Draft Environmental Assessment

Recreational Alligator Hunting on Louisiana National Wildlife Refuges: Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs

[Unique EA Identifier #]

[November 2026]

Madison, Morehouse, Orleans, Ouachita, Plaquemines, Richland, St. Bernard, St. Tammany, Tensas, and Union Parishes, Louisiana

U.S. Department of Interior
Fish and Wildlife Service
Region 4 (Southeast Region)
1875 Century Blvd. NE
Atlanta, GA

Certification: This environmental assessment represents the bureau's good-faith effort to fulfill NEPA's requirements within the congressional timeline; upon finalization this assessment is substantially complete; in FWS's expert opinion all factors mandated by NEPA have been thoroughly considered; and in FWS's judgment, the analysis contained herein is adequate to inform and reasonably explain FWS's decision regarding the proposed Federal action.

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Chapter 1: Introduction

The U.S. Department of the Interior (DOI), Fish and Wildlife Service (FWS, Service) prepared an environmental assessment (EA) pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.), the DOI NEPA Implementing Regulations (43 CFR 46), the DOI Handbook of NEPA Implementing Procedures (516 DM 1) and other applicable state and Federal laws and regulations. This environmental assessment evaluates one action alternative and a no action alternative. The proposed action would open recreational alligator (*Alligator mississippiensis*) hunting on the following National Wildlife Refuges (NWR) in the State of Louisiana; Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita (Refuges). The hunt will be implemented as a limited opportunity through a lottery system with the State of Louisiana administering the application and selection processes. Refuge managers will set recreational alligator quotas annually within the recreational harvest limit established by the state based on refuge habitat types, competing public uses, and management activities. The no action alternative would continue alligator management in its current form with no recreational alligator hunting within the refuges.

1.1 Background

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS), the purposes of an individual refuge, federal laws and executive orders, FWS and international treaties. Relevant guidance includes but is not limited to the National Wildlife Refuge System Administration Act of 1966 (NWRSAA), as amended by the National Wildlife Refuge System Improvement Act of 1997 (NWRSIA) (16 United States Code [U.S.C.] 668dd et seq.), the Refuge Recreation act of 1962 and selected portions of the Code of Federal Regulations and the Service manual. See Appendix A for a list of relevant laws and regulations.

The mission of the NWRS, as outlined by the NWRSAA, as amended by the NWRSIA (16 U.S.C. § 668dd(5)(a)(2)) 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."

The policy of the U.S. is that each refuge shall be managed to fulfill the mission of the NWRS, as well as the specific purposes for which each refuge was established (16 U.S.C. § 668dd(a)(3)(A)). The Secretary of the Department of the Interior is further directed to:

(A) provide for the conservation of fish, wildlife, and plants, and their habitats within the System;
(B) ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans;
(D) ensure that the mission of the System described in paragraph (2) and the purposes of each refuge are carried out, except that if a conflict exists between the purposes of a refuge and the

mission of the System, the conflict shall be resolved in a manner that first protects the purposes of the refuge, and, to the extent practicable, that also achieves the mission of the System;
(E) 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 System are located;
(H) recognize compatible wildlife-dependent recreational uses as the priority general public uses of the System through which the American public can develop an appreciation for fish and wildlife;

(I) ensure that opportunities are provided within the System for compatible wildlife-dependent recreational uses;

(J) ensure that priority general public uses of the System receive enhanced consideration over other general public uses in planning and management within the System;

(K) provide increased opportunities for families to experience compatible wildlife-dependent recreation, particularly opportunities for parents and their children to safely engage in traditional outdoor activities, such as fishing and hunting; and

(N) monitor the status and trends of fish, wildlife, and plants in each refuge (16 U.S.C. § 668dd(a)(4).

The establishing actions and primary purpose of each refuge are:

Bayou Sauvage Urban NWR

Bayou Sauvage Urban NWR, located in New Orleans, Louisiana, was established in 1990. It is part of the Bayou Sauvage Urban NWR Complex. The refuge was established in 1990 under the following authorities:

Emergency Wetlands Resources Act of 1986, 16 U.S.C. § 3901(b) “It is the purpose of this chapter to promote, in concert with other Federal and State statutes and programs, the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere by:

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and

(2) intensifying efforts to protect the wetlands of the Nation through acquisition in fee, easements or other interests and methods by local, State, and Federal governments and the private sector.”

North American Wetlands Conservation Act, 16 U.S.C. 4401(b), "The purposes of this chapter are to encourage partnership among public agencies and other interests—

(1) to protect, enhance, restore, and manage an appropriate distribution and diversity of wetland ecosystems and habitats associated with wetland ecosystems and other fish and wildlife in North America;

(2) to maintain current or improved distributions of wetland associated migratory bird populations; and

(3) to sustain an abundance of waterfowl and other wetland associated migratory birds consistent with the goals of the North American Waterfowl Management Plan, the United States Shorebird Conservation Plan, the North American Waterbird Conservation Plan, the Partners In Flight Conservation Plans, and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries."

Legislation designated that the refuge should serve the following purposes:

- To enhance the populations of migratory, shore, and wading birds within the refuge;
- To encourage natural diversity of fish and wildlife species within the refuge;
- To protect the threatened and endangered species and otherwise to provide for the conservation and management of fish and wildlife within the refuge;
- To fulfill the international treaty obligations of the United States respecting fish and wildlife;
- To protect the archaeological resources of the refuge; and
- To provide opportunities for fish and wildlife-dependent public uses and recreation in an urban setting.

Big Branch Marsh NWR

Big Branch Marsh NWR is located along the north shore of Lake Pontchartrain in St. Tammany Parish, between Mandeville and Slidell, Louisiana. It was established in 1994 and is managed as part of the Southeast Louisiana NWR Complex. The following establishing authorities apply:

Emergency Wetlands Resources Act of 1986, 16 U.S.C. § 3901(b), "It is the purpose of this chapter to promote, in concert with other Federal and State statutes and programs, the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere by:

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and

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(2) to maintain current or improved distributions of wetland associated migratory bird populations; and

(3) to sustain an abundance of waterfowl and other wetland associated migratory birds consistent with the goals of the North American Waterfowl Management Plan, the United States Shorebird Conservation Plan, the North American Waterbird Conservation Plan, the Partners In Flight Conservation Plans, and the international obligations contained in the migratory bird treaties and conventions and other agreements with Canada, Mexico, and other countries."

Black Bayou Lake NWR

Black Bayou Lake NWR is located 3 miles north of the city of Monroe in Ouachita Parish, Louisiana and is managed as part of the North Louisiana NWR Complex. It was established in 1997. The following establishing authority applies:

Emergency Wetlands Resources Act of 1986, 16 U.S.C. § 3901(b), "It is the purpose of this chapter to promote, in concert with other Federal and State statutes and programs, the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere by:

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and

(2) intensifying efforts to protect the wetlands of the Nation through acquisition in fee, easements or other interests and methods by local, State, and Federal governments and the private sector."

D'Arbonne NWR

D'Arbonne NWR is located in northeast Louisiana in Ouachita and Union Parishes, Louisiana and is managed as part of the North Louisiana NWR Complex. The refuge was established in 1975 under the following authority:

Fish and Wildlife Coordination Act, 16 U.S.C. § 664, "Such areas as are made available to the Secretary of the Interior for the purposes of this Act, pursuant to sections 661 and 663 of this title or pursuant to any other authorization, shall be administered by him directly or in

accordance with cooperative agreements entered into pursuant to the provisions of section 661 of this title and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon, as may be adopted by the Secretary in accordance with general plans approved jointly by the Secretary of the Interior and the head of the department or agency exercising primary administration of such areas: Provided, That such rules and regulations shall not be inconsistent with the laws for the protection of fish and game of the States in which such area is situated: Provided, further, That lands having value to the National Migratory Bird Management Program may, pursuant to general plans, be made available without cost directly to the State agency having control over wildlife resources, if it is jointly determined by the Secretary of the Interior and such State agency that this would be in the public interest: And provided further, That the Secretary of the Interior shall have the right to assume the ".

Delta NWR

Delta NWR is located in Plaquemines Parish, Louisiana, at the mouth of the Mississippi River and is managed as part of the Southeast Louisiana NWR Complex. It was established in 1935 under the following authorities:

Migratory Bird Conservation Act, 16 U.S.C. §715d, "The Secretary of the Interior may:

(1) purchase or rent such areas or interests therein as have been approved for purchase or rental by the Commission at the price or prices fixed by the Commission; and

(2) acquire, by gift or devise, any area or interests therein; which he determines to be suitable for use as an inviolate sanctuary, or for any other management purpose, for migratory birds. The Secretary may pay, when deemed necessary by him and from moneys authorized to be appropriated for the purposes of this subchapter (A) the purchase or rental price of any such area or interest therein, and (B) the expenses incident to the location, examination, survey, and acquisition of title (including options) of any such area or interest therein. No lands acquired, held, or used by the United States for military purposes shall be subject to any provisions of this subchapter."

Executive Order 7229, dated November 19, 1935: "…as a refuge and breeding ground for migratory birds and other wildlife";

Executive Order 7383, dated June 5, 1936: "for the establishment of a quarantine station, is primarily under the jurisdiction of the Treasury Department, and its reservation as a migratory waterfowl refuge is subject to the use thereof by the said Department for quarantine purposes; and the enforcement of law, regulations, and uses thereof by the Department of Agriculture shall be without interference with any existing or future uses or regulations of the Treasury Department.";

Executive Order 7538, dated January 19, 1937: " The above-described lands are under the primary jurisdiction of the War Department, and their reservation for waterfowl-refuge

purposes is subject to use by the War Department in connection with the improvement of navigation in the Mississippi River and the uses thereof, and the administration of the area for wildlife conservation purposes by the Department of Agriculture shall be without interference with any existing or future uses or regulations of the War Department."

Tensas River NWR

Tensas River NWR is located within the Tensas River Basin of northeast Louisiana in Madison, Tensas, and Parishes, Louisiana and is managed as part of the North Louisiana NWR Complex. It was established in 1980 under the following authorities:

Public Law 96-285 on June 28, 1980: h SEC. 4. (a) "IN GENERAL.—The Secretary shall administer all lands and waters, and interests therein, acquired under this Act in accordance with the provisions of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. §668dd-668ee) to conserve the diversity of fish and wildlife and their habitat within the refuge; except that the Secretary may utilize such additional statutory authority as may be available to him for the conservation and development of wildlife and natural resources, the development of outdoor recreation opportunities, and interpretative education, as he deems appropriate to carry out the purposes of the refuge. The Secretary shall give special consideration to the management of the timber on the refuge to insure continued commercial production and harvest compatible with the purposes for which the refuge is established and the needs of fish and wildlife which depend upon a dynamic and diversified hardwood forest.

(b) Flood Control. The Secretary shall administer the refuge as part of an overall Federal management plan for the use of water and related land resources for the area. This Act shall not preclude the project, authorized by the Flood Control Act of 1944, as amended, in 58 Stat. 887. such modified configuration as may be determined by the Secretary of the Army, in consultation with the Secretary. The Secretary shall assist the Secretary of the Army in this flood control project, including the provision of all lands and rights-of-ways necessary for project construction and maintenance within the refuge area as determined by the Secretary of the Army, in consultation with the Secretary. The establishment of the refuge shall not preclude any other public or private works, determined to be in the public interest, to relieve flooding along or adjacent to the Tensas River. In addition, the Secretary of the Interior shall take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources including, but not limited to, research, development of existing facilities, and acquisition by purchase or exchange of land and water, or interests therein" (16 U.S.C. §742f(a)(4)).

"Transfer of inventory lands**:** (a) In general Subject to subsection (b), the Secretary may transfer to any Federal or State agency, for conservation purposes any real property, or interest therein, administered by the Secretary under this Act" (7 U.S.C. 2002, Consolidated Farm and Rural Development Act); and

"Implementation of Conservation Program; Authorization of Secretary and Secretary of Agriculture. The Secretary, and the Secretary of Agriculture with respect to the National Forest System, shall establish and implement a program to conserve fish, wildlife, and plants, including those which are listed as endangered species or threatened species pursuant to section 1533 of this title. To carry out such a program, the appropriate Secretary:

(1) shall utilize the land acquisition and other authority under the Fish and Wildlife Act of 1956, as amended [16 U.S.C. 742a et seq.], the Fish and Wildlife Coordination Act, as amended [16 U.S.C. 661 et seq.], and the Migratory Bird Conservation Act [16 U.S.C. 715 et seq.], as appropriate; and

(2) is authorized to acquire by purchase, donation, or otherwise, lands, waters, or interest therein, and such authority shall be in addition to any other land acquisition authority vested in him" (16 U.S.C. §1534a(1-2), Endangered Species Act of 1973).

Upper Ouachita NWR

Upper Ouachita NWR is in northeastern Louisiana within Ouachita and Morehouse Parishes. The northern boundary lies on the Louisiana-Arkansas state line and is managed as part of the North Louisiana NWR Complex. The refuge was established in 1978 under the following authorities:

Migratory Bird Conservation Act, 16 § U.S.C. 715d: "The Secretary of the Interior may - (2) acquire, by gift or devise, any area or interests therein; which he determines to be suitable for use as an inviolate sanctuary, or for any other management purpose, for migratory birds. The Secretary may pay, when deemed necessary by him and from moneys authorized to be appropriated for the purposes of this subchapter (A) the purchase or rental price of any such area or interest therein, and (B) the expenses incident to the location, examination, survey, and acquisition of title (including options) of any such area or interest therein. No lands acquired, held, or used by the United States for military purposes shall be subject to any provisions of this subchapter."

Emergency Wetlands Resources Act of 1986, 16 U.S.C. § 3901 (b): ""It is the purpose of this chapter to promote, in concert with other Federal and State statutes and programs, the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere by:

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and

(2) intensifying efforts to protect the wetlands of the Nation through acquisition in fee, easements or other interests and methods by local, State, and Federal governments and the private sector."

1.2 Decision to Be Made

The U.S. Fish and Wildlife Service will decide whether recreational alligator hunting should be authorized on the seven refuges and, if authorized, under what conditions. This environmental assessment will inform that decision and whether additional NEPA analysis is required.

1.3 Proposed Action

On August 20, 2026, the Louisiana Department of Wildlife and Fisheries (LDWF) and the Louisiana Wildlife and Fisheries Commission adopted LAC 76:V.703 to establish a recreational alligator hunting season. The rule creates a controlled recreational harvest opportunity for resident hunters, separate from the existing commercial alligator program, based upon availability of alligator resource and increasing public recreational opportunity. The program is designed to increase public engagement in wildlife management, address landowner concerns regarding nuisance or overabundant alligators, and maintain population sustainability through limited lottery tag issuance, zone-based distribution, mandatory reporting, and a strict prohibition on the commercial sale or movement of recreationally harvested alligators, hides, meat, and parts (LR 52:1392).

FWS is proposing to amend its regulations at 50 C.F.R. § 32.37 and amend Hunt Plans to open recreational alligator hunting on the following NWRs in the State of Louisiana; Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita (Refuges) in response to the State's regulatory change. This proposed hunting opportunity is to occur in accordance with the refuges' Comprehensive Conservation Plans (CCPs), CCP amendments, proposed Louisiana National Wildlife Refuges Hunt Plan Amendment, and Compatibility Determinations for Recreational Alligator Hunting.

The proposed statewide recreational alligator hunting season and methods of take are determined by the State of Louisiana while refuge managers may restrict season duration due to potential conflicts. State law established the maximum number of alligator tags to be issued annually, 10,000. Refuge staff determines area and subsequent acres of suitable habitat to be open to recreational alligator hunting on each refuge. LDWF proposed refuge-specific tag quotas based on tag allocation rate of habitat type (e.g., swamp, fresh marsh, intermediate marsh, brackish marsh) and acres of each to be open to recreational alligator hunting. Refuge staff determines final allocation on each refuge. A maximum number of tag holders and recreational alligator tags across all seven refuges has been set at 815 and 1,630, respectively. FWS may adjust the ratio of hunters to tags and may reduce the overall number of tags issued on refuges each year but may not exceed the maximum. The hunt is implemented as a limited opportunity through a lottery system with the State of Louisiana administering the application and selection processes.

A proposed action may evolve during the NEPA process as the agency refines its proposal and gathers feedback from the public, tribes, state agencies and other federal agencies. Therefore, the final proposed action may be different from the original. The proposed action will be finalized at the conclusion of the public comment period for the EA.

1.4 Purpose and Need for Action

The purpose of the action is to determine whether, and under what conditions, recreational alligator hunting may be authorized on seven NWRs and administered in coordination with Louisiana's established recreational alligator hunting framework, to the extent practicable and consistent with applicable federal law, the purposes of each refuge, and the mission of the NWRS.

The need for the proposed action arises from Louisiana's establishment of recreational alligator hunting and FWS's responsibility to determine whether the use is compatible with the purposes of the refuges and the mission of the NWRS and thereby fulfill FWS's responsibilities under the NWRSAA of 1966. Additionally, expanding hunting opportunities and aligning regulations with state agencies implements Secretarial Order (S.O.) 3347 Conservation Stewardship and Outdoor Recreation, S.O. 3356 Hunting, Fishing, Recreational Shooting, and Wildlife Conservation Opportunities and Coordination with States, Tribes, and Territories, and S.O. 3447 Expanding Hunting and Fishing Access, Removing Unnecessary Barriers, and Ensuring Consistency Across the Department of the Interior Lands and Waters.

Chapter 2: Involvement, Coordination and Consultation

2.1 Public Involvement

This draft environmental assessment will be available for public review and comment for 15 days from November 13 to 27, 2026. Members of the public will be notified of the availability of the draft documents through notices provided to local media outlets and posted on the regional and individual refuge websites. The draft document will be made available at the Southeast Louisiana NWR Complex Headquarters (61101 Holy Redeem Rd, Lacombe, LA 70445), and North Louisiana NWR Complex Headquarters (11372 Highway 143 Farmerville, LA 71241), visitor centers, and may be accessed and downloaded from the U.S. Fish and Wildlife Service, Southeast Region, National Wildlife Refuge web site and from each refuge's website. For access to the document in an alternative format contact any refuge included.

