



U.S. Fish and Wildlife Service

Everglades Headwaters National Wildlife Refuge

Draft Hunt Plan Amendment and Environmental Assessment April 2021

Estimated Lead Agency Total Costs Associated with Developing and Producing the Environmental Assessment: \$4,609

Table of Contents

Section A. Hunt Plan Amendment

I. Background.....	1
II. Proposed Amendments.....	1
III. Literature Cited	3

Section B. Environmental Assessment

Proposed Action	4
Background	4
Purpose and Need	6
Alternatives	6
Alternative A – Continue Current Management (No Action Alternative)	7
Alternative B – Add Incidental Hunting of Non-native Wildlife (Proposed Action).....	7
Affected Environment and Environmental Consequences	9
Non-native Reptiles, Mammals, and Birds.....	16
<i>Affected Environment Description</i>	16
<i>Environmental Trends and Planned Actions Description</i>	17
<i>Anticipated Impacts</i>	17
Non-Target Wildlife and Aquatic Species	18
<i>Affected Environment Description</i>	18
<i>Environmental Trends and Planned Actions Description</i>	18
<i>Anticipated Impacts</i>	19
Threatened and Endangered Species and Other Special Status Species.....	20
<i>Affected Environment Description</i>	20
<i>Environmental Trends and Planned Actions Description</i>	20
<i>Anticipated Impacts</i>	21
Habitat and Vegetation (including vegetation of special management concern)	22
<i>Affected Environment Description</i>	22
<i>Environmental Trends and Planned Actions Description</i>	22
<i>Anticipated Impacts</i>	22
Visitor Use and Experiences.....	23
<i>Affected Environment Description</i>	23
<i>Environmental Trends and Planned Actions Description</i>	23
<i>Anticipated Impacts</i>	24
Environmental Justice	24
<i>Affected Environment Description</i>	25

<i>Environmental Trends and Planned Actions Description</i>	25
<i>Anticipated Impacts</i>	25
Monitoring	25
Summary of Analysis	26
Alternative A – Continue Current Management (No Action Alternative)	26
Alternative B – Add Incidental Hunting of Non-native Wildlife Species (Proposed Action)	26
List of Preparers	26
State Coordination	26
Tribal Consultation	27
Public Outreach	27
Determination	27
Signatures	28
References	29

Appendices

Appendix A. 2020 Hunt and Sport Fish Plan	31
Appendix B. Draft Finding of Appropriateness	32
Appendix C. Draft Compatibility Determination	35
Appendix D. Draft Changes for the Code of Federal Regulations	44
Appendix E. Federally Listed Species by Management Unit	45

**Everglades Headwaters National Wildlife Refuge
Draft Hunt Plan Amendment**

April 2021

U.S. Fish and Wildlife Service

**Everglades Headwaters National Wildlife Refuge Complex
4055 Wildlife Way
Vero Beach, FL 32963**

Submitted By:
Project Leader

Signature

Date

Concurrence:
Refuge Supervisor

Signature

Date

Approved:
Regional Chief,
National Wildlife
Refuge System

Signature

Date

Section A. Draft Hunt Plan Amendment to Add Incidental Hunting of Non-native Wildlife on Everglades Headwaters National Wildlife Refuge

I. Background

In 2020, the U.S. Fish and Wildlife Service (Service) developed a Hunt and Sport Fish Plan as part of the Visitor Services Plan (VSP) for Everglades Headwaters National Wildlife Refuge (NWR, refuge) (USFWS 2020). During the public comment period for the 2020 VSP, the Florida Fish and Wildlife Conservation Commission (FWC) suggested that the Service include incidental hunting of non-native wildlife on the refuge. The Service has a 2012 memorandum of understanding (MOU) with the State of Florida whereby the State manages hunting and fishing on Service fee title refuge units through its Wildlife Management Area (WMA) program. In an effort to align where possible with the State's regulations, the Service proposes to add incidental hunting of non-native wildlife on the refuge as outlined and analyzed in the 2021 draft Incidental Hunting of Non-native Wildlife Compatibility Determination, associated Environmental Assessment, associated Section 7 Intra-Service Consultation, and proposed changes to the Code of Federal Regulations (USFWS 2021). The following section describes the proposed changes to the 2020 Hunt and Sport Fish Plan (USFWS 2020) to incorporate the addition of incidental hunting of non-native wildlife on the refuge.

II. Proposed Amendments

Six areas of the existing Hunt and Sport Fish Plan (USFWS 2020) would be updated to add the incidental hunting of non-native wildlife to the refuge.

Change 1

III. Description of Hunting and Fishing Programs

B. Species to be taken, hunting periods, hunting access

Table 1. Species to be taken, hunting seasons, hunting access for the Arbuckle, Hatchineha, and Okeechobee units

Add:

Species To Be Taken	Seasons	Access
Non-native Wildlife	Season coordinated by FWC through WMA hunt program	Access coordinated by FWC through State hunting permit

Change 2

VII. Assessment

A. Are wildlife populations present in numbers sufficient to sustain optimum population levels for priority refuge objectives other than hunting and fishing?

Add:

"Non-native Wildlife"

Non-native wildlife include any non-native amphibians, reptiles, birds, and mammals. Some of these are considered a threat to native wildlife populations, including Burmese pythons, tegu lizards, and monitor

lizards. A list of non- native species, and their biology, biological impacts, and distributions can be found on FWC's non-native website: <https://myfwc.com/wildlifehabitats/nonnatives/>. Where applicable, regulations concerning the incidental take of non-native wildlife are available on pertinent WMA brochures (FWC 2020). The objective of the Service is to control these non-native species to help protect native species and maintain biological integrity, diversity, and environmental health. The Service will continue other management efforts to control and eliminate non-native wildlife from the refuge. This use will support those management efforts. Refuge management control of non-native wildlife will continue as needed to meet wildlife and habitat goals and objectives, which will take priority over any public use activity, including hunting. In particular, it is neither the goal nor the intent of the Service to manage non-native wildlife as huntable game species since the intent is to control and eliminate these species. The proposed use is simply an additional tool to help the Service meet this intent."

Change 3

VII. Assessment

B. Is there competition for habitat between target species and other wildlife?

Add:

"Several non-native species have the potential to compete with native wildlife for habitat. Exotic cervids, such as axis deer (*Axis axis*) can forage on many of the same plants as white-tailed deer. Burmese pythons (*Python bivittatus*) eat a variety of mammals, many of which are potential prey for native predators such as bobcat (*Lynx rufus*), Florida panther (*Puma (=Felis) concolor coryi*), and various raptors."

Change 4

VII. Assessment

C. Are there unacceptable levels of predation by target species on other wildlife?

Add:

"Several non-native species are predators of native wildlife. Burmese pythons have been shown to cause substantial declines in small mammal populations (Dorcas et al. 2012). Argentine black and white tegus (*Tupinambis merianae*) have been documented preying on alligator and turtle eggs. Nile monitor lizards (*Varanus niloticus*) have been observed taking burrowing owls. As populations of these and other non-native wildlife increase, the effects on native species is expected to rise."

Change 5

VIII. Measures Taken to Avoid Conflicts with Other Management Objectives

A. Biological Conflicts

Replace last sentence in first paragraph with: "Removal of feral hog and other non-native wildlife would benefit the site by helping to reduce populations of these invasive species that harm the refuge's biological integrity, native biodiversity, and environmental health."

Change 6

Add the below listed references to the literature cited section.

III. Literature Cited

Dorcas, E. Michael, John D Willson, Robert N Reed, Ray W Snow, Michael R Rochford, Melissa A Miller, Walter E Meshaka Jr, Paul T Andreadis, Frank J Mazzotti, Christina M Romagosa, Kristen M Hart. 2012. Severe Mammal Declines Coincide With Proliferation of Invasive Burmese Pythons in Everglades National Park. Proc Natl Acad Sci U S A . 2012 Feb 14;109(7):2418-22. doi: 10.1073/pnas.1115226109. https://www.researchgate.net/publication/221808883_Severe_mammal_declines_coincide_with_proliferation_of_invasive_Burmese_pythons_in_Everglades_National_Park. Accessed: June 2020.

Florida Fish and Wildlife Conservation Commission. 2020. WMA Brochures. Tallahassee, FL. <https://myfwc.com/hunting/wma-brochures/>

U.S. Fish and Wildlife Service. 2020. Visitor Services Plan and Hunt and Sport Fish Plan for Everglades Headwaters NWR and Conservation Area. U.S. Department of the Interior Unified Regions 2 and 4. August 2020. https://www.fws.gov/refuge/everglades_headwaters/.

U.S. Fish and Wildlife Service. 2021. Draft Hunt Plan Amendment and Environmental Assessment. U.S. Department of the Interior Unified Regions 2 and 4. April 2021.

Section B. Environmental Assessment for Incidental Hunting of Non-native Wildlife on Everglades Headwaters National Wildlife Refuge

The U.S. Fish and Wildlife Service (Service, USFWS) prepared this Environmental Assessment (EA) to evaluate the effects associated with the Proposed Action and to comply with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] §§1500-1509) and United States (U.S.) Department of the Interior and Service regulations and policies (including 43 CFR Part 46, 516 Department Manual [DM] 8, 550 Fish and Wildlife [FW] 3, 603 FW 2, and 605 FW 2). NEPA requires examination of the effects of proposed actions on the natural and human environment.

Proposed Action

To better align the refuge with state regulations, including supporting the intent of the Florida Fish and Wildlife Conservation Commission's (FWC's) Executive Order 20-17 Special Regulations for Taking Non-native Reptiles on Specified Commission Managed Areas in the South Region, the Service is proposing to allow the incidental hunting of non-native wildlife in accordance with the Everglades Headwaters National Wildlife Refuge (NWR, refuge) Visitor Services Plan (VSP), which includes a Hunt and Fish Plan (USFWS 2020b). The Service has a Memorandum of Understanding (MOU) with the state of Florida whereby the state manages hunting and fishing on Service fee title refuge units through its Wildlife Management Area (WMA) program. As part of the agreement, the Florida Fish and Wildlife Conservation Commission (FWC) cooperatively manages the hunting and fishing on the refuge properties included in the WMA program. Under the Proposed Action (Alternative B), the Service would amend the 202 Hunt Plan to allow incidental hunting of non-native wildlife, including amphibians, reptiles, mammals, and birds as part of state-regulated game hunting on refuge WMAs. Where applicable, regulations regarding the incidental take of non-native wildlife would be available in pertinent FWC wildlife management area (WMA) brochures. The WMA brochure for the refuge would include the list of non-native wildlife that could be taken incidental to approved hunts. Non-native wildlife that do not appear in the WMA brochure for the refuge would not be approved for take on the refuge. The WMA brochure for the refuge would be reviewed annually with updates as needed.

A proposed action may evolve during the NEPA process as the agency refines its proposal and gathers feedback from the public, Native American Tribes, and other agencies. Therefore, the final proposed action may be different from the original. Barring the need for additional analysis, the final decision on the Proposed Action would be expected to be made through a Finding of No Significant Impact (FONSI) after the conclusion of the public comment period for the EA, draft compatibility determination, and the Draft 2021-2022 Refuge-Specific Hunting and Sport Fishing Regulations, which would be anticipated later in 2021.

Background

National wildlife refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS, Refuge System), the purposes of an individual refuge, Service policies, and applicable laws and international treaties. Relevant guidance includes the NWRS Administration Act (NWRSA) of 1966, as amended by the NWRS Improvement Act (NWRRIA) of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations (CFR) and Fish and Wildlife Service Manual.

The refuge was established pursuant to the listed authorities.

- NWRSA of 1966 (16 United States Code [USC] §668dd)
- Endangered Species Act of 1973 (16 USC §1531)
- Emergency Wetlands Resources Act of 1986 [16 USC §3901(b), 100 Stat. 3583]
- Migratory Bird Conservation Act (16 USC §715d)
- Fish and Wildlife Act of 1956 [16 USC §742f(a)(4)]
- Refuge Recreation Act (16 USC §§460k-460k-4)

The primary purposes of the refuge are listed.

- "... conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans..." 16 USC §668dd(a)(2) (National Wildlife Refuge System Administration Act)
- "...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants..." 16 USC §1531 (Endangered Species Act of 1973)
- "...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 ..." 16 USC §3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)
- "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds...." 16 USC §715d (Migratory Bird Conservation Act)
- "...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude..." 16 USC §742f(b)(1) "...for the development, advancement, management, conservation, and protection of fish and wildlife resources...." 16 USC §742f(a)(4), (Secretarial powers to implement laws related to fish and wildlife) (Fish and Wildlife Act of 1956)
- "...suitable for— (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ..." 16 USC §460k-1 "... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors ..." 16 USC §460k-2 [Refuge Recreation Act (16 USC §§460k-460k-4), as amended]

The mission of the NWRS, as outlined by the NWRSA, as amended by the NWRSA (16 USC §668dd et seq.), 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"

Additionally, the NWRSA mandates the Secretary of the Interior in administering the NWRS (16 USC §668dd(a)(4)) to:

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the NWRS;
- Ensure that the biological integrity, diversity, and environmental health of the NWRS are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the NWRS described at 16 USC §668dd(a)(2) and the purposes of each refuge are carried out;

- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the states in which the units of the NWRS are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the NWRS and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the NWRS through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the NWRS for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

It is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting, when those opportunities are compatible with the purposes for which a refuge was established and the mission of the NWRS.

