more frequent fire regime is needed—one that more closely replicates natural historic fire events. Patch burning provides this and best meets Refuge management objectives for restoring and maintaining habitat(s) in a historic condition. The Refuge recognizes that habitat changes resulting from fire exclusion over a period of decades will not be rectified simply, or in the short term; rather, it will require a long-term commitment to apply an effective prescribed fire program conducted on a consistent and standard basis.

These actions are documented in the FMP, Biological Assessment/Opinion, and Black-capped Vireo's Recovery Plan.

**Strategies:**

1. Use prescribed burning according to the Fire Management Plan to promote naturally occurring and historic habitat conditions to sustain biological diversity and heterogeneity.
2. Mimic natural fire occurrence and grazing interaction (i.e., pyric herbivory).
3. Evaluate all wildfires and apply an appropriate strategy and/or tactic that considers wildfire intensity and behavior, public and firefighter safety, values at risk, possible resource benefits, and cost containment.
4. Burn an annual maximum of 7,200 acres in black-capped vireo habitat or as defined in the Section 7 Biological Opinion.
5. Partner with adjacent landowners in the prescribed fire program to expand the footprint of Refuge habitat management.

### Objective 6: Non-Native/Invasive Flora

Throughout the life of the CCP, monitor and control, eradicate, or confine invasive and non-native flora populations.

***Rationale:*** Invasive, exotic, and nuisance plant species are a concern because they pose a threat to native habitats by outcompeting native plant and/or wildlife species. These species limit the productivity of wildlife habitat and, if left unchecked, can form monocultures that reduce habitat quality and biological diversity on the Refuge. Biological diversity is essential for healthy habitats for migratory birds and other wildlife and plant species. Management to control invasive species will include implementing a monitoring program and researching alternative methods for controlling certain species, as appropriate, based on monitoring results. See Appendix D for more information on the Refuge's invasive species.

**Strategies:**

1. Prioritize treatment of invasive plants according to species and management area.
2. Develop and fund a research partnership to study the effectiveness of varied treatments on the control of Old World bluestem.
3. Develop a volunteer program to map occurrences of invasive plants and contribute to control efforts across the Refuge.
4. Evaluate establishing a working group (i.e., Cooperative Weed Management Area) to evaluate invasive threats to the Wichita Mountains ecosystem; partner with local, State, and Federal agencies to collectively work toward control efforts; and create and distribute invasive plant educational materials to the public.
5. Inventory and map all non-native plant populations.
6. Continue and increase prevention measures such as equipment inspections and washing.
7. Control aquatic invasive species to manage fisheries and improve recreational fishing opportunities through occasional lake drawdowns.
8. Develop an Integrated Pest Management Plan.

### Objective 7: Native Fauna

Within five years of CCP implementation, utilize techniques for managing native fauna at targeted levels aimed at sustaining sufficient forage to allow for herds according to a healthy carrying capacity.

***Rationale:*** If grazers were allowed to exceed and be sustained above carrying capacity, every aspect of the ecosystem would be affected. Security and nesting cover along with food resources would be depleted. Biodiversity would decrease and animal health and disease issues could arise. Wind and water erosion would increase due to more exposed ground surface causing more turbidity in the water resources. Decreased ground cover along with increased disturbance from excess animals could allow for infestations of invasive or non-native plant species. To have a healthy ecosystem under a fenced management regime, it is imperative to manage habitat quality and biological diversity on the Refuge. Biological diversity is essential for healthy habitats for migratory birds and other wildlife and plant species.

**Strategies:**

1. Use the most current Natural Resources Conservation Service (NRCS) forage survey and range evaluation to determine carrying capacity.

2. Manage populations at levels that allow for habitat variability.
3. Continue to hold public auctions (bison) and hunts (deer and elk) to manage populations.
4. Evaluate increasing the bison herd to a genetically effective population size of 1,000 individuals (according to the U.S. Department of the Interior [DOI] Bison Initiative).
5. Continue to implement the DOI Bison Initiative model when possible.
6. Improve genetic monitoring as genetic techniques are developed.
7. Fully implement the fire-grazing interaction (i.e., pyric herbivory) that historically occurred.
8. Monitor long-term trends in the evaluation of utilization plots and animal health (through monitoring of weight and parasite loading).
9. Implement the NWRS Inventory and Monitoring Program.
10. Develop a Habitat Management Plan (HMP) to include all fauna management.

### Objective 8: Federal Trust Species

Throughout the life of the CCP, manage Federal trust species according to or beyond best management practice standards.

***Rationale:*** At the heart of the Service's mission are the conservation and management of the Federal trust species: migratory birds; threatened and endangered species; interjurisdictional fish; certain marine mammals; and species of special concern to the Service. The Refuge is comprised of many habitat types valuable to numerous trust species for various reasons (e.g., cover, forage, and reproduction). The Refuge has the largest breeding population of endangered black-capped vireo in Oklahoma and has played a valuable part in the recovery efforts of the species.

**Strategies:**

1. Manage black-capped vireo according to the Black-capped Vireo’s Recovery Plan.
2. Continue to work with Department of Defense and other agencies or organizations to monitor the black-capped vireo.
3. Promote expansion of black-capped vireo habitat stewardship on adjacent lands.
4. Hire a biologist to work with local landowners to assist in efforts to expand conservation of trust species outside of Refuge boundaries.
5. Participate in the Breeding Bird Survey and Christmas Bird Counts.
6. Develop a Habitat Management Plan (HMP) to include all fauna management.

### Objective 9: Non-Native Fauna

Within five years of CCP implementation, decrease non-native populations on the Refuge to decrease habitat destruction and improve habitat quality for native species.

