

**Key Cave National Wildlife Refuge
White-tailed deer, American Woodcock, Snipe, Crow, Starling,
Feral Hog, Coyote, Bobcat, and Fox Hunt Plan**

February 12, 2019

U.S. Fish and Wildlife Service

Wheeler National Wildlife Refuge
2700 Refuge Headquarters Road
Decatur, Alabama 35603

Submitted By:
Project Leader

Signature

Date

Concurrence:

Refuge
Supervisor

Signature

Date

Approved:

Regional Chief,
National Wildlife
Refuge System

Signature

Date

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Key Cave National Wildlife Refuge White-tailed deer, American Woodcock, Snipe, Crow, Starling, Feral Hog, Coyote, Bobcat, and Fox Hunt Plan

I. Introduction

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS), the purposes of an individual Refuge, United States Fish and Wildlife Service (USFWS or Service) policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

Key Cave National Wildlife Refuge (NWR or Refuge), one of seven refuges comprising the Wheeler National Wildlife Refuge Complex (Complex), was established on January 3, 1997, in Lauderdale County, Alabama, under the authority of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742a-742j, not including 742d-1); and the National Wildlife Refuge Administration Act of 1966; and the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544), to ensure that the biological integrity of Key Cave, Collier Cave, Collier Bone Cave, and their common aquifer remains intact.

Key Cave NWR consists of 1,060 acres 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 1-15 percent. Elevation of the land surface generally ranges from about 500-580 feet above MSL (Kidd et al. 2001).

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 in 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 (*Cambarus pecki* and *Cambarus jonesi*) and an undescribed cave shrimp (*Palaemonias* sp.). 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 Tennessee Valley Authority (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 quail, Northern harrier, and short-eared owl.

Key Cave NWR consists of rolling hills, upland forests, and cropland. Currently, approximately 295 acres are in row crop production (corn, soybeans, sunflowers) under a Cooperative Farm Agreement, 327 acres are in early successional fields or native warm season grasses (big bluestem, little bluestem, indiagrass, sideoats grama, switchgrass, and eastern gamagrass), 122 acres of former cropland have been planted to hardwoods, 30 acres of drainageways are restored to either a 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. Key Cave NWR is located within the Interior Low Plateau physiographic region and is part of the Lower Tennessee-Cumberland Ecosystem.

In order to meet specific Refuge and other broader Service directives, the following purposes were established for Key Cave NWR:

The Refuge's official purpose(s) is:

“...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 terms of any restrictive or affirmative covenant, or condition of servitude” (16 U.S.C. 742f(b1), *Fish and Wildlife Act of 1956*)

“...to conserve (A) fish or wildlife which are listed as endangered species or threatened species” (*Endangered Species Act of 1973, as amended*)

To meet specific Refuge and Service directives, the primary management objectives for Key Cave NWR include:

- To protect habitat for threatened and endangered species.
- To promote habitat for a natural diversity of wildlife.
- To enhance habitat for non-game migratory birds.
- To provide opportunities for quality and compatible wildlife-dependent outdoor recreation and environmental education and interpretation.

The mission of the National Wildlife Refuge System (NWRS), as outlined by the National Wildlife Refuge System Administration Act (NWRSA), as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.), is to:

“... 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.”

The NWRSA mandates the Secretary of the Interior in administering the System to (16 U.S.C. 668dd(a)(4):

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the NWRS;
- Ensure that the biological integrity, diversity, and environmental health of the NWRS are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the NWRS described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the NWRS are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the NWRS and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the NWRS through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the NWRS for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Therefore, it is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the refuge was established and the mission of the National Wildlife Refuge System.

Public hunts began on Key Cave NWR in 1998. Those hunts provided opportunities for the public to hunt dove, northern bobwhite quail, rabbit, squirrel, raccoon and opossum on Mondays, Tuesdays, Fridays and Saturdays during their respective season(s). We will be maintaining the current hunting programs on Key Cave NWR.