Purpose and Need

The purpose is for the refuge to conserve wildlife and habitat, including wetlands; protect threatened and endangered species; provide inviolate sanctuary for migratory birds; and provide opportunities for appropriate and compatible wildlife-dependent recreation. The need is to meet the requirements of the NWRS Improvement Act; evaluate compatibility of the proposed use; protect biological integrity, diversity, and environmental health; and serve the refuge's 2012 Conceptual Management Plan (CMP, USFWS 2012) and 2020 Hunt and Sport Fish Plan (USFWS 2020b). Within the CMP, Goal 4 Wildlife-dependent Recreation and Education included hunting on the refuge, while Goal 1 Functional Conservation Landscape and Goal 2 Habitat for Fish and Wildlife focused on high quality functional systems (USFWS 2012). Further, the 2012 Land Protection Plan, of which the CMP was a component, outlined key threats to be addressed on the refuge and the surrounding landscape, including the control of non-native wildlife (USFWS 2012). The 2020 Hunt and Sport Fish Plan outlined objectives of the Hunt Plan, including increased opportunities for hunting through coordination with FWC's WMA program, enhanced biological diversity, and public education regarding the impacts of feral hogs (USFWS 2020b). The refuge has a need to control non-native wildlife species that pose a threat to native wildlife and habitats. A number of non-native wildlife in Florida compete-with and/or prey-on native species. Some non-native species have the capacity to substantially alter and degrade native habitats. Taken together, these non-indigenous invaders can seriously affect biological integrity and native biodiversity if left unchecked. In many instances, the control efforts of non-native species by land managers are overwhelmed by the high reproductive rates of non-native species. Any additional control efforts would help augment management activities. Allowing incidental hunting of non-native wildlife would support refuge management control efforts.

Alternatives

The Service evaluated two alternatives: Alternative A - Continue Current Management (No Action Alternative) and Alternative B - Add Incidental Hunting of Non-native Wildlife (Proposed Action) to meet the stated purpose and need.

Alternative A – Continue Current Management (No Action Alternative)

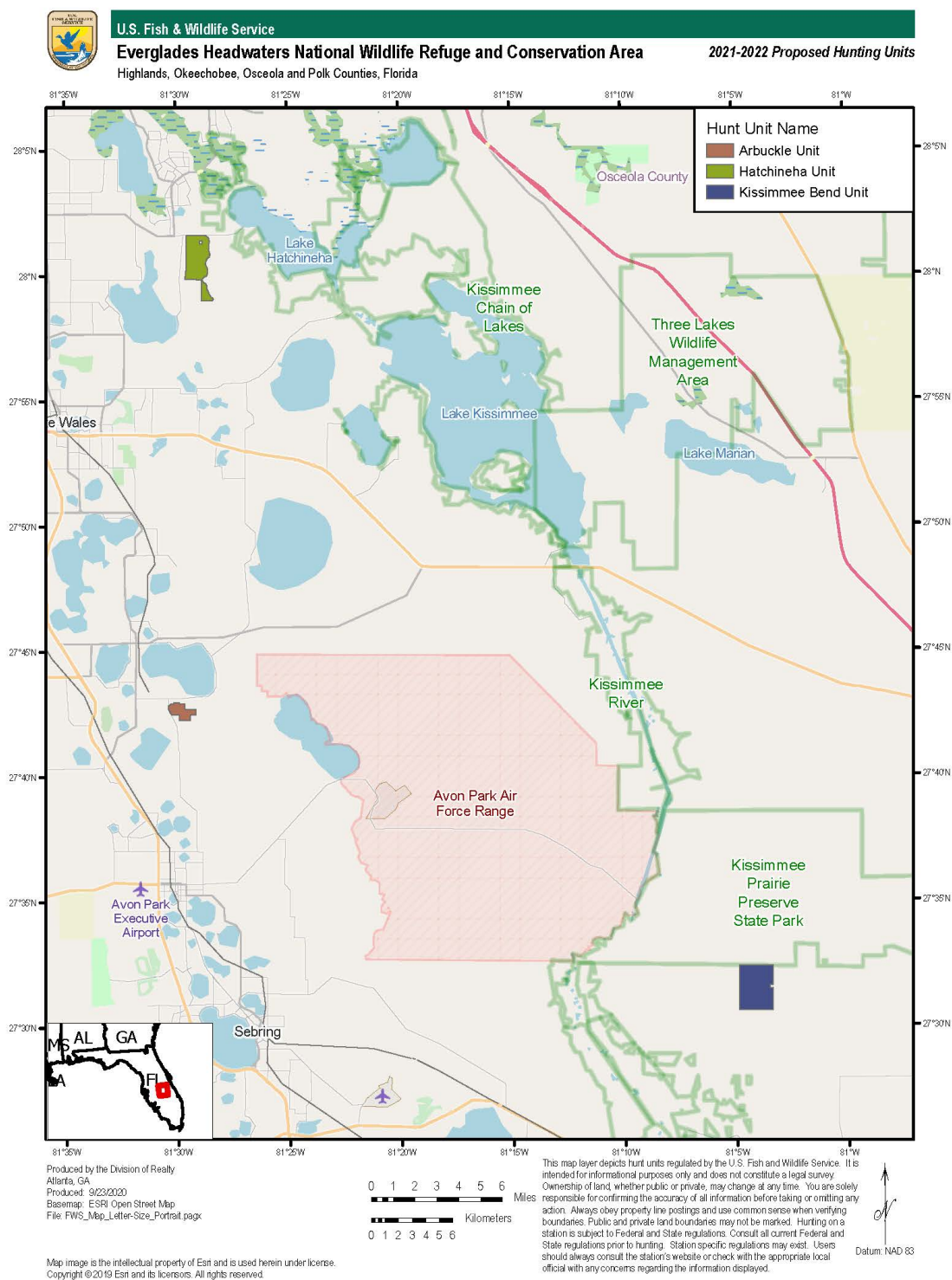
Alternative A would continue current management with hunting as outlined in the 2020 Visitor Services Plan (VSP) and 2020 Hunt and Sport Fish Plan (USFWS 2020b) and as outlined in the companion 2020 EA (USFWS 2020a) (Figure 1). This alternative describes how hunting is currently conducted on the refuge, which consists of three units (Arbuckle, Hatchineha and Kissimmee Bend) covering approximately 3,855 acres in Okeechobee and Polk Counties, Florida (see Figure 1). Under this alternative, hunters would continue to be able to legally take migratory birds, big game, and upland game species according to state and WMA specific regulations and according to refuge-specific regulations outlined in the Code of Federal Regulations (CFR) at 50 CFR §32.28(e). Huntatable species on the refuge currently include white-tailed deer (*Odocoileus virginianus*), feral hog (*Sus scrofa*), wild turkey (*Meleagris gallopavo*); small (upland) game, including raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and Northern quail (*Colinus virginianus*); and migratory game birds, including waterfowl, mourning dove (*Zenaida macroura*), and American alligator (*Alligator mississippiensis*). Details of hunt regulations for the Arbuckle and Hatchineha units can be found on FWC's WMA website: <https://myfwc.com/hunting/wma-brochures/>. The Kissimmee Bend Unit is being rolled into the WMA program and a brochure is anticipated to be available for the 2021-2022 season. Refuge management efforts to control or eliminate non-native wildlife would continue under Alternative A.

Alternative B – Add Incidental Hunting of Non-native Wildlife (Proposed Action)

The Service proposes to amend the existing 2020 Hunt and Sport Fish Plan (Appendix A), which is presented in this document as the Proposed Action Alternative. Under the Proposed Action Alternative, to better align the refuge with state regulations, including supporting the intent of the FWC's Executive Order 20-17 Special Regulations for Taking Non-native Reptiles on Specified Commission Managed Areas in the South Region, take of non-native wildlife would be allowed incidental to approved refuge hunts in designated hunt areas during state seasons under timeframes outlined in the WMA regulations and brochures, better aligning the refuge with the state (Figure 1). For Alternative B, Appendix B includes the draft Finding of Appropriateness, Appendix C includes the draft Compatibility Determination, Appendix D includes the draft CFR changes, and Appendix E lists the Federally listed and candidate species by refuge management unit. The draft amendment to the Hunting Plan (Section A) and the draft Compatibility Determination (Appendix C) were developed for implementation based on Alternative B and are incorporated herein by reference. The refuge-specific regulations that would be imposed under the Proposed Action and published in the Federal Register as part of the 2021-22 Refuge-Specific Hunting and Sport Fishing Regulations are included in Appendix D and are incorporated herein by reference.

The proposal is the public, incidental hunting on the refuge of non-native wildlife, including amphibians [e.g., cane toad (*Rhinella marina*)], reptiles [e.g., tegu (*Salvator merianae*), monitor lizards (*Varanus* spp.), and pythons (*Python* spp.)], mammals [e.g., axis deer (*Axis axis*)], and birds [e.g., rock pigeon (*Columba livia*) and Eurasian collared dove (*Streptopelia decaocto*)] in accordance with applicable state regulations. A list of non-native species, and their biology, biological impacts, and distributions can be found on the FWC's non-native website: <https://myfwc.com/wildlifehabitats/nonnatives/>. Where applicable, regulations concerning the incidental take of non-native wildlife are available on pertinent Wildlife Management Area (WMA) brochures (FWC 2020b). Hunting of established game species was previously evaluated in the 2020 Hunt and Fish Plan and EA (USFWS 2020a, 2020b). Hunting on the refuge occurs through a Memorandum of Understanding (MOU) between the Service and the state of Florida whereby the state manages hunts on the refuge through its Wildlife Management Area (WMA) program.

Figure 1. Hunt Units of Everglades Headwaters National Wildlife Refuge



Hunting of non-native wildlife would be incidental to all approved hunts following the conditions of the particular hunt, including weaponry restrictions and time of day restrictions. Hunting was identified as one of six priority public uses of the Refuge System by the NWRSA of 1966, as amended by the NWRSA of 1997 (Public Law 105-57), when found to be compatible.

Measures to Avoid Conflicts: No additional measures to avoid conflicts with other users would be required under this alternative as the proposed use would be incidental to previously approved game hunting.

Note: The Service will continue other management efforts to control and eliminate non-native wildlife from the refuge. This use would support those management efforts. Refuge management control of non-native wildlife will continue as needed to meet wildlife and habitat goals and objectives, which will take priority over any public use activity, including hunting. In particular, it is neither the goal nor the intent of the Service to manage non-native wildlife as huntable game species since the intent is to control and eliminate these species. The proposed use is simply an additional tool to help the Service meet this intent. Further, areas of the refuge may be closed for refuge management activities relating to non-native wildlife control or elimination. The refuge will post notice prior to any closures. Hunt permits are non-refundable due to closures.

Affected Environment and Environmental Consequences

This section is organized by affected resource categories, and for each affected resource discusses both (1) the existing environmental and socioeconomic baseline in the action area for each resource and (2) the effects and impacts of the proposed action and any alternatives on each resource. The effects and impacts of the Proposed Action considered here are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable and have a reasonably close causal relationship to the Proposed Action or alternatives. This EA includes the written analyses of the environmental consequences on a resource only when the impacts on that resource could be more than negligible and therefore considered an “affected resource.” Any resources that will not be more than negligibly impacted by the action have been dismissed from further analyses.

The existing environmental setting in the action area was outlined in the EA for the 2020 VSP, including the Hunt and Sport Fish Plan (USFWS 2020a, 2020b). Within the 2020 EA, the Environmental Consequences section evaluated the consequences of the hunt program and the Affected Environment section included descriptions of noise, biological resources (including habitats, threatened and endangered species, at-risk species, migratory birds, non-imperiled wildlife, game species, non-native species, socioeconomics, and cultural resources (USFWS 2020a), which are incorporated herein by reference; environmental conditions have not changed substantially since that analysis. This EA focuses on the addition of the non-native species to the existing hunt program.

The refuge’s acquisition boundary consists of approximately 2,400 square miles in Highlands, Okeechobee, Osceola, and Polk counties (Figure 2). The refuge is authorized to acquire fee title lands up to 50,000 acres per the 2012 Land Protection Plan (USFWS 2012). The refuge currently consists of approximately six square miles in Okeechobee and Polk counties (figures 3-5). Primary habitats on the refuge include wet and dry prairies, hardwood hammocks, pine flatwoods, and wetlands. The proposed action covers all fee-title lands located on the Arbuckle, Hatchineha, and Okeechobee units.

