

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the proposed Hunting and Fishing Plan for Bayou Cocodrie National Wildlife Refuge in Concordia Parish, Louisiana:

Check One:

- is a categorical exclusion as provided by 516 DM 2, Appendix 1 and 516 DM 6, Appendix 1, Section 1.4 A (4). No further NEPA documentation will therefore be made.
- is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.
- is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.
- is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.
- is an emergency action within the context of 40 CFR 1 506.1 1. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other Supporting Documents:

Endangered Species Act, Section 7 Consultation, 2/7/07
Compatibility Determination, 3/16/07

Signature Approval:

<u>Bradley Laddler</u> (1) Originator	<u>3/16/07</u> Date	<u>Richard Warner</u> (2) Regional Environmental Coordinator	<u>03/26/07</u> Date
<u>Jon Andrews</u> (3) Regional Chief, NWRS, Southeast Region	<u>3-26-07</u> Date Acting	<u>Kevin E. Walsh</u> (4) Regional Director, Southeast Region	<u>3/26/07</u> Date

Sport Hunting and Fishing
Decision Document Package

for

BAYOU COCODRIE NWR

Contents

2. EA

Final Environmental Assessment
Sport Hunting and Fishing Plan

on

BAYOU COCODRIE NATIONAL WILDLIFE REFUGE
Concordia Parish, Louisiana

For Further Information, Contact:
Refuge Manager
U. S. Fish and Wildlife Service
Bayou Cocodrie National Wildlife Refuge
PO Box 1772
Ferriday, LA 71334

Prepared by:
U. S. Department of Interior
Ferriday, Louisiana
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BAYOU COCODRIE NATIONAL WILDLIFE REFUGE

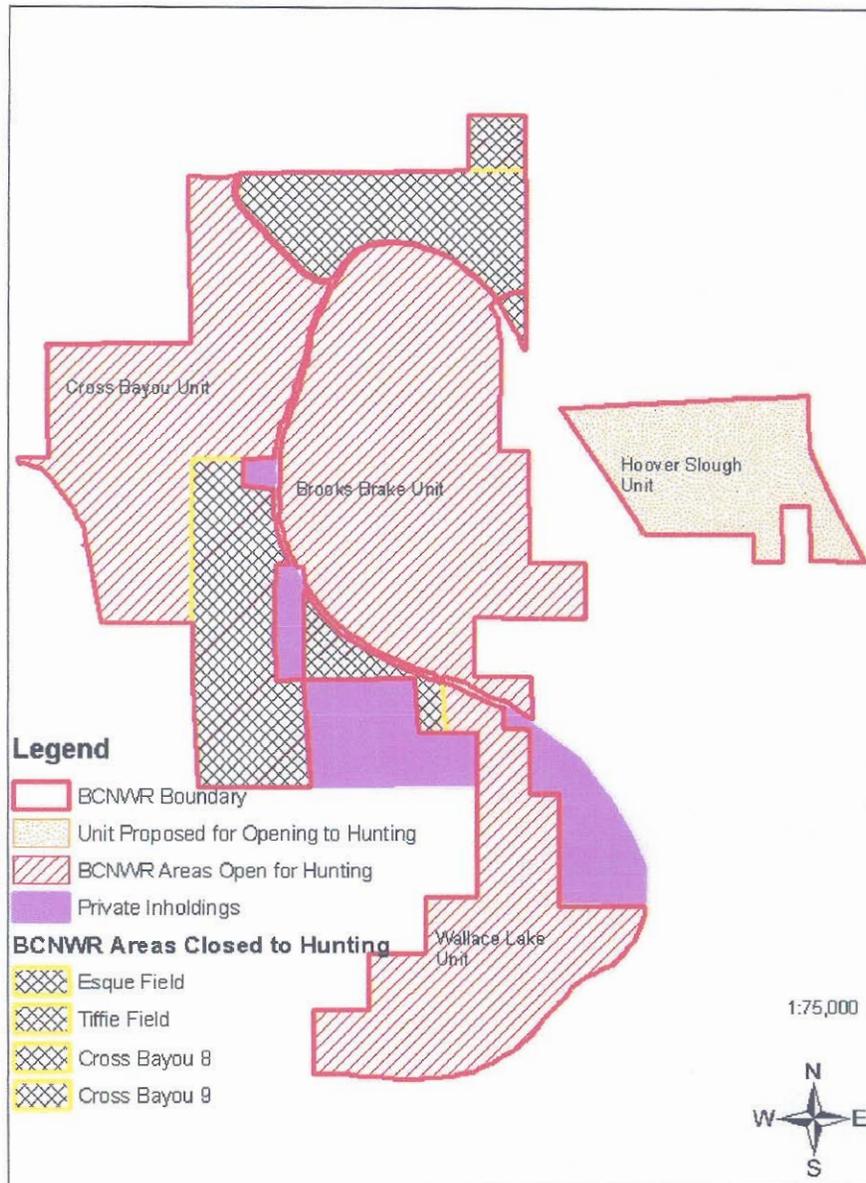


Figure 1. Areas open and closed on Bayou Cocodrie NWR. Also indicates the additional acres in the Hoover Slough Unit.

LOCATION MAP FOR BCNWR

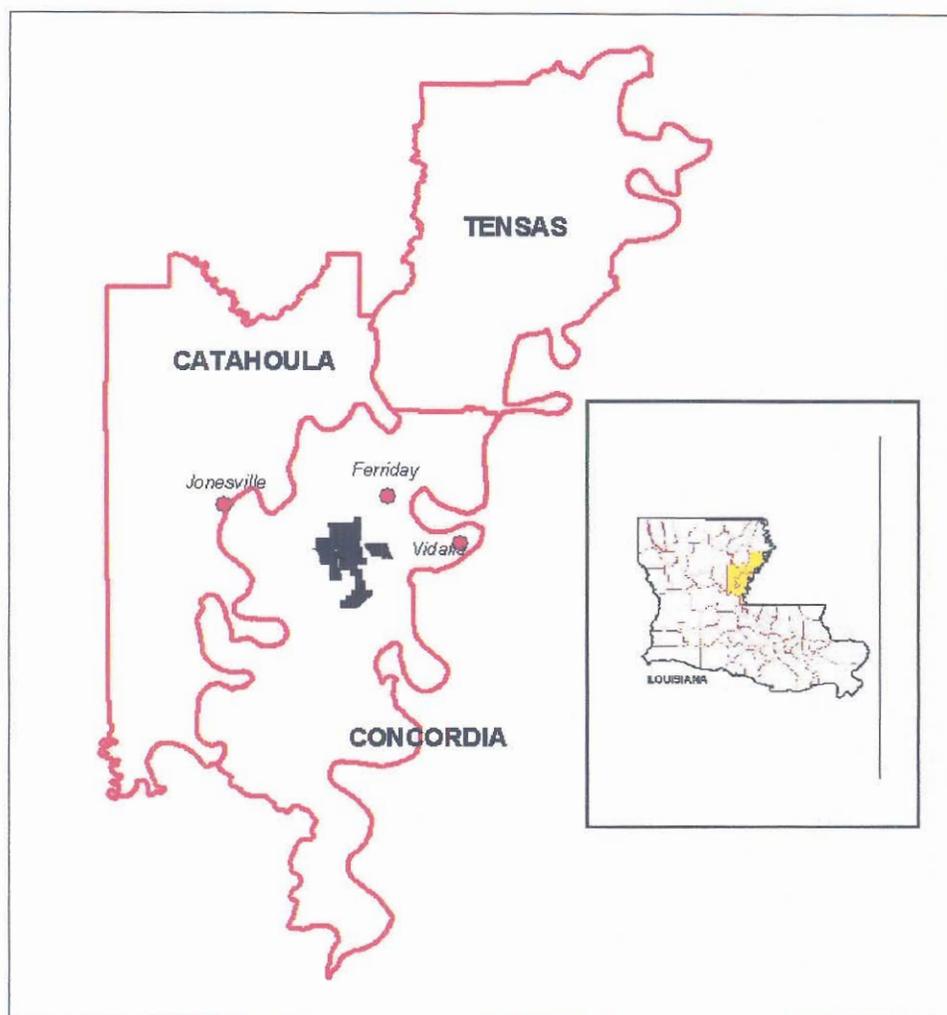


Figure 2. Location of Bayou Cocodrie NWR.