Bayou Sauvage Urban National Wildlife Refuge | U.S. Fish & Wildlife Service

Big Branch Marsh National Wildlife Refuge | U.S. Fish & Wildlife Service

Black Bayou Lake National Wildlife Refuge | U.S. Fish & Wildlife Service

D'Arbonne National Wildlife Refuge | U.S. Fish & Wildlife Service

Delta National Wildlife Refuge | U.S. Fish & Wildlife Service

Tensas River National Wildlife Refuge | U.S. Fish & Wildlife Service

Upper Ouachita National Wildlife Refuge | U.S. Fish & Wildlife Service

Comments may be submitted in writing via email to Jacob Tuttle, Regional Hunt and Fish Coordinator, jacob_tuttle@fws.gov, or by mail to 718 Juliette Road, Round Oak, GA 31029. Any comments, concerns, suggestions, or other feedback will be addressed in the final environmental assessment if a substantive response is required.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

2.2 State Coordination

NWRs conduct hunting and fishing programs within the framework of State and Federal regulations. Refuges in Louisiana closely align with LDWF hunting season dates, hours, species, limits, and methods of take, with few exceptions based on refuge purposes. FWS annually meets with LDWF to ensure coordination with state hunting and fishing programs and regulations on NWRs. LDWF and FWS consulted on proposed NWR areas to be open to recreational alligator hunting, refuge tag allotment, and refuge-specific tag quotas. The state reviewed this Environmental Assessment, associated Compatibility Determinations, and Louisiana Recreational Alligator Hunt Plan Amendment.

2.3 Tribal Consultation

The Service requested review and comment on the proposed changes to the refuge hunt program on November 13, 2026, from:

- Alabama-Coushatta Tribe of Texas
- Caddo Nation of Oklahoma
- Chitimacha Tribe of Louisiana
- Choctaw Nation of Oklahoma
- Coushatta Tribe of Louisiana
- Jena Band of Choctaw Indians
- Mississippi Band of Choctaw Indians
- Quapaw Nation
- Tunica-Biloxi Indian Tribe of Louisiana

Chapter 3: Alternatives

3.1 Alternatives

Alternative A – No Opening of Recreational Alligator Hunting - No Action Alternative

Continue the status of no recreational alligator hunting on Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs. Hunting programs would continue as currently designed on each refuge. Details of each refuge's current hunting program can be found on each respective refuge's website as well as annual Public Use Regulations brochures.

Nuisance alligator control would continue to occur on each refuge under existing authorities and in coordination with LDWF. Navigable waterways within or adjacent to refuge boundaries, that are open to recreational alligator hunting under State law, would remain open under State authority. This alternative would not change existing State-authorized access.

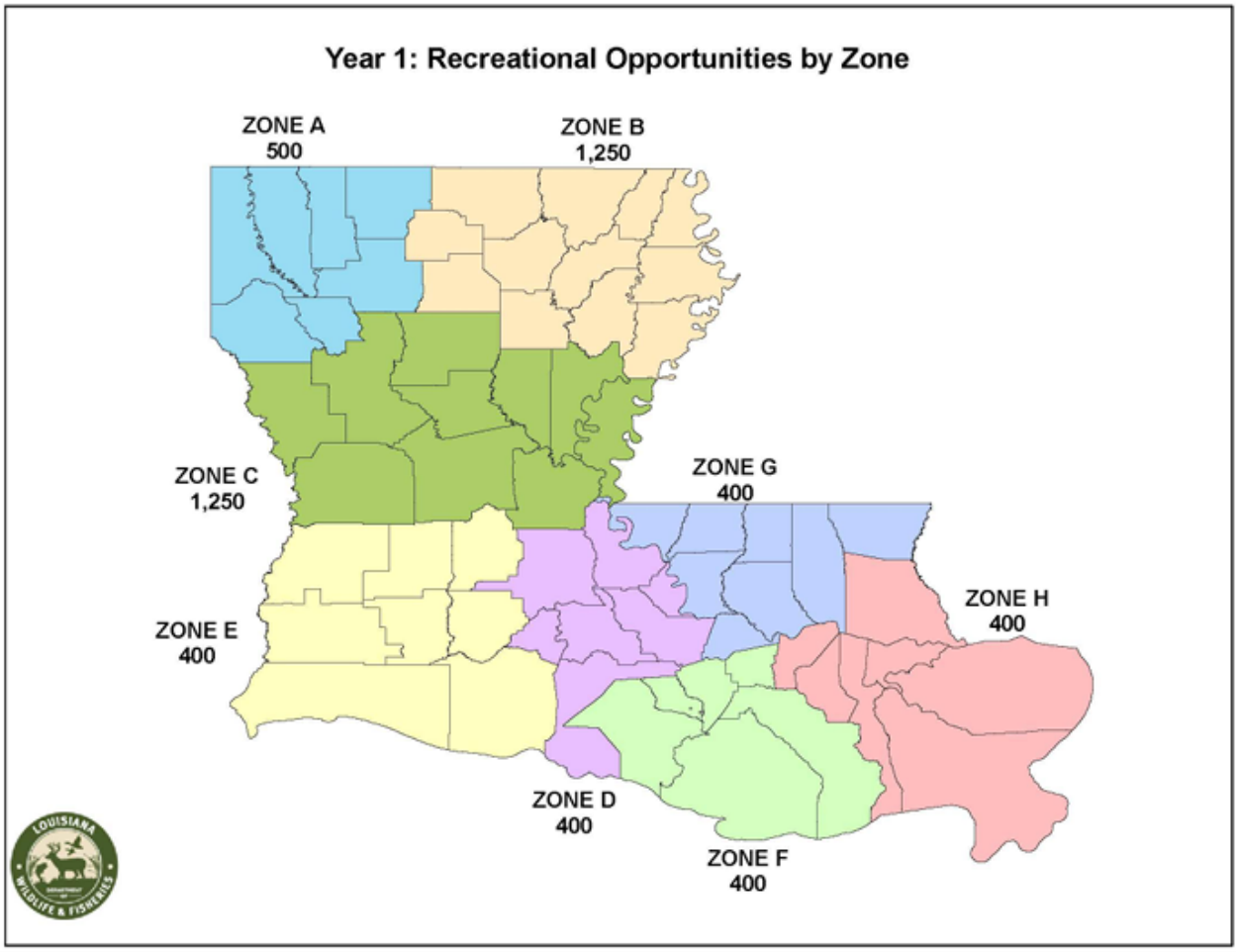
Alternative B - Open Recreational Alligator Hunting on Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs - Preferred Alternative

Under the Preferred Action Alternative, the Service will open recreational alligator hunting on Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs as part of a statewide recreational alligator hunting opportunity. LDWF will administer the lottery for the hunt opportunity including overseeing the online application process, with the refuge recreational alligator hunting application separate from the State general lottery, and drawing and notifying successful applicants. Applicants must be Louisiana residents, age 16 and older, who are hunter education certified. Selected applicants will receive recreational hide tags for refuge-specific hunts and must possess a valid general Louisiana hunting license, a recreational alligator hunting license, and valid recreational hide tags when hunting. Selected applicants will also receive a refuge-specific Public Use Regulations brochure which will require signature and be used to provide information on all refuge-specific regulations applicable to recreational alligator hunting and other refuge regulations.

Season dates will be set by the state and occur in the fall each year and be presented to the FWS each year. Refuges may adjust dates for refuge hunts within the overall state season. LDWF has divided the state into eight zones, A through H, with tag quotas determined at the zone level (Figure 1). The seven refuges proposed for opening to recreational alligator hunting are located in Zones B and H. Hunt areas, access times, and routes of access to hunt units are determined by each refuge. Refuge quotas are based upon acres of habitat type (e.g., swamp, fresh marsh, intermediate marsh, brackish marsh) open to recreational alligator hunting and associated tag allocation rate.

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Figure 1. Louisiana Recreational Alligator Hunt Zones and Tag Allotment.



Alternatives Considered but Dismissed

Potential alternatives to expand and/or require lead-free ammunition and fishing tackle were considered but not carried forward for detailed analysis. The Service works to increase opportunities for recreational hunting and sport fishing when determined compatible with refuge purposes and the NWRS's mission. The NWRSIA specifically requires that, "Regulations permitting hunting or fishing of fish and resident wildlife within the System shall be, to the extent practicable, consistent with State fish and wildlife laws, regulations, and management plans" (P.L. 105-57). A complete discussion of lead use and impacts on refuges is provided below in this document. That information helped inform the alternatives FWS considered. Requiring lead-free ammunition and fishing tackle would create undue regulation (Secretarial Order 3421, Achieving Prosperity through Deregulation, dated February 8, 2025) to hunters and anglers and limit public access because of cost and availability of lead-free alternatives. A recent FWS Director's Memo (September 8, 2025) directs all refuges and hatcheries in the system to pursue all potential openings and expansions.

3.3 Features Common to all Alternatives

Although the alternatives may differ, there are similarities among them as well. These common features are listed below to reduce the length and redundancy of the individual alternative descriptions.

- Under both alternatives, nuisance alligator control would continue to occur on all seven refuges in coordination with LDWF.
- Under both alternatives, all other existing hunting and fishing programs on each refuge would continue as currently implemented and are not otherwise affected by this EA.
- The State of Louisiana established a limited lottery recreational alligator hunt in 2026.

3.4 Mitigation Measures

Mitigation Measures Applicable to All Alternatives

Alligator management occurs within the framework of State and Federal regulations. The refuges coordinate with the State, as needed, to maintain regulations and programs consistent with the State's alligator management program. Refuges in Louisiana implement nuisance and commercial alligator harvest within established state regulations and guidelines. Additionally, refuges comply with all FWS requirements including those specified under refuge compatibility (602 FW 1) and NEPA prior to implementing alligator management action.

Refuge-specific public use regulations brochures are annually updated to reflect specific information and restrictions, including season dates, times, tag allocation, access, and other refuge-specific regulations. These regulations allow for proper management of public lands and their resources and provide increased safety to refuge visitors.

Mitigation Measures Specific to the Proposed Action

Under the proposed alternative, a limited lottery recreational alligator hunt will be implemented annually. Numbers of hunter opportunities will be set by refuge managers within limits established by LDWF and dependent on habitat types, other competing public uses, and management activities. In addition, only those hunters who have been successfully drawn via the lottery may harvest alligators. State law requires applicants be Louisiana residents and possess a basic hunting license. Successful applications must have in their possession a valid basic hunting license (or equivalent privilege), a recreational alligator hunting license, valid recreational hide tag(s) to take or possess wild alligators, along with written evidence of land ownership or permission from the landowner. The Refuges will require each selected hunter to possess a signed Public Use Brochure or Annual Public Use Permit and a copy of the email from LDWF notifying them that they were selected to hunt on refuge lands. A nonresident may participate in a recreational alligator hunt only while in the physical presence of the lotter-winning recreational alligator hunter to whom recreational hide tag(s) were issued and shall

possess a valid nonresident basic hunting license (or equivalent privilege) and a nonresident recreational alligator hunting license.

Hunts and hunter access will be managed so as not to interfere with existing wildlife dependent public uses and refuge management activities. FWS and LDWF wildlife officers will enforce regulations. The Refuge Manager at each station may establish specific restrictions for the alligator hunting program depending on conflicts with other refuge management priorities or wildlife-dependent recreation priorities. Permanent or periodic closures of specific areas may be necessary if the Refuge Manager identifies a habitat, wildlife protection, public safety, or program-quality concern.

This alternative offers increased opportunities for public hunting and fulfills the FWS's mandate under the NWRSAA of 1966. The Service has determined that the hunt plan is compatible with the purposes of Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs and the mission of the Refuge System.

3.5 Monitoring

Monitoring Applicable to All Alternatives

Continued annual biological monitoring of both resident and migratory wildlife and their habitats is done on the refuge in conjunction with our state partners. For example, refuge staff have annually conducted spotlight surveys on Black Bayou Lake NWR since 2001 to determine size class and abundance of alligators occupying refuge fee title. Additionally, LDWF has conducted statewide aerial nest surveys since 1972, marsh habitat type alligator density estimation, and collected size class harvest data for more than 40 years that is used in quota determination. FWS maintains compliance with hunting and fishing regulations through field checks performed by FWS wildlife officers. Conservation officers from the LDWF may also assist along with additional support from local and state law enforcement officers and special units.

FWS's Ecological Service program regularly monitors species of special concern, threatened, or endangered status. Refuges regularly consult with them to stay informed of the status of threatened and endangered species. In addition, refuges regularly monitor the status of these species and follow recovery plan guidelines for their management when present on a refuge.

Monitoring Related to the Proposed Action

FWS minimizes conflicts related to biological resources by adopting a "wildlife first" principle explicitly stated in the NWRSIA. LDWF has established a rigorous reporting system that will include recreational alligator hunting conducted on the refuges. Tags must be affixed to each alligator harvested and hunters are required to report the recreational hide tag number, length of the alligator, date of harvest, and parish within 72 hours of harvest. Hunters who do not report harvest will be prohibited from future participation in the recreational alligator hunting lottery.

FWS law enforcement and LDWF enforcement will patrol during hunts to ensure LDWF and refuge regulations are followed and conflicts that arise are resolved. Refuge managers and biologists will receive harvest information from LDWF and can use that to assess overall impacts to refuge resources from recreational alligator hunting. If unacceptable impacts from the use were to be experienced, then the Service would modify or eliminate the use. Any changes in management actions and strategies would be initiated in accordance with the hunting rulemaking process and FWS policy. Minor changes would be documented as part of the adaptive management process, and additional NEPA analysis and public involvement may or may not be warranted depending on the specifics of the potential change.

Chapter 4: Affected Environment and Environmental Consequences

The affected environment describes the environmental conditions that would prevail in the absence of the implementation of the proposed action. It includes reasonably foreseeable environmental trends and planned actions in the area to be affected by implementation of the proposed action. This section is organized by affected resource categories. Each affected resource discusses both the existing environmental or socioeconomic baseline in the action area, and the reasonably foreseeable effects of the alternatives on each resource. The terminology "reasonably foreseeable effects" refers to effects that are sufficiently likely to occur and that have a reasonably close causal relationship to the proposed action such that a person of ordinary prudence would take them into account in reaching a decision.

The following impact topics were dismissed from further consideration because either there would be no reasonably foreseeable effects, or effects would be negligible or not detectable: air quality, geology, soils, topography, geology, hydrology, wetlands, wilderness, greenhouse gas emissions, and climate change.

The decision-making official will consider the following criteria in determining the degree of effects (DOI Handbook of NEPA Procedures 2026):

(i) Both short- and long-term effects;
(ii) Both beneficial and adverse effects;
(iii) Effects on public health and safety;
(iv) Economic effects; and
(v) Effects on the quality of life of the American people.

Effects that are speculative (i.e., there is a remote possibility that the impact would occur, but no meaningful information exists on which to base a prediction) or indefinite will not be included.

4.1 General Description of Affected Environmental Applicable to All Affected Resources

This section describes the existing environmental and socioeconomic setting in the action area. The following sections provide additional, brief descriptions of each resource affected by the proposed action. A full description of the refuges' biological resources and ecosystem context are provided in the corresponding refuge CCPs and are incorporated herein by reference (USFWS 2006, 2007a, 2008ab, 2009ab, 2010).

Bayou Sauvage Urban NWR

The refuge consists of 27,657 acres in Orleans Parish, Louisiana with an approved acquisition boundary (AAB) of 34,466 acres (Figure 2). Bayou Sauvage Urban NWR is primarily comprised of bottomland hardwood forest, estuarine tidal marshes, and shallow water (USFWS 2009a). The proposed action will initially occur outside the hurricane protection levee system, which contains 11,112 acres of emergent marsh, tidally influenced with natural levee ridges, spoil banks and shallow open water bodies (Figure 3). Future acquisitions within the AAB may be opened to recreational alligator hunting, therefore this analysis considers those areas as well for a potential total recreational alligator hunting area of 17,921 acres.

Big Branch Marsh NWR

Big Branch Marsh NWR is located within the Pontchartrain Basin in St. Tammany Parish, Louisiana (Figure 2). The Refuge is 19,463 acres of fee title lands within the 28,150-acre AAB of marshlands and forested wetlands (Figure 4, USFWS 2007a). The refuge also manages, through a cooperative agreement with the LDWF, St. Tammany Wildlife Refuge, which is 1,300 acres of marsh adjacent to Big Branch Marsh NWR. The proposed action will initially be conducted on 18,777 acres of the refuge, in marsh and forested wetland habitats. Future acquisitions within the AAB may be opened to recreational alligator hunting, therefore this analysis considers those areas as well for a potential total recreational alligator hunting area of 27,464 acres.

Black Bayou Lake NWR

The refuge consists of 5,267 acres in Ouachita Parish, Louisiana with an AAB of 6,688 acres (Figure 2). The primary feature of the refuge is the lake itself consisting of approximately 1,500 acres studded with bald cypress and water tupelo trees. The surrounding area of the refuge is made up of upland pine and bottomland hardwood forests (USFWS 2010). The proposed action will be conducted on a maximum of 1,400 acres of lake and bottomland hardwood forest (Figure 5). The Refuge AAB has remaining unacquired acres, however those areas do not contain alligator habitat and therefore will not be included in this analysis.

D'Arbonne NWR

The refuge encompasses 17,638 acres in Union and Ouachita Parishes, Louisiana (Figure 2). The refuge includes deep overflow swamps, bottomland hardwood forests, and upland mixed hardwood pine forests (USFWS 2006). The proposed action will occur on 14,711 acres of the

refuge in swamp, and bottomland hardwood forest habitats (Figure 6). The Refuge has no more unacquired acres within the AAB.

Delta NWR

Delta National Wildlife Refuge consists of approximately 50,401 acres in Plaquemines Parish at the mouth of the Mississippi River (Figure 2). Habitats consist of freshwater and saltwater marshes, shallow ponds, and mud flats (USFWS 2008a). The proposed action occurs on 50,399 acres of wetland habitats (Figure 7). The Refuge has no remaining unacquired acres within the AAB.

Tensas River NWR

Tensas River NWR consists of 77,849 acres in fee title and 195 acres of easement in Madison Richland, and Tensas Parishes, Louisiana (Figure 2). The refuge is primarily composed of a mix of various habitat types including bottomland hardwood forests, hardwood reforestation areas, moist soil, and open field-cropland (2009b). The proposed action will initially occur on 75,112 acres of refuge ranging across all habitat types (Figure 8). Future acquisitions within the 111,628 AAB may be opened to recreational alligator hunting, therefore this analysis considers those areas as well for a potential total recreational alligator hunting area of 108,891 acres.

Upper Ouachita NWR

Upper Ouachita NWR consists of approximately 54,561 acres in Union and Morehouse Parishes, Louisiana (Figure 2). Habitat types include mixed hardwood pine forests, bottomland hardwood forest, scrub-shrub, moist-soil, agricultural fields, fallow agricultural fields, and open water (USFWS 2008b). The proposed action will initially occur on 43,759 acres of mixed refuge habitat types excluding agricultural fields (Figure 9). Future acquisitions within the 83,585-acre AAB may be opened to recreational alligator hunting, therefore this analysis considers those areas as well for a potential total recreational alligator hunting area of 72,783 acres.

