

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 Plan for Key Cave National Wildlife Refuge in Lauderdale County, Alabama:

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.

X _____ 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, 2007
Compatibility Determination, 2007

Signature Approval:

C. Dwyer 04/11/2007 Richard Warner 04/19/07
(1) Originator Date (2) Regional Environmental Coordinator Date

Bud Chivers 4/19/2007 [Signature] 4/22/07
(3) Regional Chief, NWRS, Southeast Region Date (4) Regional Director, Southeast Region Date

Sport Hunting
Decision Document Package
for
KEY CAVE NWR

Contents

2. EA

Environmental Assessment

2007 Sport Hunt Plan

on

KEY CAVE NATIONAL WILDLIFE REFUGE
Lauderdale County, Alabama

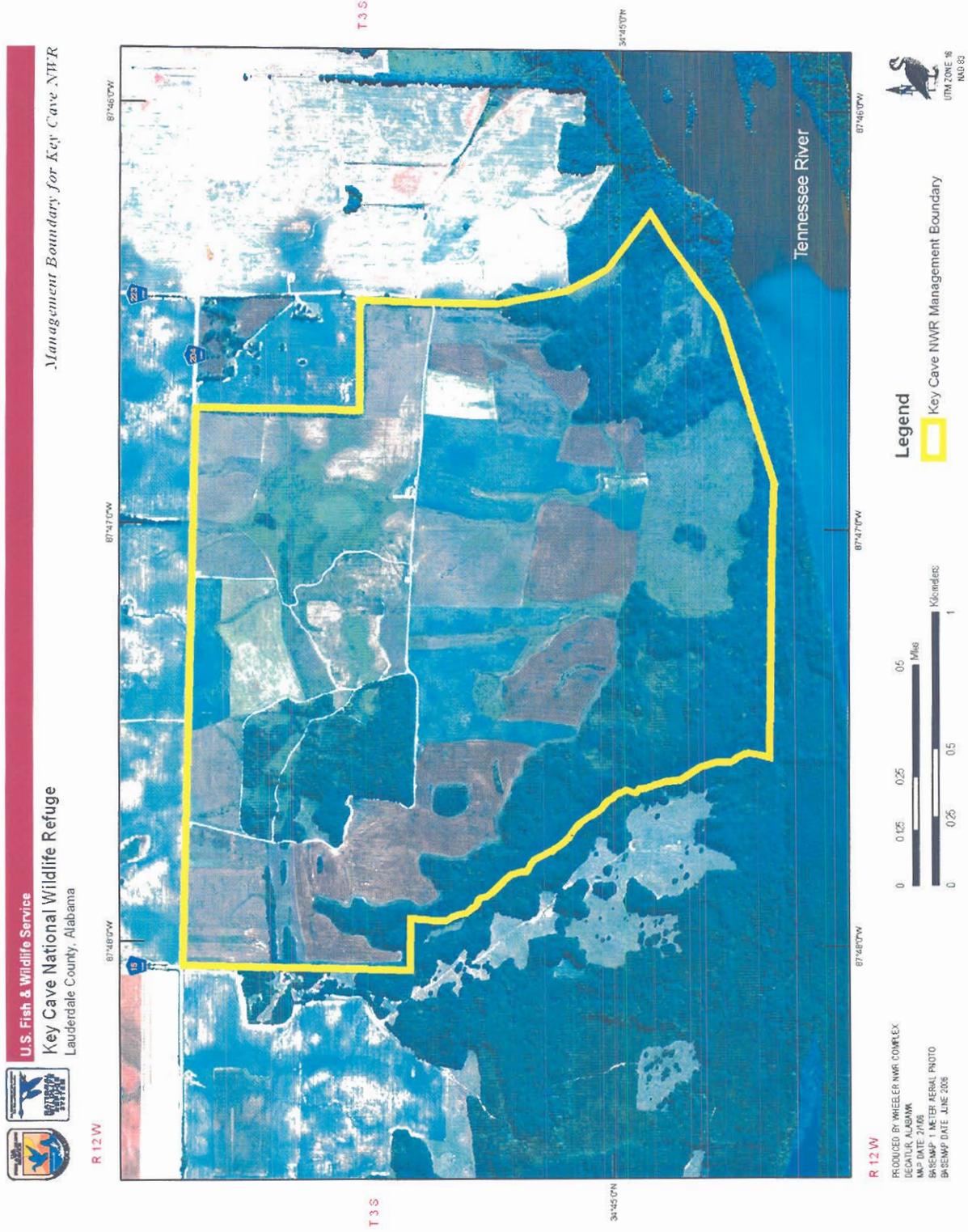
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Figure 1. Key Cave National Wildlife Refuge