BAYOU COCODRIE NATIONAL WILDLIFE REFUGE

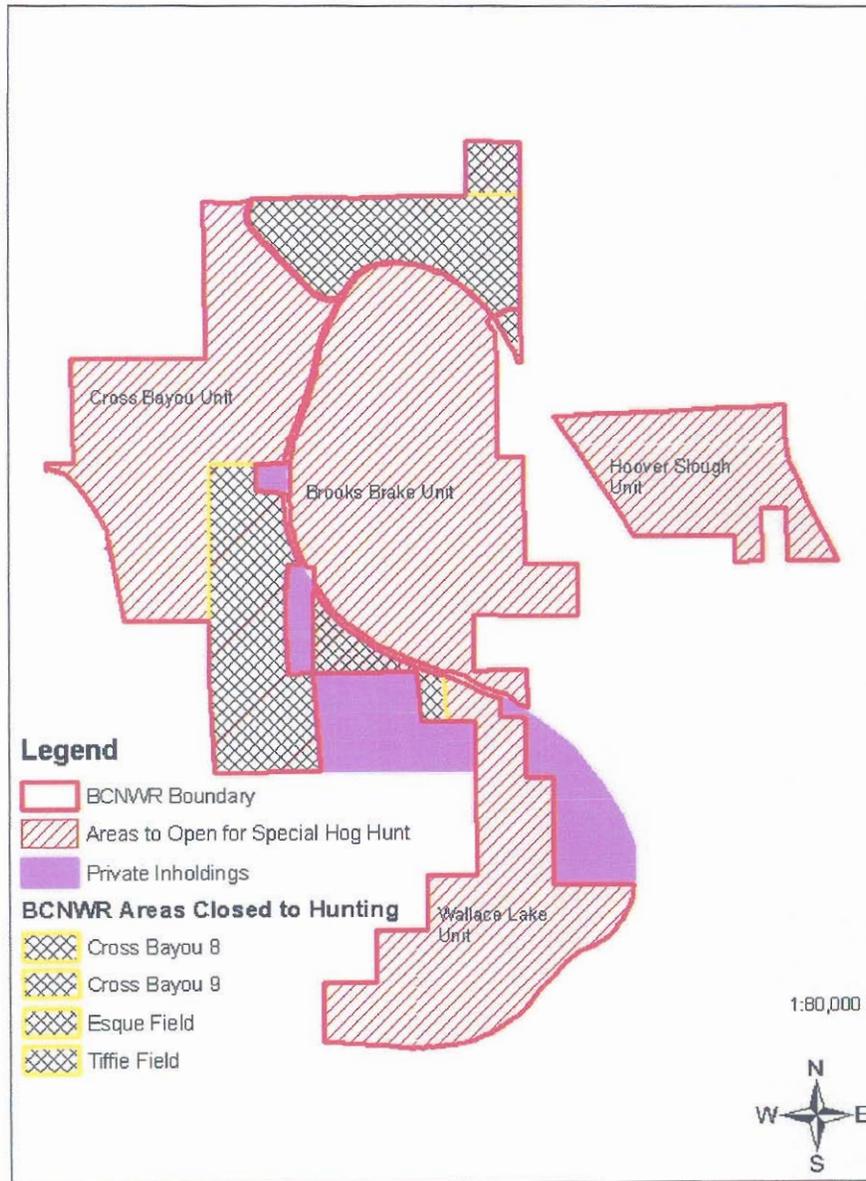


Figure 3. Areas open to feral hog hunting with the additional 1,500 acres Hoover Slough Unit.

Chapter 1 Purpose and Need for Action

Congress authorized the establishment of Bayou Cocodrie National Wildlife Refuge on November 16, 1990, through Public Law 101-593 (Section 108, House Report 3338), to protect some of the last remaining, least disturbed bottomland hardwoods in the Lower Mississippi Valley. Congress stated the refuge purpose as follows:

“The Bayou Cocodrie National Wildlife Refuge is established and shall be managed for the purposes of (1) conservation and enhancement of wetlands; (2) general wildlife management as a unit of the National Wildlife Refuge System, including management of migratory birds; and (3) fish and wildlife-oriented recreational activities.”

The 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 et seq.) provides authority for the Service to manage the Refuge and its wildlife populations. In addition it declares that compatible wildlife-dependent public uses are legitimate and appropriate uses of the Refuge System that are to receive priority consideration in planning and management. There are six wildlife-dependent public uses: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. It directs managers to increase recreational opportunities including hunting on National Wildlife Refuges when compatible with the purposes for which the Refuge was established and the mission of the National Wildlife Refuge System.

The purpose of this Environmental Assessment is to evaluate the feasibility of opening an additional 1,500 acres of newly acquired land to hunting and fishing and add an additional two-week nuisance animal control hunt for feral hogs in March on Bayou Cocodrie NWR. These additional acres of land on the refuge would be opened to regular hunting and fishing according to Refuge-specific regulations. These hunting and fishing regulations would be the same as those currently open to hunting and fishing lands within the refuge (see Sport Hunting and Fishing Plan Bayou Cocodrie NWR).

The proposed action is needed to implement the Sport Hunting and Fishing Plan for Bayou Cocodrie NWR which would provide the public with a high quality recreational experience and provide the refuge with a wildlife management tool to promote the biological integrity of the refuge.

Chapter 2 Alternatives Including the Proposed Action

This chapter discusses the alternatives considered for hunting and fishing on Bayou Cocodrie National Wildlife Refuge. These alternatives are the 1) no action which continues with current management of the hunt and fish program and 2) proposed action which implements the Refuge's Sport Hunting and Fishing Management Plan

2.1 No Action Alternative: Current Management

Under this alternative, hunting and fishing would be limited to the 10,000 acres currently open to hunting and to species currently allowed to be hunted, including deer, feral hogs, ducks, geese, woodcock, squirrel, rabbit, raccoon, opossum, coyote, and beaver. There would be no change to current public use and wildlife management programs.

2.2 Proposed Action: Sport Hunting Plan for Bayou Cocodrie NWR

The proposed action would increase land open to hunting and fishing by 1,500 acres on the Hoover Slough Unit and add an additional two-week nuisance animal control hunt for feral hogs in March on Bayou Cocodrie NWR (Figure 1). All or parts of the refuge may be closed to hunting or fishing at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons.

Refer to Sport Hunting Plan for Bayou Cocodrie NWR for specific regulations.

Chapter 3 Affected Environment

Bayou Cocodrie National Wildlife Refuge is located in east-central Louisiana, 13 miles west of the Mississippi River and Natchez, Mississippi in Concordia Parish, Louisiana (Figure 1). The city of Ferriday, located about 4 miles northeast of the refuge, is the nearest community. Although the refuge was established in 1990, to date, only 14,668 acres have been acquired within the 22,269-acre acquisition boundary (Figure 1).

The potential wildlife habitat values of old growth bottomland hardwoods and adjacent forests provided the impetus to purchase the property from its original owners. In 1988, The Nature Conservancy purchased 11,230 acres from the Fisher Lumber Company, a subsidiary of General Motors, for resale to the Service.

Funding and authorization for the refuge acquisition was provided when Congress authorized the establishment of Bayou Cocodrie National Wildlife Refuge on November 16, 1990, through Public Law 101-593 (Section 108, House Report 3338), to protect some of the last remaining, least disturbed bottomland hardwoods in the Lower Mississippi Valley.

3.1 Physical Environment

The refuge geology is underlain with Pleistocene deposits of the Mississippi River which extend and dip toward the coast. A Pleistocene-age eroded subsurface exists at 50 to 150 feet below the surface, with Tertiary age sedimentary deposits beneath this subsurface (Saucier 1994). Faulting is commonly related to sediment loading and deep-seated salt movement and may provide conduits for potential cross-formation groundwater flow.

Virtually all of the soils are Alligator-Tensas-Dundee-Sharkey-Tunica, and Sharkey-Alligator-Tensas. These soils are clay or loam and have clay or loam subsoils. The soils are fine textured and poorly drained with low permeability. Standing water is common during rainy periods of the year. These soil types are highly restrictive for urban and agricultural uses because of their high shrink-swell characteristics and low bearing strength.

Hydrology and water management influences the function of habitats on the refuge. Bayou Cocodrie is a meandering tributary of the Red River. Historically, when the Red River reached flood stage, backwater flooding was common within the watershed. Since the development of flood control structures, Bayou Cocodrie's natural overflow is restricted to large flood events. The natural sediment supplies at the refuge are threatened by flood control and agricultural operations, including the operation of the Wild Cow Bayou weir which prevents the natural back flow of floodwaters.

Nearby levees, irrigation channels, and pumps have influenced the change of riparian systems to water development projects in support of agriculture. Natural flooding assists in maintaining healthy bottomland hardwood forest habitat by recharging the forest with sediment and nutrients.

