

Environmental Assessment for Draft Visitor Services Plan
(Including Draft Hunt and Sport Fish Plan)
Everglades Headwaters National Wildlife Refuge and Conservation Area
4055 Wildlife Way, Vero Beach FL 32963

2020

The cost to produce this environmental assessment is estimated at \$26,812.

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1.0 Introduction, Purpose, and Need

This Environmental Assessment (EA) is being prepared to evaluate the effects associated with the proposed action to develop a Visitor Services Plan (VSP) which includes a Hunt and Fish Plan that outlines the future management of compatible outdoor recreation opportunities for the Everglades Headwaters National Wildlife Refuge and Conservation Area (Refuge) and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality (CEQ) regulations (40 CFR 1500-1509) and Department of the Interior (43 CFR 46; 516 DM 8) and Service (550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment. This EA tiers off of the effects analysis conducted as part of the 2012 Land Protection Plan (LPP) (USFWS 2012) and associated EA (USFWS 2012b).

1.1 Background

The Refuge lies in south-central Florida and is administered by the U.S. Fish and Wildlife Service (Service) as part of the National Wildlife Refuge System (System). It was authorized on January 3, 2012 to acquire, on a willing-seller basis, up to 50,000 acres and 100,000 acres in fee title and conservation easements, respectively as detailed in the LPP. The LPP lists all parcels in conservation focal areas that could potentially be acquired in fee from willing sellers. The Refuge currently encompasses approximately 8,319 acres in fee title and easement units supporting habitats including scrub, pine flatwoods, dry prairie, sand hill, and various wetlands in Polk, Osceola, and Okeechobee Counties.

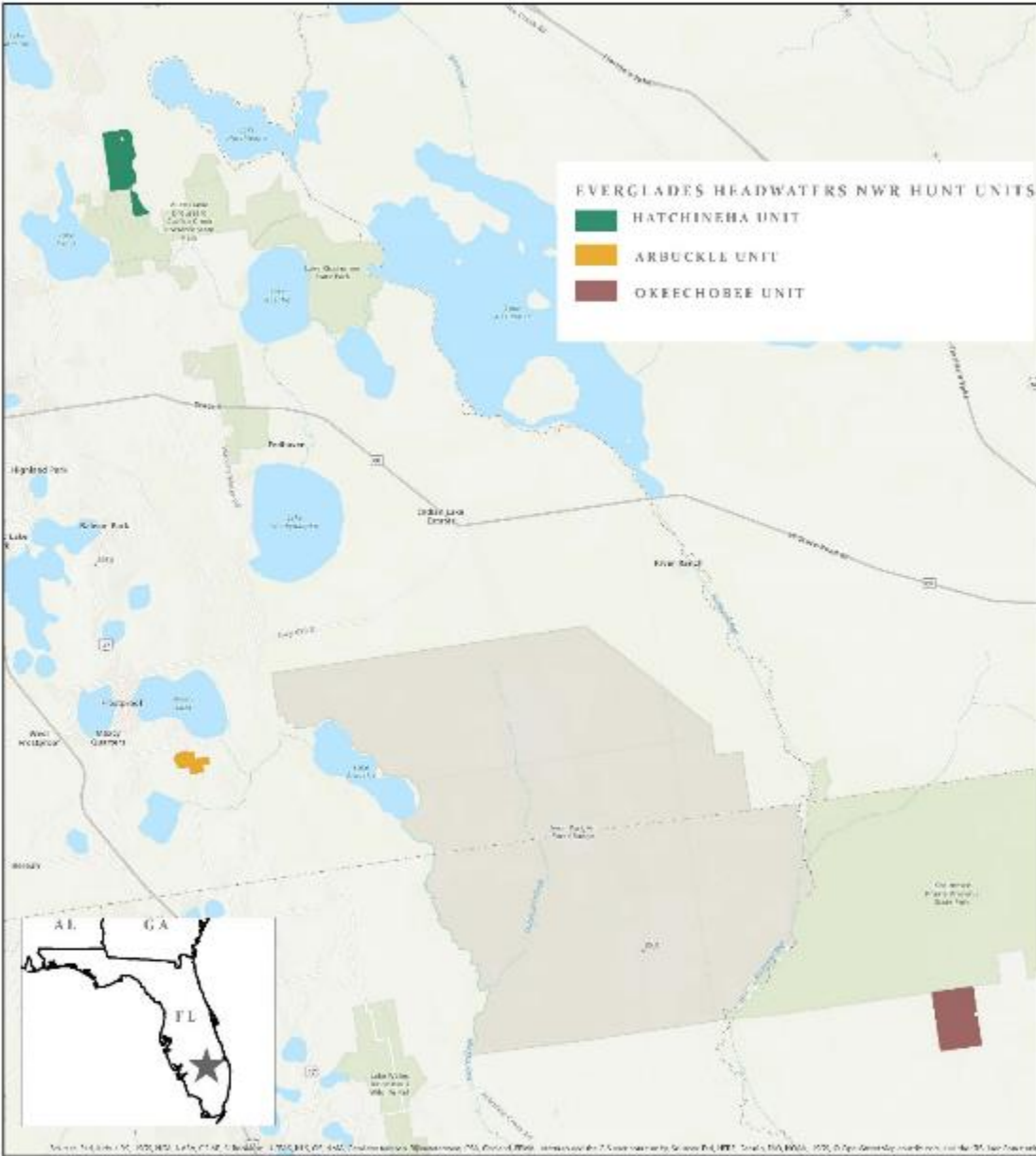
The Refuge was formally established on January 18, 2012 with the donation of a 10-acre parcel in Polk County. Since 2012, the Service has added three fee-simple units to the Refuge: Arbuckle, Hatchineha, and Okeechobee (Figures 1 - 7). These units total approximately 3,854 acres in rural and sparsely populated areas of Okeechobee and Polk Counties. The Arbuckle Unit is 395 acres of restored upland and wetland habitats in Frostproof, Florida. Located in Haines City, the Hatchineha Unit consists of 1,460 acres of scrub, pine flatwoods, dry prairie, wet prairie, blackwater streams, and pasture. The Okeechobee Unit borders the southern edge of Kissimmee Prairie Preserve State Park and covers approximately 1,999 acres of wet and dry prairie historically managed as unimproved pasture.

Currently, outdoor recreational opportunities are available to the public on Refuge fee-title lands as administered through the Refuge's Conceptual Management Plan (CMP). The Refuge's CMP was developed as part of the LPP and includes goals and objectives for wildlife-dependent and other public uses and related recreational activities that were analyzed for their interim compatibility with refuge purposes. Due to mandated time-limits, those "interim" priority or wildlife-dependent uses (as defined by the 1997 National Wildlife Refuge System Improvement Act) expire in 2026, whereas all other non-priority uses expire in 2021. Additionally, the potential environmental effects of these interim uses were evaluated in the associated environmental assessment. Furthermore, the CMP includes objectives for developing an Outdoor Recreation Plan [or Visitor Services Plan (VSP)] and associated Hunt and Fish Plan once a suitable land-base has been acquired (USFWS 2012). The proposed VSP includes compatibility determinations (CDs) that, if approved, will have 10-and 15-year timeframes for non-priority and priority uses, respectively. This EA evaluates the environmental effects of the following 14 proposed uses: bicycling, camping, commercial recording, commercial tours, environmental education

and interpretation, fishing, hiking/backpacking/jogging, horseback riding, hunting, off-road vehicle use in support of hunting/fishing, pets on leash, and wildlife observation and wildlife photography.

The Service is actively seeking to acquire lands from willing sellers through a process detailed in the LPP, and offering public recreational opportunities on these lands, once acquired, is one of the goals of the Refuge. All newly acquired fee-title lands will be evaluated for their potential to offer public use opportunities outlined in the VSP through consultation with the Tribes, Service imperiled species and cultural resources experts, the Florida Fish and Wildlife Conservation Commission (FWC), and other state agencies, where appropriate. NEPA analyses will be conducted for each new unit, and it is expected that the compatible public uses outlined in this plan will likely meet the criteria for Categorical Exclusion. Additionally, the Service intends to carry forward the 14 uses outlined in the VSP, if approved, onto any future, fee-title refuge lands.

Figure 1. Everglades Headwaters NWR Hunt/Fish Unit locations



Produced by Kennedy Styles
Produced December 26, 2015
Drawing: USFS World Topographic
Map 1:50,000 Scale Form 1 (11/2014)



