
Strategies:

- Consult the July 2005 “Moist-Soil Management Guidelines for the U.S. Fish and Wildlife Service, Southeast Region” to aid in managing moist-soil units.
- Assess the need and feasibility of expanding the acreage of managed moist-soil habitats in conjunction with decreases in upland agricultural production in order to best achieve the refuge purpose for providing waterfowl habitat based on current and projected waterfowl use trends. Additionally, manage moist-soil units more intensively by periodically cultivating crops, such as millet, milo, and rice, within the units.
- Do not allow encroachment of woody vegetation into moist-soil units wherever topography is conducive to flooding units for production of moist-soil plants.
- Implement measures to achieve more reliable shallow water capability and sufficient water delivery to moist-soil units where and when feasible (e.g., use of wells, pumping, gravity flow).
- Conduct vegetation surveys in moist-soil units to indicate when disking or disturbance by other methods are necessary in order to maintain desirable plant species composition.
- When indicated by survey results, implement soil disturbance activities in moist-soil units on a rotational management basis (every 2 to 3 years), to maintain a desirable mix of habitats (e.g., a mosaic of habitats for late summer/fall, winter periods).
- Sample moist-soil units in the fall to determine the quantity and quality of waterfowl foods.
- Install water level gauges in each moist-soil management unit to enable monitoring of vegetation response to water depth within the first 30 days of drawdowns, and respond accordingly with appropriate water management action necessary to stimulate growth of preferred plant communities.
- Monitor and evaluate waterfowl use of moist-soil units at least monthly throughout the winter period. Correlate waterfowl use with water depths, vegetative conditions, and month to determine if modifications are necessary (adaptive management).
- Stagger drawdowns among units throughout the late spring and summer to provide diverse foraging habitats for shorebird and other water birds.

Wapanocca NWR Objective 2-2: Forest Management

Continue to conserve, manage, enhance, and restore the values and functions of the refuge’s bottomland hardwood forests to sustain the biological needs of migratory birds and other native wildlife.

Discussion: Approximately 4,100 acres or 75 percent of the refuge is forested, including over 900 acres of recently reforested open fields. It is the only large forested site for miles around, and is often characterized as an island of native forest habitat in a sea of surrounding agriculture.

The forestland of Wapanocca NWR is comprised of bottomland hardwood forest (670 acres), seldom-flooded forest (680 acres), recently reforested floodable bottomland (100 acres), recently reforested seldom-flooded bottomland (891 acres), and flooded bald cypress swamp (1,760 acres).

During the winter of 2005, 15 CFI plots, patterned after the Cache River NWR CFI plots, were established at Wapanocca NWR. These plots were established in all forested habitats on the refuge and will provide baseline information for forest planning and for long-term habitat monitoring. Sites along the lake’s perimeter and low-lying areas are characterized as floodable bottomland forest. These forests are dominated by bald cypress overstories, usually with scant understory development. The forests are flooded annually for a substantial time, thus limiting the development of understory and midstory layers. Lack of disturbance has allowed the overstory to become closed, and often a

substantial duff layer has resulted. As elevation increases on these sites due to accumulation of the duff and soil layers, the species composition shifts to include overcup and Nuttall oak on the lower sites, then sycamore, elm, and sweetgum on intermediate sites, and eventually water and willow oak on the highest regularly flooded sites.

All of the higher forests at Wapanocca NWR are designated as seldom-flooded bottomland forest. Here composition ranges from the willow and water oak on lower sites up to cherrybark oak on the highest sites. Composition and structure are very similar to forest stands at Cache River NWR. The forests of Wapanocca NWR have not been logged or disturbed for about 60 years, and as a result, the overstories are closed, the midstory forests are diminishing, and understory reproduction is negligible.

Overall, the forests demonstrate species diversity, but they are fairly uniform in structure. There is a relatively narrow diameter range, so very large diameter trees are infrequent. The forests are virtually all even-aged and contain a single canopy. Vine, shrub, and herbaceous components are present, but are not abundant. The forests are generally stagnant and well into the stem exclusion stage that has reduced midstory and understory layers. Forest health problems, such as heart and root rot and hypoxylon canker, are becoming more apparent as trees continue to be stressed and stand health declines.

The purpose for the refuge is to serve as “an inviolate sanctuary, or for any other management purpose, for migratory birds.” In order to facilitate this purpose, the refuge must maintain a healthy, productive forest for native birds, both resident and migratory. Overall, the current forest habitat is lacking in terms of structure and becoming less productive as it stagnates, and it is failing in terms of shade-intolerant regeneration. A comprehensive evaluation is needed to address the health, distribution, and status of the forest communities from a wildlife perspective.

Now that a permanent forest monitoring system and an approved Forest Management Plan have been established, Annual Habitat Work Plans (AHWPs) need to be developed. The AHWPs should involve stand-specific inventories that will facilitate understanding of the habitat variables to determine necessary management actions. The baseline data from the CFI plots indicate it is time to implement forest treatments to benefit the refuge priority wildlife species. Species, such as migratory birds, American Woodcock, and resident wildlife, will benefit from forest treatments that result in stratification and development of lower vegetative layers. Additionally, such treatments should include group selection cuts about 1 to 2 acres in size in order to develop dense layers of understory browse, cover, and regeneration of shade-intolerant trees.

The needs of several sensitive species of wildlife will be considered in forest management activities. The formerly threatened Bald Eagle is still protected by the Bald and Golden Eagle Protection Act and no active management may be conducted within 660 feet of active nests during the nesting period. Although not threatened or endangered, certain rare bats, such as the Rafinesque and southeastern myotis, likely use the refuge for summer brood rearing habitat. In the summer months, the bats use trees with hollows or with exfoliating bark exposed to sunlight. Treatments should be arranged to retain sufficient amounts of hollow trees and trees with exfoliating bark. Additionally, there is one known rare plant species that occurs on the refuge, the water spider orchid (*Habenaria repens*). This species occurs in wet or marshy areas on the east side of the main levee between the old and the new levees. The main threat to the water spider orchid appears to be a lack of constant water, which allows for competition from other plant species.

Strategies:

- Maintain a permanent forest inventory system, such as the CFI, and develop tools (e.g., stand/stocking Inventories, GIS, and satellite imagery) to analyze and track habitat and site conditions over time, and to aid in determining the need for silvicultural actions and appropriate treatments to be prescribed.
- Develop and implement AHWPs and conduct forest management actions designed to improve stratification, develop lower vegetation layers, and regenerate shade-intolerant species.
- Through forest management actions, strive to encourage:
 - development of super-dominant trees (i.e., rising above the predominant forest canopy);
 - forest species diversity and forest health;
 - retention of stand cavity trees (large and small diameters);
 - tree species within a stand characterized by exfoliating bark exposed to sunlight.
- Within forest and reforested sites, determine the feasibility of establishing one to two greentree reservoirs that could be suitably managed to provide inundated winter habitats for waterfowl, and reliably dewatered in the spring to avoid tree stress and mortality.
 - Analyze topographic features and forest stand composition to assess the capability of easily flooding greentree reservoirs by the use of simple structures.
 - If greentree reservoirs are established, strive to mimic more natural wet/dry periods over time to ensure sustained tree vigor and viability of mast-producing tree species.
- Use afforestation or reforestation, where appropriate, to establish healthy bottomland hardwood forest on existing lands and new acquisitions for the benefit of priority bird species and other species of native wildlife.
- Coordinate with a local university or other organization to conduct a botanical survey and identify unique habitats on the refuge.
- Administer the forest management program in compliance with 50 CFR 29.1.

Wapanocca NWR Objective 2-3: Cropland Habitat Management

Continue to manage 498 acres of croplands, primarily producing soybeans, milo, and winter wheat, through a Cooperative Farming Agreement, and within 5 years of the date of this CCP, convert approximately 250 acres of under-utilized croplands to managed grasslands for migratory songbirds while also providing sufficient habitat to meet the forage objectives for wintering waterfowl of the NAWMP as stepped-down through the LMVJV.

Discussion: Wapanocca NWR was established to provide a wintering area for migratory waterfowl, a nesting and brooding area for wood ducks, and serve as a link in the chain of refuges along the Mississippi River, to encourage the southward migration of Canada Geese. Cooperative farming is a vital tool for providing a desirable balance of waterfowl habitat types in fulfillment of the refuge purpose. The high-energy cereal grain crops, left as the refuge's share of the cooperative farming program, artificially fill a void left by the loss of acorn-producing bottomland hardwood stands that once made up the majority of the habitats in the surrounding area. When these hardwood stands were cleared for farmland in the mid-1900s, a major component of the diet of wintering waterfowl was lost. The cereal grain crops planted within the refuge's farming program assist in substituting for that natural food component during the harsh winter months when a high-energy diet is critically needed.

In 1984, an objective of 1,200,000 Canada Goose Use Days was established by the LMVJV for Wapanocca NWR and management of the refuge's cooperative farming program has since worked toward accomplishing that goal. However, the full utilization of crops grown for Canada Geese has only occurred in 3 years in the history of the refuge. Wapanocca NWR has not witnessed large numbers of Canada Geese in recent years, and the 52 acres of unharvested corn and 117 acres of winter wheat that have been the established minimum requirements to meet these goals have been severely under-utilized by wintering waterfowl. In 2008, unharvested milo (65 acres) and winter wheat (17 acres) also were under-utilized by Canada Geese. It is the professional judgment of the refuge manager and biologists with the Service's Division of Migratory Birds that the refuge's cropland habitat management program should allow for more flexibility and diversification, in order to benefit a wider array of migratory bird species and other native wildlife that inhabit the refuge. In short, the cropland management program should be more adaptive to current trends in waterfowl use, while still remaining true to the overall refuge purpose.

In recent years, wintering Snow Goose populations in the Mississippi Flyway have continued to increase. Refuge staff should remain aware of these increasing trends and alter the cropland management program to either encourage or discourage use of these birds, depending on the necessary management emphasis within the flyway for waterfowl and migratory birds in general.

The soil and topography of the refuge farm units on Wapanocca NWR are somewhat diversified. The soil ranges from mild clays in the lower areas to slightly to extremely sandy loams on the upper hills. Historically, these lands provided a great diversity of plant life within a relatively small area, ranging from swampy bottoms to hardwood stands, to even grasslands on the sandy ridges. In order to maintain this biological integrity and achieve the purposes of Wapanocca NWR, it is necessary to keep in mind this historical diversity and ensure that the cooperative farming program fulfills the proper role in providing the habitats necessary to serve the needs of wintering waterfowl, migratory birds, and other native wildlife.

The majority of the refuge's 288 acres of moist-soil habitats also should be included within the refuge's share of the farming program on a rotational basis as needed in order to set back plant succession, control invasive plant species, and stimulate growth of native, moist-soil vegetation. Although these native plants do not provide the high-energy of cereal grain crops, they are nutritionally complete and vital to the overall nutritional health of wintering waterfowl.

Cooperative farming on Wapanocca NWR will continue to create the most beneficial foraging habitats on croplands currently used by wintering waterfowl and other migratory birds until such time that resources allow for comparable management operations to be performed by refuge staff through force account farming.

Strategies:

- Continue to use cooperative farming on a 75:25 crop-share basis on 498 acres of existing agricultural lands on Wapanocca NWR as a vital tool to maintain overall health and diversity of refuge habitats and provide critical foraging habitats for waterfowl, shorebirds, and other migratory birds and native wildlife.

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- Due to extended trends of low populations of wintering Canada Geese on Wapanocca NWR, convert up to 263 acres of the current 761 acres of cropland to grassland habitat. These acres will include the higher elevation sandy ridges spread throughout the farm acreage that prior to European settlement, consisted of native grassland habitat. If numbers of wintering Canada Geese return to their former levels, these acres will be recycled back into the farm program for use as winter browse habitat. Implement the transition to grassland habitat over a period of 3 to 5 years, beginning in the 2010 farm year.
 - Incorporate up to 160 acres of moist-soil units into the refuge's 25 percent share of the crops as necessary to assist in control of invasive vegetation, set back woody encroachment, and allow cultivation of crops in the moist-soil units to increase the supply of hot foods available to wintering waterfowl.
 - Monitor vegetation responses to habitat management practices and associated waterfowl use throughout the refuge, as well as shifting trends in migratory bird use within the Mississippi Flyway, and adapt management of the cropland programs as conditions warrant to ensure that the purposes of Wapanocca NWR are achieved and the refuge can fulfill its necessary role within the context of the Mississippi Flyway.
 - Modify existing landscape structure within all farm units by creating a mosaic of smaller crop fields, grasslands, intensively managed moist-soil units, hedgerows and buffer strips, and reforested old-field habitats to provide a diversity of habitats similar to what existed on these lands historically, while keeping refuge goals for waterfowl and other migratory birds as a top priority.
 - Maintain, if feasible, up to approximately 30 acres of sunflowers or milo as part of the refuge's 25 percent crop share to provide forage for Mourning Doves and other migratory birds and to provide increased opportunities for youth hunting.
 - Administer the cooperative farming program in compliance with 50 CFR 29.1.

Wapanocca NWR Objective 2-4: Habitat Investigations, Inventorying, and Monitoring

Within 5 years of the date of this CCP, prepare and implement an Inventorying and Monitoring Plan (IMP) that will improve and expand investigations, inventorying, and monitoring of the refuge's wildlife habitat and use to obtain sufficient baseline data to inform management decisions, determine if management objectives are met, and enable adaptive management.

Discussion: The Improvement Act formally establishes the necessity of monitoring the status and trends of fish, wildlife, and plants on national wildlife refuges. Fish and Wildlife Service policy is to collect baseline information on key plants, fish, and wildlife to monitor, as resources permit, critical parameters and trends of selected species and species groups on and around Service units, and to base management on biologically and statistically sound data derived from such inventorying and monitoring (701 FW 2, Inventorying and Monitoring of Populations).

Monitoring, inventorying, and surveying (MIS) are very important means for scientifically managing trust wildlife populations and habitat, as well as meeting national, regional, and refuge goals. Before any MIS is started, the surveyor should seriously and honestly determine if: (1) Objectives, which are clear, specific, and measurable, are defined and can be practically met; (2) the results will actually be used to benefit the resource or make informed decisions; (3) quality and quantity of data needed to meet the objectives can be collected; (4) the MIS methodology is scientifically and statistically sound; (5) the costs of conducting the MIS are worth the results; (6) resources are available or will become available to complete the MIS; (7) the method of data analysis is pre-determined; and (8) MIS is prioritized so if resources become limited, then more critical MIS will be conducted.

Adaptive management is a system used by refuge managers to improve results by documenting management actions, measuring and documenting biological responses, and adapting (modifying) management actions to improve desired conditions/outcomes and determine if objectives have been met. Baseline inventorying and monitoring at regular intervals provide data essential for informed decision-making by refuge managers. Appropriate inventories and pre- and post-treatment monitoring of refuge habitats are fundamental for adaptive management. Inventorying and monitoring needs can often be met with the assistance of other Service programs and cooperative efforts with state resource agencies, universities, and USGS. Proper attention must be given to experimental and monitoring design, statistical procedure, and consistency in observation and data collection.

Management of moist-soil sites in particular requires intensive monitoring throughout critical establishment and manipulation periods to determine whether growth and availability of waterfowl or shorebird foods are sufficient to meet habitat goals. While water gauges in each impoundment allow detailed records on water levels, data on soil moisture, plant germination, and composition also will be required to successfully manage moist-soil areas.

Strategies:

- Prepare and implement an Inventorying and Monitoring Plan in accordance with Service guidelines.
- Utilize satellite imagery, aerial photos, and GIS mapping to depict refuge environmental and habitat changes over time.
- Coordinate with USGS, universities, COE, or others (e.g., Ducks Unlimited) to obtain sufficient Global Positioning System equipment to establish elevation points and topographic lines throughout the refuge to be used for hydrologic management purposes.
- Coordinate with a university or other appropriate source to conduct an in-depth botanical survey.
- Obtain historic aerial and photographic records of refuge flooding and use the data to map acreages inundated and correlate with COE gauge readings within the basin area.
- Investigate historical water regimes and system-wide hydrologic cycles of the refuge's watershed, and compile and analyze all water quality data collected for the refuge.
- Utilize a geomorphologist and/or other trained specialist to gain better information on the physical attributes of the surrounding watershed and the management implications for the refuge.
- Coordinate with COE, USGS, and state agencies to establish a long-term system for monitoring water quality parameters on the refuge and measuring concentrations of contaminants in waters, sediments, fish, and aquatic invertebrates.
- Use data collected in strategies described above to develop and implement a water and habitat management plan for Wapanocca Lake, designed to maximize benefits to waterfowl and shorebirds.
- Continue monitoring forest conditions on the refuge, using forest inventory procedures such as Continuous Forest Inventory (CFI) plots to establish current forest conditions and monitor forest changes over time.

RESOURCE PROTECTION

Wapanocca NWR Goal 3: Promote communication, cooperation, and partnerships between local, state, and federal agencies, land managers, and private citizens to minimize impacts from external habitat degradation and other threats to the functions and values of the refuge's associated wetland ecosystems and watersheds.

Discussion: In order to achieve the purpose of Wapanocca NWR, a number of issues that threaten to degrade or diminish the value of its resources must be addressed. These threats include invasive plant and animal species, water quality and contaminant issues, and siltation.

Essentially the entire surrounding landscape is privately owned, consisting primarily of tens of thousands of acres in crops, such as cotton, corn, soybeans, rice, milo, and wheat. Thus, high concentrations of herbicides and insecticides are often found within waters outside the refuge boundary, although USDA programs and other environmental partnerships attempt to reduce such adverse impacts. Like most refuges, Wapanocca NWR also faces an increasing threat posed by invasive plant and animal species.

Wapanocca NWR Objective 3-1: Water Management

Enhance the long-term environmental health of Wapanocca NWR, with an emphasis on water management in the Wapanocca Lake system.

Discussion: Rainfall is now the main source of water for Wapanocca Lake. However, there is not enough water to flush nutrients out of the lake or to more closely simulate the periodic water regimes most conducive to perpetuating a diverse bottomland forest and adjacent cypress/willow swamp habitats.

Strategies:

- Emphasize the priority of managing Wapanocca Lake water levels, vegetation, and lake conditions to provide critical waterfowl habitat versus sustained high lake levels for fishing which are at the expense of waterfowl.
- Initiate innovative actions and partnerships to improve water inflow and outflow sources that will benefit the Wapanocca Lake system by creating a flushing mechanism for the lake to sustain better water quality conditions through actions such as:
 - Coordinating with the COE to explore options to obtain land and waters within the Wapanocca Lake watershed to help provide inflow and outflow potentials for Wapanocca Lake;
 - Implementing a minor boundary expansion (669 acres) for the refuge to include the entire course of Wapanocca Bayou to enable the purchase of lands along the bayou from willing sellers and provide a connection between Wapanocca Lake and the Mississippi River;
 - Determining the feasibility of constructing a structure through or over the Mississippi River levee (to enable use of backwaters diverted through a pipeline then via Drainage Ditch #8 or through Wapanocca Bayou);
 - Initiating a contaminants study as soon as resources are available to sample waters inside and outside the refuge to ensure that water restored to the refuge and lake system is of high quality and not contaminated.
- Maintain desired water levels in Wapanocca Lake utilizing, as practical and feasible, refuge wells, rainfall, and pumping of uncontaminated watershed waters.
- Develop and implement a water management plan that results in a hydrologic regime that emulates historic hydrological cycles within the watershed and provides optimum water levels and associated vegetative communities for waterfowl, shorebirds, and other migratory birds by:
 - Utilizing historical data on water levels collected for the nearby Mississippi River and St. Francis River, and recorded by USGS and COE to identify and simulate natural water level fluctuations;

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- Establishing accurate water gauges at key sites within the lake to collect accurate water level data and long-term records.
 - Recruit a hydrologist based at Big Lake NWR (but serving all refuges in the Complex) to coordinate with COE on water management programs, sedimentation, and flood control issues, and to coordinate research, assessments, and monitoring of aquatic habitats and water systems.

Wapanocca NWR Objective 3-2: Watershed Outreach

Perform outreach to basin/watershed landowners to encourage conservation actions that are beneficial to wildlife and improved water quality and complement refuge management objectives.

Discussion: Land use, actions, and projects by upstream landowners and developers in the watershed impact hydrology, water quantity, and water quality in ways that can affect refuge interests and resources. The USDA's Conservation Security Program (CSP) supports ongoing stewardship of private agricultural lands by providing payments and technical assistance for maintaining and enhancing natural resources on these private lands.

Strategies:

- Coordinate with NRCS to prioritize lands surrounding the refuge for inclusion in USDA programs, such as the CSP.
- Utilize the Service's Partners for Fish and Wildlife Program to partner with adjacent private landowners to restore hydrology, improve water quality, and restore wildlife habitats.
- Recruit a hydrologist to be stationed at Big Lake NWR but also to serve Wapanocca NWR and other refuges within the Complex to coordinate water management and aquatic habitat research, monitoring and restoration programs, and to perform outreach to adjacent landowners regarding water quality programs

Wapanocca NWR Objective 3-3: Invasive Plant and Nuisance Animal Control

Annually identify and eradicate or control invasive, exotic, or nuisance plants and animals, and develop and implement a database to systematically track occurrences and treatments within 2 years of the date of this CCP.

Discussion: Invasive species are typically, but not always, non-native species of plants and animals that aggressively proliferate and spread into new habitats, where they degrade native ecosystems, and damage, displace, or compete with indigenous flora and fauna. Examples of animals and plants with the potential to cause environmental problems at Wapanocca NWR are swine (feral hogs), beaver, nutria, Chinese privet, and American lotus.

Strategies:

- Implement invasive species prevention and control programs in compliance with 50 CFR 29.1 and EO 13112.
- Continue to assess the coverage of cutgrass and American lotus in the lake and implement mechanical, chemical, or water level manipulation actions as warranted to control these species. Initiate control efforts when lotus covers more than 30 percent of the lake surface.

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- Search for and control or remove, through chemical or mechanical methods, invasive upland plant species (e.g., privet, fescue, sericea lespedeza, and saw tooth oak) before major infestations occur.
 - Control beaver, muskrat, and nutria populations to protect levees and water control structures from damage from burrowing and forested tracts from excessive tree-felling and flooding during the growing season.
 - Develop and implement control efforts and public outreach to control feral hogs and the illegal introduction of domestic swine.
 - If necessary, implement appropriate and compatible practices, such as trapping by permitted individuals or commercial trapping by the public, to maintain healthy populations of furbearers at levels consistent with refuge objectives, prevent/control disease outbreaks, and reduce excessive predation on priority species.

Wapanocca NWR Objective 3-4: Land Acquisition

Acquire priority lands within or adjacent to the acquisition boundary from willing sellers that would enhance the wildlife and habitat value of the refuge and promote fulfillment of the purpose of the refuge.