Environmental Assessment for Incidental Hunting of Non-native Wildlife on Everglades Headwaters NWR



Figure 3. Arbuckle Unit Entrance and Trails

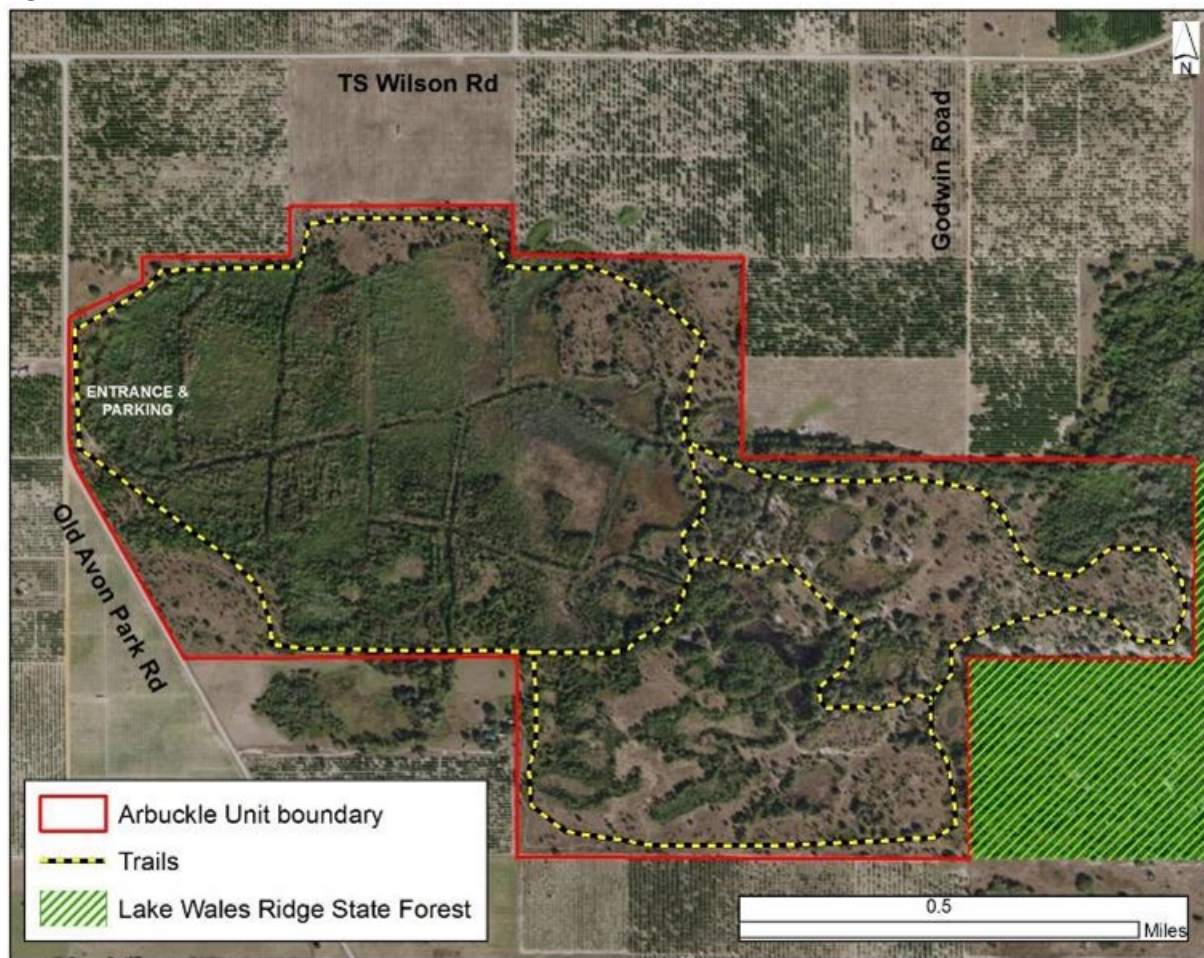


Figure 4. Hatchineha Unit Entrance and Trails

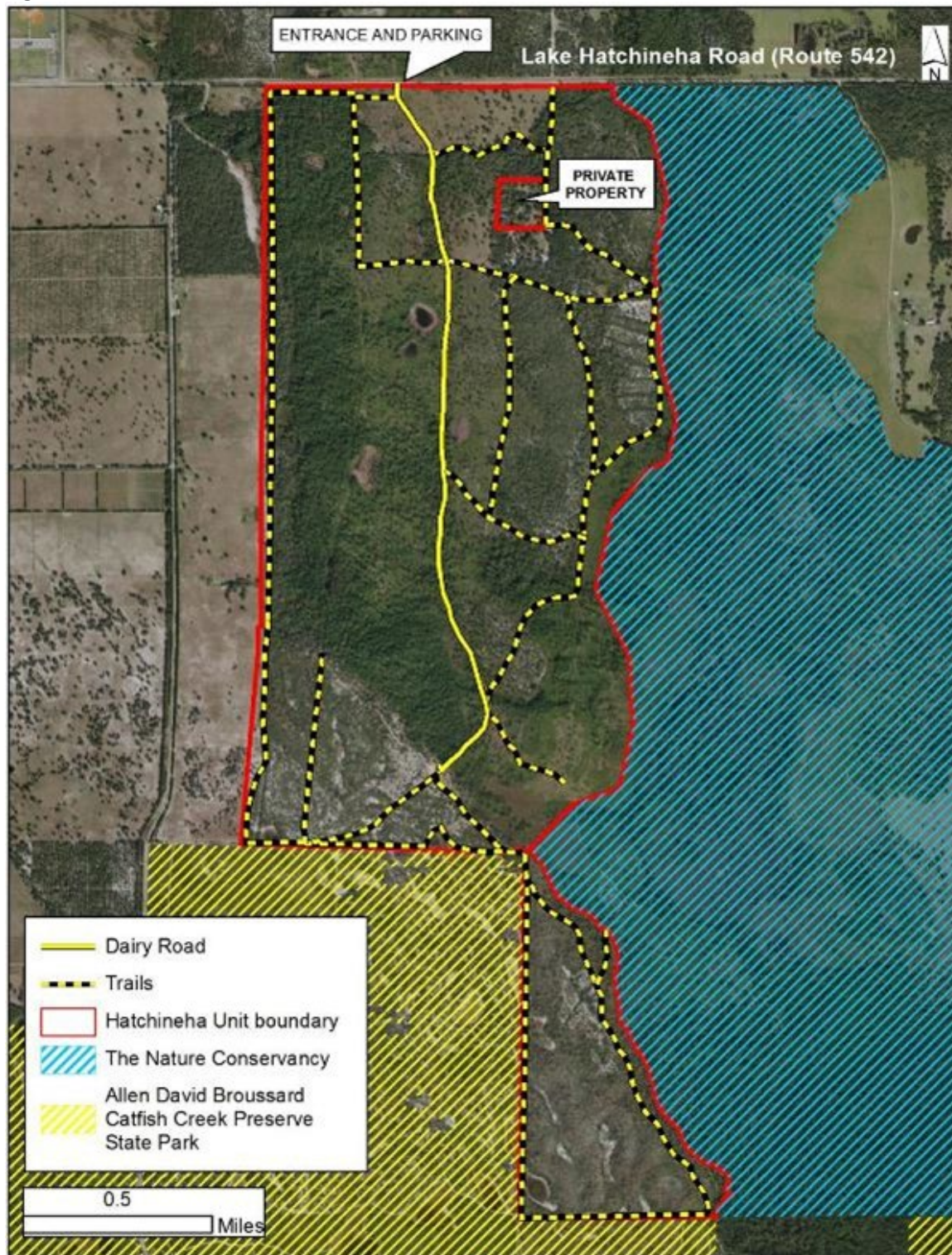


Figure 5. Kissimmee Bend Unit Entrance and Trails



Nineteen Federally listed species known or expected to occur on the refuge are listed (note: E=endangered, T=threatened, C=candidate species).

- Audubon's crested caracara (*Polyborus plancus audubonii*) T
- Bluetail mole skink (*Eumeces egregius lividus*) T
- Britton's beargrass (*Nolina brittoniana*) E
- Eastern Indigo Snake (*Drymarchon carais couperi*) T
- Florida bonamia (*Bonamia grandiflora*) T
- Florida bonneted bat (*Eumops floridanus*) E
- Florida grasshopper sparrow (*Ammodramus savannarum floridanus*) E
- Florida Scrub Jay (*Aphelocoma coerulescens*) T
- Florida Ziziphus (*Ziziphus celata*) E
- Gopher Tortoise (*Gopherus polyphemus*) C
- Lewton's polygala (*Polygala lewtonii*) E
- Papery Whitlow-wort (*Paronychia chartacea*) T
- Pigeon wings (*Clitoria fragrans*) T
- Pygmy Fringe-tree (*Chionanthus pygmaeus*) E
- Sandlace (*Polygonella myriophylla*) E
- Sand skink (*Neoseps reynoldsi*) T
- Scrub Blazing Star (*Liatris ohlingerae*) E
- Scrub plum (*Prunus geniculate*) E
- Wood Stork (*Mycteria americana*) T

Table 1 identifies those resources that either do not exist within the project area or would either not be affected or only negligibly affected by the proposed action. As such, these resources are not further analyzed in this EA. For those resources with the potential for greater than negligible impacts, tables 2 through 4 provide additional descriptions and analysis.

TABLE 1. POTENTIAL FOR ADVERSE IMPACTS FROM PROPOSED ACTION AND ALTERNATIVES

Resources	Not Applicable: Resource does not exist in project area	No/Negligible Impacts: Impact exists, but no or negligible impacts	Potential for Greater than Negligible Impacts: Impacts analyzed in this EA
Species to Be Hunted/Fished	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non-Target Wildlife and Aquatic Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Threatened and Endangered Species and Other Special Status Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Habitat and Vegetation (including vegetation of special management concern)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Geology and Soils	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lead Ammunition	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Air Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Climate Change	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Floodplains	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wilderness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visitor Use and Experience	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural Resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Land Use	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Refuge Management and Operations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Socioeconomics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Tables 2 through 4 provide:

1. A brief description of the relevant general features of the affected environment;
2. A description of relevant environmental trends and planned actions;
3. A brief description of the affected resources in the proposed action area; and
4. Impacts of the proposed action and any alternatives on those resources.

TABLE 2. POTENTIALLY AFFECTED NATURAL RESOURCES AND ANTICIPATED IMPACTS OF THE PROPOSED ACTION AND ANY ALTERNATIVES

Non-native Reptiles, Mammals, and Birds
<p><i>Affected Environment Description</i></p> <p>The Kissimmee River Basin has at least 62 species of non-native animals (South Florida Water Management District 2020). Overall, these non-native species have a negative effect on native biodiversity. They either compete with or prey on native wildlife. Some of them degrade native habitats. Currently, non-native reptiles can be taken incidentally under regulations for WMAs located in FWC’s South Region as of May 28, 2020. It is anticipated that the state would allow the incidental take of non-native wildlife on WMAs as the need arises. A complete and current list of non-native wildlife species that could be incidentally taken can be found on the FWC nonnative species website at: https://myfwc.com/wildlifehabitats/nonnatives/. Below is a list of select non-native wildlife that could be encountered on some state WMAs.</p> <p><u>Amphibians</u></p> <ul style="list-style-type: none"> • Cane toad (<i>Rhinella marina</i>)* • Cuban tree frog (<i>Osteopilus septentrionalis</i>)* <p><u>Reptiles</u></p> <p><i>Monitor Family (Varanidae)</i></p> <ul style="list-style-type: none"> • Nile monitor (<i>Varanus niloticus</i>)* <p><i>Tegu subfamily (Tupinambinae)</i></p> <ul style="list-style-type: none"> • Argentine black and white tegu (<i>Salvator merianae</i>)* <p><i>Boa/Anaconda Family (Boidae)</i></p> <ul style="list-style-type: none"> • Boa constrictor/Common boa (<i>Boa constrictor</i>) <p><i>Python Family (Pythonidae)</i></p> <ul style="list-style-type: none"> • Burmese python (<i>Python bivittatus</i>)* <p><i>Tortoise Family (Testudinidae)</i></p> <ul style="list-style-type: none"> • African spurred tortoise (<i>Centrochelys sulcata</i>)* <p><i>Iguana Family (Iguanidae)</i></p> <ul style="list-style-type: none"> • Black spinytail iguana (<i>Ctenosaura similis</i>)* • Green iguana (<i>Iguana iguana</i>)* <p><i>Anole Family (Dactyloidae)</i></p> <ul style="list-style-type: none"> • Cuban knight anole* <p><i>Chameleon Family (Chamaeleonidae)</i></p> <ul style="list-style-type: none"> • Panther chameleon (<i>Furcifer pardalis</i>)* <p><i>Other Reptiles</i></p> <ul style="list-style-type: none"> • Bearded dragons (<i>Pogonias spp.</i>)* • Brown basilisk (<i>Basiliscus vittatus</i>)* • Red-eared slider (<i>Trachemys scripta elegans</i>)* <p><u>Birds</u></p> <ul style="list-style-type: none"> • Rock dove (<i>Columba livia</i>)* • Eurasian collared-dove (<i>Streptopelia decaocto</i>)* • Monk parakeet (<i>Myiopsitta monachus</i>)*

- Egyptian goose (*Alopochen aegyptiaca*)*
- Muscovy duck (*Cairina moschata*)*

Mammals

- Axis deer (*Axis axis*)
- Sambar deer (*Cervus unicolor*)
- Barasingha (*Rucervus duvaucelii*)

*Documented within the refuge's acquisition boundary

While these species are not currently hunted on the refuge, the refuge currently has an estimated 200 annual hunters.

Environmental Trends and Planned Actions Description

Within Florida and under applicable laws, policies, and regulations, hunting opportunities are provided on six million acres of WMAs, as well as on private property, state managed small game public hunting areas, specific waters and counties for American alligator (*Alligator mississippiensis*) hunting, nine NWRs, one National Preserve, three National Forests, and three US military bases. According to FWC rules, non-native reptiles may be humanely killed without a permit or hunting license at any time throughout the year, except by use of traps or firearms (unless provided for by specific area regulations) on the 25 Commission-managed areas covered in Executive Order (EO) 20-17. A Conditional/Prohibited/Non-native Species Permit (CSP) is required to collect and remove all other non-native species (including Conditional or Prohibited species) from these areas.

All the above listed species are established and breeding in Florida; more information about their distribution, biology, and potential effects can be found at FWC's website for Florida's non-native fish and wildlife: <https://myfwc.com/wildlifehabitats/nonnatives/>.

Some of these species are classified as "Prohibited" or "Conditional", which require permits for live transport. For more information regarding the removal of nonnative species from the wild, refer to <https://myfwc.com/license/wildlife/nonnative-species/>.

While the non-native wildlife species noted above have already been documented within the acquisition boundary of the refuge, given the invasion and spread of non-native species in Florida, additional non-native species would be expected to be found on the refuge over time. The Service continues to work with the state of Florida and other partners to address the spread, invasion, and impacts of non-native wildlife.