***Rationale:*** Non-native species are a concern because they pose a threat to native wildlife species through direct competition for food resources and predation. Further, they have the potential to spread zoological diseases to other animals and people. Some non-natives also cause significant

environmental impacts, including facilitation of noxious weed invasions, shifts in plant communities, reduction of forest regeneration, and increased soil erosion. These species, if left unchecked, can reduce habitat quality and biological diversity on the Refuge. Biological diversity is essential for healthy habitats for migratory birds and other wildlife and plant species. Management to control non-native fauna will include implementing a monitoring program and researching alternative methods for controlling certain species, as appropriate, based on monitoring results.

**Strategies:**

1. Manage populations at levels targeted to allow for habitat variability.
2. Continue to hold public auctions (longhorn) to manage populations.
3. Evaluate decreasing or moving the longhorn herd to an alternate location for the purpose of increasing the bison herd to a genetically effective population size of 1,000 individuals.
4. Fully implement the pyric herbivory fire-grazing interaction.
5. Implement the NWRS Inventory and Monitoring Program.
6. Continue to monitor lakes for zebra mussels. Coordinate with ODWC on specific actions to best prevent introduction. Consider sanitation and washing stations at boat ramps on Lake Elmer Thomas.
7. Develop a Habitat Management Plan to include all fauna management, including the relationship between longhorn herd size and bison herd size.
8. Develop an Integrated Pest Management Plan that allows for removal of feral hogs using trapping, aerial gunning, and opportunistic shooting.

### Objective 10: Permitted Grazing

Phase out the permitted grazing program once boundary fences are moved to the true Refuge boundary.

***Rationale:*** Once the Refuge boundary fence is moved, the need for private grazing is no longer justified, as the Refuge's grazers and fire program will continue managing grassland conditions. The removal of the Refuge boundary fence would also add more acres for Refuge herd expansion.

**Strategies:**

1. Permit grazing to sustain grassland conditions according to the terms of a Special Use Permit (not to exceed 216 Animal Unit Months [AUMs]), renewable every year until the Refuge boundary fence is moved.

**Goal 2**

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

**Objective 1: Special Designations**

Within one year of CCP approval, designate and begin to manage the Special Use Area as a Research Natural Area.

***Rationale:*** The Service recognizes the importance of preserving plant and animal communities in a natural state for research purposes. Research Natural Areas (RNAs) on national wildlife refuges are part of a national network of research areas under various ownerships. This network is the result of a designation system recognized by other Federal land administering agencies and the Federal Committee on Ecological Reserves. RNAs are intended to represent the full array of North American ecosystems; biological communities, habitats, and phenomena; and geological and hydrological formation and conditions. RNAs are areas where natural processes are allowed to exist without much human intervention; however, deliberate manipulation is used to maintain unique features that the RNA was established to protect. The establishment of a Research Natural Area on the Refuge will protect the natural features and processes in over half of the land area of the Wichita Mountains Wildlife Refuge. This designation will benefit scientific research and study and will aid the Refuge's ability to maintain its habitats and wildlife.

**Strategies:**

1. Maintain habitat for resident and migrating wildlife.
2. Allow space for species management and preservation activities, including efforts to protect the black-capped vireo.
3. Allow for Refuge or other agency or organization wildlife research.
4. Limit public use to interpretive tours and the Refuge hunts.
5. Upon establishment of the Research Natural Area, develop a Research Natural Area Plan to guide its management.

## 4.4 Public Use Goals, Objectives, and Strategies

### 4.4.1 Refuge-Wide Management

**Goal 1**

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 that promote the long-term health of the Refuge.

**Objective 1: Hunting**

Continue to manage hunts cooperatively based on population and habitat management objectives throughout the life of the CCP.

***Rationale:*** Hunting is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the National Wildlife Refuge System Improvement Act of 1997 (Refuge Improvement Act). Providing wildlife-dependent recreational opportunities helps foster an appreciation for wildlife and an understanding of the importance of stewardship for the environment and our renewable natural resources. There are limited public hunting opportunities in western Oklahoma. By continuing to allow hunting on the Refuge, additional hunting opportunities are provided to the surrounding community. Refuge hunts are managed through a partnership with the Oklahoma Department of Wildlife Conservation (ODWC) in order to strengthen relationships and allow both to benefit from its success. The ODWC benefits from license and registration fees, and the Refuge benefits from the shared equipment and labor cost.

**Strategies:**

1. Update the Hunt Management Plan, which will provide the direction for managing deer and elk populations, public viewing opportunities of those species, and hunt administration.
2. Revise and update the Visitor Services Management Plan to include information from the Hunt Management Plan.
3. Administer elk and deer hunts to prevent overpopulation to alleviate habitat degradation.
4. Manage hunts as a cooperative effort between the Refuge and the Oklahoma Department of Wildlife Conservation.
5. In the future, should additional resources become available or more hunts become necessary to manage habitat and wildlife, the Refuge could consider adding or modifying hunting opportunities through a separate NEPA process.

**Objective 2: Special Uses**

Manage all special use activities through Special Use Permits within two years of CCP approval.

***Rationale:*** All public uses on a national wildlife refuge, including commercial and special uses, must support the purpose of that refuge and the mission of the National Wildlife Refuge System. Permission for special activities or events can be requested but must pass a determination of appropriate use, be evaluated for resource impacts in a Compatibility Determination, and may need to be submitted for public review as required by the National Environmental Policy Act (NEPA) before being permitted. All special use activities must be permitted and monitored to ensure they meet Federal laws and restrictions and they support the mission and purpose of the Refuge.

**Strategies:**

1. Develop additional special use management direction as part of an updated Visitor Services Plan.
2. Partner when necessary or when beneficial to Refuge resources to manage large activities or events.
3. Ensure that all special use activities, such as bicycling and running events, fishing tournaments, interpretive tours, and instructional activities, are conducted under a Special Use Permit that protects Refuge resources and minimizes conflicts between user groups.

4. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
5. Focus special use activity in the high density use zone to relieve pressure in the medium density and low density use zones, and to help preserve wilderness character.

### 4.4.2 Public Use Area Management

**Objective 1: Fishing**

Throughout the life of the CCP, manage fishing to allow for increased opportunities and improved experiences.