Discussion: The current acquisition boundary for the refuge encompasses 6,689 acres. Unfortunately, the acquisition boundary does not include Wapanocca Bayou, which is vital to efforts conceived by the refuge and COE to reestablish the historical connection between the Mississippi River and Wapanocca Lake via Wapanocca Bayou. The COE has already purchased a 169-acre property for mitigation that they are in the process of transferring to the Service for inclusion in Wapanocca NWR. Wapanocca Bayou runs directly through the center of this parcel with the property boundaries paralleling the bayou to the north and south. This property will provide the beginning of the habitat corridor along Wapanocca Bayou that will be necessary to reestablish the historical connection between the Mississippi River and Wapanocca Lake, so that the lake could be supplied with water from its historical source and allow ongoing lake restoration efforts previously undertaken by the refuge, and those about to be funded under ARRA, to finally be complete and self-perpetuating. To accomplish this strategic landscape conservation goal, the existing acquisition boundary would need to be extended to encompass the length of Wapanocca Bayou. Purchase of this corridor from willing sellers would allow the desired backwater flooding to occur from the Mississippi River into Wapanocca Bayou and finally into Wapanocca Lake without flooding existing private agricultural interests bordering the bayou.

From the strategic landscape conservation perspective, a 10,000-acre forested block with the current acreage of Wapanocca NWR at the center would be recommended to optimize benefits for migratory birds and other trust species. Numerous private farmlands adjacent to the refuge, as well as forested lands along Wapanocca NWR's northwest corner near Turrell, would be primary sites to consider for land acquisition from willing sellers, to enable a major boundary expansion for the refuge.

Strategies:

- Pursue a minor boundary expansion (669 acres) that includes the entire course of Wapanocca Bayou between the existing refuge boundary and the Mississippi River. Partner with COE to acquire in fee and via easements, from willing sellers, those lands in and around the old Wapanocca Bayou to provide a channel to the Mississippi River that would enable recharging of Wapanocca Lake with flood waters from the Mississippi River.

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- Utilize land acquisitions and easements, from willing sellers, to create greater opportunities for enhanced water delivery from several external sources to increase sources of water supply to the refuge, and improve water delivery capability within and among refuge impoundments and other managed areas.
 - Reduce contaminant sources into the refuge.
 - Evaluate appropriateness and feasibility of expanding Wapanocca NWR's area to at least 10,000 acres through a major boundary expansion, acquisition of additional lands from willing sellers, and forest and hydrologic restoration to optimize benefits for interior forest birds and other trust species, in addition to reconnecting Wapanocca Lake to the Mississippi River via Wapanocca Bayou.

Wapanocca NWR Objective 3-5: Cultural Resources

Develop and implement a Cultural Resources Management Plan within 10 years of the date of this CCP.

Discussion: Refuge management will protect cultural resources on the refuge in accordance with federal and state historic preservation laws and regulations.

Strategies:

- Prepare a Cultural Resources Management Plan (CRMP) for the refuge.
- As guided by the CRMP:
 - Conduct a Phase I archaeological survey of the non-flooded areas of the refuge by qualified personnel as a necessary first step in cultural resources management;
 - Conduct a Phase II investigation if archaeological resources are identified during the Phase I survey, to determine the eligibility of identified resources for listing on the National Register of Historic Places prior to any disturbance;
 - Conduct a Phase III data recovery if the resources identified in Phases I and II are determined to be eligible in order to recover data and mitigate the adverse effects of any undertaking;
 - Follow procedures detailed in the CRMP for inadvertent discoveries of human remains;
 - Ensure archaeological and cultural values are described, identified, and taken into consideration prior to implementing undertakings.
- Follow procedures outlined in the CRMP for consultation with the Service's Regional Historic Preservation Office, the State Historic Preservation Office, and potentially interested American Indian tribes.
- Develop a step-down plan for surveying lands to identify archaeological resources and for developing a preservation program.

VISITOR SERVICES

Wapanocca Goal 4: Develop compatible, wildlife-dependent recreation programs that lead to enjoyable experiences; a greater understanding of fish, wildlife, and habitat conservation; and a greater appreciation for the value of Wapanocca NWR.

Discussion: Wapanocca NWR provides each of the wildlife-dependent activities identified in the Improvement Act as priority public uses of national wildlife refuges. These are hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. The primary public uses of the refuge are hunting, fishing, and wildlife observation.

Drought and record low-water levels have resulted in depletion of water in Wapanocca Lake and a decrease in migratory bird use. Other than rainfall, there is no other source of water to replenish the lake. Most public use is directly linked to the water levels in Wapanocca Lake. Without restoration, existing lake conditions will have serious consequences on the future of the public use program. Fishing and wildlife viewing would be the programs most affected by the low water levels. Adequate and reliable water level management to provide optimum habitat for waterfowl and other migratory birds must be developed. To fulfill refuge purposes, the emphasis on water level management in Wapanocca Lake must be shifted from maintaining water levels that maximize fishing opportunity to those that maximize benefits for wintering waterfowl and other wildlife. This will necessitate public outreach and education to promote visitor awareness for providing waterfowl habitat in the context of the surrounding landscape. The associated public use benefits will include increased opportunity for wildlife observation and photography, environmental education, and interpretation on the refuge. Additionally, increased levels of waterfowl use on the refuge, if they can be achieved, will result in increased off-refuge hunting opportunities on surrounding lands.

Wapanocca NWR 4-1: Visitor Services Plan and Public Use Management

Continue to promote and manage appropriate and compatible public uses, and prepare and implement a Visitor Services Plan within 6 years of the date of this CCP.

Discussion: Careful planning and management of public use and visitor services provides the public with opportunities to enjoy and appreciate fish, wildlife, plants, and other resources. As a result, the visiting public will develop an understanding of and an appreciation for each individual's role in environmental conservation. An up-to-date visitor services plan does not exist for Wapanocca NWR. All existing visitor services activities occurring on the refuge have been evaluated for appropriateness. All activities have also been determined to be one of the six priority public uses, to support one of the priority public uses, or otherwise support goals and objectives of the refuge and mission of the Refuge System. All public use activities are compatible with refuge purposes, goals, and objectives.

Visitor services staff are lacking for Wapanocca or Big Lake NWRs and the Complex. Existing staff have neither the expertise nor the time to devote to expanded public use on the refuge. A park ranger (Visitor Services specialist) must be recruited (stationed at Wapanocca NWR but also serving Big Lake NWR) to develop and implement a visitor services plan as part of a comprehensive visitor services program for Wapanocca and Big Lake NWRs. Additional responsibilities would include expanding the volunteer and intern programs and coordinating the establishment of friends groups. Environmental education and outreach programs would be implemented that would promote the refuges and help connect over 1,000,000 residents with nature. Development of an on-site interpretive program would involve updating and/or creating various printed materials, such as brochures and bird, reptile, and amphibian lists. The Visitor Services specialist also would coordinate planning and development of public use facilities, kiosks, information stations, nature trails, and observational towers and blinds.

Strategies:

- Monitor, evaluate, and modify, as necessary, all public uses to ensure compatibility and to minimize conflicts between user groups; re-evaluate compatibility determinations as necessary.
- As soon as resources become available, recruit a park ranger (Visitor Services specialist), to be stationed at Wapanocca NWR, to develop and coordinate a comprehensive visitor services program for Wapanocca and Big Lake NWRs.

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- Develop and implement a Visitor Services Plan (with public and partner involvement) that addresses the current and future recreational needs of refuge visitors and associated visitor services, including opportunities for mobility-impaired visitors; reflects applicable legislation, Service and Refuge System missions, directives, and policies; and supports refuge goals and objectives.
 - The plan also will specify programs for each type of public use, propose new facilities, address maintenance, upkeep, replacement, and/or elimination of current facilities, and identify a prospective timeline for implementation.
 - Maintain prohibition on camping, horseback use, and ATV access within the refuge.
 - Mobility-impaired hunters may apply for a special use permit allowing specialized access by ATV.

Wapanocca NWR Objective 4-2: Visitor Welcome and Orientation

Implement visitor welcoming and orientation recommendations of the Wapanocca NWR Visitor Services Review Report according to the staggered timeframe (now, intermediate, and long-term) outlined in that document.

Discussion: The refuge has a visitor center that is periodically open. Visitor hours are posted on the website and at the visitor center. The entrance sign in front of the refuge headquarters and visitor center is well-maintained, properly located, and consistent with Service policy. A 3-panel kiosk contains a refuge map and current refuge publications. This kiosk is triangular in shape and visitors must get out of their vehicle or be on foot to view all three panels. Most of the information on the kiosk is current. The kiosk can be accessed after hours but is not universally accessible.

The current refuge headquarters/visitor contact station at Wapanocca NWR is a substandard facility with major structural problems, exterior and interior water and rot damage, and health and safety problems that render it unsuitable for visitor reception and use, or any type of environmental education and interpretive activities. Furthermore, the building is not fully accessible at the entrance or inside, and it does not have design features (such as proper exit points) that comply with health and safety codes. Funding has been obtained through ARRA for replacement of the existing headquarters/visitor contact station with a suitable facility to allow for efficient management of public use and administration of a visitor services program, including opportunities for environmental education and interpretation. The proposed headquarters/visitor contact station would be 1-story, approximately 2,500 square feet in size, would be fully ADA-compliant, and would include a volunteer/receptionist area, exhibit area, conference room, breakroom, law enforcement storage, public restrooms, staff offices, and public parking. This facility would be constructed on the same site as the current building, thereby minimizing site disturbance and habitat loss, and would incorporate energy and resource conserving features to reduce environmental impacts.

The refuge visitor center has a 16 mm film on the history of the refuge. Refuge regulations are listed on signs and published in refuge pamphlets (brochures) available at the visitor center. However, it is not clear to visitors where they can go or whom they can contact to ask regulatory questions or to report problems or violations. Although the general brochures need to be revised and updated, they do contain basic refuge background and resource management information, basic regulations, and descriptions of allowed visitor services activities.

Refuge boundaries are properly marked and maintained. However, directional signs are needed at some refuge road intersections. A directional sign for Wapanocca NWR is also needed on Interstate 55.

Strategies:

- Replace the existing refuge office at the same location with a 2,500-square-foot headquarters/visitor contact station, using ARRA funding (approximately \$650,000) and incorporating green-building design features to provide adequate facilities to meet the expectations and needs of the visiting public, to conduct visitor services programs, to facilitate work with partners, and to enable refuge staff to administer public use programs and associated operations.

Implement now

- Close spur road at end of Woody Pond to vehicular traffic.
- Update, improve, and add signage at the headquarters, entrance areas, and all the decision points on the Wildlife Drive to provide visitors with adequate information on visitor services, regulations, safety information, routes of travel, distances to visitor destinations on the refuge, and points of interest.
- Ensure that refuge brochures, maps, and other visitor services products are up-to-date and readily available to the public.
- Continue to leave the visitor contact area of the visitor center open when staff are not available during business hours.
- Adequately protect, maintain, and replace visitor exhibits as conditions warrant and funds are available.

Implement over the intermediate future

- Install an audio transmission message device in the entrance area to the headquarters that provides current status information on the lake and seasonal visitor use opportunities on the refuge.
- Replace refuge sign at the headquarters entrance.
- Update the panels on the kiosk at the headquarters/visitor center, providing basic welcoming and orientation information, including the purpose of refuge, permitted/prohibited activities, and information about the lake.
- Repair and rehabilitate office and visitor center (unless cost effectiveness indicates new construction, in which case seek resources for replacing headquarters and visitor center) to make it more appealing and presentable to visitors (see first strategy above). Promote work productivity, and ensure compliance with the Americans with Disabilities Act (ADA), safety, and environmental regulations.
- Recruit and train staff/volunteers to provide receptionist/welcoming and orientation services to visitors.
- Develop an interpretive panel about the restoration efforts for Wapanocca Lake. Emphasize the value of partnerships, the need to reconnect the lake with a water source, and the need to prioritize managing lake water levels for the benefit of waterfowl.

Implement over the long-term future

- Work with AHTD to install a sign on I-55 directing visitors to the refuge.
- Replace exhibits in the visitor center.
- Enlist and train volunteers to staff the visitor center area.
- Convert the refuge film to DVD format or have a new DVD produced when funds are available.
- Replace the visitor center kiosk with a 3-panel, U-shaped kiosk and relocate it to the median of the parking area.
- Update the refuge Bird List.

Wapanocca NWR Objective 4-3: Hunting

Annually provide and expand quality, compatible hunting opportunities as feasible.

Discussion: Biologically sound hunting is a legitimate activity on a national wildlife refuge and is one of the six priority public uses identified in the Improvement Act to be given enhanced consideration over other public uses if compatible with the refuge purpose.

Wapanocca NWR is open to the public for hunting. Access is allowed via walking, bicycle, and motor vehicle. All vehicles, including bicycles, are restricted to designated roads and parking areas. ATVs and horses/mules are prohibited. Public access to hunt areas may be closed at any time necessary to protect refuge resources or visitors. Hunters are allowed to hunt anywhere not posted as "Area Beyond This Sign Closed." Wapanocca NWR has a current and approved hunting plan, which will be revised and updated. The current hunt plan addresses special access by permit for hunters with disabilities. All hunting programs are conducted in accordance with the AGFC season and limits, but the refuge has a shorter season than the AGFC for small game, furbearers, and deer. Federal and state regulations are made available to hunters at headquarters and kiosks. Dogs are allowed for squirrel and rabbit hunting and required for raccoon and opossum hunting at night. Horses/mules are prohibited.

There is one full-time Complex refuge law enforcement officer and some assistance is provided from AGFC officers and the County Sheriff's Department. Generally, law enforcement is inadequate for the number of visitors, especially hunters, using the refuge.

A hunt brochure is produced annually in accordance with Service Graphics Standards. No accessible alternatives exist for visitors with visual disabilities to obtain hunting information.

Wapanocca NWR is currently closed to waterfowl hunting except for Snow Goose hunting under the State Conservation Order. Hunting of squirrel, rabbit, raccoon, and opossum is allowed on the refuge but under a shorter season than the AGFC regulations. Trapping is prohibited. Archery deer hunting is permitted on the refuge and is open October 1 – January 31. The quota deer gun hunt is conducted by a lottery drawing to control the number of hunters and is a 2-day, weekend hunt held the opening weekend of the state-wide deer season. The harvest information from the quota deer hunt is obtained from the refuge check station. Managers review the deer harvest to make decisions regarding the deer hunting season and share these data with AGFC.

Strategies:

- As soon as resources are available, recruit a park ranger (law enforcement) to be stationed on Big Lake NWR, to provide visitor and resource protection and perform outreach on Wapanocca and Big Lake NWRs.
- Develop and implement a revised hunt plan.
- Explicitly inform (e.g., placing a prominent sign at start of wildlife drive) the public that the refuge is closed to all public entry and use during the quota gun hunt except for quota permit holders.
- Continue to coordinate with AGFC biologists to formulate hunting seasons that will follow existing AGFC regulations, but with additional refuge limitations or restrictions as needed.
- Limit raccoon hunting to the November 1 – 30 season.
- Continue to allow Snow Goose hunting under the State Conservation Order after the waterfowl sanctuary closure ends (February 28), but such hunting will be allowed only north of Ditch 8.

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- Implement measures such as quotas, permits, and period limitations as needed, and, if necessary, establish no hunting zones around public use facilities, trails, and refuge buildings to maintain safety, hunt quality, and minimize conflicts.
 - As feasible, implement youth hunts to provide additional hunting opportunities.
 - Continue to provide waterfowl sanctuary areas to fulfill refuge purposes.
 - Limit or discontinue night hunting activities during key waterfowl use periods, as necessary.
 - Determine if quail and woodcock hunting, using bird dog breeds, would be feasible and compatible.
 - Consider increasing the length of resident small game seasons, if feasible and compatible and, if so, implement such hunts.
 - Coordinate with the Service's recreation fee coordinator on a master list of approved sites to collect fees as part of the recreation fee program.
 - Mobility-impaired hunters may apply for a special use permit, allowing specialized access by ATV. Provide hunting opportunities for mobility-impaired hunters as feasible.

Wapanocca NWR Objective 4-4: Fishing

Annually provide and expand quality, compatible fishing opportunities as feasible.

Discussion: Fishing is a priority public use of the Refuge System, when compatible. Although fishing is a compatible public use that has been an important visitor activity at Wapanocca NWR, in 2004 the refuge was closed to fishing due to the low water conditions on the lake following restoration efforts. It reopened on March 15, 2008; however, water levels have been insufficient to re-establish a viable fishing program.

Fishing is allowed from March 15 - October 31 annually in Wapanocca Lake and Woody Pond. A fishing permit is not required. Big Creek and other ditches are closed to fishing. Taking of crawdads (crawfish) for personal use is also permitted. However, the refuge is closed to the taking of frogs, turtles, and mollusks. Commercial guiding for fishing is not permitted on the refuge. Commercial fishing, when allowed, will require a special use permit. Bank fishing is limited to one location, the wildlife observation platform, located off the wildlife drive. Access is by walking, motor vehicle, bicycle, boat, canoe, and kayak. All vehicles, including ATVs and bicycles, are restricted to designated roads and parking areas. ATVs, personal watercraft (e.g., jet skis, hovercraft), airboat, and horses/mules are prohibited. There is one public boat launch located off Highway 77. User conflicts between anglers and other visitors have not been a problem; therefore, angler numbers are not controlled.

In the heyday of the fishing program, there was enough interest in fishing to support a boat rental concessionaire. Those days are past due to the decline in lake quality and fishing opportunity. Due to the proximity of the refuge to the Memphis metropolitan area, there is great potential for recreational fishing. However, in order to best fulfill refuge purposes, managing Wapanocca Lake for fishing must be secondary to managing for maximum ideal waterfowl and other migratory bird habitat. Even if the refuge develops the capacity and capability to reliably deliver and manage water in the lake, water level management still must be directed toward the goal of providing high-quality waterfowl habitat first and foremost, compared to other benefits, such as fishing. Compatible fishing opportunities will be developed as much as possible within the context of management for waterfowl and other trust species.

Coordination of the fishing program has been conducted with the assistance of AGFC and the Service's Fisheries Office in Baton Rouge, Louisiana. Routine compliance checks and patrol of fishing areas is conducted by federal and state law enforcement officers. However, there are no full-time or collateral duty law enforcement officers stationed at Wapanocca NWR. Therefore, routine law

enforcement patrols and compliance checks are limited. No data have been collected on species, numbers taken, or residency of anglers. Similarly, no data are available on contaminant levels in fish caught on the refuge.

Strategies:

- Improve enforcement of refuge fishing regulations by recruiting a park ranger (law enforcement) officer who would serve Big Lake and Wapanocca NWRs.
- Improve habitat quality of Wapanocca Lake to enhance fisheries and improve fishing success, but not at the expense of high-quality waterfowl habitat. Implement the following practices:
 - Lower lake levels periodically to allow improvement of aquatic habitats as warranted based on review of plant invasions, fish samples, and water quality data;
 - Strive to supply high-quality freshwater to refuge aquatic habitats from wells, diversion canals, and/or use of Mississippi River back waters (needed for flushing, reducing stagnation, redistributing fish, and maintaining water levels);
 - Increase Wapanocca Lake summer water depth levels as warranted without impacting bottomland hardwoods and moist-soil production in the cypress openings, or otherwise diminishing waterfowl habitat management capabilities;
 - Consider and evaluate the necessity and potential impacts to aquatic habitat by holding water at a high level in Wapanocca Lake (perhaps to late May) every 3 to 4 years to facilitate natural reproduction of fisheries and improve the quality of fishing.
- Allow bow fishing (on line) in refuge waters according to AGFC regulations, where and when feasible.
- Monitor contaminant levels in fish with regard to their safety for human consumption and post advisories if warranted.
- Minimize disturbance impacts to migratory birds through the use of area/time closures for boating, fishing, commercial fishing, and other public use activities on Wapanocca Lake from November to March.

Wapanocca NWR Objective 4-5: Wildlife Observation and Photography

Annually provide and expand quality, compatible wildlife observation and photography opportunities as feasible.

Discussion: The refuge has a wildlife auto drive approximately 7 miles in length (one-way). The road takes visitors from the headquarters/visitor center into the refuge, passes the observation and fishing pier, and ends at Woody Pond. The existing area used to turn around or park vehicles at the end of the wildlife auto drive is inadequate.

There are no interpretive or hiking trails on the refuge. An observation/fishing pier is located off the wildlife auto drive and offers a view of Wapanocca Lake. In years with adequate water levels, the lake has high concentrations of Canada Geese and other migrating waterfowl. In 2007-2008, the low lake levels offered only distant viewing of wading and shore birds. The pier requires overall maintenance and some railings need to be re-secured. The parking area is fully accessible, but there is no kiosk for visitor orientation and interpretation.

The current refuge bird list, updated in 2006, complies with the Service's Graphics Standard. The refuge general brochure, updated in 2002, provides a general map of the entire refuge but does not indicate distances for the wildlife drive.

Strategies:

- Repair the wildlife observation deck at Wapanocca Lake and install a spotting scope.
- Install a wildlife viewing marker at a location suitable for viewing the eagle nest.
- Provide (cut) viewing windows through the vegetation around Woody Pond to enhance wildlife observation/photography.
- Design and install a trail through the upland hardwoods that would lead to an observation deck to provide an overlook on Woody Pond, then plan and construct an observation deck when funds become available.
- Consider and evaluate the feasibility and desirability of planting a demonstration farm crop along the wildlife auto drive to use in interpreting “cooperative farming” and also resulting in additional opportunities for observing wildlife and photography.
- Consider and evaluate locations on the refuge to develop and install a hiking trail for wildlife observation/photography and implement if feasible.

Wapanocca NWR Objective 4-6: Environmental Education and Outreach

Annually provide and expand quality, compatible environmental education and outreach opportunities as feasible.

Discussion: The refuge currently has minimal environmental education offerings for school groups. Occasionally, staff will present a program to a community group, local schools, university class, wildlife club, or garden club. Facilities and sites are available at the refuge to support the environmental education program.

A negative attitude, including resentment because of federal ownership, has been expressed by some members of the community toward refuge-related issues. Conversely, considerable support for the refuge also exists. Some members of the community blame prior refuge management practices for the low water conditions of the lake. Additionally, the public may not fully understand the reasons behind the lake drawdown. A public outreach program should be implemented to educate visitors about the need for and benefits of managing lake levels foremost for waterfowl habitat in order to best achieve refuge purposes. The public should be informed about how this change in lake management will impact fishing and benefit other recreation such as wildlife observation, photography, and environmental education.

Community decision-makers and leaders have been identified as stakeholders in refuge management. Hunters, anglers, and birders are perhaps most impacted by existing refuge-related priorities and preferred actions. State and national leaders, community leaders, conservation groups, stakeholders, special interest groups, and media have been included in the list of audiences.

Both Service and Refuge System messages are incorporated into the refuge’s programs. They are communicated through outreach activities, such as when the refuge manager presents programs both on and off the refuge. The refuge uses news releases, web pages, and personal contacts to communicate outreach messages. The refuge would benefit from a portable exhibit to use in delivering effective messages. Articles in local newspapers and other media and personal contacts have been the primary methods used for outreach efforts. Additional staff are needed to expand outreach programs.