This analysis considers the total potential area that may be opened to recreational alligator hunting on the seven refuges. That area is 293,569 acres when all unacquired acres are purchased and if they are all opened to recreational alligator hunting.

Figure 2. Louisiana NWRs to Open Recreational Alligator Hunting.

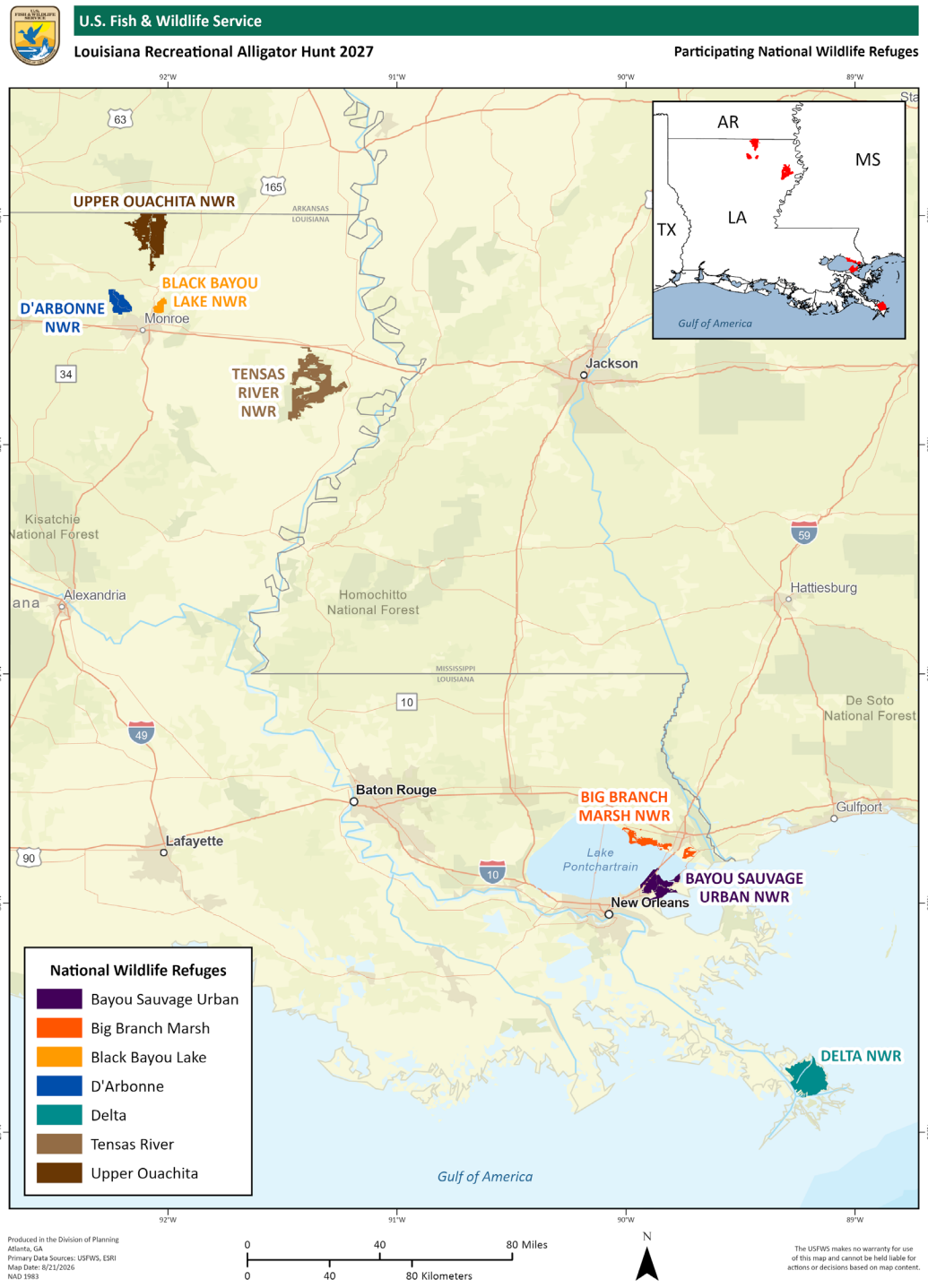


Figure 3. Bayou Sauvage Urban NWR Proposed Recreational Alligator Hunt Area.

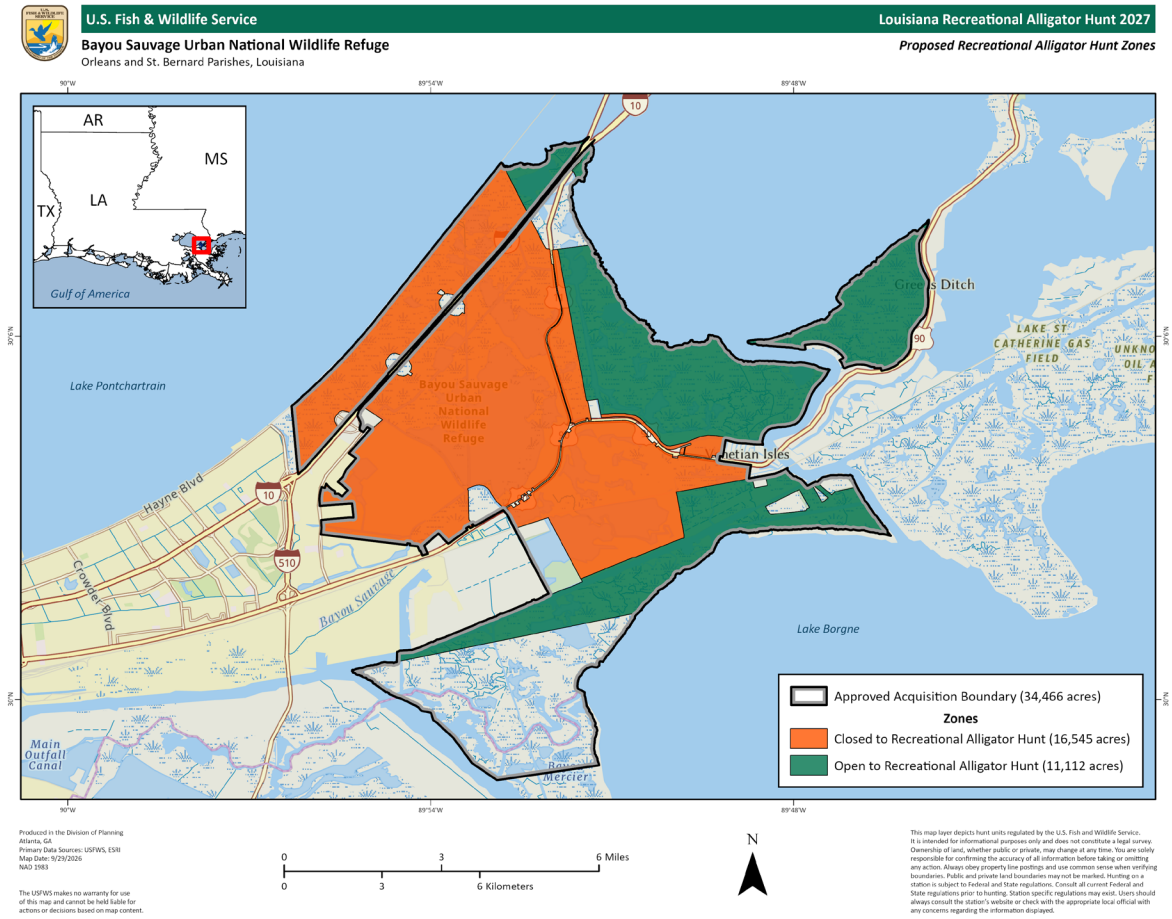


Figure 4. Big Branch Marsh NWR Proposed Recreational Alligator Hunt Area.

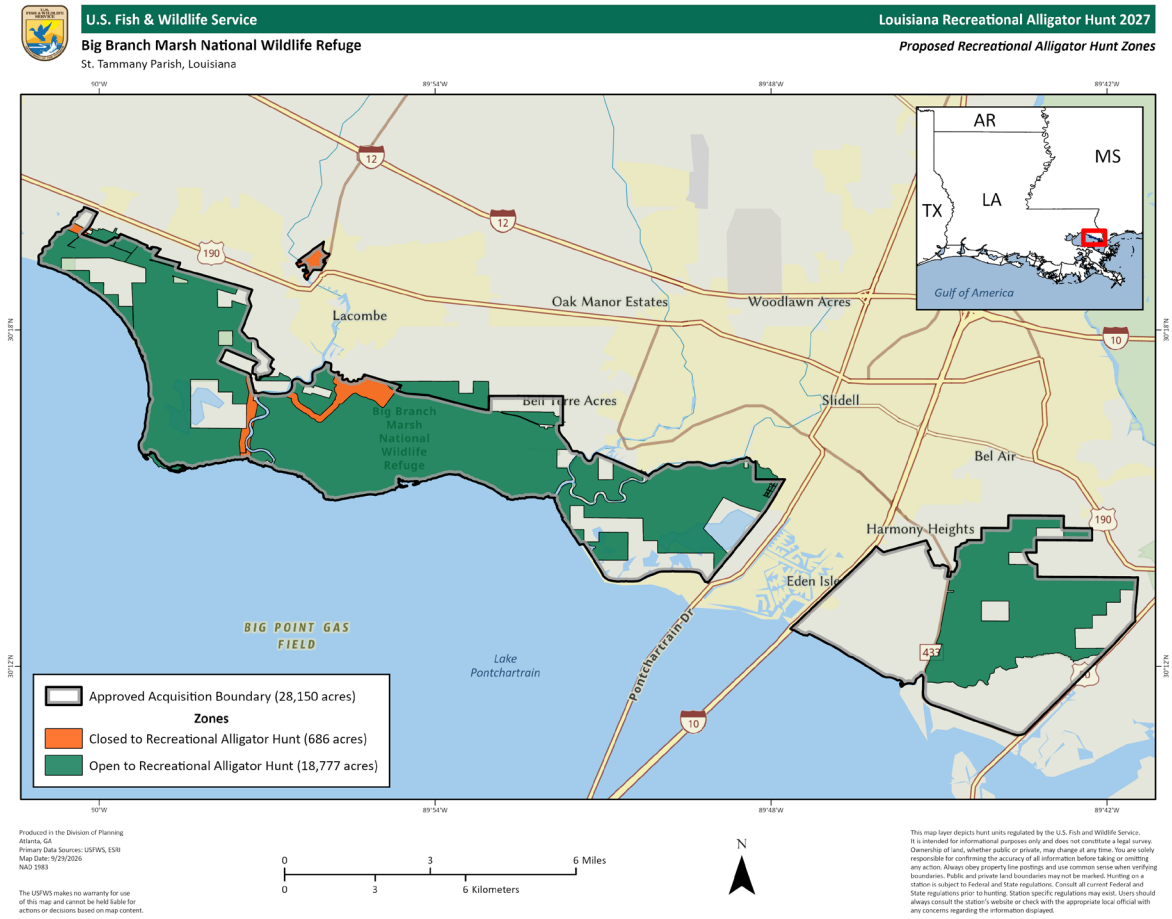


Figure 5. Black Bayou Lake NWR Proposed Recreational Alligator Hunt Area.

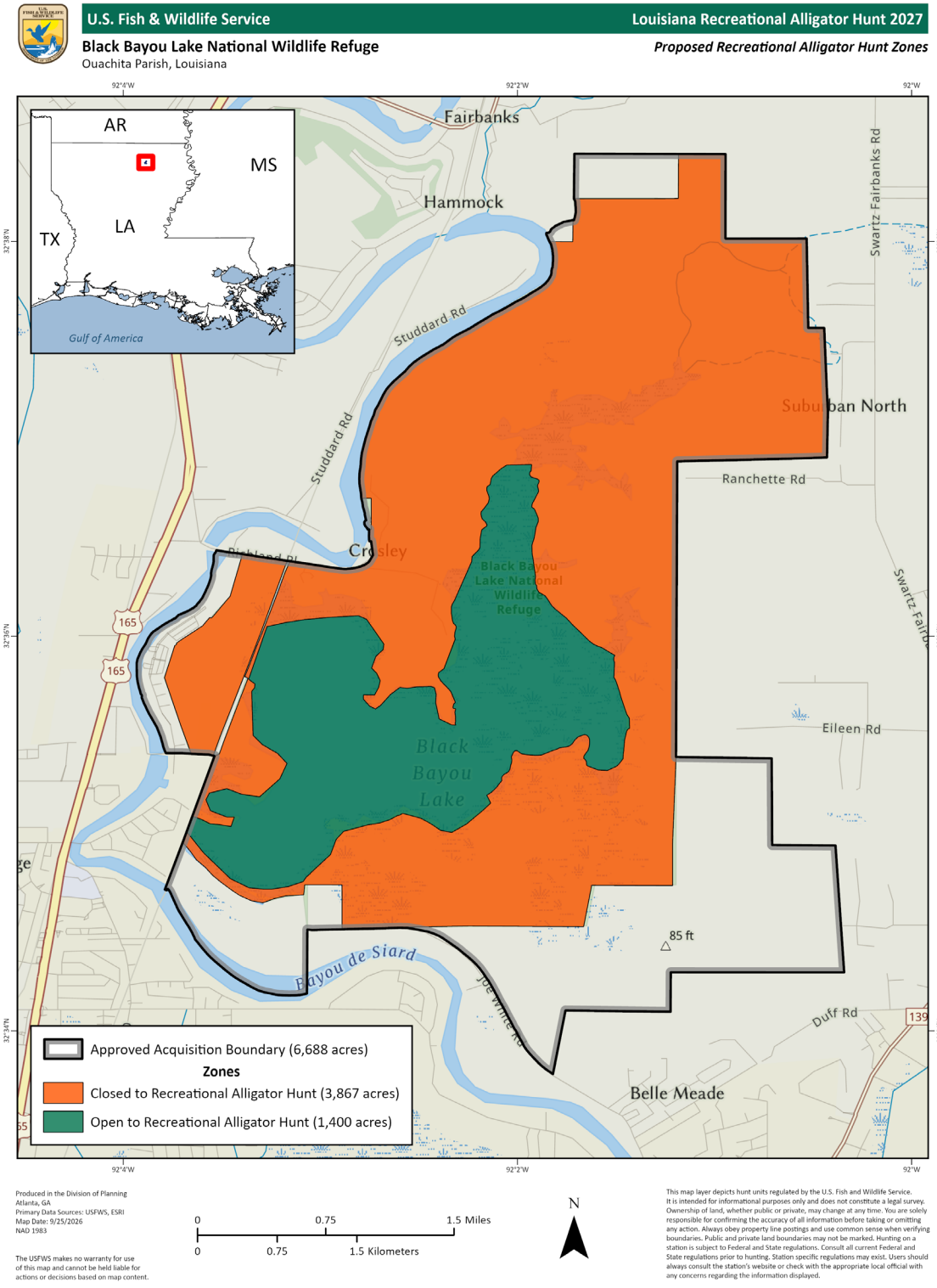


Figure 6. D'Arbonne NWR Proposed Recreational Alligator Hunt Area.

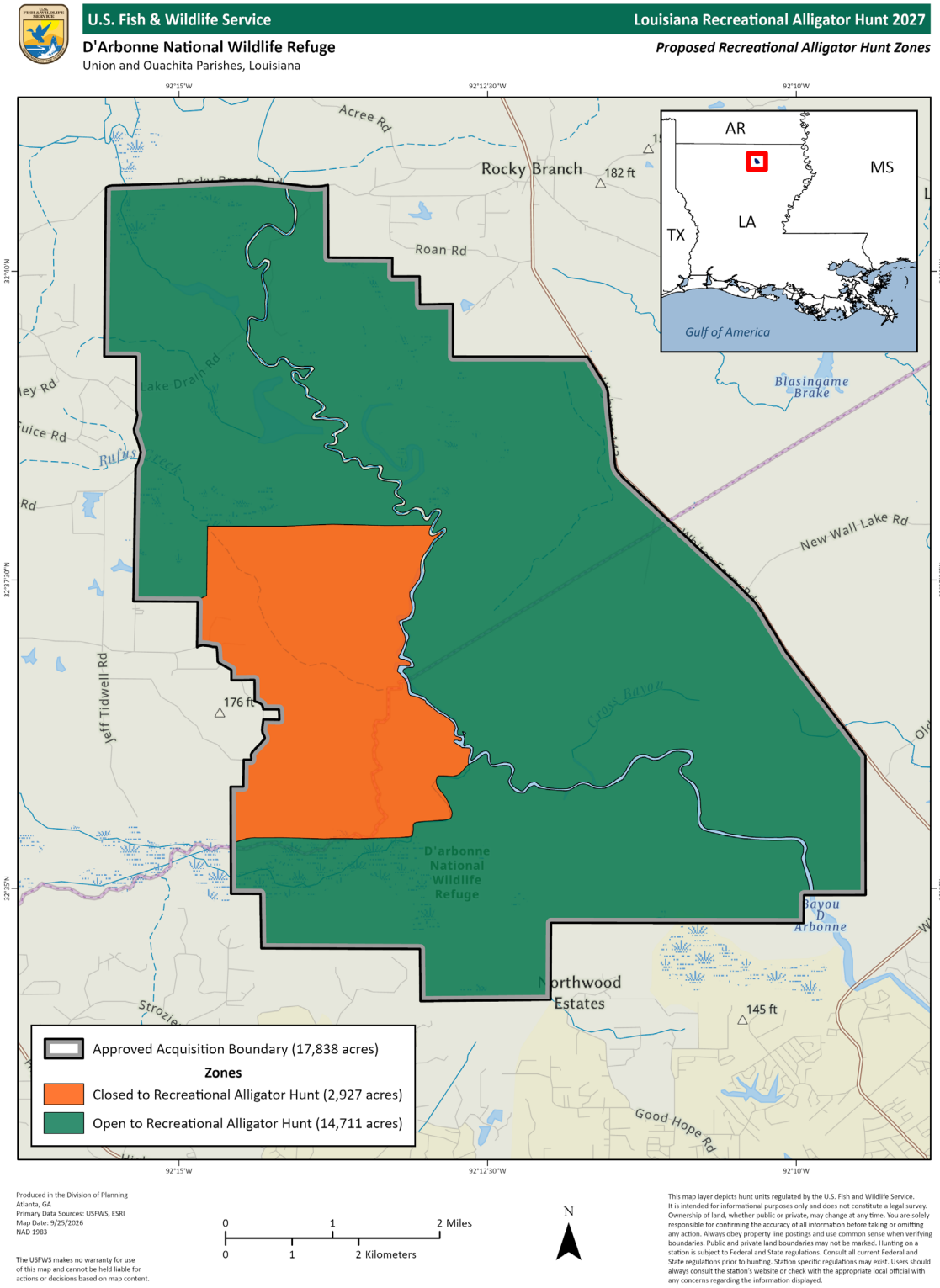


Figure 7. Delta NWR Proposed Recreational Alligator Hunt Area.

