

**SANDHILL LAKES MITIGATION BANK
(FITZHUGH CARTER TRACT)
OF
ECONFINA CREEK WILDLIFE MANAGEMENT AREA
ANNUAL REPORT 2017-2018**



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INTRODUCTION

The Sand Hill Lakes Mitigation Bank property (referred to hereafter as the Carter Tract) is a 2,175-acre parcel located in south-central Washington County, approximately five miles north of State Road 20 and one mile west of State Road 77. The Carter Tract was purchased by the Northwest Florida Water Management District (NFWFMD) in October 2003 and established by the Florida Fish and Wildlife Conservation Commission (FWC) as a tract of the Econfina Creek Wildlife Management Area (WMA). A mitigation bank permit from the Florida Department of Environmental Protection (DEP) was issued to the NFWFMD in August 2005 to manage the property. Management objectives identified by the NFWFMD include wetlands restoration, preservation, and management; aquatic habitat preservation; erosion control; and uplands restoration and management. In June 2005, FWC entered into a cost-share agreement with the NFWFMD to develop and implement a comprehensive fisheries and wildlife management program for the Carter Tract. Following nine years of successful partnership, in May 2014 this agreement was renewed for an additional five years through 2019. In support of this cost-share agreement, this annual report is a comprehensive summary of the biological surveys, management activities, public use, and law enforcement monitoring conducted from July 1, 2017 - June 30, 2018.

HABITAT

Ecological and Land Cover Classification

The Carter Tract can be characterized by several distinct ecological communities. The largest single community type on the property is the upland sandhill habitat (approx. 1,150 acres), which was historically logged for longleaf pine (*Pinus palustris*) and re-planted in pine plantation or left to regenerate with pine (*Pinus* spp.), live oak (*Quercus virginiana*), and scrub oaks (*Quercus* spp.). Interspersed within the uplands are approximately 875 acres of mesic and hydric habitats comprised of Swamp Lakes, Basin Swamps and Marshes, Seepage Streams, isolated Depression Marshes, Mesic Flatwoods, Baygalls, Wet Prairie, and Seepage Slopes. The remaining 150 acres are natural Sinkholes and Sinkhole lakes (isolated, steep-sided karst ponds and shallow, gently-sloping lakes).

Led by the NFWFMD, restoration management has included mechanical reduction/herbicide of hardwoods and sand pine (*Pinus clausa*), native groundcover plantings, slash pine (*Pinus elliotii*) plantation thinning, and prescribed burning. The benefits of prescribed fire and selective herbicide application and subsequent results of exotic invasive plant control, increased plant community diversity, and restoration and/or maintenance of plant communities in an early successional state in turn are beneficial for both game and nongame wildlife species.

Water Levels

Water levels on Carter Tract ponds and creeks have historically fluctuated in cycles lasting several years. Installed on the Carter Tract by NFWFMD in 2005, water gauge readings are recorded and reported monthly by FWC field staff. Public fishing opportunities require adequate water levels on the area ponds. For example, extremely low water levels forced the closing of Green Ponds to fishing from June 2011 until mid-July 2013 when heavy rains recharged the aquifer and refilled all area ponds. Water levels on Carter Tract have remained relatively stable since the last recharging event (notwithstanding the typical seasonal fluctuations) and throughout FY 2017-18. Figure 1 illustrates the change in water level of area water bodies over the last three years. The Area Map included within the Fitzhugh Carter Tract Hunting and Fishing Regulations Summary brochure (Appendix I) shows the location of primary water bodies.