The refuge is within the 582-square-mile Tensas-Concordia Levee area. The levee system borders the Red, Black, and Tensas rivers and was built for flood protection. For the most part, the historic backwater flooding is impeded because of the ring levee and pump systems operated on the Wild Cow Bayou in western Concordia Parish. Bayou Cocodrie functions more like a lake than a free-flowing stream due to the weir on Wild Cow Bayou (Corps of Engineers 1990, Soil Conservation Service 1968).

The subtropical climate is characterized by high humidity, an absence of extreme temperatures, and abundant rainfall distributed evenly throughout the year. The climate is controlled by warm, moist air from the Gulf of Mexico, and cooler, drier air from the central plains. Extended hot, sultry summers and moderately cool winters are normal. The summers have about 85 days with highs greater than 90 degrees Fahrenheit. The winters are marked by brief cool periods with average winter highs in the mid-50s. Annual rainfall is 55 inches and the growing season is approximately 220 days in duration. The average annual runoff occurs from December to April. Evaporation exceeds precipitation in the summer.

Bayou Cocodrie NWR is within the Mississippi Alluvial Valley and is a part of the Lower Mississippi River Ecosystem.

3.2 Vegetation

The habitat communities of ridge and swale topography are important for the long-term survival of many plant and wildlife species (Figure 8). About 10,600 acres of these forests are within the refuge boundary. The forests, however, exhibit poor canopy, midstory, and understory structures to support populations of priority bird species, including the swallow-tailed kite, Cerulean warbler, Swainson's warbler, and American woodcock. The swallow-tailed kite and Cerulean warbler are extirpated from the refuge, but historical records suggest that the refuge was once included in their breeding range (Cooke 1904, Beyer 1900, Oberholser 1938). Managing to exhibit the features, functions, and processes characteristic of old growth communities may yield the highest benefit for priority bird species.

The refuge was established to protect the exemplary 750-acre old growth forest noted for its outstanding wildlife habitat value. This area supports a variety of sensitive species, including nesting songbirds. Natural communities include bottomland hardwood forests, marsh or herbaceous wetlands, swamps, streams, and lakes/deep-water habitats typical of the ridge and swale topography associated with bottomland hardwood forests in this area (Figure 9).

Due to the refuge's location, soils, and annual rainfall, which exceeds 60 inches, much of the vegetation consists of bottomland hardwood communities, with the exception of the recently reforested agricultural portions where weeds and grasses predominate.

Forest plant communities differ with slight elevation changes and the understory is

reflective of sunlight conditions caused by the canopy closure. Quick to recover from disturbances, soils are fertile with a high site index and fast tree growth. Forest age ranges from very young to relatively old, depending on the site. Trees range in type from red gum, red oak, and sweet pecan on the ridges, to overcup oak, hackberry, and green ash in the flats, to cypress and bitter pecan in the lowest areas. Examples of dominant vegetation include cypress, cottonwood, black willow, sweet pecan, overcup oak, Nuttall oak, winged elm, and Tupelo gum. Sub-dominant plants include palmetto, switchcane, hawthorns, honey locust, and box elder. Other understory plants include smilax, honeysuckle, blackberry, dewberry, and a host of vines including rattan, muscadine, and poison ivy. Wet site vegetation includes pickerel-weed, day flower, water hyacinth, various sedges, and marsh mallow.

The refuges aquatic habitat includes bayous, creeks, lakes, beaver ponds, and permanent and seasonal swamps. Bayou Cocodrie is a tributary of the Red River, located west of the Mississippi River in east-central Louisiana. Wetlands and deepwater habitat include small lakes, swamps, ponds, and perennial and intermittent streams. Wallace Lake has permanent water. Seasonal floodwater remains in the shallow swales for several months, and in recent years, many of swales in both the Brooks Brake and Wallace Lake units have held water year-round.

Bayou Cocodrie begins at Concordia Lake. This secondary waterway is sluggish due to the flat terrain and management of the downstream weir on Wild Cow Bayou. The backwater flooding is virtually gone because of downstream pumping, resulting in the loss of seasonal flood waters. About 6 miles of this 30-mile river lie within the refuge boundary, and are flanked by natural levees that result in some of the highest ground on the refuge. As it exits the refuge, the bayou flows southward for a distance of 12 miles. Fish habitat diversity is only fair due to the sluggish nature of the stream and the impacts of land use in the watershed.

Old fields where former landowners actively clear-cut and then farmed are scattered along the refuge. Since 1996, managers have been replanting these areas in mixed hardwood seedlings. About 1,100 acres were managed under lease agreements between the refuge and local landowners to produce millet, buckwheat, and perennial grasses for foraging of wintering waterfowl, but these lease agreements have been discontinued. The lands are scheduled for reforestation over the next two planting seasons.

Reforestation efforts will increase the present forest block size and provide direct benefits to many nesting migratory birds and black bear, as well as many other indigenous species.

3.3 Wildlife Resources

3.3.1 Avian Species

Avian species are extremely important wildlife resources identified on the refuge with more than 186 species recorded within the refuge border (unpub. data, Ouchley). The bottomland hardwood forests serve as important habitat for breeding birds and migratory

birds in the spring and fall. Surveys and studies indicate that this refuge may contain the most diverse assemblage of migratory bird species remaining in the Lower Mississippi Valley.

The refuge and the Mississippi Alluvial Valley serve as the primary wintering ground for mid-continent waterfowl populations breeding in the prairies and parklands of Canada and the United States. Excellent historic conditions, typical of refuge habitats, once supported migratory waterfowl. Management efforts to improve wintering waterfowl habitat on refuge lands are underway and will increase as additional lands are purchased. Typical winter residents include mallards, teal, and wood ducks. Waterfowl species known to nest in this area include wood ducks and hooded mergansers.

Wading birds are abundant in the small lakes and numerous sloughs. The backwater bays, sloughs, and depressions provide habitat for shorebirds such as yellowlegs, sandpipers, plovers, gulls, and terns that can be found using wetland mudflats and bayous during their spring and fall migrations. Herons and egrets are plentiful.

3.3.2. Mammals

Mammals are numerous and observed throughout the refuge. No comprehensive list of mammalian species exists for the refuge, although it is known which mammals occur in this area (St. Amant 1951 and Lowery 1981). The refuge area contains seven orders of mammals including pouched mammals (opossums); insect-eaters (shrews and moles); bats; flesh-eaters (long-tailed weasel); gnawing mammals (southern flying squirrel); rabbits; and even-toed hoofed mammals (white-tailed deer).

The bottomland hardwood communities are very productive for a wide array of wildlife species, including game animals. Game species include white-tailed deer, grey and fox squirrels, and swamp and cotton-tailed rabbits. Furbearers include beaver, nutria, otter, striped skunk, coyote, grey and red fox, mink, and bobcat. The deer hunt program is designed to maintain herd levels at or slightly below carrying capacity. Population levels have improved dramatically since Service acquisition, as have herd health indicators. Average body weights are improving and mature bucks may weigh in excess of 250 pounds live weight. Future deer populations will be a reflection of both forest management and deer harvest.

Raccoon populations are monitored to ensure compatible levels with other species. Negative impacts from excessive population numbers include depredation on turkey, neotropical birds, and wading bird nests.

Feral hogs compete with resident wildlife for food and can cause crop damage to neighboring farms. Hunting and removal programs should bring these animals under control.

3.3.3. Reptiles and Amphibians

Although frequently observed, much is still unknown about reptile and amphibian population levels on the refuge. At least thirty species of reptiles and amphibians and a variety of native and non-native aquatic species are known to occur on the refuge. The diverse group of amphibians including salamanders, toads, and frogs is well adapted to the aquatic and terrestrial environments, and moisture is typically important for the group's survival. Reptiles including turtles, alligators, lizards, skinks, and snakes are common.

3.4 Threatened and Endangered Species

Infrequently, the refuge staff observes footprints of the transient Louisiana black bear, which is listed as threatened under the Endangered Species Act. The threatened bald eagle has been observed on the refuge. Initial and unpublished studies have indicated that the refuge's old growth trees are important roosting sites for the Rafinesque's big-eared bat, a species of management concern (unpub. reports, Cochran and Fish and Wildlife Service 1999). The Florida panther and the red wolf were former residents of the area, but none have been documented in the last 40 years.

The refuge location and habitat features are significant for the future conservation of the Louisiana black bear. Restoration efforts proposed by the Black Bear Conservation Committee include proposed bear management units that would protect lands outside the current refuge acquisition boundary. The Service, the Louisiana Department of Wildlife and Fisheries, and members of the Black Bear committee are planning to eventually move females onto the refuge, and other public lands near the refuge, in an effort to reestablish breeding populations. The committee also has identified private lands that could be used as corridors between breeding bear populations. A combination of protected and managed public and private lands would provide the necessary forested blocks and corridors for bears to move about with minimal disturbance. The Natural Resources Conservation Service plays a major role in black bear recovery efforts by implementing land protection programs that provide an economic incentive for farmers to restore farmlands and place them in conservation easements.