***Rationale*:** Fishing is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. The ODWC publishes State and Refuge regulations and assists with law enforcement on Refuge fishing areas. The Refuge offers the unique opportunity to fish in undeveloped surroundings and in a safe, family-friendly location. Existing and planned infrastructure developments, including fishing piers and interpretive kiosks, can support improved fishing use. Much of the lake shore habitat is rocky and can support the foot traffic associated with additional fishing pressure. The Refuge habitat, staffing, and infrastructure developments offer the perfect opportunity to introduce beginning anglers to the sport of fishing, to teach catch and release techniques and Leave No Trace user ethics, and to instill an understanding and appreciation for the purpose and mission of the Refuge.

**Strategies:**

1. Update the Fisheries Management Plan to provide direction for managing recreational use, cooperating with ODWC and Fort Sill (for Lake Elmer Thomas), and using technical assistance from Service hatcheries and Regional fisheries biologists.
2. Revise and update the Visitor Services Management Plan to include information from the Fisheries Management Plan.
3. Allow fishing on all Refuge waters in the Public Use Area 24 hours a day.
4. Permit hand powered boats only on Jed Johnson, Rush, Quanah Parker, French, and Elmer Thomas Lakes.
5. Permit electric trolling motors on boats of 14 feet or less only on Jed Johnson, Rush, Quanah Parker, French, and Elmer Thomas Lakes.
6. Allow sailboats and any size boat or motor on Lake Elmer Thomas only.
7. Stock resident fish species, primarily with channel catfish, as needed to enhance sport fishing opportunities in cooperation with the Oklahoma Department of Wildlife Conservation and national fish hatcheries.
8. Increase efforts to prevent littering and alcohol consumption, monitor fishing licensing, and enforce fishing regulations through law enforcement.
9. Address problems with litter through education and additional trash/recycle facilities.

10. Increase or improve signage or educational kiosks.
11. Increase visitor contacts.
12. Add three new fishing piers—one each at Quanah Parker, Jed Johnson, and Crater Lake (see Facilities section) to better distribute fishing opportunities and public use.
13. Add a youth fishing day clinic to the fishing program.
14. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
15. Focus fishing developments in the high density use zone to relieve pressure in the medium density and low density use zones and to help preserve wilderness character.
16. Manage fishing tournaments according to policy and a cooperative agreement with Fort Sill and ODWC.

**ve 2: Wildlife Observation**

Throughout the life of the CCP, continue to allow public use access and provide facilities that contribute to spectacular viewing opportunities for over one million visitors per year.

***Rationale:*** Wildlife observation is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish and wildlife resources can be achieved by providing a diversity of high quality wildlife observation opportunities. Several existing facilities offer wildlife observation opportunities for visitors of all abilities to enjoy while remaining compatible with the primary purpose for which the Refuge was established. There are approximately 50 miles of paved roads throughout the Refuge that provide ample observation points and allow visitors to use vehicles as viewing blinds.

**Strategies:**

1. Revise and update the Visitor Services Plan to include wildlife observation program management direction.
2. Prohibit night access to the entire Refuge with the exception of Doris Campground, Fawn Creek Youth Camp, main roads, and night fishing.
3. Prohibit foot and vehicle travel on trails and secondary roads during fall and winter permit hunts except for permitted hunters.
4. Use temporary access restrictions when necessary to protect sensitive resources from harassment.
5. Provide two observation sites: (1) Turkey Creek prairie dog town viewing area, which has a paved pull-out parking area and two interpretive signs, and (2) the accessible nature trail at Quanah Parker Lake that offers waterfowl and wetland wildlife viewing, four interpretive signs, and accessible restrooms.
6. Provide 89 pullouts and parking areas scattered along the Refuge road system to facilitate driving observations.

7. Upgrade existing facilities and construct new facilities, such as the Jed Johnson Tower and trail, to allow for improved viewing opportunities (see Facilities section).
8. Develop online observation tools and tips to aid in awareness of observation opportunities.
9. Develop and designate wildlife observation routes using existing public roads and trails.
10. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
11. Focus wildlife observation improvements in the high density use zone to relieve pressure in the medium density and low density use zones and to help preserve wilderness character.

### Objective 3: Photography

Throughout the life of the CCP, continue to allow public use access and provide facilities that contribute to spectacular photographic opportunities for over one million visitors per year.

***Rationale:*** Photography is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish and wildlife resources can be achieved by providing a diversity of high quality wildlife photography opportunities. Several existing facilities offer photography opportunities for visitors of all abilities to enjoy while remaining compatible with the primary purpose for which the Refuge was established. There are approximately 50 miles of paved roads throughout the Refuge that provide ample observation points and allow visitors to use vehicles as photography blinds.

**Strategies:**

1. Revise and update the Visitor Services Plan to include photography program management direction.
2. Prohibit night access to the entire Refuge with the exception of Doris Campground, Fawn Creek Campground, main roads, and night fishing.
3. Prohibit foot and vehicle travel on trails and secondary roads during fall and winter permit hunts except for permitted hunters.
4. Use temporary access restrictions when necessary to protect sensitive resources from harassment.
5. Provide two sites for photography opportunities: (1) Turkey Creek prairie dog town viewing area, which has a paved pull-out parking area and two interpretive signs, and (2) the accessible nature trail at Quanah Parker Lake that offers waterfowl and wetland wildlife viewing, four interpretive signs, and accessible restrooms.
6. Provide 89 pullouts and parking areas scattered along the Refuge road system to facilitate driving observations and photography.
7. Upgrade existing facilities and construct new facilities, such as the Jed Johnson Tower and trail, to allow for improved photography opportunities (see Facilities section).
8. Offer evening and weekend workshops on photographic techniques and etiquette.

9. Develop photography web pages with seasonal information.
10. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
11. Focus photography improvements in the high density use zone to relieve pressure in the medium density and low density use zones and to help preserve wilderness character.