U.S. Fish & Wildlife Service

Key Cave National Wildlife Refuge
Lauderdale County, Alabama

Location Map

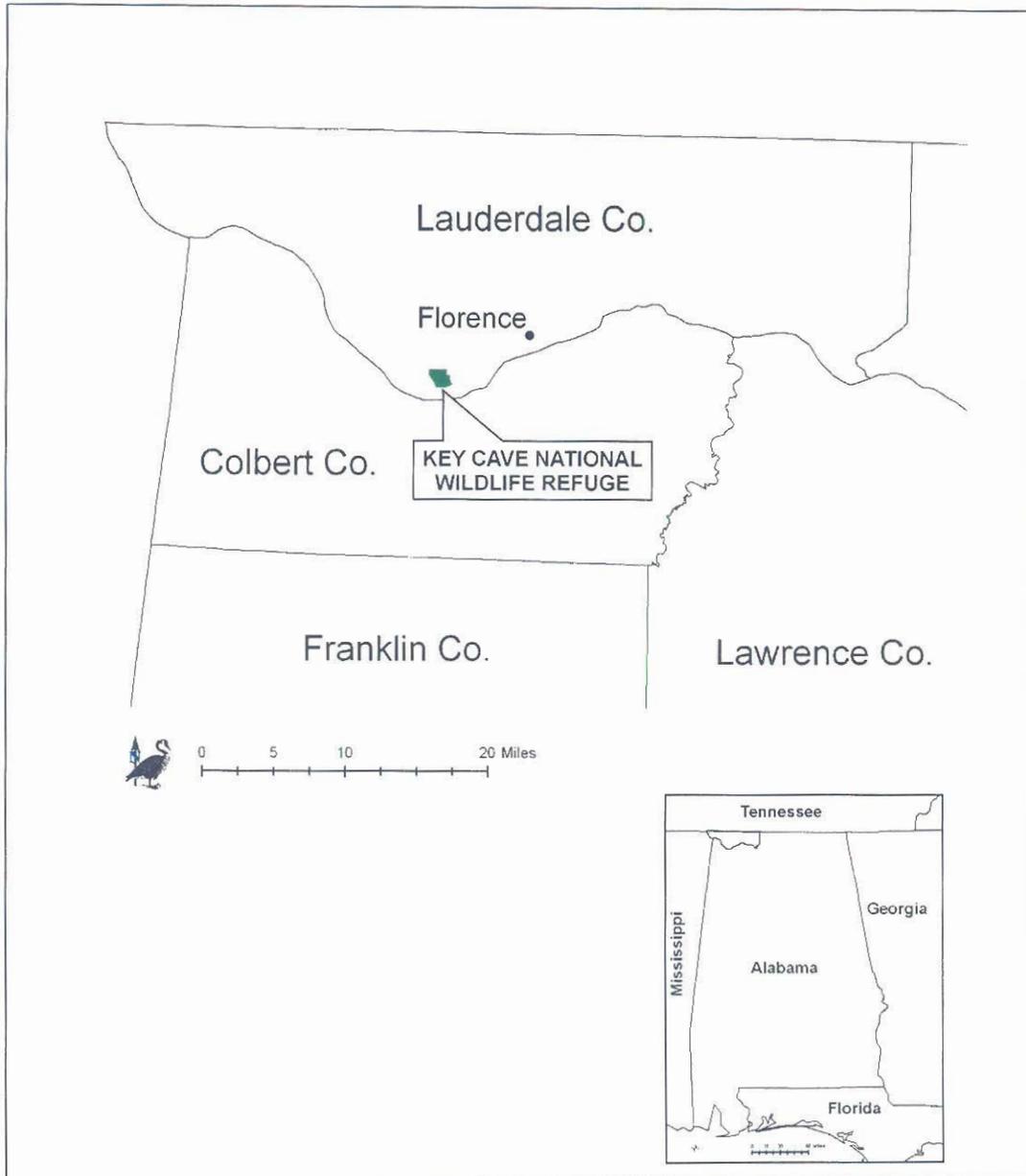


Figure 2. Location of Key Cave National Wildlife Refuge.

Chapter 1 Purpose and Need for Action

The federally legislated purpose for which Key Cave NWR was established under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a-742j, not including 742d-l), and the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544), is to ensure that the biological integrity of Key Cave, Collier Cave, Collier Bone Cave, and their common aquifer remains intact.

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 U. S. Fish and Wildlife Service (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, wildlife photography, 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.

In response to a 2003 lawsuit filed by the Fund for Animals, the Service will amend or rewrite environmental assessments that describe hunting programs at twenty-three national wildlife refuges located in the Southeast Region. The new environmental assessments will address the cumulative impacts of hunting at all refuges which were named in or otherwise affected by the lawsuit. This document addresses the hunting programs at Key Cave National Wildlife Refuge in Alabama.

The proposed action is needed to implement the 2007 Sport Hunting Plan for Key Cave 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 on Key Cave National Wildlife Refuge. These alternatives are the 1) no hunt action and 2) proposed action which implements the Refuge's current hunt - 2007 Sport Hunting Management Plan.

2.1 No Action Alternative: No Hunting

Under this alternative, hunting would not occur on the 1,060-acre refuge. This would be a change to current public use and wildlife management programs.

2.2 Proposed Action: 2007 Sport Hunting Plan for Key Cave NWR

The proposed action would continue hunting on the entire 1,060-acre refuge (Figure 1), which has been ongoing since the Finding of No Significant Impact in 1998. 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 administrative reasons.

Refer to 2007 Sport Hunting Plan for Key Cave NWR for specific regulations.

Chapter 3 Affected Environment

The Key Cave National Wildlife Refuge (NWR) was established on January 3, 1997. It is located in Lauderdale County in northwest Alabama (Figure 2). The refuge contains 1,060 acres that is bound on the south by Tennessee Valley Authority lands administered by the Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries as Seven Mile Island Wildlife Management Area, and on the west, east and north by privately owned land.

Prior to 1992, the Monsanto Company owned a large 1,060-acre tract of land just north of Key Cave and about five miles southwest of Florence, Lauderdale County, Alabama, in the high hazard risk area of the Key Cave Aquifer. In 1992 they sold this tract to The Conservation Fund, which held the land until the Service acquired the land five years later to establish Key Cave NWR.

Key Cave is the only known location for the federally endangered Alabama cavefish (*Speoplatyrhinus poulsoni*) and lies in a limestone karst area that contains numerous sinkholes and several underground cave systems. The area's sinkholes are an integral component of groundwater recharge to the caves. In addition to the Alabama cavefish, Key Cave also serves as a priority one maternity cave for the federally endangered gray bat (*Myotis grisescens*), as well as habitat for two species of blind crayfish (*Procambarus pecki* and *Cambarus jonesi*). Collier Cave, located approximately 1.5 miles upstream from Key Cave, and Collier Bone Cave are also considered potential habitat for these cave species. Cave entrances are located on TVA lands on the northern shore of Pickwick Lake. Furthermore, the refuge provides habitat for a variety of migratory and resident wildlife species. Several priority bird species commonly occurring on the refuge include: dickcissel, grasshopper sparrow, field sparrow, northern bobwhite, northern harrier, and short-eared owl.

3.1 Physical Environment

Key Cave NWR exists along the northern shore of the Pickwick Reservoir of the Tennessee River and resides within the Limestone Valley physiographic subdivision. It is also underlain by Tusculumbia Limestone, whose weathering has produced many karst features, including numerous springs, sinkholes, and several underground cave systems. There are very few exposures of bedrock except for locations along the bluff line at the margin of the Tennessee River (Aley, 1990). Topology is comprised of flat to gently rolling upland terraces with slopes ranging from one to 15%. Elevation of the land surface generally ranges from about 500 to 580 feet above MSL (Kidd et al., 2001).

Upland soils derived from the decay of high-grade limestone rock are found on Key Cave NWR. The properties of these soils are closely related to those of the parent rock and are underlain with clay or limestone. The Decatur, Dewey, and Fullerton soil series make up

approximately 80% of the land acreage on the refuge and have silt loam to silty clay loam textures (Sherard, 1971). These soils are well to moderately-drained and depth to bedrock average between 25 and 50 feet deep (Moser and Hyde, 1974). Small pockets of the Grasmere series can be found along small drainage ways and in shallow depressions. Soils in the Grasmere series drain moderately to poor and have silty-clay loam textures (Sherard, 1971).

Key Cave NWR does not have any perennial streams that currently flow across the refuge. Before the Service took ownership of the land, several large erosion ditches were present. Refuge personnel installed three shallow water areas and rehabilitated drainage channels to reduce erosion, thus enhancing the water quality for endangered species inhabiting Key Cave. A 38-acre sinkhole lake once held water on the refuge; however it has been dry since September of 2000. Numerous sinkholes are found in close proximity to the refuge and are an integral component of groundwater recharge to Key Cave, Collier Cave, and Collier Bone Cave.