Anticipated Impacts

Alternative A: Continue Current Management (No Action Alternative)

Under Alternative A, there would be no authorized take of non-native animals through public hunting. Hunter numbers would be expected to remain the same. Hunters would only pursue game as outlined in the 2020 Hunt and Sport Fish Plan (USFWS 2020b). There would be no incidental hunting of non-native species. Refuge management and partner efforts would continue to help limit their populations on the refuge. Refuge management control of non-native wildlife would occur for certain species, including new invasions and species causing adverse impacts. While adverse impacts to native species from non-native species would be expected to continue under Alternative A, including habitat disturbance, competition for resources, and direct mortality, these impacts would not be anticipated to

be significant as refuge management and partner efforts would continue to control or eliminate non-native species that have the greatest potential to have adverse effects. Given the nature and spread of non-native wildlife, efforts to control and eliminate these species would not be anticipated to remove all or even significant numbers of individuals from a refuge unit over the long term. Thus, we would anticipate adverse impacts from non-native wildlife to continue over the long term. However, we would not anticipate these impacts to be significant due to Service and partner management efforts to minimize impacts from these species.

Alternative B: Add Incidental Hunting of Non-native Wildlife (Proposed Action)

Under Alternative B, within the refuge's hunt units hunters would be able to incidentally take any of the various non-native reptiles, mammals, and birds listed by the state of Florida in accordance with applicable WMA regulations. The state will continue to update this list of huntable non-native wildlife; barring special circumstances, the Service would likely categorically exclude from further NEPA analysis the addition of these species to the refuge's hunt program. While the killing of individual animals would occur under Alternative B, methods of take and the proposed hunt were developed with humaneness and animal welfare concerns to assure that animals are humanely dispatched. Hunters are tasked with using good judgement aligned with established hunter ethics and responsibilities, including humaneness and animal welfare concerns. Annual take of non-native wildlife species is currently unknown and would depend on factors including their abundance, detectability, and hunter interest. Under Alternative B, we would expect the annual take of non-native wildlife to range between 0 and 100 with no corresponding increase in the number of hunters. There would be some control of non-native wildlife populations. While mortality of some individuals of non-native wildlife would be expected, numbers taken would be anticipated to be low compared to the total population of the particular species. Further, the take of these non-native wildlife through public hunting would be anticipated to have minor beneficial impacts for native species through decreased habitat disturbance, decreased competition for resources, and decreased direct mortality. Given the nature and spread of non-native wildlife, the incidental hunting of non-native wildlife, alone or combined with other management efforts to control and eliminate these species, would not be anticipated to remove all or even significant numbers of individuals from a refuge unit over the long term. Thus, we would anticipate adverse impacts from non-native wildlife to continue over the long term. However, we would not anticipate these impacts to be significant due to Service and partner management efforts to minimize impacts from these species.

Non-Target Wildlife and Aquatic Species

Affected Environment Description

Although the refuge has not been systematically surveyed, a variety of wildlife species utilizes the diverse habitats within the Kissimmee River Basin. Over 400 species of amphibians, reptiles, mammals, and birds have been documented in the area; the 2012 LPP and associated EA provide additional details on the wildlife diversity and native habitats that can be expected on the refuge (USFWS 2012).

Environmental Trends and Planned Actions Description

Although there is limited trend data on the populations of non-target wildlife and aquatic species, native habitats serve as an acceptable proxy. All of Florida's native habitats have declined or been degraded in recent decades due to land use changes, primarily urban development and conversion to agriculture. Aquatic habitats have been altered in many areas, with concurrent water quality and/or quantity declines. The refuge is comprised of various wetlands, high pine/scrub, pine flatwoods,

hardwood forests, and prairie habitats that have regionally been adversely affected by human population growth, resulting in loss, degradation, and fragmentation (FWC 2019). It is anticipated that if current land-use trends persist, developed land will almost double in acreage from approximately 6.3 million in 2010, to about 11.6 million in 2070 (Carr and Zwick 2016). Locally, the combined population of Kissimmee and Polk counties increased almost 50 percent between 2000 and 2019 (USFWS 2019). Increased urbanization can provide more opportunities for the spread of non-native species (Wilson et al. 2009). Generally, populations of non-target wildlife and aquatic species will decline with increasing development as urbanization leads to a decline in biodiversity. However, there is evidence of increasing adaptation to cities, although species richness tends to be lower than in natural communities (Grimm et al. 2008).

Climate change is causing a shift in habitats due to changes in temperature, precipitation patterns, and extreme weather events (Malhi et al. 2020). As habitats change, the types of wildlife and aquatic species that these areas can support is expected to be altered. Climate change can also increase the invasion potential of non-native species by altering pathways, abiotic conditions, and biotic interactions (Robinson et al. 2020). Warmer winters in Florida are likely to allow some non-native wildlife, especially cold-blooded reptiles and amphibians, to locally persist or expand their ranges northwards and further inland.

Various government agencies and non-profit organizations are working to protect lands and watersheds from development in Florida. Among various land protection initiatives, Florida Forever is one of the largest. Since 2001, the state has purchased more than 800,000 acres of land under the program (Florida Department of Environmental Protection 2020). Local, state, and Federal agencies, as well as a several non-profit organizations, manage a range of conservations lands. In addition to protecting, maintaining, and restoring habitats, the control or eradication of non-native species is an important management objective on these lands. Furthermore, a number of local and state laws prohibit the release of non-native wildlife. In addition, various public awareness campaigns are aimed at educating the public about the ecological threats of releasing non-native wildlife into the wild.

Public lands make up about 25 percent of the State. The remaining 75 percent of land is in private ownership. Incentive programs on private lands are administered by government agencies and encourage private landowners to implement land management actions that benefit wildlife. These programs provide technical and financial assistance to landowners. Examples of these programs include Partners for Fish and Wildlife (USFWS), Landowner Assistance Program (FWC), and Cooperative Forestry Assistance Program (Florida Forest Service), as well as Farm Bill programs (Natural Resources Conservation Service, U.S. Department of Agriculture and FWC), such as the Environmental Quality Incentives Program (EQIP), Working Lands for Wildlife Program, and Agricultural Conservation Easement Program (ACEP).

While concerns do exist regarding the bioavailability of spent lead ammunition, lead associated with the proposed increased hunting would not be anticipated to have significant impacts for non-target wildlife and aquatic species.

Anticipated Impacts

Alternative A: Continue Current Management (No Action Alternative)

Under Alternative A, refuge management and partner efforts to control or eliminate non-native wildlife would continue. However, native wildlife species would not derive the same benefits as compared to under Alternative B. There would be no incidental take to aid in the control or elimination of non-

native wildlife. While adverse impacts to native species from non-native animals would be expected to continue under Alternative A, including habitat disturbance, competition for resources, and direct mortality, these impacts would not be anticipated to be significant. There would be no minor reduction of predatory non-native animals. The non-native predatory wildlife would continue to prey on native animals. For example, pythons, where present, would continue to prey on local wildlife. Further, under Alternative A, there would not be a minor reduction of non-native species that compete for habitat and/or food with native species. For example, non-native deer would continue to reduce the forage needed by native herbivores.

Alternative B: Add Incidental Hunting of Non-native Wildlife (Proposed Action)

Under Alternative B, there would be neutral to minor beneficial impacts as compared to Alternative A with respect to native species. The incidental take of non-native wildlife through public hunting would be anticipated to have neutral to minor beneficial impacts for native species through decreased habitat disturbance, decreased competition for resources, and decreased direct mortality. However, given the invasion and spread of non-native wildlife, adverse impacts to native species would continue under this alternative. However, these impacts would not be anticipated to be significant due to the combination of incidental public hunting, and refuge management, and partner control efforts. The reduction in non-native predatory animals would have neutral to minor beneficial impacts to native prey species. For example, removal of some monitor lizards would benefit ground-nesting birds by reducing the chance of nest predation. Removal of non-native wildlife that compete with native species would have neutral to minor beneficial impacts for a range of native wildlife. For example, the removal of Egyptian geese would lower the amount of competition for foraging areas and nesting sites for certain native waterfowl. Overall, Alternative B would be expected to have neutral to minor beneficial impacts to native species.

Threatened and Endangered Species and Other Special Status Species

Affected Environment Description

As listed in Appendix E, 19 Federally listed or candidate species as designated under the Endangered Species Act (ESA) of 1973 (as amended, 16 USC §§1531-1544; 36 CFR Part 13; 50 CFR Parts 10, 17, 23, 81, 217, 222, 225, 402, and 450) are known or are likely to occur on the refuge. In addition, over 25 state-listed species (FWC 2018) are also known to occur on the refuge (USFWS 2012). Many of these are imperiled plants. A detailed list of Federally listed species and the refuge units where they are likely to be found are provided in Appendix E. Migratory birds are protected under the Migratory Bird Treaty Act (as amended, 16 USC §§703-712; 50 CFR Parts 10, 12, 20, and 21). Over 400 species of birds are listed under the Act, many of which are found in Florida. The take of migratory game birds is regulated via the USFWS Migratory Bird Regulations Committee, with framework regulations set by flyway. The state's migratory game bird hunting regulations are based on the parameters set in the framework.

Environmental Trends and Planned Actions Description

Although population trend data was not readily available for all Federally listed species in Florida, several have benefited from Endangered Species Act implementation. Species that have seen notable population increases over the past few decades include the Florida manatee (*Trichechus manatus latirostris*), various sea turtle species, and American crocodile (*Crocodylus acutus*) (Center for Biological Diversity 2020). Species still at high risk of extinction include the reticulated flatwoods salamander (*Ambystoma bishopi*), Ochlockonee moccasinshell (*Medionidus simpsonianus*), and lower Keys marsh

rabbit (*Sylvilagus palustris hefneri*) (USFWS 2015). Florida has a number of species that are state-listed, but are not protected under ESA. Forty imperiled species have been recently listed as state-threatened following biological status reviews (FWC 2018). Trends for certain individual species of migratory birds in Florida were not readily available for this EA. However, several groups, including forest birds, shorebirds, and grassland birds, have seen notable declines range-wide since 1970. However, waterfowl and raptors increased during that time period (North American Bird Conservation Initiative 2019).

Lead is a soft metal, toxic to most wildlife and humans. It is commonly used in center-fired rifles, and is generally legal ammunition for hunting in Florida, except where specifically prohibited. Most lead-core rifle bullets fragment into hundreds of tiny pieces when they strike animal tissue. Lead-tainted meat may become part of scavengers' food supplies when any of the following occur: a wounded animal escapes a hunting attempt, an animal shot as a pest is not retrieved from the field, or gutpiles remain on the landscape after a hunt. Some raptors have been shown to be adversely affected by lead poisoning resulting from scavenging game remains (Golden et al. 2016). While concerns do exist regarding the bioavailability of spent lead ammunition, lead associated with the proposed increased hunting would not be anticipated to have significant impacts for threatened, endangered, and other special status species.

Anticipated Impacts

Alternative A: Continue Current Management (No Action Alternative)

Under Alternative A, refuge management and partner efforts to control or eliminate non-native wildlife would continue. However, threatened and endangered species would not derive the same benefits as compared to under Alternative B. There would be no incidental take to aid in the control or elimination of non-native wildlife. While adverse impacts to threatened and endangered species and other special status species from non-native animals would be expected to continue under Alternative A, including habitat disturbance, competition for resources, and direct mortality, these impacts would not be anticipated to be significant. The non-native predatory wildlife would continue to potentially prey on threatened and endangered species. For example, pythons, where present, could kill wood storks roosting in trees or foraging in wetlands. Under Alternative A, non-native species could potentially compete for habitat and/or food with threatened and endangered species. Under Alternative A, since no additional hunting would occur, there would be no additional source of direct lead contamination and poisoning.

Alternative B: Add Incidental Hunting of Non-native Wildlife (Proposed Action)

Under Alternative B, there would be a neutral to minor beneficial impact as compared to Alternative A with respect to threatened and endangered and other special status species. The incidental take of non-native wildlife through public hunting would be anticipated to have neutral to minor beneficial impacts for threatened and endangered and other special status species through decreased habitat disturbance, decreased competition for resources, and decreased direct mortality. However, given the invasion and spread of non-native wildlife, adverse impacts to threatened and endangered and other special status species would continue under this alternative. However, these impacts would not be anticipated to be significant due to the combination of incidental public hunting, and refuge management, and partner control efforts. The reduction in non-native predatory animals could potentially have neutral to minor beneficial impacts to threatened and endangered and other special status species. Removal of non-native wildlife that compete with native species could have neutral to

minor beneficial impacts to threatened and endangered species. Under Alternative B, there is the potential that non-native species would be incidentally hunted, which could result in lead contamination and poisoning. However, the method of take would be broad, and could include a variety of tools (such as hand capture) other than guns using lead ammunition. This would limit the potential for lead ammunition being used to take non-native wildlife. Furthermore, since only incidental hunting of non-native wildlife would be allowed, it would be expected that the total number of these animals taken would be relatively low. Overall, it would be expected that this potential adverse effect would be minimal.

Habitat and Vegetation (including vegetation of special management concern)

Affected Environment Description

Refuge habitats include dry prairie, pine flatwoods, scrub/sandhill, temperate hammock, various wetlands, and unimproved pasture. Cutthroat grass communities, a rare and imperiled habitat, occurs on one of the refuge units. A more detailed description of the habitats and vegetative communities can be found in the 2020 EA for the VSP and the Hunt and Sport Fish Plan (USFWS 2020a, 2020b).