II. Statement of Objectives

The objectives of a white-tailed deer, American woodcock, snipe, crow, starling, feral hog, coyote, bobcat, gray fox and red fox hunting program on Key Cave NWR are to:

1. Provide the public with a high-quality recreational experience and increase opportunities for hunting consistent with Federal and State laws and regulations in a manner that does not adversely affect local or regional wildlife populations.
2. Maintain a compatible hunt program with other uses on current and future Refuge lands.
3. Control non-native and/or invasive species populations.
4. Allow compatible public use of a valuable, renewable resource on current and future Refuge lands.
5. Meet Refuge provisions for recreation hunting listed in the 2007 Comprehensive Conservation Plan and Environmental Assessment for Wheeler NWR Complex (CCP and EA).
6. Support the “Conserving the Future” vision document by implementing Recommendation 17 to increase public awareness and support for the Refuge and Refuge System (USFWS 2011).

Currently, all 1,060 acres of Key Cave NWR are open to hunting dove, quail, rabbit, opossum, and raccoon. This plan includes maintaining the seasons for the aforementioned species and adding ten other species (white-tailed deer, American woodcock, snipe, crow, starling, feral hog, coyote, bobcat, gray fox and red fox) to the hunt program on the same 1,060 acres.

Hunting is consistent with the 2007 Wheeler NWR Complex CCP and EA. Hunting of game species on Key Cave NWR, when those activities are determined to be compatible with other Refuge purposes and activities, is considered a useful tool to aid the State in management of wildlife populations. Providing the public with quality, safe hunting opportunities on the Refuge was identified as an objective in the CCP (Objective 4.1, USFWS 2007). Hunting opportunities would include, but not be necessarily limited to: white-tailed deer, feral hog, squirrel, rabbit, raccoon, opossum, mourning dove, and northern bobwhite quail, consistent with sound, biological principles, in support of the Complex’s wildlife management objectives, and in accordance with Refuge System policy and State and Federal laws.

III. Description of Hunting Program

A. Areas to be Opened to Hunting

The Refuge is considered one hunt unit; the entire 1,060-acre Refuge is open to hunting. There are no restricted hunting zones on the Refuge. See attached Map (Appendix 1):

- Seven-Mile Island Wildlife Management Area (WMA) Hunt Permit/ Map

B. Species to be Taken, Hunting periods, Hunting Access

- **MIGRATORY BIRD HUNTING:** Currently, migratory bird hunting opportunities is limited to mourning dove and white-winged dove. Dove hunting is allowed throughout the Refuge acreage; however, most hunting takes place in the agricultural fields; either in the fields planted to sunflowers or in harvested corn fields.

The Refuge proposes to open the entire refuge acreage (1,060 acres) for a hunt season on the following migratory bird species: American woodcock, snipe and crow. Demand for hunting these species is limited and the anticipated take on these three species is expected to be low. Population numbers for these species are unknown on the Refuge and all three species are defined as migratory birds, monitored and managed by the U.S. Fish and Wildlife Service.

The woodcock has experienced a decline in population, -0.56% to -1.0% per year during the years 1968-2017. The major causes of these declines are believed to be degradation and loss of habitat on breeding and wintering grounds (Seamans, M.E., and R.D. Rau. 2017). Hunting of woodcock is not believed to contribute to the declining population of this species. 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). Therefore, opening a hunt season for American woodcock on the Refuge is not likely to have an adverse effect on their population numbers.

Population sizes and trends in abundance of snipe are unknown at the national or flyway level (Case, D. J. and Danna D. McCool. 2009). Loss of suitable habitat (e.g., salt marsh and freshwater emergent marsh) for this species through changes to landscape management, hydrological regime, industrial, commercial, and residential development has likely resulted in the decline of the snipe (Dahl, T.E. 2006). However, due to the Refuge having limited suitable habitat for snipe, opening a hunting season for this species on the Refuge is not likely to have an adverse effect on the population numbers.

Crows and starlings have been declared a nuisance species by many State agencies. In Alabama, crows and starlings are not regulated, other than on WMA properties. The crow and starling season normally runs concurrently on the WMA.

For the three, aforementioned species, the Refuge adopts the hunting seasons, bag limits, and methods of take (i.e., weaponry, ammunition) as specified in the annual Alabama Hunting & Fishing Digest, the Alabama Regulations Relating to Game, Fish, Furbearers and Other Wildlife, and on the Seven-Mile Island WMA Hunt Permit. However, the Refuge restricts the hunt to only four days a week: Monday, Tuesday, Friday and Saturday, during each particular species' hunt season. These hunts will be administered

by USFWS and the Alabama Department of Conservation and Natural Resources (ADCNR).