Strategies:

- Recruit a park ranger (Visitor Services specialist) to plan and implement a comprehensive environmental education program for Wapanocca and Big Lake NWRs.
- Coordinate with Regional Office visitor services staff to develop three education programs to present, as requested, on such topics as waterfowl, shorebirds, and reforestation, and to develop a program for training teachers in environmental education topics.
- Partner with a local college to apply for a Nature of Learning grant to assist in developing an environmental education program.
- Refuge staff should consider partnering with Boy Scout troops and serving as merit badge counselors for badges such as Bird Study, Environmental Science, Fish and Wildlife Management, Fishing, Forestry, and Mammal Study.
- Develop standard PowerPoint presentations that can be used to deliver outreach programs to community groups.
- Develop a refuge or Complex specific portable exhibit.
- Develop an outreach plan to address the lake restoration issue and future management priority for waterfowl habitat and other issues of interest for refuge visitors and local communities.
- Recruit and train volunteers to assume select environmental education and outreach tasks on- and off-refuge as appropriate.
- Consider conducting a community open house with tours and possibly a cookout in early November before the waterfowl sanctuary closes.
- Evaluate the desirability of the refuge joining a local Chamber of Commerce.
- Continue to develop and maintain good media contacts, and coordinate with reporters to highlight the refuge in local media outlets.
- Host an annual media day on the refuge.
- Host a congressional field day to highlight the importance of the lake restoration project and management for waterfowl and fishing (include all parties involved in the project), and to highlight other refuge management programs.
- Conduct an annual refuge event during National Wildlife Refuge Week.

Wapanocca NWR Objective 4-7: Interpretation

Annually provide and expand quality, compatible interpretation opportunities as feasible.

Discussion: There is information available about the refuge for the public at the kiosk located in the office parking lot. The office includes a small exhibit area with two dioramas, a habitat change exhibit, and a fish display. The general brochure provides information about management of the refuge, as well as public use opportunities.

Strategies:

- Install two temporary interpretive signs on the wildlife drive, which explain that water levels in the lake are well below historic levels and this condition will affect wildlife viewing and fishing opportunities. Install one sign near the drive entrance before motorists commence the drive and a second sign near the wildlife observation platform.

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- Consider the following locations and topics for installing permanent interpretive panels:
Nature Drive – reforestation, farming for wildlife, moist-soil management, eagle nest, and Woody Pond habitat importance;
Observation Deck – restoration of Wapanocca Lake;
Visitor Center – cultural and natural history of the area, refuge history, and hydrology;
Big Creek crossing on the Nature Drive – “the role of hydrology in the Wapanocca Lake watershed” and “why river cane is important to wildlife.”
 - Design and install an interpretive trail that starts and ends at the Visitor Center, if feasible.

REFUGE ADMINISTRATION

Wapanocca Goal 5: Provide support and resources necessary to ensure that goals and objectives for habitats, fish and wildlife management, resource protection, visitor services, and refuge administration are achieved for Wapanocca NWR in particular and Central Arkansas NWR Complex overall.

Discussion: Both the Biological Review and the Visitor Services Review teams specified additional staffing, equipment, and facilities needed to implement the refuge’s purposes, vision, goals, and objectives identified in this CCP.

Wapanocca NWR Objective 5-1: Staffing

As resources become available, strategically add 4 staff positions that will improve the capacity and capability of Wapanocca NWR to achieve its legislated purpose and accomplish conservation and management goals and objectives.

Discussion: Current staffing consists of a refuge manager and engineering equipment operator. There is no Visitor Services specialist, law enforcement officer, biological staff, or administrative personnel.

Strategies:

- Upgrade current refuge manager position to appropriately reflect the true scope, complexity, and effect of the duties and responsibilities at Wapanocca NWR and within the Complex.
- Recruit a full-time park ranger (law enforcement) based at Big Lake NWR and shared with Wapanocca NWR to ensure adequate enforcement of public use regulations, provide essential resource and visitor protection, coordinate with state and local law enforcement personnel, and perform outreach.
- Recruit a park ranger (Visitor Services specialist), based at Wapanocca NWR and shared with Big Lake NWR, to develop and implement improved and expanded visitor services programs on Wapanocca and Big Lake NWRs.
- Recruit a biologist/biological technician to assist with wildlife and habitat inventorying and monitoring, implementation of habitat management projects, and to coordinate biological programs.
- Recruit an engineering equipment operator to implement habitat management projects, and maintain and rehabilitate facilities, infrastructure, and equipment.
- Recruit a laborer to assist with maintenance operations, habitat management projects, and servicing and upkeeping of facilities and equipment.

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- Recruit a hydrologist to coordinate hydrological and water quality issues on all refuges within the Complex, coordinate hydrological research and monitoring, provide technical advice to adjacent landowners, serve as a liaison with COE, and coordinate aquatic restoration projects.

Wapanocca NWR Objective 5-2: Volunteers, Partners, and Friends

Expand the volunteer and intern program, establish a friends group for the refuge within 5 years of the date of this CCP, and cooperate with partners to accomplish refuge goals and objectives.

Discussion: Staff should conduct a volunteer program needs assessment to determine how to best expand a volunteer program that would include volunteer position descriptions, a volunteer handbook, and volunteer coordinator responsibilities.

In the recent past, volunteers have been used to help with maintenance and bird counts. Volunteer position descriptions are not established that define duties and assignments. Volunteers are not actively recruited for the refuge. A training packet with Service, Refuge System, and refuge-specific information is not currently provided for volunteers. However, proper workspace, materials, and equipment are provided to the volunteers so that they can safely and properly do their jobs. Benefits are not provided to volunteers for uniforms and no on-site housing exists. The refuge does not have a friends group.

Strategies:

- Recruit a park ranger (Visitor Services specialist), based at Wapanocca NWR and shared with Big Lake NWR, to develop and coordinate the volunteer and Friends programs for both refuges.
- Develop a volunteer plan in coordination with the Regional Volunteer Coordinator that includes a volunteer program needs assessment.
- Identify specific volunteer opportunities and descriptions for roles that would be filled by volunteers, such as office help, staffing the front desk, maintenance, environmental education, and outreach assistance.
- Incorporate volunteer, interns, and friends recruitment messages into public presentations and media outreach, and recruit volunteers from ranks of local teachers, students, retirement communities, and church groups.
- Adopt a volunteer recognition plan that includes awards for volunteering a certain number of hours.
- Consider the feasibility and desirability of providing housing or other facilities for resident volunteers and interns.
- Coordinate with universities in Arkansas and elsewhere to recruit high-quality interns to assist the refuge with operations, inventory, and management programs.
- Cooperate closely with staff from other government agencies, non-governmental organizations, and community groups to establish and nurture partnerships that would provide mutual benefits for those involved and help achieve refuge goals and objectives.
- Identify and facilitate a core group of individuals that is concerned with the interests and needs of the refuge, and coordinate with the group to initiate and establish a friends group for Wapanocca NWR.
- The refuge manager and Visitor Services specialist should attend friends group training.

Wapanocca NWR Objective 5-3: Facilities, Infrastructure, and Equipment

Acquire and maintain all of the facilities, infrastructure, and equipment necessary to perform habitat management, restoration, and enhancement on the refuge, in addition to maintaining and improving essential infrastructure such as roads and levees.

Discussion: The current refuge office/visitor contact station at Wapanocca NWR, approximately 1/4-mile south of Turrell, Arkansas, in Crittenden County, was constructed in the early 1980s and is substandard and inadequate to meet administrative and visitor services needs. Entry points, interior workspaces, and public areas, including restrooms, are not fully accessible. The exterior and interior walls are deteriorating and failing, the HVAC system is inefficient, a solar unit never functioned, offices are not sufficiently lighted or ventilated, and exterior siding and walkways are rotting and unstable. The roof has been replaced twice, but has again failed and has caused water damage to interior ceilings, walls, floors, and exhibits. It has created serious mold issues. Additionally, other health and safety issues are evident, including insufficient public exits. Due to these problems, no suitable opportunities exist for staff/partners meetings, visitor reception, or exhibit areas for education/interpretation. The building is unsightly due to its condition and appearance. A condition assessment performed in March 2009, indicated that rehabilitation or renovations were not cost effective.

Funding has been obtained through the ARRA for replacement of the existing structure with a suitable facility. The proposed headquarters/visitor contact station would be 1-story, approximately 2,500 square feet in size, and will include four staff offices, conference room, break room, unisex staff restroom, law enforcement storage, utility/storage closets, fax/photocopy/file room, mudroom, separate male/female public restrooms, an exhibit area, and volunteer/receptionist area. This facility would be fully ADA-compliant, would provide adequate administrative function, and would enable suitable opportunities for visitor reception and interpretation. The building design would incorporate greening features, including energy-conserving lighting, HVAC, and insulation, water-conserving systems, and options for alternate energy. These features would reduce the carbon footprint also would provide a safe and comfortable environment for staff and visitors. The current building would be removed and the new headquarters/visitor contact station would be constructed in the same location; therefore, new construction would cause minimal site disturbance and no wildlife habitat would be destroyed. Existing entrance drives, parking areas, and approaches would be used. The funding amount for the project is approximately \$650,000, which would include planning/design, engineering, construction, furniture, and interpretive exhibits.

Sharing equipment with Big Lake NWR and the Central Arkansas NWR Complex would help reduce the need for extensive purchases of equipment specifically for Wapanocca NWR. The refuge may need to drill and operate several wells, if feasible, practical, and environmentally justifiable.

Strategies:

- Replace the existing refuge office at the same location with a 2,500-square-foot headquarters/visitor contact station, using ARRA funding (approximately \$650,000) and incorporating green-building design features, to provide adequate facilities to meet the expectations and needs of the visiting public, to conduct visitor services programs, to facilitate work with partners, and to enable refuge staff to administer programs and operations.
- Obtain resources to drill, operate, and maintain several wells on the refuge, if feasible, in order to provide necessary water supplies to Wapanocca Lake.
- Acquire and keep on-site all equipment required for management and maintenance of moist-soil units.

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- Keep all infrastructure, machinery, and equipment in good working order by regular upkeep and maintenance.
 - When feasible, share equipment with other refuges in the Complex.
 - Annually update and maintain the Equipment Priority Index (EPI) report to identify heavy equipment needs.
 - Expand the existing equipment storage pole shed to provide adequate storage for all light and heavy equipment.
 - Construct a heavy equipment wash pad area adjacent to the existing equipment storage shed that meets environmental requirements.
 - Replace heavy equipment within the guidelines and time frames established by the Regional Heavy Equipment Coordinator.
 - Recruit an engineering equipment operator and laborer to assist with maintaining, repairing, and updating facilities, infrastructure, and equipment.

V. Plan Implementation

INTRODUCTION

Refuge lands are managed as defined under the Improvement Act. Congress has distinguished a clear legislative mission of wildlife conservation for all national wildlife refuges. National wildlife refuges, unlike other public lands, are dedicated to the conservation of the Nation's fish and wildlife resources and compatible wildlife-dependent recreational uses. Priority projects emphasize the protection and enhancement of fish, wildlife, and their habitats first and foremost, but considerable emphasis is placed on balancing these needs with the public's desire for compatible wildlife-dependent recreation.

To accomplish the purpose, vision, goals, and objectives contained in this CCP for Bald Knob, Big Lake, Cache River, and Wapanocca NWRs, this section identifies projects, resource and personnel needs, volunteers, partnership opportunities, step-down management plans, a monitoring and adaptive management plan, and plan review and revision.

PROPOSED PROJECTS

Listed below are the proposed project summaries and their associated costs for fish and wildlife population management, habitat management, resource protection, visitor services, and refuge administration over the next 15 years. This proposed project list reflects the priority needs identified by the Service, public, planning team, AGFC and other partners, and refuge staff based upon available information. These projects were generated for the purpose of achieving the refuges' objectives and strategies. The primary linkages of these projects to those planning elements are identified in each summary.

FISH AND WILDLIFE POPULATION MANAGEMENT

Bald Knob NWR

2007732682 – Granary East Canal

Rehabilitate damaged and leaking Granary East Canal. This canal is critical to providing water to over 1,800 acres of cropland and moist-soils and is necessary to provide flooding for wintering waterfowl, which have exceeded 600,000 ducks and 125,000 geese, as well as other migratory birds on this refuge. This is a part of the main irrigation canal and is the life force behind all refuge programs. The canal has partially filled in due to erosion of the banks and deposition of suspended sediments from flows and leaks have resulted from underminings of beavers, nutria, and crayfish. Some of the existing steel pipes have rusted through due to the highly acidic soils and add to the leakage problems. An estimated 1 to 2 feet of material will be dredged from the canal bottom for approximately 2 miles, the slopes will be reshaped and reworked to remove holes caused by animals, trees, and other debris removed and deposited on site. All aspects of the refuge's public use programs will benefit from this work as there is a direct correlation between them and the watering efficiency. The work will also greatly help the refuge meet its goals and objectives for which it was established.

Estimated cost \$85,000.

(Linkages: Bald Knob NWR Objectives 1-1, 1-3, 1-4, 1-5, 1-14, 2-1, 2-4, and 4-4)

2007716105 – 300-Acre Field Culvert Crossing

This field is a substantial part of the refuge cooperative farming program and is a critical component of the migratory bird management program conducted on the refuge. The refuge is the largest staging area for Northern Pintail in Arkansas and winters upwards of 600,000 ducks. This field has 7 separate crossings consisting of 12 different pipes and water control structures. All pipes and water control structures are severely rusted out, have severe erosion around them, and need to be replaced. The pipes need to be replaced with non-corrosive aluminum materials. Replacement pipes and water control structures include: two 24”X40’ aluminum pipes, three 24”X40’ aluminum pipes with aluminum screwgates, two 24” X40’ aluminum pipes with aluminum stop-log risers, one 24”X80’ aluminum pipe with an aluminum stop-log riser, and one 30”X40’ aluminum pipe with an aluminum screwgate.

Estimated cost \$60,000.

(Linkages: Bald Knob NWR Objectives 1-1, 1-3, 1-4, 2-1, 2-3, 2-4, 3-2, and 4-4)

2005204594 – Low Road

This road is vital to the refuge cooperative farming program and is a critical component of the migratory bird management program conducted on the refuge. The refuge is the largest staging area for Northern Pintail in Arkansas and winters upwards of 600,000 ducks. Approximately 0.75-mile of this road needs to be raised a minimum of 2 feet. The required material will be dug from the adjacent Bobtail Ditch. The project will replace existing rusted out pipes with aluminum pipes. Included are six 24” X 40’ aluminum pipes with 4 stop-log risers and two aluminum screwgates. The last pipe will be a 30” X 40’ aluminum pipe with an aluminum stop-log riser.

Estimated cost \$60,000.

(Linkages: Bald Knob NWR Objectives 1.1, 1-3, 1-4, 2-1, 2-3, 2-4, 3-2, and 5-3)

Biological Technician, GS-7

Provide one full-time biological technician to assist in various migratory bird counts and surveys, deer counts, furbearer scent stations, and in controlling nuisance beaver populations on Bald Knob NWR. A biological technician is needed to assist in moist-soil management manipulations and yield surveys on an average of 500 acres. The potential exists to initiate a Wood Duck trapping and banding program and to enhance the shorebird management program on this refuge identified as an “Important Bird Area.” This position will also assist in the operation and manipulation of over 130 water control structures throughout the year which provide high-quality habitat for thousands of wintering waterfowl and migrating shore and wading birds.

Estimated cost \$77,321

(Linkages: Bald Knob NWR Objectives 1-1, 1-9, 1-11, 2-1, 2-5, 3-1, and 5-1)

Cache River NWR

Rehabilitate Dixie Unit South water control structure

This project will replace three pipes and flashboard type risers located on the south road of the Dixie Farm Unit. Each of these 18”x 40’ pipes and fitted flashboard risers are mission critical to the purpose of the refuge providing high-quality habitat for thousands of wintering waterfowl on this 2,400-acre sanctuary area. These structures were installed in 1993 and have become worn as a result of acidic type soils and will soon need to be replaced. This project will result in the installation of three new all-aluminum pipes with bolt-on type flashboard risers.

Estimated cost \$27,000

(Linkages: Cache River NWR Objectives 1-1, 2-1, 2-3, and 2-4)

Rehabilitate Dixie Unit North water control structure

This project will replace five pipes and flashboard type risers located on the north road of the Dixie Farm Unit. Each of these pipes and fitted flashboard risers are mission critical to the purpose of the refuge and provide high-quality habitat for thousands of wintering waterfowl on this 2,400-acre sanctuary area. These structures were installed in 1995 and have become worn as a result of acidic type soils and will soon need to be replaced. This project will provide three new 18"x 40' pipes and two 24"x 40' pipes fitted with bolt-on type flashboard risers. All pipes and risers will be constructed of all aluminum material to prevent future corrosion problems.

Estimated cost \$40,000

(Linkages: Cache River NWR Objectives 1-1, 2-1, 2-3, and 2-4)

Howell Tract Impoundment Restoration

Restore complete water management capabilities on 600 acres of moist-soil impoundments, on the Howell tract of the Cache River NWR. Identified as the most important wintering area for Mallard ducks in North America, this restoration will provide high-quality habitat for wintering waterfowl, migrating shorebirds, and secretive marsh birds. The project will include monitoring habitat and wildlife within these improved habitats, and adapt management activities to maximize habitat potential and wildlife use as identified in the approved 2008 Refuge Biological Review. These impoundments winter thousands of waterfowl, shorebirds and secretive marsh birds. Activities include creation of water wells, habitat, and wildlife surveys. Possible partners include DU and NRCS.

Estimated cost \$165,556

(Linkages: Cache River NWR Objectives 1-1, 1-3, 1-4, 1-19, 2-4, 2-5, and 5-2)

Plunkett Farm Waterfowl Sanctuary Enhancement

Enhance water management opportunities on the 800-acre Plunkett Farm Unit waterfowl sanctuary. This tract annually winters 100,000 plus waterfowl on this refuge identified as the most important wintering area for mallard ducks in North America. Current water management abilities allow only a portion of the flooded habitat to be available to waterfowl. This 800-acre waterfowl sanctuary is farmed by the refuge cooperative farmer, with crops left in the field to provide necessary food requirements for wintering birds. This project will enhance water management opportunities by constructing cross levees and installing pipes and water control structures to optimize water management capabilities. The project will benefit thousands of wintering waterfowl and provide management with the opportunity to provide later summer and early fall water for migrating shore and wading birds.

Estimated cost \$50,800

(Linkages: Cache River NWR Objectives 1-1, 1-3, 1-4, 2-1, 2-3, and 2-4)

Biological Technician, GS-7

Provide biological assistance to initiate surveys on Cache River NWR to document status and distribution of wildlife species. This refuge has been identified as the most important area in the Mississippi Flyway for wintering Mallards and has been identified as one of only twenty-two "Wetlands of International Importance" within the United States. Refuge staff have been involved in the protection, management, and restoration of habitat to benefit both migratory birds and a variety of native wildlife species. Critical surveys on the refuge must be undertaken to assess the impact of habitat management actions identified within the approved refuge Habitat Management Plan. This project will include aerial census of waterfowl, Bald Eagle nesting activity, ground surveys of shore and wading birds, songbirds, and other wildlife. The project will provide improved trend data for trust

wildlife species within the lower Cache/White River basin. This position also will be available to assist other refuges in the Complex in implementing their biological programs.

Estimated cost \$77,321

(Linkages: Bald Know NWR Objectives 1-17, 2-5, 3-1, 5-1; Big Lake NWR Objectives 1-10, 2-3, 3-3, 5-1; Cache River NWR Objectives 1-19, 2-5, 3-1, 5-1; and Wapanocca NWR Objectives 1-9, 2-4, 3-3, 5-1)

Engineering Equipment Operator, WG-8

Provide critical habitat for migratory birds at Cache River NWR. Providing flooded impoundments in late summer for migrating shorebirds and in early fall and winter for waterfowl is important on this refuge, which has been identified as the most important area in the Mississippi Flyway for wintering Mallards. These flooded areas provide critical wintering habitat for 500,000 plus wintering ducks and geese and are necessary to meet established objectives identified within the North American Waterfowl Plan and approved refuge Management Habitat Plan. Restoration and maintenance of levees, water control structures, and associated infrastructure are necessary to assure this critical habitat is available to arriving migratory birds. Much of this habitat has been virtually eliminated in eastern Arkansas due to hydrological alterations and farming practices.

Estimated cost \$77,650

(Linkages: Cache River NWR Objectives 1-1, 1-3, 1-4, 1-5, 2-1, 2-3, 2-4, and 5-1)

Ecologist, GS-11

Conduct long-term habitat and wildlife monitoring on 65,000 acres of forested and wetland habitats on Cache River NWR and adapt management activities based on analysis and interpretation of results. These habitats are critical to trust species, such as forest breeding birds, woodcock, waterfowl, and endangered species, and resident species, such as bats, black bears, and Eastern Wild Turkeys, on a local and a landscape level. Planned activities would include, but not be limited to, creation of a quantified habitat data layer, species-specific habitat modeling, forest management, assessment of long-term forest health and effects of climate change, pre- and post-harvest wildlife and habitat surveys, and data analysis. This could be a joint effort with state universities, Lower Mississippi Valley Joint Venture Office, Arkansas Game and Fish Commission, Migratory Bird Office, The Nature Conservancy, Audubon, Arkansas Natural Heritage Commission, and possibly other federal agencies. The ecologist also will serve the needs of the other refuges in the Complex in ecosystem and landscape planning, strategic habitat conservation, climate change initiatives, and coordination with conservation partners.

Estimated cost \$114,439

(Linkages: Bald Knob NWR Objectives 1-17, 2-5, 3-1, 5-1; Big Lake NWR Objectives 1-10, 2-3, 3-3, 5-1; Cache River NWR Objectives 1-19, 2-5, 3-1, 5-1, 5-2; and Wapanocca NWR Objectives 1-9, 2-4, 5-1, 5-2)

Wapanocca NWR

Grassland Restoration

This project will greatly improve the overall health of lands formerly incorporated into the refuge farm program; while at the same time have a positive impact on global warming and efforts with strategic habitat conservation. Planting of native warm-season grasses within 115 acres of higher elevation areas on Wapanocca NWR will restore the small prairie component currently missing on the refuge that historically occurred on high areas throughout the entire Mississippi Delta. Historically, these areas that bordered wetlands were very valuable as cover and nesting habitat for many species of migratory and resident birds. Native warm-season grasses have root systems up to 15 feet deep, which regenerate every 3 to 4 years, resulting in higher levels of organic matter, soil fertility, and

increased carbon sequestration, which is helpful in battling global warming. Once established, these grass stands are very low maintenance, drought tolerant, and will add much needed habitat diversity for wildlife on the refuge and surrounding lands.

Estimated Cost \$105,062

(Linkages: Wapanocca NWR Objectives 1-5 and 1-6)

Bottomland Hardwood Forest Restoration

This project will restore 670 acres of bottomland hardwood forest on Wapanocca NWR. Wapanocca NWR is located in northeast Arkansas and surrounded by a sea of farmland, which prior to conversion to agriculture, consisted primarily of bottomland hardwood forest habitat. Currently, the only remaining tracts of bottomland hardwood forest in northeast Arkansas lay within Wapanocca NWR. Recent changes in weather due to global warming have made these wetland systems more difficult to manage as historical patterns have been altered. This project will restore flood and drainage control within in these bottomland hardwood units, which will then allow Wapanocca NWR staff to mimic the flooding that historically occurred naturally within these forests. Past issues that have converted these forests to willow swamps will be corrected by restoration of levees, drainage facilities, and replanting of hardwood trees native to Wapanocca NWR.