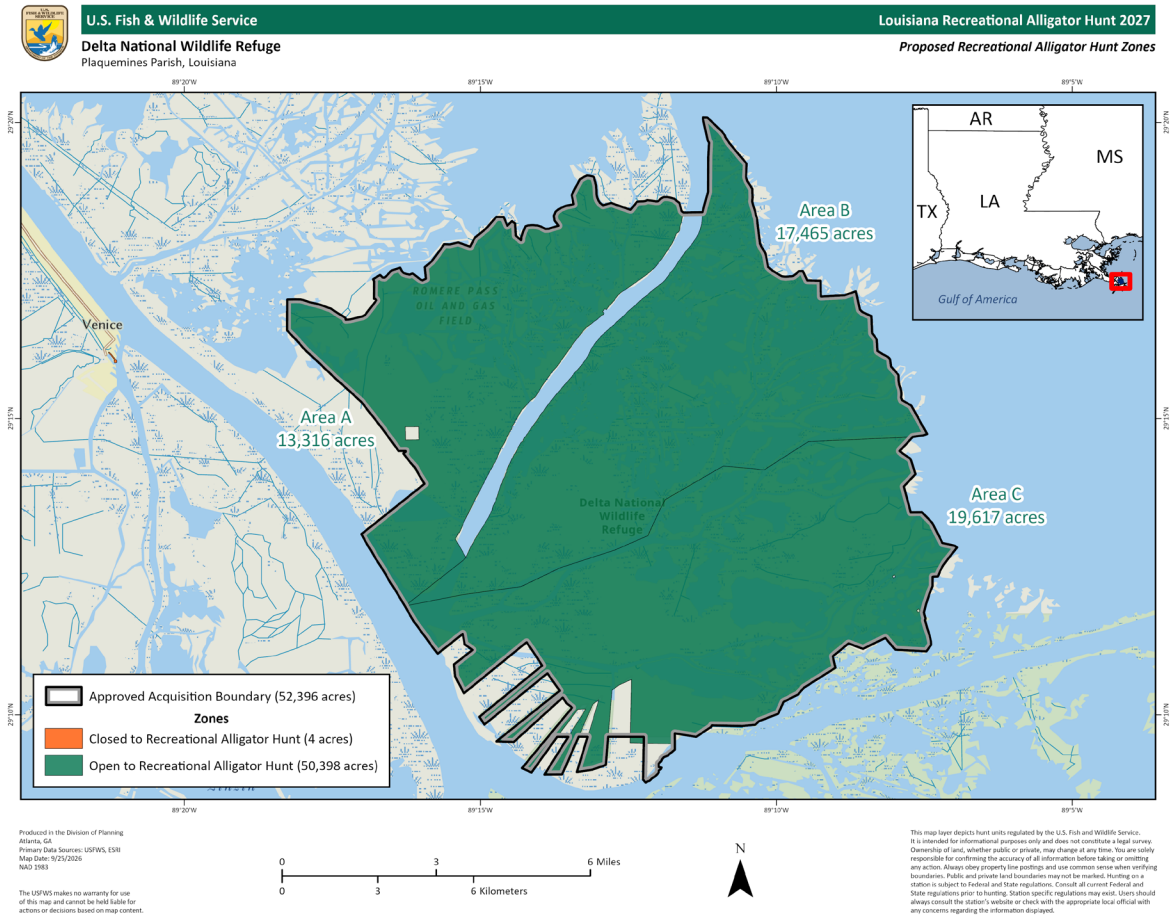


Figure 8. Tensas River NWR Proposed Recreational Alligator Hunt Area.

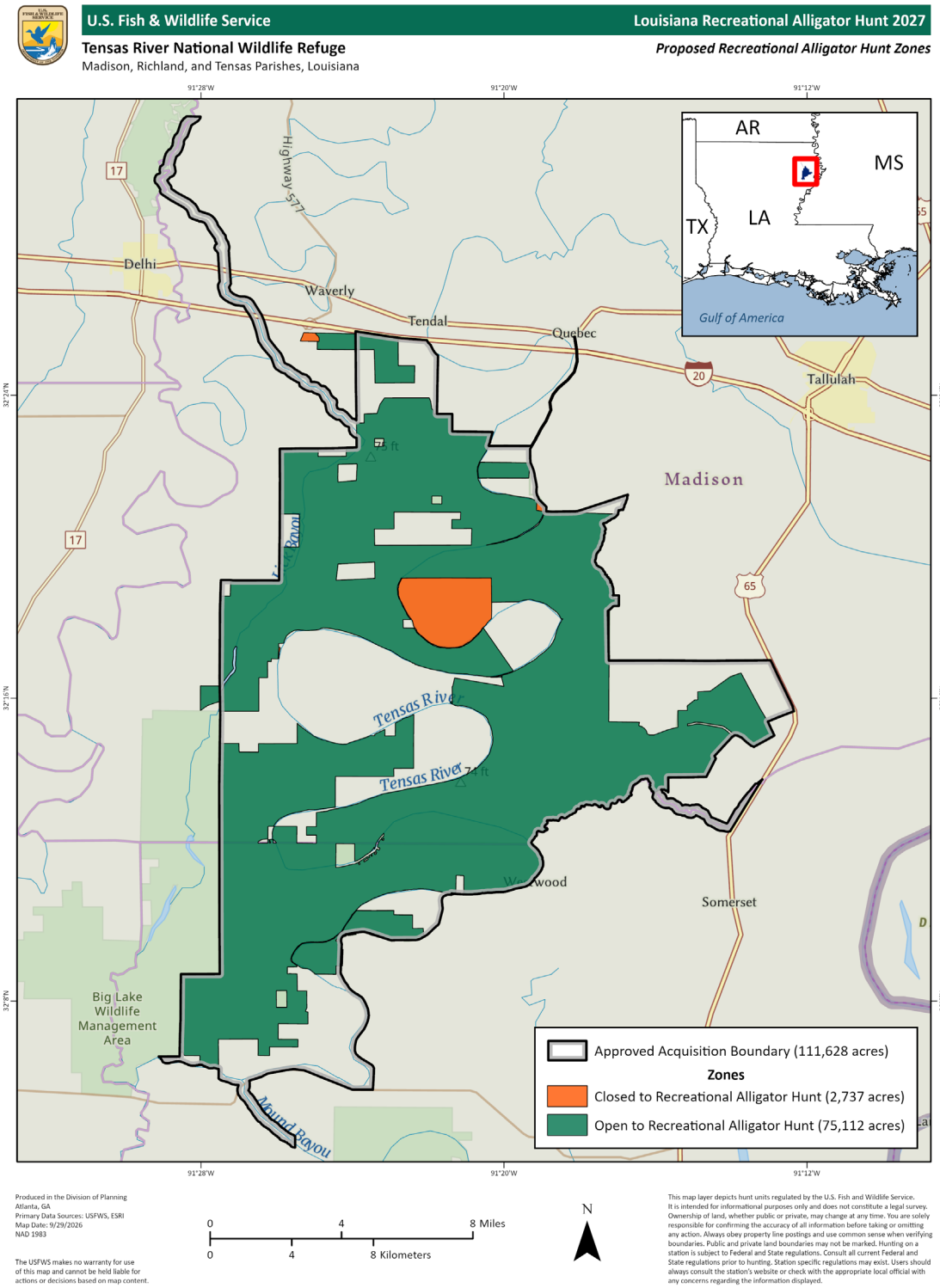
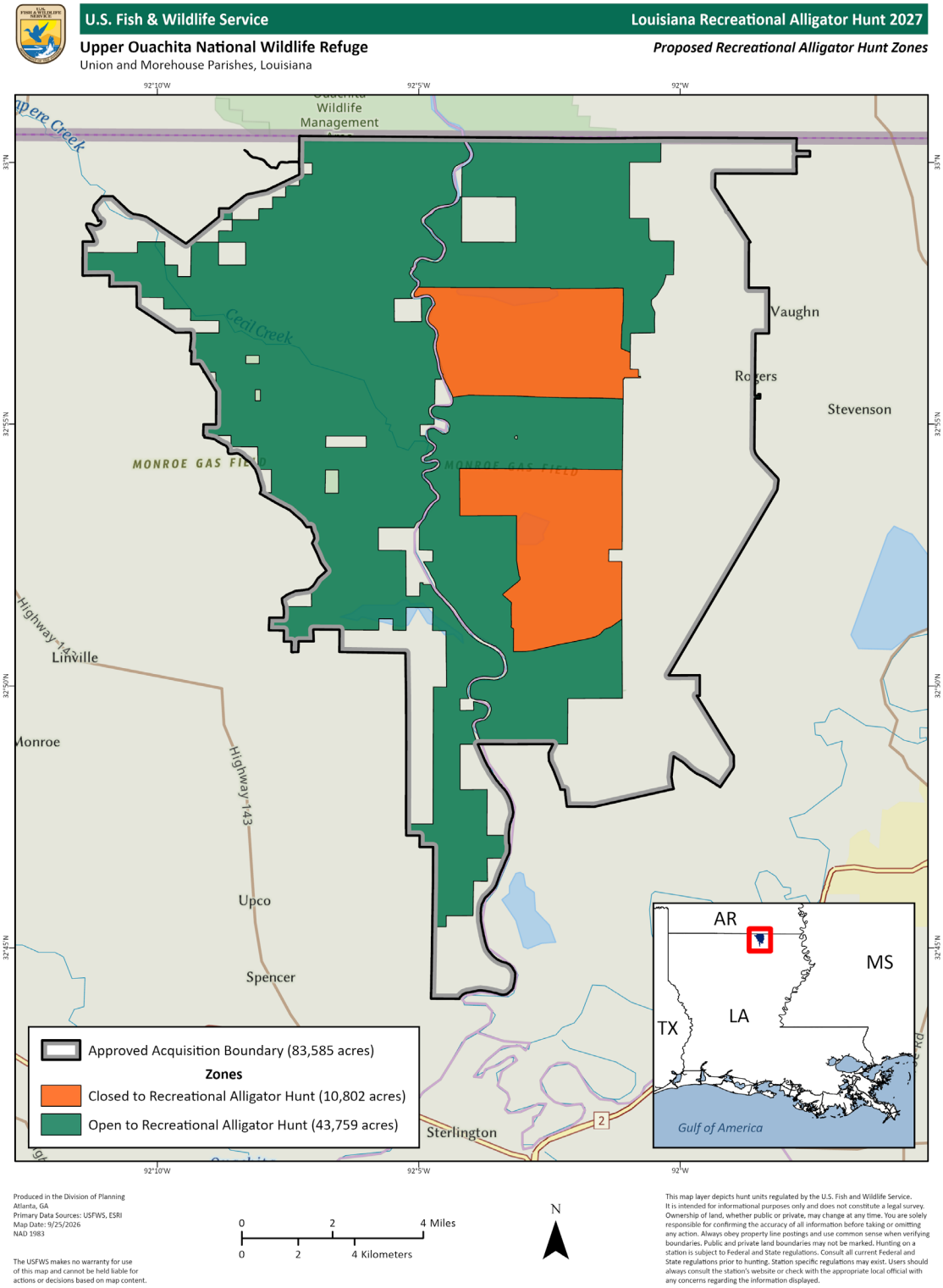


Figure 9. Upper Ouachita NWR Proposed Recreational Alligator Hunt Area.



4.2 Lead Ammunition And Tackle Use By Hunters And Anglers: Affected Environment

Alligator hunting under LDWF regulations involves methods of take (e.g., hook-and-line, snatch hooks, harpoons, bow-fishing equipment, and firearms for dispatch) that differ from shotgun-based lead shot concerns applicable to migratory bird hunting. Current hunting activities on NWRs, including Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs, carries the potential for adverse health impacts to wildlife from spent lead ammunition or inadvertently discarded lead tackle in the environment. There is potential for the presence of residual lead in the environment to have adverse impacts on wildlife in addition to the inherent impacts of intentional harvest from hunting and fishing. Some species, including non-target wildlife, aquatic species, predators, and upland game, are susceptible to direct ingestion of lead-based ammunition through their foraging behavior and food sources. There is also the potential for adverse impacts to human health due to the inadvertent consumption of lead from the individual animals that are successfully harvested with lead ammunition. See the Environmental Consequences Socioeconomics discussion of potential effects beyond the seven refuges environment.

Lead-based ammunition is widely used for game hunting because of its ballistic qualities, cost effectiveness, and capacity for producing efficient, humane kills (Oltrogge 2009). However, the softness of the metal and the muzzle velocities of modern ammunition can result in bullet fragmentation and widespread dispersal of fragments around the wound channel and adjacent tissues. Thus, lead contamination occurs in both carcasses and viscera of animals shot with lead-based ammunition, particularly with bullets designed to expand rapidly upon impact. Many hunters do not realize that the carcass or gut pile they leave in the field usually contains lead bullet fragments (Hunt et al. 2006, Dobrowolska and Melosik 2008, Grund et al. 2010).

Lead availability in some wetlands and waterways may exist through anglers' use of lead sinkers and jigs for fishing. Sinkers are weights of various sizes and shapes used to sink a fishing line below the surface of the water while jigs are weighted hooks, often brightly painted or otherwise decorated, used as lures in angling. Other fishing tackle components may contain lead as well. When lost or inadvertently discarded, lead fishing gear can remain in the bottom substrate.

Lead bio-accessibility is influenced by lead contamination sources, soil properties, and particle size fractions (Mousavi et al. 2022). While total lead concentrations in soil may remain stable over time, and can remain for centuries, the bioavailable fraction can vary but often persists at levels of concern for several decades (USEPA 2020). Lead residues can have short to medium-term impacts on soil organisms (Rodriquex-Seijo et al. 2024). Microfauna are short-generation-time organisms and could develop lead tolerance over time when exposed to inorganic contaminants (Rantalainen et al. 2006).

Most wetlands are acidic to highly acidic due to high organic matter decomposition, though there are exceptions due to groundwater influence and soil type. Soil pH is an essential factor in heavy metal mobility and availability in the soil and organic carbon content can change the adsorption and or solubility of elemental ions (Mousavi et al. 2022). However, some reports state that organic chelates do not increase the mobility and bioavailability of lead and other metals (Mousavi et al. 2018a; Mousavi et al. 2018b). Lead seems to be tightly bound by most soils and substantial amounts must accumulate before it affects the growth of higher plants (Boggess 1977). Lead content collected from plants from heavily hunted areas near refuges did not differ from those collected in the protected areas (Behan et al. 1979). Lead concentrations tend to decrease markedly with increasing trophic level in both detritus-based and grazing aquatic food chains (Wong et al. 1978).

A comprehensive review found that over 130 species were affected by lead ammunition, but food chain biomagnification, except for direct ingestion of lead shot, is negligible (Eisler 1988; Tranel et al. 2009). The primary concerns related to lead ammunition and tackle used by hunters and anglers on the refuge environment are:

- Spent lead ammunition available to raptors (especially eagles and scavengers) and mammalian predators when they feed on tissues of animals killed or wounded by lead ammunition.
- Waterfowl mistakenly swallowing lead fishing gear or lead fragments when foraging for grit and pebbles to fill their gizzard
- Upland birds mistakenly swallowing lead shot when foraging for grit and pebbles to fill their gizzard

Lead is a potent neurotoxin with no known safe exposure level. Lead poisoning affects the blood, nervous, and immune systems of wildlife (Eisler 1988). Lead may negatively affect the development of young animals, resulting in fewer young being produced, and can impair neurological functions leading to altered behavior and increased predation (Bellinger et al. 2013; Chiverton et al. 2022). Clinical signs may include "...ataxia, impaired mobility, lowered sensory abilities, vomiting, anemia, lethargy, gastrointestinal stasis, weakness and mortality" (Fallon et al. 2017). Exposure to high amounts of lead in a short amount of time typically causes severe impairment of these systems and results in rapid death (Gill and Langelier 1994; Kelly et al. 1998; Schulz et al. 2006). Exposure to smaller amounts of lead over longer time periods, however, may cause anemia, lethargy, neurological disorders, (i.e., an impaired ability to fight off disease), and other negative effects (Jacobsen et al. 1977; Wobester 1997; Friend and Franson 1999; Pattee and Pain 2003; Franson and Pain 2011; Pain et al. 2019). These effects may in turn result in indirect negative effects of lead exposure, such as increased susceptibility to predation. Thus, even when lead exposure does not directly kill wildlife, sublethal lead poisoning may have substantial adverse effects on wildlife health, including on reproduction (Scheuhammer 1987; Kendall et al. 1996; Provencher et al 2016; Pain et al. 2019, SETAC 2021).

Migratory Birds

Historically, lead shot in wetland sediments has been the principal cause of lead poisoning in waterfowl (Kendal et al. 1996). When lead shot is mistakenly swallowed while foraging for grit it gets ground up in the gizzard resulting in lead entering the bird's bloodstream and causing lead poisoning. In 1991 the agency instituted a nationwide ban on the use of lead shot for hunting waterfowl and coots due to high bird mortality (50 CFR 32.2(k)). The Service requires any new shot types for waterfowl and coot hunting to undergo rigorous testing in a three-tier approval process that involves an ecological risk assessment, an evaluation of the candidate shot's physical and chemical characteristics, short- and long-term impacts on reproduction in water birds, and potential toxic impacts on invertebrates (50 CFR 20.134). Exposure to spent shot in wetlands is substantially less of an ecological concern because of the 1991 ban on lead shot for waterfowl hunting and this rigorous testing (Samuel et al. 1992; Anderson et al. 2000; Samuel and Bowers 2000; Lewis et al. 2021).

Lead fishing tackle still represents a potential source of lead poisoning in susceptible birds (e.g., loons and swan) and for diving waterbirds where lead fishing tackle remains in the sediment (Pokras and Chafel 1992; Scheuhammer and Norris 1995; Franson et al. 2003; Rattner et al. 2008; Pokras et al. 2009; Strom et al. 2009; Grade et al. 2017; Grade et al. 2019). These species may also be at risk for lead poisoning from lead tackle ingestion. Studies have found impacts of ingested lead fishing tackle are a leading cause of mortality in adult common loons (*Gavia immer* [Pokras and Chafel 1992; Scheuhammer and Norris 1995; Franson et al. 2003; Pokras et al. 2009; Grade et al. 2017; Grade et al. 2019]).