The Refuge is closed to waterfowl hunting, but has the potential to provide ducks and geese with a sanctuary when the 38-acre sinkhole holds water. The sinkhole has not held water since the winter of 2000-2001. If the sinkhole fills with water and if waterfowl are utilizing it during dove or woodcock hunting seasons, some minor disturbances from hunters may occur as they make visual and/or audible contact with waterfowl using the Refuge sinkhole. This manner of disturbance to waterfowl is tolerable given the anticipated low density of hunters using the refuge during the winter and the limiting habitat factor that the sinkhole has not held water in over 16 years.

- **SMALL GAME HUNTING:** Rabbit, squirrel, opossum, raccoon, and quail seasons will be maintained on the Refuge (refer to the “Alabama Hunting & Fishing Digest” and/or the “Alabama Regulations Relating to Game, Fish, Furbearers and Other Wildlife” publications and the Seven-Mile Island WMA Hunt Permit for further details on hunting regulations, seasons, bag limits, weaponry and ammunition restrictions for each of the aforementioned species).
- **BIG GAME HUNTING:** White-tailed deer and feral hog hunting will occur throughout the 1,060-acre Refuge. The Refuge adopts the hunting seasons, bag limits, and methods of take (i.e., weaponry, ammunition) as specified in the annual Alabama Hunting & Fishing Digest; the Alabama Regulations Relating to Game, Fish, Furbearers and Other Wildlife; and the Seven-Mile Island WMA Hunt Permit. However, the Refuge restricts the hunt to only four days a week: Monday, Tuesday, Friday and Saturday, during each particular species’ hunt season. Legal hunting hours are daylight hours (defined as beginning 30 minutes before official sunrise time until 30 minutes after official sunset time) only, and will be administered by USFWS and ADCNR. Hunters will self-navigate to their hunt location.
- Coyote, bobcat, gray fox and red fox hunting will occur during any other authorized Refuge Hunting Season using weaponry and ammunition approved for those hunts. No dogs allowed.

C. Hunter Permit Requirements (if applicable)

Hunters will be required to have in their possession a valid Alabama Hunting License, the Federal Harvest Information Program (HIP) permit, as well as a signed Seven-Mile Island WMA Hunt Permit on which the hunting season dates, bag limits, legal times for hunting, legal arms and ammunition, and information or additional restrictions are specified to legally hunt on Key Cave NWR. See “Hunter Permit Application and/or Registration Procedures” below.

D. Consultation and Coordination with the State

The Refuge reviewed the operations and regulations for the neighboring Seven-Mile Island WMA to find consistency where possible. The Refuge first reached out to the State on June 19, 2017, to discuss this Hunt Plan. We worked with the local State biologist and conservation officers early in the development of the plan. On February, 7, 2019, we asked for review by the ADCNR State office to help adjust our plan to align, where possible, with State management goals. We specifically asked the State if we could continue to include the Refuge in the State hunt registration program to ensure consistency and reduce operation costs. The State office reviewed and concurred with the Refuge specific regulations and provided the Refuge a letter of concurrence from the ADCNR Wildlife Section Chief on February 12, 2019 (Appendix 2). We have continued to consult and coordinate on specific aspects of the Hunt Plan. The State is in agreement with the Refuge's Hunt Plan, as it will help meet State objectives.

Wheeler NWR Complex and Seven-Mile Island WMA will continue to work together to ensure quality, safe, and enjoyable recreational hunting opportunities. Hunter participation and harvest data are collected by the State and law enforcement officers from both Wheeler NWR Complex and ADCNR work together to patrol Key Cave NWR, safeguarding hunters, visitors, and both game and nongame species.

E. Law Enforcement

Enforcement of Refuge violations normally associated with management of a National Wildlife Refuge is the responsibility of commissioned Federal Wildlife Officers. Other officers, Special Agents, ADCNR Conservation Officers, and the local Sheriff's Department often assist the Wheeler NWR Complex federal wildlife officers.