Estimated Cost \$137,482

(Linkages: Wapanocca NWR Objectives 1-2, 1-7, and 2-2)

HABITAT MANAGEMENT

Bald Knob NWR

2007716161 – Little Red River Flood Protection Levee

Approximately 10 miles of the Little Red River Protection Levee run through the refuge from northwest to southeast. The levee is approximately 10 miles from the northwest section of the refuge down to the southeastern portion. The levee has blown out at least seven times during the last 50 years due to high water. The COE will not claim responsibility of the last mile due to the levee being overgrown with large diameter trees. The entire levee needs to be rehabilitated by removing trees and brush from the toe of the levee out to a distance of 25 feet. These tree roots allow water to seep through the levee, which potentially could cause a breach in the levee system. This levee system protects refuge buildings, various refuge neighbors, and the south part of Bald Knob, Arkansas, from being inundated during extreme floods. In addition to removing the trees and vegetation, the levee contains four 6'X150' tanker culverts with flap gates. These pipes are located at the extreme northwest portion of the refuge. Various sized smaller steel pipes also need to be replaced throughout the remainder of the levee. They include two 24"X80' pipes with flap gates, a 6'X150' tanker culvert with a flap gate, a 54"X80' pipe with flap gate. The smaller pipes need working screwgates. The last 6'X150' tanker needs to be replaced with a hydraulic operated gate.

The last 3 miles of the levee are much lower than the upper end. Floodwaters previously have overtopped this section and caused further erosion. This is a critical part of the levee that needs to be built up and widened immediately.

Lastly, there is a Civilian Conservation Corps flood control structure located on Overflow Creek. This concrete structure contains four 7-foot openings with steel flap gates. The flap gates are rusted out, rendering the entire floodgate structure useless. The steel floodgates need to be replaced and adapted so that refuge personnel can manipulate the amount of water that flows in or out.

Estimated costs \$320,000

(Linkages: Bald Knob NWR Objectives 2-4, 3-2, and 3-3)

2007716106 – Middle 1,000-Acre Field Entrance Crossing

This field is a substantial part of the refuge cooperative farming program and is a critical component of the migratory bird management program conducted on the refuge. The refuge is the largest staging area for Northern Pintail in Arkansas and winters upwards of 600,000 ducks. This field has six separate crossings consisting of six different pipes and water control structures. All pipes and water control structures are severely rusted out, have severe erosion, and need to be replaced. The pipes need to be replaced with non-corrosive aluminum culverts. Replacement culverts and water control structures include: three 24”X40’ aluminum pipes with aluminum screwgates and three 24”X40’ aluminum pipes with aluminum stop-log risers.

Estimated cost \$45,000

(Linkages: Bald Knob NWR Objectives 1-1, 2-1, 2-3 and 2-4)

Laborer, WG-4

Provide one full-time laborer to assist in day-to-day operations of Bald Knob NWR, including an expanding public use program. The laborer is needed to assist in vehicle, equipment, and facilities maintenance, including operating over 130 water control structures that provide high-quality habitat for wintering waterfowl and migrating shore and wading birds. The refuge has an ever-increasing nuisance beaver population that results in beavers continually plugging pipes and drainage ditches, undermining roads and levees, and flooding and destroying forest habitats, causing substantial damage, habitat degradation, and safety hazards to the visiting public. The laborer will also disk firelanes, manipulate moist-soil impoundments, and mow road shoulders and office grounds.

Estimated cost \$56,610

(Linkages: Bald Knob Objectives 1-1, 1-3, 1-6, 2-2, 2-3, 2-4, 3-1, 5-1, and 5-3)

Engineering Equipment Operator, WG-8

Provide one full-time engineering equipment operator to maintain over 82 miles of existing public use refuge roads, 100 miles of irrigation and drainage ditches, 14 miles of irrigation canals, approximately 70 miles of levees, and over 130 water control structures. Bald Knob NWR winters over 600,000 waterfowl and has been identified as a primary staging area for Northern Pintail in Arkansas. The refuge is the premier site in Arkansas for observing shore and wading birds during their late summer/early fall migration. Much potential exists for improvements in water management capabilities for all migratory birds. An engineering equipment operator is needed to build over 5 miles of low profile levees to enhance and provide high-quality migratory bird management.

Estimated cost \$77,650

(Linkages: Bald Knob NWR Objectives 1-1, 1-3, 1-4, 1-6, 2-1, 2-2, 2-3, 2-4, 3-1, 5-1, and 5-3)

Construction of Headquarters/Visitor Contact Station and Expansion of Maintenance Shop

The current maintenance shop/equipment storage facility at Bald Knob NWR is inadequately sized and lacks the critical components to support maximum capacity and capability. The existing structure consists of a 40x40-foot shop building with an attached 60x40-foot, 3-bay open pole shed. This facility does not provide enclosed workspace for heavy equipment repair and maintenance, contains no equipment lift, and is energy-inefficient. The exterior attached pole shed is not large enough to accommodate the refuge’s heavy equipment fleet, thus causing millions of dollars of equipment to sit exposed to the elements. Due to these inadequacies, the shop building should be expanded by enclosing one of the existing pole shed bays; pouring a concrete floor; installing 2 overhead bay doors (to allow a drive-through bay); adding energy efficient lighting, insulation, and HVAC systems; and installing a hydraulic vehicle lift and adequate shelving and work table space. The pole shed expansion would include adding three, 20-foot open bays, installing a metal roof, gutter system, gravel floor, and expanding the shop yard and security fence enclosing the compound. This project would enable the refuge to conserve energy, to create a safer workplace, and to facilitate

implementation of habitat management projects on this 15,000-acre refuge that provides the best pintail duck and shorebird habitats in Arkansas.

Estimated cost: \$100,000.

(Linkages: Bald Knob NWR Objectives 1-1, 1-3, 2-1, 2-3, 2-4, 4-2, and 5-3)

Big Lake NWR

Biological Technician, GS-7

Provide one full-time biological technician to meet required mandates and wildlife management goals and objectives at Big Lake NWR. The position will support congressionally mandated flood control activities through the operation and maintenance of electronic water control structures, dams, and levees. The refuge will gain a better understanding of flooded habitat conditions based on results of monitoring activities conducted in conjunction with the flood control. The technician will serve the refuge by conducting wildlife inventories, migratory bird banding operations, avian influenza monitoring, exotic and nuisance species control, performing routine maintenance on facilities and equipment, coordinating with AGFC on seasonal flooding of Big Lake WMA for waterfowl hunting, and coordinating with local university graduate students to conduct needed research on the refuge. Currently, these activities are not in practice and this project will allow the refuge to fulfill its legislated purposes.

Estimated cost \$77,321

(Linkages: Big Lake NWR Objectives 1-1, 1-2, 1-3, 1-4, 1-10, 2-1, 2-2, 3-3, and 5-1)

Construction of Headquarters/Visitor Contact Station and Maintenance Shop

Funding has been obtained through the ARRA for replacement of the existing shop building with a suitable facility of approximately 3,000 square feet that would include two enclosed drive-through bays, concrete floors, adequate storage for materials and supplies, vehicle lift, environmentally sound vehicle wash pad, and outdoor equipment storage with an insulated roof. The new building would be located on approximately the same site as the existing building, thereby minimizing site disturbance, and not destroying any wildlife habitat. The building would use energy-conserving features, such as efficient HVAC, lighting, and water systems, and potential alternate energy sources. The current building would be removed, but existing shop yard, vehicle approaches, and parking areas would be utilized for the replacement facility.

Estimated cost: \$590,000.

(Linkages: Bald Knob NWR Objectives 1-1, 1-2, 2-1, 3-1, 3-2, 4-2, and 5-3)

Cache River NWR

Repair damaged Plunkett Farm Unit Water Control Structure

Repair is required for the Plunkett Farm Unit water control structure; the concrete headwalls and outlet pipe have deteriorated and no longer function properly. The pipe is corroded and numerous cracks in the structure headwall, coupled with aged water control screw gates, cause unpredictable water management capabilities on this 800-acre waterfowl sanctuary. This refuge unit provides both sanctuary and desirable agricultural foods for 100,000 plus wintering waterfowl on this refuge declared a "Wetland of International Importance." This water control structure and associated levee system are vital components for both maintaining desired water levels and preventing spring floods from damaging desirable agriculture foods produced through the refuge cooperative farming. The project will replace current structure with a new aluminum 48"x 80' pipe fitted with aluminum screw gates on both ends. The side slopes of the structure will be stabilized using approximately 80 cubic yards of 90# type rip rap material. The project, when completed, will assist the refuge in meeting objectives identified in the North American Waterfowl Management Plan.

Estimated cost \$25,000

(Linkages: Cache River NWR Objectives 1-1, 1-6, 2-1, 2-3, and 2-4)

Reconstruct the Bank of Brinkley Levee and Moist-Soil Unit Impoundments

Rehabilitate the dilapidated Bank of Brinkley tract levee system and moist-soil waterfowl impoundment. This impoundment and levee system were abandoned prior to Service ownership, and now contains numerous holes and washed out areas as a result of beaver burrowing and encroaching willow trees. Current condition of unit results in unpredictable and inadequate water management capabilities. This unit has the potential to provide high quality desirable wetland habitat that would benefit large populations of wintering waterfowl and migrating shore and wading birds. This project will restore the levee system by removing intrusive willow trees, re-shaping and grading levee top surfaces and side slopes, stabilizing levee side slopes with rip rap, and installing two aluminum pipes fitted with screw gates. The completed project will restore proper operation within this unit and provide enhanced water management capabilities for resident and migrating wildlife that depend on this type of wetland habitat. Refuge visitors will benefit by being provided additional wildlife observation, photography, hunting, and fishing opportunities.

Estimated cost \$80,000

(Linkages: Cache River NWR Objectives 1-1,1-3, 1-4, 2-1, 2-3, 2-4, 4-3, 4-4, and 4-5)

Cache River NWR Stream Restoration

Restore the natural hydrology on streams and drainages on Cache River NWR. A total of 5.4 miles of channelized and altered streams will be restored and levees will be removed to allow for natural hydrology and restoration of habitat on this refuge declared a "Wetland of International Importance." This project would be completed over a 5-year period and would restore approximately 1,980 acres of tributary watersheds and provide excellent habitat for refuge trust species, wintering waterfowl, migrating wading and marsh birds, and priority wildlife, such as American Woodcock and Wood Ducks. Restoration of these sites is an essential step to improving water quality and watershed integrity of the Cache River and Bayou DeView. The Nature Conservancy has expressed interest in partnering with the refuge on this project.

Estimated cost \$170,640

(Linkages: Cache River NWR Objectives 1-4, 1-2, 1-3, 1-4, 1-5, 1-16, and 2-4)

Forestry Technician, GS-7

This project would enable the refuge to restore and monitor its bottomland hardwood forests. Management goals of this refuge designated as "A Wetland of International Importance" include reversing negative impacts of previous landowners by restoring drained wetlands and restoring bottomland hardwood forest vegetation. Accomplishment of this project will provide forested corridors for wildlife between remaining forested tracts, provide riparian buffers, improve sediment retention, and increase habitat for migratory birds and a variety of native wildlife species. This project will provide a forestry technician to assist in reforestation efforts, monitoring and surveying, and implementation of forest treatments identified within the approved refuge Habitat Management Plan. Wildlife that will benefit includes over 200 species of migratory songbirds, 50 species of mammals, and 45 species of reptiles and amphibians that occur on this refuge. The forestry technician also will serve other refuges in the Complex to improve their forestry habitat management programs.

Estimated cost \$77,321

(Linkages: Bald Knob NWR Objectives 2-2, 2-5, 3-1, 5-1; Big Lake NWR 2-2, 2-3, 3-3, 5-1; Cache River NWR 2-2, 2-5, 3-1, 5-1; and Wapanocca NWR 2-2, 2-4, 3-1, 5-1)

Assistant Forester, GS-11

This project will enable the refuge to restore and conduct long-term monitoring of native bottomland hardwood forest habitats on this "Wetland of International Importance." Emphasis will be on the restoration of ecosystem functions and will target specific forest structure, species composition, and age structure goals. The assistant forester position will provide assistance to the forester, with priority placed on emulating natural disturbance patterns, both spatially and temporally. Approximately 80

percent of the existing bottomland forest on the refuge was heavily cut prior to refuge acquisition. Species composition, age structure, and vertical structure require treatment to restore natural forest structure. Over 200 species of migratory songbirds, 50 species of mammals, and 45 species of reptiles and amphibians will benefit from the proper implementation of the refuge's Habitat Management Plan. This position also will serve other refuges in the Complex in planning and implementing their respective forest habitat management programs.

Estimated cost \$114,439

(Linkages: Bald Knob NWR Objectives 2-2, 2-5, 3-1, 5-1; Big Lake NWR 2-2, 2-3, 3-3, 5-1; Cache River NWR 2-2, 2-5, 3-1, 5-1; and Wapanocca NWR 2-2, 2-4, 3-1, 5-1)

Laborer, WG-4

Provide a laborer to assist in day-to-day operations of this refuge, which includes an expanding public use program. The laborer is needed to assist in vehicle, equipment, and facilities maintenance, including operating more than 130 water control structures that provide high-quality habitat for wintering waterfowl and migrating shore and wading birds. The refuge has an ever-increasing nuisance beaver population in which beavers are continually plugging pipes, damming drainage ditches, undermining roads and levees, and flooding and destroying forest habitats, causing substantial damage, habitat degradation, and safety hazards for the visiting public. The laborer will also disk firelanes, manipulate moist-soil impoundments, mow road shoulders, and maintain office grounds.

Estimated cost \$56,610

(Linkages: Cache River NWR Objectives 1-1, 1-6, 2-1, 2-2, 2-3, 2-4, 3-1, 5-1, and 5-3)

Wapanocca NWR

2007733000 – Big Creek Bridge

Replace worn and inadequate Big Creek Bridge, which provides the only crossing area over Big Creek for refuge visitors and staff. The bridge is inadequate for transporting the heavy equipment used by refuge management and cooperative farmer. The entrance ramp to the bridge is eroded and large pot holes have resulted at the base of the bridge. The project will provide for engineering design, planning, and construction for a new replacement bridge that meets Federal Highway Administration safety requirements.

Estimated cost \$200,000

(Linkages: Wapanocca NWR Objectives 1-1, 2-1, 2-2, 2-3, 3-1, and 4-2)

2007733030 – County Ditch 4 (drainage)

Rehabilitate silted County Ditch 4 drainage ditch, which is the main drainage ditch providing drainage capabilities for refuge water management units and adjacent private land farmers and refuge neighbors. The ditch bottom and side slopes contain large amounts of silt and intrusive woody vegetation, resulting in poor and inadequate drainage and contributing to nuisance beaver problems. The project will provide for removal of undesirable woody vegetation along ditch bank slopes and removal of silt buildup in bottom of ditch. This project will benefit the refuge, adjacent private land farmers, and refuge neighbors through improved capability for all parties utilizing this extensive drainage system.

Estimated cost \$150,000

(Linkages: Wapanocca NWR Objectives 2-1, 3-1, and 3-3)

Biological Technician, GS-7

To offset rapidly advancing environmental challenges, such as global warming, that may be linked to the increasingly frequent and prolonged periods of drought in eastern Arkansas, a much greater emphasis on biological monitoring and maintenance within Wapanocca NWR is required.

Responsibilities within this project include monitoring of resources directly impacting the quality of

refuge habitats, including, but not limited to, refuge water levels in correlation with the nearby Mississippi River and groundwater levels, presence and eradication of exotic plant species promoted by drought tolerance and longer growing seasons associated with global warming, and changes in refuge soil composition, with emphasis on mineral level fluctuations within wetland units flooded by groundwater compared to those receiving natural flooding. Additional responsibilities include wildlife population monitoring, waterfowl banding, and assisting with refuge management plans.

Estimated cost \$77,321

(Linkages: Wapanocca NWR Objectives 1-1, 1-9, 2-1, 2-2, 2-3, 2-4, 3-1, 3-3, and 5.1)

RESOURCE PROTECTION

Big Lake NWR

2007716155 – Ditch 81 Levee

Clear vegetation overgrowth on the Ditch 81 Levee located adjacent to Ditch 81 on the refuge's east boundary. The levee is approximately 9.6 miles long, starting at the refuge Headquarters and ending at the North End Water Control Structure. The entire western edge of the levee is overgrown with trees and vegetation. Project improvements include removing all trees and clearing vegetation in accordance with COE policy pertaining to maintenance of levees.

Estimated cost \$200,000

(Linkage: Big Lake NWR Objective 3-1)

Restore Ecosystem Health and Natural Hydrology

This project would enable restoration and improvement of ecosystem health and natural hydrology through increased water management capability at Big Lake NWR. Numerous channels and sloughs within the Big Lake basin have become blocked with trash and debris from frequent federally mandated flood control and relief events on the refuge. This prevents natural flow of water to several areas on the refuge, increases flooding in the Wilderness Area, restricts visitor access, and significantly reduces the quality of wetland habitats on the refuge. A biological technician would aid in sampling and monitoring of flood waters. An amphibious excavator capable of reaching these inaccessible areas is needed to remove the debris to restore flows through these naturally meandering channels and sloughs. This will benefit the hundreds of thousands of wintering waterfowl and migrating shorebirds that use the refuge. Additionally, habitat quality will improve for other wildlife, such as Bald Eagle and federally endangered fat pocketbook mussel.

Estimated cost \$240,000

(Linkages: Big Lake NWR Objectives 1-1, 1-3, 1-8, 3-1, and 3-2)

Reduce Invading American Lotus to less than 30 percent of Open Water Areas

In order to keep water bodies open and free of invading American lotus and black willow an aquatic herbicide must be applied annually in these areas. Controlling nuisance plants will promote the growth of waterfowl foods, reduce sediment accumulation, increase use of these areas by nesting Bald Eagles, and enhance public use in these areas. Funds will be used to purchase chemical, sprayer, contracting aerial applications, and fabricating and aquatic vegetation cutter attachment for use on an existing john boat.

Estimated cost \$65,000

(Linkage: Big Lake NWR Objective 3-3)

Enhance Seasonal Water Level Management

Enhance seasonal water level management with the installation of a large stop log water control structure in the southend Highway 18 spillway dam. The structure currently does not allow for full water level management capability for the entire Big Lake NWR wetland area. With the installation of

a 6-foot-high bay of stop logs within the existing dam, total water level management could be accomplished. The structure would allow for water level manipulation by staff to promote beneficial plant growth, control of invasive plant species growth, and seasonal flooding or dewatering areas of the lake during the summer and winter months.

Estimated cost \$250,000

(Linkages: Big Lake NWR Objectives 2-1, 2-3, 3-1, and 3-3)

Hydrologist GS-11

Provide one full-time hydrologist to meet required mandates and wildlife management goals and objectives at Big Lake NWR and the other refuges within the Complex. The position will provide the Complex with the knowledge needed to better meet the demands and impacts of congressionally mandated flood control activities at Big Lake NWR, restore natural hydrology at Wapanocca NWR, coordinate river and stream restoration projects at Cache River NWR, and provide technical guidance in water management issues at Bald Knob NWR. The Complex will gain a better understanding of aquatic habitat conditions, implement monitoring activities, and plan corrective actions to reduce negative impacts of siltation, pollution, irrigation withdraws, inadequate water sources, degraded aquatic habitats, and severely altered hydrological systems. The hydrologist will work with partners to examine system health and determine the best course of action needed to meet refuge objectives and protect the trust resources. Currently, these activities are not adequately implemented and this project will allow the Complex to better meet its purposes, vision, goals, and objectives.

Estimated cost \$114,439

(Linkages: Bald Knob NWR Objectives 1-15, 2-5, 3-2, 5-1; Big Lake NWR Objectives 2-3, 3-1, 5-1; Cache River NWR Objectives 1-16, 2-5, 3-2, 5-1; and Wapanocca NWR Objectives 2-4, 3-1, 5-1)

Cache River NWR

Realty Specialist, GS-12

This project would enable much greater work efficiencies and customer service throughout the Complex. This 66,500-acre refuge lies in the heart of the most pristine bottomland hardwood remaining within the Lower Mississippi Alluvial Valley. The Cache River NWR has been identified as the most important wintering area for Mallard ducks in North America and is 1 of only 22 land areas within the United States listed as a "Wetland of International Importance." With an approved land acquisition boundary of approximately 186,000 acres, a realty specialist position is needed to direct negotiations and conduct appraisals with the many identified willing sellers. Management goals of this refuge include reversing negative impacts of previous landowners that drained wetlands and restoring native bottomland hardwood forests. Accomplishment of this project will provide forested corridors for wildlife between remaining forested tracts, provide riparian buffers, improve sediment retention and increase habitat for migratory birds and a variety of native wildlife species. Additionally, this position would be available to coordinate realty issues such as acquisition, surveys, boundary integrity, and adjacent landowner relations on the Complex and on the other refuges in Arkansas.

Estimated cost \$137,165

(Linkages: Cache River NWR Objectives 3-4; and 5-1 for all refuges)

Wapanocca NWR

2006558819 – Dredge Ditch 8

Provide equipment, labor, and materials, to dredge approximately one foot of material from Drainage Ditch 8 (material to be deposited on site) and complete selective clearing and brush mowing. A medium-density, tractor with rotary mower would be needed to clear the length of the ditch and out to 20 feet.

Estimated cost \$875,000

(Linkage: Wapanocca NWR Objective 3-1)

2006557060 – Ditch 2

This project is needed to remove silt buildup and trees encroaching on slopes of Ditch 2. Ditch 2 flows into Ditch 5 and eventually into Ditch 8 on the north side of Wapanocca NWR. It is one of the primary water delivery channels to Wapanocca Lake. The amount of water flow into the lake during flood events is vital to maintain sufficient water level in Wapanocca Lake; this project will enable more reliable water supply and delivery.

Estimated cost \$300,000

(Linkage: Wapanocca NWR Objective 3-11)

2007716250 – Levee 5 Water control Structure

The levee 5 water control structure is located on the east end of Woody Pond. Due to water no longer being allowed to enter Wapanocca Lake on the north structure, all water must flow through the levee 5 structure. This structure was improperly installed at too low a depth and is easily silted in and clogged during flood events. In order to maintain sufficient water levels in Wapanocca Lake, this structure must be rehabilitated.

Estimated cost \$125,000

(Linkage: Wapanocca NWR Objective 3-1)

Engineering Equipment Operator, WG-8

This project will provide enhanced habitat diversity and quality on Wapanocca NWR. Responsibilities will include equipment operation to accomplish restoration of wetland units, eradication of exotic plant species, maintenance of facilities for improvements in visitor services, and development of new habitat management areas. Additional benefits include a sizeable increase in overall acreage managed within the refuge, increased safety for all refuge visitors and staff, and an overall increase in opportunities for the visiting public to enjoy the refuge and connect with nature.

Estimated cost \$77,650

(Linkages: Wapanocca NWR Objective 1-1, 1-3, 2-1, 3-1, 3-3, 4-2, 5-1, and 5-3)

Laborer WG-4

Hiring a laborer will greatly increase refuge management capabilities, primarily water control capabilities, on Wapanocca NWR. Responsibilities of this position will include removal of obstructions from beavers within the ditch and drainage system on refuge lands that supply water to 2,050 acres in Wapanocca Lake and surrounding swamplands. In addition, 300 acres of wetlands actively managed for migrating waterfowl will benefit from the increase in these capabilities. Currently, beaver, muskrat, and nutria interfere with the ditch system and levees, greatly reducing the required ability to control flooding and drainage capabilities of the refuge. This project will reverse the damages to refuge lands caused by these species and increase the overall quality of habitats.