3.5 Fishery Resources

3.5.1 Aquatic Species

These species are most commonly observed along the main stem of the Bayou Cocodrie. Although limited, the refuge does provide an important fishery resource for local fishermen. Most of the aquatic habitat consists of beaver ponds, oxbow lakes such as Wallace and Little Wallace, and Cross Bayou streams that support commercial fishing for catfish, buffalo, alligator gar, and freshwater drum. Sport fishing populations of crappie, bass, and bream are also found in these lakes, although the populations are low due to periodic water quality problems, particularly high turbidity. Access to the lakes is very limited. On the additional 1,500 acres on the Hoover Slough Unit the refuge plans to open a bank fishing area for the public to enjoy.

Mussels

A comprehensive mussel survey has not been completed for the refuge; however, a survey was conducted at St. Catherine Creek National Wildlife Refuge, which is located 20 miles to the southeast. This survey indicated the possibility of the following mussels occurring on the refuge: fat pocketbook, mapleleaf, flat floater, paper pondshell, giant floater, Texas liliput, pond, yellow sandshell, papershell, pink papershell, and southern mapleleaf.

3.6 Cultural Resources

The body of federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include: 1) each agency is to systematically inventory the historic properties on their holdings and to scientifically assess each property's eligibility for the National Register of Historic Places; 2) federal agencies are to consider the impacts to cultural resources during the agencies' management activities and seek to avoid or mitigate adverse impacts; 3) the protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education; and 4) the increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups. The U.S. Fish and Wildlife Service, like other federal agencies, are legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. The Service's cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3. In the FWS's Southeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist (RHPO/RA). The RHPO/RA will determine whether the proposed undertaking has the potential to impact cultural resources, identify the "area of potential effect," determine the appropriate level of scientific investigation necessary to ensure legal compliance, and initiates consultation with the pertinent State Historic Preservation Office (SHPO) and federally recognized Tribes.

No detailed archaeological or historical site investigations have been documented for the refuge. The majority of past cultural resource investigations focused along sites at Brushy Bayou, Cross-Bayou, and Cocodrie Lake (Ford 1936; Keller and Campbell 1983; Servello 1976; Lower Mississippi Valley Survey 1964; Cusick and McMakin 1994; Cusick et al., 1995; and State of Louisiana Site Files). Many of these investigations focused on the archaeological manifestations of early Native American groups, (i.e., Marksville, Natchez, and Tunica) which have resulted in the identification of several major single mounds and mound groups (16Co9, 16Co14, 16Co15, 16Co80, 16Co92, 16Co99, and 16Co102). Occupations of these sites date from Poverty Point through the Coles Creek Periods [ca. 2000 B.C. - 1250 A.D.] (Neuman 1984; Jeter et al., 1989). Cusick and McMakin 1994, and Cusick et al., 1995, recorded several late 19th and early 20th century tenant farm sites and the early 20th century sharecropper community of Frogmore (16Co159). The latter is located on Brushy Bayou just north of the refuge.

Frogmore centered around a cotton gin, a store, and a post office.

Levee and road construction and agricultural activities have adversely impacted the archaeological deposits associated with many of these sites.

3.7 Socio Economic Resources

The rural character and sparse population are characteristic of east-central Louisiana. Census data from 1990 indicate that the parish had a population of 20,828 people, which is a decline of 9 percent since the 1980 census. The parish seat, Vidalia, had a decline in population from 6,000 in 1980, to some 4,953 in 1990. Ferriday had a 1980 population of 5,500, and a 1990 population of 4,111. Population shifts in Concordia Parish, as a whole, are largely attributable to a decline in the farming, oil, and gas sectors of the economy since the early 1980s.

Per-capita income recorded for Louisiana in 1998 was \$22,206 (USDA, ERS 1998). Overall, Louisiana ranks among the one of the poorest states in the country. Oil and gas production and agriculture have long been the main economic base in Concordia Parish and surrounding areas. Some of the major private employers in Concordia Parish include Wal-Mart, Aluminum Company of America, D&D Petroleum, Rogers Lumber International, Inc., and Ferriday Market. Other major employers include the Concordia Parish Schools, Riverland Medical Center, and Concordia Electric Cooperative (Fish and Wildlife Service et al., 1998 Appraisal Report).

Hunting and fishing are traditional form of outdoor recreation for many people in Concordia Parish and for some households, hunting and fishing participation provides food at a much cheaper cost. The number of licenses sold to hunters in Concordia Parish during the 2004/05 hunting season was 2,406 (*LDWF, personal comm.*). After adjusting for the 15% of Louisiana hunters that are seniors over age 65 and youth under age 16 that are not required to buy licenses, the number of hunters by parish increases to approximately 2,767 for Concordia Parish (*LDWF, personal comm.*).

Chapter 4 Environmental Consequences

This chapter describes the foreseeable environmental consequences of implementing the two management alternatives in Chapter 2. When detailed information is available, a scientific and analytic comparison between alternatives and their anticipated consequences is presented, which is described as “impacts” or “effects.” When detailed information is not available, those comparisons are based on the professional judgment and experience of refuge staff and Service and State biologists.

4.1 Effects Common to all Alternatives

4.1.1 Environmental Justice

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed by President Bill Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities access to public information and participation in matters relating to human health or the environment. This assessment has not identified any adverse or beneficial effects for either alternative unique to minority or low-income populations in the affected area. Neither alternative will disproportionately place any adverse environmental, economic, social, nor health impacts on minority or low-income populations.

4.1.2 Public Health and Safety

Each alternative would have similar effects or minimal to negligible effects on human health and safety.

4.1.3 Refuge Physical Environment

Impacts of each alternative on the refuge physical environment would have similar minimal to negligible effects. Some disturbance to surface soils, topography, and vegetation would occur in areas selected for hunting and fishing; however minimal. Hunting would benefit vegetation as it is used to keep many resident wildlife populations in balance with the habitat’s carrying capacity. The refuge would also control access to minimize habitat degradation.

Impacts to the natural hydrology would have negligible effects. The refuge expects impacts to air and water quality to be minimal and only due to refuge visitors' automobile and off-road vehicle emissions and run-off. The effect of these refuge-related activities on overall air and water quality in the region are anticipated to be relatively negligible. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

Impacts associated with solitude are expected to be minimal given time and space zone management techniques, such as seasonal access and area closures, used to avoid conflicts among user groups.

4.1.4. Cultural Resources

Under each alternative, hunting and fishing, regardless of method or species targeted, is a consumptive activity that does not pose any threat to historic properties on and/or near the Refuge.

4.1.5. Facilities

Maintenance or improvement of existing facilities (i.e. parking areas, roads, trails, and boat ramps) will cause minimal short term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation.

4.2 Summary of Effects

4.2.1 Impacts to Habitat

No Action Alternative

Under this alternative, additional acreage would not be opened to deer, beaver and hog hunting. When deer are overpopulated, they overbrowse their habitat, which can change the structure and plant composition of a forest. The refuge has reforested approximately 3,000 acres with bottomland hardwood tree species in recent years. Young tree seedlings (1-9 years old) can be killed by overbrowsing. Bottomland hardwood forests are a threatened ecosystem. Failure to establish this forest would have negative impacts on future resident and non-resident wildlife populations as well as the purpose of the refuge. Feral hogs are considered a threat to the biological integrity of the refuge because they are an extremely invasive, non-native species. By rooting and wallowing, feral hogs destroy wildlife habitat. Damage includes erosion along waterways and wetlands and the loss of native plants. Beavers can kill thousands of acres of bottomland hardwood trees by damming sloughs and brakes. Forests inundated into the growing season quickly show signs of stress and trees eventually die. Beavers can have negative impacts on future resident and non-resident wildlife by killing large portions of the few remaining intact bottomland hardwood forests remaining in the United States.

Although hunters would not be traversing across the 1,500 acres, which could cause damage to individual plants by trampling vegetation, non-consumptive users would still be able to walk throughout the area.

Proposed Action Alternative

The biological integrity of the refuge would be protected under this alternative, and the refuge purpose of conserving wetlands for wildlife would be achieved. The hunting of hogs, beavers and deer would positively impact wildlife habitat by promoting plant health and diversity, reducing hog wallowing which destroys vegetation and compacts soils, and increasing tree seedling survival. Hunting of beavers would decrease their populations and in effect, increase the health of forested wetlands.