The following methods are used to control and enforce hunting regulations:

- Refuge and Hunt Area boundaries will be clearly posted;
- The Seven-Mile Island Wildlife Management Area Hunt Permit depicts hunt areas;
- Wheeler NWR Complex law enforcement staff will randomly check hunters for compliance with Federal and State Laws.

F. Funding and Staffing Requirements

Key Cave NWR is an unstaffed and unfunded refuge; therefore, funds from Wheeler NWR Complex are used to conduct all operations, management actions, and hunts on the refuge. Annual hunt administration costs, for Key Cave NWR, including salary, equipment, law enforcement, brochures, collection of hunt data and analysis of biological information, etc. totals approximately \$25,000. Funding specifically for hunts has not been allocated. Incurred salary and other related operational costs for the hunt and operation of the Key Cave NWR hunts are incurred by USFWS. It is anticipated that funding would continue to be sufficient to continue the hunting program at Key Cave NWR in the future.

IV. Conduct of the Hunting Program

A. Hunter Permit Application, Selection, and/or Registration Procedures (if applicable)

At this time, hunters are not required to apply for, or purchase, a Hunt Permit to hunt the Refuge. Seven-Mile Island WMA Hunt Permits are available and free of charge at the following locations:

- Self-service permit box located at the Seven-Mile Island WMA main entrance, located off of Hwy. 20, just west of Cypress Creek, next to the Florence Water Treatment Plant;
- Probate Judge's Office, Lauderdale County Courthouse;
- Dick's Sporting Goods, Academy Sports, and Walmart in Florence, Alabama;
- or, by printing from the Internet at www.outdooralabama.com (both pages of the Internet map/permit must be together to be valid).

B. Refuge-Specific Hunting Regulations

Listed below are Refuge-specific regulations that pertain to hunting on Key Cave NWR as of the date of this plan. These regulations may be modified as conditions change or if refuge expansion continues/occurs.

[Big Game Hunting]. We allow hunting of white-tailed deer and feral hog on Key Cave NWR in accordance with State regulations and subject to the following conditions:

- You must have in your possession a valid Alabama hunting license, a current year, signed, Seven-Mile Island WMA Hunt Permit, and a current hunt year Alabama Harvest Record.
- You may only use archery equipment (e.g., recurve, long, and compound bows and crossbows), during the archery deer season for deer and feral hog.
- During the feral hog "Special Season"; hunters must meet Seven-Mile Island WMA Hunt Permit requirements for weaponry, ammunition, and meet Hunter Orange Requirements. No dogs allowed. Daylight Hours Only. All hogs harvested must be recorded at the self-service permit box located at the Seven-Mile Island WMA main entrance.

[Migratory Bird Hunting]. We allow hunting of American woodcock on Key Cave NWR in accordance with State regulations and subject to the following conditions:

- You must have in your possession a valid Alabama hunting license, a current year, signed, Seven-Mile Island WMA Hunt Permit, and a HIP permit.

C. Relevant State Regulations

Hunting License: Alabama hunting licenses are required for residents 16 years of age and under 65 years of age and nonresidents 16 years of age and older. Residents on active military duty home on leave may hunt and fish without licenses; however, state and federal duck stamps, and HIP permit are still required when hunting migratory waterfowl. A Management Area License and Permit are required when hunting deer or turkey on a wildlife management area. For further information regarding Hunting Licenses, please visit: www.outdooralabama.com/license-information.

Hunter Education: All license buyers (16 or older) born after August 1, 1977, must successfully complete an approved hunter education course. Exceptions include: APOST certified law enforcement officers employed in the state, active duty U.S. Military personnel and Alabama residents who are active members of the Alabama National Guard. For those who were born after August 1, 1977, and have yet to complete the hunter education course but would still like to hunt, there is the option to purchase a “Supervision Required” hunting license. This license requires the hunter to be under the direct supervision (no more than 30 feet away from/ under normal voice control) of a properly licensed adult (21 years of age or older) hunter while in the field. For further information on Hunter Education courses, please visit: www.outdooralabama.com/hunting/hunter-education-alabama.