Estimated cost \$56,610

(Linkages: Wapanocca NWR Objectives 1-1, 3-1, and 3-3)

VISITOR SERVICES

Bald Knob NWR

Park Ranger, Visitor Services Specialist, GS-9

A park ranger (Visitor Services specialist) would be hired to develop and implement a full range of visitor services programs on the refuge, including environmental outreach and interpretive programs. The project would expand on existing contacts and connections with local birders, hunters, and fishermen from Newport, Searcy, and Little Rock, Arkansas, and contribute to the establishment of a successful volunteer programs and friends group. The Visitor Services specialist would represent the refuge at various local and state-wide gatherings, fairs, and other special events. The Visitor

Services specialist would partner with the friends group and volunteers to include outreach and education as part of an overall refuge public use program to connect a potential 800,000 residents and neighbors with nature. Development of an on-site interpretive program would involve updating and/or creating various printed materials, such as brochures and bird, reptile, and amphibian lists. This position would be involved with the planning of public use facilities, kiosks, information stations, nature trails, and observational towers and blinds.

Estimated cost \$94,588

(Linkages: Bald Knob NWR Objectives 4-1, 4-2, 4-6, 4-7, and 5-1)

2007732649 – Office Trailer

Funding has been obtained through ARRA for replacement of the existing office trailer with a suitable facility to allow for efficient public use management and administration of a visitor services program, including opportunities for environmental education and interpretation. The proposed headquarters/visitor contact station would be 1-story, approximately 2,500 square feet in size, would be fully ADA-compliant, and would include an exhibit area, volunteer/receptionist area, conference room, breakroom, law enforcement storage, public restrooms, staff offices, safe room, and public parking. This facility would be constructed within close proximity of the current office site and would incorporate energy and resource conserving features, reducing carbon and climate impacts, and would not result in the loss of wildlife habitat.

Estimated cost: \$650,000.

(Linkages: Bald Knob NWR Objectives 4-2, 4-6, 4-7, 5-1, and 5-3)

04134134 – Bottom 300-Acre Field Road

Rehabilitate the 1.41 mile X 26-foot Bottom 300-Acre Field Road, which is used extensively by the public to access the southern parts of the refuge. The road is prone to flooding and is inundated at least three times each year for several weeks. The road needs to be rehabilitated by disking and reshaping the entire length of the road, and raising a portion (2,000 feet) of the road approximately 2 feet. In addition, geo-textile fabric and 6 to 12 inches of Class 7 gravel will be placed on the raised portion for additional strength. The road receives use from approximately 60,000 visitors each year.

Estimated cost \$100,000

(Linkages: Bald Knob NWR Objectives 4-3, 4-4, 4-5, and 4-7)

2005218680 – Mingo Creek Access Road

The Mingo Creek Access Road is the only access road to the approximately 2,000-acre Mingo Creek Unit. This road system contains a system of smaller roads, accessible only by ATV from the main parking area, that is heavily utilized by hunters and visitors to the Mingo Creek Unit of Bald Knob NWR. These roads allow users to safely access various parts of the Mingo Creek Unit and be dispersed so that hunter conflicts are kept to a minimum and disputes between various user groups are also minimized. The Federal Highway Administration listed this road system as poor in its report dated 3/1/2001. Improvements needed include the addition of 6 to 8 inches of Class 7 gravel over the approximately 8 miles in length. Additionally, a crossing on Mingo Creek consisting of two 48" X 20' plastic pipes needs to be replaced with a 6' X 40' tanker culvert. The crossing needs to be reinforced with approximately 100 tons of R-400 rip-rap. This road is used by approximately 20,000 visitors each year.

Estimated cost \$200,000

(Linkages: Bald Knob Objectives 4-3, 4-4, 4-5, and 4-7)

2007716141 – Main Entrance Gate

The five main entrance gates necessary to prevent public entry and disturbance into the waterfowl sanctuary area and to seal off the refuge during floods or other emergencies are damaged and need to be replaced. Although these gates are constructed from steel materials, they have been damaged

from accidents, vandalism, and farm implements. The 32-foot gates need to be replaced with extremely heavy duty materials and protected with paint.

Estimated cost \$20,000

(Linkages: Bald Knob NWR Objectives 1-1, 4-2, 4-3, 4-4, 4-5, and 4-7)

Big Lake NWR

2007733603 – Big Lake NWR Office

Funding has been obtained through ARRA for replacement of the existing office with a headquarters/visitor contact station. The proposed facility would be 1-story, approximately 2,500 square feet in size, and would include four staff offices, conference room, breakroom, unisex staff restroom, law enforcement storage, utility/storage closets, fax/photocopy/file room, mudroom, separate male/female public restrooms, an exhibit area, and volunteer/receptionist area. This facility would be fully ADA-compliant, would provide adequate administrative function, and would enable suitable opportunities for visitor reception and interpretation. The building design would incorporate greening features, including energy-conserving lighting, HVAC and insulation qualities, water-conserving systems, and options for alternate energy. It also would provide a safe and comfortable environment for staff and visitors. The current office would be removed and the new headquarters/visitor contact station would be sited within close proximity to the current building within the existing office/maintenance shop grounds, which are already disturbed; therefore, new construction would necessitate minimal site disturbance and no wildlife habitat would be destroyed. Funding amount would include planning/design, engineering, construction, furniture, and interpretive exhibits.

Estimated cost \$650,000.

(Linkages: Big Lake NWR Objectives 4-2, 4-6, 4-7, 5-1, and 5-3)

2007716164 – Timm's Point Observation Area

Repair retaining cracked wall and sidewalk at the Timm's Point Observation Area that provides wildlife viewing opportunities for 50,000 visitors annually.

Estimated cost \$100,000

(Linkages: Big Lake NWR Objectives 4-2, 4-5, and 4-7)

2007733607 – Ditch 28 Bridge

Repair the unsafe open grating steel bridge located on Ditch 28 at Big Lake NWR. The bridge provides access for refuge heavy equipment and pedestrian visitors into the 114-acre mud slough moist-soil unit and 30-acre Baker Island field. The bridge is not adequately posted with load limit signs, there are no guard rails, pins can be unfastened between spans, and there is buildup of logs and debris under bridge pilings. The project will include the installation of load posting signs and object markers at the north end, a curb type bridge rail attached to sides, permanently set pins with the washer secured in place at stringer slices, and clearing of logs and debris at the south bent and under south span. As a result of this project, the public and refuge will be afforded continued safe travel across the bridge and also the bridge usable life will be prolonged before total replacement.

Estimated cost \$300,000

(Linkages: Big Lake NWR Objectives 2-1 and 4-2)

2005207265 – Timm's Point Parking Area

Timm's Point Parking Area is located on Bald Cypress Wildlife Drive 3 miles from the intersection of Highway 18 and Bald Cypress Wildlife Drive. Currently, the facility has an area of 29,348 square feet. The gravel surface is deteriorating and contains large patches of grass; the style of parking is not delineated for the 25-car area. The parking facility is currently open to the public for year-round use. Project improvements include clearing and grubbing the parking area, performing minor grading and overlaying the parking area with 4 inches of crushed aggregate, installing 25 wheel stops to delineate

parking stalls, and installing one stop sign at the egress point to Bald Cypress Wildlife Drive. This facility serves over 50,000 visitors annually.

Estimated cost \$75,000

(Linkage: Big Lake NWR Objective 4-2)

2006531982 – Big Lake Bank Fishing Parking Area

Big Lake Bank Fishing Parking Lot is located on Highway 18, 0.5-mile from the intersection of the refuge entrance road and Highway 18. Currently, the facility has an area of 5,987 square feet and consists of a gravel/dirt mix surface with some protruding patches of grass. The entrance measures 20' X 50' with an asphalt surface. Parking is not delineated within the lot that contains space for parking. The parking facility is currently open to the public for year-round use. Project improvements include clearing and grubbing the parking area, minor grading, and overlaying the parking area with 4 inches of crushed aggregate and the entrance with 2 inches of asphalt. Nine wheel stops will be installed to delineate parking stalls and one stall will be signed and designed as fully accessible. A stop sign will be installed at the egress point.

Estimated cost \$50,000

(Linkage: Big Lake NWR Objective 4-4)

2006557432 – Ditch 81 Levee Road Parking Area

Currently, the facility has dimensions of 60' X 32' and is overgrown with thick grassy vegetation. Parking spaces are not delineated; there is room to park 6 vehicles. The parking facility is currently open to the public October through December. Project improvements include clearing and grubbing the parking area, performing minor grading, and overlaying the parking area with 4 inches of crushed aggregate. Six wheel stops will be installed to delineate parking stalls and one stall will be designated as fully accessible parking and delineated with a sign.

Estimated cost \$15,000

(Linkages: Big Lake NWR Objectives 4-2 and 4-3)

2007716115 – Brights Landing Fishing Pier

The Brights Landing Fishing Pier is located adjacent to the Brights Landing Parking Area and is in disrepair, creating a safety hazard. Project improvements include reinforcing the structure to prevent swaying and instability, re-staining the entire structure, and replacing the damaged roof. The structure is currently open to year-round use and serves more than 50,000 visitors annually.

Estimated cost \$20,000

(Linkages: Big Lake NWR Objectives 4-2 and 4-4)

2005222810 – Wildlife Auto Drive

The Bald Cypress Wildlife Drive begins at the intersection of Refuge Entrance Road and ends at the gate at Timm's Point Parking Area. The roadway is approximately 3.19 miles in length and 18 feet in width. The roadway surface is gravel and needs repair and maintenance. Project improvements include overlaying the surface with 6 inches of gravel, reshaping, and grading on a regular basis. The roadway is currently open to the public for year-round use and serves about 50,000 visitors annually.

Estimated cost \$900,000

(Linkages: Big Lake NWR Objectives 4-4 and 4-5)

2006531558 – Brights Landing Parking Area

Brights Landing Parking Area is located on Highway 18, 0.3-mile from the intersection of Highway 18 and Refuge Entrance Road. Currently, the facility has an area of 42,581 square feet and the gravel surface is overgrown with patches of grass in the boat ramp parking area. There are two fully accessible parking spaces, but the remainder of the parking area is not delineated (there is sufficient space to park 40

vehicles). The boat ramp has a concrete surface. There is a walking trail adjacent to the boat ramp parking and an observation pier next to the fully accessible parking area. The parking facility is currently open to the public for year-round use and serves about 50,000 visitors annually. Project improvements include clearing and grubbing the parking area, performing minor grading, and overlaying the parking area with 4 inches of crushed aggregate, installing 40 wheel stops to delineate parking, and designating two stalls as universally accessible with appropriate signage.

Estimated cost \$75,000

(Linkages: Big Lake NWR Objectives 4-2, 4-4, 4-5, and 4-7)

2006531978 – Headquarters Visitors Parking Area

The Headquarters Visitor Parking Area is located on Refuge Entrance Road, 0.1-mile from the intersection of Highway 18. The facility has an area of 8,979 square feet and has a gravel surface that is in need of repair. The style of parking is not delineated; there is space to park approximately 14 to 28 vehicles. The facility is currently open to the public for year-round use and serves more than 50,000 visitors annually. Project improvements include overlaying the parking area with 4 inches of crushed rock aggregate and installing 20 wheel stops to delineate parking spaces.

Estimated cost \$100,000

(Linkage: Big Lake NWR Objective 4-2)

2006531989 – Oak Island Parking Area

The Oak Island Parking Area is located on Bald Cypress Wildlife Drive, 1.2 miles from the intersection of Highway 18 and Bald Cypress Wildlife Drive. The facility has an area of 2,239 square feet of graveled surfaced and space to park five vehicles, but parking spaces are not delineated. The parking facility is currently open to the public for year-round use and serves about 10,000 visitors annually. The gravel surface of the parking area is degraded and overgrown with grass. Project improvements include clearing and grubbing the parking area, clearing overgrowth from entrance roadway shoulders and centerline, and regrading and shaping the entrance road. Also perform minor grading and overlay the parking area with 4 inches of crushed aggregate, install five wheel stops to delineate parking spaces, and designate one space with a sign as fully accessible.

Estimated cost \$25,000

(Linkages: Big Lake NWR Objectives 4-2, 4-4, and 4-5)

2006531992 – Handicapped Parking Area

This parking area, specifically used for fully accessible parking, is located on Refuge Entrance Road, 0.1-mile from the intersection of Highway 18 and Refuge Entrance Road. The facility has an area of 310 square feet and has a concrete surface that is need of resurfacing to prevent wheelchair accidents and to enhance accessibility. The facility is currently open to the public for year-round use.

Estimated cost \$25,000

(Linkage: Big Lake NWR Objective 4-2)

Improve Educational and Interpretive Materials to Connect People to Nature

Enhance visitor services at Big Lake NWR. About 35,000 people annually enjoy four interpretive trails, two wildlife observation sites, two permanent spotting scopes, a photo blind, and an entrance kiosk with interpretive panels. However, these facilities are in need of repair and improvements. Approximately 20 new panels are needed to adequately inform the visiting public about refuge regulations, recreational opportunities, and provide educational information regarding wildlife and habitat management. Several amenities, such as benches, an environmental education pavilion, and improved access, will enhance non-consumptive, wildlife-dependent recreation for more than 50,000 visitors per year.

Estimated cost \$150,000

(Linkages: Big Lake NWR Objectives 3-2, 3-5, 4-5, 4-6, 4-7, and 5-2)

Park Ranger (LE), GS-9

Provide one full-time law enforcement officer to protect wildlife and habitat resources, especially designated lands (Wilderness Area and National Natural Landmark), facilities, employees, and the public on the 11,038-acre Big Lake and 5,061-acre Wapanocca NWRs, fee title tracts, and conservation easements located in northeast Arkansas. Director's Order #155 requires the Service to reduce dependency on dual-function refuge officers and progress towards full-time enforcement. This officer will meet that mandate because the Complex has lost three dual function officers and Big Lake NWR has been without full-time law enforcement since it was established in 1915. Big Lake and Wapanocca NWRs have more than 7,000 acres of open water habitat for boaters and anglers, numerous bank fishing sites, active hunting programs, designated wilderness area (Big Lake NWR), wildlife auto drives, and receive heavy visitation from diverse user groups. The refuges have experienced numerous law enforcement incidents in recent times due to minimal law enforcement presence. This project will dedicate a full-time law enforcement officer to protect refuge resources and visitors and provide outreach services on Big Lake and Wapanocca NWRs.

Estimated cost \$97,292

(Linkages: Big Lake NWR Objectives 3.3, 3-5, 4-2, 4-3, 4-4, 4-5, 5-1; Wapanocca NWR Objectives 3-5, 4-2, 4-3, 4-4, 4-5, 5-1)

Cache River NWR

03125419 – Gin Lane South Road

This 1.6-mile dirt public access road is in poor condition. The dirt road surface becomes muddy, slippery, and rutted during wet periods, causing unpredictable and hazardous driving conditions for refuge visitors. Vehicles often become stuck and slide into adjacent ditches. This project will rehabilitate approximately 1.6 miles of public access road used annually by more than 120,000 refuge visitors. Project includes grading and shaping road surfaces, installing culverts to promote surface drainage, adding dirt fill in rutted and washed areas, and spot graveling with SB-2 type gravel on rutted sections. Project will provide safe, unrestricted, all-weather access for refuge visitors and management. This road is the only available public access point to this popular refuge tract.

Estimated cost \$160,000

(Linkages: Cache River NWR Objectives 4-2 and 4-3)

Replace Worn Refuge Boundary Signs

Cache River NWR is composed of over 78 non-contiguous land tracts, with more than 500 miles of refuge boundary within the 10-year floodplain of the Cache River. Maintaining and posting boundaries is a continuous job. This project would provide boundary signs, sign post, and hardware to meet the backlog of boundary posting needs. Posting is required to protect the refuge from major wildlife violations, including timber theft, encroachment by adjoining landowners, drainage, and general resource violations. Efforts to prosecute violations without properly marked boundaries are often denied by the U.S. Attorney.

Estimated cost \$25,000

(Linkages: Cache River NWR Objectives 3-4, 4-2, 4-3, 4-4, and 4-5)

2005253254 – Cache Bayou Road

This 2.3-mile primitive surface public access road provides refuge visitors with access into the north side of the Dixie Farm unit. During wet conditions, the road surface becomes slippery and develops deep rutted sections, causing unpredictable and unsafe driving conditions for refuge visitors. This project will include grading and shaping of the road surface, filling rutted sections, and surfacing the

road with approximately 6 inches of SB-2 type gravel. When completed, this project will provide all-weather access to more than 40,000 refuge visitors pursuing recreational opportunities on this popular refuge tract.

Estimated cost \$180,000

(Linkages: Cache River NWR Objectives 4-2, 4-3, and 4-5)

2005204642 – Horseshoe Lake Road

This project will rehabilitate the Horseshoe Lake 1.6-mile public access road. This dirt surface road is worn and in its current condition prevents refuge visitors and adjacent landowners from accessing both the refuge and neighboring private property. Road surface is extremely rutted and holds water in deep holes throughout most of the year, keeping the road surface in a muddy condition. Vehicles often become stuck on this road and the slippery surface creates unsafe and unpredictable driving conditions for refuge visitors. This project will provide for rehabilitation of the entire road through grading and shaping of the roadway surface, filling deep holes and ruts, and surfacing the prepared roadway with approximately 6 inches of SB-2 type gravel. This road is the only public access to this refuge tract and Horseshoe Lake.

Estimated cost \$120,000

(Linkages: Cache River NWR Objectives 4-2, 4-3, and 4-4)

2005202117 – Robinson Tract East Road

This project will rehabilitate the 0.96-mile Robinson East Road public access road. The dirt surface of this public access road has become rutted and prevents adequate drainage from the road surface. Visitors pursuing hunting, wildlife observation, and photography and accessing the refuge on this road often encounter unsafe driving conditions and become stuck or slide into adjacent deep ditches. This is the only road providing access into this popular refuge tract. This project will rehabilitate the road by grading and shaping, filling holes and ruts with B-stone type material and topping the road surface with approximately 6 inches of SB-2 type material. Completed project will provide safe all-weather access to refuge visitors.

Estimated cost \$50,000

(Linkages: Cache River NWR Objectives 4-2, 4-3, and 4-5)

2005202761 – Robinson Tract West Road

Rehabilitate the 1-mile Robinson Tract West public access road. This dirt surface road is currently accessible by 4-wheel drive vehicles only and provides the only public access available to this popular refuge tract. The road surface becomes muddy during wet conditions and prevents the majority of refuge visitors from accessing the refuge. Project plans include grading and shaping of the roadway surface, cutting ditches along road shoulders to provide drainage, installing drainage pipes at low-lying areas, filling holes and ruts with B-stone type rock and surfacing road with approximately 6 inches of SB-2 type gravel material. When completed this project will provide refuge visitors with safe, all-weather access to this refuge tract.

Estimated cost \$50,000

(Linkages: Cache River NWR Objectives 4-2, 4-3, and 4-5)

Rehabilitate Unsafe Horseshoe Lake Boat Ramp and Parking Area

Project will improve essential boat access to central/southern portion of the refuge. Deficiencies include settled 15'x 50'x 6" concrete ramp, and degraded 1,942-square-foot parking area. Improvements will include grading and graveling the parking area, slope improvements, and a new concrete ramp. Anglers, hunters, and birdwatchers seeking boat access into Horseshoe Lake will have a safe facility for future use.

Estimated cost \$15,000

(Linkages: Cache River NWR Objectives 4-2, 4-3, 4-4 and 4-5)

Park Ranger, Visitor Services Manager, GS-11

Develop and implement the visitor services program at Cache River NWR. Designated as a "Wetland of International Importance," this refuge is located between the two major cities of Little Rock, Arkansas, and Memphis, Tennessee, with the potential to provide outreach and connect a population of over 1,000,000 people with nature. Responsibilities would include planning and implementation of the environmental education program, special events, and a comprehensive visitor services program. This project would also result in the development and updating of brochures, such as a refuge bird list, interpretive, educational, and outreach material, and planning of public use facilities, such as informational kiosks, wildlife interpretive trails, and observation platforms. Responsibilities will also include coordination of the following programs: Volunteers, friends groups, cooperating associations, partnerships, and administering the recreation fee program.

Estimated cost \$114,439

(Linkages: Cache River NWR Objectives 3-5, 3-7, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 5-1 and 5-2)

Office Assistant, GS-6

Enhance visitor services and operations for 140,000 annual visitors on Cache River NWR. This 66,500-acre refuge, declared a "Wetland of International Importance," has become an extremely popular location for visitors participating in fishing, hunting, wildlife observation, and photography. The refuge office receives many visitors requesting information concerning the recreational opportunities, literature, maps, and other inquiries that are necessary to ensure a quality experience while visiting the refuge. Currently, the refuge has no staff solely dedicated to assisting with these visitor requests and maintaining associated databases. This project will provide an Office Assistant to answer the phones, update refuge web site, greet visitors, provide assistance with recreational fee programs, and provide refuge literature and other available information to more than 140,000 refuge visitors per year.

Estimated cost \$69,584

(Linkages: Cache River NWR Objectives 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 5-1 and 5-2)

Park Ranger, Law Enforcement, GS-9

Provide one full-time law enforcement officer to protect wildlife, lands, facilities, employees, and the general public on Cache River NWR. Director's Order #155 requires the Service to reduce dependency on dual-function refuge officers and progress towards a full-time officer workforce. This officer will assist in fulfilling these needs by placing an officer in the field full time to protect wildlife and habitat resources and visitors. Illegal activities including farming trespass, theft, vandalism, poaching, artifact hunting, use and manufacture of controlled substances, and other violations of refuge regulations are increasing on refuge lands. Current law enforcement staff is unable to handle this workload and a growing number of violations are not enforced due to inadequate law enforcement staffing levels. Law enforcement is the most basic form of wildlife management and this project will dedicate a full-time law enforcement officer to conserve and protect wildlife and wildlife habitats, and protect refuge visitors.

Estimated cost \$97,292

(Linkages: Bald Knob NWR Objectives 3-5, 4-1, 5-1; Big Lake NWR Objectives 3-5, 4-1, 5-1; Cache River NWR Objectives 3-7, 4-1, 5-1; and Wapanocca NWR Objectives 3-5, 4-1, 5-1)

Environmental Education/Visitor Center

Plan and design an environmental education/visitor center for the Central Arkansas NWR Complex at a suitable site on existing or newly acquired refuge lands within easy access of I-40 or Highway 64, or at the existing headquarters site, whichever is deemed most feasible and desirable, to provide an adequate facility to educate the public about the Refuge System and the Complex, provide appropriate environmental education programs and curricula, provide visitor services, and enable proper administrative functions.