In 1990, the Ozark Underground Laboratory conducted a study to determine the underground recharge area for the cave system. The recharge area was divided into four potential risk areas: high hazard, moderately high hazard, moderate hazard, and low hazard (Aley, 1990). The refuge resides in the high hazard risk area of the Key Cave Aquifer Recharge Zone.

The recharge zone is approximately 16 square miles and is located in karst topology underlain by Tusculmbia limestone. Surface drainage is poor and essentially all runoff water enters the groundwater system by sub-surface drainage. Only a portion of the water in the Key Cave Aquifer passes through Key Cave. The estimated mean annual discharge from the entire Key Cave Aquifer is approximately 15 to 20 cubic feet per second (cfs). This flow rate is subject to precipitation events and can fluctuate greatly (Aley, 1990). Waters from Pickwick Lake seldom, if ever, flow into the cave.

Key Cave NWR is within the Interior Low Plateau physiographic region and is a part of the Lower Tennessee-Cumberland Ecosystem.

3.2 Vegetation

Specific acreage by habitat is as follows: 295 acres are in row crop production (corn, soybeans, or wheat) under a Cooperative Farm Agreement, 327 acres are in early successional fields or native warm season grasses, 122 acres of former cropland have been planted to hardwoods, 30 acres of erosion drainages are being restored to grassland or hedgerow habitat, 16 acres are managed as shallow water areas, 75 acres are being converted to an oak savanna, and the remaining 195 acres consist of upland forested land dominated by oaks and hickories. Undesirable species such as bermuda grass, fescue, sericea lespedeza, and cocklebur are also present. A detailed description of the major vegetation types are listed below.

Dry (Upland) Hardwood Forest

As of this date a Forest Management Plan has not been developed for Key Cave NWR, but as per the June 18, 1997 Regional Reforestation of Federal Lands Memorandum, the refuge has reforested approximately 122 acres along the refuge's southern boundary. Native hardwoods such as white oak, northern red oak, water oak, Shumard oak, cherrybark oak, common persimmon, and flowering dogwood were planted with the help of volunteers. With this additional acreage, Key Cave NWR has approximately 317 acres of upland hardwood forests.

Oak Savanna Forest

An oak savanna forest is a community of scattered oak trees above a layer of grasses and forbs. The trees are spread out so that there is no closed canopy and the grasses and forbs receive plenty of sunlight. It is a transition ecosystem between grassland and woodland environments, so it is an important habitat for both woodland and prairie species. On Key Cave NWR, a 75-acre oak woodlot is currently being converted to oak savanna habitat to help promote a diversity of wildlife species.

Cropland

Currently at Key Cave NWR, farmers plant approximately 295 acres annually through a cooperative farming agreement in which a portion of the crop remain in the fields as rent. Rent portions are 20% for the refuge and the remaining 80% is the farmers share. Crops are grown to support a variety of wildlife and are primarily corn and soybeans, and occasionally wheat.

Grasslands

Native warm season grassland restoration has been on-going since the establishment of Key Cave NWR in 1997. Currently, approximately 327 acres of native warm season grasslands consisting of big bluestem, little bluestem, indiangrass, sideoats gramma, switchgrass, and eastern gamagrass are maintained for management of grassland-dependent and early successional species. Prescribed fire is used to maintain the native warm season grasses.

Karst Formations (Caves and Sinkholes)

Key Cave NWR is located in area of karst topology that has numerous sinkholes and caves that surround the refuge. When the refuge was first established in 1997, it had a 38-acre sinkhole pond on the property. However, the sinkhole has been dry since September of 2000, only holding a small amount of water for very short durations. Just south of the property boundary for Key Cave NWR lies the entrance to Key Cave. To the southeast of the refuge lie the entrances to Collier Cave and Collier Bone Cave. All three cave entrances are located on lands owned by TVA.

Shallow Water Areas

In 1999, two small (1-2 acre) shallow water areas (SWAs) were constructed to capture runoff surface water within grassed waterways. Then during late 2001 and early 2002, a larger (approximately 10 acres) SWA was constructed, which included a 700-foot dike and a 24-inch screwgate water control structure. These SWAs were designed to provide habitat for waterfowl and other wetland associated wildlife, as well as to capture silt from erosion before it enters the Key Cave aquifer. However, none of the SWAs have held much water since they were constructed.

3.3 Wildlife Resources

Key Cave NWR provides habitat for a variety of migratory and resident wildlife species. One hundred and sixty-five bird species have been sighted on the refuge. Several grassland-dependent bird species are commonly seen during the breeding season, including: dickcissel, grasshopper sparrow, field sparrow, and northern bobwhite. Northern harriers can be seen flying low over refuge grasslands searching for prey during the winter months and short-eared owls can also be seen occasionally during the winter. Other commonly seen wildlife species include cottontail rabbits, coyotes, white-tailed deer, gray squirrels, eastern meadowlarks, mourning doves, horned larks, and eastern bluebirds.

Recently, feral hogs have been documented on Key Cave NWR. These invasive animals have been destroying habitat and damaging crops. Observations indicate that the population of feral hogs is increasing at Key Cave NWR. Current efforts to control the feral hogs by refuge staff and volunteers have been unsuccessful. Many other wildlife species can be found on Key Cave NWR, including a wide variety of invertebrates (including two species of blind crayfish {*Procambarus pecki* and *Cambarus jonesi*} in the Cave), amphibians, reptiles, and mammals.

3.4 Threatened and Endangered Species

3.4.1 Alabama Cavefish

Key Cave NWR is the only known location of the Alabama cavefish (*Speoplatyrhinus poulsoni*), a small blind colorless fish which inhabits the underground pools in Key Cave. Only nine specimens are known to exist in scientific collections, and few individuals have been observed in the wild. Considering the limited distribution and the few specimens seen or collected, this species appears to be one of the rarest of all North American freshwater fish (Boschung and Mayden, 2004).

3.4.2 Gray Bat

The Cave is also a priority one maternity cave for the endangered gray bat (*Myotis grisescens*). Gray bat emergence counts are conducted annually at Key Cave and have

averaged 33,400 gray bats since 1997. Approximately 12,000-13,000 young gray bats are produced annually by this maternity colony.

3.5 Fishery Resources

Other than the Alabama cavefish occurring in Key Cave, the only other known fish inhabiting the cave is the southern cavefish (*Typhlichthys subterraneus*). No other fishery resources exist on the refuge.

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 Service'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.

3.7 Socio Economic

Lauderdale County forms the northwest corner of Alabama with 100 miles of frontage on the Tennessee River. The earliest economic enterprise was the farming of cotton in the early 1800's. Cotton is still the major crop and agriculture continues to be the dominant land use. Population estimates, land area, population density, percent population change, per capita income, and percent of population below the poverty level are listed in Table 1 for Lauderdale County and the state of Alabama (U.S. Census Bureau 2005a and 2005b).