D. Other Refuge Rules and Regulations for Hunting

- **Fires** – fires are not permitted on the refuge;
- **Refuge roads** – roads are closed to all motorized vehicle use, use designated vehicle parking areas (marked on the Seven-Mile Island WMA Hunt Permit); no horseback riding at anytime on Refuge roads or lands;
- **Reporting Harvest** – Hunters have three ways to report their harvest:
 1. On your smartphone through the Outdoor Alabama app (the app is available to download at: <http://www.outdooralabama.com/contact-us/mobile-apps>),
 2. Online at www.outdooralabama.com/gamecheck,
 3. Call 1-800-888-7690

V. Public Engagement

A. Outreach for Announcing and Publicizing the Hunting Program

The Refuge maintains a mailing list, for news release purposes, to local newspapers, radio, and websites. Special announcements and articles may be released in conjunction with hunting seasons. In addition, information about the hunt will be available at Wheeler NWR Complex Headquarters Office, and/or Visitors Center, and/or on the Key Cave NWR website.

B. Anticipated Public Reaction to the Hunting Program

Hunting is an important economic and recreational use of Alabama's natural resources. Hunting had been allowed on Key Cave NWR for almost 10 years prior to finalizing the Wheeler NWR Complex CCP and EA (2007). There was limited negative feedback regarding the hunt program at Key Cave NWR during the public review period for the CCP. Therefore, it is expected that opening up the hunting options to white-tailed deer, American woodcock, snipe, crow, feral hog, coyote, bobcat, gray and red fox on the Refuge will result in similar public support.

C. How Hunters Will Be Informed of Relevant Rules and Regulations

General information regarding hunting and other wildlife-dependent public uses can be obtained at Wheeler NWR Complex headquarters office at: 2700 Refuge Headquarters Road, Decatur, AL 35603; or by calling (256) 353-7243. Dates, forms, hunting unit directions, maps, applications, and permit requirements about the hunt will be available on the ADCNR Outdoor Alabama website at: <https://www.outdooralabama.com/>. For additional information on the Refuge, please visit the station website at: www.fws.gov/refuge/key_cave/; or visit the Wheeler NWR Visitor Center at: 3121 Visitor Center Road, Decatur, AL 35603; or by calling (256) 350-6639. Information on hunting Seven-Mile Island WMA is available at the ADCNR District I/ Swan Creek WMA office located at: 21453 Harris Station Road, Tanner, AL 35671; or by calling (256) 353-2634.