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Scale 1:50,000

Figure 2. Arbuckle Unit location

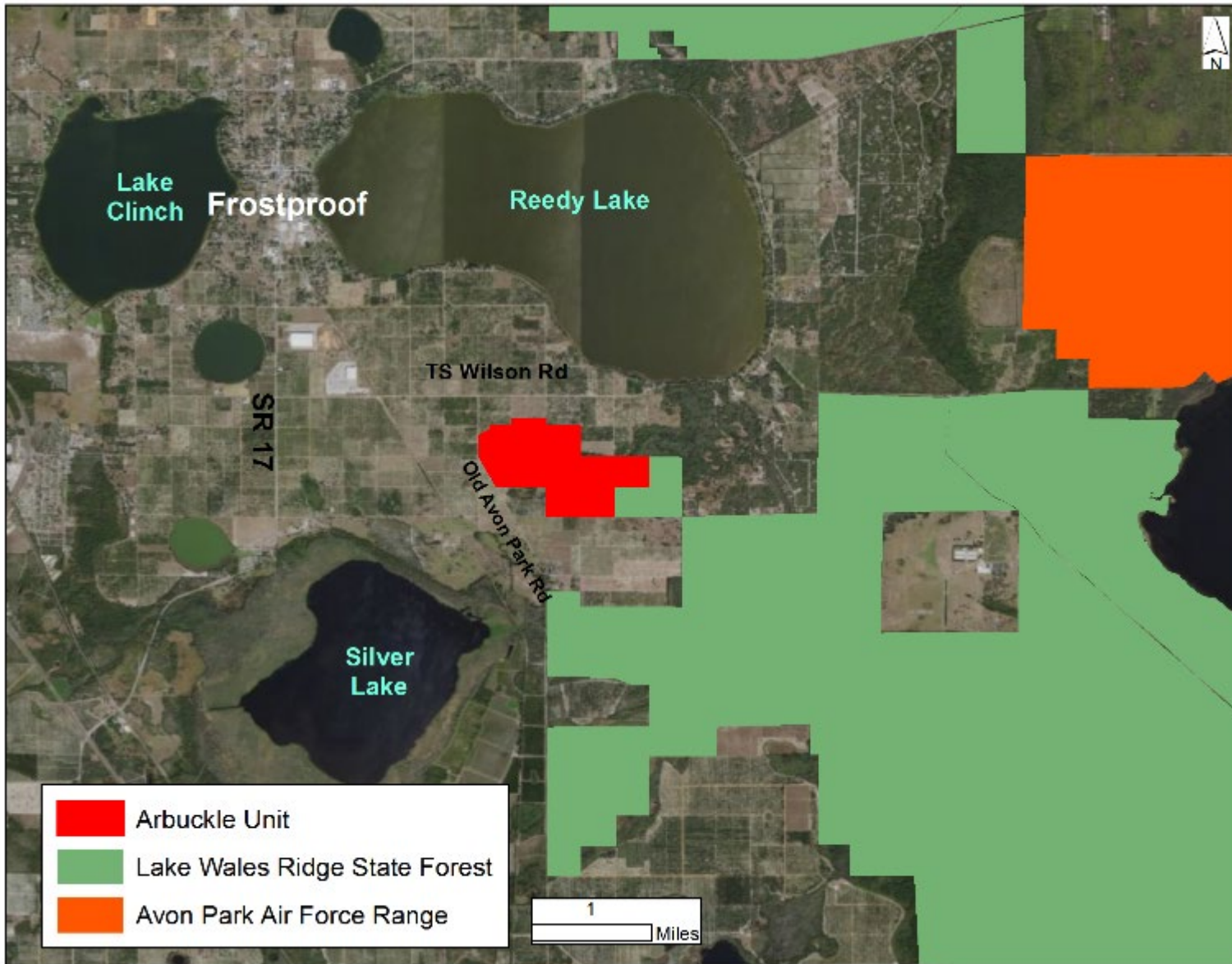


Figure 3. Arbuckle Unit entrance and trails

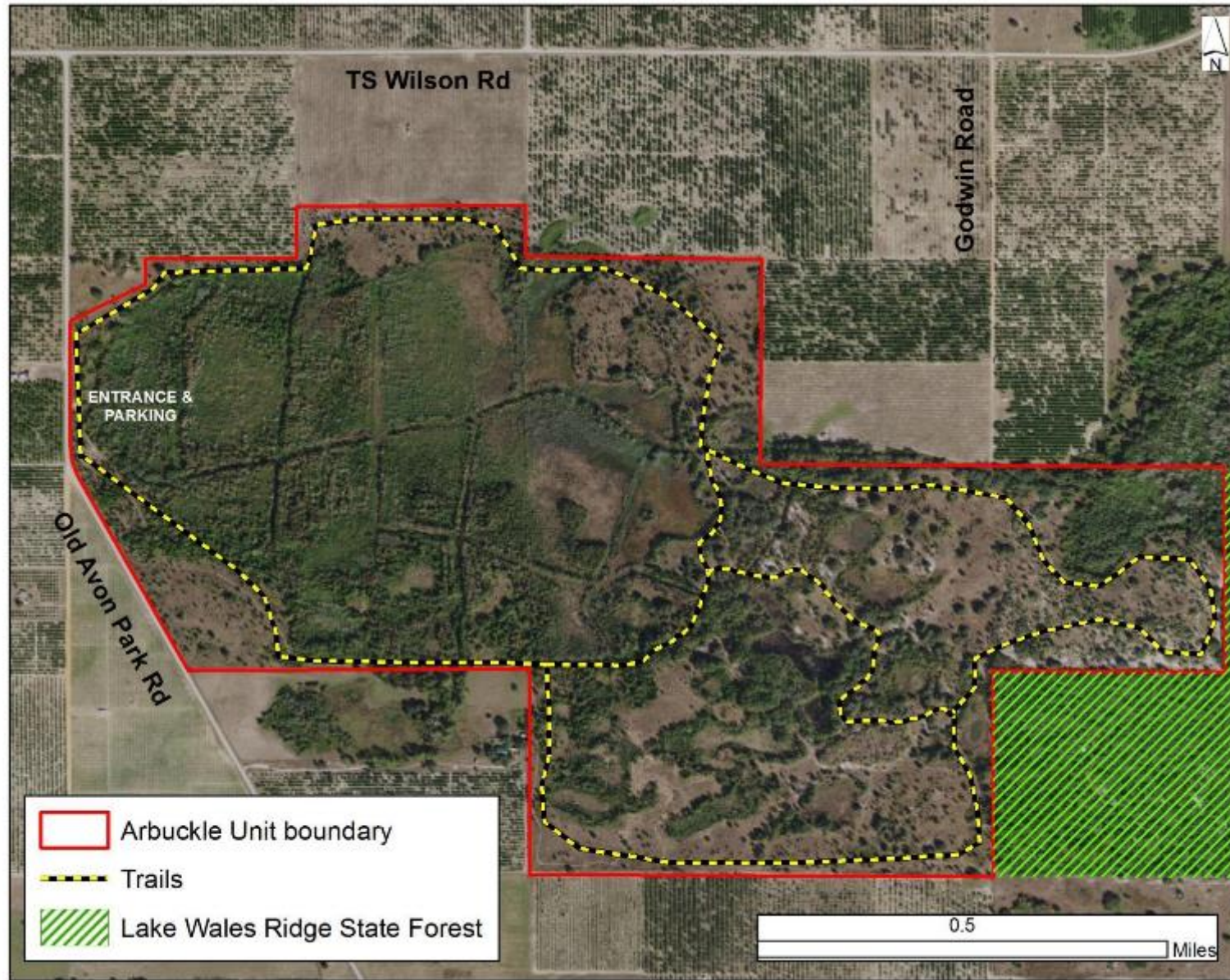


Figure 4. Hatchineha Unit location

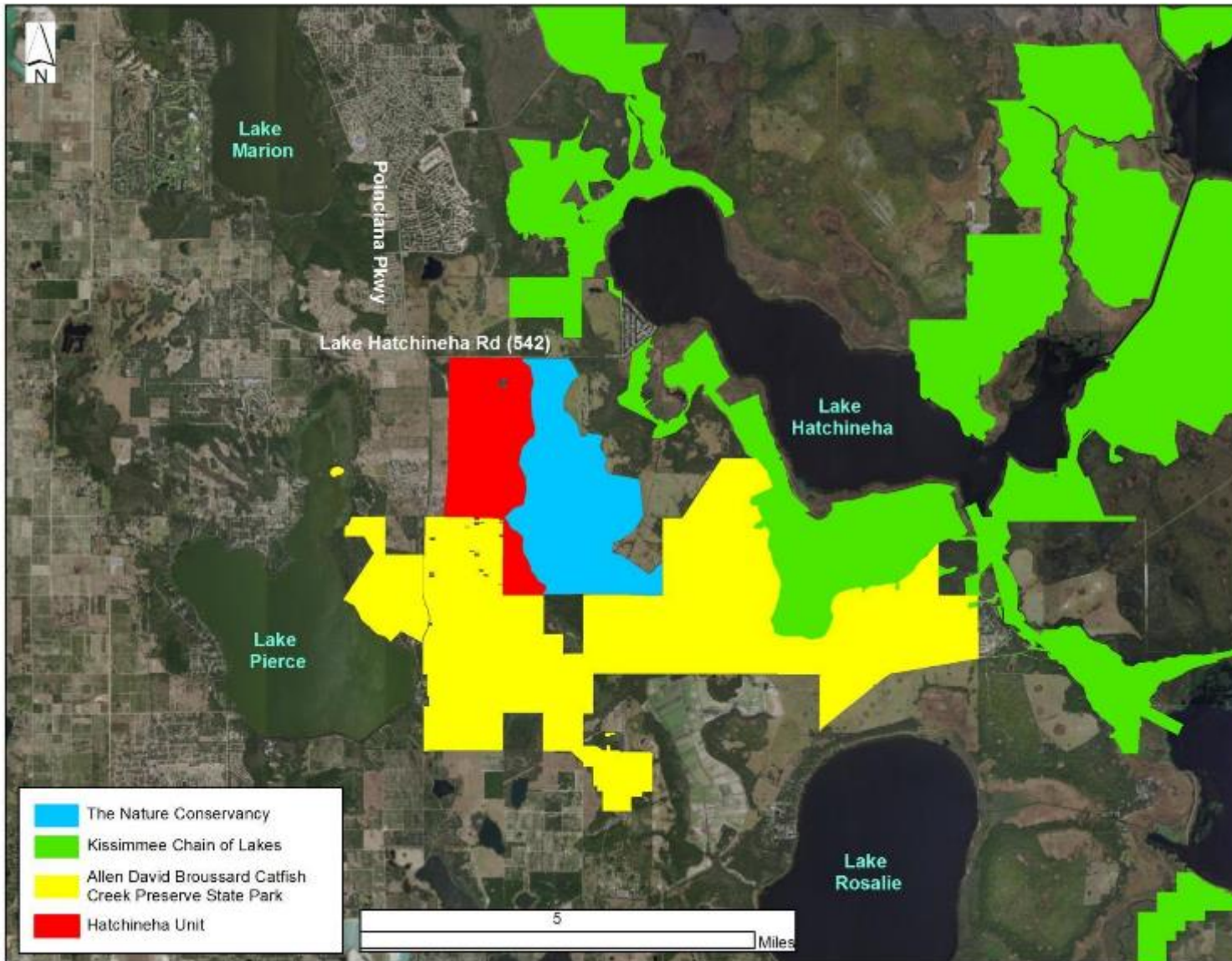


Figure 5. Hatchineha Unit entrance and trails

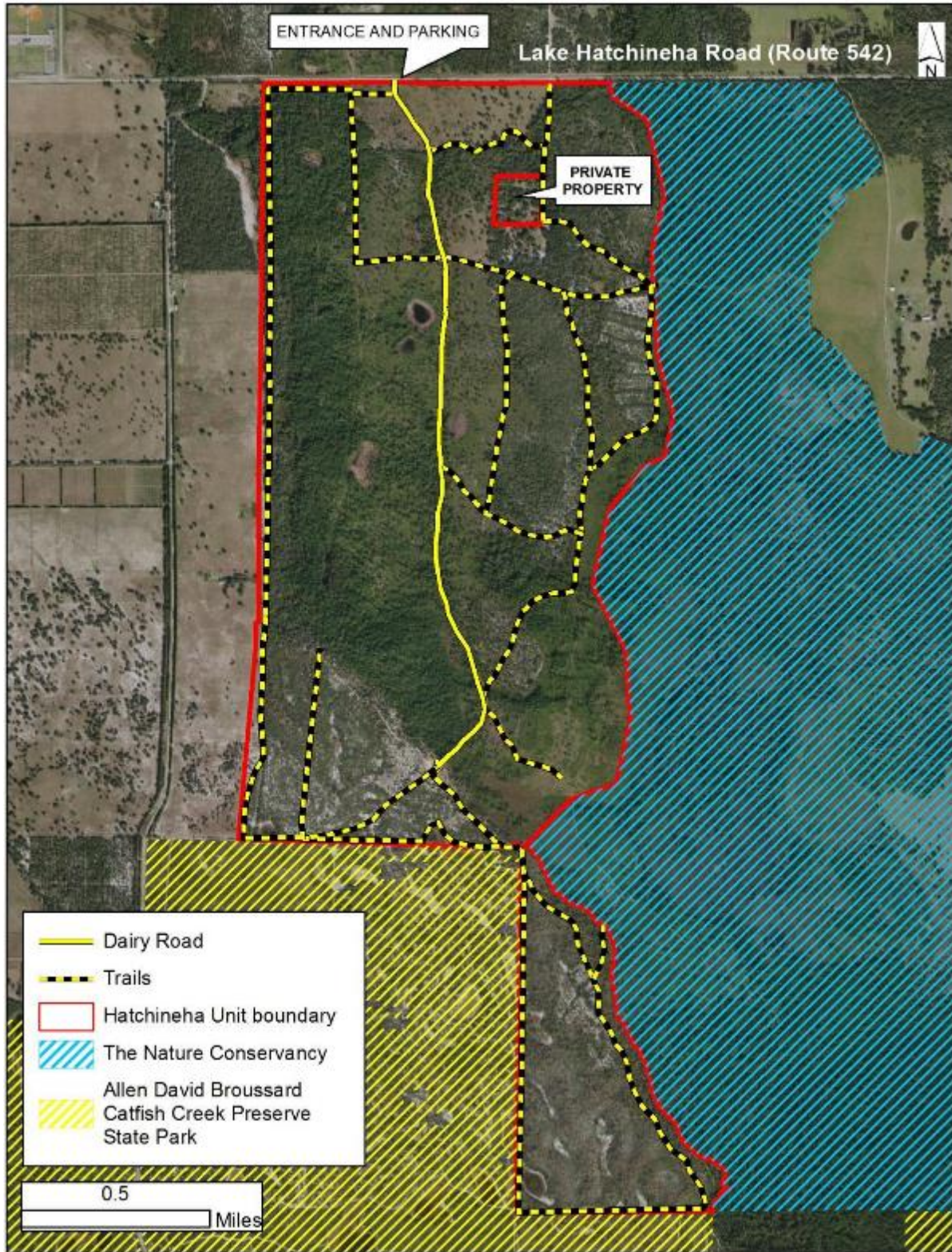


Figure 6. Okeechobee Unit location

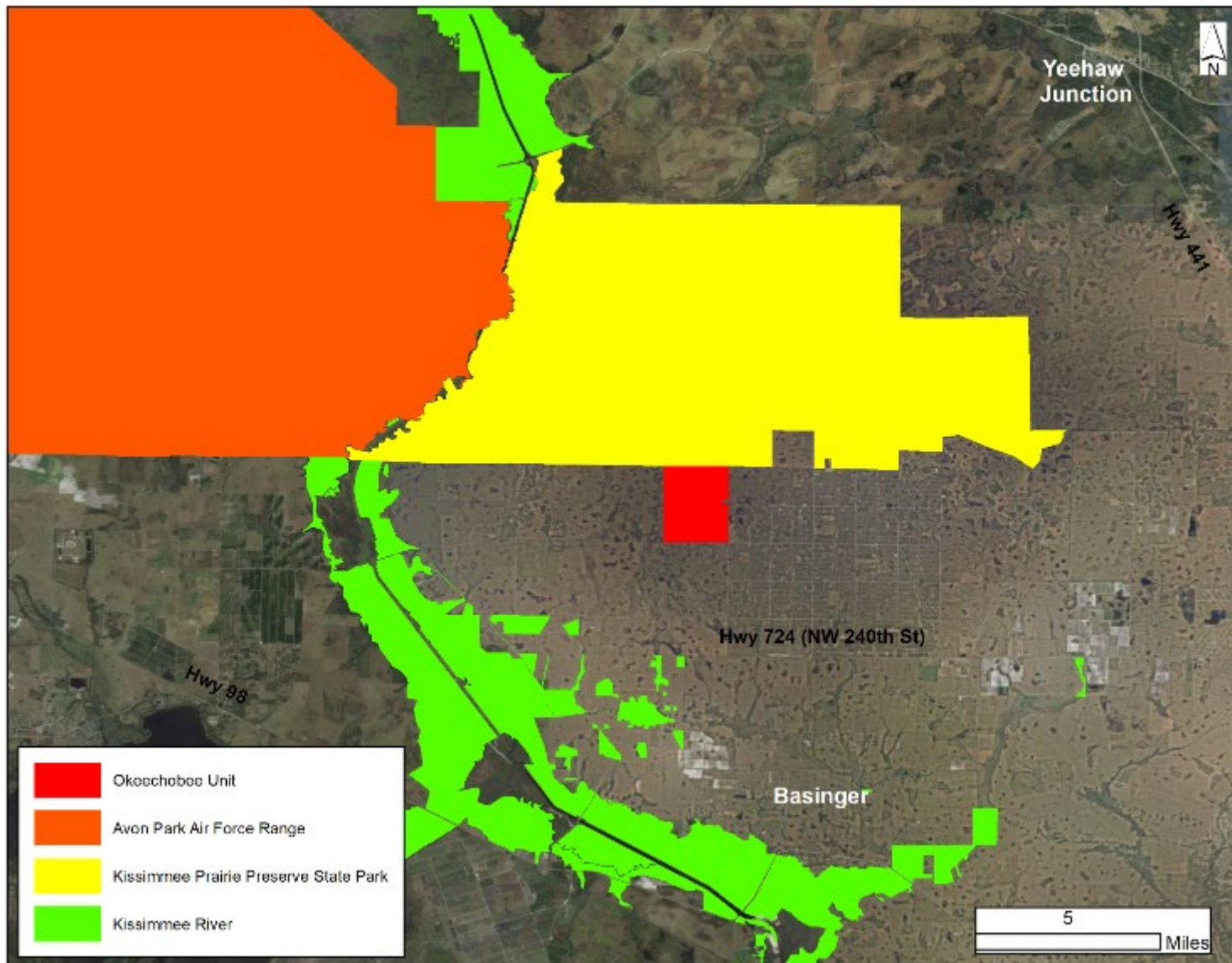
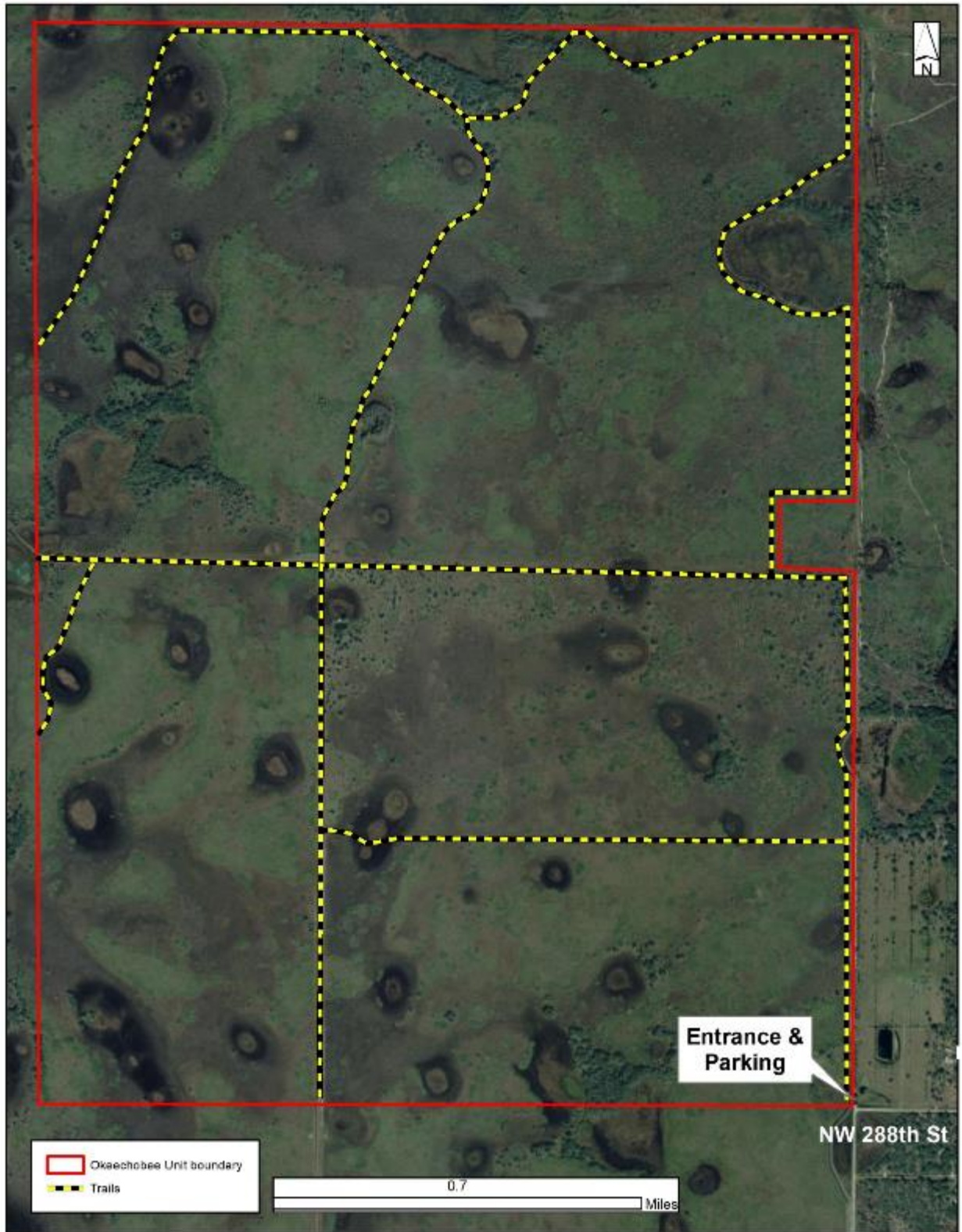


Figure 7. Okeechobee Unit entrance and trails



1.2 Proposed Action

The Service is developing a VSP that details proposed goals and objectives for “priority” or wildlife-dependent recreational opportunities and associated uses. Furthermore, the Refuge intends to apply VSP management on any future, fee-title refuge lands acquired from willing sellers. The extent and magnitude of these public use opportunities are intended to be managed such that they result in no or insignificant negative effects to the natural and human communities occurring within and near the units. The outdoor recreation activities proposed in the VSP are listed in Table 1. In the 2012 LPP, interim CDs were approved for 11 of these uses. CDs for commercial recording, commercial tours, and pets on leash are being added in this VSP.

Table 1: Public use opportunities outlined in the proposed VSP

Use	Priority or Wildlife Dependent?
Bicycling	No
Camping	No
Commercial recording	No
Commercial tours	No
Environmental education	Yes
Interpretation	Yes
Fishing	Yes
Hiking/backpacking/jogging	No
Horseback riding	No
Hunting	Yes
Off-road vehicle use (in support of hunting/fishing)	No
Pets on leash	No
Wildlife observation	Yes
Wildlife photography	Yes

If found compatible with the Refuge’s purposes, the priority uses would continue to be allowed until 2034. All other listed non-priority uses would need to be re-evaluated in 2029.

Proposed actions are often iterative and evolve during the planning process as the agency refines its proposal and learns more from the public, Tribes, and other agencies. Therefore, the final proposed action may be different from the original. The final decision on the proposed action will be made at the conclusion of the public comment period for the EA.

Bicycling

Bicycling is a mode of transportation currently used to facilitate wildlife observation and photography. This use occurs all year. Bicycling will only be authorized in support of other approved refuge uses and on approved roads and trails. Off-trail bicycling will not be allowed.

Camping

Camping is a traditional use in this area. Camping, as considered under this plan, is the primitive overnight cooking and sleeping accommodations erected at designated sites that facilitate access to remote areas of the refuge that will otherwise be unavailable during priority public use activities such as hunting and fishing. Camping will only be authorized in support of other approved refuge uses and to facilitate access to remote areas. Campsites will typically be located at the terminus of a designated trail and accessible by foot, bike, or horse. Campsite use by recreational vehicle or camper trailer, or camping at trailheads is not permitted.

Commercial Recording

The use is commercial recording (digital or film) including but not limited to videography, photography, and audio recording [collectively called “commercial recording” for the purposes of this compatibility determination (CD)]. Commercial recording is an existing economic, non-priority public use; however, it promotes and facilitates certain priority public uses.

Commercial Tours

Commercial tours for non-consumptive use directed toward environmental education, interpretation, and/or observation of wildlife and habitats is an economic use. The use is not a priority public use; however, it promotes and facilitates several priority public uses

Environmental Education and Interpretation

Environmental education comprises a variety of activities and facilities that seek to increase the public’s knowledge and understanding of wildlife and to promote wildlife conservation. These are tools used to inform the public of resource values and issues. Activities may include on-site, refuge-led, or refuge-approved environmental education programs and teacher workshops relating to habitat, other natural features, and/or management activities occurring on the refuge. These activities seek to increase the public’s knowledge and understanding of wildlife and their habitats and to contribute to wildlife conservation and support of the Refuge. Environmental education programs will be conducted by the Service or by a Service-approved member. Any non-Service environmental education activities must be reviewed and approved by the Service through a special use permit issued by the Refuge. These permits will contain conditions to minimize negative effects and ensure compatibility. The Service will work with the local schools and others to develop an understanding of existing environmental education activities for particular sites during the acquisition process.

The Service defines interpretation as a communication process that forges emotional and intellectual connections between the audience and the resource. Interpretation is intended to promote a visitor’s understanding of, and increase appreciation for, America’s natural and cultural resources and conservation history. It also develops a sense of stewardship among the public, leading to actions and attitudes that reflect interest and respect for wildlife resources, cultural resources, and the environment. Interpretive programs and facilities could include special events, visitor center displays, interpretive trails, visitor contact stations, auto tour routes, staff and volunteer led tours, and signs. Any non-Service interpretation activities must be reviewed and approved by the Service through a special use permit issued by the Refuge. These permits will contain conditions to minimize negative effects and ensure

compatibility. The Service will work with partners to develop an understanding of potential interpretation activities for particular sites during the acquisition process.

Sport Fishing

Recreational freshwater fishing would occur on refuge lakes, rivers, and/or ponds. Through a 2012 agreement with FWC, fee-title refuge lands can be added to the Florida Fish and Wildlife Conservation Commission (FWC) wildlife management area (WMA) program. Since the 2012 establishment of the Refuge, several tracts have been acquired and were subsequently added to the state's WMA program. The Refuge will not have jurisdiction over state navigable waters, thus boating and access to navigable waters would continue according to state regulations. There may be the potential for visitors to fish from the banks of the Refuge. Frogging is included under this use. The taking of non-listed frogs would be permitted per state WMA regulations.