Table 1. Comparison of demographic statistics for Lauderdale County and Alabama, based on U.S. Census 2005 data.

<i>Area</i>	<i>Land Area (sq. miles)</i>	<i>Population (2005 estimate)</i>	<i>Pop. Density (residents/ sq. mile)</i>	<i>% pop. change (2000-2003)</i>	<i>Per Capita Income (\$)</i>	<i>% below poverty</i>
Lauderdale Co.	669	87,691	131	-0.5	18,626	14.4
Alabama	50,744	4,557,808	88	1.9	18,189	16.1

Hunting is a traditional form of outdoor recreation for many people in Lauderdale County and for some households, hunting participation provides food at a much cheaper cost.

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 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 on the refuge as a result of hunting; however effects would be minimal. 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 emissions and run-off from road and trail sides. 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 only allowing hunting four days each week, used to avoid conflicts among user groups.

4.1.4 Cultural Resources

Under the hunting alternative, hunting, 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, and trails) 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, no hunting would occur on Key Cave NWR. This course of action would result in the loss of a desirable public outdoor recreation opportunity, i.e. public hunting.

Although hunters would not be traversing across the 1,060-acre refuge, 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

Under this alternative the entire refuge would be open to hunting and damage to individual plants by trampling vegetation could occur; however anticipated damage to vegetation should be minor. Vehicles would be confined to existing parking areas.

4.2.2 Impacts to Hunted Wildlife

No Action Alternative

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.

Raccoon and opossum populations could increase above the refuge's carrying capacity. The likelihood of starvation and diseases, such as distemper and rabies, would increase. Depredation on quail and songbird nests by raccoon and opossum would likely increase in proportion to their increasing populations.

Proposed Action Alternative

Mortality of individual hunted animals would occur under this alternative, estimated by the refuge to be an annual maximum range of 250–300 doves, 75-100 squirrels, 50-75 quail, 50-75 rabbits, 30-50 raccoons and 15-25 opossum. Hunting causes some disturbance to not only the species being hunted but other game species as well. However, time limitations (hunting four days per week) established by refuge regulations would minimize incidental disturbance.

Hunting of raccoon and opossum would help maintain their populations at or below carrying-capacity. The likelihood of starvation and diseases, such as distemper and rabies in raccoon and opossum, would be decreased.

During development of this hunting plan, we considered the possibility of allowing only non-toxic shot for hunting with shotguns on Key Cave NWR. However, we did not choose to implement this option. We determined that lead shot could be allowed for hunting dove and small game because the refuge is an upland refuge, waterfowl are not being hunted, and the 38-acre sinkhole lake is only used sporadically by small numbers of waterfowl, when it holds surface water (the sinkhole lake has been dry since 2000). Dove and quail could possibly ingest lead shot during feeding activities. However, chances of dove or quail ingesting lead shot are mitigated by rotation of dove hunting fields and by the relatively light hunting pressure observed during previous hunting seasons.

4.2.3 Impacts to Non-hunted Wildlife

No Action Alternative

Ground and shrub nesting birds are subject to high rates of nest depredation if raccoon and opossum populations are not kept in check through harvest. A Georgia study (Staller et al., 2006) indicated that raccoon and opossum are significant predators of quail nests, accounting for 26% of quail nest predation.

Disturbance to non-hunted wildlife would not occur on the refuge; however, non-consumptive users would still be permitted to access this land, which might cause disturbance to wildlife.

Proposed Action Alternative

Populations of raccoon and opossum would be decreased through hunting under this alternative. Depredation rates of quail and songbirds and their nests would decrease.

Disturbance to non-hunted wildlife would increase slightly. However, significant disturbance would be unlikely for the following reasons. Many small mammals, including bats, are inactive during most of the fall and winter hunting seasons and many of 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 most of 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 29.5 acres. During the vast majority of the hunting season, hunter density is much lower (1 hunter/295 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Vehicles are restricted to parking areas 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, but would be transitory as hunters traverse habitat. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users. The possibility of songbirds ingesting spent lead shot does exist but is unlikely to become problematic and is mitigated by rotation of dove hunting fields and by the relatively light hunting pressure observed during previous hunting seasons.

4.2.4 Impacts to Endangered and Threatened Species

No Action Alternative

If hunting does not occur on the refuge, there would be less chance of adversely affecting threatened and endangered species.

Proposed Action Alternative

A potential disadvantage of this alternative is its effect on endangered species on the refuge such as the gray bat and Alabama cavefish. Both these species are cave dwelling and effects from hunting are unlikely. 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 2007 Section 7 Evaluation for Sport Hunting on Key Cave NWR).

4.2.5 Impacts to Refuge Facilities (roads, trails, parking areas, dikes)

No Action Alternative

Damage to parking areas and walking trails due to hunter use during wet weather periods would not occur; however, other users would still be using parking areas and walking trails, thereby necessitating periodic maintenance. Additionally, costs associated with law enforcement for a hunting program would not be applicable.

Proposed Action Alternative

Additional damage to parking areas and walking trails due to hunter use during wet weather periods might occur. The current hunt program on the refuge for the past nine years has shown these impacts to be minimal. There would be some costs associated with law enforcement for a hunting program. These costs should be minimal relative to total refuge operations 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 Key Cave 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 zoning (e.g., establishment of separate use periods) is an effective tool in eliminating conflicts between user groups. Conflicts between hunters and non-consumptive users might occur but would be mitigated by time (only hunting four days each week and non-hunting season).

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 Key Cave NWR and the National Wildlife Refuge System and public demand for hunting 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 at no or little cost in a region where private land is leased for hunting. This alternative would allow youth the opportunity to experience a wildlife-dependant recreation, instill an appreciation for and understanding of wildlife, the natural world and the environment and promote a land ethic and environmental awareness.

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 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. Key Cave NWR is within the Mississippi Flyway and is part of the Eastern Mourning Dove Management Unit.

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).

Under the proposed action, Key Cave NWR estimates a maximum of 250–300 doves would be harvested each year. This harvest represents 0.0002% of Alabama’s four-year average harvest of 1,629,275 doves (AWFF 2006) and 0.00003% of the Eastern Mourning Dove Management Unit harvest in 2005-06 (Dolton and Rau 2006). Dove hunting at Key Cave NWR is only allowed on four days each week, which is more restrictive than regulations set forth by the Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries (AWFF). Dove hunting at Key Cave NWR should not have cumulative impacts on mourning dove populations.

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 Key Cave NWR, season length is more restrictive for doves 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.