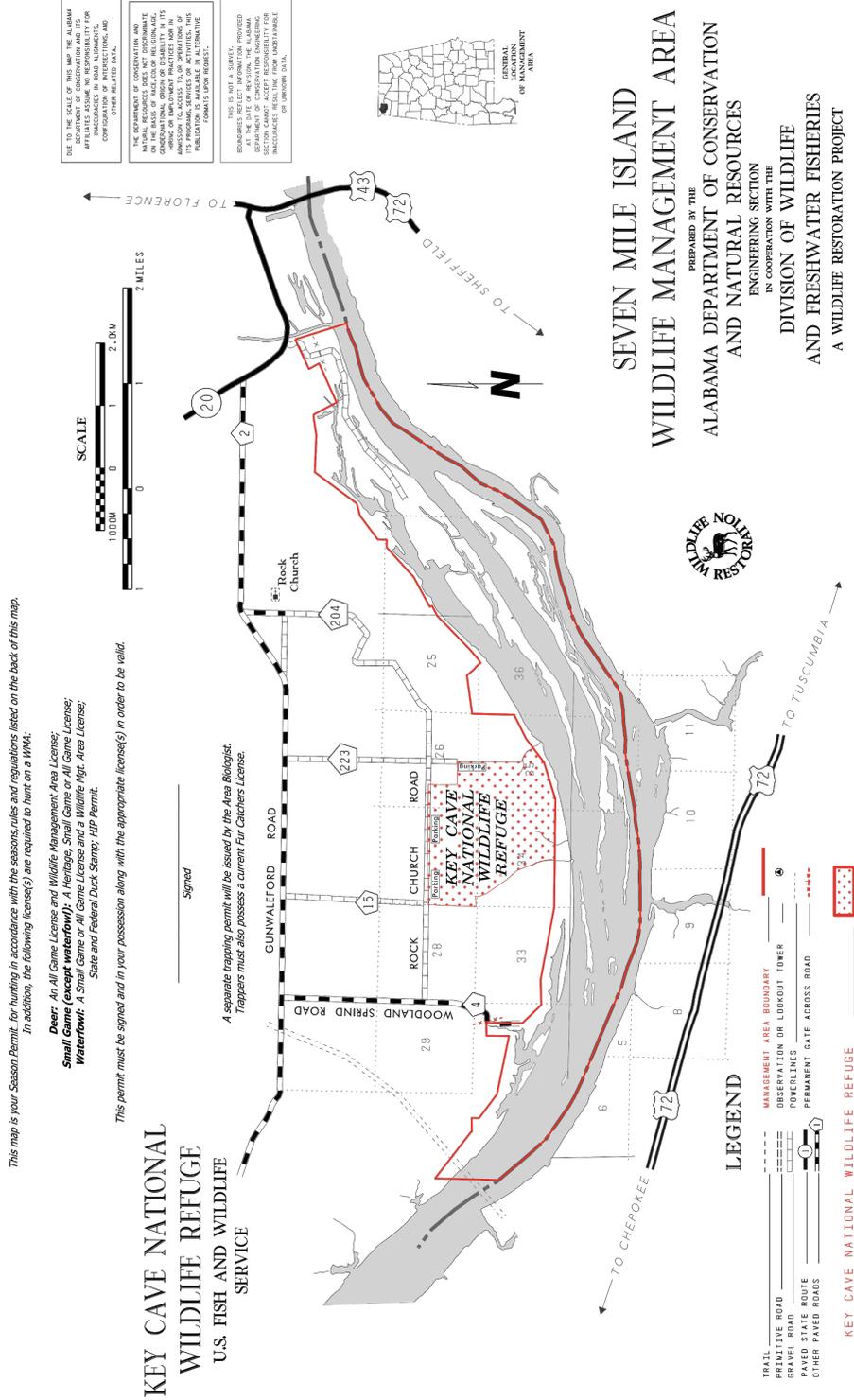
VI. Compatibility Determination

Hunting for small upland game (i.e., squirrel, rabbit, raccoon, northern bobwhite quail, and opossum) and migratory bird (i.e., mourning dove) in partnership with ADCNR were determined compatible with the purposes of the refuge (see Appendix F, pp. 273-275; USFWS 2007). Hunting and all associated program activities proposed in this plan are currently under review for their compatibility with the purposes of the refuge.

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APPENDIX 1



APPENDIX 2



STATE OF ALABAMA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
WILDLIFE AND FRESHWATER FISHERIES DIVISION



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The mission of the Wildlife and Freshwater Fisheries Division is to manage, protect, conserve, and enhance the wildlife and aquatic resources of Alabama for the sustainable benefit of the people of Alabama.

CHARLES F. "CHUCK" SYKES
DIRECTOR

FRED R. HARDERS
ASSISTANT DIRECTOR

February 12, 2019

Mr. Ricky Ingram, Project Leader
United States Fish and Wildlife Service
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2700 Refuge Headquarters Road
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Ricky,

I am writing you representing the Alabama Department of Conservation and Natural Resources, Wildlife and Freshwater Fisheries Division (WFF), to express our support for the revisions proposed in the document, Key Cave National Wildlife Refuge, White-tailed deer, American Woodcock, Snipe, Crow, Starling, Feral Hog, Coyote, Bobcat and Fox Hunt Plan.

The USFWS and WFF have long been partners in providing opportunities for the public lands hunters of Alabama, incontestable by our agencies' long-continued cooperation and collaboration of hunting programs implemented on several National Wildlife Refuges (NWR) in Alabama, including Key Cave NWR. The inclusion of these game species will serve to bolster the consumptive recreational activities, increase opportunities and the associated enjoyment of the hunting public.

In Conservation,

A handwritten signature in blue ink, appearing to read "W. Keith Gauldin".

W. Keith Gauldin, Wildlife Section Chief
Alabama Department of Conservation and Natural Resources
Division of Wildlife and Freshwater Fisheries

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