Hiking/Backpacking/Jogging

Hiking is a traditional use in this area, and includes backpackers and joggers. Hiking will only be authorized in support of other approved refuge uses. Trails can provide the opportunity for participants to become surrounded by the natural environment, instilling an appreciation for plants, animals, and their habitats.

Horseback Riding

Horseback riding is a traditional use in this landscape and is currently allowed on the Refuge on designated roads and trails. This use can facilitate priority uses such as hunting and wildlife observation.

Hunting

Hunting is a traditional use in much of rural Florida. As previously stated, fee-title refuge lands can be added to the WMA program. Since the 2012 establishment of the Refuge, several tracts have been acquired and were subsequently added to the WMA program. Species hunted include big game (such as deer, feral (wild) hog, and wild turkey) migratory game birds, and small game, in accordance with state regulations. The Refuge intends to continue to add any future acquired tracts to the WMA program, where possible.

Off-road Vehicle Use for Hunting and Fishing

The refuge proposes to allow off-road vehicle (ORV) activities on designated roads and trails in support of hunting and fishing. General ORV use by the public of designated roads and trails and not in support of hunting and fishing will not be allowed.

For hunting activities, the Service will work with the FWC to evaluate a particular property, the specific resources protected on that property, and hunting activities and access to help design the hunting program for that particular property (e.g., access roads and trails suitable for ORV access where minimal negative effects to wildlife and habitat are anticipated).

Pets on Leash

Under this use, visitors could enjoy the Refuge with their leashed or confined pet (dog or other companion animal) not in conjunction with hunting. Pets may include, but are not limited to, dogs, cats, pigs, and birds. Animals not permitted on the Refuge for this activity include all animals listed as Prohibited Nonnative Wildlife or Conditional Nonnative species by the Florida Fish and Wildlife Conservation Commission (<http://myfwc.com/wildlifehabitats/nonnatives/>) or listed as Injurious Wildlife by the Service (<https://www.fws.gov/injuriouswildlife/>).

Wildlife Observation and Photography

Wildlife observation and photography are traditional uses in this landscape. Wildlife observation and photography have been identified in the 1997 National Wildlife Refuge System Improvement Act as priority wildlife-dependent recreational uses provided they are compatible with the purposes of the Refuge. Wildlife observation uses include wildlife watching by hiking, bicycles, and horses as examples.

For the purposes of this CD, nature photography would be conducted via hiking, bicycles, or horses as examples. This CD applies only to personal photography and not to other forms of photography (e.g., commercial photography and filming). Commercial photography or videography is covered under the Commercial Recording CD and will require a special use permit issued by the Refuge with specific restrictions.

1.3 Purpose and Need

The following section identifies the purpose and needs justification for the outdoor recreational activities proposed on Refuge fee units: hunting, fishing, wildlife observation and photography, environmental education and interpretation, biking, camping, pets on leash, hiking, horseback riding, and off-road vehicle use for hunting or fishing, commercial tours, and commercial recording.

Bicycling

Bicycling to observe wildlife facilitates priority public uses of the System. Providing opportunities for these activities contributes toward fulfilling provisions of the 1997 National Wildlife Refuge System Improvement Act. Wildlife observation from bicycles in areas where there are few negative effects to wildlife will provide an appropriate mode of transportation for promoting increased awareness, understanding, and support of refuge resources and programs. At the anticipated and current levels of visitation, bicycling does not seem to conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the Refuge. Bicycling activities will be in support of priority public use activities and programs (e.g., wildlife observation), which will be determined to be compatible with refuge purposes.

Camping

Primitive camping in designated camp sites would support refuge priority public use programs (e.g., environmental education, hunting) and require minimal infrastructure. Potential camping sites could include certain trailheads, and no open-pit fires would be allowed. The special use permits (SUP) are needed for this activity.

Commercial Recording

The USFWS provides the general public opportunities to participate in compatible wildlife-dependent recreation to appreciate the value of, and need for, fish and wildlife conservation. Commercial recording endeavors can be an excellent platform for exposing young people and urban dwellers to the unique sounds and beauty of nature, and the unique settings of the Refuge. Because of its proximity to major urban areas, the Refuge could be attractive to commercial recording activities.

Commercial Tours

The Service provides the public with opportunities to participate in compatible wildlife-dependent recreation to appreciate the value of, and need for, fish, wildlife, and plant conservation. The Refuge is the last remnant of the once vast northern Everglades ridge and slough landscape. Visitors participating in commercial tours are educated about the mission, habitats, and the ecosystem in such a manner as to leave them with a better understanding of resources. The experience can instill an appreciation for future stewards of the environment. Commercial tours can be an excellent interpretive activity, exposing young people, urban dwellers, and the community to the unique sounds of the marsh, the beauty of nature, and the distinctive setting of the Refuge.

Environmental Education and Interpretation

Environmental education and interpretation represent two priority wildlife-dependent recreational activities under the 1997 National Wildlife Refuge System Improvement Act. Environmental education and interpretation are key components of the Service's initiative to connect children with nature and are used to encourage all citizens to act responsibly in protecting natural resources.