Construct a facility that would adequately meet the needs of the public and the staff. A project for an environmental education/visitor center is in the Region's 5-year construction plan and is estimated to cost approximately \$4 to \$6 million. The proposed facility would be approximately 3,500 to 4,500 square feet in size, and would include staff offices, conference room, auditorium, environmental class rooms, exhibit and display areas, break room, staff and public restrooms, secure law enforcement storage, utility/storage closets, fax/photocopy/file rooms, mudroom, bookstore, friends group office, and volunteer/receptionist office. This facility would be fully ADA-compliant and would enable suitable opportunities for visitor reception, environmental education, interpretation, and public meetings. The building design would incorporate greening features, including energy-conserving lighting, HVAC and insulative qualities, water-conserving systems, and alternate energy. The building would be designed and constructed to reduce its carbon footprint and lessen environmental impacts, and also would provide a safe and comfortable environment for staff and visitors. Additionally, there would be sites for interpretive foot trails, wayside exhibits, and outdoor kiosks. Estimated cost: \$4,500,000.
(Linkages: Cache River NWR Objectives 4-2, 4-6, 4-7, 5-1, and 5-3)

Wapanocca NWR

2007741429 – Headquarters/Visitors Center

Funding has been obtained through ARRA for replacement of the existing headquarters/visitor contact station with a new facility. The proposed facility would be 1-story, approximately 2,500 square feet in size, and would include four staff offices, conference room, breakroom, unisex staff restroom, law enforcement storage, utility/storage closets, fax/photocopy/file room, mudroom, separate male/female public restrooms, an exhibit area, and volunteer/receptionist area. This facility would be fully ADA-compliant, would provide adequate administrative function, and would enable suitable opportunities for visitor reception and interpretation. The building design would incorporate greening features, including energy-conserving lighting, HVAC and insulative qualities, water-conserving systems, and options for alternate energy. It also would provide a safe and comfortable environment for staff and visitors. The current office would be removed and the new headquarters/visitor contact station would be sited within close proximity to the current building within the existing office/maintenance shop grounds, which are already disturbed; therefore, new construction would necessitate minimal site disturbance and no wildlife habitat would be destroyed. Funding amount would include planning/design, engineering, construction, furniture, and interpretive exhibits. Estimated cost: \$650,000.
(Linkages: Wapanocca NWR Objectives 4-2, 4-6, 4-7, 5-1, and 5-3)

2007701839 – Nature Drive Road

Nature Drive Road is used by more than 30,000 visitors per year on Wapanocca NWR. The gravel layer is adequate with only the need for spot replacement. The crown of the road needs to be improved, and repairs are needed to correct washboarding, slight ruts, and potholes. The road ditches need to be cleaned out. Completion of this project will enable visitors to travel this road even in adverse conditions. Estimated cost \$60,000
(Linkages: Wapanocca NWR Objectives 4-2, 4-3, 4-4, 4-5, 4-6 and 4-7)

2007733003 – Driver's Bridge

Driver's Bridge provides the only crossing for refuge visitors and staff to the east side of the refuge. The bridge is inadequate to safely support refuge and heavy equipment used for cooperative farming that must cross to reach east side of the refuge to conduct management activities. The bridge has no safety guardrails to prevent vehicles and equipment from sliding off the bridge surface. This project

will provide for engineering design, planning, and construction of a new 26' x 80' replacement bridge conforming to Federal Highway Administration safety regulations.

Estimated cost \$200,000

(Linkages: Wapanocca NWR Objectives 2-1, 2-2 and 4-2)

2005219850 – Public Use Parking Lot

Heavy use by hunters, bird watchers, and other nature observers has caused deterioration in all the refuge's public use parking lots. Use during wet times of the year have caused potholes in gravel lots and cracks in the paved areas. Rehabilitation of all parking areas is required in order to provide quality parking areas for the public, ensure public safety, and comply with ADA standards.

Estimated cost \$30,000

(Linkages: Wapanocca NWR Objectives 4-2, 4-3, and 4-5)

2007733009 – Boat Launch and Boardwalk

This boat launch provides the only available public boat ramp and access area to Wapanocca Lake and is enjoyed by more than 15,000 refuge visitors per year who participate in boating, canoeing, fishing, and wildlife watching. The railing on the boat dock is damaged and the ramp area is eroding along the slope. Replacement of unsafe railing will provide boat launchers with a safe area in which to launch and dock boats and other permitted water vessels while pursuing wildlife-dependent recreational opportunities. Rip rap will be applied to the sides of the bank to protect from erosion.

Estimated cost \$125,000

(Linkages: Wapanocca NWR Objectives 4-2, 4-4, and 4-5)

Park Ranger, Visitor Services Specialists, GS-9

Wapanocca NWR is situated within the Memphis Metropolitan Area, which has an estimated population of 1,280,533. Big Lake NWR is located between population centers at Manila and Blytheville and about 1 hour from Jonesboro, Arkansas. This project will directly combat the steadily increasing percentage of the population that are disconnected from nature. A Visitor Services specialist will be hired to plan and implement a well-rounded visitor services program on Wapanocca and Big Lake NWRs. The visitor services program will include development of an environmental outreach program targeting urban families, groups, and individuals who are unaware or uninterested in the natural surroundings that these refuges offer. Interpretive programs will be developed that promote self-exploration of refuge lands to enhance the visitor's connection with nature. In addition, the Visitor Services specialist will develop outreach programs with neighboring communities for recruitment of volunteers, development of friends groups, and fostering cooperative partnerships with neighboring environmental support groups will be a priority. Visitor center staffing, planning and conducting special events, and managing the sign programs are other duties required.

Estimated cost \$94,588

(Linkages: Big Lake NWR Objectives 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 5-1, 5-2; and Wapanocca NWR Objectives 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 5-1, 5-2)

REFUGE ADMINISTRATION

Bald Knob NWR

Supervisory Wildlife Specialist, GS-11

Hire a supervisory wildlife specialist to assist in day-to-day operations of Bald Knob NWR, which includes implementing an expanding public use program. The supervisory wildlife specialist also will coordinate facilities, habitat management, and maintenance projects, and will assist with procurement, data management, supervision of other staff, and public outreach. This refuge, which

has been identified as an Important Bird Area, provides critical habitat for 500,000 plus wintering waterfowl and thousands of migrating shore and wading birds in late summer and early fall.

Estimated cost \$114,439

(Linkages: Bald Knob NWR Objectives 5-1, 5-2, and 5-3)

Big Lake NWR

Laborer, WG-4

Hire a laborer at Big Lake NWR to assist the staff in completion of routine and preventive maintenance on refuge grounds, equipment, facilities, and support structures. The refuge has large electronically controlled water control structures that require routine maintenance, annual painting, and vegetation control. In addition to the demands of operating and maintaining water control infrastructure, the laborer will perform preventive maintenance and repair of grounds, facilities, and vehicles. The laborer will also assist with the daily supervision of a 4-person Youth Conservation Corp work crew by preparing daily work assignments and safety oversight during work duties, as well as work with volunteers to perform needed light maintenance tasks. This project will allow the refuge to reach full potential while addressing a backlog of maintenance needs and promoting volunteer work opportunities.

Estimated cost \$56,610

(Linkages: Big Lake NWR Objectives 3-1, 3-3, 5-1, 5-2, and 5-3)

Cache River NWR

Renovate Cache River Headquarters interior

This project will enable renovation to the interior of the Cache River NWR Headquarters building. The building is a converted farm house that was constructed in 1964 and needs numerous repairs and updates to accommodate the current refuge staff, refuge visitors, and become ADA compliant. The project will include updating the electrical wiring, painting of walls and ceilings, replacing light fixtures, replacing worn carpet, replacing toilet fixtures, replacing linoleum floor surfaces, kitchen cabinets, countertops, and central heating and air conditioning system.

Estimated cost \$80,000

(Linkages: Cache River NWR Objectives 5-1 and 5-3)

Replace roof and exterior siding on Cache River Headquarters building

This project will provide a new roof and exterior siding on the Cache River NWR Headquarters building. The building is an old farm house (constructed in 1964) that was converted to a refuge headquarters upon purchase of the property by the Service in 1991. The roof is well worn and leaks during heavy sustained rain events, causing damage to interior surfaces. The exterior of the building is covered with vinyl siding, which has deteriorated and separated from the building side surfaces in many areas. This project will provide for a complete tear off of the existing roof, replace damaged decking, and installation of new shingles or metal roof. Exterior siding will be removed and energy-efficient insulation and new vinyl siding will be installed.

Estimated cost \$105,000

(Linkage: Cache River NWR Objectives 5-1 and 5-3)

Supervisory Wildlife Specialist, GS-11

This project will provide administrative and biological assistance on Cache River NWR. This refuge has been identified as the most important area in the Mississippi Flyway for wintering Mallards and has been identified as one of only twenty-two "Wetlands of International Importance" within the United States. Refuge staff have been involved in the protection, management, and restoration of habitat to benefit both migratory birds and a variety of native wildlife species. Critical wildlife and habitat

surveys and associated administrative work on the refuge must be undertaken to assess the impact of habitat management actions identified within the approved refuge Habitat Management Plan. Assistance will be provided with administrative duties, supervision of maintenance staff and operations, biological functions, public use programs, outreach efforts, and data management on this bottomland hardwood refuge. Wildlife that will benefit includes over 200 species of migratory songbirds, 50 species of mammals, and 45 species of reptiles.

Estimated cost \$114,439

(Linkages: Cache River NWR Objectives 1-1, 4-1, 5-1, and 5-3)

Facilities Operations Specialist, GS-11

This project will provide enhanced facilities and maintenance operations on the refuge and complex. This refuge, declared a “Wetland of International Importance,” contains over 200 assets, which require annual inspection and documentation of necessary maintenance needs and operations cost. This project will provide assistance and support for utilizing the Complex's Service Asset Management and Maintenance System (SAMMS), computerized maintenance management software application to track maintenance expenditures, identify maintenance needs, quantify maintenance activities, and report maintenance accomplishments. In addition to maintenance system needs, this position will provide administrative support to the Complex for maintaining the Complex Real Property Inventory, personal property databases, and will serve as the refuge's collateral duty safety officer and be responsible for conducting annual safety inspections, identifying and correcting safety deficiencies, and conducting safety meetings. Refuge environmental audits will also be coordinated through the facilities operations specialist.

Estimated cost \$114,439

(Linkages: Cache River NWR Objectives 5-1 and 5-3)

Wapanocca NWR

2007741447 – Maintenance Shop

Maintenance of all refuge equipment is performed in this shop. Current issues include a leaking roof which allows water to seep into walls, at one point near an electrical panel. If continued deterioration persists, the shop will be damaged to a point requiring major repairs. This project will replace the roof, correct water damage, and provide updates to wiring and other systems to meet energy and safety codes.

Estimated cost \$ 75,000

(Linkages: Wapanocca NWR Objectives 5-1 and 5-3)

2007733004 – Vehicle Storage Building

This building provides inside storage, protection, and security for refuge vehicles, light maintenance equipment, and other items that cannot be stored outside in the elements. Shingles and gutter system have reached their useful life span and need to be replaced to prevent major water leaks and additional costly damage to the interior area of this storage facility. This project will include the removal of existing shingles and dilapidated gutter system and replace with new 30-year type fiberglass shingles and drainage system to promote water drainage away from storage facilities. This project will benefit the refuge by ensuring that the vehicles, light equipment, and other items requiring adequate storage facilities are protected from the outside elements, which will prevent premature deterioration and replacement.

Estimated cost \$50,000

(Linkage: Wapanocca NWR Objective 5-3)

Table 13. Summary of Projects

	PROJECT TITLE	COST
	FISH AND WILDLIFE POPULATION MANAGEMENT	
2007732682	Granary East Canal	\$ 85,000
2007716105	300 Acre Field Culvert Crossing	\$ 60,000
2005204594	Low Road	\$ 60,000
FY08-3367	Bald Knob, Biological Technician, GS-7	\$ 77,321
	Rehabilitate Dixie Unit South Water Control Structure	\$ 27,000
	Rehabilitate Dixie Unit North Water Control Structure	\$ 40,000
FY08-4234	Howell Tract Impoundment Restoration	\$165,556
FY08-4241	Plunkett Farm Waterfowl Sanctuary Enhancement	\$ 50,800
FY08-2595	Cache River, Biological Technician, GS-7	\$ 77,321
FY08-3089	Cache River, Engineering Equipment Operator, WG-8	\$ 77,650
FY08-1963	Cache River, Ecologist, GS-11	\$114,439
FY08-4128	Grassland Restoration	\$105,062
FY08-4421	Bottomland Hardwood Restoration	\$137,482
	HABITAT MANAGEMENT	
	Expand Bald Knob NWR Maintenance Shop/Equipment Storage Shed	\$100,000
2007716161	Little Red River Protection Levee	\$320,000
2007716106	Replace Middle 1,000-Acre Field Entrance Crossing	\$ 45,000
FY08-3373	Bald Knob, Laborer, WG-4	\$ 56,610
FY08-3378	Bald Knob, Engineering Equipment Operator, WG-8	\$ 77,650
	Replace Big Lake NWR Maintenance Shop/Equipment Storage Shed	\$590,000
FY08-3179	Big Lake, Biological Technician, GS-7	\$ 77,321

	PROJECT TITLE	COST
	Repair Damaged Plunkett Farm Unit Water Control Structure	\$ 25,000
	Reconstruct Bank of Brinkley Levee and Moist-Soil Unit Impoundments	\$ 80,000
FY08-4220	Cache River NWR Stream Restoration	\$170,640
FY08-3085	Cache River, Forestry Technician, GS-7	\$ 77,321
FY08-3091	Cache River, Assistant Forester, GS-11	\$114,439
	Cache River, Laborer, WG-4	\$ 56,610
2007733000	Replace Big Creek Bridge	\$200,000
200733030	Rehabilitate County Ditch 4 Drainage Ditch	\$150,000
FY08-3140	Wapanocca, Biological Technician, GS-7	\$ 77,321
	RESOURCE PROTECTION	
2007716155	Repair Ditch 81 Levee	\$200,000
FY08-3316	Restore Ecosystem Health and Natural Hydrology	\$240,000
FY08-3341	Reduce Invading American Lotus to less than 30% of Open Water	\$ 65,000
FY08-3353	Enhance Seasonal Water Level Management	\$250,000
FY08-3197	Big Lake, Hydrologist, GS-11	\$114,439
FY08-3101	Cache River, Realty Specialist, GS-12	\$137,165
2006558819	Dredge Ditch 8	\$875,000
2006557060	Rehabilitate Ditch 2	\$300,000
2007716250	Rehabilitate Levee 5 Water Control Structure	\$125,000
FY08-3167	Wapanocca, Engineering Equipment Operator, WG-8	\$ 77,650
FY08-3191	Wapanocca, Laborer, WG-4	\$ 56,610
	VISITOR SERVICES	
	Bald Knob, Park Ranger (Visitor Services), GS-9	\$94,588

	PROJECT TITLE	COST
2007732649	Replace Bald Knob Office Trailer	\$650,000
04134134	Rehabilitate Bottom 300-Acre Field Road	\$100,000
2005218680	Improve Mingo Creek Access Road	\$200,000
2007716141	Replace Main Entrance Gates	\$ 20,000
2007733603	Replace Big Lake NWR Office Building with Headquarters/Visitor Contact Station	\$650,000
2007716164	Repair Wall and Sidewalk at Timm's Point Observation Area	\$100,000
2007733607	Repair Ditch 28 Bridge	\$300,000
2005207265	Improve Timm's Point Parking Area	\$ 75,000
2006531982	Improve Big Lake Bank Fishing Parking Area	\$ 50,000
2006557432	Improve Ditch 81 Levee Road Parking Area	\$ 15,000
2007716115	Repair and Reinforce Brights Landing Fishing Pier	\$ 20,000
2005222810	Rehabilitate Wildlife Auto Drive	\$900,000
2006531558	Improve Brights Landing Accessible Parking Area	\$ 75,000
2006531978	Improve Headquarters Visitor's Parking Area	\$100,000
2006531989	Rehabilitate Oak Island Parking Area	\$ 25,000
2006531992	Improve Handicapped Parking Area	\$ 25,000
FY08-3329	Improve Educational and Interpretive Material to Connect People to Nature	\$150,000
FY08-3156	Big Lake, Park Ranger (Law Enforcement), GS-9	\$ 97,292
	Construct Environmental Education/Visitor Center for Central Arkansas NWR Complex	\$ 4,500,000
03125419	Rehabilitate Gin Lane South Road	\$160,000
	Replace Worn Refuge Boundary Signs	\$ 25,000
2005253254	Rehabilitate Cache Bayou Road	\$180,000
2005204642	Rehabilitate Horseshoe Lake Road	\$120,000

	PROJECT TITLE	COST
2005202117	Rehabilitate Robinson Tract East Road	\$ 50,000
2005202761	Rehabilitate Robinson Tract West Road	\$ 50,000
	Rehabilitate Unsafe Horseshoe Lake Boat Ramp and Parking Area	\$ 15,000
FY08-1938	Cache River, Park Ranger (Visitor Services), GS-11	\$114,439
FY08-3238	Cache River, Office Assistant, GS-6	\$ 69,584
FY08-3395	Cache River, Park Ranger (Law Enforcement), GS-9	\$ 97,292
2007741429	Replace Wapanocca NWR Office with Headquarters/Visitor Contact Station	\$650,000
2007701839	Repair Nature Drive Road	\$ 60,000
2007733003	Replace Driver's Bridge	\$200,000
2005219850	Rehabilitate Public Use Parking Lot	\$ 30,000
2007733009	Rehabilitate Boat Launch and Boardwalk	\$125,000
FY08-3117	Wapanocca, Park Ranger (Visitor Services), GS-9	\$ 94,588
	ADMINISTRATION	
FY08-3385	Bald Knob, Supervisory Wildlife Specialist, GS-11	\$114,439
FY08-3293	Big Lake, Laborer, WG-4	\$ 56,610
	Renovate Cache River Headquarters Interior	\$ 80,000
	Replace Roof and Exterior Siding on Cache River HQ Building	\$105,000
FY08-3875	Cache River, Supervisory Wildlife Specialist, GS-11	\$114,439
FY08-3210	Cache River, Facilities Operations Specialist, GS-11	\$114,439
2007741447	Repair Maintenance Shop	\$ 75,000
2007733004	Repair Vehicle Storage Building	\$ 50,000
TOTAL		\$10,294,121

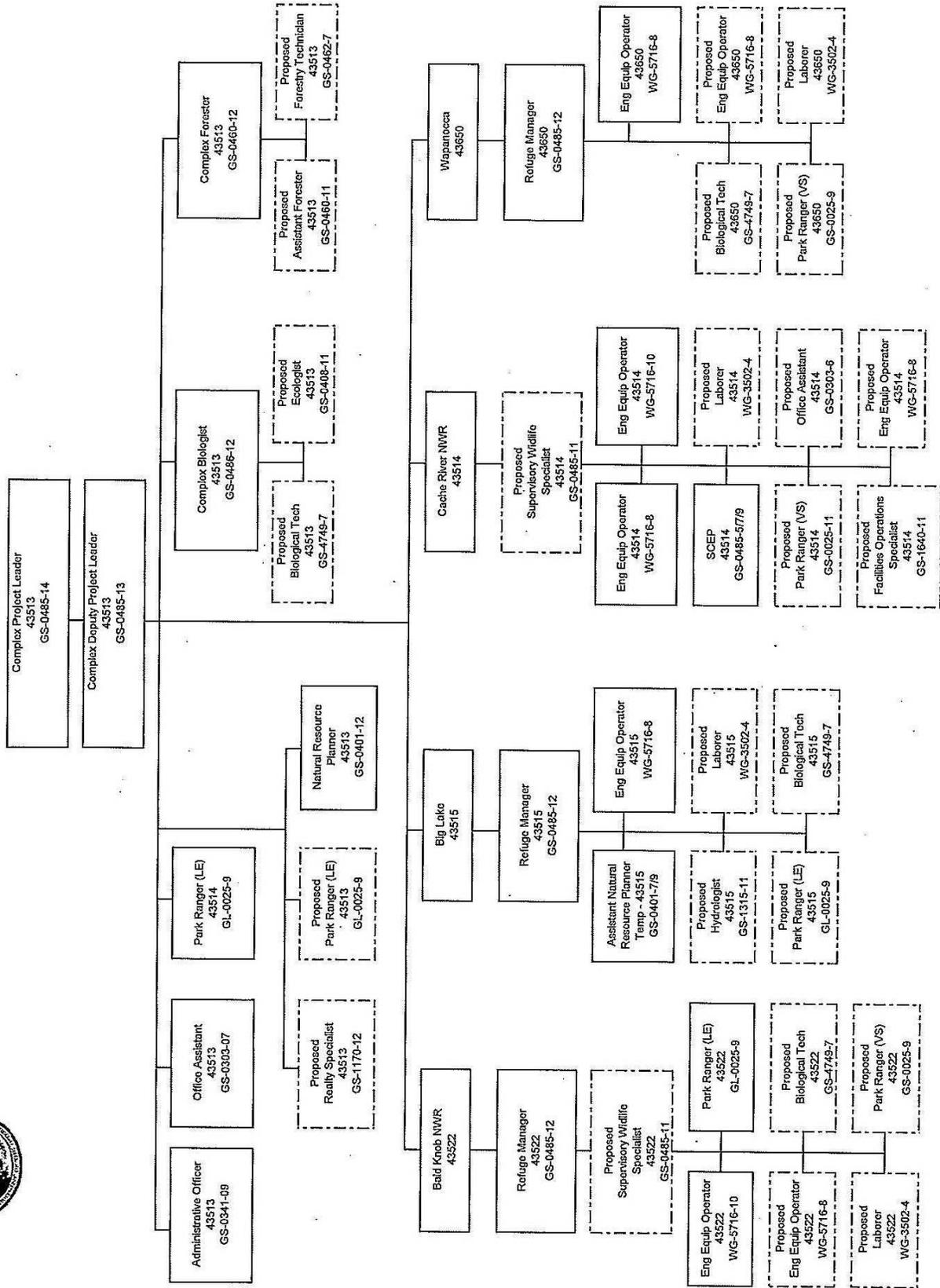
FUNDING AND PERSONNEL

Existing Positions	Annual Costs Existing Positions
Complex Project Leader, GS-14	\$149,908
Complex Deputy Project Leader, GS-13	\$126,865
Complex Administrative Officer, GS-9	\$ 73,569
Complex Office Assistant, GS-7	\$ 60,138
Complex Park Ranger (Law Enforcement), GS-9	\$ 75,671
Complex Biologist, GS-12	\$106,684
Complex Forester, GS-12	\$106,684
Complex Natural Resource Planner, GS-12	\$106,684
Bald Knob Refuge Manager, GS-12	\$106,684
Bald Knob Engineering Equipment Operator, WG-10	\$ 63,977
Bald Knob Park Ranger (Law Enforcement), GS-9	\$ 75,671
Big Lake Refuge Manager, GS-12	\$106,684
Big Lake Engineering Equipment Operator, WG-8	\$ 56,987
Big Lake Asst. Natural Resource Planner, GS-7 (Temporary)	\$ 60,138
Cache River SCEP (Student Career Experience Program), GS-9	\$ 73,569
Cache River Engineering Equipment Operator, WG-8	\$ 56,987
Cache River Engineering Equipment Operator, WG-10	\$ 63,977
Wapanocca Refuge Manager, GS-12	\$106,684
Wapanocca Engineering Equipment Operator, WG-8	\$ 56,987
Sub-total – Salary for Existing Positions	\$1,634,548
Proposed Positions	Annual Costs Proposed Positions
Complex Realty Specialist, GS-12	\$137,165
Complex Park Ranger (Law Enforcement), GS-9	\$ 97,292
Complex Biological Technician, GS-7	\$ 77,321
Complex Ecologist, GS-11	\$114,439

Proposed Positions	Annual Costs Proposed Positions
Complex Assistant Forester, GS-11	\$114,439
Complex Forestry Technician, GS-7	\$ 77,321
Bald Knob Park Ranger (Visitor Services), GS-9	\$ 94,588
Bald Knob Supervisory Wildlife Specialist, GS-11	\$114,439
Bald Knob Biological Technician, GS-7	\$ 77,321
Bald Knob Engineering Equipment Operator, WG-8	\$ 77,650
Bald Knob Laborer, WG-4	\$ 56,610
Big Lake Hydrologist, GS-11	\$114,439
Big Lake Park Ranger (Law Enforcement), GS-9	\$ 97,292
Big Lake Biological Technician, GS-7	\$ 77,321
Big Lake Laborer, WG-4	\$ 56,610
Cache River Supervisory Wildlife Specialist, GS-11	\$114,439
Cache River Office Assistant, GS-6	\$ 69,584
Cache River Park Ranger (Visitor Services), GS-11	\$114,439
Cache River Facilities Operations Specialist, GS-11	\$114,439
Cache River Engineering Equipment Operator, WG-8	\$ 77,650
Cache River Laborer, WG-4	\$ 56,610
Wapanocca Biological Technician, GS-7	\$ 77,321
Wapanocca Park Ranger (Visitor Services), GS-9	\$ 94,588
Wapanocca Engineering Equipment Operator, WG-8	\$ 77,650
Wapanocca Laborer, WG-4	\$ 56,610
Total (Existing and Proposed)	\$3,872,125



U.S. Fish and Wildlife Service
 Southeast Region, National Wildlife Refuge System
 Central Arkansas Refuge Complex
 Cache River, Bald Knob, Wapanocca & Big Lake National Wildlife Refuges



Partnership Opportunities

Central Arkansas NWR Complex has historically partnered with many other agencies and organizations to improve management of the refuges. It is anticipated that these partnerships will continue and opportunities to develop additional partnerships will be pursued. Partnerships are critical for the refuges to fulfill their purposes, achieve their goals, objectives, and strategies, leverage funds, minimize costs, and bridge relationships with others.