The additional acreage would be utilized more by the public than previously which might cause increased trampling of vegetation. Impacts to vegetation should be minor. Hunter density is estimated to be an average of 1 hunter/400 acres throughout the hunting season. Refuge-regulations would not permit the use of ATVs off of designated trails. Vehicles would be confined to existing roads and parking lots.

4.2.2 Impacts to Hunted Wildlife

No Action Alternative

Additional mortality of individual hunted animals would not occur under this alternative. Disturbance by hunters to hunted wildlife would not occur; however, other public uses that cause disturbance, such as wildlife observation and photography, would still be permitted.

Deer, hog, beaver, coyote, raccoon and opossum populations could increase above the habitat's carrying capacity. The likelihood of starvation and diseases, such as bluetongue and EHD in deer and distemper and rabies in raccoon and opossum, would increase as would vehicle-deer collisions. Feral hogs can harbor several infectious diseases, some of which can be fatal to wildlife. Additionally, feral hogs compete directly for food with deer, bears, turkeys, squirrels and many other birds and mammals.

Proposed Action Alternative

Additional mortality of individual hunted animals would occur under this alternative, estimated by the refuge to be a maximum of 50 deer, 50 squirrels, and 100 ducks annually. Estimates for other hunted species (raccoon, opossum, rabbit, hog) would be less than 20 individuals per species. Hunting causes some disturbance to not only the species being hunted but other game species as well. However, time and space zoning established by refuge regulations would minimize disturbance.

Hunting of deer, hog, beaver, coyote, raccoon and opossum would help maintain their populations at or below carrying-capacity. The likelihood of starvation and diseases,

such as bluetongue and EHD in deer and distemper and rabies in raccoon and opossum, would be decreased as would deer-vehicle collisions. Reduction of the hog population would decrease risk of transmitting fatal diseases by hogs to other wildlife species. Fewer hogs would decrease competition for food with native wildlife, such as deer, bear, turkey, and squirrel.

4.2.3 Impacts to Non-hunted Wildlife

No Action Alternative

Ground and shrub nesting birds and turtles are subject to high egg depredation rates if raccoon, coyotes, and opossum populations are not kept in check through harvest. In North Louisiana, research conducted on one population of alligator snapping turtles has shown that raccoons are responsible for depredating 93% of turtle nests (USFWS 2002). Under this alternative, feral hog populations would increase. Non-native hogs are predators of small mammals and deer fawns as well as ground-nesting birds such as turkeys.

Increased disturbance to non-hunted wildlife would not occur in the 1,500-acre area; however, non-consumptive users would still be permitted to access this land, which might cause disturbance to wildlife.

Proposed Action Alternative

Populations of raccoon, coyotes, and opossum would be decreased through hunting under this alternative. Depredation rates of songbirds, turkeys, turtles and their nests would decrease. Feral hog populations would be reduced thereby decreasing predation of deer fawns, turkeys and small mammals.

Disturbance to non-hunted wildlife would increase slightly. However, disturbance would be unlikely for the following reasons. Small mammals, including bats, are inactive during winter when hunting season occurs. These species are also nocturnal. Both of these qualities make hunter interactions with small mammals very rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the hunting season when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season. Invertebrates are also not active during cold weather and would have few interactions with hunters during the hunting season. The refuge has estimated current hunter density on peak days to be no more than 1 hunter per 40 acres. During the vast majority of the hunting season, hunter density is much lower (1 hunter/400 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Vehicles are restricted to roads and the harassment or taking of any wildlife other than the game species legal for the season is not permitted. Disturbance to the daily wintering activities, such as feeding and resting, of birds might occur. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users.

4.2.4 Impacts to Endangered and Threatened Species

No Action Alternative

Because current public use levels on the refuge would remain the same, there would be no increased chance of adversely affecting threatened and endangered species.

Proposed Action Alternative

A potential disadvantage of this alternative is its effect on threatened and endangered species on the refuge such as the bald eagle and Louisiana black bear. However, a Section 7 Evaluation associated with this assessment was conducted, and it was determined that the proposed action is not likely to adversely affect these species (Refer to Section 7 Evaluation for Sport Hunting and Fishing on Bayou Cocodrie NWR).

4.2.5 Impacts to Refuge Facilities (roads, trails, parking lots, levees)

No Action Alternative

Additional damage to roads and ATV trails due to hunter use during wet weather periods would not occur; however, other users would still be using roads. Additionally, costs associated with an expanded hunting and fishing program in the form of road and levee maintenance, instructional sign needs, and law enforcement would not be applicable.

Proposed Action Alternative

Additional damage to roads and ATV trails due to hunter use during wet weather periods might occur. The current refuge hunt program on 10,000 acres for the past three decades has shown these impacts to be minimal. There would be some costs associated with a hunting and fishing program in the form of road and ATV trail maintenance, instructional sign needs, and law enforcement. These costs should be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs.

4.2.6 Impacts to Wildlife Dependant Recreation

No Action Alternative

The public would not have the opportunity to harvest a renewable resource, participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established, have an increased awareness of Bayou Cocodrie NWR and the National Wildlife Refuge System; nor would the Service be meeting public use demand. Public relations would not be enhanced with the local community.

Proposed Action Alternative

As public use levels expand across time, unanticipated conflicts between user groups may occur. Experience has proven that time and space zoning (e.g., establishment of separate

use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. The refuge would focus non-consumptive use (mainly bird watching and other wildlife viewing) in the 3,000 acres that is closed to hunting. Squirrel and rabbit hunters would not be able to use dogs until after the last deer gun hunt to ensure conflicts do not arise. Raccoon and opossum hunting (which the State allows to be open all year) would be limited to February at nighttime. This would limit conflicts between raccoon/opossum hunters and deer gun hunters. This would also limit disturbance to wildlife during the spring and summer when most species reproduce.

The public would be allowed to harvest a renewable resource, and the refuge would be promoting a wildlife-oriented recreational opportunity that is compatible with the purpose for which the refuge was established. The public would have an increased awareness of Bayou Cocodrie NWR and the National Wildlife Refuge System and public demand for more hunting and fishing would be met. The public would also have the opportunity to harvest a renewable resource in a traditional manner, which is culturally important to the local community. This alternative would also allow the public to enjoy hunting and fishing at no or little cost in a region where private land is leased for hunting, often costing a person \$300-\$2000/year for membership.

Conflicts between consumptive and non-consumptive users might occur but would be mitigated by time (non-hunting season) and space zoning. The refuge would focus non-consumptive recreation on the 3,000-acre no hunting area.

4.3 Cumulative Impacts Analysis

4.3.1 Anticipated Direct and Indirect Impacts of Proposed Action on Wildlife Species.

4.3.1.1 Migratory Birds

The U.S. Fish and Wildlife Service, working with partners, annually prescribe frameworks, or outer limits, for dates and times when hunting may occur and the number of birds that may be taken and possessed. These frameworks are necessary to allow State selections of season and limits for recreation and sustenance; aid Federal, State, and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which States may select season dates, bag limits, shooting hours, and other options for the each migratory bird hunting season. The frameworks are essentially permissive in that hunting of migratory birds would not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

Migratory game birds are those bird species so designated in conventions between the United States and several foreign nations for the protection and management of these birds. Under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Secretary of the

Interior is authorized to determine when "hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any ... bird, or any part, nest, or egg" of migratory game birds can take place, and to adopt regulations for this purpose. These regulations are written after giving due regard to "the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, and are updated annually (16 U.S.C. 704(a)). This responsibility has been delegated to the U.S. Fish and Wildlife Service as the lead federal agency for managing and conserving migratory birds in the United States. Acknowledging regional differences in hunting conditions, the Service has administratively divided the nation into four Flyways for the primary purpose of managing migratory game birds. Each Flyway (Atlantic, Mississippi, Central, and Pacific) has a Flyway Council, a formal organization generally composed of one member from each State and Province in that Flyway. Bayou Cocodrie NWR is within the Mississippi Flyway.

The process for adopting migratory game bird hunting regulations, located in 50 CFR part 20, is constrained by three primary factors. Legal and administrative considerations dictate how long the rule making process will last. Most importantly, however, the biological cycle of migratory game birds controls the timing of data-gathering activities and thus the dates on which these results are available for consideration and deliberation. The process of adopting migratory game bird hunting regulations includes two separate regulations-development schedules, based on "early" and "late" hunting season regulations. Early hunting seasons pertain to all migratory game bird species in Alaska, Hawaii, Puerto Rico, and the Virgin Islands; migratory game birds other than waterfowl (e.g. dove, woodcock, etc.); and special early waterfowl seasons, such as teal or resident Canada geese. Early hunting seasons generally begin prior to October 1. Late hunting seasons generally start on or after October 1 and include most waterfowl seasons not already established. There are basically no differences in the processes for establishing either early or late hunting seasons. For each cycle, Service biologists and others gather, analyze, and interpret biological survey data and provide this information to all those involved in the process through a series of published status reports and presentations to Flyway Councils and other interested parties (USFWS 2006).