Strom et al. (2009) assessed lead exposure in Wisconsin birds and found that approximately 25% of the trumpeter swan (*Cygnus buccinator*) fatalities from 1991 through 2007 were attributed to ingested lead. Flint and Schamber (2010) estimated that lead shot pellets in the sediment of wetlands would be available to most species of waterfowl for greater than or equal to 25 years. Given the ban on lead shot for waterfowl hunting took effect more than three decades ago, the risk of exposure for most waterfowl species to historic spent lead shot in wetland sediments should nearly be eliminated. However, because swans have a long neck and can forage at greater depths within sediment, they may still be at higher risk of lead exposure (Smith et al. 2009; Haig et al. 2014).

Upland Birds

Hunting of upland birds and wild turkey (*Meleagris gallopavo*) is permitted on refuge lands. Upland birds that forage on the ground and use grit to help in digestion, like quail (Odontophoridae), grouse (Phasianidae), ring-necked pheasant (*Phasianus colchicus*), turkey, and mourning dove (*Zenaida macroura*), are at risk of lead exposure through the direct ingestion of spent lead shot (Larsen et al. 2007; Franson et al. 2009). Exposure to lead has not broadly declined for game birds where lead shot and ammunition are still commonly used (Haig et al. 2014).

Raptors

The potential for a raptor to be exposed to lead ammunition is a function of multiple factors, including its diet, foraging strategy, and the frequency that lead would be encountered in the environment (Golden et al. 2016). Raptors, particularly eagles and scavengers, can be susceptible to lead poisoning when they ingest lead fragments or pellets in the tissues of animals killed or wounded by lead ammunition (Church et al. 2006; Hunt et al. 2006; Pauli and Buskirk 2007; Haig et al. 2014; Herring et al. 2016). Raptors that scavenge on carcasses or offal piles on refuge lands could be exposed to spent ammunition in the tissues of hunter-killed big game such as deer and turkey.

Lead poisoning may weaken raptors by reducing their strength and coordination, leading to muscle and weight loss, reducing motor skill function and making them lethargic, which may make them more susceptible to disease, vehicle strikes or power line accidents, and increases mortality rates by leaving them unable to hunt (Kramer and Redig 1997; Golden et al. 2016). Ecke et al. (2017) concluded that sublethal lead exposure in golden eagles (*Aquila chrysaetos*) might impair flight performance and thus increase the risk of mortality from other causes. Yet, other eagle studies could not find evidence that subclinical lead concentrations are linked to "increased risk of trauma" or "other causes of mortality" (Franson and Russell 2014; Isomursu et al. 2018).

Effects of lead can have distinct impacts on different life stages of raptors and may also differ seasonally. Nestlings of raptors have impaired survival and growth when parents bring food that is embedded with lead fragments (Hoffman 1985a; Hoffman 1985b). Raptor populations have higher blood lead levels during the hunting season compared to the following spring, but seasonally high levels do not necessarily cause decreased fitness or survival (Craighead and Bedrosian 2008; Craighead and Bedrosian 2009; Kelly and Johnson 2011; Bedrosian et al. 2012). Lead has a short half-life (e.g., estimated at ~14 days for condors; Fry et al. 2009), and concentrations in soft tissues decline over time (Golden et al. 2016). None of four eagles sampled with blood levels consistent with clinical poisoning (>.5 ppm) exhibited physical impairment upon capture and all survived at least 1 year following capture (Watson and Davies 2015). Reduction in lead in blood of spring migrant golden eagles since the last century is encouraging and may be a function of bans of lead shot and programs promoting a voluntary switch from lead to copper ammunition for big game (Harmata and Restani 2013).

Population-level estimates of lead exposure and impacts on raptors are available from a number of studies. A study of bald eagles (*Haliaeetus leucocephalus*) and golden eagles in the Raptor Rehabilitation Program at the College of Veterinary Medicine at Washington State University from 1991 to 2008 found that 48 percent of bald eagles and 62 percent of golden eagles tested had blood lead levels considered toxic by current standards (Stauber et al. 2010). Of the bald and golden eagles with toxic lead levels, 91 percent of bald eagles and 58 percent of golden eagles were admitted to the rehabilitation facility after the end of the general deer (*Odocoileus* spp.) and elk (*Cervus canadensis*) hunting seasons in December (Stauber et al.

2010). The proportion of eagle individuals with blood lead levels of clinical exposure is significantly less in the wild population than those admitted to raptor rehabilitation programs and recovery centers (Kramer and Redig 1997; Domenech and Langer 2009; Stauber et al. 2010; Harmata 2011; Kelly et al. 2011; Cruz-Martinez et al. 2012; Harmata and Restani 2013; Warner et al. 2014; Langner et al. 2015). Sampling of free-flying individuals is more representative of lead levels in the eagle population rather than those found debilitated, moribund, or dead (Harmata and Restani 2013). Recent modeling has indicated that lead poisoning suppresses population growth in these species (Slabe et al. 2022).

Mammals

Mammals are primarily exposed to lead through ingestion of lead shot and bullet fragments in carcasses or gut piles left by hunters. Scavengers such as coyotes (*Canis latrans*), bears (*Ursus* spp.), grey wolves (*Canis lupus*), and mountain lions (*Puma concolor*) have exhibited elevated lead blood levels during the fall hunting season (Bedrosian and Craighead 2006. Burco et al. 2012, Rogers et al. 2012, Fuchs et al. 2021, Kelly et al. 2021). Although we are not aware of studies documenting demographic effects (e.g., nursing pups or cubs) mammals may experience toxicity at a lower blood concentration than has been observed in birds (Buekers et al. 2009).

Mortality in mammals due to lead ingestion is not as prevalent as it is in birds. Of 147 hunter-harvested wolves in Minnesota, only one had high enough exposure in liver testing (6.14 ppm) to suggest lead toxicosis (Kelly et al. 2021). There are not any studies or evidence that demonstrate population effects to mammalian species (AFWA 2018). It is expected that due to feeding behaviors some mammal species are more likely than some bird species to be exposed to smaller amounts of lead, relative to body mass, but over extended periods of time (Hydeskov et al. 2024). For example, waterfowl are known to pick up large numbers of lead pellets or fishing weights when foraging, yet most wild mammals would not be exposed to such large amounts of lead at once, as they forage using different methods, particularly carnivores (Pain et al. 2009; Hydeskov et al. 2024).

Fish and Other Aquatic Species

Rattner et al. (2008) did not find any reports in the scientific literature of lead toxicosis resulting from lead fishing tackle in any species of fish, amphibians, or invertebrates. A literature review completed by the Association of Fish and Wildlife Agencies likewise failed to find any such reports (AFWA 2018).

Economic Effects and Effects on the Quality of Life of the American People

The supply chain for hunting ammunition in the United States involves raw material extraction; manufacturing of component bullets, casings, primers and powders; assembly of cartridges; and distribution through wholesalers and retailers; and retail sales. While lead ammunition relies on inexpensive and domestically abundant raw materials, refined steel, tin, copper,

bismuth, and tungsten used in lead-free alternatives may be more expensive and often must be imported, making these supply chains vulnerable to global market volatility (Thomas et al., 2019; USGS 2025). There was more than an 11% increase in the import price index for the entire metal manufacturing industry in the U.S. from August 2024 to August 2025, according to tracking by the Bureau of Labor Statistics (U.S. Bureau of Labor Statistics 2025). Additionally, the import price index for aluminum production decreased by nearly 3%, however the index for refined copper increased by 20% and for other non-ferrous metals except aluminum and copper it increased by more than 29% during that time (U.S. Bureau of Labor Statistics 2025). The availability of lead-free ammunition at local brick and mortar stores may be affected by all the above as well as consumer demand both nationally and locally.

Lead-free ammunition and tackle are generally more expensive than their lead-based counterparts, though the price gap varies by product type and caliber. For fishing tackle, lead-free alternatives (e.g., tungsten, bismuth, tin jigs) can cost 2 to 4 times more than lead tackle. Tungsten is prized for its density and performance but is much more expensive (Breuer 2025). Since the 1990s, lead-free alternatives for ammunition have become more widely available; however, the Service is aware of reports from the hunting public and Service employees that supplies can be limited and cost prohibitive in certain cases. We surveyed the lowest available price of lead and lead-free alternatives for 5 popular ammunition types at a sample of 16 retail locations across the U.S. on November 24, 2025 (Appendix B). None of the ammunition types examined were in stock at all 16 locations with lead-free alternatives available at 19-44% of the stores and traditional lead ammunition was in stock at 89-94% of stores. The price of lead-free ammunition compared to traditional lead ammunition was from 37% to as much as 245% higher (Appendix B). Retailers typically had more choices of ammunition available for shipment than what was available in store, however, a number of these retailers also had banners posted on their websites noting longer shipping times due to high order volume.

Certain platforms are not capable of supporting lead-free ammunition. The firearm selected for the hunt, for many people, is steeped in tradition, with firearms that are passed down for generations becoming part of a family’s heritage. Older firearms may not perform well with longer, lighter lead-free bullets (Epps 2014). The .22 Long Rifle, commonly used in the U.S. for target shooting and small game hunting has specifically proven difficult for conversion to lead-free ammunition (Markland and Peterson 2024). The tolerances on the barrels of the guns that these rounds are made for are very "loose". The soft lead bullet is able to travel down the barrel and deform as it travels because of the soft metal. A bullet made of another metal (e.g., copper or tungsten) needs to have "tighter" tolerances to be accurate. Within the last 10 years, manufacturers of firearms and ammunition tried to make a lead-free capable .22 Long Rifle. When they made the tolerances "tighter", barrels began exploding and created a safety hazard. If lead-free ammunition were required, then hunters might need to purchase new firearms, deterring participation in hunting and fishing, especially among lower-income and subsistence users.

A recent economic analysis projected that a nationwide ban on traditional lead ammunition could reduce hunting and shooting sports activity, resulting in a loss of over 6,000 jobs; $1.1 billion in lost economic output; and $2.5 billion in reduced business tax revenue (U.S. House Committee on Natural Resources 2021). In addition to the cost of lead-free ammunition and tackle, lead-free products are less widely stocked, especially in rural areas, which could likewise contribute to a decrease in hunting and angling if lead ammunition and tackle were prohibited, having a negative impact on the economy by lost revenue in hunting and fishing related expenditures in the local area.

Fueled by the success of other voluntary lead-free ammunition programs, the FWS, states, and wildlife conservation organizations, as recommended by the Hunting and Wildlife Conservation Council, collaborated in 2024 to design and implement a pilot incentive program (Program) within the NWRS. The Program encouraged the voluntary use of lead-free ammunition at seven national wildlife refuges; with proof of purchase, hunters received up to $50 per box of rifle ammunition and $25 per box for shotgun or muzzleloader, for up to 2 boxes per hunter. This was coupled with outreach and education about the risks that residual lead from hunting and fishing activities poses to wildlife. The purpose of the Program is to encourage the voluntary use of lead-free ammunition for hunting opportunities at national wildlife refuges in support of the larger lead-free partnership. It is designed to educate and address some of the barriers and concerns present to hunters when trying to switch to lead-free ammunition.

Hunting with lead ammunition can increase risks to human health due to the potential for direct ingestion of lead (Tsuji et al. 2008; Hunt et al. 2009; Kosnett 2009). Many hunters do not realize that lead bullet fragments may be present in the meat they bring home. While no lead poisoning of humans has been documented from ingestion of wild game, some experts, including the Center for Disease Control, have recommended that pregnant women and children under six should not consume wild game shot with lead ammunition (Streater 2009). These groups have also recommended the use of non-toxic bullets (i.e., where a coating of a lead-free metal completely encases the lead core) when hunting to avoid lead exposure. Even low levels of lead exposure can impair cognitive development in children and increase cardiovascular risks in adults (Laidlaw et al., 2017). Those who eat wild game are likely to have significantly higher levels of lead in their blood than those who do not (Iqbal et al. 2009).

Inhalation of lead dust is another possible exposure pathway that can impact human health (Avery and Watson 2009). Recreational and occupational shooters are at risk of inhaling both lead dust and vapor. A systematic review found that blood lead levels in shooters frequently exceeded 10 µg/dL, with some exceeding 40 µg/dL—well above the CDC's reference level of 5 µg/dL (Laidlaw et al., 2017). Anglers may also be exposed to lead through handling or accidental ingestion of lead tackle (Sahmel et al. 2015; Grade et. al. 2019).

Threatened and Endangered Species and Other Special Status Species

FWS lands and waters are essential to the recovery and conservation of hundreds of threatened and endangered fish and wildlife species, as well as other special status species. In the case of species that are federally listed as threatened or endangered under the Endangered Species Act of 1973 (ESA), the FWS is primarily responsible for ensuring the federal government's protection of these species, not only on FWS lands and waters but across species' ranges. The FWS also works to recover listed species as a key component of its mission. Threatened means a species is likely to become endangered within the foreseeable future. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. The threatened or endangered status of species means that threats and stressors to an individual animal may present significant repercussions for the future of the species.

FWS evaluates each hunting or fishing opportunity on FWS lands or waters before authorization to determine that it is not likely to adversely affect any listed species or their critical habitat. This includes evaluation of impacts from use of lead ammunition or tackle and the potential for bioaccumulation. As explained below, FWS has preliminarily determined that the proposed actions are not likely to adversely affect listed species. The seven refuges use the Information for Planning and Consultation tool (IPAC) and ECOS databases to identify threatened and endangered species that may be present on the refuge for purposes of completing biological evaluations. It should be noted, however, that these databases are updated regularly, approximately every 90 days, and, thus, it is possible that the specific threatened and endangered species identified as potentially present on or near the refuge may change between the review and finalization of this document.

Bald Eagles are no longer ESA-listed species and, as such, they are not evaluated as part of ESA section 7 compliance but still considered under the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (Eagle Act). The MBTA provides legal protections to migratory bird species that occur naturally in or are native to the United States and its territories. This includes many species that occur on Service lands and waters. FWS only authorizes hunting and fishing opportunities that it determines would not violate the MBTA. In some cases, FWS puts in place mitigation measures to reduce adverse impacts from hunting and fishing activities. For example, FWS may implement large buffer zones where hunting is prohibited when certain listed migratory birds, which are protected under both the ESA and MBTA, occur on a refuge. There is still the possibility of lead exposure for migratory birds on FWS lands and waters where use of lead ammunition and/or lead fishing tackle is permitted. MBTA protections extend to multiple bird species that are susceptible to direct ingestion of spent lead ammunition or tackle through predatory or scavenging behaviors or that need to collect gizzard stones.

The Eagle Act protects bald eagles (the national emblem) and golden eagles from unauthorized take of the species. FWS authorizes hunting and fishing opportunities that it determines would not violate the Eagle Act. FWS cannot, however, guarantee that these eagle species would not be exposed to lead where eagles are present, and hunters and anglers are allowed to use lead

ammunition and/or tackle. These eagle species are both predatory and readily engage in scavenging carcasses and gut piles left in the environment as a result from hunting activities, which present a risk of lead exposure from lead hunting ammunition. Bald eagles occur on or adjacent to each refuge included in this assessment.

Lead Ammunition and Tackle Use by Hunters and Anglers: Environmental Consequences

Residues from lead-based hunting ammunition and fishing gear can cause negative health effects, up to and including mortality, when they are unintentionally ingested by wildlife. The best available science suggests these impacts from direct ingestion where lead use is authorized are less than significant at the population level and have minor adverse impacts to populations of even the most susceptible species (AFWS 2018; Slabe et al. 2022). Bioaccumulation in the human environment where hunting and fishing occurs is a less than significant concern (Wong et al. 1978; Behan et al. 1979; Eisler 1988).

In the specific refuge context, the addition of new hunting and fishing opportunities using lead ammunition and tackle are not expected to meaningfully affect wildlife population health across flyways, or other large spatial scales, in relation to the background rate of lead introduced into the environment from these recreational activities at large.

We expect that the new alligator hunting opportunity on the seven refuges would result in a very small increase in lead ammunition use, given that alligator hunting methods under LDWF regulations primarily rely on non-firearm methods of capture (e.g., baited hooks, harpoons) with firearms used only for dispatch in a controlled and limited manner. The number of successful recreational alligator hunting applicants is a maximum of 815 spread across seven refuges, and hunting would be dispersed across 215,270 acres, and potentially 293,569 total acres with future acquisitions, across multiple access points, further limiting the potential for any lead concentration in the environment.

The NWRS makes up only 15% of the 640 million acres of federally managed lands and waters and less than 1% of the 2.3 billion acres of land in the U.S. (DeSantis 2018; U.S. Geological Survey Gap Analysis Project 2024). The addition of lead and the associated impacts to the environment resulting from these expanded hunting opportunities would have a negligible reasonably foreseeable impact on lead in the environment when compared to hunting or fishing activities allowed in the local and regional area. The State of Louisiana is approximately 29,936,678 acres, the seven refuges included in this action total 252,836 acres or <1% of land in the state.

Lead-based ammunition and tackle are still the dominant choice selected by hunters and anglers recreating across the U.S. While there are an estimated 14.4 million hunters and 39.9 million anglers nationwide the NWRS nationally hosted 2.6 million hunters (18% of total U.S. hunters) and 8.3 million anglers (21% of total U.S. anglers) according to the most recent Annual Visitor Survey administered by FWS (USFWS 2022). Nationwide, only 5% of refuge visitors participate in hunting and only 18% of refuge visitors participate in freshwater fishing (Dietsch

et al. 2025). Even though participation in hunting and fishing on refuge lands remains strong, these activities still represent a relatively minor, yet important, contribution to the robust use of refuge lands for wildlife-dependent recreation.

We expect that the new hunting opportunity on the seven refuges would result in a very small increase in lead ammunition and tackle use with negligible impacts given the low number of hunters and low rate of participation. The nature of hunting and fishing at the seven refuges, especially given the size of the refuges and multiple access sites, disperses residual lead and reduces the potential that lead is to be highly concentrated in one area. The amount of lead used every year continues to decline as many hunters and anglers are voluntarily switching to lead-free ammunition and tackle, and the number of new hunters and anglers expected to choose lead ammunition and tackle, because of the proposed expansions, is anticipated to be low. Existing levels of lead use on these refuges for hunting and fishing has not resulted in documented concerns for wildlife, environmental, or human health, and the low number of additional hunters are expected to have the same result as prior years.