Environmental Trends and Planned Actions Description

All of Florida's native habitats have declined in recent decades, primarily because of development and conversion to agriculture. The refuge is comprised of various wetlands, high pine/scrub, pine flatwoods, hardwood forests, and prairie habitats that have regionally been adversely affected by human population growth, resulting in loss, degradation, and fragmentation (FWC 2019). It is anticipated that if current land-use trends persist, developed land will almost double in acreage from approximately 6.3 million in 2010, to about 11.6 million in 2070 (Carr and Zwick 2016). Locally, the combined population of Kissimmee and Polk counties increased almost 50 percent between 2000 and 2019 (USFWS 2019). Increased urbanization can provide more opportunities for the spread of non-native species (Wilson et al. 2009). Imperiled habitats (e.g., cutthroat seeps) are disproportionately at risk from habitat loss and degradation as they are already rare and frequently found in drier areas more favored for development. FWC's state Wildlife Action Plan identifies several imperiled habitats in need of additional conservation measures (FWC 2019).

Various government agencies and non-profit organizations are working to protect lands from development in Florida. Among various land protection initiatives, Florida Forever is one of the largest. Since 2001, the state has purchased more than 800,000 acres of land under the program (Florida Department of Environmental Protection 2020). Local, state, and Federal agencies, as well as a several non-profit organizations, manage a range of conservations lands in this area.

Anticipated Impacts

Alternative A: Continue Current Management (No Action Alternative)

Under Alternative A, refuge management and partner efforts to control or eliminate non-native wildlife would continue. However, habitats and vegetation would not derive the same benefits as compared to under Alternative B. There would be no incidental take to aid in the control or elimination of non-native wildlife. While adverse impacts to habitats and vegetation from non-native animals would be expected to continue under Alternative A, including habitat disturbance and vegetation destruction, these impacts would not be anticipated to be significant. Non-native herbivores would continue to graze on native plants under Alternative A. It is expected that this would be a minor, adverse effect.

Plant communities would potentially be altered, albeit to a minor degree, under Alternative A through changes in plant species composition caused by the grazing of non-native herbivores.

Alternative B: Add Incidental Hunting of Non-native Wildlife (Proposed Action)

Under Alternative B, there would be neutral to minor beneficial impacts compared to Alternative A with respect to habitats and vegetation. The incidental take of non-native wildlife through public hunting would be anticipated to have neutral to minor beneficial impacts for habitats and vegetation through decreased habitat disturbance and reduced vegetation destruction. However, given the invasion and spread of non-native wildlife, adverse impacts to habitats and vegetation would continue under this alternative. However, these impacts would not be anticipated to be significant due to the combination of incidental public hunting, and refuge management, and partner control efforts. Native vegetation would benefit from a reduction in non-native wildlife under Alternative B. There would be a reduction in non-native herbivores that consume native plants. It is expected that this would be a neutral to minor beneficial effect. Native habitats would receive neutral to minor beneficial impacts under Alternative B through the reduction in non-native herbivores. Plant communities would potentially be altered less than under Alternative A through a reduction in non-native herbivores that graze on native plant species.

TABLE 3. POTENTIALLY AFFECTED VISITOR USE AND EXPERIENCE AND ANTICIPATED IMPACTS OF THE PROPOSED ACTION AND ANY ALTERNATIVES

Visitor Use and Experiences
<p><i>Affected Environment Description</i></p> <p>The listed 14 uses have been approved for the refuge; for details on each recreational use, refer to the 2020 VSP (USFWS 2020b).</p> <ul style="list-style-type: none"> • Bicycling • Camping • Commercial recording • Commercial tours • Environmental education and interpretation, wildlife observation and photography • Fishing • Hiking (including backpacking, jogging and walking) • Horseback riding • Hunting • Off-road vehicle use in support of hunting and fishing • Pets on leash <p>Since the Proposed Action would involve only incidental hunting of non-native wildlife as a part of already approved and occurring hunting activities, only hunting would expected to be potentially affected by the Proposed Action.</p>
<p><i>Environmental Trends and Planned Actions Description</i></p> <p>Other than for invasive species where control and elimination are the target, hunting programs are designed to be sustainable. In a regional or statewide context, the proposed hunting would provide</p>

only a small percentage of hunting opportunities in the larger area. Visitors that use the refuge would continue to partake in non-hunting wildlife-dependent recreational activities, such as wildlife observation, photography, and environmental education and interpretation. Outdoor recreation would be expected to continue to be an important component of the lives of Americans. Wildlife-dependent recreation would be expected to continue to be a socioeconomic driver locally, regionally, and/or at the state level. Increasing hunting opportunities on the refuge would not be expected to decrease hunting opportunities on other areas near the refuge. While trends show that the number of hunters participating in the sport is declining, providing additional opportunities would potentially increase the numbers of hunters that utilize public land for hunting recreation from current levels. Private land hunting would not be impacted by the use of public land for hunting. Because of the regulatory process for harvest management in place within the Service, the setting of hunting seasons largely outside of the breeding seasons of resident and migratory wildlife, and the ability of the refuge hunt program to adapt refuge-specific hunting regulations to changing local conditions, the Service would anticipate no significant beneficial or adverse impacts to visitor use and experience by the use of hunting on the refuge. The refuge's hunt program, including the proposed expanded hunt opportunities, is designed to provide a high quality and safe outdoor recreational opportunity. While visitor use and experience would be expected to continue to increase with population and visitation increases in this area of Florida, the Service would continue to evaluate uses and impacts of and to those uses, including visitor use and experience, to ensure that uses of the refuge remain compatible. As needed and in response to changing conditions, refuge uses would be modified to ensure that they remain compatible, including meeting quality and safety needs. The Service is unaware of any other adverse environmental trends or planned actions that would adversely impact visitor use and experience on the refuge, including the proposed expanded hunting opportunities.

Anticipated Impacts

Alternative A: Continue Current Management (No Action Alternative)

With neutral impacts anticipated for visitor use and experience, under Alternative A, hunting activities would continue to occur as outlined in the 2020 Hunt and Sport Fish Plan, including hunting for white-tailed deer, feral hog, wild turkey, small (upland) game, migratory game birds, and American alligator (USFWS 2020b). Hunters would continue to experience opportunities for high quality hunting on the refuge under Alternative A.

Alternative B: Add Incidental Hunting of Non-native Wildlife (Proposed Action)

Under the Alternative B, hunters would benefit from having the option to target non-native wildlife species during approved game hunts. Hunters would benefit from a broader list of potential wildlife species to hunt than under Alternative A. Under Alternative A, minor beneficial impacts would be anticipated for visitor use and experience. Since Alternative B would only add the hunting of non-native species incidental to hunting, the proposal would not be expected to change hunter numbers and would have no expected impact on other approved uses.

TABLE 4. ENVIRONMENTAL JUSTICE AND ANTICIPATED IMPACTS OF THE PROPOSED ACTION AND ANY ALTERNATIVES

Environmental Justice
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all Federal agencies to incorporate environmental justice into their

missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The order directs Federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high, adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The order is also intended to promote nondiscrimination in Federal programs substantially affecting human health and the environment, and to provide minority and low-income community's access to public information and participation in matters relating to human health or the environment.

Affected Environment Description

Minority or low-income populations are located within the three home counties of the refuge, Polk, Osceola, and Okeechobee. All three counties have a higher percentage of families below the poverty line (12.5%, 13.4%, and 17%, respectively) compared to the US (10.1%) and Florida (10.6%) averages (US Department of Commerce 2020). Compared to the 39% of the US population and 45.6% of the Florida population represented by minorities, Okeechobee (36%) and Polk (40%) counties are more similar to the US overall, while Osceola County has a minority population of 67% of the county (US Department of Commerce 2020). The 48 cities within 25 miles of the refuge's units vary widely ranging between 0% and 33.3% of families below the poverty line and with minority populations ranging between 5% and 87% (US Department of Commerce 2020).

Environmental Trends and Planned Actions Description

Other than the socioeconomic information outlined above, the Service is unaware of any other adverse environmental trends or planned actions that would adversely impact minority populations and low-income populations in this area.

Anticipated Impacts

Alternative A: Continue Current Management (No Action Alternative)

Alternative A would not place a disproportionately high, adverse environmental, economic, social, or health effect on minority or low-income persons. None of the identified socioeconomic and environmental effects would be localized nor be placed primarily or unequally on minority and low-income population persons who reside near the refuge.

Alternative B: Add Incidental Hunting of Non-native Wildlife (Proposed Action)

Alternative B would not place a disproportionately high, adverse environmental, economic, social, or health effect on minority or low-income persons. None of the identified socioeconomic and environmental effects would be localized nor be placed primarily or unequally on minority and low-income population persons who reside near the refuge.

Monitoring

The Service does not anticipate that monitoring of non-native wildlife populations would be required in order to support this additional hunting opportunity. The effects of the proposed action, however small,

would be predominantly beneficial. If unacceptable impacts from the use were to be experienced, the Service would modify or eliminate the use.

Summary of Analysis

The purpose of this EA is to briefly provide sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Alternative A – Continue Current Management (No Action Alternative)

While Alternative A would not add the incidental hunting of non-native wildlife to the hunting program, refuge management and partner efforts to control and eliminate these species would occur. Given the nature and spread of non-native wildlife, efforts to control and eliminate these species would not be anticipated to remove all or even significant numbers of individuals from a refuge unit over the long term. Thus, we would anticipate adverse impacts from non-native wildlife to continue over the long term. However, we would not anticipate these impacts to be significant due to Service and partner management efforts to minimize impacts from these species.

Alternative B – Add Incidental Hunting of Non-native Wildlife Species (Proposed Action)

As described above, Alternative B would have some beneficial effects, albeit minimal, compared to Alternative A. There would be some removal of harmful exotic wildlife species through incidental hunting, as well as through refuge management and partner efforts. This alternative would provide some additional support to the refuge's need to manage wildlife and habitats. It would help to strive to maintain the biological integrity, diversity, and environmental health of the refuge. Given the nature and spread of non-native wildlife, the incidental hunting of non-native wildlife, alone or combined with other management efforts to control and eliminate these species, would not be anticipated to remove all or even significant numbers of individuals from a refuge unit over the long term. Thus, we would anticipate adverse impacts from non-native wildlife to continue over the long term. However, we would not anticipate these impacts to be significant due to Service and partner management efforts to minimize impacts from these species.

List of Preparers

Jeremy Edwardson, Deputy Project Leader, Everglades Headwaters NWR Complex, Interior Regions 2 and 4 (IR2&4), USFWS

Cheri M. Ehrhardt, AICP, Natural Resource Planner, IR2&4, USFWS

William Miller, Project Leader, Everglades Headwaters NWR Complex, IR2&4, USFWS

Oliver van den Ende, Refuge Manager, Everglades Headwaters NWR, IR2&4, USFWS

State Coordination

National wildlife refuges conduct hunting programs within the framework of state and Federal regulations. During the 2020-21 hunting regulation cycle, the Service received comments from the state of Florida on the refuge's 2020 draft Visitor Services Plan, draft Hunt and Sport Fish Plan, and EA (USFWS 2020a). During the public comment period on that EA, the state requested that the Service add hunting of non-native wildlife to the refuge's hunt program. The current Proposed Action is in response to that

request. The Service coordinated with FWC staff to develop the current proposal. The Service sent scoping letters regarding this EA, the associated draft compatibility determination, and the draft Hunt Plan amendment to FWC on October 1, 2020. The Service also provided the State notice of the spring 2021 public review and comment period on the EA, draft Hunt and Sport Fish Plan Amendment, draft Non-native Wildlife Hunting Compatibility Determination, and associated changes to the Code of Federal Regulations.

Disease management activities, including chronic wasting disease, will continue to be coordinated through the states. The Association of Fish and Wildlife Agencies Technical Report on Best Management Practices for the Prevention, Surveillance, and Management of Chronic Wasting Disease (Gillin and Mawdsley 2018) provides guidance and will help the Service and states to work jointly to implement a response plan for any other wildlife disease that surfaces in this area.

Tribal Consultation

To develop an early understanding of any associated concerns, the Service sent scoping letters on October 1, 2020 for all the potential 2021-22 hunt and fish packages for the South Atlantic-Gulf and southern portion of the Mississippi Basin unified regions, including the proposed hunting at Everglades Headwaters NWR, to: Miccosukee Tribe of Indians of Florida, Muscogee Creek Nation, Poarch Band of Creek Indians, Seminole Nation of Oklahoma, and Seminole Indian Tribe of Florida. The Service also provided these Native American Tribes with notice of the spring 2021 public review and comment period on the EA, draft Hunt and Sport Fish Plan Amendment, draft Non-native Wildlife Hunting Compatibility Determination, and associated changes to the Code of Federal Regulations.

Public Outreach

The EA, draft Hunt and Sport Fish Plan Amendment, draft Non-native Wildlife Hunting Compatibility Determination, and associated changes to the Code of Federal Regulations were made available for public review and comment for 30 days in early 2021. Notice was provided locally through the refuge website (https://www.fws.gov/refuge/everglades_headwaters/) and several area newspapers. Nationally, the Service provided notice of all proposed hunt and fish packages through the Federal Register.

Determination

This section will be filled out upon completion of any public comment period and at the time of finalization of the Environmental Assessment.

- ☐ The Service's action will not result in a significant impact on the quality of the human environment. See the attached "**Finding of No Significant Impact.**"
- ☐ The Service's action **may significantly affect** the quality of the human environment and the Service will prepare an Environmental Impact Statement.

Signatures

Submitted By:

Project Leader

Signature _____

Date: _____

Concurrence:

Regional Historic Preservation Officer Signature _____

Date: _____

Concurrence:

Refuge Supervisor Signature _____

Date: _____

Approved:

Regional Chief, National Wildlife Refuge System Signature _____

Date: _____

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Appendix A. 2020 Hunt and Sport Fish Plan

The 2020 Hunt and Sport Fish Plan (USFWS 2020b) is publicly available at:
https://www.fws.gov/refuge/everglades_headwaters/ and
<https://ecos.fws.gov/ServCat/DownloadFile/187852>.