Currently, Bayou Cocodrie NWR has an average harvest of 300 dabbling ducks on 10,000 acres (primarily Mallards, Wood Ducks, and Gadwalls) per season. Under the proposed action, Bayou Cocodrie NWR estimates a maximum additional 100 ducks would be harvested each year. Waterfowl hunting is only allowed four days during the week, which is more conservative than regulations set forth by Louisiana Department of Wildlife and Fisheries (LDWF). This harvest represents 0.01% of Louisiana's four-year average harvest of 921,990 ducks (USFWS 2005). Expansion of duck hunting on an additional 1,500 acres should not have cumulative impacts on the dabbling duck population.

Because the Service is required to take abundance of migratory birds and other factors in to consideration, the Service undertakes a number of surveys throughout the year in conjunction with the Canadian Wildlife Service, State and Provincial wildlife-

management agencies, and others. To determine the appropriate frameworks for each species, the Service considers factors such as population size and trend, geographical distribution, annual breeding effort, the condition of breeding and wintering habitat, the number of hunters, and the anticipated harvest. After frameworks are established for season lengths, bag limits, and areas for migratory game bird hunting, migratory game bird management becomes a cooperative effort of State and Federal Governments. After Service establishment of final frameworks for hunting seasons, the States may select season dates, bag limits, and other regulatory options for the hunting seasons. States may always be more conservative in their selections than the Federal frameworks but never more liberal. Season dates and bag limits for National Wildlife Refuges open to hunting are never longer or larger than the State regulations. In fact, based upon the findings of an environmental assessment developed when a National Wildlife Refuge opens a new hunting activity, season dates and bag limits may be more restrictive than the State allows. At Bayou Cocodrie NWR, season length is more restrictive for waterfowl than the State allows.

NEPA considerations by the Service for hunted migratory game bird species are addressed by the programmatic document, "Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (FSES 88-14)," filed with the Environmental Protection Agency on June 9, 1988. We published Notice of Availability in the Federal Register on June 16, 1988 (53 FR 22582), and our Record of Decision on August 18, 1988 (53 FR 31341). Annual NEPA considerations for waterfowl hunting frameworks are covered under a separate Environmental Assessment, "Duck Hunting Regulations for 2006-07," and an August 24, 2006, Finding of No Significant Impact. Further, in a notice published in the September 8, 2005, Federal Register (70 FR 53376), the Service announced its intent to develop a new Supplemental Environmental Impact Statement for the migratory bird hunting program. Public scoping meetings were held in the spring of 2006, as announced in a March 9, 2006, Federal Register notice (71 FR 12216). More information may be obtained from: Chief, Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Department of the Interior, MS MBSP-4107-ARLSQ, 1849 C Street, NWR, Washington, DC 20240.

Although woodcock are showing declines in numbers on their breeding grounds, habitat loss is considered to be the culprit, not hunting. This assertion was tested in a study conducted by the U.S. Geological Patuxent Wildlife Research Center in 2005 (McAuley *et al.* 2005). Results showed no significant differences in woodcock survival between hunted and non-hunted areas. Furthermore, the authors concluded that hunting was not having a considerable impact on woodcock numbers in the Northeast (McAuley *et al.* 2005).

An estimated 24,000 woodcock were harvested in the 2005/06 season in the state of Louisiana. Louisiana's harvest of 24,000 woodcock represented 0.5% of the estimated 4.6 million North American woodcock population. Limited woodcock habitat exists during most of the hunting season. Woodcock hunting is not popular in Central Louisiana; the refuge draws less than 10 woodcock hunters a year. With such relatively

few woodcock being currently harvested on the refuge, the opening of additional acreage to hunting as stated in the proposed action should have no cumulative effects on their local, regional or flyway populations.

4.3.1.2 Resident Big Game

4.3.1.2.1 Deer

Deer hunting does not have regional population impacts due to restricted home ranges. The average home range of a male deer in Mississippi is $1,511 \pm 571$ S.D hectares. (Mott *et al.* 1985). Therefore, only local impacts occur.

Deer herd health checks are conducted every 5 years on the refuge by the Southeast Cooperative Wildlife Disease Study in Georgia. Harvest and survey data confirm that many years of deer hunting for 90 days using bait on surrounding private lands have not had a cumulative adverse effect on the deer population. The expansion of hunting on 1,500 acres of refuge lands for a very limited deer gun hunt (7-9 days without bait) should not negatively impact the deer herd.

Harvest and survey data confirm that decades of deer hunting on surrounding private lands (using bait and a longer season) have not had a local cumulative adverse effect on the deer population. LDWF estimate 209,200 deer were harvested throughout the state in 2005/06. The average annual statewide harvest since 1995 is 234,000 deer. The refuge estimates an additional maximum 50 deer would be harvested under the proposed action, representing only 0.02% of the long-term average state harvest. Expansion of hunting on 1,500 acres of refuge lands should not have cumulative impacts on the deer herd.

4.3.1.2.2 Feral Hogs

Feral hogs are an extremely invasive introduced, non-native species and is not considered a game species by the State of Louisiana. No bag limits are established for feral hogs. Hunting of feral hogs provides the refuge with another management tool in reducing this detrimental species, and at the same time, is widely enjoyed by local hunters. Cumulative effects to an exotic, invasive species should not be of concern because the refuge would like to extirpate this species on refuge lands. Hunting of hogs is not considered detrimental to the biological integrity of the refuge, is not likely to create conflict with other public uses and is within the wildlife dependant public uses to be given priority consideration. Since hogs are exotic, they are not a priority species in Refuge management considerations. They are a popular game species though, and the public interest would best be served by allowing this activity on the refuge. However, even with hunting, feral hogs are likely to always be present because they are prolific breeders.

4.3.1.3 Small Game (Squirrel, Rabbit, Raccoon, Opossum, Coyote, and Beaver)

Squirrels, rabbit, raccoon, and opossum cannot be affected regionally by refuge hunting

because of their limited home ranges. Only local effects will be discussed. Opossum and raccoon are hunted primarily at night. Raccoon are more sought after than opossum by the public. Hunting helps regulate opossum and raccoon populations; however, unless the popularity of this type of hunting increases, raccoons and opossums numbers will always be higher than desired. When these species become extremely overabundant, diseases such as distemper and rabies reduce the populations. However, waiting for disease outbreak to regulate their numbers can be a human health hazard. Cumulative impacts to raccoon and opossum are unlikely considering they are quickly reproducing, nocturnal in habit making them difficult to hunt, and are not as popular as other game species by the public.

Studies have been conducted within and outside of Louisiana to determine the effects of hunting on the population dynamics of small game. Results from studies have consistently shown that small game, such as rabbits and squirrels, are not affected by hunting, but rather are limited by food resources. The refuge consulted with biologists at the LDWF in association with this assessment on the cumulative impacts of hunting on rabbits and squirrel. The statewide Louisiana harvest for 2005/06 was estimated at 1,253,900. On Bayou Cocodrie NWR, from 2001-2004, hunter harvest data reports indicated a peak of 1222 squirrels/season, representing 0.09% of the state's harvest. LDWF estimated 255,200 rabbits killed by hunters in the 2005/06 season. Under the proposed action, the refuge estimates a maximum additional 10 rabbits would be harvested, representing only 0.004% of the statewide harvest. Gray squirrels, fox squirrels, eastern cottontails, and swamp rabbits are prolific breeders and their populations have never been threatened by hunting in Louisiana even prior to the passing of hunting regulations as we know them today.

Coyotes and beaver cannot be affected regionally by refuge hunting because of their limited home ranges. Only local effects will be discussed. Coyotes and beaver are overpopulated and can have adverse effects on their habitats. Coyotes depredate small mammals, songbirds and their nests, turkey and quail nests and any other animal they opportunistically encounter. When coyote numbers are high, local wildlife populations can be negatively affected. Coyotes are probably the most resilient species in North America. Today regulated hunting has no cumulative impact on their populations. Hunting of both coyotes and beaver is beneficial in helping meet refuge objectives.