### Objective 4: Environmental Education

Within five years of CCP approval, develop the Environmental Education Center as an educational training facility and increase emphasis on environmental education from 6 percent to 10 percent of total school contacts and staff-led activities.

***Rationale*:** Environmental Education is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish and wildlife resources can be achieved through interactive environmental education by demonstrating management practices, developing site specific curriculum, and providing educational materials in several media. Several existing programs and facilities offer educational opportunities for visitors of all abilities to enjoy while remaining compatible with the primary purpose for which the Refuge was established.

**Strategies:**

1. Revise and update the Visitor Services Plan to include environmental education program management direction with specific focus on training for primary and secondary educators.
2. Remodel the Environmental Education (EE) Center to allow for functional use as a classroom.
3. Offer EE classes on the Refuge.
4. Correlate EE classes to the Oklahoma State curriculum.
5. Continue EE program for Native American tribes.
6. Continue to host workshops in cooperation with Cameron University.
7. Tailor training programs and education modules to the education community.
8. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
9. Focus education opportunities in the medium density and high density use zones to relieve pressure in the low use zones and to help preserve wilderness character.

### Objective 5: Interpretation

Within 12 years of CCP approval, update interpretive facilities and programs to improve and increase services.

***Rationale*:** Interpretation is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish and wildlife resources can be achieved through interactive interpretation by demonstrating management practices, developing site specific curriculum, and providing interpretive materials in several media. Several existing programs and facilities offer interpretive opportunities for visitors of all abilities to enjoy while remaining compatible with the primary purpose for which the Refuge was established. An information kiosk located at the Refuge entrance serves to orient and interpret the area for the visitors.

**Strategies:**

1. Revise and update the Visitor Services Plan to include interpretive program management direction with a specific focus on changes in the social and biological environments, group size, and emerging resource issues such as climate change, water conservation, and recycling.
2. Perform active interpretation in the form of Ranger talks, walks, and staffing at event booths.
3. Make contact with visitors by rotating staff through developed recreational sites, particularly Mt. Scott and Turkey Creek prairie dog town.
4. Update exhibits at the Visitor Center and perform regular maintenance or rotation to keep them up-to-date.
5. Construct an interpretive nature trail loop around the Visitor Center.
6. Create a designated driving tour with interpretive signs along established routes. Post speed limits, add interpretive signs at pullouts, and create audio capability.
7. Install interpretive signs commensurate with management of the three density use zones.
8. Expand evening and weekend interpretive workshops.
9. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
10. Focus interpretive activities in the high density use zone to relieve pressure in the medium density and low density use zones and to help preserve wilderness character.

### Objective 6: Bicycling

Improve bicycling opportunities on approximately 13 miles of road to encourage Refuge visitation and wildlife observation and to reduce vehicle use on the Refuge within five years of CCP approval.

***Rationale:*** Providing and improving bicycle access facilitates the primary wildlife supported public uses of the Refuge (hunting, fishing, education, interpretation, observation, and photography) and can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

**Strategies:**

1. Revise and update the Visitor Services Plan with specific management direction for bicycle access points and routes.
2. Allow bicycling on 50 miles of paved roads and on the 5.8 mile Mt. Scott mountain bike trail/access road.
3. Allow bicycling opportunities in the medium and high density use areas using existing developments and disturbed areas. These include the future trail between the Environmental Education Center and the Visitor Center, the trail between the Environmental Education Center and Camp Doris, Jed Johnson tower trail, the future trail between Lake Elmer Thomas Recreational Area (LETRA) and the Refuge (including a connection to the Museum of Natural History), and the Mt. Scott picnic area nature trail.
4. Prohibit bicycling after dark.
5. Improve road shoulders along the section of State Highway 115 and State Highway 49 that extends west from the Medicine Park gate, north to Meers gate, and south to the Cache gate.
6. Improve the connectivity of existing routes (LETRA, Lawton, Medicine Park, Meers, and Cache connections).
7. Consider the development of a bicycle share pilot program.
8. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
9. Focus bicycle activity and developments in the high density use zone to relieve pressure in the medium density and low density use zones.

**Objective 7: Boating**

Throughout the life of the CCP, manage boating to allow for high quality opportunities and improved experiences.

***Rationale:*** Providing boating opportunities and access points facilitates the primary wildlife-dependent public uses of the Refuge (fishing, wildlife observation, photography, interpretation, and environmental education) and can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

**Strategies:**

1. Revise and update the Visitor Services Plan.
2. Permit hand powered boats only on Jed Johnson, Rush, Quanah Parker, French, and Elmer Thomas Lakes.
3. Permit electric trolling motors on boats of 14 feet or less only on Jed Johnson, Rush, Quanah Parker, French, and Elmer Thomas Lakes.
4. Allow sailboats and any size boat or motor on Lake Elmer Thomas only.

5. Continue to monitor lakes for zebra mussels. Coordinate with ODWC on specific actions to best prevent introduction. Consider sanitation and washing stations at boat ramps on Lake Elmer Thomas.
6. Increase efforts to prevent littering and alcohol consumption, and monitor and enforce boating rules and restrictions through law enforcement.
7. Address problems with litter through education, increased law enforcement, and additional trash/recycle facilities.
8. Increase or improve signage or educational kiosks.
9. Increase visitor contacts.
10. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
11. Focus boating activity and improvements in the high density use zone to relieve pressure in the medium density use zone.

### Objective 8: Camping

Provide year-round developed camping opportunities at established campgrounds, and promote alternatives off-Refuge for times of high demand within six years of CCP approval.

***Rationale:*** Providing camping opportunities for individual and group users facilitates the primary wildlife supported public uses of the Refuge (hunting, fishing, education, interpretation, observation, and photography) and can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

**Strategies:**

1. Revise and update the Visitor Services Plan with camping program management direction.
2. Provide developed camping opportunities for a set fee at two locations within the Public Use Area: Doris Campground and Fawn Creek Youth Campground.
3. Promote camping opportunities off the Refuge in times of high demand by working with partners, such as the creation of a pedestrian and bicycle connection from the Refuge high-use density zone to adjacent campgrounds off-Refuge.