Fishing and Frogging

Fishing is a priority public use under the 1997 National Wildlife Refuge System Improvement Act and a wildlife-dependent activity. Frogging is a historic use on much of Florida. Fishing, including taking of non-listed frogs would be covered under state WMA regulations.

Hiking, Backpacking, and Jogging

Although hiking, backpacking, and jogging are not priority public uses, they facilitate wildlife-dependent activities, providing visitors with the chance to view or photograph wildlife and engage in interpretation, as well as, recreational hunting and fishing, thereby promoting public appreciation of the conservation of wildlife and habitats.

Horseback Riding

Horseback riding is a historic use on the Refuge and throughout the landscape within which the Refuge was established, and can be used in support of priority, wildlife-dependent public uses. For instance, wildlife observation can be an element of horseback riding and may allow the Refuge to reach a target audience that it will not otherwise reach.

Hunting

Hunting is an historic use on the Refuge and throughout the landscape within which the Refuge was established, and in accordance with the 1997 National Wildlife Refuge System Administration Act, hunting is considered a priority wildlife-dependent public use on national wildlife refuges. The harvest of surplus animals is one tool used to maintain wildlife populations at a level compatible with habitat (McShea et. al. 1997, Terborgh et. al. 2001). An overabundance of animals, such as hogs and deer, can be detrimental to native habitats. In addition to providing recreational opportunities, hunting to control populations of feral hogs and deer can be beneficial to native species and habitats, and is therefore considered compatible with refuge purposes (Seward et al. 2004, USFWS 2014).

In the United States, there has been an increase in hunting participation in recent years. Between 2001 and 2011, the percentage of citizens hunting in the United States increased by five percent (USFWS 2012b). However, in Florida there has been a decline in the number of licensed hunters since 1980. The steady loss of hunting opportunities has been cited as one of the causes of the decline. Public lands are increasingly crowded, and private hunting lease prices continue to rise (Orlando Sentinel 2005). Hence, there is a need to provide more hunting opportunities for the public. Additionally, recreational hunting can be part of the Refuge's overall population management efforts.

Off-road Vehicle in Support of Hunting and Fishing

Under the 1997 National Wildlife Refuge System Improvement Act, hunting is a priority public use. The harvest of surplus animals is one tool used to maintain wildlife populations at a level compatible with habitat. An overabundance of animals, such as hogs and deer, can be detrimental to native habitats. Hunting provides recreational opportunities, and can control populations of feral hogs and deer, benefitting native species and habitats. Hence, this activity is considered compatible with the purposes of the Refuge. Likewise, fishing is a priority public use. ORV use on specific sites, certain existing roads, and certain existing trails will facilitate hunting and fishing on the Refuge.

Pets on Leash

The Refuge envisions that allowing pets on leash may foster positive stakeholder/refuge relations. Enhancing current public uses by allowing pets, can potentially reach new groups of visitors and initiate a better understanding of Refuge resources and potential future recreation opportunities available. Dog walking is a traditional use in this landscape that can support wildlife observation and photography. Allowing pets while enjoying other priority public uses can be an excellent platform for exposing young people and urban dwellers to the sounds and beauty of nature and the unique setting of the Refuge. The Refuge is appealing to those looking for settings to enjoy outdoor pursuits in isolated areas. There is a risk of pets being injured or killed by wildlife on the Refuge. However, with improvements to educational and

interpretation signage, risks to pets, pet owners, and other visitors can be mitigated. Allowing pets on the Refuge will benefit and promote the goals of the Program.

Wildlife Observation and Photography

Wildlife observation and photography are priority public uses of the Refuge System. Providing quality, appropriate, and compatible opportunities for these activities help to fulfill the provisions of the Improvement Act. Wildlife observation and photography will provide excellent forums for promoting increased awareness, understanding, and support of refuge resources relative to wildlife/human interactions. Under a controlled level of limited visitation, these wildlife-dependent uses will not conflict with the national policy to maintain the biological diversity, integrity, and environmental health of the Refuge.

1.4 Public Involvement

The Conceptual Management Plan (CMP) lists objectives for the Service to work with FWC to designate new refuge lands as part of the state's WMA program, develop a visitor services plan, and develop hunt/fish plans (USFWS 2012a). To meet these objectives, the Service began initial conversations with FWC in 2015, following acquisition of the Arbuckle and Hatchineha units. Additional meetings were held with state, non-profit entities and partners during the development of the VSP and this EA. A news release was distributed to the local media and email list. Letters were sent to refuge neighbors, FWC, Florida Forest Service, and Native American tribes of Florida. Notices were also posted on the Refuge website and social media.

1.5 Consultation

Tribal Consultation

The United States has a unique legal and political relationship with recognized Tribes. The United States recognizes Tribes as sovereign governments that are self-governing under federal law (Pursuant to DOI Policy on Consultation with Indian Tribes as amended on August 10, 2012). The Service initiated consultation through formal letters sent to the chairs of affected Tribes in June 2018. The Service invited the Tribes to participate in any way that would be meaningful to them, including government to government consultation. In July 2018, the Tribes were provided with the Service's EHNWR & CA Cultural Resources Overview to assist them in the review of the draft VSP. The Tribes were also included in the distribution of this EA.

Other Consultation

Federal consistency reviews, under the Coastal Zone Management Act are integrated into other review processes conducted by the state depending on the type of federal action being proposed. The Florida State Clearinghouse, administered by the Department of Environmental Protection Office of Intergovernmental Programs, is the primary contact for receipt of consistency evaluations from federal agencies. The Florida State Clearinghouse coordinates the state's review of proposed federal activities, requests for federal funds, and applications for federal permits other than permits issued under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Consistency reviews of federal

permits issued under those Acts are conducted in conjunction with wetland resource and environmental resource permits issued by the Department of Environmental Protection or the water management districts.

Section 106 of the National Historic Preservation Act of 1966, as amended, and Section 14 of the Archaeological Resources Protection Act require the Service to evaluate the effects of any of its actions on cultural resources [e.g., historical, architectural, and archaeological) that are listed or eligible for listing in the National Register of Historic Places (NRHP)]. In accordance with these regulations, the Service's regional archeologist and Florida's State Historic Preservation Office were consulted to ensure that cultural resources would not be adversely affected.

The Service provides two major types of protection for potential archaeological or historical sites located on Service lands – protection from damage by federal activity and protection from vandalism or theft. The Service's policy is to preserve these cultural, historic, and archaeological resources in the public trust and avoid any adverse effects wherever possible.

The Service is required to ensure that any action authorized, funded, or carried out by the Service does not jeopardize the continued existence of species listed under the Endangered Species Act or modify their critical habitat. This process is referred to as a Section 7 Evaluation and is done through consultation with the Service Ecological Services office. The Refuge consulted the South Florida Ecological Service Office (SFESO) with regards to several federally-listed species that have been documented on the Refuge to ensure that the project would have minimal adverse effects.

2.0 Proposed Action and Alternatives

Two alternatives were analyzed in this assessment, the proposed action and no action.

2.1 Proposed Action

The proposed action is to manage public outdoor recreational opportunities on fee-title refuge lands. The VSP includes CDs that, if approved, would have 10-and 15-year timeframes for non-priority and priority uses, respectively as shown in Table 1. This EA evaluates the environmental effects of the following 14 proposed uses under the mandatory expiration dates shown in Table 1: bicycling, camping, commercial recording, commercial tours, environmental education, interpretation, sport fishing, hiking, horseback riding, hunting, off-road vehicle use (in support of hunting and sport fishing), pets on leash, wildlife observation, and wildlife photography.

2.2 No Action Alternative

NEPA requires that proposed actions are compared to the baseline or “No Action Alternative”. Under the No Action Alternative, public use opportunities on the Refuge would be limited to uses and levels allowed via the CMP and associated interim CDs set to expire in 2021 for non-priority uses and in 2026 for priority uses (USFWS 2012).

3.0 Affected Environment

For the purposes of this EA, only resources that might be affected by the proposed action are described, including noise, biological resources, socioeconomics, and cultural resources. Soils, air quality, climate change, water quality, hydrology, geology, and aesthetics will not be affected under either alternative and are not further considered. A more detailed description of the Refuge environment can be found in the LPP (USFWS 2012a).

3.1 Noise

The primary source of noise on the units is from highway traffic; although the more interior habitats further removed from public roads are relatively quiet.

3.2 Biological Resources

This section describes the biological resources of the Refuge that could be affected by the proposed action including habitats, threatened and endangered species, at-risk species, migratory birds, non-imperiled wildlife, game species, and non-native wildlife species.

Habitats

Refuge units were altered at some level through land use conversions benefitting agriculture. This includes agricultural road development, removal of native vegetation, ditching and draining, and fire suppression. Prior to acquisition by the Service, extensive habitat restoration and management was conducted on the Arbuckle and Hatchineha Units.

Arbuckle Unit

Generally, the western half of the unit is wetter, with dominant habitats including bay swamp, mixed hardwood wetlands, hydric pine flatwoods, cypress, freshwater marsh, and wet prairie. The eastern half of the site is drier, with major habitat types that include scrubby pine flatwoods, xeric oak, and live oak (Gulfstream Natural Gas System 2011).

Hatchineha Unit

The Hatchineha Unit is dominated by pine flatwoods. Other habitats include hardwood hammock, scrub, sand hill, forested wetlands, wet prairie, and freshwater marshes, and pasture.

Okeechobee Unit

Over 50 percent of the Okeechobee consists of dry prairie, followed by wet prairie and freshwater marshes. The remaining habitats consist of pasture, temperate hammock, and freshwater forested wetlands. Additionally, the Unit was managed as unimproved pasture.

Threatened and Endangered Species

Arbuckle Unit

The Arbuckle Unit supports a number of protected wildlife species, including at least six federally-listed species and a number of state-listed animals (Table 2). Additionally, the unit lies within the Endangered Species Act (ESA) consultation area for Florida bonneted bat (*Eumops floridanus*). Listed plant species documented on the unit are shown in Table 3.

Table 2. Listed wildlife species documented on the Arbuckle Unit

Common Name	Scientific Name	Status	
		State	Federal
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	T	T
Eastern indigo snake	<i>Drymarchon carais couperi</i>	T	T
Florida bonneted bat	<i>Eumops floridanus</i>	E	E
Florida sandhill crane	<i>Antigone canadensis pratensis</i>	T	-
Gopher tortoise	<i>Gopherus polyphemus</i>	T	C
Sand skink	<i>Neoseps reynoldsi</i>	T	T
Wood stork	<i>Mycteria americana</i>	T	T
C=Candidate, E=Endangered, T=Threatened			

Table 3. Listed plant species documented on Arbuckle Unit

Common Name	Scientific Name	Status	
		State	Federal
Britton's beargrass	<i>Nolina brittoniana</i>	E	E
Cutthroat grass	<i>Panicum abscissum</i>	E	-
Florida ziziphus	<i>Ziziphus celata</i>	E	E
Garberia	<i>Garberia heterophylla</i>	T	-
Papery whitlow-wort	<i>Paronychia chartacea</i>	T	T
Pygmy fringe-tree	<i>Chionanthus pygmaeus</i>	E	E
Scrub blazingstar	<i>Liatris ohlingerae</i>	E	E
E=Endangered, T=Threatened			

Hatchineha Unit

State- and federally listed wildlife and plant species documented on the unit are shown in Table 4 and Table 5, respectively. The unit lies within the Endangered Species Act (ESA) consultation area for Florida bonneted bat.

Table 4. Listed wildlife species documented on the Hatchineha Unit

Common Name	Scientific Name	Status	
		State	Federal
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	T	T
Bluetail mole skink	<i>Eumeces egregius lividus</i>	T	T
Eastern indigo snake	<i>Drymarchon carais couperi</i>	T	T
Florida bonneted bat	<i>Eumops floridanus</i>	E	E
Florida sandhill crane	<i>Antigone canadensis pratensis</i>	T	-
Florida scrub jay	<i>Aphelocoma coerulescens</i>	T	T
Gopher tortoise	<i>Gopherus polyphemus</i>	T	C
Sand skink	<i>Neoseps reynoldsi</i>	T	T
Wood stork	<i>Mycteria americana</i>	T	T
C=Candidate, E=Endangered, T=Threatened			

Table 5. Listed plant species documented on Hatchineha Unit

Common Name	Scientific Name	Status	
		State	Federal
Ashe's savory	<i>Calamintha ashei</i>	T	-
Britton's beargrass	<i>Nolina brittoniana</i>	E	E
Curtiss' milkweed	<i>Asclepias curtissii</i>	E	-
Cutthroat grass	<i>Panicum abscissum</i>	E	-
Florida bonamia	<i>Bonamia grandiflora</i>	E	T
Lewton's polygala	<i>Polygala lewtonii</i>	E	E
Papery whitlow-wort	<i>Paronychia chartacea</i>	T	T
Pigeon wings	<i>Clitoria fragrans</i>	E	T
Pygmy fringe-tree	<i>Chionanthus pygmaeus</i>	E	E
Sandlace	<i>Polygonella myriophylla</i>	E	E
Scrub bluestem	<i>Schizachyrium niveum</i>	E	-
Scrub plum	<i>Prunus geniculata</i>	E	E
Scrub stylisma	<i>Stylisma abdita</i>	E	-
E=Endangered, T=Threatened			

Okeechobee Unit

Listed wildlife species likely to occur on the Okeechobee Unit are shown in Table 6. There are no known listed plants on the tract.