4.3.1.4 Non-hunted Wildlife

Non-hunted wildlife would include non-hunted migratory birds such as songbirds, wading birds, raptors, and woodpeckers; small mammals such as voles, moles, mice, shrews, and bats; reptiles and amphibians such as snakes, skinks, turtles, lizards, salamanders, frogs and toads; and invertebrates such as butterflies, moths, other insects and spiders. Except for migratory birds and some species of migratory bats, butterflies and moths, these species have very limited home ranges and hunting could not affect their populations regionally; thus, only local effects will be discussed.

Some species of bats, butterflies and moths are migratory. Cumulative effects to these

species at the “flyway” level should be negligible. These species are in torpor or have completely passed through North Louisiana by peak hunting season in Nov-Jan. Some hunting occurs during September and October when these species are migrating; however, hunter interaction would be commensurate with that of non-consumptive users.

Disturbance to non-hunted migratory birds could have regional, local, and flyway effects. Regional and flyway effects would not be applicable to species that do not migrate such as most woodpeckers, and some songbirds including cardinals, titmice, wrens, chickadees, etc. The cumulative effects of disturbance to non-hunted migratory birds under the proposed action are expected to be negligible for the following reasons. Hunting season would not coincide with the nesting season. Long-term future impacts that could occur if reproduction was reduced by hunting are not relevant for this reason. Disturbance to the daily wintering activities, such as feeding and resting, of birds might occur. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users.

The cumulative effects of disturbance to other non-hunted wildlife species under the proposed action are also expected to be negligible. However, disturbance would be unlikely for the following reasons. Small mammals, including bats, are inactive during winter when hunting season occurs. These species are also nocturnal. Both of these qualities make hunter interactions with small mammals very rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the hunting season when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season. Encounters with reptiles and amphibians in the early fall are few and should not have cumulative effects on reptile and amphibian populations. Invertebrates are also not active during cold weather and would have few interactions with hunters during the hunting season. The refuge has estimated current hunter density on peak days to be no more than 1 hunter per 40 acres. During the vast majority of the hunting season, hunter density is much lower (1 hunter/400 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Vehicles are restricted to roads and the harassment or taking of any wildlife other than the game species legal for the season is not permitted.

Although ingestion of lead-shot by non-hunted wildlife could be a cumulative impact, it is not relevant to Bayou Cocodrie NWR because the use of lead shot would not be permitted on the refuge for any type of hunting.

4.3.1.5 Endangered Species

Endangered and threatened species that utilize the refuge are bald eagle and Louisiana black bear. A Section 7 Evaluation was conducted in association with this assessment for opening hunting and fishing on additional 1,500 acres on Bayou Cocodrie NWR. It was determined that the proposed alternative would not likely affect these endangered species.

Bald eagles currently winter in areas that are open to waterfowl, deer, and small game hunting without noticeable adverse effects. No nesting activity has been observed on the

Refuge.

Few Louisiana black bears occur on the refuge and encounters by hunters with bears would be rare. Prohibiting the use of bait would also contribute to keeping bear/hunter interactions low. Most hunting would be conducted in winter when bears are not as active and may be in dens.

Refer to the Section 7 Evaluation for the Sport Hunting and fishing on Bayou Cocodrie NWR for more information.

4.3.2 Anticipated Direct and Indirect Impacts of Proposed Action on Refuge Programs, Facilities, and Cultural Resources.

4.3.2.1 Wildlife-Dependant Recreation

As public use levels expand across time, unanticipated conflicts between user groups may occur. The Refuge's visitor use programs would be adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities. Experience has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups.

The level of recreation use and ground-based disturbance from visitors would be largely concentrated at trails and the Refuge's office and maintenance areas. This, combined with the addition of increased hunting and fishing opportunity, could have a negative effect on nesting bird populations. However, the hunting season (except for the two-week nuisance animal control hunt in March) is during the winter and not during most birds' nesting period. It is unlikely that bald eagles would establish nests near developed facilities or during the hunting season.

The opportunities for hunting and fishing would expand under the proposed action. High deer numbers are recognized as a problem causing crop damage, reducing some forest understory species, and reducing reforestation seedling survival. Hunting would be used to keep the deer herd and other resident wildlife in balance with the habitat's carrying capacity.

The refuge would control access under this alternative to minimize wildlife disturbance and habitat degradation, while allowing current and proposed compatible wildlife-dependent recreation. Some areas, such as waterfowl sanctuaries, would be closed seasonally to hunting to minimize disturbance to wintering waterfowl.

4.3.2.2 Refuge Facilities

The Service defines facilities as: "Real property that serves a particular function(s) such as buildings, roads, utilities, water control structures, raceways, etc." Under the proposed action those facilities most utilized by hunters are: roads, parking lots, trails and boat launching ramps. Maintenance or improvement of existing facilities (i.e. parking areas,

roads, trails, and boat ramps) will cause minimal short term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation. The reader should note that the facility maintenance and improvement activities described are periodically conducted to accommodate daily refuge management operations and general public uses such as wildlife observation and photography. These activities will be conducted at times (seasonal and/or daily) to cause the least amount of disturbance to wildlife. Siltation barriers will be used to minimize soil erosion, and all disturbed sites will be restored to as natural a condition as possible. During times when roads are impassible due to flood events or other natural causes those roads, parking lots, trails and boat ramps impacted by the event will be closed to vehicular use.

4.3.2.3 Cultural Resources

Hunting and fishing, regardless of method or species targeted, is a consumptive activity that does not pose any threat to historic properties on and/or near the Refuge. In fact, hunting and fishing meets only one of the two criteria used to identify an “undertaking” that triggers a federal agency’s need to comply with Section 106 of the National Historic Preservation Act. These criteria, which are delineated in 36 CFR Part 800, state:

- 1- an undertaking is any project, activity, or program that can alter the character or use of an archaeological or historic site located within the “area of potential effect;” and
- 2- the project, activity, or program must also be either funded, sponsored, performed, licenses, or have received assistance from the agency.

Consultation with the pertinent State Historic Preservation Office and federally recognized Tribes are, therefore, not required.

4.3.2.4 Anticipated Impacts of Proposed Hunt on Refuge Environment and Community.

The refuge expects no sizeable adverse impacts of the proposed action on the refuge environment which consists of soils, vegetation, air quality, water quality and solitude. Some disturbance to surface soils and vegetation would occur in areas selected for hunting and fishing; however minimal. Hunting would benefit vegetation as it is used to keep many resident wildlife populations in balance with the habitat’s carrying capacity. The refuge would also control access to minimize habitat degradation.

The refuge expects impacts to air and water quality to be minimal and only due to refuge visitors’ automobile and off-road vehicle emissions and run-off. The effect of these refuge-related activities, as well as other management activities, on overall air and water quality in the region are anticipated to be relatively negligible, compared to the contributions of industrial centers, power plants, and non-refuge vehicle traffic. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State

standards and laws.

Impacts associated with solitude are expected to be minimal given time and space zone management techniques, such as seasonal access and area closures, used to avoid conflicts among user groups.

The refuge would work closely with State, Federal, and private partners to minimize impacts to adjacent lands and its associated natural resources; however, no indirect or direct impacts are anticipated. The newly opened hunts would result in a net gain of public hunting opportunities positively impacting the general public, nearby residents, and refuge visitors. The refuge expects increased visitation and tourism to bring additional revenues to local communities but not a significant increase in overall revenue in any area.

4.3.2.5 Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time. The proposed hunt plan has been designed so as to be sustainable through time given relatively stable conditions. Changes in refuge conditions, such as sizeable increases in refuge acreage or public use, are likely to change the anticipated impacts of the current plan and would trigger a new hunt planning and assessment process.

The implementation of any of the proposed action described in this assessment includes actions relating to the refuge hunt program (see Sport Hunting and fishing Plan for Bayou Cocodrie NWR). These actions would have both direct and indirect effects (e.g., new site inclusion would result in increased public use, thus increasing vehicular traffic, disturbance, etc); however, the cumulative effects of these actions are not expected to be substantial.

The past refuge hunting and fishing program has been very similar to the proposed action in season lengths, species hunted, and bag limits. Changes to the hunt program in the past decade have been made to open hunting on more land within the refuge. These lands were usually those that had been recently acquired. The refuge does not foresee any changes to the proposed action in the way of increasing hunting and fishing in the future.

4.3.2.6 Anticipated Impacts if Individual Hunts are Allowed to Accumulate

National Wildlife Refuges, including Bayou Cocodrie NWR, conduct hunting programs within the framework of State and Federal regulations. Bayou Cocodrie NWR is at least as restrictive as the State of Louisiana (squirrel, rabbit, woodcock) and in many cases more restrictive (deer, hog, waterfowl, raccoon, opossum, coyote, beaver). By maintaining hunting and fishing regulations that are as, or more, restrictive than the State,

individual refuges ensure that they are maintaining seasons which are supportive of management on a more regional and flyway basis. The proposed hunt plan has been reviewed and is supported by the Louisiana Dept. of Wildlife and Fisheries. Additionally, refuges coordinate with LDWF annually to maintain regulations and programs that are consistent with the State management program.