4.3.1.2 Small Game (Quail, Squirrel, Rabbit, Raccoon and Opossum)

Quail are non-migratory and therefore are not regionally affected by hunting. Only local effects will be discussed. The early successional habitat that quail favor is abundant on the refuge and quail populations have increased as early successional habitat has been restored and managed (based on annual survey data 1998-2006). Quail populations have increased from an estimated two coveys in 1998 to a four-year average (2003-2006) of 16 coveys under the current hunting program. Under the proposed action, Key Cave NWR estimates a maximum of 50-75 quail would be harvested each year. This harvest impact represents 0.0002% of Alabama's four-year average harvest of 326,075 quail (AWFF 2006).

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 populations of these species become elevated, diseases such as distemper and rabies may reduce the populations. However, waiting for disease outbreak to regulate their numbers can be a human health hazard. Cumulative adverse impacts to raccoon and opossum are unlikely considering they reproduce quickly, are difficult to hunt due to their nocturnal habits, and are not as popular for hunting as other game species.

Studies have been conducted within and outside of Alabama 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 Alabama Wildlife and Freshwater Fisheries Division (AWFF) in association with this assessment on the cumulative impacts of hunting on rabbits and squirrel. Under the proposed action, Key Cave NWR estimates a maximum of 75-100 squirrels and 50-75 rabbits would be harvested each year. This harvest impact represents 0.0002% and 0.0004% of Alabama's four-year average harvest of 528,000 squirrels and 197,925 rabbits, respectively (AWFF 2006). Gray squirrels, fox squirrels, and eastern cottontails

are prolific breeders and their populations have never been threatened by hunting in Alabama even prior to the passing of hunting regulations as we know them today.

Small game hunting (quail, squirrel, rabbit, raccoon, and opossum) at Key Cave NWR should not have cumulative impacts on small game populations.

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.

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 therefore not relevant. 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 non-hunted wildlife under the proposed action are expected to be negligible 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 negative 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 29.5 acres. During the vast majority of the hunting season, hunter density is much lower (1 hunter/295 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Vehicles are restricted to parking areas 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 likely due to rotation of dove fields and limited hunting pressure at Key Cave NWR.

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 Alabama 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.

4.3.1.5 Endangered Species

Endangered and threatened species that utilize the refuge are gray bats and Alabama cavefish. A Section 7 Evaluation was conducted in association with this assessment for opening hunting on Key Cave NWR. It was determined that the proposed alternative would not likely adversely affect these endangered species.

As noted above, the endangered species occurring on the refuge are the Alabama cavefish and gray bat, which are both found in Key Cave. The entrance to the cave is fenced to prevent unauthorized entry. The cave entrance is adjacent to the refuge on land managed by the Alabama Department of Conservation and Natural Resources as the Seven Mile Island Wildlife Management Area (WMA). Currently, October squirrel hunting takes place on the WMA with no adverse impacts to the endangered species in Key Cave. Proposed September dove hunting will not occur in close proximity to Key Cave, which is used by gray bats at this time. Dove hunting is proposed to occur in upland agricultural fields a minimum of 0.5 kilometers north of Key Cave. Upon emergence from the cave, bats generally fly south, away from the refuge to forage along the Tennessee River. Minimal disturbance to gray bats is expected from dove hunting. During the majority of the proposed hunting seasons (November - February) gray bats are not using Key Cave and are hibernating in different caves. Disturbance to gray bats from hunting is unlikely, as are disturbances to the Alabama cavefish during any hunting season. Since hunting seasons were initiated during 1998 no known disturbances to these species has occurred as a result of hunting.

Refer to the Section 7 Evaluation for the 2007 Sport Hunting on Key Cave 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 zoning (e.g., establishment of separate use periods, only hunting four days each week) 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 parking areas. This could have a negative effect on nesting bird populations. However, the hunting season is during fall and winter and not during most birds' nesting period.

The opportunities for hunting would continue under the proposed action. Hunting would be used to keep resident wildlife in balance with the habitat's carrying capacity, resulting in long-term positive impacts on wildlife habitat.

The refuge would control access under this alternative to minimize wildlife disturbance and habitat degradation, while allowing hunting as a compatible wildlife-dependent recreation.

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: parking areas and trails. Maintenance or improvement of existing facilities (i.e. parking areas, roads, and trails) will cause minimal short term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation. 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 areas and trails impacted by the event will be closed to vehicular use.

Cultural Resources

Hunting, 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 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, licensed, or have received assistance from the agency.

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

4.3.3 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 during hunts; however impacts would be minimal. 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 vehicle emissions and run-off on road and trail sides. 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 zone management techniques, such as only hunting four days each week, 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 hunts would continue public hunting opportunities and have positive impacts on the general public, nearby residents, and refuge visitors. The refuge expects increased visitation and tourism as the hunt continues bringing in additional revenue to local communities but not a significant increase in overall revenue in any area.

4.3.4 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 actions described in this assessment includes actions relating to the refuge hunt program (see 2007 Sport Hunting Plan for Key Cave NWR). These actions would have both direct and indirect effects however, the

cumulative effects of these actions are not expected to be substantial.

The past refuge hunting program is the same as the proposed action in season lengths, species hunted, and bag limits. The refuge does not foresee any changes to the proposed action in the way of increasing the intensity of hunting in the future.

4.3.5 Anticipated Impacts if Individual Hunts are Allowed to Accumulate

National Wildlife Refuges, including Key Cave NWR, conduct hunting programs within the framework of State and Federal regulations. Hunting opportunities on refuges are a component of the state's wildlife management efforts. In Alabama, Service personnel meet at least once per year with personnel from AWFF to discuss hunting on National Wildlife Refuges. The Service works closely with AWFF to manage the hunting program at Key Cave NWR since refuge hunting permits will be included as part of the AWFF hunt permit for the adjacent Seven Mile Island Wildlife Management Area.

Key Cave NWR is at least as restrictive as the State of Alabama (dove, squirrel, rabbit, quail, raccoon, and opossum) in season length but allows fewer days for hunting each week. By maintaining hunting 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 basis. The proposed hunt plan has been reviewed and is supported by the Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries (AWFF). Additionally, refuges coordinate with AWFF annually to maintain regulations and programs that are consistent with the State management program.

Chapter 5 Consultation and Coordination with Others

The Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries (AWFF) concurs and fully supports the regulated consumptive public use of the natural resources associated with the Key Cave 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 plan.