The refuges have cooperated with the following federal agencies: Federal Bureau of Investigation; Federal Highway Administration; U.S. Army Corps of Engineers, Little Rock District; U.S. Army Corps of Engineers, Memphis District; U.S. Fish and Wildlife Service's Divisions of Law Enforcement, Migratory Birds, and Ecological Services; U.S. Geological Survey; U.S. Geological Survey, National Wetlands Research Center; U.S. Geological Survey, Patuxent Wildlife Research Center; USDA Farm Service Agency; USDA Forest Service; and USDA Natural Resources Conservation Service.

The refuges have cooperated with the following state agencies: Arkansas Cooperative Fish and Wildlife Research Unit, Arkansas Department of Environmental Quality, Arkansas Forestry Commission, Arkansas Game and Fish Commission, Arkansas Natural Heritage Commission, Arkansas Natural Resources Commission, Arkansas State Historic Preservation Office, Arkansas State Police, Arkansas Transportation and Highway Department, Louisiana Cooperative Fish and Wildlife Research Unit, and Missouri Department of Conservation.

The refuges have cooperated with the following Local agencies: Blytheville Chamber of Commerce; Blytheville Tourism Council; County Judges of Crittenden, Jackson, Monroe, Mississippi, Prairie, White, and Woodruff Counties, Arkansas; Sheriff Departments of Crittenden, Jackson, Monroe, Mississippi, Prairie, White, and Woodruff Counties, Arkansas; and Manila Volunteer Fire Department.

The refuges have cooperated with the following universities: Arkansas Northeastern Community College, Arkansas State University, Arkansas Tech University, Cornell Laboratory of Ornithology, Harding University, Mississippi State University, Southern Illinois University, University of Arkansas (Fayetteville, Monticello, and Pine Bluff), University of Memphis, and University of Missouri Gaylord Memorial Laboratory.

The refuges have cooperated with the following non-governmental organizations/agencies: Audubon Arkansas, Blytheville First Baptist Church, Cache River/Bayou DeView Improvement District, Delta Waterfowl, Ducks Unlimited, Environmental Synergy Incorporated, Friends of Big Lake, Friends of Felsenthal, Friends of White River, Greenbrier Wetland Consultants, Little Red River Drainage District, National Wild Turkey Federation, National Tree Trust, Manila Kiwanis Club, Manila Lions Club, Manila United Methodist Church, The Nature Conservancy, Volunteers of Big Lake, and White River Levee District of Woodruff, Prairie, and Monroe Counties.

No friends groups exist within the Complex, but each refuge will be working to establish a friends group as soon as possible. Each refuge in the Complex has enlisted the assistance of volunteers to help with operations and programs; however, each refuge will be working to expand volunteer opportunities and increase its cadre of volunteers.

STEP-DOWN MANAGEMENT PLANS

A CCP is a strategic plan that guides the overall direction and administration of the refuge. Step-down management plans provide specific guidance on activities, such as habitat, fire, and visitor services. These plans (Table 14) are also developed in accordance with NEPA, which requires the

identification and evaluation of alternatives and public review and involvement prior to their implementation.

Table 14. Central Arkansas NWR Complex step-down management plans related to the goals and objectives of the CCP

Step-down Plan	Fiscal Year Proposed Completion/Revision Date
Cropland Management (except Big Lake NWR)	2012
Cultural Resources	2019
Fire Management/Fire Effects Monitoring	2018
Fisheries Management	2017
Fishing	2013
Habitat Management	2015
Hunting	2013
Hurricane/Disaster Action	2010
Invasive, Exotic, and Nuisance Plant/Animal	2011
Inventory/Monitoring	2015
Law Enforcement	2013
Pesticide Use	2011
Safety	2011
Visitor Services	2016
Volunteers, Friends, and Partnerships	2016
Water Management	2015
Wilderness Management (Big Lake NWR only)	2010

MONITORING AND ADAPTIVE MANAGEMENT

Adaptive management is a flexible approach to long-term management of biotic resources that is directed over time by the results of ongoing monitoring activities and other evolving information. More specifically, adaptive management is a process by which projects are implemented within a framework of scientifically driven experiments to test the predictions and assumptions outlined within a plan.

To apply adaptive management, specific surveying, inventorying, and monitoring protocols will be adopted for the refuges. The habitat management strategies will be systematically evaluated to determine management effects on wildlife populations. This information will be used to refine approaches and determine how effectively the objectives are being accomplished. Evaluations will include ecosystem team and other appropriate partner participation. If monitoring and evaluation indicate undesirable effects, priority species or communities, then alterations to the management projects will be formulated and implemented. Subsequently, this CCP will be revised. Specific monitoring and evaluation activities will be described in the step-down management plans.

PLAN REVIEW AND REVISION

This CCP will be reviewed annually as the refuges' annual work plans and budgets are developed. It will also be reviewed to determine the need for revision. A revision will occur if and when conditions change or significant information becomes available, such as a change in ecological conditions or a major refuge expansion. The CCP will be augmented by detailed step-down management plans to address the completion of specific strategies in support of the refuge's goals and objectives. Revisions to the CCP and the step-down management plans will be subject to public review and NEPA compliance as appropriate.

APPENDICES

Appendix A. Glossary

- Adaptive Management:** Refers to a process in which policy decisions are implemented within a framework of scientifically driven experiments to test predictions and assumptions inherent in a management plan. Analysis of results helps managers determine whether current management should continue as is or whether it should be modified to achieve desired conditions.
- Alluvial:** Sediment transported and deposited in a delta or riverbed by flowing water.
- Alternative:** 1. A reasonable way to fix the identified problem or satisfy the stated need (40 CFR 1500.2). 2. Alternatives are different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission, and resolving issues (Service Manual 602 FW 1.6B).
- Biological Diversity:** The variety of life and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur (Service Manual 052 FW 1.12B). The System's focus is on indigenous species, biotic communities, and ecological processes. Also referred to as biodiversity.
- Carrying Capacity:** The maximum population of a species able to be supported by a habitat or area.
- Categorical Exclusion:** A category of actions that does not individually or cumulatively have a significant effect on the human environment and have been found to have no such effect in procedures adopted by a federal agency pursuant to the National Environmental Policy Act (40 CFR 1508.4).
- CFR:** Code of Federal Regulations.
- Compatible Use:** A proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the national wildlife refuge [50 CFR 25.12 (a)]. A compatibility determination supports the selection of compatible uses and identifies stipulations or limits necessary to ensure compatibility.

Comprehensive Conservation Plan:	A document that describes the desired future conditions of a refuge or planning unit and provides long-range guidance and management direction to achieve the purposes of the refuge; helps fulfill the mission of the Refuge System; maintains and, where appropriate, restores the ecological integrity of each refuge and the Refuge System; helps achieve the goals of the National Wilderness Preservation System; and meets other mandates (Service Manual 602 FW 1.6 E).
Concern:	See Issue
Cover Type:	The present vegetation of an area.
Cultural Resource Inventory:	A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. Inventories may involve various levels, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, or sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register follows the criteria found in 36 CFR 60.4 (Service Manual 614 FW 1.7).
Cultural Resource Overview:	A comprehensive document prepared for a field office that discusses, among other things, its prehistory and cultural history, the nature and extent of known cultural resources, previous research, management objectives, resource management conflicts or issues, and a general statement on how program objectives should be met and conflicts resolved. An overview should reference or incorporate information from a field office's background or literature search described in Section VIII of the Cultural Resource Management Handbook (Service Manual 614 FW 1.7).
Cultural Resources:	The remains of sites, structures, or objects used by people in the past.
Designated Wilderness Area:	An area designated by the U.S. Congress to be managed as part of the National Wilderness Preservation System (Draft Service Manual 610 FW 1.5).
Disturbance:	Significant alteration of habitat structure or composition. May be natural (e.g., fire) or human-caused events (e.g., clearcut).
Ecosystem:	A dynamic and interrelating complex of plant and animal communities and their associated non-living environment.
Ecosystem Management:	Management of natural resources using system-wide concepts to ensure that all plants and animals in ecosystems are maintained at viable levels in native habitats and basic ecosystem processes are perpetuated indefinitely.

Endangered Species (Federal):	A plant or animal species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range.
Endangered Species (State):	A plant or animal species in danger of becoming extinct or extirpated in the state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.
Environmental Assessment (EA):	A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).
Environmental Impact Statement (EIS):	A detailed written statement required by section 102(2)(C) of the National Environmental Policy Act, analyzing the environmental impacts of a proposed action, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (40 CFR 1508.11).
Finding of No Significant Impact (FONSI):	A document prepared in compliance with the National Environmental Policy Act, supported by an environmental assessment, that briefly presents why a federal action will have no significant effect on the human environment and for which an environmental impact statement, therefore, will not be prepared (40 CFR 1508.13).
Goal:	Descriptive, open-ended, and often broad statement of desired future conditions that conveys a purpose but does not define measurable units (Service Manual 620 FW 1.6J).
Habitat:	Suite of existing environmental conditions required by an organism for survival and reproduction. The place where an organism typically lives.
Habitat Restoration:	Management emphasis designed to move ecosystems to desired conditions and processes, and/or to healthy ecosystems.
Habitat Type:	See Vegetation Type.
Improvement Act:	The National Wildlife Refuge System Improvement Act of 1997.
Issue:	Any unsettled matter that requires a management decision [e.g., an initiative, opportunity, resource management problem, threat to the resources of the unit, conflict in uses, public concern, or other presence of an undesirable resource condition (Service Manual 602 FW 1.6K)].

Management Alternative:	See Alternative
Management Concern:	See Issue
Management Opportunity:	See Issue
Migration:	The seasonal movement from one area to another and back.
Mission Statement:	Succinct statement of the unit's purpose and reason for being.
Monitoring:	The process of collecting information to track changes of selected parameters over time.
National Environmental Policy Act of 1969 (NEPA):	Requires all agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision-making (40 CFR 1500).
National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57):	Under the Improvement Act, the Fish and Wildlife Service is required to develop 15-year comprehensive conservation plans for all national wildlife refuges outside Alaska. The Act also describes the six public uses given priority status within the Refuge System (i.e., hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation).
National Wildlife Refuge System Mission:	The mission is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.
National Wildlife Refuge System:	Various categories of areas administered by the Secretary of the Interior for the conservation of fish and wildlife, including species threatened with extinction; all lands, waters, and interests therein administered by the Secretary as wildlife refuges; areas for the protection and conservation of fish and wildlife that are threatened with extinction; wildlife ranges; game ranges; wildlife management areas; or waterfowl production areas.
National Wildlife Refuge:	A designated area of land, water, or an interest in land or water within the Refuge System.
Native Species:	Species that normally live and thrive in a particular ecosystem.

Noxious Weed:	A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive or difficult to manage; parasitic; a carrier or host of serious insect or disease; or non-native, new, or not common to the United States. According to the Federal Noxious Weed Act (P.L. 93-639), a noxious weed is one that causes disease or had adverse effects on man or his environment and therefore is detrimental to the agriculture and commerce of the United States and to the public health.
Objective:	A concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Objectives should be specific, measurable, attainable, results-oriented, and time-specific (Service Manual 602 FW 1.6N).
Plant Association:	A classification of plant communities based on the similarity in dominants of all layers of vascular species in a climax community.
Plant Community:	An assemblage of plant species unique in its composition; occurs in particular locations under particular influences; a reflection or integration of the environmental influences on the site such as soils, temperature, elevation, solar radiation, slope, aspect, and rainfall; denotes a general kind of climax plant community.
Preferred Alternative:	This is the alternative determined (by the decision-maker) to best achieve the refuge purpose, vision, and goals; contributes to the National Wildlife Refuge System mission, addresses the significant issues; and is consistent with principles of sound fish and wildlife management.
Prescribed Fire:	The application of fire to wildland fuels to achieve identified land use objectives (Service Manual 621 FW 1.7). May occur from natural ignition or intentional ignition.
Priority Species:	Fish and wildlife species that require protective measures and/or management guidelines to ensure their perpetuation. Priority species include the following: (1) State-listed and candidate species; (2) species or groups of animals susceptible to significant population declines within a specific area or statewide by virtue of their inclination to aggregate (e.g., seabird colonies); and (3) species of recreation, commercial, and/or tribal importance.
Public Involvement Plan:	Broad long-term guidance for involving the public in the comprehensive conservation planning process.

Public Involvement:	A process that offers impacted and interested individuals and organizations an opportunity to become informed about, and to express their opinions on Service actions and policies. In the process, these views are studied thoroughly and thoughtful consideration of public views is given in shaping decisions for refuge management.
Public:	Individuals, organizations, and groups; officials of federal, state, and local government agencies; Indian tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in Service issues and those who do or do not realize that Service decisions may affect them.
Purposes of the Refuge:	“The purposes specified in or derived from the law, proclamation, executive order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge, refuge unit, or refuge sub-unit.” For refuges that encompass congressionally designated wilderness, the purposes of the Wilderness Act are additional purposes of the refuge (Service Manual 602 FW 106 S).
Record of Decision (ROD):	A concise public record of decision prepared by the federal agency, pursuant to NEPA, that contains a statement of the decision, identification of all alternatives considered, identification of the environmentally preferable alternative, a statement as to whether all practical means to avoid or minimize environmental harm from the alternative selected have been adopted (and if not, why they were not), and a summary of monitoring and enforcement where applicable for any mitigation (40 CFR 1505.2).
Refuge Goal:	See Goal
Refuge Purposes:	See Purposes of the Refuge
Songbirds: (Also Passerines)	A category of birds that is small to medium, perching landbirds. Most are territorial singers and migratory.
Step-down Management Plan:	A plan that provides specific guidance on management subjects (e.g., habitat, public use, fire, and safety) or groups of related subjects. It describes strategies and implementation schedules for meeting CCP goals and objectives (Service Manual 602 FW 1.6 U).
Strategy:	A specific action, tool, technique, or combination of actions, tools, and techniques used to meet unit objectives (Service Manual 602 FW 1.6 U).
Study Area:	The area reviewed in detail for wildlife, habitat, and public use potential. For purposes of this CCP, the study area includes the lands within the currently approved refuge boundary and potential refuge expansion areas.

Threatened Species (Federal):	Species listed under the Endangered Species Act that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.
Threatened Species (State):	A plant or animal species likely to become endangered in the state within the near future if factors contributing to population decline or habitat degradation or loss continue.
Tiering:	The coverage of general matters in broader environmental impact statements with subsequent narrower statements of environmental analysis, incorporating by reference, the general discussions and concentrating on specific issues (40 CFR 1508.28).
U.S. Fish and Wildlife Service Mission:	The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people.
Unit Objective:	See Objective
Vegetation Type, Habitat Type, Forest Cover Type:	A land classification system based upon the concept of distinct plant associations.
Vision Statement:	A concise statement of what the planning unit should be, or what we hope to do, based primarily upon the Refuge System mission and specific refuge purposes, and other mandates. We will tie the vision statement for the refuge to the mission of the Refuge System; the purpose(s) of the refuge; the maintenance or restoration of the ecological integrity of each refuge and the Refuge System; and other mandates (Service Manual 602 FW 1.6 Z).
Wilderness:	See Designated Wilderness
Wildfire:	A free-burning fire requiring a suppression response; all fire other than prescribed fire that occurs on wildlands (Service Manual 621 FW 1.7).
Wildland Fire:	Every wildland fire is either a wildfire or a prescribed fire (Service Manual 621 FW 1.3)

ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
ADEQ	Arkansas Department of Environmental Quality
AGFC	Arkansas Game and Fish Commission
AHTD	Arkansas Highways and Transportation Department
AHWP	Annual Habitat Work Plan
ANRC	Arkansas Natural Resources Commission
ANHC	Arkansas Natural Heritage Commission
ASWCC	Arkansas Soil and Water Conservation Commission
ATV	All Terrain Vehicle
BLHP	Bicentennial Land Heritage Program
BMP	Best Management Practices
CA	Conservation Area
CCC	Civilian Conservation Corp
CCP	Comprehensive Conservation Plan
CD	Compatibility Determination
CFI	Continuous Forest Inventory
CFR	Code of Federal Regulations
CMP	Comprehensive Management Plan
COE/Corps	U.S. Army Corps of Engineers
Complex	Central Arkansas National Wildlife Refuges Complex
CREP	Conservation Reserve Enhancement Program
CRMP	Cultural Resources Management Plan
CRP	Conservation Reserve Program
CSP	USDA, Conservation Security Program
dbh	diameter at breast height
DDT	Dichloro-Diphenyl-Trichlorethane
DED	Duck Energy Days
DFC	Desired Forest Conditions
DU	Ducks Unlimited
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPI	Equipment Priority Index
FBBDSM	Forest Breeding Bird Decision Support Model

FEMA	Federal Emergency Management Agency
FHMP	Forest Habitat Management Plan
FONSI	Findings on No Significant Impact
FR	Federal Register
FRCWG	Forest Resource Conservation Working Group
FSA	USDA, Farm Service Agency
GIS	Geographic Information Systems
GPS	Global Positioning System
GS	General Schedule
GTR	Greentree reservoirs
IBWO	Ivory-billed Woodpecker
IMP	Inventory and Monitoring Plan
LE	Law Enforcement
LMRE	Lower Mississippi River Ecosystem
LMV	Lower Mississippi Valley
LMVJV	Lower Mississippi Valley Joint Venture
MAV	Mississippi Alluvial Valley
MIS	Monitoring, Inventories, and Surveys
MOU	Memorandum of Understanding
Msl	mean sea level
NAAMP	North American Amphibian Monitoring Program
NAWCA	North American Wetlands Conservation Act
NAWMP	North American Waterfowl Management Plan
NEPA	National Environmental Policy Act
NGO	Non-government Organization
NGVD	National Geodetic Vertical Datum
NRCS	USDA, Natural Resource Conservation Service
NWR/Refuge	National Wildlife Refuge
NWRS	National Wildlife Refuge System
PCB	Polychlorinated Biphenyls
PIF	Partners In Flight
RLGIS	Refuge Lands Geographic Information System
RO	USFWS, Regional Office, Atlanta, GA
RONS	Refuge Operating Needs System
SAMMS	Service Asset Management Maintenance System
SCWDS	Southeast Cooperative Wildlife Disease Study

SUP	Special Use Permit
TNC/ Conservancy	The Nature Conservancy
TSI	Timber Stand Improvement
UAM	University of Arkansas at Monticello, Arkansas
USC	United States Code
USDA	United States Department of Agriculture
USFWS/Service	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
USGS-BRD	U.S. Geological Service - Biological Resources Division
WG	Wage Grade
WMA	Wildlife Management Area
WRP	Wetland Reserve Program
YCC	Youth Conservation Corp

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Appendix C. Relevant Legal Mandates and Executive Orders

STATUTE	DESCRIPTION
Administrative Procedures Act (1946)	Outlines administrative procedures to be followed by federal agencies with respect to identification of information to be made public; publication of material in the Federal Register; maintenance of records; attendance and notification requirements for specific meetings and hearings; issuance of licenses; and review of agency actions.
American Antiquities Act of 1906	Provides penalties for unauthorized collection, excavation, or destruction of historic or prehistoric ruins, monuments, or objects of antiquity on lands owned or controlled by the United States. The Act authorizes the President to designate as national monuments objects or areas of historic or scientific interest on lands owned or controlled by the United States.
American Indian Religious Freedom Act of 1978	Protects the inherent right of Native Americans to believe, express, and exercise their traditional religions, including access to important sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.
Americans With Disabilities Act of 1990	Intended to prevent discrimination of and make American society more accessible to people with disabilities. The Act requires reasonable accommodations to be made in employment, public services, public accommodations, and telecommunications for persons with disabilities.
Archaeological Resources Protection Act of 1979, as amended.	This Act strengthens and expands the protective provisions of the Antiquities Act of 1906 regarding archaeological resources. It also revised the permitting process for archaeological research.
Architectural Barriers Act of 1968	Requires that buildings and facilities designed, constructed, or altered with federal funds, or leased by a federal agency, must comply with standards for physical accessibility.
Bald and Golden Eagle Protection Act of 1940, as amended	Prohibits the possession, sale or transport of any bald or golden eagle, alive or dead, or part, nest, or egg except as permitted by the Secretary of the Interior for scientific or exhibition purposes, or for the religious purposes of Indians.
Bankhead-Jones Farm Tenant Act of 1937	Directs the Secretary of Agriculture to develop a program of land conservation and utilization in order to correct maladjustments in land use and thus assist actions such as control of soil erosion, reforestation, conservation of natural resources and protection of fish and wildlife. Some early refuges and hatcheries were established under authority of this Act.