### Objective 9: Hiking

Within 10 years of CCP approval, manage hiking opportunities to allow for better experiences by providing approximately 3.5 miles of accessible trail and maintaining the existing 17 miles of trail.

***Rationale:*** Providing hiking opportunities facilitates the primary wildlife supported public uses of the Refuge (hunting, fishing, education, interpretation, observation, and photography) and can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

**Strategies:**

1. Revise and update the Visitor Services Plan with hiking program management direction. Emphasize more engaging and diverse visitor opportunities in the areas of highest use (the east side of the Refuge) to relieve pressure on the low density use areas (Charons Garden Wilderness).
2. Maintain and improve Refuge trails.
3. Require all hikers to register on site so the Refuge can monitor use patterns (such as the type of use, area of use, group size, etc.) and public safety.
4. Increase and improve accessible hiking opportunities in the medium and high density use areas using existing developments and disturbed areas. These include the future trail between the Environmental Education Center and the Visitor Center, the trail between the Environmental Education Center and Camp Doris, Jed Johnson tower trail, the future trail between LETRA and the Refuge (including a connection to the Museum of Natural History), and the future Mt. Scott picnic area nature trail.
5. Improve road shoulders along the section of State Highway 115 and State Highway 49 that extends west from the Medicine Park gate north to Meers gate, and south to the Cache gate.
6. Redistribute hiking pressure to the high and medium density use zones and out of the Wilderness area to preserve wilderness character.
7. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
8. Focus hiking activity, and consider additional developments, in the high density use zone to relieve pressure in the medium density and low density use zones and to help preserve wilderness character.
9. Allow group size in the high density use area to exceed 30 people without a Special Use Permit; group size in the medium density use area could number up to 30 people without a Special Use Permit.
10. Conduct a study to determine social and resource thresholds of hiking activity.

### Objective 10: Picnicking

Provide year-round developed picnicking opportunities at established picnic grounds, and provide alternatives off-Refuge for times of high demand within six years of CCP approval.

***Rationale:*** Picnicking opportunities facilitate the primary wildlife supported public uses of the Refuge (hunting, fishing, education, interpretation, observation, and photography) and can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

**Strategies:**

1. Revise and update the Visitor Services Plan with picnic management direction.

2. Provide and expand upon area picnicking opportunities by working with partners to meet the need for more picnicking in areas adjacent to the Refuge.
3. Improve the quality of the visitor experience in the high density use zone (Mt. Scott picnic area) by increasing interpretive services, interpretive signage, kid-friendly landscaping, and recycle/garbage services. Concentrate use in the high use density area by increasing awareness of the need to minimize disturbance to Wilderness and low use density area to best maintain wilderness character.
4. Improve the quality of the visitor experience at less-utilized picnic areas (Boulder and Lost Lake) in the medium density use area by increasing interpretive services and improving facility management. Increase awareness, through outreach and education, of the need to minimize disturbance to Wilderness and low use density area.
5. Redistribute use within existing facilities by increasing services, improving the LETRA connection and other trail connections, and by allowing for larger groups in high use areas.
6. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.
7. Focus picnicking activity and developments in the high and medium density use zones to relieve pressure in the low density use zone and to help preserve wilderness character.

### Objective 11: Rock Sports

Within one year of CCP approval, manage rock sport opportunities to provide for better protection of Refuge resources by increasing, improving, and maintaining administration of these activities.

***Rationale:*** Rock sport opportunities and the associated hiking facilitate the primary wildlife supported public uses of the Refuge (hunting, fishing, education, interpretation, observation, and photography) and can increase the public's awareness, understanding, and appreciation of fish and wildlife resources.

**Strategies:**

1. Revise and update the Visitor Services Plan with rock sports program management direction.
2. Allow rock sports (climbing, rappelling, and bouldering) year-round during daylight hours.
3. Close some locations or sites seasonally when necessary to protect resources (i.e., nest locations, den sites).
4. Prohibit rappelling in the Narrows.
5. Maintain a partnership with the Wichita Mountains Climbers Coalition (WMCC) to determine need for the replacement of fixed anchors and establishment of new routes. WMCC makes recommendations about climbing standards (e.g., evaluate physical conditions of anchors needing replacement, assess if a proposed route meets climbing standards) to the Refuge, and the Refuge uses recommendations to make adjustments as needed. New anchor placement is limited.

6. Allow group size in the high density use area to exceed 30 people without a Special Use Permit; group size in the medium density use area could number up to 30 people without a Special Use Permit.
7. Require all rock sport participants to register on site so the Refuge can monitor use patterns (such as the type of use, area of use, group size, etc.) and public safety.
8. Conduct a study to determine social and resource thresholds of rock sports.
9. Develop and implement a public use zoning strategy that allows the Refuge to improve the quality and delivery of visitor services to the public while minimizing human impact to wildlife and habitat in the Public Use Area.

**Objective 12: Other Intermittent and Infrequent Recreation**

Throughout the life of the CCP, continue to allow intermittent and infrequent recreational uses unless they conflict with natural resource management objectives or cause resource damage.

***Rationale:*** The Refuge has allowed jogging and strenuous walking, scuba diving, and amateur radio operation for some time. These uses cause little, if any, natural resources damage and rarely conflict with other recreational pursuits.

**Strategies:**

1. Revise and update the Visitor Services Plan with intermittent and infrequent use management direction.
2. Allow jogging or strenuous walking throughout the Public Use Area.
3. Allow individual scuba diving on Lake Elmer Thomas only.
4. Close some locations or sites seasonally when necessary to protect resources (i.e., nest locations, den sites).
5. Monitor all activities to ensure resource damage and disruption to other recreational users is not occurring.