Appendix Literature References

- Alabama Division of Wildlife and Freshwater Fisheries. 2006. Alabama Hunting Survey 2005 – 2006 Season. Wildl. Restoration Prog. Grant # W-35, Study 6. Montgomery, AL. 28pp.
- Aley, T. 1990. Delineation and hydrogeologic study of the Key Cave aquifer Lauderdale County, Alabama. U.S. Fish and Wildl. Serv. contract no. 14-16-0004-88-073. 114 pp.
- Boschung H.T.Jr. and Mayden R. L. 2004. Fishes of Alabama. Smithsonian Books, W.W. Norton & Company 960 pp.
- Dolton, D.D. and R.D. Rau. 2006. Mourning dove population status, 2006. U.S. Fish and Wildlife Service, Laurel, MD. USA. 19pp.
- Kidd, R. E., C.J. Taylor, and V.E. Stricklin. 2001. Use of ground-water tracers to evaluate the hydraulic connection between Key Cave and the proposed industrial site near Florence, Alabama, 2000 and 2001. U.S. Geological Survey. Water-Resources Investigations Report 01-4228. 20 pp.
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- Sherard, H. 1971. Soil Survey for Lauderdale County, Alabama, United States Department of Agriculture, Soil Conservation Service, U.S. Gov't Printing Off. 47 pp.
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- U.S. Census Bureau. 2005a. County Population Estimates. <<http://www.census.gov/population/www/estimates/popest.html>>. U.S. Bureau of the Census, Population Division. Washington, DC.
- U.S. Census Bureau. 2005b. U.S. Census 2000 Redistricting Data (Public Law 94-171). <<http://www.census.gov>> and <<http://factfinder.census.gov>>.
- U.S. Fish and Wildlife Service. 2006. Waterfowl population status, 2006. Division of Migratory Bird Management, Laurel, Maryland, 60 pp.

Appendix Response to Public Comments

We received 71 comments on our draft EA titled Sport Hunting Plan for Key Cave National Wildlife Refuge, which was available for public comment from March 5, 2007 to April 5, 2007. Fifty-nine of these comments were in support of the Service's preferred Alternative in the draft EA. Twelve comments were in opposition to the preferred Alternative.

We received a letter from the Humane Society of the United States that contained comments related to hunting on the National Wildlife Refuge System as a whole and containing elements related to litigation filed in 2003 by the Fund for Animals against the Service. These comments were not specific to this draft EA and are noted but not responded to here.

We also received a letter from Safari Club International and Safari Club International Foundation (SCI and SCIF) expressing their support for hunting at Key Cave NWR. Specifically SCI and SCIF mentioned that hunting on the refuge is a component of the state's wildlife management efforts. This is addressed on page 26 of the EA.

SCI and SCIF also recommended that feral hogs be added to the list of hunted species for Key Cave NWR. The Service notes this comment, which may be addressed in the future.

Refuge Name: Key Cave National Wildlife Refuge

Dates Established: January 3, 1997

Establishing and Acquisition Authorities:

Key Cave National Wildlife Refuge, located in Lauderdale County, Alabama, was established under the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a-742j, not including 742d-l), and the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544).

Refuge Purpose(s):

“... for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. § 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. § 742f(b)(1) (Fish and Wildlife Act of 1956)

“... to conserve (A) fish or wildlife which are listed as endangered species or threatened species or (B) plants ...” 16 U.S.C. § 1534 (Endangered Species Act of 1973)

National Wildlife Refuge System Mission:

The mission of the Refuge System, as defined by the National Wildlife Refuge System Improvement Act of 1997, 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.

Other Applicable Laws, Regulations, and Policies:

Antiquities Act of 1906 (34 Stat. 225)
Migratory Bird Treaty Act of 1918 (15 U.S.C. 703-711; 40 Stat. 755)
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715r; 45 Stat. 1222)
Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718-178h; 48 Stat. 451)
Criminal Code Provisions of 1940 (18 U.S.C. 41)
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; 54 Stat. 250)
Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686)
Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j; 70 Stat. 1119)
Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4; 76 Stat. 653)
Wilderness Act (16 U.S.C. 1131; 78 Stat. 890)
Land and Water Conservation Fund Act of 1965

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.; 80 Stat. 915)
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd, 668ee; 80 Stat. 927)
National Environmental Policy Act of 1969, NEPA (42 U.S.C. 4321, et seq; 83 Stat. 852)
Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 10989)
Endangered Species Act of 1973 (16 U.S.C. 1531 et seq; 87 Stat. 884)
Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319)
National Wildlife Refuge Regulations for the Most Recent Fiscal Year (50 CFR Subchapter C; 43 CFR 3101.3-3)
Emergency Wetlands Resources Act of 1986 (S.B. 740)
North American Wetlands Conservation Act of 1990
Food Security Act (Farm Bill) of 1990 as amended (HR 2100)
The Property Clause of The U.S. Constitution Article IV 3, Clause 2
The Commerce Clause of The U.S. Constitution Article 1, Section 8
The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, USC668dd)
Executive Order 12996, Management and General public Use of the National Wildlife Refuge System. March 25, 1996
Title 50, Code of Federal Regulations, Parts 25-33
Archaeological Resources Protection Act of 1979
Native American Graves Protection and Repatriation Act of 1990

Description of Use: Hunting

Hunting is one of the six priority public wildlife dependant uses of the National Wildlife Refuge System. Key Cave National Wildlife Refuge offers opportunities for small upland game (i.e., squirrel, rabbit, raccoon, northern bobwhite, and opossum) and migratory bird (i.e., mourning dove) hunting in partnership with the Alabama Division of Wildlife and Freshwater Fisheries (ADWFF). The hunts are limited to four hunting days per week (Monday, Tuesday, Friday and Saturday) for the length of the statewide season for that particular game species.

Availability of Resources:

Enforcement of refuge regulations to protect trust resources and provide for a quality recreational opportunity will occur via regular patrols by refuge law enforcement (LE) officers. Additionally, conservation law enforcement officers from the Alabama Division of Wildlife and Freshwater Fisheries will patrol the refuge and assist Service officers when needed.

The hunting program will cost approximately \$20,000 annually, which includes cost for publishing the hunting permits, conducting law enforcement patrols, management of dove fields, and maintaining parking areas. Participation in the hunting program is estimated to be between 30 and 100 visitors annually. No offsetting revenues for hunting are collected.

Anticipated Impacts of the Use: The following anticipated impacts were identified and evaluated based on professional judgment.

Short-term Impacts:

None of the hunts are anticipated to have any significant effects on the overall refuge populations being hunted. Impacts such as incidental take of other wildlife species, either illegally or unintentionally, may occur with any consumptive use program. At the current and anticipated public use levels, incidental take would be very small and would not directly or cumulatively impact current or future populations of wildlife either on this refuge or in the surrounding areas. Implementation of an effective law enforcement program and development of site specific refuge regulations/special conditions would eliminate most incidental take problems. Littering, minor vegetation damage and wildlife disturbance can also be anticipated on an infrequent base.

Long-term Impacts:

The long-term impacts of hunting will be evaluated on a yearly basis. As of this date, current utilization of these uses is incidental to overall refuge programs and no long-term adverse impacts have been experienced or are anticipated to be experienced.

Cumulative Impacts:

No cumulative impacts are anticipated. It is anticipated that the current levels and expected future levels of hunting or other wildlife-dependent recreation activities would not directly, indirectly, or cumulatively impact any listed, proposed, or candidate species or designated/proposed critical habitat. Data gathered from future biological surveys regarding the importance or potential importance of the refuge to threatened or endangered species or critical habitat (or proposed threatened species, endangered species, or critical habitat), could result in changes to public use activities across time; however, these changes would have no effect on listed species.