STATUTE	DESCRIPTION
Clean Air Act of 1970	Regulates air emissions from area, stationary, and mobile sources. This Act and its amendments charge federal land managers with direct responsibility to protect the "air quality and related values" of land under their control. These values include fish, wildlife, and their habitats.
Clean Water Act of 1974, as amended	This Act and its amendments have as its objective the restoration and maintenance of the chemical, physical, and biological integrity of the Nation's waters. Section 401 of the Act requires that federally permitted activities comply with the Clean Water Act standards, state water quality laws, and any other appropriate state laws. Section 404 charges the U.S. Army Corps of Engineers with regulating discharge of dredge or fill materials into waters of the United States, including wetlands.
Emergency Wetlands Resources Act of 1986	This Act authorized the purchase of wetlands from Land and Water Conservation Fund accounts, removing a prior prohibition on such acquisitions. The Act requires the Secretary to establish a National Wetlands Priority Conservation Plan, required the states to include wetlands in their Comprehensive Outdoor Recreation Plans, and transfers to the Migratory Bird Conservation Fund amounts equal to import duties on arms and ammunition. It also established entrance fees at national wildlife refuges.
Endangered Species Act of 1973, as amended	Provides for the conservation of threatened and endangered species of fish, wildlife, and plants by federal action and by encouraging the establishment of state programs. It provides for the determination and listing of threatened and endangered species and the designation of critical habitats. Section 7 requires refuge managers to perform internal consultation before initiating projects that affect or may affect endangered species.
Environmental Education Act of 1990	This Act established the Office of Environmental Education within the U.S. Environmental Protection Agency to develop and administer a federal environmental education program in consultation with other federal natural resource management agencies, including the Fish and Wildlife Service.
Food Security Act of 1985, as amended (Farm Bill)	The Act contains several provisions that contribute to wetland conservation. The Swampbuster provisions state that farmers who convert wetlands for the purpose of planting after enactment of the law are ineligible for most farmer program subsidies. It also established the Wetland Reserve Program to restore and protect wetlands through easements and restoration of the functions and values of wetlands on such easement areas.
Farmland Protection Policy Act of 1981, as amended	The purpose of this law is to minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. Federal programs include construction projects and the management of federal lands.

STATUTE	DESCRIPTION
Federal Advisory Committee Act (1972), as amended	Governs the establishment of and procedures for committees that provide advice to the federal government. Advisory committees may be established only if they will serve a necessary, nonduplicative function. Committees must be strictly advisory unless otherwise specified and meetings must be open to the public.
Federal Coal Leasing Amendment Act of 1976	Provided that nothing in the Mining Act, the Mineral Leasing Act, or the Mineral Leasing Act for Acquired Lands authorized mining coal on refuges.
Federal-Aid Highways Act of 1968	Established requirements for approval of federal highways through national wildlife refuges and other designated areas to preserve the natural beauty of such areas. The Secretary of Transportation is directed to consult with the Secretary of the Interior and other federal agencies before approving any program or project requiring the use of land under their jurisdiction.
Federal Noxious Weed Act of 1990, as amended	The Secretary of Agriculture was given the authority to designate plants as noxious weeds and to cooperate with other federal, State and local agencies, farmers' associations, and private individuals in measures to control, eradicate, prevent, or retard the spread of such weeds. The Act requires each Federal land-managing agency, including the Fish and Wildlife Service, to designate an office or person to coordinate a program to control such plants on the agency's land and implement cooperative agreements with the states, including integrated management systems to control undesirable plants.
Fish and Wildlife Act of 1956	Establishes a comprehensive national fish, shellfish, and wildlife resources policy with emphasis on the commercial fishing industry but also includes the inherent right of every citizen and resident to fish for pleasure, enjoyment, and betterment and to maintain and increase public opportunities for recreational use of fish and wildlife resources. Among other things, it authorizes the Secretary of the Interior to take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources including, but not limited to, research, development of existing facilities, and acquisition by purchase or exchange of land and water or interests therein.
Fish and Wildlife Conservation Act of 1980, as amended	Requires the Service to monitor non-gamebird species, identify species of management concern, and implement conservation measures to preclude the need for listing under the Endangered Species Act.

STATUTE	DESCRIPTION
Fish and Wildlife Coordination Act of 1958	Promotes equal consideration and coordination of wildlife conservation with other water resource development programs by requiring consultation with the Fish and Wildlife Service and the state fish and wildlife agencies where the “waters of a stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted...or otherwise controlled or modified” by any agency under federal permit or license.
Fish and Wildlife Improvement Act of 1978	This act was passed to improve the administration of fish and wildlife programs and amends several earlier laws, including the Refuge Recreation Act, the National Wildlife Refuge System Administration Act, and the Fish and Wildlife Act of 1956. It authorizes the Secretary to accept gifts and bequests of real and personal property on behalf of the United States. It also authorizes the use of volunteers on Service projects and appropriations to carry out volunteer programs.
Freedom of Information Act, 1966	Requires all federal agencies to make available to the public for inspection and copying administrative staff manuals and staff instructions; official, published and unpublished policy statements; final orders deciding case adjudication; and other documents. Special exemptions have been reserved for nine categories of privileged material. The Act requires the party seeking the information to pay reasonable search and duplication costs.
Geothermal Steam Act of 1970, as amended	Authorizes and governs the lease of geothermal steam and related resources on public lands. Section 15 c of the Act prohibits issuing geothermal leases on virtually all Service-administrative lands.
Lacey Act of 1900, as amended	Originally designed to help states protect their native game animals and to safeguard U.S. crop production from harmful foreign species, this Act prohibits interstate and international transport and commerce of fish, wildlife or plants taken in violation of domestic or foreign laws. It regulates the introduction to America of foreign species.
Land and Water Conservation Fund Act of 1948	This Act provides funding through receipts from the sale of surplus federal land, appropriations from oil and gas receipts from the outer continental shelf, and other sources for land acquisition under several authorities. Appropriations from the fund may be used for matching grants to states for outdoor recreation projects and for land acquisition by various federal agencies, including the Fish and Wildlife Service.
Migratory Bird Conservation Act of 1929	Established a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds. The role of the commission was expanded by the North American Wetland Conservation Act to include approving wetlands acquisition, restoration, and enhancement proposals recommended by the North American Wetlands Conservation Council.

STATUTE	DESCRIPTION
Migratory Bird Hunting and Conservation Stamp Act of 1934	Also commonly referred to as the “Duck Stamp Act,” requires waterfowl hunters 16 years of age or older to possess a valid federal hunting stamp. Receipts from the sale of the stamp are deposited into the Migratory Bird Conservation Fund for the acquisition of migratory bird refuges.
Migratory Bird Treaty Act of 1918, as amended	This Act implements various treaties and conventions between the United States and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Except as allowed by special regulations, this Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, barter, export or import any migratory bird, part, nest, egg, or product.
Mineral Leasing Act for Acquired Lands (1947), as amended	Authorizes and governs mineral leasing on acquired public lands.
Minerals Leasing Act of 1920, as amended	Authorizes and governs leasing of public lands for development of deposits of coal, oil, gas, and other hydrocarbons; sulphur; phosphate; potassium; and sodium. Section 185 of this title contains provisions relating to granting rights-of-way over federal lands for pipelines.
Mining Act of 1872, as amended	Authorizes and governs prospecting and mining for the so-called “hardrock” minerals (i.e., gold and silver) on public lands.
National and Community Service Act of 1990	Authorizes several programs to engage citizens of the U.S. in full-and/or part-time projects designed to combat illiteracy and poverty, provide job skills, enhance educational skills, and fulfill environmental needs. Among other things, this law establishes the American Conservation and Youth Service Corps to engage young adults in approved human and natural resource projects, which will benefit the public or are carried out on federal or Indian lands.
National Environmental Policy Act of 1969	Requires analysis, public comment, and reporting for environmental impacts of federal actions. It stipulates the factors to be considered in environmental impact statements, and requires that federal agencies employ an interdisciplinary approach in related decision-making and develop means to ensure that unqualified environmental values are given appropriate consideration, along with economic and technical considerations.
National Historic Preservation Act of 1966, as amended	It establishes a National Register of Historic Places and a program of matching grants for preservation of significant historical features. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the National Register.

STATUTE	DESCRIPTION
National Trails System Act (1968), as amended	Established the National Trails System to protect the recreational, scenic, and historic values of some important trails. National recreation trails may be established by the Secretaries of Interior or Agriculture on land wholly or partly within their jurisdiction, with the consent of the involved state(s), and other land managing agencies, if any. National scenic and national historic trails may only be designated by Congress. Several national trails cross units of the National Wildlife Refuge System.
National Wildlife Refuge System Administration Act of 1966	Prior to 1966, there was no single federal law that governed the administration of the various national wildlife refuges that had been established. This Act defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of a refuge provided such use is compatible with the major purposes(s) for which the refuge was established.
National Wildlife Refuge System Improvement Act of 1997	This Act amends the National Wildlife Refuge System Administration Act of 1966. This Act defines the mission of the National Wildlife Refuge System, establishes the legitimacy and appropriateness of six priority wildlife-dependent public uses, establishes a formal process for determining compatible uses of Refuge System lands, identifies the Secretary of the Interior as responsible for managing and protecting the Refuge System, and requires the development of a comprehensive conservation plan for all refuges outside of Alaska.
Native American Graves Protection and Repatriation Act of 1990	Requires federal agencies and museums to inventory, determine ownership of, and repatriate certain cultural items and human remains under their control or possession. The Act also addresses the repatriation of cultural items inadvertently discovered by construction activities on lands managed by the agency.
Neotropical Migratory Bird Conservation Act of 2000	Establishes a matching grant program to fund projects that promote the conservation of neotropical migratory birds in the United States, Latin America, and the Caribbean.
North American Wetlands Conservation Act of 1989	Provides funding and administrative direction for implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on wetlands between Canada, the United States, and Mexico. The North American Wetlands Conservation Council was created to recommend projects to be funded under the Act to the Migratory Bird Conservation Commission. Available funds may be expended for up to 50 percent of the United States' share cost of wetlands conservation projects in Canada, Mexico, or the United States (or 100 percent of the cost of projects on federal lands).

STATUTE	DESCRIPTION
Refuge Recreation Act of 1962, as amended	This Act authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife-oriented recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.
Partnerships for Wildlife Act of 1992	Establishes a Wildlife Conservation and Appreciation Fund to receive appropriated funds and donations from the National Fish and Wildlife Foundation and other private sources to assist the state fish and game agencies in carrying out their responsibilities for conservation of non-game species. The funding formula is no more than 1/3 federal funds, at least 1/3 foundation funds, and at least 1/3 state funds.
Refuge Revenue Sharing Act of 1935, as amended	Provided for payments to counties in lieu of taxes from areas administered by the Fish and Wildlife Service. Counties are required to pass payments along to other units of local government within the county, which suffer losses in tax revenues due to the establishment of Service areas.
Rehabilitation Act of 1973	Requires nondiscrimination in the employment practices of federal agencies of the executive branch and contractors. It also requires all federally assisted programs, services, and activities to be available to people with disabilities.
Rivers and Harbors Appropriations Act of 1899, as amended	Requires the authorization by the U.S. Army Corps of Engineers prior to any work in, on, over, or under a navigable water of the United States. The Fish and Wildlife Coordination Act provides authority for the Service to review and comment on the effects on fish and wildlife activities proposed to be undertaken or permitted by the Corps of Engineers. Service concerns include contaminated sediments associated with dredge or fill projects in navigable waters.
Transfer of Certain Real Property for Wildlife Conservation Purposes Act of 1948	This Act provides that upon determination by the Administrator of the General Services Administration, real property no longer needed by a federal agency can be transferred, without reimbursement, to the Secretary of the Interior if the land has particular value for migratory birds, or to a state agency for other wildlife conservation purposes.
Transportation Equity Act for the 21st Century (1998)	Established the Refuge Roads Program, requires transportation planning that includes public involvement, and provides funding for approved public use roads and trails and associated parking lots, comfort stations, and bicycle/pedestrian facilities.

STATUTE	DESCRIPTION
Uniform Relocation and Assistance and Real Property Acquisition Policies Act (1970), as amended	Provides for uniform and equitable treatment of persons who sell their homes, businesses, or farms to the Service. The Act requires that any purchase offer be no less than the fair market value of the property.
Water Resources Planning Act of 1965	Established Water Resources Council to be composed of Cabinet representatives including the Secretary of the Interior. The Council reviews river basin plans with respect to agricultural, urban, energy, industrial, recreational and fish and wildlife needs. The act also established a grant program to assist States in participating in the development of related comprehensive water and land use plans.
Wild and Scenic Rivers Act of 1968, as amended	This Act selects certain rivers of the nation possessing remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values; preserves them in a free-flowing condition; and protects their local environments.
Wilderness Act of 1964, as amended	This Act directs the Secretary of the Interior to review every roadless area of 5,000 acres or more and every roadless island regardless of size within the National Wildlife Refuge System and to recommend suitability of each such area. The Act permits certain activities within designated wilderness areas that do not alter natural processes. Wilderness values are preserved through a "minimum tool" management approach, which requires refuge managers to use the least intrusive methods, equipment, and facilities necessary for administering the areas.
Youth Conservation Corps Act of 1970	Established a permanent Youth Conservation Corps (YCC) program within the Departments of Interior and Agriculture. Within the Service, YCC participants perform many tasks on refuges, fish hatcheries, and research stations.

EXECUTIVE ORDERS	DESCRIPTIONS
EO 11593, Protection and Enhancement of the Cultural Environment (1971)	States that if the Service proposes any development activities that may affect the archaeological or historic sites, the Service will consult with Federal and State Historic Preservation Officers to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.
EO 11644, Use of Off-road Vehicles on Public Land (1972)	Established policies and procedures to ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands.
EO 11988, Floodplain Management (1977)	The purpose of this Executive Order is to prevent federal agencies from contributing to the “adverse impacts associated with occupancy and modification of floodplains” and the “direct or indirect support of floodplain development.” In the course of fulfilling their respective authorities, federal agencies “shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.”
EO 11989 (1977), Amends Section 2 of EO 11644	Directs agencies to close areas negatively impacted by off-road vehicles.
EO 11990, Protection of Wetlands (1977)	Federal agencies are directed to provide leadership and take action to minimize the destruction, loss of degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.
EO 12372, Intergovernmental Review of Federal Programs (1982)	Seeks to foster intergovernmental partnerships by requiring federal agencies to use the state process to determine and address concerns of state and local elected officials with proposed federal assistance and development programs.
EO 12898, Environmental Justice (1994)	Requires federal agencies to identify and address disproportionately high and adverse effects of its programs, policies, and activities on minority and low-income populations.

EXECUTIVE ORDERS	DESCRIPTIONS
<p>EO 12906, Coordinating Geographical Data Acquisition and Access (1994), Amended by EO 13286 (2003). Amendment of EOs and other actions in connection with transfer of certain functions to Secretary of DHS.</p>	<p>Recommended that the executive branch develop, in cooperation with state, local, and tribal governments, and the private sector, a coordinated National Spatial Data Infrastructure to support public and private sector applications of geospatial data. Of particular importance to comprehensive conservation planning is the National Vegetation Classification System (NVCS), which is the adopted standard for vegetation mapping. Using NVCS facilitates the compilation of regional and national summaries, which in turn, can provide an ecosystem context for individual refuges.</p>
<p>EO 12962, Recreational Fisheries (1995)</p>	<p>Federal agencies are directed to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities in cooperation with states and tribes.</p>
<p>EO 13007, Native American Religious Practices (1996)</p>	<p>Provides for access to, and ceremonial use of, Indian sacred sites on federal lands used by Indian religious practitioners and direction to avoid adversely affecting the physical integrity of such sites.</p>
<p>EO 13061, Federal Support of Community Efforts Along American Heritage Rivers (1997)</p>	<p>Established the American Heritage Rivers initiative for the purpose of natural resource and environmental protection, economic revitalization, and historic and cultural preservation. The Act directs Federal agencies to preserve, protect, and restore rivers and their associated resources important to our history, culture, and natural heritage.</p>
<p>EO 13084, Consultation and Coordination With Indian Tribal Governments (2000)</p>	<p>Provides a mechanism for establishing regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications.</p>
<p>EO 13112, Invasive Species (1999)</p>	<p>Federal agencies are directed to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species in a cost effective and environmentally sound manner, accurately monitor invasive species, provide for restoration of native species and habitat conditions, conduct research to prevent introductions and to control invasive species, and promote public education on invasive species and the means to address them. This EO replaces and rescinds EO 11987, Exotic Organisms (1977).</p>

EXECUTIVE ORDERS	DESCRIPTIONS
EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. (2001)	Instructs federal agencies to conserve migratory birds by several means, including the incorporation of strategies and recommendations found in Partners in Flight Bird Conservation plans, the North American Waterfowl Plan, the North American Waterbird Conservation Plan, and the United States Shorebird Conservation Plan, into agency management plans and guidance documents.

Appendix D. Appropriate Use Determinations

Central Arkansas National Wildlife Refuge Complex Appropriate Use Determinations (Bald Knob, Big Lake, Cache River, and Wapanocca NWRs)

An appropriate use determination is the initial decision process a refuge manager undertakes when first considering whether or not to allow a proposed use on a refuge. The refuge manager must find that a use is appropriate before undertaking a compatibility review of the use. This process clarifies and expands on the compatibility determination process by describing when refuge managers should deny a proposed use without determining compatibility. If a proposed use is not appropriate, it will not be allowed and a compatibility determination will not be undertaken.

Except for the uses noted below, the refuge manager must decide if a new or existing use is an appropriate refuge use. 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. Uses that have been administratively determined to be appropriate are:

- The six wildlife-dependent recreational uses as defined by the National Wildlife Refuge System Improvement Act of 1997; these are hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. However, the refuge manager must still determine if these uses are compatible before allowing them on a refuge.
- The take of fish and wildlife under state regulations. States have regulations concerning take of wildlife that includes hunting, fishing, and trapping. The Service considers take of wildlife under such regulations appropriate. However, the refuge manager must determine if these uses are compatible before allowing them on a refuge.

Statutory Authorities for this policy:

National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee. This law provides the authority for establishing policies and regulations governing refuge uses, including the authority to prohibit certain harmful activities. The Act does not authorize any particular use, but rather authorizes the Secretary of the Interior to allow uses only when they are compatible and “under such regulations as he may prescribe.” This law specifically identifies certain public uses that, when compatible, are legitimate and appropriate uses within the Refuge System. The law states “. . . it is the policy of the United States that . . . compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System . . . compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive priority consideration in refuge planning and management; and . . . when the Secretary determines that a proposed wildlife-dependent recreational use is a compatible use within a refuge, that activity should be facilitated . . . the Secretary shall . . . ensure that priority general public uses of the System receive enhanced consideration over other general public uses in planning and management within the System” The law also states “in administering the System, the Secretary is authorized to take the following actions: . . . issue regulations to carry out this Act.” This policy implements the standards set in the Act by providing enhanced consideration of priority general public uses and ensuring other public uses do not interfere with the refuge’s ability to provide quality, wildlife-dependent recreational uses.

Refuge Recreation Act of 1962, 16 U.S.C. 460k. The Act authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife oriented recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.

Other Statutes that Establish Refuges, including the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) (16 U.S.C. 410hh - 410hh-5, 460 mm - 460mm-4, 539-539e, and 3101 - 3233; 43 U.S.C. 1631 et seq.).

Executive Orders. The Service must comply with Executive Order 11644 when allowing use of off-highway vehicles on refuges. This order requires the Service to designate areas as open or closed to off-highway vehicles in order to protect refuge resources, promote safety, and minimize conflict among the various refuge users; monitor the effects of these uses once they are allowed; and amend or rescind any area designation as necessary based on the information gathered. Furthermore, Executive Order 11989 requires the Service to close areas to off-highway vehicles when it is determined that the use causes or will cause considerable adverse effects on the soil, vegetation, wildlife, habitat, or cultural or historic resources. Statutes, such as ANILCA, take precedence over executive orders.

Definitions:

Appropriate Use

A proposed or existing use on a refuge that meets at least one of the following four conditions.

- 1) The use is a wildlife-dependent recreational use as identified in the Improvement Act.
- 2) The use contributes to fulfilling the refuge purpose(s), the Refuge System mission, or goals or objectives described in a refuge management plan approved after October 9, 1997, the date the Improvement Act was signed into law.
- 3) The use involves the take of fish and wildlife under state regulations.
- 4) The use has been found to be appropriate based on the sound, professional judgment of the refuge manager according to the decision criteria specified in the Finding of Appropriateness checklist (see Findings of Appropriateness below).

Native American. American Indians in the conterminous United States and Alaska Natives (including Aleuts, Eskimos, and Indians) who are members of federally recognized tribes.

Priority General Public Use. A compatible wildlife-dependent recreational use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

Quality. The criteria used to determine a quality recreational experience include:

- Promotes safety of participants, other visitors, and facilities.
- Promotes compliance with applicable laws and regulations and responsible behavior.
- Minimizes or eliminates conflicts with fish and wildlife population or habitat goals or objectives in a plan approved after 1997.
- Minimizes or eliminates conflicts with other compatible wildlife-dependent recreation.
- Minimizes conflicts with neighboring landowners.
- Promotes accessibility and availability to a broad spectrum of the American people.

-
- Promotes resource stewardship and conservation.
 - Promotes public understanding and increases public appreciation of America's natural resources and the Service's role in managing and protecting these resources.
 - Provides reliable/reasonable opportunities to experience wildlife.
 - Uses facilities that are accessible and blend into the natural setting.
 - Uses visitor satisfaction to help define and evaluate programs.

Wildlife-Dependent Recreational Use. As defined by the Improvement Act, a use of a refuge involving hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Bald Knob National Wildlife Refuge

Use: Camping and Houseboats

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?		X
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?		X
(g) Is the use manageable within available budget and staff?		X
(h) Will this be manageable in the future within existing resources?		X
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?		X
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?		X

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate X

Appropriate

Refuge Manager: Signed Date: 12/1/09

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use.
 If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence.
 If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 12/3/09

A compatibility determination is required before the use may be allowed.

FINDING OF APPROPRIATENESS OF A REFUGE USE

Refuge Name: Big Lake National Wildlife Refuge

Use: Nuisance Animal Control

This form is not required for wildlife-dependent recreational uses, take regulated by the State, or uses already described in a refuge CCP or step-down management plan approved after October 9, 1997.

Decision Criteria:	YES	NO
(a) Do we have jurisdiction over the use?	X	
(b) Does the use comply with applicable laws and regulations (Federal, State, tribal, and local)?	X	
(c) Is the use consistent with applicable executive orders and Department and Service policies?	X	
(d) Is the use consistent with public safety?	X	
(e) Is the use consistent with goals and objectives in an approved management plan or other document?	X	
(f) Has an earlier documented analysis not denied the use or is this the first time the use has been proposed?	X	
(g) Is the use manageable within available budget and staff?	X	
(h) Will this be manageable in the future within existing resources?	X	
(i) Does the use contribute to the public's understanding and appreciation of the refuge's natural or cultural resources, or is the use beneficial to the refuge's natural or cultural resources?	X	
(j) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality (see section 1.6D, 603 FW 1, for description), compatible, wildlife-dependent recreation into the future?	X	

Where we do not have jurisdiction over the use ["no" to (a)], there is no need to evaluate it further as we cannot control the use. Uses that are illegal, inconsistent with existing policy, or unsafe ["no" to (b), (c), or (d)] may not be found appropriate. If the answer is "no" to any of the other questions above, we will generally not allow the use.

If indicated, the refuge manager has consulted with State fish and wildlife agencies. Yes X No

When the refuge manager finds the use appropriate based on sound professional judgment, the refuge manager must justify the use in writing on an attached sheet and obtain the refuge supervisor's concurrence.

Based on an overall assessment of these factors, my summary conclusion is that the proposed use is:

Not Appropriate Appropriate X

Refuge Manager: Signed Date: 12/1/09

If found to be **Not Appropriate**, the refuge supervisor does not need to sign concurrence if the use is a new use. If an existing use is found **Not Appropriate** outside the CCP process, the refuge supervisor must sign concurrence. If found to be **Appropriate**, the refuge supervisor must sign concurrence.

Refuge Supervisor: Signed Date: 12/3/09

A compatibility determination is required before the use may be allowed.