### 4.4.3 Special Use Area Management

**Objective 1: Interpretation**

Throughout the life of the CCP, allow up to 80 interpretive tours annually.

***Rationale:*** Interpretation is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish and wildlife resources can be achieved through interactive interpretation by demonstrating management practices, developing site specific curriculum, and providing interpretive materials in several media. The vast majority of visitors experience the sights and sounds of the Refuge as part of a driving tour through the unit. Public access to the Special Use Area (SUA) is limited to permitted hunters during the hunt seasons. Interpretive tours staffed by the Friends of the Wichitas provide the public with a familiar but high quality interpretive opportunity and a means of experiencing the Special Use Area. The number of annual tours is limited to minimize the wildlife disturbance associated with public use.

**Strategies:**

1. Offer interpretive tours into the SUA on established routes.
2. Use adaptive management to modify or move the tours based on wildlife or habitat impacts.
3. Develop additional interpretation management direction as part of a Research Natural Area Management Plan and as part of the interpretive program management direction in the Visitor Services Plan.

### 4.4.4 Wilderness Area Management

**Goal 2:** Manage to preserve the wilderness character of those Refuge lands designated by Congress as part of the National Wilderness Preservation System.

**Objective 1: Wildlife Observation**

Manage for spectacular viewing opportunities in the Charons Garden Wilderness Area throughout the life of the CCP by improving and protecting wilderness conditions.

***Rationale:*** Wildlife observation is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources can be achieved by providing high quality, non-motorized wildlife observation opportunities in the Charons Garden Wilderness Area. There are two designated trails totaling 3.5 miles that facilitate observation. However, high levels of public visitation threaten wilderness character and the quality of wildlife observations. The opportunity for a primitive and unconfined wilderness experience and the opportunity for solitude are threatened by crowding, noise, habitat trampling, and trash. Management actions are needed to restore those opportunities and protect the wilderness character. Proposed actions focus on preserving the wilderness character and providing opportunities for solitude.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address wildlife observation and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Allow viewing opportunities by foot only.
3. Require groups exceeding 15 people to obtain a Special Use Permit.
4. Monitor and evaluate thresholds for acceptable levels of social and resource impacts, and use adaptive management to mitigate impacts.
5. Prohibit use of the area after sunset (with the exception of permitted campers).
6. Restrict access to protect sensitive sites from harassment when necessary.

### Objective 2: Photography

Manage for spectacular photography opportunities in the Charons Garden Wilderness Area throughout the life of the CCP by improving wilderness conditions.

***Rationale:*** Photography is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources can be achieved by providing high quality, non-motorized photography opportunities in the Charons Garden Wilderness Area. There are two designated trails totaling 3.5 miles that facilitate photography. Management actions focus on preserving the wilderness character and providing opportunities for solitude.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address photography and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Allow photography opportunities by foot only.
3. Require groups exceeding 15 people to obtain a Special Use Permit.
4. Monitor and evaluate thresholds for acceptable levels of social and resource impacts.
5. Prohibit use of the area after sunset (with the exception of permitted campers).
6. Restrict access to protect sensitive sites from harassment when necessary.

### Objective 3: Environmental Education

Upon CCP approval, provide the majority of organized environmental education outside the Wilderness area.

***Rationale:*** Environmental Education is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources can be achieved through interactive environmental education by demonstrating management practices, developing site specific curriculum, and providing educational materials in several media. Several existing programs and facilities offer educational opportunities for visitors of all abilities to enjoy while remaining compatible with the primary purpose for which the Refuge was established. Limiting organized environmental education activities in the Wilderness area improves compliance with Wilderness Act requirements by helping to preserve wilderness character and improving the opportunity for solitude. Very few Refuge-led education activities have been conducted in the Wilderness area, and these educational activities can typically be provided at other Refuge locations.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address environmental education and to ensure preservation of the wilderness resource; assure adherence to legislation

establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.

2. Conduct limited environmental education in the Wilderness. Provide the majority of opportunities elsewhere on Refuge such as the EE Center.
3. Include Wilderness management information and Leave No Trace techniques in EE talks and at event booths.

**Objective 4: Interpretation**

Throughout the life of the CCP, allow for individual (self-guided) and limited organized interpretation only.

***Rationale:*** Interpretation is one of the six priority wildlife-dependent recreational uses of the National Wildlife Refuge System, as stipulated in the Refuge Improvement Act of 1997. Increasing the public's awareness, understanding, and appreciation of fish and wildlife resources can be achieved through interactive interpretation by demonstrating management practices, developing site specific curriculum, and providing interpretive materials in several media. Several existing programs and facilities offer interpretive opportunities for visitors of all abilities to enjoy while remaining compatible with the primary purpose for which the Refuge was established.

Charons Garden Wilderness Area is one of the most popular destinations on the Refuge, and overuse of the area is a concern. Very few staff-led interpretive events are held there. Limiting the number of organized interpretive activities and group size will improve compliance with Wilderness Act requirements, specifically the opportunity for solitude. Increasing the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources can be achieved by providing interpretive activities in other Refuge locations.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address interpretation and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Conduct most interpretive activities elsewhere on Refuge such as at the Visitor Center and in the high and medium density use zones.
3. Allow only limited interpretive activities in the Charons Garden Wilderness Area.
4. Offer general Refuge information and updates at two trailhead kiosks.
5. Include Wilderness management information and Leave No Trace techniques in interpretative talks and at event booths.
6. Limit group size to 15 people or less.

**Objective 5: Camping**

Throughout the life of the CCP, provide opportunities for limited backcountry camping to allow for a wilderness experience.

***Rationale:*** Providing wilderness camping opportunities for individual users facilitates the primary wildlife supported public uses of the Refuge (hunting, fishing, education, interpretation, observation, and photography) and can increase the public's awareness, understanding, and appreciation of the fish, wildlife, and wilderness resources. Maintaining an upper limit of 10 permits on a bi-weekly basis protects wilderness character while allowing camping.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address camping and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Issue permits and charge a camping fee at the Visitor Center.
3. Limit camping to the designated camping area.
4. Issue up to 20 permits per week for a maximum stay of two nights for a period of either Monday through Wednesday or Friday through Sunday.
5. Decrease impacts from camping by implementing Leave No Trace techniques (such as through brochures, signs, etc).