Appendix B. Draft Finding of Appropriateness

FINDING OF APPROPRIATENESS OF A REFUGE USE

Use of this form is required for documenting all appropriate use findings (603 FW 1)

Refuge Name: Everglades Headwaters National Wildlife Refuge

Use: Hunting (Incidental, Non-native Wildlife)

This is a: ☒ New Use

☐ Existing Use

A. Does this use qualify for an appropriateness review exemption?

(Please Check One)

Some refuge uses are exempted from an appropriateness review [603 FW 1.2; 603 FW 1.2(A)]. Appropriate use finding exemptions are documented through the use of this form.

☐ This use is "protected," "conditioned," or otherwise provided for under law or regulation.
Examples include the use of snow machines, airplanes, or motorboats on Alaska refuges under certain conditions per the ANILCA. Provide a written justification as to how this use qualifies for this particular exemption.

☐ The Service does not have jurisdiction over the use
This could be as a result of treaty rights, court orders, consent decrees, pre-existing rights (such as subsurface Non-Federal oil and gas or mineral rights, grandfathered easements, etc.). Provide a written justification as to how this use qualifies for this particular exemption.

☐ This is a Right-of-Way Permit request
Right-of-way requests are subject to 340 FW 3 and compatibility determinations (603 FW 2). Attach a brief explanation as to how this use qualifies for this particular exemption.

☒ This use DOES NOT qualify for an appropriateness review exemption.
Proceed to evaluate the use under Part B.

If the use meets one of the three qualifying exemptions above, then it is exempt from an appropriate use determination. Skip Parts B, C, D and E and complete Parts F and G, sign and date, and submit a copy to the Refuge Supervisor.

B. Is the use administratively determined as appropriate in law or policy?

(Please Check One)

The following refuge uses are appropriate because they have been administratively determined as appropriate uses by statute or policy [603 FW 1.11(A)(1); 603 FW 1.6(A)(3)].

☒ This use is a wildlife-dependent recreational use.
Hunting, Fishing, Wildlife Observation, Wildlife Photography, Environmental Education, or Interpretation.

☐ This use involves the take of fish and wildlife under state/territorial regulations.
Including other forms of state-regulated take beyond hunting and fishing.

☐ This use HAS NOT been administratively determined as appropriate by statute or policy.
Proceed to evaluate the use under Part C.

If the use meets one of the two qualifying definitions above, then it is appropriate. Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

C. Is the use appropriate because it contributes to the refuge's purpose(s), goals, or objectives or Refuge System mission?
(Please check one.)

Refuge managers, in their sound professional judgement, may determine a refuge use to be appropriate if it contributes to fulfilling the refuge purpose(s), goals, or objectives described in the refuge's comprehensive conservation plan, or the Refuge System mission [603 FW 1.11 (A)(2)]. Urban wildlife refuges have the additional goal of fostering environmental awareness through outreach programs and activities that develop an informed and involved populace that supports fish and wildlife conservation [110 FW 1.5].

☐ This use contributes to the refuge purpose(s), goals, or objectives, or Refuge System mission.
Provide a written justification of how the use contributes to the qualifying purpose(s), goals, or objectives or Refuge System mission. Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

☐ This use DOES NOT contribute to refuge purpose(s), goals, objectives, or Refuge System mission.
Proceed to evaluate the use under Part D.

D. Is this use appropriate?

Decision Criteria:	YES	NO
(1) Does the use comply with applicable laws and regulations (Federal, State/Territorial, tribal, and local)?	<input type="checkbox"/>	<input type="checkbox"/>
(2) Is the use consistent with applicable Executive orders and Department and Service policies?	<input type="checkbox"/>	<input type="checkbox"/>
(3) Is the use consistent with public safety?	<input type="checkbox"/>	<input type="checkbox"/>
(4) Is the use consistent with the goals and objectives of approved management plans or other management document?	<input type="checkbox"/>	<input type="checkbox"/>
(5) If this is the first time the use has been proposed or if it was previously found appropriate, check Yes. If the use was previously analyzed but denied, check No.	<input type="checkbox"/>	<input type="checkbox"/>
(6) Is the use manageable within available budget and staff?	<input type="checkbox"/>	<input type="checkbox"/>
(7) Will the use be manageable in the future with existing resources? [603 FW 1.11 (A)(3)(h)].	<input type="checkbox"/>	<input type="checkbox"/>
(8) Does the use contribute to the public's understanding and appreciation of the refuge's natural and cultural resources?	<input type="checkbox"/>	<input type="checkbox"/>
(9) Can the use be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality [603 FW 1.6 (D)], compatible, wildlife-dependent recreation into the future?	<input type="checkbox"/>	<input type="checkbox"/>
(10) Is the use on an urban wildlife refuge [110 FW 1.15] and/or will it help new audiences become familiar and comfortable with fish, wildlife and their habitats?	<input type="checkbox"/>	<input type="checkbox"/>

If the answer is "NO" to (1), (2), or (3), mark the use as "Not Appropriate" under Part G. If the answer is "NO" to any of (4) through (10), the use will generally be "Not Appropriate." Refuge managers may, however, check one or more of boxes (4) through (10) and still find the use "Appropriate" by providing a written justification of the finding and how the factor(s) are mitigated or of minimal effect.

Complete Parts E, F, and G, sign and date, and submit a copy to the Refuge Supervisor.

E. Consultation with State/Territorial Fish and Wildlife Agency

(Please check one.)

Refuge managers must consult with the applicable State/Territorial fish and wildlife agency when a request for a use could affect fish, wildlife, or other resources that are of concern to a State fish and wildlife agency [603 FW 1.7E(3) and 1.12].

☒ Consultation WAS required.

Consultation took place on: _____
(Month/Date/Year)

Proceed to Part F.

☐ Consultation WAS NOT required.
Proceed to Part F.

F. Is the use significantly complex or potentially controversial?

(Please check one.)

☐ Yes

If Yes, date the Regional Chief was briefed: _____
(Month/Date/Year)

Proceed to Part G.

☒ No
Proceed to Part G.

G. Finding

Based on my review of all relevant factors, I find the refuge use identified above:

☐ Exempted ☐ Not Appropriate ☒ Appropriate*

[* Includes findings that a use is administratively determined as appropriate (Section B and C) or is found appropriate through the use of the decision tool (Section D).]

Refuge Manager _____ Date _____

H. Concurrence

The Refuge Supervisor MUST concur and sign a finding of "Not Appropriate" for an EXISTING use if the designation is made OUTSIDE of the Comprehensive Conservation Plan process. The Refuge Supervisor MUST concur and sign a finding of "Appropriate" for any proposed NEW use. Signature from the Refuge Supervisor WILL NOT be necessary for a finding of "Not Appropriate" with a proposed NEW use.

Refuge Supervisor _____ Date _____

Any use found to be "Appropriate" will require the development of a compatibility determination before the use may be allowed on Refuge lands.

FWS-3-2319
9/2018

Appendix C. Draft Compatibility Determination

DRAFT INCIDENTAL HUNTING OF NON-NATIVE WILDLIFE **COMPATIBILITY DETERMINATION** **EVERGLADES HEADWATERS NATIONAL WILDLIFE REFUGE AND CONSERVATION AREA**

USE: Hunting (Incidental, Non-native Wildlife)

REFUGE NAME: Everglades Headwaters National Wildlife Refuge and Conservation Area

DATE ESTABLISHED: January 18, 2012

ESTABLISHING and ACQUISITION AUTHORITIES:

The refuge establishment and acquisition authorities for Everglades Headwaters National Wildlife Refuge and Conservation Area (NWR, refuge) are:

- National Wildlife Refuge System Administration Act of 1966 [16 U.S. Code (USC) §668dd]
- Endangered Species Act of 1973 (16 USC §1531)
- Emergency Wetlands Resources Act of 1986 [16 USC §3901(b), 100 Stat. 3583]
- Migratory Bird Conservation Act (16 USC §715d)
- Fish and Wildlife Act of 1956 [16 USC §742f(a)(4)]
- Refuge Recreation Act (16 USC §§460k-460k-4)

REFUGE PURPOSES:

The purposes for which Everglades Headwaters National Wildlife Refuge and Conservation Area was established [(Public Law 98-548, 98 Stat. 2774)] are listed.

- "... conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans..." 16 USC §668dd(a)(2) (National Wildlife Refuge System Administration Act)
- "...to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants..." 16 USC §1531 (Endangered Species Act of 1973)
- "...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 ..." 16 USC §3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986)
- "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds...." 16 USC §715d (Migratory Bird Conservation Act)
- "...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude..." 16 USC §742f(b)(1) "...for the development, advancement, management, conservation, and protection of fish and wildlife resources...." 16 USC §742f(a)(4), (Secretarial powers to implement laws related to fish and wildlife) (Fish and Wildlife Act of 1956)
- "...suitable for— (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species ..." 16 USC §460k-1 "... the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants

imposed by donors ..." 16 USC §460k-2 [Refuge Recreation Act (16 USC §§460k-460k-4), as amended]

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

"The mission of the National Wildlife Refuge System (NWRS, Refuge System) 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" (NWRS Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

(a) What is the use? Is the use a priority public use?

The use is public, incidental hunting on the refuge of non-native wildlife, including amphibians, reptiles, mammals, and birds in accordance with applicable state regulations. A list of non-native species, and their biology, biological impacts, and distributions can be found on the Florida Fish and Wildlife Conservation Commission's (FWC's) non-native website:

<https://myfwc.com/wildlifehabitats/nonnatives/>. Where applicable, regulations concerning the incidental take of non-native wildlife are available on pertinent Wildlife Management Area (WMA) brochures (FWC 2020b). Hunting of established game species was previously evaluated in the 2020 Hunt and Fish Plan and Hunting Compatibility Determination (CD) and Environmental Assessment (EA) (USFWS 2020a, 2020b). Hunting on the refuge occurs through a Memorandum of Understanding (MOU) between the Service and the state of Florida whereby the state manages hunts on the refuge through its Wildlife Management Area (WMA) program. Hunting of non-native wildlife will be incidental to all approved hunts following the conditions of the particular hunt, including weaponry restrictions and time of day restrictions. Hunting was identified as one of six priority public uses of the Refuge System by the NWRS Administration Act of 1966, as amended by the NWRS Improvement Act of 1997 (Public Law 105-57), when found to be compatible. The incidental hunting use of this CD was evaluated in its companion EA.

Note: The Service will continue other management efforts to control and eliminate non-native wildlife from the refuge. This use will support those management efforts. Refuge management control of non-native wildlife will continue as needed to meet wildlife and habitat goals and objectives, which will take priority over any public use activity, including hunting. In particular, it is neither the goal nor the intent of the Service to manage non-native wildlife as huntable game species since the intent is to control and eliminate these species. The proposed use is simply an additional tool to help the Service meet this intent. Further, areas of the refuge may be closed for refuge management activities relating to non-native wildlife control or elimination. The refuge will post notice prior to any closures. Hunt permits are non-refundable due to closures.

(b) Where would the use be conducted?

As detailed in the 2020 Hunt and Fish Plan and Hunting CD (USFWS 2020b), hunting would be allowed in areas designated under current state of Florida WMA regulations, specific for any particular refuge unit.

(c) When would the use be conducted?

Hunting would be allowed during seasons established in current state of Florida WMA regulations, specific for any particular refuge unit.

(d) How would the use be conducted?

The Service has an MOU with the Florida Fish and Wildlife Conservation Commission (FWC) to add fee-title refuge lands to the state's WMA program. Furthermore, the MOU allows FWC to manage hunting on the refuge, while meeting Service goals and objectives. Incidental hunting of non-native wildlife will be subject to Federal, state, and refuge-specific regulations and occur within the state season framework, unless otherwise approved by FWC. Refuge-specific regulations for the proposed hunt would be outlined in the Code of Federal Regulations (CFR) at 50 CFR §32.28(e).

(e) Why is the use being proposed?

The Service is committed to aligning with state regulations wherever and whenever possible, while meeting refuge purposes, goals, and objectives and serving the mission of the Refuge System. FWC allows the incidental hunting of non-native wildlife as a way to help control these invasive animals. Incidental hunting of non-native wildlife would benefit the refuge by helping remove some of these invasive animals, helping to limit adverse wildlife and habitat impacts.

AVAILABILITY OF RESOURCES:

No additional resources will be needed to administer the incidental hunting of non-native wildlife use, since it is incidental to the existing hunt program.

Resources involved in the administration and management of the use: FWC would provide support, when possible, in the form of staff technical assistance, use of state owned equipment and facilities, and/or available funding to achieve the objectives of the MOU.

Special equipment, facilities, or improvements necessary to support the use: Because this an incidental use, it is not expected that any additional Service law enforcement, public use, administrative, managerial, and/or biological staff would need to be allocated beyond what is already discussed under the 2020 Hunting CD (USFWS 2020b).

Maintenance costs: Because this an incidental use, it is not expected that any additional funding would need to be allocated beyond what is already discussed under the 2020 Hunting CD (USFWS 2020b).

Monitoring costs: It is unlikely that non-native wildlife populations would be monitored, as they are detrimental to native ecosystems.

Offsetting revenues: None needed, this is an incidental use.

ANTICIPATED IMPACTS OF THE USE:

The 2021 EA for the draft Hunt Plan amendment and this draft CD analyzed the impacts of the proposed use (USFWS 2021). A summary is provided here; no significant impacts would be anticipated.

Short-term effects: While the killing of individual animals would occur, methods of take and the proposed hunt were developed with humaneness and animal welfare concerns to assure that animals are humanely dispatched.