Table 6. Listed wildlife species documented on/nearby Okeechobee Unit

Common Name	Scientific Name	Status	
		State	Federal
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	T	T
Eastern indigo snake	<i>Drymarchon carais couperi</i>	T	T
Florida grasshopper sparrow	<i>Ammodramus savannarum floridanus</i>	E	E
Florida bonneted bat	<i>Eumops floridanus</i>	E	E
Florida sandhill crane	<i>Antigone canadensis pratensis</i>	T	-
Wood stork	<i>Mycteria americana</i>	T	T
C=Candidate, E=Endangered, T=Threatened			

At-Risk Species

This section describes species that are not federally listed, but whose populations are declining substantially and could be “candidate” species for federal listing. The gopher tortoise is a federal candidate species and state-listed as threatened. The Arbuckle and Hatchineha units support gopher tortoise, but they are not documented on the Okeechobee Unit.

Migratory Birds

The Migratory Bird Treaty Act of 1918, as amended, protects over 400 species of birds. There is no information to suggest that any of the units has been specifically surveyed for migratory birds. However, all units are likely to support a range of species, including waterfowl, grassland birds, raptors, neotropical songbirds, and wading birds. Migratory game birds are described under the Game Species section below.

Non-imperiled Wildlife

Non-imperiled wildlife describes species that are relatively abundant and generally widely distributed across Florida or large portions of the United States and are likely to occur on all units. Examples include, bobcat (*Lynx rufus*), cotton mouse (*Peromyscus gossypinus*), cotton rat (*Sigmodon hispidus*), eastern garter snake (*Thamnophis sirtalis*), Florida rough green snake (*Opheodrys aestivus*), southern black racer (*Coluber constrictor priapus*), and several water snakes (*Nerodia* spp.).

Game Species

Game species are defined in this EA as any fish, reptile, amphibian, bird or mammal species that can legally be taken in accordance with federal and state regulations. Examples of game species are provided below.

White-tailed Deer (Odocoileus virginianus)

White-tailed deer are wide-spread and occur across most of Florida, with some exceptions in areas where habitat is unsuitable. Generally, deer populations favor areas where there is a mix of wooded and more open habitats, such as is found in much of rural Florida. Suburban areas that offer sufficient cover and forage opportunities are increasingly utilized by this adaptable species. Deer occur on all units.

On existing refuge lands, deer hunting is currently being coordinated with FWC to ensure that the hunts meet the goals and objectives of the “Strategic Plan for Deer Management in Florida 2008-2018”. In the FWC plan, the deer population goal is to, “Ensure the existence of robust deer populations that meet the public’s desires for recreational opportunities and protection of property while ensuring the long-term welfare of the species” (FWC 2007a). Deer hunting opportunities on any future refuge lands that are added to the WMA program would be aimed toward supporting FWC’s deer management.

Feral Hogs (Sus scrofa)

Feral (wild) hogs are an invasive, non-native species known to alter native habitat, damage crops, and spread diseases (U.S. Department of Agriculture 2013). This highly prolific, adaptable species is widespread across Florida and occurs on all units. Complete eradication of feral hog on refuge lands is desirable, but currently is not feasible. Hunting of feral hogs, which is an activity widely enjoyed by local hunters, provides the Refuge with another management tool for reducing this detrimental species.

Wild Turkey (Meleagris gallopavo)

Wild turkeys are relatively common in much of rural Florida, utilizing a range of agricultural, grassland, and woodland habitats. They are increasingly found in suburban areas when there is suitable habitat. Wild turkeys occur on all units.

Wild turkey in Florida are managed under the guidance of the FWC Wild Turkey Management Program (WTMP). The WTMP is charged with coordinating wild turkey management and research activities across the state and providing a statewide approach to conservation and management of Florida’s wild turkey population. As a part of the 10-year strategic plan (2008-2018) the following goal was developed: “Ensure healthy and sustainable wild turkey” populations throughout the state while providing and promoting compatible uses of the resource (FWC 2008). On existing refuge lands, wild turkey hunting is currently being coordinated with FWC to ensure that the hunts meet the goals and objectives of their 10-year plan. Wild turkey hunting opportunities on any future refuge lands that are added to the WMA program would be aimed toward supporting FWC’s management of this game species.

Migratory Game Birds

For the purposes of this EA, migratory game birds fall into the following two categories:

1. Waterfowl:

Waterfowl that are hunted in Florida include various ducks (e.g. mallards, canvasback, wood duck), geese (e.g. Canada, snow, blue), teal, and merganser. The units have limited suitable habitat for most of these species.

2. Non-waterfowl:

Examples of migratory game birds in this category include rails, moorhen, snipe, coot, doves, crows, and woodcock. A few of these species have been observed on all units.

The Service annually prescribes a framework, or outer limits, for dates and times when hunting may occur and the number of migratory game birds that may be taken and possessed. These frameworks are necessary to allow state selections of season and limits for recreation and sustenance; aid federal, state,

and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which states may select season dates, bag limits, shooting hours, and other options for each migratory bird hunting season.

Small Game

For the purposes of this plan, small game includes several small to medium sized mammals, (e.g. squirrel, raccoon, rabbit, bobcat, coyote, opossum, otter, skunk) and bobwhite quail, a non-migratory bird species. Most small game mammal species are expected to occur on all units. Quail have been observed on all units.

During the 2018-2019 season, bobwhite quail were only legally hunted within FWC's purview on several WMAs designated as Quail Enhancement Areas or via a release permit on select WMAs and Wildlife and Environmental Areas (WEAs). Refuge lands currently within the WMA program do not offer quail hunts. However, there is the potential that current lands or new refuge lands added to the WMA may provide this opportunity in the future.

Alligator

Since 1988, FWC has offered hunters the opportunity to take part in its annual statewide recreational alligator harvest. The purpose of reinstating alligator hunting was to provide the public with a much-desired opportunity to hunt alligators in Florida. Recreational alligator hunting is just one part of the FWC's overall approach to managing the population. FWC has identified state-wide alligator hunt units. Although refuge lands do not fall within present FWC alligator harvest units, it is possible they may in the future.

Fishable Species

Fish habitat on all units is limited. Arbuckle has some deeper ditches, with wooded banks, that retain water during the dry season, and these waterways appear to be dominated by gar, sunfish, and non-native species. Neither the Hatchineha Unit nor Okeechobee Unit have permanent water.

In Florida, fishing regulations include the taking of most frog species, while listed species are specifically excluded. Several larger frog species have been documented on the Arbuckle Unit. The types of frog species present on the Hatchineha and Okeechobee units are unknown.

Non-native (Exotic) Species

A range of non-native (exotic) species of plants and wildlife occur throughout Florida, many of which are believed to have negative consequences for native habitats and wildlife, agriculture, and infrastructure. Feral hog is discussed above as a game species, and occur on all units. Large exotic lizards (e.g., Nile monitor, Argentine black and white tegu) and constrictors (e.g. Burmese python) have invaded south Florida. Though not observed on these units, these species are spreading northward, causing measurable effects to populations and diversity in wildlife communities (Engeman et. al. 2011).

3.3 Socioeconomics

For the purposes of this EA, refer to the socioeconomics section of the environmental assessment conducted as part of the LPP (USFWS 2012b). The 2012 LPP and associated effects analysis provides information on the demographics, economic activity, and outdoor recreational opportunities for a study area that included Highlands, Okeechobee, Osceola, and Polk Counties (USFWS 2012a).

3.4 Cultural Resources

Although there are no known sites, given the history of this area that encompasses the Refuge, cultural resource sites are expected to be encountered. The Refuge acquisition boundary consists of the Kissimmee River watershed and encompasses numerous sites of interest to the Seminole Tribe of Florida and potentially includes sites of interest to the Miccosukee Tribe of Indians of Florida. Sites that might be encountered within the Refuge include green corn dance sites, villages, camps, cemeteries, and historic landscapes, such as the Okeechobee Battlefield. Further, the Brighton Reservation of the Seminole Tribe of Florida is located in Glades County, adjacent to the Study Area and the Miccosukee Tribe of Indians of Florida has cattle grazing lands in Highlands County. Additional information on the cultural history of the area encompassed by the Refuge acquisition boundary can be found in the LPP (USFWS 2012) and associated EA (USFWS 2012b).

4.0 Environmental Consequences

This chapter of the EA describes the potential environmental effects that could result under the Action and No Action Alternatives. Effects can be classified as direct, indirect, and cumulative.

The CEQ regulations state that direct effects are “caused by the action and occur at the same time and place”. Direct effects are typically well-understood and predictable. Direct effects are action-focused effects. Examples of common direct effects resulting from outdoor recreation include wildlife disturbance, taking of wildlife, and vegetation trampling.

Indirect effects are defined as occurring later in time and farther removed in distance, but are still reasonably foreseeable. An example of an indirect effects resulting from outdoor recreation could include a change over time in the types of plants occurring in areas where trampling takes place, as hardier plants replace more fragile species. An example of an indirect effect that is further removed from where the action is taking place could include an increase in the density of certain wildlife on nearby lands, as species temporarily flee the Refuge during the hunting season.

A cumulative effect is defined as one that results from the incremental effects of the proposed action when added to other past, present, and reasonably foreseeable future action regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). Cumulative effects are the overall, net effects on a resource that arise from multiple actions. Environmental effects can “accumulate” spatially, when different actions affect different areas of the same resource. They can also accumulate over the course of time. Sometimes different actions counterbalance one another, partially canceling out each other’s effects on a resource. But more typically, multiple effects add up, with each additional action contributing an incremental effect on the resource.

Unless otherwise noted, the following sections discuss the effects to the environment if the Action Alternative were implemented. Under the No Action Alternative, most resources would be affected in a manner similar to what is anticipated under the Action Alternative, but for a shorter duration since current uses are allowed under interim CDs set to expire in 2021 (non-priority uses) and 2026 (priority uses). Effects can be categorized as direct (occur at the same time and place), indirect (occur in foreseeable foreseeable), cumulative (incremental, when taken together with other actions).

Effects are classified in terms of their level of impact as follows:

- None – no effects expected
- Minimal – effects are not expected to be measurable, or are too small to cause any discernible degradation to the environment
- Minor – effects would be measurable, but not substantial, because the affected system is capable of absorbing the change
- Moderate – effects would be measurable, but could be reduced through appropriate mitigation
- Major – effects could individually or cumulatively be substantial

The expected environmental effects under both alternatives are summarized in Table 6. These anticipated effects are further detailed under each resource category (sections 4.1 through 4.4).

Table 7. Summary of expected environmental effects for resource areas under each alternative

Resource Area	No Action	Action
Noise	Minimal adverse effects	Minimal adverse effects
Habitats	Minor adverse effects	Minor adverse effects
	Minimal beneficial effects	Minimal beneficial effects
Threatened and Endangered Species	Minimal adverse effects	Minimal adverse effects
	Some beneficial effects	Minimal beneficial effects
At-risk Species	Minimal adverse effects	Minimal adverse effects
	Minimal beneficial effects	Minimal beneficial effects
Migratory birds (non-game)	Minimal adverse effects	Minimal adverse effects
	Minimal beneficial effects	Minimal beneficial effects
Non-imperiled Wildlife	Minimal adverse effects	Minimal adverse effects
	Minimal beneficial effects	Minimal beneficial effects
White-tailed Deer	Minor adverse effects	Minor adverse effects
	Minimal beneficial effects	Minimal beneficial effects
Feral (wild) Hog	Minor positive effects	Minor positive effects

Wild Turkey	Minor adverse effects Minimal beneficial effects	Minor adverse effects Minimal beneficial effects
Migratory Game Birds	Minor adverse effects Minimal beneficial effects	Minor adverse effects Minimal beneficial effects
Small Game	Minimal adverse effects Minimal beneficial effects	Minimal adverse effects Minimal beneficial effects
Alligator	Minimal adverse effects Minimal beneficial effects	Minimal adverse effects Minimal beneficial effects
Fishable Species	Minimal adverse effects Minimal beneficial effects	Minimal adverse effects Minimal beneficial effects
Non-native species	Minimal adverse effects Minimal beneficial effects	Minimal adverse effects Minimal beneficial effects
Socioeconomics	Minor positive effects	Minor positive effects
Cultural resources	Minimal adverse effects Minimal beneficial effects	Minimal adverse effects Minimal beneficial effects

4.1 Effects on Noise

All the proposed uses would create some level of noise. Some wildlife could be disturbed by increased noise from human voices for all of the described activities, disrupting their normal pattern of behavior. Barking dogs could also scare off near-by wildlife. Gunshots would temporarily cause noise, but this effect would be relatively infrequent and of short duration. Off-road vehicles would create some noise, but at the low speeds allowed this effect would be much reduced. Larger drones, where permitted, may disturb some wildlife as they emit more noise. Overall, noise levels as they relate to public uses are likely to be transient and relatively localized and are not expected to substantially affect the biology of any wildlife species present. Hence, minimal adverse effects from noise are anticipated to be similar under both alternatives, with those under the proposed action potentially lasting several years longer.

4.2 Effects on Biological Resources

This section discusses potential effects resulting from the proposed action to biological resources, including habitats, threatened and endangered species, at-risk species, migratory birds, non-imperiled wildlife, game species, and non-native wildlife.

Habitats

All of the proposed uses can adversely affect habitats. However, most of the activities would be limited to public use infrastructure already disturbed, such as roads, trails, fire-breaks, and parking areas. Hunters would be allowed off-trail on foot, but any associated vegetation disturbance would likely be negligible. Permitted (e.g. hunting and fishing) off-road vehicle use may cause localized and temporary vegetation disturbance. Horses, dogs, and pedestrians can spread the seeds of non-native plant species by passing through the site. Overall, the intensity of uses is expected to be low, relative to the size of each unit, and adverse effects to habitats are expected to be minor. Any negative effects could be further reduced by limiting use to existing trails and by making potentially sensitive areas off-limits. Environmental education and interpretation programs could increase awareness and support for refuge programs among the visiting public which may translate into benefits to these resources. These effects would be similar under each alternative, albeit for a long timeframe under the proposed action.