Public Review and Comment:

Methods used to solicit public review and comments include: 1) posting on refuge web sites: Key Cave NWR web site at <http://www.fws.gov/keycave> and the Wheeler NWR Complex web site at <http://www.fws.gov/wheeler>; and 2) news release to area newspaper – Florence Times Daily posted in Legal Section from March 8 – 14, 2007 with the public review and comment period for 14 days extending from March 8 – 22, 2007.

Determination (check one below):

Use is Not Compatible

X Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility:

Annual review of this activity will be conducted to minimize over-harvest of a particular species, assure public safety, assure that wildlife disturbance does not become a factor in critical wildlife use areas, and provide protection of overall refuge resources. Refuge hunting seasons will be set within the season constraints set forth by the State of Alabama. An Environmental Assessment (EA) will remain on file at the Wheeler National Wildlife Refuge Complex headquarters as part of the Hunting Plan. Participants are required to obtain a refuge hunting permit and conform to state laws and refuge regulations. Users must observe refuge regulations. Law enforcement efforts will be conducted to ensure compliance with state laws and refuge regulations.

Justification:

Hunting is a wildlife-oriented activity that is compatible with refuge purposes and is identified in the 1997 National Wildlife Refuge System Improvement Act as an activity that should be provided and expanded on refuges, where compatible. Hunting provides a high-quality, wildlife-oriented recreation activity to the public and the opportunity to utilize a renewable resource. Providing this type of recreation is an objective of Key Cave National Wildlife Refuge. Many hunters visit north Alabama to experience a quality and enjoyable hunting experience. As public hunting lands become less available, the use of national wildlife refuges for public hunting will increase.

NEPA Compliance for Refuge Use Description: Place an X in appropriate space.

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

Prepared by: Steve Seibert 3/27/07
(Signature and Date)

Signature: Refuge Manager Grenny Hoyle 3/28/07
(Signature and Date)

Review: Regional Compatibility Coordinator Jamela Harb 3/30/07
(Signature and Date)

Review: Refuge Supervisor Richard P Ingram 4/13/07
(Signature and Date)

Concurrence: Regional Chief Bob Oliver 4/19/2007
(Signature and Date)

Mandatory 15-year Re-evaluation Date: _____

REGION 4

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

[Note: This form provides the outline of information needed for intra-Service consultation. If additional space is needed, attach additional sheets, or set up this form to accommodate your responses.]

Originating Person: Steve Seibert

Telephone Number: (256) 353-7243 ext. 28 **E-Mail:** steven_seibert@fws.gov

Date: 2/28/07

PROJECT NAME (Grant Title/Number): 2007 Sport Hunting Plan for Key Cave NWR

I. Service Program:

Ecological Services

Federal Aid

Clean Vessel Act

Coastal Wetlands

Endangered Species Section 6

Partners for Fish and Wildlife

Sport Fish Restoration

Wildlife Restoration

Fisheries

Refuges/Wildlife

II. State/Agency: Alabama

III. Station Name: Key Cave NWR

IV. Description of Proposed Action (attach additional pages as needed):

In response to a 2003 lawsuit filed by the Fund for Animals, the U.S. Fish and Wildlife Service (Service) will amend or rewrite hunting plans and environmental assessments that describe hunting programs at twenty-three national wildlife refuges located in the Southeast Region. The new environmental assessments will address the cumulative impacts of hunting at all refuges which were named in or otherwise affected by the lawsuit. This document addresses the hunting programs at Key Cave National Wildlife Refuge in Alabama. The 2007 Sport Hunting Plan is attached for your review and the associated Environmental Assessment is available for your review upon request.

The Service initiated a hunting program at Key Cave NWR in 1998 to allow migratory bird (dove) and small game (quail, squirrel, rabbit, raccoon, and opossum) hunting. Seasons and bag limits are the same as those set by the state of Alabama. The hunt has been implemented since 1998 with hunting being limited to four days each week, thus providing opportunities for non-consumptive uses during the hunting season and minimizing conflicts between hunters and non-consumptive users.

V. Pertinent Species and Habitat:

A. Include species/habitat occurrence map:

B. Complete the following table:

SPECIES/CRITICAL HABITAT	STATUS ¹
Alabama cavefish	E/CH
Gray bat	E

¹STATUS: E=endangered, T=threatened, PE=proposed endangered, PT=proposed threatened, CH=critical habitat, PCH=proposed critical habitat, C=candidate species

VI. Location (attach map):

A. Ecoregion Number and Name: Lower Tennessee-Cumberland

B. County and State: Lauderdale County, Alabama

C. Section, township, and range (or latitude and longitude): S 26, 27, 34, 35; T 3 S; R 12 W

D. Distance (miles) and direction to nearest town: 5 miles SW of Florence

E. Species/habitat occurrence: Both species occur in Key Cave.

Key Cave is the only known location for the federally endangered Alabama cavefish (*Speoplatyrhinus poulsoni*) and lies in a limestone karst area that contains numerous sinkholes and several underground cave systems. The area's sinkholes are an integral component of groundwater recharge to the caves. In addition to the Alabama cavefish, Key Cave also serves as a priority one maternity cave for the federally endangered gray bat (*Myotis grisescens*), as well as habitat for two species of blind crayfish (*Procambarus pecki* and *Cambarus jonesi*). Collier Cave, located approximately 1.5 miles upstream from Key Cave, and Collier Bone Cave are also considered potential habitat for these cave species. Cave entrances are located on TVA lands on the northern shore of Pickwick Lake. Furthermore, the refuge provides habitat for a variety of migratory and resident wildlife species. Several priority bird species commonly occurring on the refuge include: dickcissel, grasshopper sparrow, field sparrow, northern bobwhite, northern harrier, and short-eared owl.

VII. Determination of Effects:

- A. Explanation of effects of the action on species and critical habitats in item V.
B (attach additional pages as needed):**

SPECIES/ CRITICAL HABITAT	IMPACTS TO SPECIES/CRITICAL HABITAT
Alabama cavefish	See attached page.
Gray bat	See attached page.

- B. Explanation of actions to be implemented to reduce adverse effects:**

SPECIES/ CRITICAL HABITAT	ACTIONS TO MITIGATE/MINIMIZE IMPACTS
Alabama cavefish	See attached page.
Gray bat	See attached page.

VIII. Effect Determination and Response Requested:

SPECIES/ CRITICAL HABITAT	DETERMINATION ¹			RESPONSE ¹ REQUESTED
	NE	NA	AA	
Alabama cavefish		X		Concurrence
Gray bat		X		Concurrence

¹DETERMINATION/RESPONSE REQUESTED:

NE = no effect. This determination is appropriate when the proposed action will not directly, indirectly, or cumulatively impact, either positively or negatively, any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested is optional but a "Concurrence" is recommended for a complete Administrative Record.