The incidental take of non-native wildlife through public hunting would be anticipated to have neutral to minor beneficial impacts for native, non-target wildlife and aquatic species through decreased habitat disturbance, decreased competition for resources, and decreased direct mortality. However, given the

invasion and spread of non-native wildlife, adverse impacts to native species would continue under this alternative. However, these impacts would not be anticipated to be significant due to the combination of incidental public hunting, and refuge management, and partner control efforts. The reduction in non-native predatory animals would have neutral to minor beneficial impacts to native prey species. Several non-native reptiles are predators of native wildlife (FWC 2020a, Meshaka et al. 2019, USGS 2020). There is the possibility that lead contamination and poisoning could occur through the ingestion of lead ammunition by native species (Golden et al 2016).

The incidental take of non-native wildlife through public hunting would be anticipated to have neutral to minor beneficial impacts for threatened and endangered and other special status species through decreased habitat disturbance, decreased competition for resources, and decreased direct mortality. However, given the invasion and spread of non-native wildlife, adverse impacts to threatened and endangered and other special status species would continue under this alternative. However, these impacts would not be anticipated to be significant due to the combination of incidental public hunting, and refuge management, and partner control efforts. The reduction in non-native predatory animals could potentially have neutral to minor beneficial impacts to threatened and endangered and other special status species. Removal of non-native wildlife that compete with native species could have neutral to minor beneficial impacts to threatened and endangered species. This could result in lead contamination and poisoning. However, the method of take would be broad, and could include a variety of tools (such as hand capture) other than guns using lead ammunition. This would limit the potential for lead ammunition being used to take non-native wildlife. Furthermore, since only incidental hunting of non-native wildlife would be allowed, it is expected that the total number of these animals taken would be relatively low. Overall, it is expected that this potential adverse effect would be minimal and not significant.

The incidental take of non-native wildlife through public hunting would be anticipated to have neutral to minor beneficial impacts for habitats and vegetation through decreased habitat disturbance and reduced vegetation destruction. However, given the invasion and spread of non-native wildlife, adverse impacts to habitats and vegetation would continue under this alternative. However, these impacts would not be anticipated to be significant due to the combination of incidental public hunting, and refuge management, and partner control efforts. Native vegetation would benefit from a reduction in non-native wildlife. There would be a reduction in non-native herbivores that consume native plants. It is expected that this would be a neutral to minor beneficial effect. Native habitats would receive neutral to minor beneficial impacts through the reduction in non-native herbivores.

Incidental taking of non-native wildlife would allow hunters to benefit from a broader list of potential wildlife species to hunt. Minor beneficial impacts would be anticipated for visitor use and experience. It would not be expected to change hunter numbers and no impacts on other approved uses are anticipated.

Long-term effects: The Everglades Headwaters NWR Big Game, Upland Game and Migratory Bird Compatibility Determination and Environmental Assessment (USFWS 2020a, 2020b) analyzed anticipated long-term impacts over the overall hunt program, including mortality and disturbance of wildlife that may affect their populations, while providing a traditional use that may help instill a better appreciation for the refuge. Hence, there may be some minor long-term benefits to habitats, wildlife populations, and imperiled species as non-native animals are removed by hunters. Removal of non-native wildlife that compete with native species would have neutral to minor beneficial impacts for a

range of native wildlife. Competition between species generally has gradual, long-term consequences. The native species outcompeted by non-native species would eventually be displaced or suffer population declines. Native habitats could change over time due to foraging by non-native herbivores, depending on the types of plants affected and the degree of herbivory. Overall, the numbers of non-native wildlife removed from an area through incidental hunting are expected to be relatively low compared to their population. Thus, the number of non-native species removed through incidental hunting and any resulting benefits are not expected to be significant.

Cumulative effects: There are no significant cumulative effects expected. As hunters take non-native wildlife across the WMA lands, there may be some minor benefits to native habitats, wildlife populations, and imperiled species. However, given the nature and spread of non-native wildlife, the incidental hunting of non-native wildlife, alone or combined with other management efforts to control and eliminate these species, would not be anticipated to remove all or even significant numbers of individuals from a refuge unit over the long term. Thus, we would anticipate adverse impacts from non-native wildlife to continue over the long term, however, we would not anticipate these impacts to be significant due to Service and partner management efforts to minimize impacts from these species.

PUBLIC REVIEW AND COMMENT:

The EA, draft Hunt and Sport Fish Plan Amendment, draft Non-native Wildlife Hunting Compatibility Determination, and associated changes to the Code of Federal Regulations were made available for public review and comment for 30 days in early 2021. Notice was provided locally through the refuge website (https://www.fws.gov/refuge/everglades_headwaters/) and several area newspapers. Nationally, the Service provided notice of all proposed hunt and fish packages through the Federal Register. Notice was also provided to the state of Florida and to the Miccosukee Tribe of Indians of Florida, Muscogee Creek Nation, Poarch Band of Creek Indians, Seminole Nation of Oklahoma, and Seminole Indian Tribe of Florida.

DETERMINATION:

_____ Use is not compatible

 X Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

- Hunting of non-native wildlife will be incidental to approved refuge hunts under applicable state and WMA regulations under any restrictions or conditions that apply to the approved refuge hunt to which the non-native wildlife hunt is incidental.
- Persons possessing, transporting, or carrying firearms on national wildlife refuges must comply with all provisions of Federal, state, and local law. Persons may only use (discharge) firearms in accordance with refuge regulations.
- All applicable state hunting licenses, state permits, Service Convention on International Trade in Endangered Species of Wildlife Flora and Fauna (CITES) tags, Federal stamps, and refuge hunt permits must be in the possession of the hunter.
- Hunting programs will be administered as a state-managed WMA tract
- For all hunts, weapon restrictions will be in accordance with applicable state of Florida and WMA regulations.

- Vehicles will be restricted to existing designated roads and trails.
- Off-road vehicle (ORV) use may be allowed for access along designated roads and trails. See the CD for ORVs for additional details (USFWS 2020).
- Camping may be allowed to access remote areas during the hunting season. See the CD for camping for additional details (USFWS 2020).
- Hunt season dates and bag limits will be adjusted to meet current hunter densities and activities and may be adjusted as needed to achieve balanced population levels within carrying capacities, regardless of impacts to user opportunities for the approved refuge hunts to which hunting of non-native wildlife is incidental.
- Taking of any plants or other wildlife is prohibited.
- As additional data are collected, refuge-specific regulations or changes to the WMA could be implemented. These changes to the regulations could include, but may not be limited to the following: season dates that differ from those in surrounding state zones; permit requirements; and closed areas on a permanent or seasonal basis to reduce disturbance to specific wildlife species or habitats, such as bird rookeries, wintering waterfowl, or threatened or endangered species, as well as to provide for public safety.
- If evidence of unacceptable impacts begins to appear, it may be necessary to change the activity, move the activity, or eliminate the activity.
- The hunt brochure will provide notice to the public that areas of the refuge may be closed for refuge management activities relating to non-native wildlife control or elimination, the refuge will post notice prior to any closures, and hunt permits are non-refundable due to closures.

JUSTIFICATION:

Hunting is a priority wildlife-dependent use for the Refuge System through which the public can develop an appreciation for fish and wildlife. Service policy is to provide expanded opportunities for wildlife-dependent uses when compatible and consistent with sound fish and wildlife management and ensure that they receive enhanced attention during planning and management. While hunting satisfies a recreational opportunity, incidental hunting of non-native wildlife is a proactive management action that can help minimize adverse impacts from these species, preventing overpopulation of non-native wildlife and the associated deterioration of habitat by these species.

Hunting was previously outlined and analyzed in the refuge's 2020 EA and 2020 Visitor Services Plan and Finding of No Significant Impact, which included the 2020 Hunt and Fish Plan (USFWS 2020a, 2020b). Environmental conditions and hunting of primary species have not changed substantially since that analysis. Incidental hunting of non-native wildlife was not included in that analysis.

The proposed incidental hunting of non-native wildlife at the refuge would support refuge management goals and objectives, notably those listed.

- Habitat for Fish and Wildlife: Monitor and initiate control activities for invasive plants and animals (Conceptual Management Plan: USFWS 2012)
- Hunting Objective 3.1: Immediately upon fee acquisition, work cooperatively with FWC to evaluate hunting programs and designation of Service lands as WMAs. (Visitor Services Plan: USFWS 2020b)

The Service's policy is to provide opportunities for wildlife-oriented recreation where appropriate, compatible, and consistent with refuge purposes and the Refuge System mission. The stipulations

outlined above would help ensure that the use continues to be compatible on the refuge. This activity would not conflict with any of the other priority public uses on the refuge or adversely impact biological resources. Incidental hunting of non-native wildlife, as outlined above, would not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the refuge. Based on available science and best professional judgement, the Service has determined that the incidental hunting of non-native wildlife on Everglades Headwaters NWR, in accordance with the stipulations provided here, would not materially interfere with or detract from the fulfillment of the Refuge System mission or the purposes of the refuge.

NEPA COMPLIANCE FOR REFUGE USE:

- ☐ Categorical Exclusion Without Environmental Action Statement
- ☐ Categorical Exclusion and Environmental Action Statement
- ☒ Environmental Assessment and Finding of No Significant Impact
- ☐ Environmental Impact Statement and Record of Decision

MANDATORY 15 YEAR RE-EVALUATION DATE: _____
(Date)

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U.S. Fish and Wildlife Service. 2020b. Visitor Services Plan and Hunt/Fish Plan for Everglades Headwaters NWR and Conservation Area. U.S. Department of the Interior Unified Regions 2 and 4. August 2020. https://www.fws.gov/refuge/everglades_headwaters/ and <https://ecos.fws.gov/ServCat/DownloadFile/187852>

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https://www.usgs.gov/faqs/how-have-invasive-pythons-impacted-florida-ecosystems?qt-news_science_products=0# Accessed: June 2020.

SIGNATURE:

Refuge Manager _____
Signature Date

Concurrence:
Refuge Supervisor
Area I, Interior Regions 2 & 4 _____
Signature Date

Concurrence:
Regional Compatibility
Coordinator, Interior Regions 2 & 4 _____
Signature Date

Concurrence:
David Viker, Regional Refuge Chief
National Wildlife Refuge System
Interior Regions 2 & 4 _____
Signature Date

Appendix D. Draft Changes for the Code of Federal Regulations

(e) *Everglades Headwaters National Wildlife Refuge*—(1) *Migratory game bird hunting*. We allow hunting of migratory game birds and the incidental take of non-native wildlife as defined by the State on designated areas of the refuge in accordance with State regulations and applicable State Wildlife Management Area regulations.

(2) *Upland game hunting*. We allow upland game hunting and the incidental take of non-native wildlife as defined by the State on designated areas of the refuge in accordance with State regulations and applicable State Wildlife Management Area regulations.

(3) *Big game hunting*. We allow big game hunting and the incidental take of non-native wildlife as defined by the State on designated areas of the refuge in accordance with State regulations and applicable State Wildlife Management Area regulations.

(4) *Sport fishing*. We allow sport fishing on designated areas of the refuge in accordance with State regulations and applicable State Wildlife Management Area regulations.

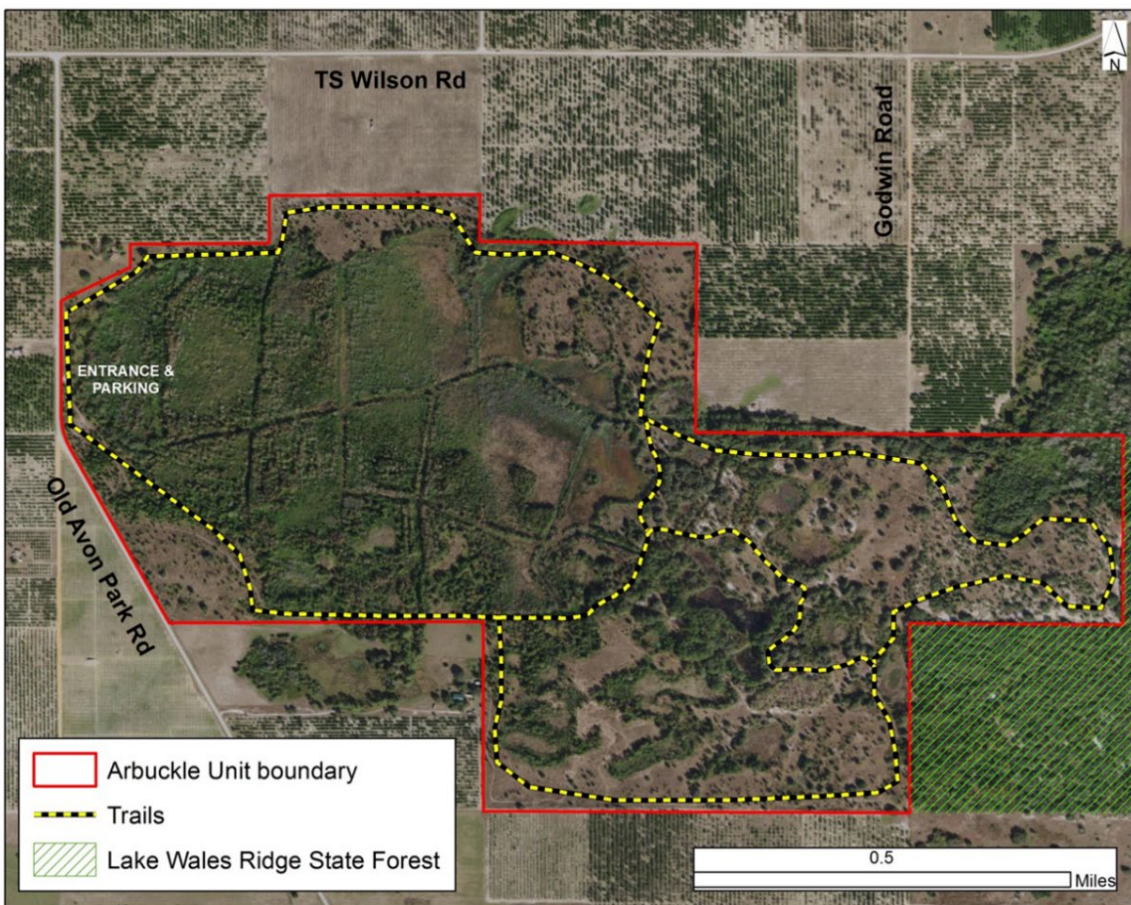
Appendix E. Federally Listed Species by Management Unit

The Federally endangered, threatened, and candidate species known or likely to occur on Everglades Headwaters National Wildlife Refuge (NWR, refuge) are listed by refuge management unit: (A) Arbuckle, (B) Hatchineha, and (C) Kissimmee Bend.