Threatened and Endangered Species

The potential effects to listed species are anticipated to be minimal under both alternatives, though the effects would continue for a longer timeframe under the action alternative. Environmental education and interpretation programs could increase awareness and support for Service programs and regional conservation efforts geared to protecting imperiled species among the visiting public which may translate into benefits to these resources. None of the game species potentially taken are prey for any listed species utilizing the site. Increased noise levels could cause some disturbance to listed bird species, such as caracara. However, given short duration of the disturbance, this effect is expected to be minimal. Crushing of listed plants and sand skinks would be minimized by closing sensitive areas, as needed. The findings of the Intra-Service Section 7 Endangered Species Consultation can be found in the Appendix.

At-Risk Species

Gopher tortoise could potentially be negatively affected by off-road vehicle use. However, slow speeds, operator awareness, the use of designated trails, and closure of sensitive areas would keep the effects to a minimum. For both alternatives, effects would be at minimal levels described for threatened and endangered species above.

Migratory Birds (Non-game)

Non-game, migratory birds could be adversely affected by each of the proposed uses to some degree, with disturbance being the common factor. The foraging, resting, and breeding activities of birds could be altered, especially along roads and trails where public use is expected to be at higher levels (Hill et al. 1997, Koshak 2005, Masden and Fox 1995). There is a low probability that ground-nesting birds may have their nests inadvertently disturbed or destroyed by any allowed, off-trail uses. However, user awareness would minimize that negative effect. Effects, both adverse and beneficial, would be minimal, similar to those described for threatened and endangered species above.

Non-imperiled Wildlife

Disturbance from any of the proposed uses would likely be the primary adverse effect on non-imperiled wildlife, as has been documented elsewhere (Blakesly and Reese 1988, Klein 1993, Kucera 1976,

Laskowski 1999, Pease et al. 2005, Taylor and Knight 2003a and 2003b). However, these sources of disturbance would be infrequent and of short duration. Furthermore, many wildlife species are known to habituate to frequent, non-threatening human activities. Direct injury or mortality from collisions with bicycles, albeit unlikely is a possibility (Quinn and Chernoff 2010). Permitted ORV use can have similar consequences. Discarded fishing line may injure or kill birds and other wildlife. Taken together, these consequences are expected to be localized, relatively infrequent, and of negligible importance to non-imperiled wildlife populations. Hence, any adverse effects to non-imperiled wildlife species are expected to be minimal under each alternative, differing only in timeframe. Potential positive effects could include a greater awareness and support for Refuge, State and other conservation efforts aimed at keeping relatively common species from declining.

White-tailed Deer

White-tailed deer have restricted home ranges and local hunting efforts would not affect regional populations. Furthermore, deer hunting can maintain herd size and sex ratios at a healthy population level commensurate with available habitat (McShea et. al. 1997, Terborgh et. al. 2001). FWC has divided the state into deer management units (DMUs). The Arbuckle Unit falls in DMU C1, Hatchineha Unit lies in DMU B1, and the Okeechobee Unit is located in DMU C2 (FWC 2016a). Each DMU has a specific deer quota. It is expected that all three units can support sustainable deer hunting opportunities. The annual State-wide bag limit is five deer, of which no more than two can be antlerless. The Refuge lies in the South and South-west FWC Regions. During the 2018-2019 season, 670 deer were harvested from WMAs in these regions (FWC 2020a). It is estimated that hunters would take about one deer seasonally from the Refuge. The proposed action is expected to cause a slight increase in the number of deer taken annually. This direct effect will have a negligible effect on the population. It is expected that the deer population will recover seasonally, and no indirect effects are expected. Cumulatively, this slight increase in deer take is not expected to be significant. Hence, the overall negative effect on deer is expected to be minimal. Conversely, a positive effect could include further awareness by hunters of the state's deer management efforts, possibly resulting in increased support for the program, with associated benefits for the deer population and a range of other species.

Feral (wild) Hog

Feral hog are an invasive species and any incidental take is likely to have a beneficial effect to native wildlife and habitat, since hogs compete for mast; destroy native plants; and prey upon bird nests, small vertebrates, and invertebrates (Seward et al. 2004, USFWS 2014). During the 2018-2019 season, 635 hog were harvested from WMAs in the South and South-west regions (FWC 2020a). It is estimated that hunters would take about one hog seasonally from the Refuge. There is no limit of take for feral hog. Feral hogs reproduce rapidly, and the direct effect of increased take is expected to be negligible. Population recovery is expected, and no direct or cumulative effects are expected. Hence, a positive effect resulting from the proposed uses is expected, albeit minor.

Wild Turkey

Most of peninsular Florida is occupied by the Osceola subspecies (*Meleagris gallopavo osceola*). Wild turkey have increased in Florida since the 1970s due to habitat protection and management efforts (FWC 2016b). This game species has limited home ranges, and local hunting efforts are unlikely to affect regional populations, although spring turkey hunting can disrupt nesting (Vangilder and Kurzejeski 1995). Through the use of quota hunts, a sustainable harvest is expected. The State allows two (male

only) turkeys to be harvested seasonally. During the 2018-2019 season, 216 turkey were taken from WMAs in the South and South-west regions (FWC 2020a). It is estimated that hunters would take less than one turkey seasonally on the Refuge. The proposed action is expected to have a negligible increase in take for this species. Hence, there the direct effect is a slight decline in turkey numbers. The local population is expected to rebound seasonally with no indirect effects. Range-wide, this slight increase in take is not expected to have a cumulative effect on the species. Overall, the adverse effects of hunting on wild turkey is expected to be minimal. Positive effects would also be minor, as those described under deer.

Migratory Game Birds

The Service annually prescribes a framework, or outer limits, for dates and times when hunting may occur and the number of migratory game birds that may be taken and possessed. These frameworks are necessary to allow state selections of season and limits for recreation and sustenance; aid federal, state, and tribal governments in the management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which states may select season dates, bag limits, shooting hours, and other options for each migratory bird hunting season (USFWS 2018). All migratory bird hunting regulations will be per WMA rules, and the overall effect is expected to have a minimal adverse effect. The effects of hunting under the proposed action is detailed for individual species below. The sale of hunter Duck Stamps would support conservation efforts at the national level. Additionally, increased awareness of the range-wide reductions of populations of several migratory game birds may bring about increased support by hunters, possibly resulting in support for other conservation efforts for this resource.

Based on 2018 hunter and harvest data for WMAs in the Southern and Southwest regions (FWC 2020a), and extrapolating to Refuge acreage, a rough estimate of hunters and harvest numbers was derived. Under the proposed action, approximately 100 hunters would seasonally utilize the Refuge. They are estimated to annually take 50 ducks, 5 coot, 5 moorhen, 5 dove, 0 geese, 0 rail, 0 crow, 0 snipe, and 0 woodcock.

Daily migratory game bird bag limits are provided in Table 7.

Table 8: Daily Florida bag limits for migratory game birds

Species	Daily Bag Limit
Crow	No limit
Rail (king and clapper)	15
Rail (sore and Virginia)	25
Common moorhen	15
Canada goose	5
Duck	6 or less (depending on species)
Dove (mourning and white-winged)	15
Snipe	8
Coot	15

Light geese (snow, blue, Ross')	15
Merganser	5
Woodcock	3

The Atlantic Flyway is one of several major migratory bird corridors in North America. Annually, millions of birds use this route to move between northern nesting and southern wintering grounds. Table 9 shows Atlantic Flyway harvest numbers for various game birds (Roberts 2019).

Table 9: 2018 Atlantic Flyway nation-wide and Florida harvest data

Species	Atlantic Flyway	Florida
Mallard	277,100	200
American black duck	71,800	0
Mottled duck	11,200	9,900
Gadwall	62,200	500
Green-winged teal	101,300	3,300
Blue-winged teal	52,100	39,400
Widgeon	51,100	3,300
Northern shoveler	20,600	3,200
Northern pintail	17,500	700
Wood duck	370,500	19,100
Redhead	25,900	2,500
Canvasback	20,700	400
Greater scaup	29,000	400
Lesser scaup	45,100	3,000
Ring-necked duck	123,100	35,100
Common goldeneye	9,100	200
Bufflehead	121,000	2,000
Common merganser	5,200	0
Red-breasted merganser	6,600	100
Hooded merganser	31,500	600
Long-tailed duck	24,200	0
Common eider	17,600	0
Black scoter	30,800	100
White-winged scoter	2,400	0
Surf scoter	33,500	100
Ruddy duck	12,800	500

During the 2018-2019 season, 27,747 duck, 2,063 snipe, 2,510 dove, and 2 woodcock were taken from WMAs in the South and South-west regions (FWC 2020a). Under the proposed action, hunting would cause a slight increase in the take of ducks, coot, moorhen, dove and crow. These levels of take are expected to be at negligible levels, particularly when compared to estimated harvest numbers along the Atlantic Flyway (see table 9). There is no anticipated take of geese, rail, snipe, and woodcock. The direct effect of take is a slight decrease in migratory bird game numbers. No indirect or cumulative effects related to the proposed action are expected.

Small (Upland) Game

Small game mammals include species such as rabbits, raccoon, opossum, and squirrel, and are believed to be widespread and common on the Refuge. The structure and length of hunt seasons for the Refuge will be planned and managed through existing state WMA regulations (FWC 2016c). The daily bag limit for gray squirrel and rabbit is 12. The possession limit for bobcat and otter is one. There are no bag limits for raccoon, opossum, armadillo, beaver, coyote, skunk, and nutria. During the 2018-2019 season, four otter, 479 gray squirrel, 19 raccoon, one bobcat, six coyote, and 29 rabbit were taken from WMAs in the South and South-west regions (FWC 2020a). It is estimated that hunters would take less than one of each of otter, raccoon, bobcat, coyote or rabbit seasonally on the Refuge. About one gray squirrel would be taken every season. There is no data on opossum, armadillo, beaver, skunk, or nutria from which to predict take on the Refuge. The proposed action is anticipated to cause a slight increase in the take of all small game species, except beaver and nutria, neither of which are found on the Refuge. This impact is expected to be negligible, as these species have high reproductive rates that can support the expected levels of take. Bobcat and otter have relatively low reproductive rates compared to the other small game species, hence their take is limited to one each annually. The direct effect is a negligible decline in local small game numbers seasonally. These small game species' population recovery seasonally and no indirect or cumulative effects are anticipated. Overall, the adverse effect of hunting on small game species is expected to be minimal. In some instances, the populations of medium-sized predators such as raccoons can rise to levels where nest predation and other negative effects become noticeable. Small game hunting can have beneficial effects by helping keep raccoon populations at acceptable levels either by direct removal or causing temporary displacement, providing some level of respite from nest predation. Other small game species are considered sufficiently numerous by FWC to allow their take per State regulations.

Range-wide, the bobwhite quail population has declined since the 1950s (Dimmick et al. 2002), and FWC is actively working with state and federal agencies, landowners, and other partners to reverse that trend (FWC 2007b). During the 2018-2019 season, bobwhite quail were only legally hunted on several WMAs designated as Quail Enhancement Areas or via a release permit on select WMAs and Wildlife and Environmental Areas (WEAs). The State allows a daily bag limit of 12. During the 2018-2019 season, 811 quail were harvested from WMAs in the South and South-west regions (FWC 2020a). Refuge lands currently within the WMA program do not offer quail hunts, and currently, no take of quail is expected. Hence, at the present time, there would be no direct, indirect, or cumulative effects associated with quail hunting on the Refuge. However, there is the potential that current lands or new refuge lands added to the WMA may provide this opportunity in the future. If quail were permitted to be hunted on the Refuge, it is estimated that the take would be about two seasonally.

Alligator

Alligator conservation has been considered a success, and it is estimated there are approximately 1.3 million alligators living in Florida (FWC 2019). The State offers a limited number of permits, and each hunter is only allowed to harvest two alligators per season. In 2018, 8,402 alligators were harvested by recreational hunters across Florida (FWC 2020b). The level of alligator take under the proposed action is expected to slightly increase locally but would not rise above the State-wide quota numbers. There would be slight direct effect on alligator numbers seasonally. However, this would not translate to any

measurable indirect or cumulative effects. Hence, take of alligator per state regulations will have a minimal adverse effect on this species while potentially providing an additional hunting opportunity.

Fish

The legal take of fish species will be in accordance with state-wide freshwater fishing regulations. Any adverse effects on fish populations are expected to be minimal for both alternatives, differing only in timeframe. All freshwater Florida game fish species are considered sufficiently numerous to allow their take according to regulation. Possible beneficial effects include the sale of State fishing licenses which are used to further management efforts aimed at keeping fishable populations at sustainable levels. The legal take of frog species will be in accordance with state-wide freshwater fishing regulations. Any effects, adverse and positive are similar to those described above for fish resources.

Non-native Species

All proposed uses have the potential to inadvertently spread nonnative plants and animals. Seeds of invasive plants can be carried on vehicles, clothing, and the fur of dogs and horses. Small non-native animals can hitch-hike on vehicles or in camping gear. However, most of the non-native species that may spread by these means are likely already present in some numbers on refuge lands. This negative effect is expected to be minimal under both alternatives and having a longer duration for the proposed action.

The awareness raised on non-native species through various environmental educational and interpretive materials is considered a minimal positive consequence that would be similar under both alternatives. Visitors that are informed about the harmful nature of invasive species may be less likely to release unwanted exotic pets into the environment (USFWS 2012b).

4.3 Effects on Socioeconomics

The proposed action is expected to benefit socioeconomic resources through the contracting/purchasing of various locally-provided outdoor recreational services/goods. There would be a minor beneficial economic effect. The EA associated with the LPP provides a more detailed analysis of the economic effects associated with outdoor recreation (USFWS 2012a).