The NWRSIA established that hunting and fishing is a priority public use if it is compatible with a refuge's purpose, and all hunting and fishing on refuges must follow both state and federal regulations. State laws are the baseline, including the use of lead ammunition. At times FWS does create refuge-specific requirements for non-toxic shot in delineated areas of the refuge when there are legitimate reasons for exception (e.g., threatened and endangered species, human safety, habitat sensitivity, local stakeholder concerns, legislative prohibitions). However, FWS believes it is important to collaborate in partnership with states and Tribes to reach decisions on more broadly expanding lead-free tackle requirements, lead-free shot requirements, and requirements for lead-free single-projectile ammunition to reduce the amount of residual lead associated with these activities. Some states and Tribes have either implemented restrictions on the use of lead or offer incentives to use lead-free ammunition or fishing tackle (USFWS 1999; Center for Biological Diversity 2007; Arizona Game and Fish Department 2018; Washington Department of Fish and Wildlife 2022). We share a strong partnership with states and Tribes in managing wildlife.

The undue burden to hunters and anglers due to the high cost and low availability of lead-free ammunition would have a minor economic effect as well as a minor effect on the quality of life of the American people. The expense of hunting and fishing and seven refuges' regulations are major barriers to participation, especially for new hunters and anglers (Council to Advance Hunting and the Shooting Sports and University of Montana 2023; International Hunter Education Association 2024). Mitigation measures (e.g., voluntary non-lead programs, education, seasonal restrictions) are in place, and areas remain closed with refuge specific regulations, where justified.

4.3 Lead Ammunition And Tackle Use By Hunters And Anglers: Mitigation

As an agency we are committed to providing wildlife-dependent outdoor recreation, including maximizing access to quality public hunting opportunities. Hunters and anglers have been at the forefront of natural resource conservation efforts throughout North America for over a century. Hunters actively participate in addressing conservation challenges in collaboration with federal and state wildlife conservation agencies and hunting and conservation organizations. The success of the North American Model of Wildlife Conservation demonstrates that effective wildlife and habitat conservation efforts require engaged advocates and supporters, including both hunters and other conservation-minded citizens.

There are potential negative health impacts of lead on wildlife at the seven refuges. Residues from lead-based hunting ammunition and fishing gear can cause negative health effects, up to and including mortality, when they are unintentionally ingested. The best available science suggests that where lead ammunition use is authorized the impacts from direct ingestion are less than significant at the population level and have not led to population declines in even the most susceptible species (AFWA 2018; Slabe et al. 2022). Bioaccumulation in the human environment where hunting and fishing occurs is a less than significant concern (Wong et al. 1978; Behan et al. 1979; Eisler 1988).

A strong collaborative effort has emerged among states, hunters, and conservation organizations to minimize the unintended negative impacts of lead on wildlife health, reinforcing the positive contributions of hunting to conservation. Hunters are more receptive to conservation-framed messaging than regulatory mandates (Schulz et al. 2019; Schulz 2020). The voluntary adoption of lead-free alternatives by the hunting community exemplifies its continued tradition of actively supporting wildlife and habitat conservation, with states and conservation-focused non-governmental organizations (e.g., Arizona, Utah, Oregon) demonstrating the effectiveness of this approach (Schulz et al. 2023).

FWS would continue to engage in a vigorous outreach campaign to encourage participation and increase awareness about the Lead-Free Voluntary Incentive Program and the benefits of using lead-free ammunition for hunting wild game. We hope to increase the number of hunters that try lead-free ammunition when hunting at NWRs. For hunters who do choose to continue to use lead ammunition, there are other ways to hunt more sustainably and reduce the potential impacts to wildlife and habitats. The Association of Fish and Wildlife Agencies recently adopted a set of best management practices, which include retrieving spent materials, removing harvested animals, and fully recovering game (AFWA 2018, MAFWA 2024). This expansion of lead hunting opportunities is limited in scope with a maximum of 815 hunters dispersed across hundreds of thousands of acres and ammunition is only used for animal dispatch. No part of the animal is allowed to be left on the refuge once caught, therefore scavenging of animal remains will not be a source of lead for wildlife.

4.4 Natural Resources

Target Species: Affected Environment

American alligator is in the family Crocodilian found from coastal North Carolina to the Florida Keys and west to central Texas and southeastern Oklahoma (USGS 2026). Adult alligators range in size from 6 to 16.5 feet and inhabit aquatic habitats including fresh and brackish marshes, ponds, lakes, rivers, canals, swamps, and bayous. They burrow in banks of water bodies creating dens and females deposit eggs in mounds that are covered with leaves, mud, and rotting vegetation (NatureServ 2010). Alligators are carnivores with young consuming small aquatic and terrestrial animals and adults preying on larger aquatic and terrestrial animals, with reports of prey as large as deer or cattle (USFWS 1980).

The species was given protected status in 1967 following decreased population size across its range due to over harvest and habitat loss. Alligator populations in Louisiana dropped by 90% to less than 100,000 as of 1960 (Henke and Ebersole 2018). The state instituted a commercial lottery alligator hunt in 1973, following population rebound, with limits set by annual nest surveys conducted by LDWF. Recent estimates have wild alligator abundance in Louisiana at over 3 million (LDWF 2026a). The culmination of recovery and public demand for hunting led Louisiana to introduce a recreational alligator lottery hunt in 2026.

Target Species: Environmental Consequences

Alternative A
Estimated Increase in Hunters: 0

Estimated Increase in Take: 0

Under the no action alternative, alligator hunting on the refuges would not be allowed therefore no additional impacts due to hunting would occur. Continued population growth, however, could result in increased predation on target species and negatively impact refuge visitor interactions. Current hunting opportunities on each refuge would continue. Each refuge's current hunting programs are located in Public Use Regulations brochures and summarized below.

Bayou Sauvage Urban NWR allows youth only hunting of migratory game birds, upland game, big game, and incidental take of nutria (*Myocaster coypus*), coyote (*Canus latrans*), raccoon (*Procyon lotor*), armadillo (*Dasypus novemcinctus*), opossum (*Didelphis virginiana*), and feral hog (*Sus scrofa*).

Big Branch Marsh, Delta, Tensas River, and Upper Ouachita NWRs allow hunting of migratory game birds, upland game, big game, and incidental take of nutria, coyote, raccoon, armadillo, opossum, and feral hog.

Black Bayou Lake and D'Arbonne NWRs allow migratory game bird, upland game, big game hunting and incidental take of beaver and coyote.

All Refuge hunts fall within state regulations including seasons, take limits, and methods of take. The Service may have regulations that are more restrictive than state regulations but not more lenient. Each refuge has restrictions designed to protect FWS trust species, provide for the safety of visitors, and support refuge management actions.

Alternative B

Estimated Maximum Increase in Hunters: 815

Bayou Sauvage Urban – 100

Big Branch Marsh – 150

Black Bayou Lake – 25

D'Arbonne – 50

Delta – 290

Tensas River – 125

Upper Ouachita – 75

Estimated Maximum Increase in Take: 1,630 alligators based on the statewide tag allotment of 2 tags per hunter. This ratio may be different on refuges based on statewide alligator harvest targets and refuge specific considerations such as competing public uses, management activities, or habitat conditions. Refuge managers will consult with LDWF annually to establish the ratio of tags to hunters, however the total number of hunters will not exceed the maximum of 815.

Recreational alligator hunting on the refuges would cause direct impacts to alligators due to mortality. However, harvest limits are established so that these direct impacts do not have a detrimental effect on the overall alligator population. Joanen et. al (2021) studied alligator harvest impacts in Louisiana over a 31-year period and found that the state harvest level of 3% is conservative enough to allow for sustained population stability even given potential unexpected condition changes. Harvest limits on refuges are adjusted each year based on nest surveys conducted by LDWF and in consultation with FWS staff.

The refuges' hunt programs are designed to be sustainable, given relatively stable conditions, particularly because of close coordination with LDWF. The proposed refuge recreational alligator hunt is designed to be sustainable as it is a part of the statewide recreational alligator hunt program that has set maximum take levels less than 3% of the estimated state wild alligator population size. This conservative annual harvest provides a buffer against unknown and unpredictable factors while ensuring that populations will not be overharvested (Joanen et al. 2021). Annual Louisiana alligator population estimates are based upon aerial transect surveys, that have been conducted since 1972, to determine nest density by acreage of nest habitat types (e.g., fresh, intermediate, brackish marsh). The nest count serves as a population

estimate. As such, long-term impacts to alligator populations from the proposed hunting use would not be anticipated; however, the use and its effects on refuge resources would be monitored by refuge staff to ensure that no significant impacts were associated with the use and that the use continued to meet compatibility requirements. American alligators are at the top of the food chain within their ecological niche (Lu et al. 2026). As such, recreational harvest will positively benefit prey species (e.g., resident ducks) by reducing predation probability.

Non-Target Wildlife and Aquatic Species – Affected Environment

The Refuges support a diversity of wildlife species representative of the Louisiana and southeast natural environments, including game and nongame species, which are important contributors to the overall biodiversity on each refuge. A species list of Refuge Biota is provided in Appendix J of each station's CCP (USFWS 2006, 2007a, 2008ab, 2009ab, 2010).

Species hunted on each refuge can be found in 50 CFR 32.2. Hunting on all Refuges is within seasons, limits, and methods of take established by the State of Louisiana though each may be more limited depending on Refuge conditions. Each Refuge designates specific areas in which hunting may occur to allow for other public use activities, to provide undisturbed areas for nesting, or for other management reasons.

Non-Target Species – Environmental Consequences

Alternative A

Under Alternative A, the no action alternative, no recreational alligator hunting will occur on these refuges. Therefore, no additional impacts from this activity will occur to wildlife. Hunting for all other species on the Refuges included in the action will continue as they currently occur. Those programs have all been analyzed for compatibility with the purposes of each Refuge and the mission of the NWRS and have been found compatible.

Alternative B

Temporary wildlife disturbance may be experienced by other non-target species. Wildlife species may become more skittish and prone to disturbance, reduce the amount of time they spend foraging and resting, and alter their habitat usage patterns during hunting season (Owen 1973, Raveling 1979, Pease et al. 2005, St. James et al. 2013, Shirkey et al. 2020). Additionally, McNeil et al. (1992) suggested that some waterfowl and shorebird species may forage at night instead of during the day to avoid humans. This is likely to cause birds to expend energy that would otherwise be used for survival, migration, and reproduction (Bélanger and Bédard 1990, Weimerskirch et al. 2002). The active breeding season for most birds is May-July. Conversely, Bald Eagles and Great Horned Owls (*Bubo virginianus*) nest during winter in Louisiana (Baumgartner 1938, Smith et al. 2017).

Additionally, noise (e.g., boat motor) and added presence of hunters may cause a disturbance to non-hunted wildlife. Motorized boats can alter wildlife distribution, reduce use of habitats by waterfowl and other birds, alter feeding behavior and nutritional status, and cause premature

departure from areas (Knight and Cole 1995). Impacts between hunters and non-hunters are anticipated to be like the impacts between other user groups (e.g., hikers and photographers) and would be negligible. As public use levels on the refuges expand across time, unanticipated conflicts between user groups may occur. The refuges may adjust times and locations of public use activities to minimize impacts if needed.

To reduce wildlife disturbance, FWS would continue to designate no-hunting zones and waterfowl sanctuary areas that are closed to public entry during appropriate periods, consistent with each refuge's existing hunting and fishing regulations.

Overall, disturbance to non-target birds and resident wildlife would likely occur from hunting and associated hunter activity but would be short-term and temporary. The effects are expected to be minimal given recreational alligator hunting is to occur during the non-breeding season.

Candidate, Threatened and Endangered Species and Critical Habitat: Affected Environment

FWS uses IPAC and ECOS databases to identify threatened and endangered species that may be present on refuges for purposes of completing biological evaluations. FWS has conducted a Section 7 Intra-Service Biological Evaluation of the impacts of the proposed action to Threatened and Endangered Species and found 16 federally listed, proposed, and candidate species occurring on refuges. Recreational alligator hunting on these seven NWRs is not likely to jeopardize the tricolored bat (*Perimyotis subflavus*), alligator snapping turtle (*Macrochelys temminckii*), and monarch butterly (*Danaus plexippus*) while it may affect but not likely to adversely affect the northern long-eared bat (*Myotis septerentrionailis*), West Indian manatee (*Trichechus manatus*), eastern black rail (*Laterallus jamaicensis jamaicensis*), piping plover (*Charadrius melodus*), red-cockaded woodpecker (*Dryobates borealis*), Rufa red knot (*Calidris canutus rufa*), gopher tortoise (*Gopherus polyphemus*), Hawksbill sea turtle (*Eretmochelys imbricata*), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), pallid sturgeon (*Scaphirhynchus albus*), Gulf sturgeon (*Acipenser desotoi*), and pink mucket (*Lampsilis abrupta*). It should be noted, however, that these databases are updated regularly, approximately every 90 days, and, thus, it is possible that the specific threatened and endangered species identified as potentially present on or near Refuges may change between the review and finalization of this document.

Candidate, Threatened and Endangered Species and Critical Habitat: Environmental Consequences

FWS has conducted a Section 7 Intra-Service Biological Evaluation on this action. The following impacts summarize those findings.

Alternative A

Under Alternative A, the no action alternative, no recreational alligator hunting will occur on these refuges. As such, there would be no direct or indirect impacts to threatened, endangered,

or special status species from alligator hunting, and the refuges would maintain their current programs.

Alternative B

Alternative B represents the introduction of recreational alligator hunting on seven NWRs with potential impacts to listed species below.

Eastern Black Rail

Eastern black rail have not been documented on the seven refuges included in this action, though potential appropriate habitat does exist on Bayou Sauvage Urban, Big Branch Marsh, and Delta NWRs. The species is a secretive marsh bird which makes it difficult to determine accurate occurrence and population levels. Potential disturbance to this species due to foot traffic, motorized vehicles, or boat motors through the habitat from hunting activity would be expected. Noise from hunters, boats, and guns could flush these birds from their habitat. The proposed actions will not overlap with nesting season for eastern black rail. FWS will limit the time and numbers of hunters that engage in the activity as well as the areas of each refuge to minimize impacts.

Piping Plover

Potential disturbances to piping plover, due to this proposed action, include noise from hunters, boats, and gunshots. These would result in temporary flushing of individual birds, however, the number of hunters proposed is not anticipated to have significant negative impacts.

Rufa Red Knot

This migratory shorebird spends winters along the Gulf, Atlantic, and Pacific Coasts of Central and South America. While recreational and subsistence hunting have been recognized by FWS as actions that are low to moderate threat, very little is known of direct or indirect impacts to this species from hunting of other species. Potential disturbances to the Rufa red knot from this action are like those to piping plover (e.g., noise from hunters, boats, and gunshots) that can potentially flush birds. The locations of hunting activities as well as numbers of hunters are such that significant negative impacts are not anticipated.

Northern Long-eared Bat and Tri-colored Bat

The proposed action is not likely to negatively impact bat species on the refuges. Alligator hunting does not typically involve disruption or alteration of trees in which the bats may be roosting during daytime. Bats may winter in caves, abandoned mines, and road culverts. No caves exist on the refuges and no bats have been documented utilizing culverts or bridges on any of these refuges. Additionally, the nocturnal nature of bats will have very little temporal overlap with hunters given hunting is to occur during daylight hours.

Noise from gun shots, boat motors, or other human activities may flush roosting bats from trees; however, it is more likely that bats will remain in place when only disturbed by noise. If bats are flushed, the disturbance is not expected to result in mortality or rise to the level of

take. Even if a bat were flushed from a roost tree during daylight hours, it would likely relocate to nearby habitat and would not experience mortality or harassment rising to the level of take. The bat could also return to the roost later in the day or the following day once the disturbance has ceased.

As such, these impacts are expected to be insignificant given the small increase in the number of hunters on the refuges under the proposed action.

West Indian Manatee

West Indian manatees are typically found in Louisiana coastal waters during spring and summer moving further south to warmer waters in early fall as water temperatures drop (USFWS 2025a). The proposed action will occur in the fall and therefore overlap between the action and presence of manatees is unlikely. However, should manatees still be in the area during the action, they would be exposed to greater likelihood of interaction with boaters as this is the primary means by which alligator hunters locate the target animals. Manatees are slow moving mammals and often incur strikes from boat propellers. To reduce the impact and increase public awareness, notification signs of manatee presence have been installed at boat launches. Due to the reduced presence of manatees in the area at the time of the hunt and level of increase of hunters and boats we anticipate the proposed action is not likely to negatively affect manatee populations.

Alligator Snapping Turtles

Alligator snapping turtles can reside in the waters of the refuges included in this action. Expanded human activity associated with alligator hunting, including baited hook-and-line methods and boat traffic, may increase the likelihood of incidental bycatch or disturbance to alligator snapping turtles in areas where the two species' habitats overlap. However, the species is mainly nocturnal, and the proposed hunt will occur during daylight hours reducing the likelihood of direct impacts with boats. In addition, hooks with bait used to catch alligators may be set above the water beyond the reach of alligator snapping turtles which will reduce the chance of turtles inadvertently taking the bait. Increased human activity near nesting or basking sites could also lead to disturbance or displacement. Seasonal access limitations, gear restrictions, and boating restrictions specific to the alligator hunting program could mitigate these potential impacts.

Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, and Loggerhead Sea Turtle

Potential impacts to sea turtles from the proposed action include direct boat strikes, damage to food sources (e.g., seagrasses), and accidental catch from alligator hunting techniques. Boating strikes and damage to seagrass can be minimized by boaters practicing safe boating techniques including slowing down in no wake zones and being observant for surfacing wildlife. The limited increase in boaters due to this action is one measure to minimize the chance of these impacts. The techniques used in the hunting of alligators under this action include extending bait above the level of the water, which guards against unintentional catch of sea turtles. Hawksbill, Kemp's Ridley, and Loggerhead sea turtles have not been documented on any of the refuges

included in this action. Therefore, the proposed action is not likely to adversely affect any of these species of sea turtle.

Gulf Sturgeon and Pallid Sturgeon

Increased human presence and gear use may elevate stress levels or lead to accidental injury of sturgeon. Additionally, increased boat traffic and shoreline access could contribute to habitat degradation through sedimentation or bank erosion, potentially affecting spawning or foraging areas. Refuge-specific surveys and angler education programs would minimize these risks.

Pink Mucket

Pink Mucket have not been documented on any of the refuges included in this action. The species is sedentary and submerged and the most likely impact from this proposed action, should it occur in the area, is increased sedimentation from foot and boat traffic. Because the species has not been documented on these refuges the action is not likely to cause negative impacts.