A. Arbuckle Unit

The 395-acre Arbuckle Unit (Figure A1) is a restored improved pasture. The western portion of the unit consists of pine flatwoods, restored/enhanced wetlands (bay swamp), mixed hardwood, freshwater marsh, and cypress. Wood storks are known to forage in the wetlands. The eastern portion is substantially drier, consisting of xeric oak, live oak, and scrubby pine flatwoods. The more xeric areas have had several listed plants documented, some of which were translocated (Gulfstream Natural Gas System, LLC 2011) (see A2). Sand skink are found in the eastern-most section of the unit. Gopher tortoises have been documented on the entire site where soils remain sufficiently dry for burrowing. Eastern indigo snakes would be expected to utilize the entire site. The unit lies in the Florida bonneted bat consultation area.

Figure A1: Arbuckle Unit Habitat Map



A2. Species/Critical Habitat – Arbuckle Unit

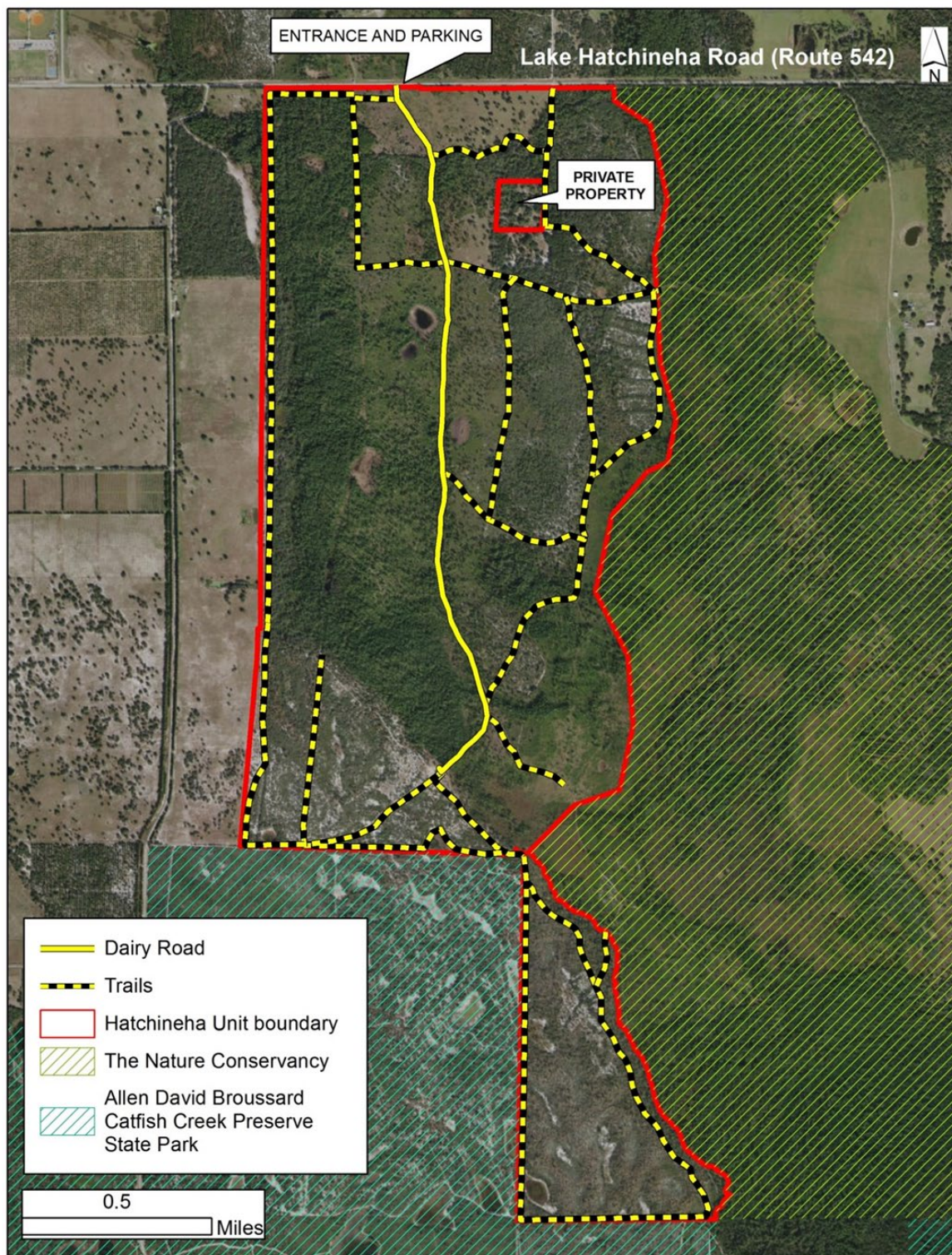
SPECIES/CRITICAL HABITAT	STATUS ¹
Audubon's Crested Caracara (<i>Polyborus plancus audubonii</i>)	T
Eastern Indigo Snake (<i>Drymarchon carais couperi</i>)	T
Florida Bonneted Bat (<i>Eumops floridanus</i>)	E
Florida Ziziphus (<i>Ziziphus celata</i>)	E
Gopher Tortoise (<i>Gopherus polyphemus</i>)	C
Pygmy Fringe-Tree (<i>Chionanthus pygmaeus</i>)	E
Papery Whitlow-Wort (<i>Paronychia chartacea</i>)	T
Sand Skink (<i>Neoseps reynoldsi</i>)	T
Britton's Beargrass (<i>Nolina brittoniana</i>)	E
Scrub Blazing Star (<i>Liatris ohlingerae</i>)	E
Wood Stork (<i>Mycteria americana</i>)	T

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

B. Hatchineha Unit

The 1,460-acre Hatchineha Unit (Figure B1) consists of pine flatwoods, mixed hardwood, sand pine scrub, and freshwater marsh. Gopher tortoises are found throughout the drier portions of the site, predominantly a restored system of Lake Wales Ridge scrub habitat. Indigo snakes would utilize the entire site. Sand skink and bluetail mole skink generally occupy xeric uplands with sand substrates, which can include sand pine scrub and longleaf pine – xeric scrub habitats. No Florida scrub-jay families are known to occupy the sand-hill portion of the site. Roughly, 60-acres of semi-improved pasture occur on the north end of the site and are grazed by cattle; caracara may occasionally forage on this semi-improved pasture. Wood storks may occasionally forage in ephemeral wetlands and creeks. Florida scrub-jays have not been documented on the site since 2009. Listed plants were documented on the site when the southwestern sandhill tracts were still under mitigation [Hatchineha Ranch Conservation Bank (Modica & Associates 2011)] (see B2). The unit lies in the Florida bonneted bat consultation area.

Figure B1: Hatchineha Unit Habitat Map



B2. Species/Critical Habitat – Hatchineha Unit

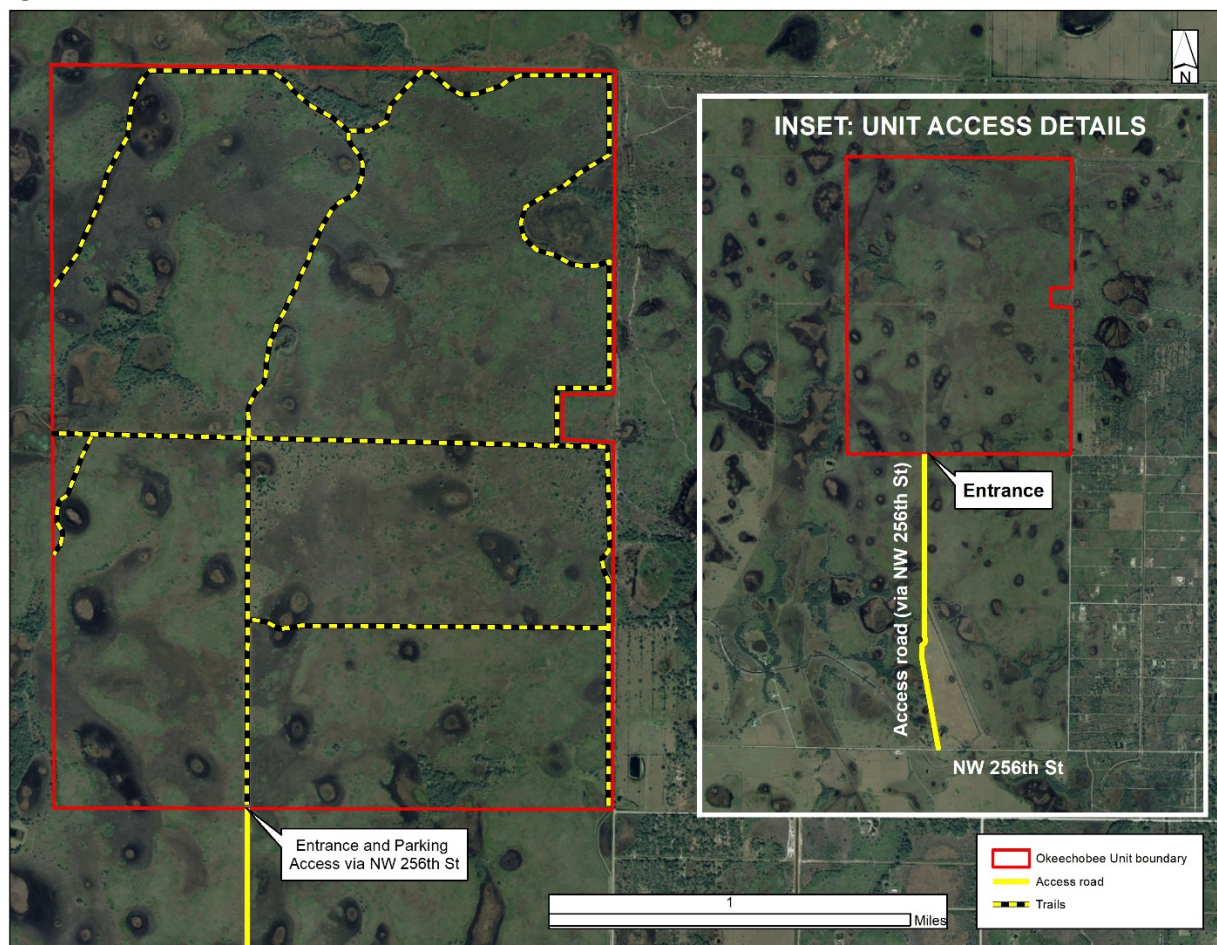
SPECIES/CRITICAL HABITAT	STATUS ¹
Audubon's Crested Caracara (<i>Polyborus plancus audubonii</i>)	T
Bluetail Mole Skink (<i>Eumeces egregius lividus</i>)	T
Britton's Beargrass (<i>Nolina brittoniana</i>)	E
Eastern Indigo Snake (<i>Drymarchon carais couperi</i>)	T
Florida Scrub-Jay (<i>Aphelocoma coerulescens</i>)	T
Florida Bonamia (<i>Bonamia grandiflora</i>)	T
Florida Bonneted Bat (<i>Eumops floridanus</i>)	E
Gopher Tortoise (<i>Gopherus polyphemus</i>)	C
Lewton's Polygala (<i>Polygala lewtonii</i>)	E
Papery Whitlow-Wort (<i>Paronychia chartacea</i>)	T
Pigeon Wings (<i>Clitoria fragrans</i>)	T
Pygmy Fringe-Tree (<i>Chionanthus pygmaeus</i>)	T
Sandlace (<i>Polygonella myriophylla</i>)	E
Sand Skink (<i>Neoseps reynoldsi</i>)	T
Scrub Plum (<i>Prunus geniculata</i>)	E
Wood Stork (<i>Mycteria americana</i>)	T

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

C. Kissimmee Bend Unit

Over 50 percent of the roughly 1,999-acre Kissimmee Bend Unit (Figure C1) consists of dry prairie, followed by wet prairie and freshwater marshes. The remaining habitats consist of pasture, temperate hammock, and freshwater forested wetlands. Eastern indigo snakes would utilize the entire site. The unit was managed as unimproved pasture, and caracara forage there. Wood storks opportunistically forage in ephemeral wetlands. Florida grasshopper sparrows have been detected within several miles of the unit and suitable habitat is present in the unit. The unit lies in the Florida bonneted bat consultation area. There are no known listed plants on the unit. (See C2.)

Figure C1: Kissimmee Bend Unit



C2. Species/Critical Habitat – Okeechobee Unit

SPECIES/CRITICAL HABITAT	STATUS ¹
Audubon's Crested Caracara (<i>Polyborus plancus audubonii</i>)	T
Eastern Indigo Snake (<i>Drymarchon carais couperi</i>)	T
Florida Bonneted Bat (<i>Eumops floridanus</i>)	E
Florida Grasshopper Sparrow (<i>Ammodramus savannarum floridanus</i>)	E
Wood Stork (<i>Mycteria americana</i>)	T

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

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