Under the no-action alternative, the listed activities would sunset sooner than what is expected under the proposed action. Although associated expenditures (e.g. sales of hunting equipment, etc.), as well as indirect economic activities (e.g. restaurant/hotel use by visitors in the surrounding areas) are unknown, this overall adverse effect is expected to be minimal under the no action alternative.

4.4 Effects on Cultural Resources

The listed activities are expected to adversely affect any cultural resources at minimal levels under both alternatives, differing only in timeframe. There are no known historical resources on the units that could be damaged. Since these activities would not require any digging, no disturbance to archeological resources is expected. Any cultural resources on possible future refuge units would be protected. Conversely, a heightened awareness by the visiting public of the importance of these resources could garner increased support for local efforts and beyond to protect America's heritage.

4.5 Environmental Justice

February 11, 1994 Executive Order No. 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low- Income Populations” to focus federal attention on the environmental and human health conditions of minority and low income populations, with the goal of achieving environmental protection for all communities.

The order 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.

None of our proposed alternatives would place a disproportionately high, adverse environmental, economic, social, or health effects 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.

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6.0 Appendix: Intra-Service Section 7 Endangered Species Consultation



United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960



January 3, 2020

Memorandum

To: William Miller, Project Leader, Everglades Headwaters National Wildlife Refuge

From: Roxanna Hinzman, Field Supervisor, South Florida Ecological Services Office

Subject: Intra-Service section 7 review of the Visitor Services Plan for Everglades Headwaters National Wildlife Refuge (Refuge) – Arbuckle, Hatchineha, and Okeechobee Units (Project)

The U.S. Fish and Wildlife Service (Service) has reviewed the information provided by the Everglades Headwaters National Wildlife Refuge (Refuge) station of the Service for consultation of the Project under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). The Refuge determined that the proposed Project may affect but is not likely to adversely affect the Audubon's crested caracara (*Polyborus plancus audubonii*), blue-tailed mole skink (*Eumeces egregius lividus*), Britton's beargrass (*Nolina brittoniana*), Eastern indigo snake (*Drymarchon corais couperi*), Florida bonamia (*Bonamia grandiflora*), Florida bonneted bat (*Eumops floridanus*), Florida grasshopper sparrow (*Ammodramus savannarum floridanus*), Florida scrub-jay (*Aphelocoma coerulescens*), Florida ziziphus (*Ziziphus celata*), gopher tortoise (*Gopherus polyphemus*), Lewton's polygala (*Polygala lewtonii*), papery whitlow-wort (*Paronychia chartacea*), pigeon wings (*Clitoria fragrans*), pygmy fringe-tree (*Chionanthus pygmaeus*), sandlace (*Polygonella myriophylla*), sand skink (*Neoseps reynoldsi*), scrub blazingstar (*Liatris ohlingerae*), scrub plum (*prunus geniculata*), and wood stork (*Mycteria americana*). Your Project has been assigned consultation code 04EF2000-2018-I-0844-R001.

The Service is developing a revised consultation Key for the eastern indigo snake. While the Key is being developed, based on guidance in a November 22, 2019, email from the State Supervisor (subject: Approved distances for consultations involving indigo snakes) the Service has identified an interim approach on how we determine when an eastern indigo snake is reasonably certain to occur, and consultation under the Endangered Species Act is appropriate.

In accordance with this guidance, the South Florida Ecological Services Field Office buffered known eastern indigo snake occurrence locations with a radius of 0.62 miles. The action area of your proposed project falls outside of the buffered area; therefore, the eastern indigo snake is not reasonably certain to occur, and no further consultation on this species is warranted.

Please find your signed intra-Service section 7 Biological Evaluation attached. A record of this consultation is on file at the South Florida Ecological Service office.

This fulfills the requirements of section 7 of the Act and further action is not required. If modifications are made to the project, if additional information involving potential effects to

listed species becomes available, or if a new species is listed, reinitiation of consultation may be necessary.

Thank you for your cooperation in the effort to protect fish and wildlife resources. If you have any questions regarding this project, please contact Dennis Hamlin at 772-469-4225.

Attachment

**REGION 4
INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM**

Originating Person: William Miller

Telephone Number: 772-216-6512 **Email:** William_g_miller@fws.gov

Date: 12.17.2019

PROJECT NAME: Visitor Services Plan for Everglades Headwaters National Wildlife Refuge and Conservation Area (Refuge) - Arbuckle, Hatchineha, and Okeechobee Units

I. Service Program:

- Ecological Services
- Federal Aid
 - Clean Vessel Act
 - Coastal Wetlands
 - Endangered Species Section 6
 - Partners for Fish and Wildlife
 - Sport Fish Restoration
 - Wildlife Restoration
- Fisheries
- Refuges/Wildlife

II. State/Agency: Florida/U.S. Fish and Wildlife Service

III. Station Name: Everglades Headwaters National Wildlife Refuge and Conservation Area

IV. Description of Proposed Action:

The Refuge is developing a Visitor Services Plan (VSP) that, if approved, would allow for the following 14 public uses: bicycling, camping, commercial recording, commercial tours, environmental education and interpretation, fishing, hiking/backpacking/jogging, horseback riding, hunting, wildlife observation and photography, off-road vehicle use in support of hunting and fishing, and pets on leash. All these activities, with the exception of commercial recording, commercial tours, and pets on leash, are currently allowed under interim compatibility determinations as described in the 2012 Everglades Headwaters Conservation Partnership: Land Protection Plan for the Establishment of the Everglades Headwaters National Wildlife Refuge and Conservation Area (LPP) that authorized the Refuge. Through a 2012 Memorandum of Understanding between the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission (FWC), hunting and fishing programs are conducted as part of the State's Wildlife Management Area (WMA) program, and each Refuge Unit has specific regulations (see FWC WMA website for current brochures). It is anticipated that the Okeechobee Unit will also be included in the WMA program in the future. The proposed action covers the Arbuckle (formerly Gulfstream), Hatchineha, and Okeechobee Units (see Figures A1, B1, and C1).

Per the Refuge's 2012 LPP, off-road vehicle use is allowed in support of hunting, fishing and research on designated roads and trails on lands that will be acquired by the Service. General ORV use by the public of designated roads and trails and not in support of hunting, fishing, or research is not allowed. As articulated by the Refuge 2012 LPP and the 2012 Service/FWC MOU, the Refuge works with FWC to evaluate a particular property, the specific resources protected on that property, and hunting activities and access to help design the hunting program for that particular property in order to minimize impacts.

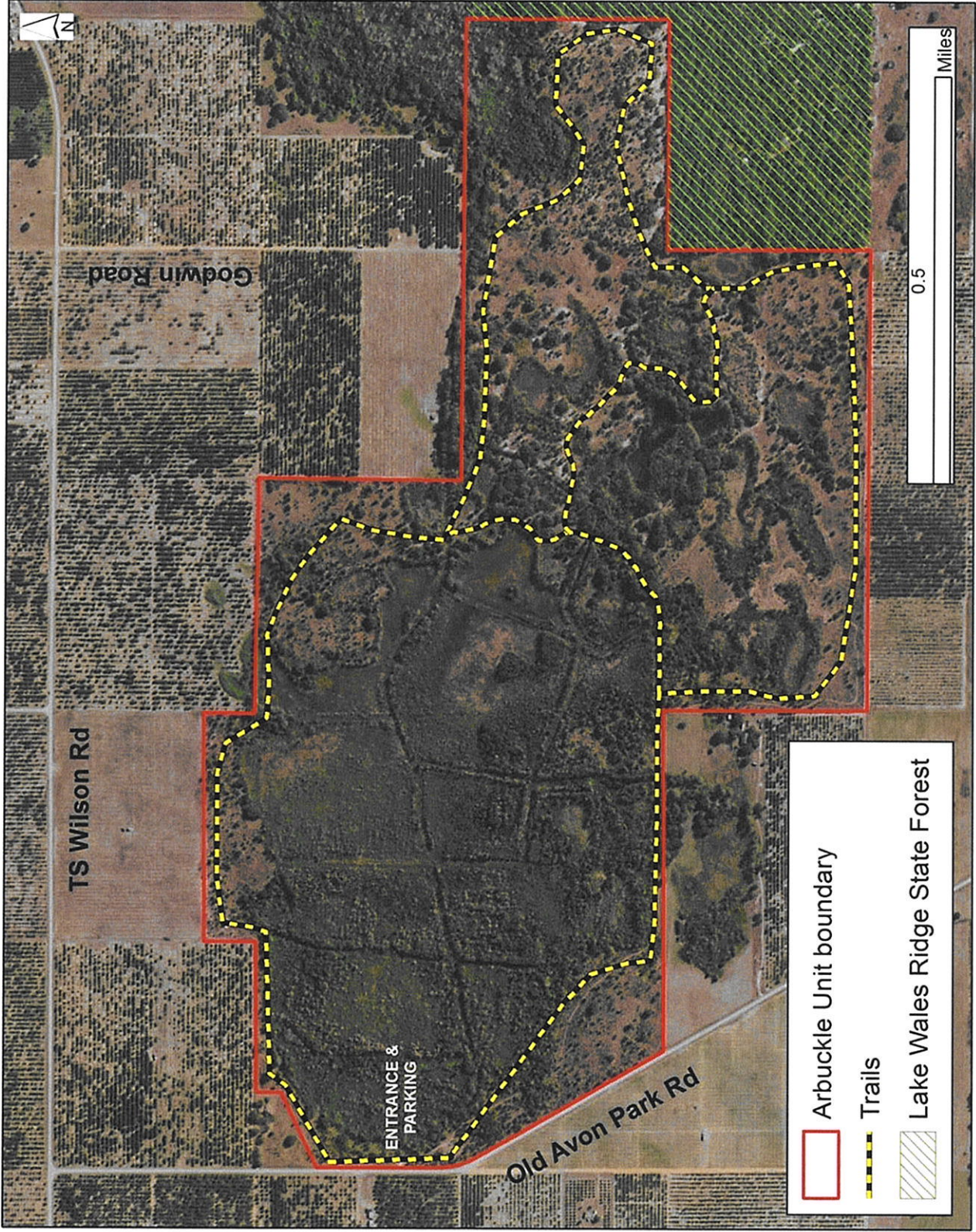
Through this process and to date hunting programs have been designed for the Arbuckle and Hatchineha Units. For the Arbuckle Unit, no public motor-vehicle access is currently allowed. On the Hatchineha Unit, street-legal motor vehicles are allowed during hunts on Dairy Road, an improved dirt road (see Figure B1), but only by permitted hunters. On the Okeechobee Unit, the potential exists that off-road vehicles would be allowed on designated roads and trails (see Figure C1).

The Refuge maintains the ability to provide for ORV use on dedicated roads and trails in support of hunting, fishing and research on all refuge units, and where not presently provided for would maintain the authority to provide for this use based on ongoing evaluations by the Service and FWC.

V. Pertinent Species and Habitat:

A. Arbuckle Unit The 395-acre Arbuckle Unit 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 (Figure A1). Wood stork 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 (Kevin Erwin Consulting Ecologist, Inc for Gulfstream Natural Gas System 2011). 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. Indigo snakes would 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

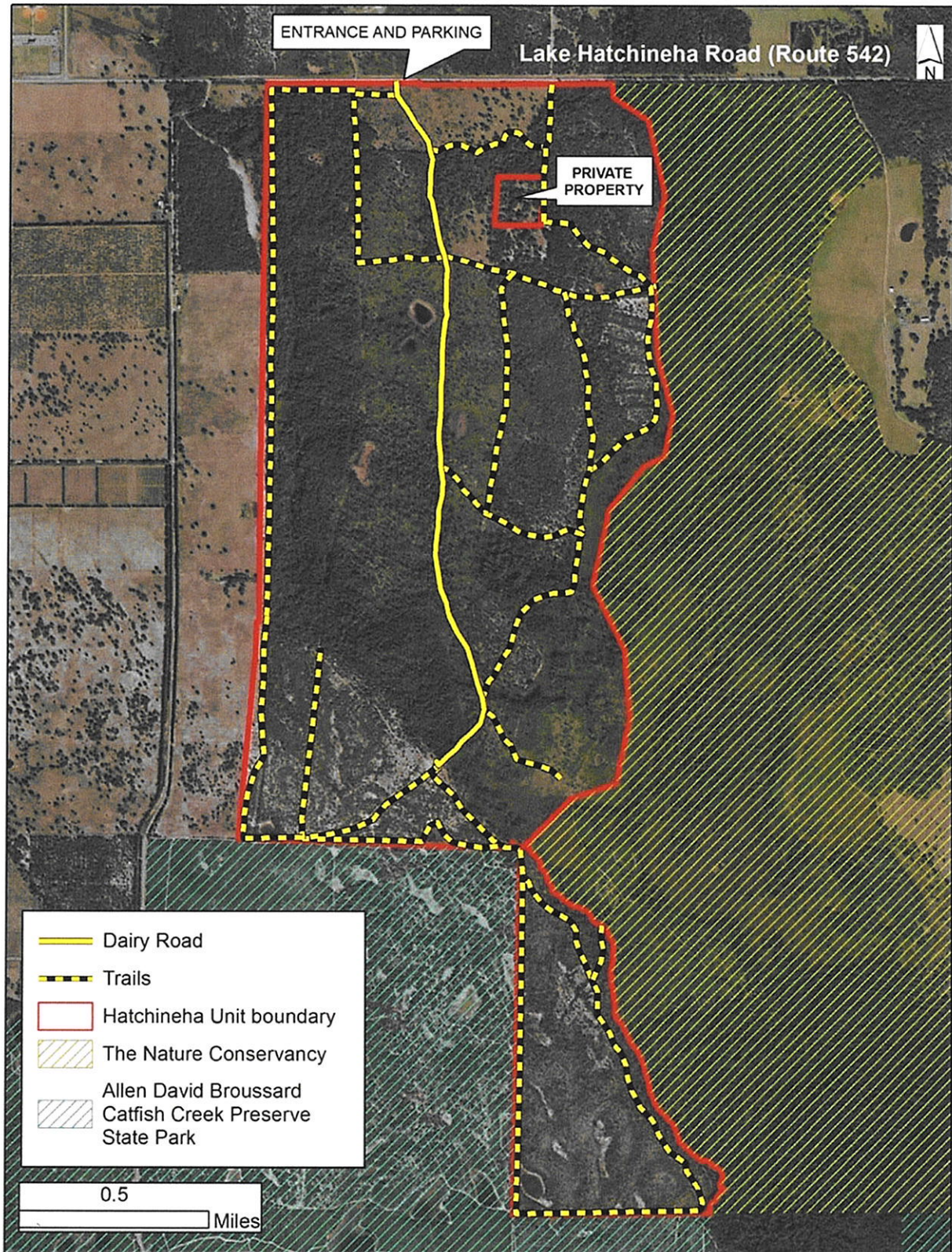
SPECIES/CRITICAL HABITAT	STATUS ¹
Audubon's crested caracara (<i>Polyborus plancus audubonii</i>)	T
Eastern Indigo Snake (<i>Drymarchon carais couperi</i>)	T
Florida bonneted bat (<i>Eumops floridanus</i>)	E
Florida Ziziphus (<i>Ziziphus celata</i>)	E
Gopher Tortoise (<i>Gopherus polyphemus</i>)	C
Pygmy 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 consists of pine flatwoods, mixed hardwood, sand pine scrub, and freshwater marsh (Figure B1). 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 scrub jay families are known to occupy the sand-hill portion of the site. Roughly 60-acres of semi-improved pasture occurs on the north end of the site and is grazed by cattle. Caracara may occasionally forage there. Wood stork may occasionally forage in ephemeral wetlands and creeks. Scrub jays have not been documented on the site since 2009. Listed plants were documented on-site when the south-western sandhill tracts were still under mitigation (Hatchineha Ranch Conservation Bank, Modica & Associates 2011). The unit lies in the Florida bonneted bat consultation area.