Monarch Butterfly

Monarch butterflies do occur on all refuges included in this action in the spring and summer and migrate south in the fall. There are overwintering or resident populations occurring in southern Louisiana along the Gulf Coast that may be found on Bayou Sauvage, Big Branch Marsh, and Delta NWRs where suitable host plants are found (Howard et al. 2010, USFWS 2024). Hunting would not likely result in impacts to habitat because milkweed (*Asclepias* spp.) grows from rhizomes and therefore are hardy to surface impacts. In winter, the plant goes dormant after frost but returns each year with warming temperatures. Therefore, measures such as limiting the number of hunters on each refuge, restricting access to existing roads, parking areas and boat launches, and the method of take from platforms together reduce the likelihood of injury from trampling by hunters to an insignificant level. Additionally, the seven refuges prohibit the take of plants or removal of vegetation, including nectar sources or milkweed. Thus, impacts to monarch foraging habitat from hunting are considered insignificant. Any potential disturbance to monarchs due to travel associated with hunting activity is likewise expected to have insignificant effects.

Red-cockaded Woodpecker

Impacts to Red-cockaded Woodpeckers is considered unlikely because the hunting activity proposed and the preferred location of the woodpecker do not overlap. Hunters could create noise that may flush or otherwise disturb these birds as well as other wildlife, however, access routes for the proposed activity are well established and currently used for other hunting, fishing, and other non-consumptive uses. Birds in those areas have been habituated to this type of disturbance as evidenced by remaining in the area. Though there will be an increase in the number of hunters on each refuge, the increase is minimized through a limited lottery selection program and restricted to a limited period. For these reasons the proposed action is not expected to cause negative impacts to Red-cockaded woodpeckers.

Gopher Tortoise

The overlap of recreational alligator hunting and the occurrence of gopher tortoises would not occur because gopher tortoises do not use wetland habitats. The proposed action may affect but is not likely to adversely affect gopher tortoises.

Special Status Species – Affected Environment

Bald eagles are no longer ESA-listed species and, as such, are not evaluated as part of ESA section 7 compliance but still considered under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d). The MBTA provides legal protections to migratory bird species that occur naturally in or are native to the United States and its territories.

The Eagle Act prohibits, except when authorized by an Eagle Act permit, the "taking" of bald and golden eagles and defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The Eagle Act's implementing regulations define disturb as "… to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

Bald Eagles are found on or adjacent to all seven refuges. Bald Eagles feed on fish, other birds, and small mammals and nest primarily in cypress snags in swamps near open water and feed in open lakes from October through May.

Special Status Species – Environmental Consequences

Bald Eagles will alter their behavior based on disturbance but will habituate to some degree to disturbance, however they may continue to be stressed due to human presence (Steidl and Anthony 1999). Activities that exist in an area prior to eagles nesting are unlikely to cause disturbance when continued at that same level (USFWS 2007b). The proposed action does overlap with nesting season of Bald Eagles. Noise from boating activity, hunters moving to and from hunting locations, and gunshots could disturb eagles.

FWS developed the National Bald Eagle Management Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to bald eagles, particularly where such impacts may constitute "disturbance," which is prohibited by the Bald and Golden Eagle Protection Act (USFWS 2007b). Actions recommended minimizing disturbance to nesting eagles include distance buffers, landscape buffers, and avoiding certain activities during nesting season. Refuge managers and staff regularly assess eagle nesting behavior on refuges and will follow FWS guidelines to protect nesting birds.

Because of the regulatory process for harvest management in place within the Service, the setting of hunting seasons outside of the breeding seasons of resident and migratory wildlife, and the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, we anticipate no direct or indirect negative long-term impacts on resident wildlife, migratory birds, and non-hunted wildlife by recreational hunting of alligator on these refuges.

Habitat and Vegetation: Affected Environment

Vegetation across the seven refuges is composed of bottomland hardwood forests, cypress-tupelo swamps, reforested croplands, and wetlands. Many of which also constitute suitable alligator habitat (e.g., bayous, sloughs, impoundments, and oxbow lakes). Information on individual refuge habitats is provided earlier in this document and comprehensively in each refuge CCP (USFWS 2006, 2007a, 2008ab, 2009ab, 2010).

Habitat and Vegetation: Environmental Consequences

Alternative A

Under Alternative A, the no action alternative, no recreational alligator hunting will occur on these refuges. As such, impacts on vegetation from existing hunting, fishing, and other public uses would continue as they have in previous years.

Alternative B

Alternative B represents the introduction of recreational alligator hunting on National Wildlife Refuges and potential impacts on vegetation. Impacts would be similar to those already experienced with current levels of hunting and fishing on the refuges.

Hunting occurs in all areas specifically opened to hunting on each refuge and recreational alligator hunting will primarily take place in bottomland hardwood forest, cypress lakes, bald cypress and tupelo swamps, bayous, marshes, rivers, natural and constructed ponds, grasslands, scrub-shrubs, and reforestation areas. Hiking or walking associated with hunting activities can alter habitats by trampling vegetation, compacting soils, and increasing the potential for erosion. Soil compaction negatively impacts plant root penetration, making it harder for seedlings to become established. In moderate cases of soil compaction, plant cover and biomass are decreased. In highly compacted soils, plant species' abundance and diversity are reduced in the long term, as only the most resistant species survive (Liddle 1975).

Hiking may impact vegetation succession. This is because disturbance of vegetation not only results in an alteration of vegetation, but it also changes light, moisture, and the topography, which can reduce ground and shrub nesting avian species. Repeated visitation to any particular locale on the refuges could cause damage to vegetation and, therefore, wildlife habitat. Substantial, widespread habitat degradation through time results in negative effects on wildlife by reducing such factors as available cover, food, or nesting habitat along heavily used access routes (Blakesly and Reese 1988). Impacts from hunters on wildlife habitat are expected to be

minimal because most species would have already undergone senescence or become dormant by the time of the recreational alligator hunt.

Hunting and fishing can result in minor surface damage on roads and trails from motor vehicles, ATVs/UTVs. The continued use of bicycles is allowed and could impact vegetation by trampling vegetation, particularly along the edges of trails, causing erosion, and contributing to the spread of invasive species (Bostrom et al. 2021).

Recreational boating can also negatively impact aquatic vegetation either directly, via contact with propeller and boat hull, or indirectly via turbidity and wave damage (Asplund 2000, Hansen et al. 2018, Sagerman and Wikstrom 2020). Small boats or boats with shallow draft can access very shallow areas that contain submerged aquatic vegetation. The process of recreational alligator hunting can lead to increased disturbance of submerged aquatic vegetation. Limiting the number of additional boaters by implementing a lottery system for the recreational alligator hunt will help combat increased damage to submerged aquatic vegetation. Additionally, using established boat launches and parking areas will channel use to those areas already designed to minimize impacts.

Recreationists can also be vectors for invasive plants. Seeds or other propagules can be transferred from one area to another via clothing or personal belongings and spread to nearby areas through self-propagation (Pickering and Hill 2007). Once established, invasive plants out-compete native plants, altering habitats and indirectly impacting wildlife. Each refuge has a program to detect and combat invasive species. Those programs will continue and, should new invasive plant species be detected, the focus will be on minimizing and eliminating those plants. Black Bayou Lake NWR has a boat rinse station at the boat launch for the public to use and on this refuge it helps to reduce the probability of spreading invasive species.

Recreational alligator hunting is typically conducted from boat platforms, therefore impacts to terrestrial plants communities and soils are expected to be limited to those areas available for parking vehicles and launching boats. Hunters are dispersed over a large area, therefore impacts to vegetation are expected to be negligible.

Overall, hunting impacts on vegetation and habitat from boats are expected to be minor. Boats will be launched from established boat ramps and hunting will occur in those areas frequented by boats already. Because the typical method of recreational alligator hunting is from a boat platform, increased use of ATVs/UTVs or bicycles is expected to be minimal.

4.5 Socioeconomics

Local and Regional Economies: Affected Environment

Industry in Louisiana includes agriculture, manufacturing, and services with a median income of $60,756 (U.S. Census Bureau 2025). Hunting is a common public recreation activity across the state. Hunting generates approximately $1.77 billion for the Louisiana economy (LDWF 2021). Commercial alligator harvest generates $238 million annually with over 5,000 jobs and over $17

million in tax revenue (LDWF 2021). Louisiana issued 23,828 commercial wild harvest alligator tags in 2019 that generated $13 million.

In 2025 there were 2,023,651 visits to NWRs in Louisiana and 778,761 of those were to the seven refuges included in this proposed action. Statewide hunting visits accounted for 158,908 of all visits and 54,775 of those were on the seven refuges. These refuges are currently open to hunting migratory birds, upland birds, and big game. Total refuge visits and hunter visits by refuge are shown in Table 1.

Table 1. 2025 Refuge Visitation

Refuge	Total Visits	Hunter Visits
Bayou Sauvage Urban NWR	182,457	1,595
Big Branch Marsh NWR	258,160	20,630
Black Bayou Lake NWR	126,320	927
D'Arbonne NWR	48,000	3,223
Delta NWR	12,256	8,021
Tensas River NWR	99,568	17,624
Upper Ouachita NWR	52,000	2,755
Total	**778,761**	**54,775**

Local and Regional Economies: Environmental Consequences

Alternative A

Under the no action alternative, no additional hunting will occur on these refuges therefore no additional economic impact will result from recreational alligator hunting. Current levels of visitation for all other purposes are expected to continue.

Alternative B

We anticipate the number of hunters to increase by a maximum of 815 with the initiation of recreational alligator hunting on seven NWRs in Louisiana. Tag allotment will be determined annually within the maximum take of 1,630 alligators on refuges. Though past data has applied to commercial wild alligator harvest, if we use those figures to estimate potential economic input from this level of wild alligator harvest on these Refuges, over $850,000 could be generated.

On a local and statewide scale, revenues generated by hunter trip expenses, purchases of gear and supplies, and purchases of hunting licenses provide primary and secondary economic benefits, including sales and fuel tax revenues, employment, and installation of boat ramps and other supportive infrastructure that benefit hunters and nonhunters. Federal excise taxes on firearms, ammunition, and other equipment used for hunting generate funds that support state conservation, research, management, and educational efforts that benefit wildlife and consumptive and nonconsumptive users of wildlife. With an anticipated increase in hunters, there is the potential for minor contributions to local economies.

4.6 Visitor Use and Experience

Visitor Use and Experience: Affected Environment

As discussed above, providing wildlife-dependent recreation opportunities is one of the main purposes of the NWRS. As such, NWRs offer wildlife-dependent recreational opportunities, including hunting, angling, and bird watching, that are not widely found on other public lands, with thirty-two percent of visitors to refuges participating in one or more of these activities (Dietsch et al. 2025). In general, visitor satisfaction is high on NWRs, with visitors noting convenient hours of operation, offerings at visitor centers, and well-maintained restrooms, and recreational opportunities as reasons for this high satisfaction (Dietsch et al. 2025). Fifty-six percent of visitors indicated they would increase visitation to a refuge if more area was open to their primary recreation activity and 34% said they would increase visitation if there were more infrastructure. Twenty-six percent of respondents said they would decrease visitation for their primary activity if there were more people participating in that same activity on that refuge (Dietsch et al. 2025) . Other factors that lead to increased visitor experience on refuges include higher diversity of species, improved quality of wetlands, and decreased regulation for hunters and anglers (Dietsch et al. 2025). However, decreasing regulations for hunters and anglers may have negative effects on experience of bird watchers (Dietsch et al. 2025). Hunters and anglers are more likely than other visitors to plan to return to a refuge the next year (Dietsch et al. 2025).

The seven NWRs included in this action support the six priority public uses identified in the NWRSAA, hunting, fishing, environmental education and interpretation, wildlife observation, and photography. In 2025 approximately 778,761 visitors participated in one or more of these activities on these Refuges (USFWS 2025b). Visits for hunting totaled 54,775.

Associated recreational activities that occur in support of the six priority recreational activities, though not on all seven refuges and with limitations, include boating, hiking, bicycle riding including eBikes, and ATV/UTV use. These uses are restricted to trails, roads, parking areas, and boat launches.

To minimize conflicts with priority non-hunting recreational uses outlined in the NWRSIA, and for public safety, the refuges designate areas open to hunting and enforce refuge-specific regulations. Areas administratively closed to certain hunting seasons are clearly marked with signs and illustrated in the refuges hunting brochure map.

Visitor Use and Experience: Environmental Consequences

Alternative A

Under Alternative A, the no action alternative, no recreational alligator hunting will occur on these refuges, and public access and recreation programs would continue as they currently occur.

Potential impacts from existing activities include noise from recreationists and vehicles including boats, ATVs/UTVs, bicycles, and overlapping uses such as wildlife observation and hunting. Overall, existing hunting impacts to non-hunting visitor services and recreational opportunities are considered short-term, minor, and local. Refuge managers use temporal and spatial zoning to distribute uses across the refuges to allow for satisfactory recreational experiences for all visitors. Where conflicts arise, refuge managers may implement temporary measures such as closing an area to a use to minimize the conflict.

Alternative B

Under the proposed alternative, a maximum of 815 additional hunters may be added across all seven refuges. Conflicts between alligator hunters and hunters of other species will be minimized by season dates with limited overlapping seasons. Refuge hunting seasons that may overlap include archery and primitive firearm deer season and dove season. There is a 3-year experimental black-bellied whistling duck (*Dendrocygna autumnalis*) season that has recently been approved that will partially overlap.. Small game season is also open in October; however, it mostly occurs in upland habitats where alligator habitat does not occur. Potential conflicts may arise between anglers and recreational alligator hunters attempting to use the same areas. Refuges are open to fishing however state fishing regulations apply as well as refuge specific regulations designed to protect species and provide for public safety and positive angling experience. Refuge staff will monitor implementation of the new hunt to determine if overlapping uses result in conflicts not anticipated. Managers may adjust uses to reduce or eliminate conflicts.

Visitation based on the remaining six priority public uses are expected to remain the same. Refuges manage multiple public opportunities primarily by designating specific areas of the refuge to specific uses or by establishing date ranges within which a use may occur so that the uses do not interfere with each other.

4.7 Management and Operations

Management and Operations: Affected Environment

Administration of refuge hunting and fishing programs is included in the annual budget. Expenses include program management, staff resources, boundary postings, signage, brochures, parking lot maintenance and construction, facility maintenance, and other hunting- and fishing-specific activities. Providing accurate and understandable information to the public in the form of public use brochures, website information, and personal contacts, in addition to Refuge law enforcement, is the primary method necessary to ensure proper and safe administration of hunts across the refuges.

Bayou Sauvage Urban NWR is administered as a unit within the Bayou Sauvage Urban Refuge Complex which also administers Bayou Teche and Mandalay NWRs. Staff, including refuge managers, maintenance workers, and visitor services, serve all the refuges in the complex.

Big Branch Marsh and Delta NWR are administered as units within the Southeast Louisiana Refuge Complex. Other units within the complex include Atchafalaya, Bogue Chitto, Breton, and Cat Island National Wildlife Refuges. Refuge staff, including refuge managers, maintenance worker, visitor services, and biologist serve all the refuges in the complex.

Black Bayou Lake, D'Arbonne, Tensas River and Upper Ouachita NWRs are administered as units within the North Louisiana Refuge Complex which also administers Handy Brake and Red River NWRs. Refuge staff, including refuge managers, maintenance workers, visitor services, and biologist, serve all the refuges in the complex.

Management and Operations: Environmental Consequences

Alternative A

Under the no action alternative, no additional hunting opportunities will be created and therefore no additional cost or staff time will be required.

Alternative B

With the preferred alternative, a maximum of 815 additional hunters will visit the refuges each year and, subsequently, increase staff time and costs (Table 2). LDWF will cover the expense of administering the recreational alligator hunting lottery each year and will contribute to enforcement of the regulations pertaining to the hunt. Refuge staff will provide selected applicants with a Public Use Regulations brochure or Annual Public Use Permit with refuge specific regulations and areas to be hunted. Costs for maintenance of roads, parking lots, trails, boat ramps, and other support structures are funded as part of the base refuge budgets. Based on the maximum proposed increase in hunter visitation, additional funding may be required for the upkeep of these features. The refuges may request additional funding in the future if required.

Table 2. Administrative Costs for Implementing Recreational Alligator Hunt

Refuge	**One-time Cost**	**Recurring Annual Expenses**
Bayou Sauvage Urban NWR	$6,250	$6,500
Big Branch Marsh NWR	$6,250	$3,500
Black Bayou Lake NWR	$3,500	$3,900
D'Arbonne NWR	$2,500	$2,100
Delta NWR	$3,250	$1,500
Tensas River NWR	$3,000	$23,500

Refuge	**One-time Cost**	**Recurring Annual Expenses**
Upper Ouachita NWR	$2,500	$3,400
Total Costs	$27,250	$44,400
Offsetting Revenue (Boat Launch Fee at Tensas River NWR Only)		$2,500
Total Overall Costs		$69,150

4.8 Reasonably Foreseeable Effects

Reasonably Foreseeable Effects: Affected Environment

The terminology "reasonably foreseeable effects" refers to effects that are sufficiently likely to occur and that have a reasonably close causal relationship to the proposed action such that a person of ordinary prudence would take them into account in reaching a decision..

Current alligator population estimates are over 3,000,000 in Louisiana. While recreational alligator hunting has only recently been implemented in the state, commercial alligator harvest has been ongoing since 1973 with harvest ranging from 23,000 to 36,000 annually (LDWF 2026b). Louisiana regulations set the maximum number of recreational alligator hunting opportunities yearly at 5,000 and a maximum number of recreational alligator tags at 10,000. Harvest rates are set annually by LDWF based on estimated birth rates coupled with available nesting habitat (LDWF 2026a). FWS may, in consultation with LDWF, adjust the ratio of licenses to tags each year however the figures presented are a maximum.

2027 Proposed Louisiana Alligator Hunt:

Total maximum recreational alligator hunting licenses issued in Louisiana: 5,000

Total maximum state recreational alligator tags issued in Louisiana: 10,000

Total maximum recreational alligator hunting licenses issued to NWRs = 815

Total maximum NWR recreational alligator tags issued = 1,630

Reasonably Foreseeable Effects: Environmental Consequences

Alternative A

Under the no action alternative recreational alligator hunting will not take place on NWRs, however recreational alligator hunting will be implemented by the State of Louisiana. The implementation of recreational alligator hunting off of NWRs may result in alligator harvest in waters adjacent to these NWRs where navigable waterways abut refuge boundaries. Harvest

limits in the state will still be in effect. Statewide harvest would reduce by as much as 16% or the refuge allocation. This harvest will not impact habitats on the refuges but could have impacts similar to those described for non-target wildlife on the refuges described above. There may be minor economic benefits from recreational hunting support services due to recreational alligator hunting off of refuges.