**Objective 6: Hiking**

Within six years of CCP approval, manage and improve hiking opportunities to provide for better experiences and fewer impacts to Wilderness by increasing trail maintenance on 3.5 miles of trail.

***Rationale:*** Providing hiking opportunities facilitates the primary wildlife-dependent public uses of the Refuge (hunting, fishing, wildlife observation, photography, interpretation, and environmental education) and can increase the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources. Charons Garden Wilderness Area is one of the most popular hiking destinations on the Refuge. The opportunity for a primitive and unconfined wilderness experience and the opportunity for solitude are threatened by crowding, noise, habitat trampling, and trash. Management actions are needed to restore those opportunities and protect the wilderness character.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address hiking and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Decrease impacts to Wilderness by implementing Leave No Trace (such as through brochures, signs, Trail Rangers, etc).
3. Redistribute pressure to trails in the high and medium density use areas and out of the Wilderness area to preserve wilderness character.
4. Improve trail maintenance to reduce habitat impacts. Build a volunteer trail maintenance and Trail Ranger cadre to implement a trail condition monitoring program.

5. Require all hikers to register on site.
6. Monitor and evaluate thresholds for acceptable levels of social and resource impacts.
7. Require groups exceeding 15 people to obtain a Special Use Permit.

### Objective 7: Rock Sports

Within two years of CCP approval, manage rock sport opportunities to provide for better protection of Refuge resources and wilderness conditions by increasing, improving, and maintaining administration of these activities.

***Rationale:*** Rock sport opportunities and the associated activity of hiking facilitate the primary wildlife-dependent public uses of the Refuge (hunting, fishing, wildlife observation, photography, interpretation, and environmental education) and can increase the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources. The Charons Garden Wilderness Area is the most popular hiking and climbing destination on the Refuge. The opportunity for a primitive and unconfined wilderness experience and the opportunity for solitude are threatened by crowding, noise, habitat trampling, and trash. Management actions are needed to restore those opportunities and protect the wilderness character. Improved management of rock sports and other public uses in the Charons Garden Wilderness Area improves compliance with Wilderness Act requirements, preserving wilderness character and protecting the opportunity for solitude.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan address rock sports and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Allow rock sports (climbing, rappelling, and bouldering) throughout the Wilderness area year-round during daylight hours.
3. Close locations seasonally to protect resource values (i.e., nest locations, den sites).
4. Maintain a partnership with Wichita Mountains Climbers Coalition (WMCC) to determine need for the replacement of fixed anchors and establishment of new routes. WMCC makes recommendations about climbing standards (e.g., evaluate physical conditions of anchors needing replacement, assess if a proposed route meets climbing standards) to the Refuge, and the Refuge uses recommendations to make adjustments as needed.
5. Replace or modify fixed anchors with hand drills or other similar non-mechanized equipment in keeping with the purpose and intent of the congressionally designated Wilderness area.
6. Consider new fixed anchors and new routes in the Wilderness only on very rare occasions.
7. Accept minimal new route proposals.
8. Consider fixed anchor permit proposals through the Wichita Mountains Climbers Coalition and evaluate based on effects to wilderness character.

9. Require users to register on site to keep records of use so the Refuge can monitor use patterns (such as the type of use, area of use, group size, etc.).

Require groups exceeding 15 people to obtain a Special Use Permit.

**Objective 8: Wilderness Management**

Throughout the life of the CCP, manage the Refuge's Wilderness areas as close as possible to the spirit and intent of the 1964 Wilderness Act.

***Rationale:*** The 1964 Wilderness Act recognized wilderness as a resource and established a mechanism for preserving that resource in a national system of lands and waters. The definition of wilderness found in the act provides a framework for identifying and describing wilderness values. According to this definition, the 8,570-acre Wichita Mountains Wilderness Area was designated by Congress through Public Law 91-504 on October 23, 1970. It consists of two units: the Charons Garden Unit (5,723 acres) and the North Mountain Unit (2,847 acres). Access to the North Mountain Unit is restricted due to its location inside the Special Use Area. It receives use only during permit hunts and as part of infrequent management activities such as wildlife and invasive plant surveys. Conversely, the Charons Garden Unit is located in the Public Use Area and receives constant and sometimes high levels of use. The opportunity for a primitive and unconfined wilderness experience and the opportunity for solitude are threatened by crowding, noise, habitat trampling, and trash. Management actions are needed to restore those opportunities and protect the wilderness character.

**Strategies:**

1. Revise and update the Wilderness Stewardship Plan to address existing uses and issues and to ensure preservation of the wilderness resource; assure adherence to legislation establishing the area as wilderness; and make certain that congressional, Departmental, and Service regulations are followed.
2. Within one year of CCP approval, complete the required Wilderness Study and determine the Wilderness Study Areas' suitability for Wilderness management (see Appendix E).
3. Participate in the NWRS Wilderness Character Monitoring Committee's efforts to monitor how Refuge management affects its Wilderness areas.

## 4.5 Facilities Goals, Objectives and Strategies

### 4.5.1 Refuge-Wide Management

**Goal 1**

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 NWRS.

**Objective 1: Public Use Facilities**

Build, update, and maintain public use facilities that are accessible, comfortable, and conducive to fulfilling the Refuge's purpose throughout the life of the CCP.

***Rationale:*** Providing safe, well-maintained, accessible public facilities such as hiking trails, picnic areas, campgrounds, signs, visitor centers, and education centers supports the mission of the agency and the purpose of the Refuge. The safe, educational, and enjoyable use of public lands helps increases the public's awareness, understanding, and appreciation of fish, wildlife, and wilderness resources.