Figure B1: Hatchineha Unit Habitat Map



B2. Species/Critical Habitat – Hatchineha Unit

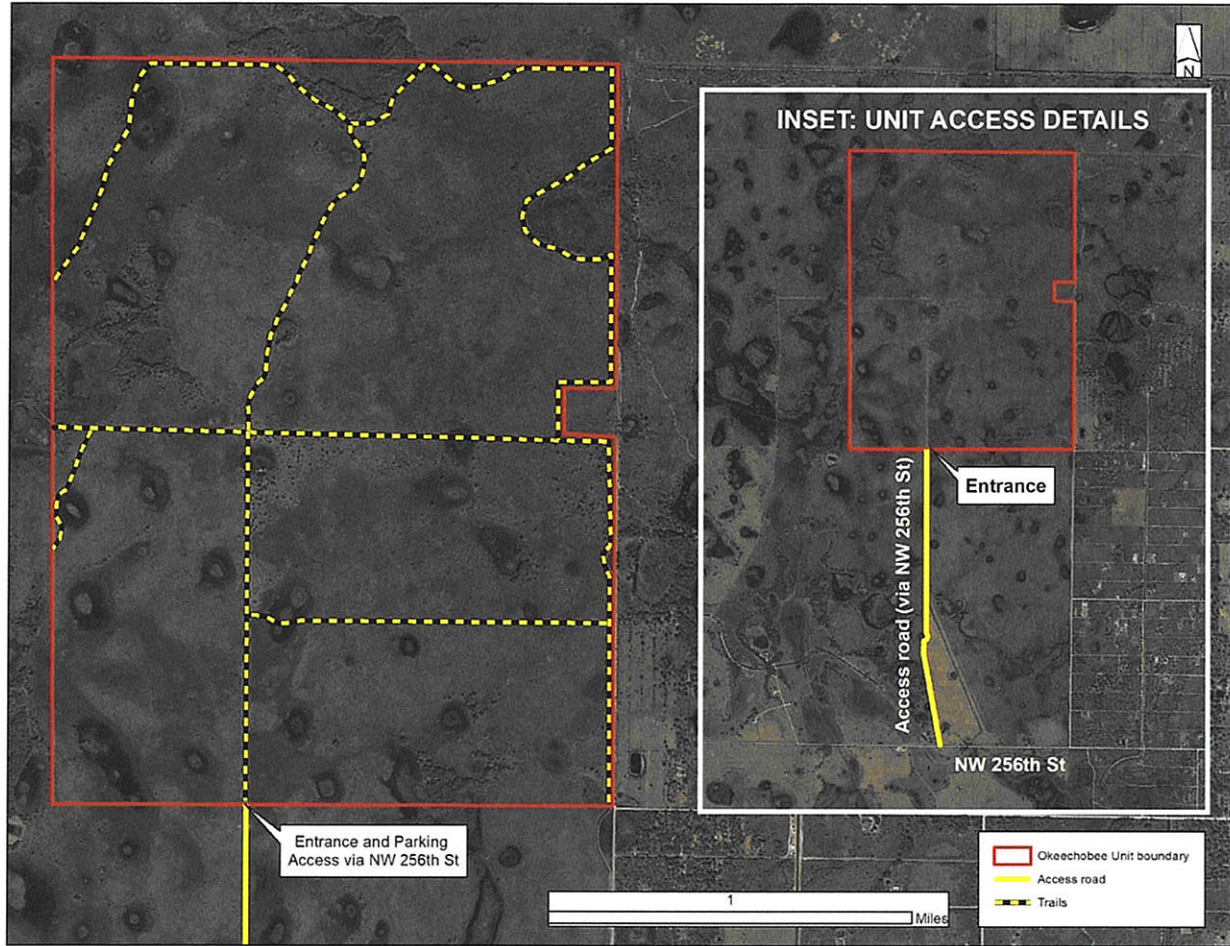
SPECIES/CRITICAL HABITAT	STATUS ¹
Audubon's crested caracara (<i>Polyborus plancus audubonii</i>)	T
Bluetail mole skink (<i>Eumeces egregius lividus</i>)	T
Britton's Beargrass (<i>Nolina brittoniana</i>)	E
Eastern Indigo Snake (<i>Drymarchon carais couperi</i>)	T
Florida Scrub Jay (<i>Aphelocoma coerulescens</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> ssp. <i>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. Okeechobee Unit

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

Figure C1: Okeechobee 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.

VI. Location

A. Landscape Conservation Cooperative: Peninsular Florida

B. County and State: Polk and Okeechobee Counties, Florida

C. Section, township, and range (or latitude and longitude):

Arbuckle Unit: 27.710845 -81.495225 Decimal Degrees

Hatchineha Unit: 28° 1'36.93"N and 81°29'31.85"W Decimal Degrees

Okeechobee Unit: 27°28'49.81 N and 81° 4'17.37"W Decimal Degrees

D. Distance (miles) and direction to nearest town:

Arbuckle Unit: About three miles east of Frostproof, along Old Avon Road.

Hatchineha Unit: About 10 miles east of Dundee, along Hatchineha Road (Route 542). The

Okeechobee Unit is located 256th Street in Okeechobee County, about 20 miles west of Highway 441.

E. Species/habitat occurrence:

For Arbuckle, refer to *Gulfstream Tract Long-term Management Plan (2011)*, developed under contract to Gulfstream Natural Gas Company by Kevin Erwin Consulting Ecologist. For Hatchineha, reliable data is only known for the sandhill portion (refer to Hatchineha Ranch Conservation Bank 2011). Listed species occurrence for the Okeechobee Unit is based on habitat characteristics and anecdotal evidence.

VII. Determination of Effects:

Listed species are not likely to be adversely affected by the proposed public uses. None of the game species potentially taken are prey for any listed species utilizing the site. Increased noise levels could cause some disturbance to listed bird species, such as caracara and wood stork. However, given short duration of the disturbance, this effect is expected to be minimal. Because the 14 public uses will not result in the clearing of any vegetation and should otherwise have discountable affects to Florida bonneted bat (FBB), we request consultation for FBB be considered outside of the *Consultation Key for the Florida bonneted bat* (Service 2019). Crushing of listed plants and skinks would be minimized by closing sensitive areas, as needed.

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

SPECIES/CRITICAL HABITAT	EXPECTED PRESENCE			IMPACTS TO SPECIES/CRITICAL HABITAT
	ARBUCKLE	HATCHINEHA	OKEECHOBEE	
Bluetail Mole Skink	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Britton's Beargrass	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Caracara	NO	YES	YES	The proposed action is not likely to adversely affect this species.
Eastern Indigo Snake	YES	YES	YES	The proposed action is not likely to adversely affect this species.
Florida bonamia	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Florida bonneted bat	YES	YES	YES	The proposed action is not likely to adversely affect this species.
Florida grasshopper sparrow	NO	NO	YES	The proposed action is not likely to adversely affect this species.
Florida scrub jay	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Florida Ziziphus	YES	NO	NO	The proposed action is not likely to adversely affect this species.
Gopher Tortoise	YES	YES	NO	The proposed action is not likely to adversely affect this species.
Lewton's polygala	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Papery whitflow-wort	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Pigeon wings	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Pygmy Fringe-tree	YES	YES	NO	The proposed action is not likely to adversely affect this species.
Sandlace	NO	YES	NO	The proposed action is not likely to adversely affect this species.

SPECIES/CRITICAL HABITAT	EXPECTED PRESENCE			IMPACTS TO SPECIES/CRITICAL HABITAT
	ARBUCKLE	HATCHINEHA	OKEECHOBEE	
Sand Skink	YES	YES	NO	The proposed action is not likely to adversely affect this species.
Scrub Blazing Star	YES	NO	NO	The proposed action is not likely to adversely affect this species.
Scrub Plum	NO	YES	NO	The proposed action is not likely to adversely affect this species.
Wood Stork	YES	YES	YES	The proposed action is not likely to adversely affect this species.

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

As stated in Section IV, Arbuckle and Hatchineha Units are part of FWC’s WMA hunting and fishing program, with specific regulations for each unit. Presently, motor vehicles are not allowed on Arbuckle, unless by special use permit in support of research. On Hatchineha, signage has been installed to reduce the likelihood of un-authorized use by motor vehicles of trails during hunts. Only Dairy Road, an improved dirt road, is open during hunts to street-legal vehicles, and by permitted hunters only. Pedestrian, bicycle, and equestrian uses are permitted on both units, but only on designated trails. It is anticipated that the Okeechobee Unit will be added to the WMA program, and off-road vehicle use may be allowed in the future on designated roads and trails in support of hunting and fishing. As mentioned, the Refuge maintains the ability to provide for ORV use on dedicated roads and trails in support of hunting and fishing on all refuge units, and where not presently provided based on ongoing evaluations by the Service and FWC of units where previous Refuge/FWC evaluations have limited the use.

Environmental education and interpretation programs could increase awareness and support for Service programs and regional conservation efforts geared to protecting imperiled species among the visiting public which may translate into benefits to these resources.

VIII. Effect Determination and Response Requested:

DETERMINATION				
SPECIES/ CRITICAL HABITAT	NE	NA	AA	RESPONSE ¹ REQUESTED
Bluetail Mole Skink		X		concurrence
Britton’s Beargrass		X		concurrence
Caracara		X		concurrence
Eastern Indigo Snake		X		concurrence
Florida bonamia		X		concurrence
Florida bonneted bat		X		concurrence
Florida grasshopper sparrow		X		concurrence
Florida scrub jay		X		concurrence
Florida Ziziphus		X		concurrence
Gopher Tortoise		X		concurrence
Lewton’s polygala		X		concurrence
Papery whitlow-wort		X		concurrence
Pigeon wings		X		concurrence
Pygmy Fringe-tree		X		concurrence
Sandlace		X		concurrence

DETERMINATION				
SPECIES/ CRITICAL HABITAT	NE	NA	AA	RESPONSE¹ REQUESTED
Sand Skink		X		concurrence
Scrub Blazing Star		X		concurrence
Scrub Plum		X		concurrence
Wood Stork		X		concurrence

¹DETERMINATION/RESPONSE REQUESTED:

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

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

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

Literature Cited:

USFWS 2012. Everglades Headwaters Conservation Partnership: Land Protection Plan for the Establishment of the Everglades Headwaters National Wildlife Refuge and Conservation Area. January 2012, 152 pp.

USFWS 2012b. Memorandum of Understanding between the U.S. Fish and Wildlife Service and The Florida Fish and Wildlife Conservation Commission. January 2012, 8 pp.

USFWS 2012c. Everglades Headwaters Conservation Partnership: Final Environmental Assessment for the Establishment of the Everglades Headwaters National Wildlife Refuge and Conservation Area. January, 2012. 397 pp.

USFWS 2019. Consultation Key for the Florida bonneted bat; 04EF2000-2014-I-0320-R001. South Florida Ecological Services Office; Vero Beach, Florida. 34 pp.

WILLIAM MILLER


Digitally signed by WILLIAM MILLER
Date: 2019.12.17 11:01:58 -05'00'

Bill Miller _____
Signature (originating station) **Date**

Project Leader
Title

IX. Reviewing Ecological Services Office Evaluation:

- A. Concurrence X _____
- B. Formal consultation required _____
- C. Conference required _____
- D. Informal conference required _____
- E. Remarks (attach additional pages as needed):



Signature

1/16/20

Date

SFSSFO Field Supervisor C

Title