Alternative B

The opening of recreational alligator hunting on refuge fee-title under Alternative B is anticipated to result in minor effects. The increase in visitors from alligator hunting would not foreseeably impact the refuges' ability to meet refuge goals and objectives or refuge purposes. Alligator hunting-related mortality, disturbance to nontarget wildlife, minor vegetation disturbance, and minor increases in refuge administrative and law enforcement demand are all reasonably foreseeable, but are each expected to be minor, localized, and short-term in nature, based on the analysis in preceding sections.

Hunting activities on the Refuges are reasonably expected to result in direct mortality of legally harvested species and may influence non-target species causing behavioral changes such as displacement, increased vigilance, and altered habitat use during the open season. These effects can lead to temporary reductions in foraging and resting opportunities. Alternatively, some species will benefit from reduced alligator numbers, specifically resident waterfowl, waterbirds, and wading birds due to potentially reduced predation.

Non-target wildlife may experience disturbance from human presence, gunfire, and associated activities, resulting in temporary displacement, stress responses, and altered movement patterns. Incidental take of non-target species, though unintended, is a foreseeable risk in areas where species overlap with hunted habitats.

Water activities may exert harvest pressure on sport fish populations and lead to incidental capture or injury of non-target aquatic species, along with habitat impacts such as bank erosion, vegetation trampling, spread of invasive species, and pollution from discarded gear. Vegetation may be affected by trampling from foot traffic, while using access routes, which could alter plant composition and reduce habitat quality for wildlife. These reasonably foreseeable impacts are expected to be minor to negligible.

Special status species may be subject to disturbance during critical life stages or risk incidental take where habitats overlap with hunting or fishing areas, requiring compliance with federal protections. Refuge management will monitor and adjust activities if impacts occur. Population trends of threatened and endangered species are expected to continue unaffected by the proposed action.

Socioeconomic impacts are anticipated to include positive contributions to local economies through expenditures on permits, equipment, and travel, as well as enhanced recreational opportunities for hunters and anglers. However, potential conflicts among user groups and concerns about equitable access are foreseeable.

Refuge management would likely experience increased operational demands for enforcement, monitoring, and permit administration, as well as infrastructure needs such as signage and access improvements. Visitor services are expected to benefit from expanded recreational opportunities, but foreseeable impacts include reduced wildlife viewing quality and safety concerns related to shared use of refuge lands, necessitating additional measures to minimize conflicts among user groups.

These reasonably foreseeable impacts of the combination of these minor impacts from initiation of recreational alligator hunting on seven NWRs in Louisiana are not expected to significantly change the status of any animal or habitat or the human environment associated with the activity.

4.9 Summary of Analysis

Alternative A – No Opening of Recreational Alligator Hunting – No Action Alternative

As described above, alligator management on the seven Refuges would be maintained at current levels, with nuisance control continuing but no recreational alligator hunting authorized. There is not likely to be an adverse effect on endangered or threatened species. This alternative continues to provide existing wildlife dependent recreation opportunities; however, it would not meet the purpose and need of this action of expanding hunting opportunities or bringing the refuges into greater alignment with State alligator hunting regulations (Secretarial Order 3356). No additional disturbance to hunted and non-game species would occur. No change in socioeconomic factors, or low-income or underserved communities associated with the refuges will take place.

Recreational alligator hunting in Louisiana will still take place. The overall number of hunters and alligators taken statewide may be less because the state has taken into account the acreage of these refuges in setting targets.

Alternative B – Open Recreational Alligator Hunting on Bayou Sauvage Urban, Big Branch Marsh, Black Bayou Lake, D'Arbonne, Delta, Tensas River, and Upper Ouachita NWRs – Preferred Alternative

As described above, the Proposed and Preferred Action is expected to result in minimal, short-term adverse impacts on habitat, wildlife, and non-target species. The Service has determined that recreational alligator hunting across the seven Refuges would not significantly affect regional or statewide alligator populations, nontarget wildlife, or special status species. Impacts would be dispersed across at least 215,270 acres with potentially up to 293,569 acres with future acquisitions and are not expected to result in combined effects that would elevate impacts to a significant level.

This alternative helps meet the FWS's purpose and need by providing an additional wildlife dependent recreation opportunity, aligning FWS regulations with State regulations, and making hunting more accessible to the public. It will also provide an additional mechanism for

managing alligator populations on these refuges. Hunting is identified as a compatible use under the NWRSIA of 1997. FWS has determined the Proposed Action is compatible with the purposes of the seven refuges and the NWRS mission (USFWS 2026 a,b,c,d,e,f,g).

Localized or refuge-specific subpopulations may temporarily disperse or relocate to adjacent lands with the addition of hunting pressure. However, these hunts are expected to contribute only slightly to reasonably foreseeable impacts at the regional or state level. Overall populations would continue to be monitored, and future statewide harvest levels adjusted as needed through existing state regulatory processes. Refuge managers work with LDWF each year to set recreational alligator take and hunter limits within the levels proposed by the state for each refuge.

Endangered or threatened species are not likely to be adversely affected with population level impacts expected to be negligible. Habitat damage and predation by alligators would be reduced, thus benefiting nonhunted wildlife.

Under Alternative B, the addition of new hunting opportunities would not result in a meaningful increase in lead deposited on the refuges that may adversely impact non-target wildlife, habitat, or human health compared to current conditions. The number of additional hunters is expected to be a maximum of 815 dispersed across the seven Refuges. Hunting would remain highly dispersed across at least 215,270 acres and potentially 293,569 with future acquisitions through multiple access points. The low intensity, broad distribution, and method of take limit the amount and concentration of lead that could be introduced into the environment. As discussed above, the potential for habitat level bioaccumulation of lead under these conditions is very low. The scale of use, combined with the dispersed nature of hunting, would not result in lead concentrations capable of affecting wildlife populations, habitat quality, or ecological processes.

When considered with existing hunting activities, other land uses, and environmental trends in the region, the proposed action would not result in additive effects that would elevate impacts to a significant level. Additional hunting opportunities may attract more hunters, which could result in conflicts among other public uses, but these conflicts will be minimized by adjusting timing or location of competing activities or adjusting hunter numbers on the seven Refuges. These refuges have not documented any significant adverse effects associated with existing hunting related uses, and Alternative B would not substantially alter the magnitude, duration, or geographic extent of those conditions.

FWS believes this alternative offers the best opportunity for expanding public hunting opportunities while resulting in minimal impacts on physical and biological resources. It either benefits or is neutral to nontarget species and habitats. Expanding or opening recreational alligator hunting on these refuges aligns with the NWRSIA requirements for compatible, wildlife-dependent recreation and supports Secretarial Orders 3447 and 3356.

Comparison of Alternatives

Table 3 summarizes the level of impact for each alternative for each affected resource analyzed. The level of impacts described in the table includes a summary of the intensity of the impact. Intensity describes the severity of the impact and includes both positive and negative effects as well as the net effect. While impact assessments may include both negative and positive effects, only negative effects can rise to a level of significance that would warrant an Environmental Impact Statement (DOI NEPA Handbook 2026).

Table 3. Comparison of Alternatives of Actions

Affected Resource	**Alternative A: No Action**	**Alternative B: 2027 Hunting Plan (Preferred Alternative)**
Species to be Hunted/Fished (Alligators)	No direct short-term impacts	Negative short-term direct localized impacts. Negligible population level impacts.
Non-target Fish and Wildlife Species	Negligible short-term and localized impacts	Negligible short-term and localized impacts
Candidate, Threatened and Endangered Species and Critical Habitat:	Overall impacts are considered less than significant	Overall impacts are considered negligible
Habitat and Vegetation	Negative short-term localized impacts	Negative short-term localized impacts similar to Alternative A but negligible increase
Socioeconomics	Negligible overall potential impacts	Positive impacts
Management and Operations	Negligible overall potential impacts	Compared to alternative A, there is a slight increase in potential expenditures

Affected Resource	**Alternative A: No Action**	**Alternative B: 2027 Hunting Plan (Preferred Alternative)**
Visitor Use and Experience	Negligible overall potential impacts	Compared to alternative A, there is a slight, but negligible increase in visitor use

Chapter 5: Certification Statement, List of Preparers, and List of Sources Consulted

5.1 Certification Statement

FWS prepared this EA pursuant to the NEPA (42 U.S.C. 4321 et seq.), the DOI NEPA Implementing Regulations (43 CFR 46), the Department Handbook of NEPA Procedures (2026) and other applicable Federal and state laws and regulations. This environmental assessment represents the bureau's good-faith effort to fulfill NEPA's requirements within the congressional timeline; upon finalization this assessment is substantially complete; in FWS's expert opinion all factors mandated by NEPA have been thoroughly considered; and in FWS's judgment, the analysis contained herein is adequate to inform and reasonably explain FWS's decision regarding the proposed Federal action.

5.2 List of Preparers

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Appendix A: Applicable Statutes and Executive Orders

This appendix provides a summary of other applicable laws, regulations, statutes, policies, executive orders and/or other rules apply to the proposed action or project and any additional steps taken by the service to comply with these laws.

The following laws, regulations, statutes, policies, executive orders and/or other rules apply to the proposed action or project. A description of how compliance is being met for each applicable law or regulation is under the appropriate affected resources section.

Fish and Wildlife

• Bald and Golden Eagle Protection Act, as amended, 16 U.S.C. 668-668c, 50 CFR 22 is applicable to this project and compliance is addressed in the section on special status species.

• Endangered Species Act of 1973, as amended, 16 U.S.C. 1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450 is applicable to this project and compliance is addressed in the candidate, threatened and endangered species section the refuges have documented an internal informal consultation stating that the proposed project has no significant effect on any listed species or designated critical habitat.

• Fish and Wildlife Coordination Act, as amended in 1964, 15 U.S.C. § 661 et seq. Requires that all federal agencies consult with NMFS, U.S. Fish and Wildlife Service, and state wildlife agencies when proposed actions might result in modification of a natural stream or body of water. Federal agencies must consider effects that these projects will have on fish and wildlife development and provide for improvement of these resources. The Fish and Wildlife Coordination Act allows these agencies to provide comments to the lead federal action agency during their review of the proposed project. The refuges have consulted and coordinated with all relevant fish and wildlife agencies to reduce adverse impacts to migratory, estuarine, and marine fisheries and their habitats. Correspondence is noted in Chapter 5, State and Federal Coordination, and any comments received and any responses made to comments, will be summarized in Appendix.

• Migratory Bird Treaty Act, as amended, 16 U.S.C. 703-712; 50 CFR Parts 10, 12, 20, and 21 and Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds, 66 Fed. Reg. 3853 (2001), Migratory Bird Conservation Act (1929), Migratory Bird Hunting and conservation Stamp Act (1934) is applicable and is addressed in the sections on special status species and fish and wildlife species. The preferred alternative is consistent because the EA evaluates the effects of agency actions, including proposed action, on migratory birds.

Cultural and Historic Preservation

• Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, is applicable.

• Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa – 470mm; 18 CFR Part 1312; 32 CFR Part 229; 36 CFR Part 296; 43 CFR Part 7, could apply if infrastructure projects supporting the use occur. Compliance with the law will be completed if and when a more

detailed project location is available for a supporting use. Projects of this nature are not expected to impact the preservation of historical and archaeological data (including relics and specimens), which might otherwise be irreparably lost or destroyed.

Regulatory and Planning Framework

• National Environmental Policy Act (NEPA) as amended 42 U.S.C. § 4321 et seq. This EA was prepared pursuant to Department of Interior (DOI) regulations implementing NEPA, which requires federal agencies to assess, consider, and disclose to the public the impacts that their actions may have on the environment before taking major federal actions.

• National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, is applicable. This assessment and associated step-down plan allow for implementation of the CCPs for the refuges. This assessment and plan allow for the refuges to manage wildlife, their habitat and ensure the biological integrity, diversity, and environmental health of refuges is maintained. The activity of hunting is a priority public use and compatibility has been reviewed.

• Refuge Recreation Act of 1962, as amended, Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System, and Executive Order 13563 – Improving Regulation and Regulatory Review (2011) are applicable and evaluated through the compatibility determination associated with this full compliance package.

Hunting has been determined to be a compatible use and not interfere with the primary purposes for which the refuges were established. Compatibility Determinations are available in Appendix B of the Hunt Plan Amendment.

Environmental Protection and Conservation

• Federal Noxious Weed Act of 1990 Executive Order 13112 – Invasive Species, 64 Fed. Reg. 6183 (1999), Executive Order 13751 (2016) — Safeguarding the Nation from the Impacts of Invasive Species and Executive Order 11987, Exotic Organisms, are applicable as there could be transportation of invasive species from site to site by users. Staff treat for any invasive plant species through the habitat management program and promote educational campaigns to make recreational users aware of the potential to spread invasives species and is discussed in Habitat and Vegetation: Affected Environment and Environmental Consequences section.

• Lacey Act, as amended, 16 U.S.C. 3371 et seq.; 15 CFR Parts 10, 11, 12, 14, 300, and 904 is applicable and is met as hunters must comply with state and federal regulations that mitigate the importation, exportation, transportation, sale or purchase of fish, wildlife or plants to participate in the activity on the refuges. Laws and regulations are enforced by refuge law enforcement and state conservation officers.

The following statutes do not apply to this proposed project area because the nexus for protection does not occur within the project area, or the affected resource associated with the

statute has been determined to not be affected or only negligibly affected by the proposed action. Any resources that will not be more than negligibly impacted by the action have been

dismissed from further analyses. The following statutes are not applicable:

Cultural and Historic Preservation

• American Indian Religious Freedom Act (1978) , as amended, 42 U.S.C. 1996 – 1996a; 43 CFR Part 7

• Antiquities Act of 1906, 16 U.S.C. 431-433; 43 CFR Part 3

• Archaeological and Historic Preservation Act (1974)

• Executive Order 11593 – Protection and Enhancement of the Cultural Environment, 36

Fed. Reg. 8921 (1971)

• Executive Order 13007 – Indian Sacred Sites, 61 Fed. Reg. 26771 (1996)

• National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470-470x-6; 36 CFR

Parts 60, 63, 78, 79, 800, 801, and 810

• Native American Graves Protection and Repatriation Act, 1990, 25 U.S.C. 3001-3013; 43

CFR Part 10

• Paleontological Resources Protection Act (2009) , 16 U.S.C. 470aaa – 470aaa-11

Environmental Protection and Conservation

• Clean Air Act, 1970,as amended, 42 U.S.C. 7401-7671q; 40 CFR Parts 23, 50, 51, 52, 58, 60, 61, 82, and 93; 48 CFR Part 23

• Federal Water Pollution Control Act of 1972 (commonly referred to as Clean Water Act), 33 U.S.C. 1251 et seq.; 33 CFR Parts 320-330; 40 CFR Parts 110, 112, 116, 117, 230-232, 323, and 328Clean Water Act (1972)

• Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.; 33 CFR Parts 114, 115, 116, 321, 322, and 333

• Coastal Barrier Resources Act (1982)

• Coastal Zone Management Act of 1972, 16 U.S.C. as amended1451 et seq.; 15 CFR Parts 923, 930, 933"

• Emergency Wetlands Resources Act (1986)

• Farmland Protection Policy Act (1981)

• Federal Cave Resources Protection Act (1988)

• Noise Control Act of 1972 42 U.S.C. § 4901 et seq

• Resource Conservation and Recovery Act (1976)

- Safe Drinking Water Act of 1974, 42 U.S.C. 300f et seq.; 40 CFR Parts 141-148
- Water Resources Planning Act (1965)
- Executive Order 11988 – Floodplain Management, 42 Fed. Reg. 26951 (1977)
- Wetlands (Executive Order 11990)

Fish and Wildlife Conservation

- Fish and Wildlife Act of 1956, 16 U.S.C. 742 a-m
- Magnuson-Stevens Fishery Conservation and Management Act (1976)
- Marine Mammal Protection Act (1972)

Public Access and Land Use

- Americans with Disabilities Act (ADA) of 1990
- Wild and Scenic Rivers Act, 1968, 16 U.S.C. 1271 et seq.
- Wilderness Act, 16 U.S.C. 1131 et seq.
- Executive Order 11644 – Use of Off-Road Vehicles on Public Lands (1972)

Appendix B: Survey of Lead and Lead-free Ammunition Costs

Table 1. Lowest available price per round of five popular hunting ammunition types at a sample of retail locations across the U.S. Local inventory at two retailers in each U.S. Fish and Wildlife Service Region was searched using online web shops on November 24th, 2025. The price per round in U.S. dollars was determined using the pre-tax price of a package, divided by the number of rounds in the package (a box of shotgun slugs typically contains 5 rounds, while a box of rifle ammunition typically contains 20 rounds). "-" indicates that the ammunition was out of stock at that location.

Region	County	State	12 gage shotgun slugs		.308 Winchester		.30-06		6.5 Creedmoor		270 Winchester	
			Lead	Lead-free	Lead	Lead-free	Lead	Lead-free	Lead	Lead-free	Lead	Lead-free
1	Lane	OR	$1.00	-	$1.00	-	$1.20	-	$0.95	-	$1.20	-
1	Bonneville	ID	$1.40	-	$1.05	-	$1.25	$2.15	$1.25	$2.25	$1.30	-
2	Texas	OK	$1.60	-	$1.50	-	-	-	-	-	-	-
2	Harris	TX	$1.59	-	-	-	-	-	-	-	$1.30	$2.15
3	Pennington	SD	$1.20	-	$1.39	-	$1.25	-	$1.40	$2.84	$1.39	-
3	Ashland	WI	$1.00	-	$1.75	-	$1.50	$2.50	$1.75	-	$1.75	-
4	Knox	TN	$2.00	-	$1.25	$2.20	$1.45	$2.20	$1.40	$1.85	$1.45	$2.15
4	Pulaski	AR	-	-	$1.50	-	$1.50	-	$1.75	$2.25	$1.50	-
5	Lynchburg City	VA	$1.92	$4.80	$1.00	$1.25	$1.35	$2.15	$1.00	$2.25	$1.36	$2.25
5	Grafton	NH	$2.20	-	$1.75	-	$1.50	-	$1.55	-	$1.45	-
6	Mesa	CO	$1.40	$4.80	$1.00	$1.25	$1.36	$2.25	$1.36	$2.50	$1.36	$2.25
6	Uinta	WY	$1.00	-	$0.90	-	$1.50	-	$1.15	-	$0.99	-
7	Anchorage	AK	$1.00	-	$1.30	$2.15	$1.35	$2.15	$1.35	-	$1.50	-
7	Matanuska-Susitna	AK	$1.40	$4.80	$1.10	-	$1.36	-	$1.00	-	$1.36	-
8	Clark	NV	$1.20	-	$1.05	-	$1.10	-	$1.00	-	-	-
8	Nye	NV	$1.00	-	$1.25	-	$1.35	$3.90	$1.75	$2.25	$1.42	-