Chapter 5 Consultation and Coordination with Others

The Louisiana Department of Wildlife and Fisheries (LDWF) concurs and fully supports the regulated consumptive public use of the natural resources associated with the Bayou Cocodrie NWR (Refer to Letters of Concurrence). The Fish and Wildlife Service also provided an in depth review by the Regional Office personnel and staff biologists. Numerous contacts were made throughout the area of the refuge soliciting comments, views, and ideas into the development of the accompanying hunting and fishing plan.

Appendix 1 Literature References

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Appendix 2 Response to Public Comments

The Service solicited public comment for the 2007 Sport Hunting and Fishing Plan and associated Environmental Assessment. The 30-day review period began February 14, 2007 and ended on March 14, 2007. Copies of the document were placed in two libraries within Concordia parish, and news releases announcing its availability for comment were placed in three local newspapers.

Five comments by the public were received, four of which were in favor of the Proposed Action to implement the 2007 Sport Hunting and Fishing Plan which would open hunting on additional 1,500 acres of Bayou Cocodrie NWR and open a Special Feral Hog Control hunt. One comment, by the Humane Society of the United States (HSUS) was negative. Comments by the HSUS are summarized and responded to below.

The HSUS “objects to the inadequate notice and amount of time for commenting” on the document. The Service solicited comments during the 30-day review period from February 14 through March 14, 2007. Announcements of the public review period were placed in three newspapers and copies of the document were placed in two libraries.

The HSUS stated that the Refuge Improvement Act does not “relieve the [Service] of its obligations to consider the environmental impacts of, and alternatives to, the agency’s decisions with regard to hunting...” Comment is noted.

The HSUS states that the Service must ensure the availability of sufficient funds before approving hunting on the refuge. This comment refers to the Refuge Recreation Act. Sufficient funds are available to implement the 2007 Sport Hunting and Fishing Plan for Bayou Cocodrie NWR as stated within the hunting and fishing plan on page 9.

The HSUS states they are opposed to the hunting and fishing plan and believe it violates the National Environmental Policy Act (NEPA). Comment is noted.

The HSUS states that the environmental assessment “fails to comport with the Court’s August 2006 decision”, referring to court case The Fund for Animals v. Hall. The Service notes the comment.

The HSUS states that the Service has not completed the Refuges 2003 Plan and Environmental Impact Statement (EIS). The Service notes the comment.

The HSUS states that the hunting and fishing plan and environmental assessment must provide a purpose and need for hunting on the refuge. The Service notes the comment.

The HSUS believes that there are adverse impacts by refuge uses for the past few decades and that an EIS is needed. The Service notes the comment.

The HSUS states that the Service must complete a Section 7 evaluation. Bayou Cocodrie NWR completed a Section 7 evaluation as part of the hunt and fish plan and assessment.

The HSUS states that the Service has compromised the biological integrity of refuges by allowing hunting and that the Service does not consider impacts of hunters on non-consumptive users. The HSUS also claims that hunting and the number of hunters is decreasing and the Service has not capitalized on potential economic gain that would come from non-consumptive users. The Service notes these comments.

The HSUS states that the planned nuisance feral hog control hunt scheduled in March will have negative impacts on nesting wildlife species. Based on the best biological information available and refuge staff expertise, the Service holds to the view that feral hogs have negative impacts on wildlife species/habitats and there would be no impact to nesting species by conducting this hunt in March. Most nesting birds in North Louisiana begin peak nesting and raising of young in April.

The HSUS states that woodcock, American black ducks, greater and lesser scaup, and king rails should not be hunted because their populations are declining. The Service relies on the Migratory Bird Frameworks to set hunting regulations of migratory birds annually. The Frameworks are based on the best biological information available.

The HSUS states that the environmental assessment “does not adequately address the cumulative impacts of hunting across the entire Refuge system nor even, for that matter, the region of the state in which the refuge resides”. The comment is noted for the entire refuge system. The Service revised cumulative impact analysis to ensure it was adequately addressed at the state level. The refuge fits its hunting program within the State of Louisiana’s regulations which take into consideration the cumulative impacts of hunting across the state.

The HSUS states that the environmental assessment does not adequately address the cumulative direct and indirect impacts of hunting on wildlife recreation, refuge facilities, cultural resources, the environment, and the community. The Service notes the comment.

The HSUS states that the environmental assessment does not consider temporal or monetary investments necessary to isolate consumptive and non-consumptive users on the refuge. The Service notes the comment.

The HSUS states that in the cumulative impacts analysis, the environmental assessment states in the beginning that cumulative effects “may result from individually minor action, they may, viewed as a whole, become substantial over time”, and then later, states “... the cumulative effects of these actions are not expected to be substantial.” The HSUS feels these two statements are contradictory. The Service disagrees. The first statement is the context for why a cumulative impact analysis is conducted and the second statement is the Service’s conclusion after the analysis is completed.

The HSUS states that the environmental assessment does not justify the cumulative impacts of hunting on targeted wildlife species. The Service notes the comment.

FINDING OF NO SIGNIFICANT IMPACT

Bayou Cocodrie National Wildlife Refuge Hunting and Fishing Plan

Introduction

The U.S. Fish and Wildlife Service proposes to expand hunting and fishing on Bayou Cocodrie NWR. Hunting activities will be permitted, but administratively limited to those areas specified in the refuge-specific regulations. All or parts of the refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for other reasons. Alternatives considered included: no action – current management; and the proposed action – sport hunting and fishing plan for Bayou Cocodrie NWR.

Alternatives

The Service has analyzed the following alternatives to the proposal in an Environmental Assessment (copy attached):

No Action Alternative: Current Management

Under this alternative, hunting and fishing would be limited to the 10,000 acres currently open to hunting and to species currently allowed to be hunted, including deer, feral hogs, ducks, geese, woodcock, squirrel, rabbit, raccoon, opossum, coyote, and beaver. There would be no change to current public use and wildlife management programs.

Proposed Action: Sport Hunting and Fishing Plan for Bayou Cocodrie NWR

The proposed action would increase land open to hunting and fishing by 1,500 acres on the Hoover Slough Unit and add an additional two-week nuisance animal control hunt for feral hogs in March on Bayou Cocodrie NWR. All or parts of the refuge may be closed to hunting or fishing at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons.

Selection Rationale

The preferred alternative was selected over the other alternative because:

The preferred alternative would allow the refuge to manage wildlife populations, allow the public to harvest a renewable resource, promote a wildlife-dependant recreational opportunity, increase awareness of Bayou Cocodrie NWR and the National Wildlife Refuge System, and meet public demand.

The preferred alternative is compatible with general Service policy regarding the establishment of hunting on National Wildlife Refuges.

The preferred alternative is compatible with the purpose of which Bayou Cocodrie NWR was established.

There are no conflicts with local, state, regional, or federal plans or policies.

Implementation of the agency's decision would be expected to result in the following environmental, social, and economic effects:

- The refuge could better manage wildlife populations.
- This would allow the public to harvest a renewable resource.
- The public would have increased opportunity for wildlife-dependant recreation.
- Local businesses would benefit from hunters and fishers visiting from surrounding parishes.
- The Service will be perceived as a good steward of the land by continuing traditional uses of land in Louisiana.

Measures to mitigate and/or minimize adverse effects have been incorporated into the proposal. These measures include:

- Baiting will be prohibited.
- Gun and muzzleloader deer hunting will be limited to 10-16 days rather than the entire state season.
- Waterfowl hunting will be limited to 12:00 noon.
- An aggressive refuge law enforcement program and closely regulated hunting season will ensure hunt regulation compliance and will protect refuge resources.

The proposal is not expected to have any significant adverse effects on wetlands and flood plains, pursuant to Executive Orders 11990 and 11988 because this area has historically had a high use of recreational hunting and commercial trapping with no detrimental long-term effect on wetlands.

The proposal has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

- U.S. Fish and Wildlife Service, Division of Ecological Services, Lafayette, LA
- Louisiana Department of Wildlife and Fisheries, Office of the Secretary, Wildlife Division

Copies of the Environmental Assessment are available by writing:

Bayou Cocodrie National Wildlife Refuge
 PO Box 1772
 Ferriday, LA 71334

Therefore, it is my determination that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of the National Environment Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the following factors (40 CFR 1508.27):

1. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment (EA, page 16-29).
2. The actions will not have a significant effect on public health and safety (EA,