NA = not likely to adversely affect. This determination is appropriate when the proposed action is not likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat or there may be beneficial effects to these resources. Response Requested is a "Concurrence".

AA = likely to adversely affect. This determination is appropriate when the proposed action is likely to adversely impact any listed, proposed, candidate species or designated/proposed critical habitat. Response Requested for listed species is "Formal Consultation". Response Requested for proposed or candidate species is "Conference".

Steve Seibert 2/28/07
signature (originating station) date

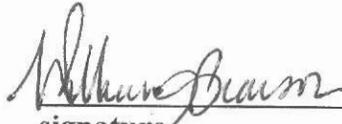
Assistant Refuge Manager
title

IX. Reviewing Ecological Services Office Evaluation:

- A. Concurrence Nonconcurrence _____
- B. Formal consultation required _____
- C. Conference required _____
- D. Informal conference required _____

E. Remarks (attach additional pages as needed): If new information reveals that the effects of the action may affect listed species or critical habitat in a manner or to an extent not previously considered; or the action is modified in a manner causing effects to listed species or critical habitat not previously considered; or if a new species is listed or critical habitat designated that

may be affected by the action, we will need to reinitiate informal consultation for this action to determine if it would still result in not likely to adversely affect listed species.


signature

3/1/07
date

Field Supervisor
title

Daphne Field Office
office

INTRA-SERVICE SECTION 7 FOR THE 2007 SPORT HUNTING PLAN FOR KEY CAVE NATIONAL WILDLIFE REFUGE -- ADDITIONAL INFORMATION

VII. Determination of Effects (Continued):

A. Explanation of effects of the action on species and critical habitats

A. Alabama cavefish

The proposed hunting program is not anticipated to adversely affect the cave dwelling Alabama cavefish.

B. Gray Bat

September dove hunting is not likely to occur in close proximity to Key Cave (nearest agricultural field is approximately 0.5 kilometers), which is still used by gray bats during this period. The field nearest Key Cave has been replanted with trees and does not provide dove habitat. Additionally, gray bats using the cave generally fly to the Tennessee River to forage upon emergence from the cave and do not forage around the refuge's upland fields. October squirrel, raccoon, and opossum hunting on the adjacent Seven Mile Island WMA has occurred for many years and has not adversely affected the gray bats in Key Cave, thus no conflicts are anticipated with hunting these species on the refuge. Quail and rabbit hunting are not likely to occur near Key Cave, thus no adverse affects on gray bats are anticipated.

B. Explanation of actions to be implemented to reduce adverse effects

The harassment or taking of any wildlife other than the game species legal for the season is not permitted. Shooting hours end at sunset, thus hunting is concluded by the time gray bats emerge from the cave and the entrance to Key Cave is fenced to prevent unauthorized entry to the cave.

Sport Hunting
Decision Document Package
for
KEY CAVE NWR

Contents

3. FONSI

FINDING OF NO SIGNIFICANT IMPACT

2007 Sport Hunting Plan for Key Cave National Wildlife Refuge

The U.S. Fish and Wildlife Service proposes to implement the 2007 Sport Hunting Plan for Key Cave 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. Hunting activities will be permitted on the entire 1,060-acre refuge. 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: proposed action and no action.

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

No action alternative - Under this alternative, hunting would not occur on the 1,060-acre refuge. This would be a change to current public use and wildlife management programs.

Proposed action The proposed action would continue hunting on the entire 1,060-acre refuge, which has been ongoing since the Finding of No Significant Impact in 1998.

The preferred alternative was selected over the other alternatives because:

1. The preferred alternative would allow the refuge to manage wildlife populations, allow the public to harvest a renewable resource, promote a wildlife-oriented recreational opportunity, increase awareness of Key Cave NWR and the National Wildlife Refuge System, and meet public demand.
2. The preferred alternative is compatible with general Service policy regarding the establishment of hunting on National Wildlife Refuges.
3. The preferred alternative is compatible with the purpose for which Key Cave NWR was established.
4. This proposal does not initiate widespread controversy or litigation.
5. 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:

1. The refuge could better manage wildlife populations.
2. This would allow the public to harvest a renewable resource.
3. The public would have increased opportunity for wildlife-oriented recreation.
4. Local businesses would benefit from hunters visiting from surrounding counties.

5. The Service will be perceived as a good steward of the land by continuing traditional uses of land in Alabama.

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

1. Hunting is limited to four days (Monday, Tuesday, Friday, and Saturday) per week.
2. Dove hunting does not begin until 12:00 noon each hunting day.
3. The 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 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, Daphne, AL
- Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries

Copies of the Environmental Assessment are available by writing:

Key Cave National Wildlife Refuge
2700 Refuge Headquarters Road
Decatur, AL 35603

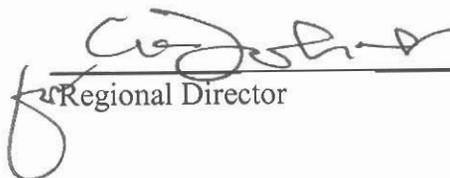
Therefore, it is my determination that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of the National Environment Policy Act of 1969 (as amended). As such, an environmental impact statement is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

(for each factor list the page numbers of the EA where the factor was discussed.)

1. **Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment (EA, pages 14-18)**

2. The actions will not have a significant effect on public health and safety (EA, page 14).
3. The project will not significantly effect any unique characteristics of the geographic area such as proximity to historical or cultural resources, wild and scenic rivers, or ecologically critical areas (EA, pages 15, 18, 24).
4. The effects on the quality of the human environment are not likely to be highly controversial (EA, pages 12, 13).
5. The actions do not involve highly uncertain, unique, or unknown environmental risks to the human environment (EA, pages 14, 15).
6. The actions will not establish a precedent for future actions with significant effects nor does it represent a decision in principle about a future consideration (EA, pages 25, 26).
7. There will be no cumulative significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions (EA, pages 19-27).
8. The actions will not significantly affect any site listed in, or eligible for listing in, the National Register of Historic Places, nor will they cause loss or destruction of significant scientific, cultural, or historic resources (EA, pages 15, 24).
9. The actions are not likely to adversely affect endangered or threatened species, or their habitats (Intra-Service Section 7 Biological Evaluation Form attached to EA).
10. The actions will not lead to a violation of federal, state, or local laws imposed for the protection of the environment (EA, page 27).

References: Environmental Assessment of 2007 Sport Hunt Plan for Key Cave NWR, Hunting Plan, Compatibility Determination, Letters of Concurrence, Refuge-specific Regulations, Intra-Service Section 7 Evaluation



Regional Director

4/22/07

Date