**Strategies:**

1. Prioritize any change or improvement to public use facilities based on improved service and increased efficiency rather than building additional infrastructure.
2. Remodel, update, or improve the Visitor Center, Environmental Education Center, Fawn Creek Youth Campground, and Lake Jed Johnson Tower. (Remodels to the Visitor Center could include updates to heating, cooling, and water systems; energy upgrades; replacement of outdated displays; and redesign of the Kid's Discovery Room; remodels to the Environmental Education Center could include outdoor covered classroom areas, a permanent archery range, kitchen upgrades, native landscaping, and improvements to the four existing buildings' accessibility, comfort, and energy usage; and improvements to the Fawn Creek Youth Campground could include open-air shelters, picnic tables, toilet facilities, and potable water).
3. Improve and/or maintain roads, pullouts, and parking areas.
4. Install two wildlife blinds—one at the EE Center at Quanah Parker Lake and the other at Mt. Scott Picnic Area on the shore of Lake Elmer Thomas.
5. Maintain and/or improve hiking trails.
6. Increase and improve accessible hiking opportunities by evaluating a multi-purpose accessible trail between the Refuge Visitor Center and the EE Center. (see Public Use Area Hiking)
7. Improve and/or increase maintenance on and harden boat ramps.
8. Add three new accessible fishing piers to be located at Quanah Parker, Jed Johnson, and Crater Lakes.
9. Add new (or replace existing) Refuge entrance and trailhead kiosks.
10. Improve accessibility at all sites.
11. Increase trash collection.
12. Improve trail signage.
13. Complete an updated Sign Plan and develop a Transportation Plan.
14. Update the Facility Management Plan.

### Objective 2: Administrative Facilities

Build, update, and maintain administrative facilities that are accessible, comfortable, and conducive to fulfilling the Refuge's purpose throughout the life of the CCP.

***Rationale:*** Providing safe, well-maintained, and accessible administrative facilities such as the Refuge Headquarters, staff residences, and maintenance buildings, as well as management

facilities such as corrals and fences, supports the mission of the agency and the purpose of the Refuge. Grazing is a key management tool on the Refuge, and this activity would benefit from the consolidation of pastures that would occur by the removal of unnecessary fencing and the addition of new fencing (including moving the Refuge boundary fence to the true boundary). Current administrative facilities are aging and provide inadequate space for staff and management needs. All facilities need continued and routine maintenance. Improving administrative facilities to increase energy efficiency and accessibility improves compliance with Secretarial Order 3226 and follows the guidelines necessary to maintain a Class 1 Airshed by further reducing the Refuge carbon footprint.

**Strategies:**

1. Replace the current Headquarters building. The new building would increase accessibility, and volunteer RV facilities would be expanded.
2. Improve and remodel existing facilities, including the staff residences.
3. Expand and update corrals to meet demand of bison herd. (Updates could include addition of new pens, modification of existing pens, and a canopy over the chute working area).
4. Build or move the big game fence to the true Refuge boundary.
5. Repair and maintain existing fences and construct new fence as needed to meet management objectives.
6. Update the Facility Management Plan.

**Goal 2**

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

**Objective 1: Cultural Resources**

Throughout the life of the CCP, increase the Refuge's protection of cultural resources by conducting archaeological surveys and maintaining historic resources.

***Rationale:*** An updated comprehensive archaeological survey of the area is needed to document, monitor, and, potentially, protect sites. Should archaeological or historical resources be discovered, the Refuge will incorporate measures to ensure that such resources are protected from degradation and are available for future study, investigative research, or preservation. All cultural resource laws and policies will be complied with to prevent the destruction of known and unknown sites. The Refuge could provide visitors with specific information regarding the historical land use. Interpretation of the history and prehistory of the area and cultural resources-oriented activities, consistent with the natural resources and wildlife objectives of the area, would serve to increase the public's awareness and conservation of the cultural resources of the area, when and where appropriate.

**Strategies:**

1. Monitor and protect the integrity of known sites.

2. Update the 1964-1965 archaeological survey by completing systematic archaeological surveys Refuge-wide.
3. Develop a Cultural Resources Inventory and Management Plan.

## 4.6 Administrative Area Objectives and Strategies

**Objective 1: Holy City**

Throughout the life of the CCP, manage the Holy City to minimize impacts on natural resources and enhance public understanding and appreciation of the Refuge's cultural, historic, and natural resources.

***Rationale:*** The Refuge would manage the Holy City of the Wichitas according to a five-year Special Use Permit that allows for oversight by the Refuge. The Refuge would permit the Wallock Foundation to operate this site, through the terms of a Special Use Permit, to allow for proper management and function, including minimal disturbance to natural resources or other recreational users.

**Strategies:**

1. Manage according to a five-year Special Use Permit (renewable for 25 years) held by the Wallock Foundation to allow for management of events.
2. Continue the current level of interpretation, including general Refuge brochures and handouts on Holy City provided by the Wallock Foundation. Answer inquiries at the Visitor Center.
3. Consider biological impacts to the Refuge when reviewing and renewing Special Use Permits.

**Objective 2: Treasure Lake Job Corps**

Throughout the life of the CCP, manage the Treasure Lake Job Corps in cooperation with the U.S. Forest Service to minimize impacts on natural resources and recreational users.

***Rationale:*** The purpose of the Job Corps is to provide disadvantaged youth an opportunity for education, vocational training, and useful work experience for the purpose of increasing their employment capability and preparing them for the responsibilities of citizenship. The Refuge would benefit from making the Treasure Lake Job Corps' educational and service programs more integrated with Refuge management.

**Strategies:**

1. Seek partnership opportunities with the Treasure Lake Job Corps that would benefit Job Corps students and facilitate or assist with Refuge-specific projects.
2. Cooperatively manage this site through cooperative agreements with the U.S. Forest Service to allow for proper management and function, including minimal disturbance to natural resources or other recreational users.