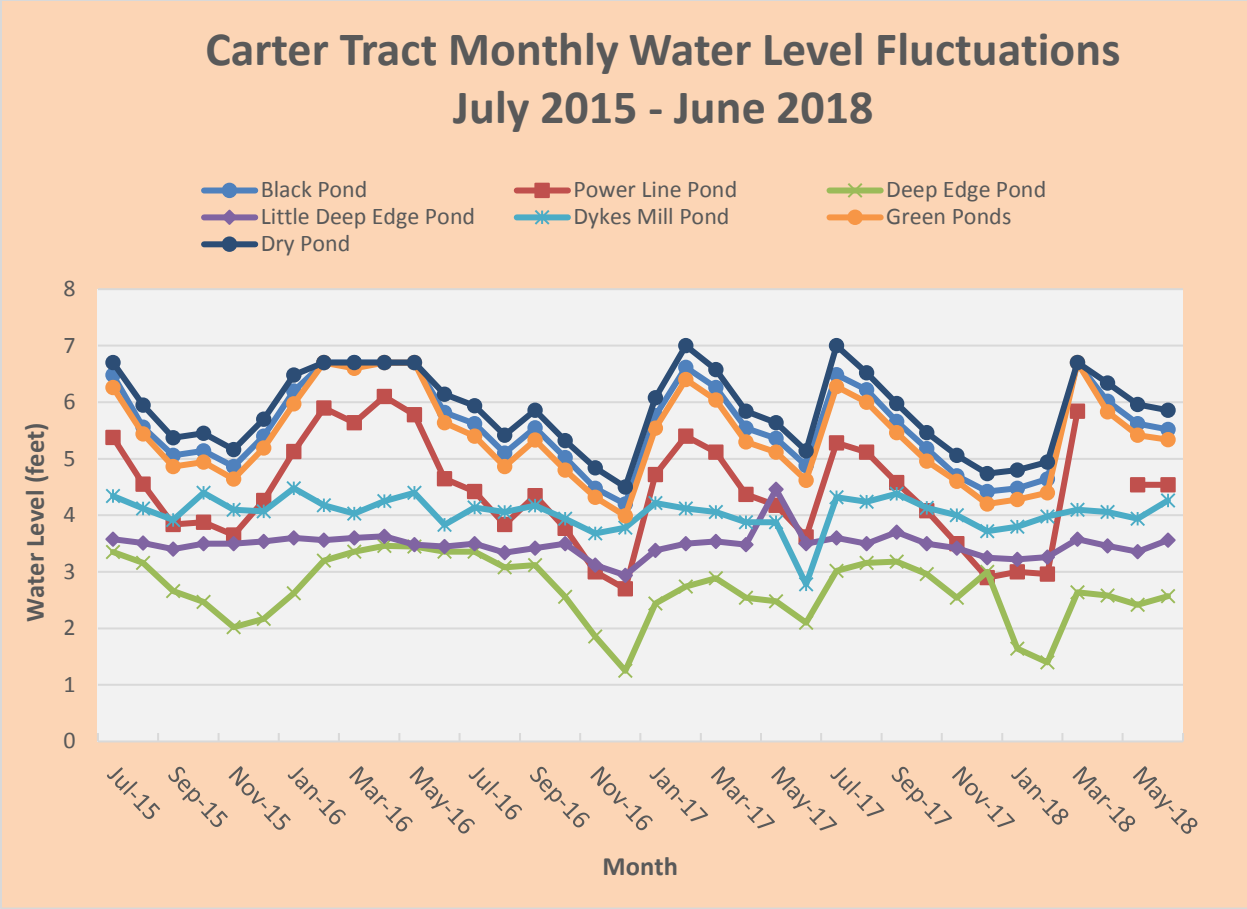


Figure 1. Monthly fluctuations in water levels from July 2015 - June 2018 on major water bodies within the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

FISH AND WILDLIFE POPULATIONS

The responsibilities of FWC-Division of Habitat and Species Conservation on the Carter Tract are to conduct fish and wildlife population surveys/assessments, collect/analyze biological data, evaluate results, administer public fishing and hunting programs, provide recommendations for adjustments in harvest designed to optimize fish and wildlife populations, and oversee other fish and wildlife-based recreational opportunities. The following are monitoring and management programs developed to address targeted species and public opportunities. Appendix I presents the 2017-18 Fitzhugh Carter Tract Hunting and Fishing Regulations Summary and Area Map. Appendix II presents the FWC Annual Work Plan and Accomplishment Report for July 1, 2017 – June 30, 2018.

Freshwater Fish

Fish Population Assessment

Given adequate water levels, fish population assessments have historically been conducted twice a year during spring and fall. FWC staff have used a variety of methods, from Wegener rings, fyke nets, and electrofishing to survey sportfish and baitfish populations at Carter Tract. Conditions at Carter Tract make electrofishing difficult and less effective (low conductivity combined with deep and tannic water). The low conductivity yields less current to shock the fish making them less susceptible to capture or being seen at all. Ideally, conductivity between 100-500 microsiemens/cm is more effective; however, recent samplings on Black, Dry, and Green Ponds have revealed that these ponds have conductivity measurements between 23-25 microsiemens/cm. Moreover, extremes of high water can disperse fish into surrounding vegetation (i.e. cypress trees) rendering the larger shocking boats inefficient for sampling. FWC fisheries biologists recommend that the information gathered from angler creel surveys continuing in its present form on Carter will be more reliable for fisheries management decisions and following trends in sportfish species composition and size (Katie Woodside, FWC Division of Freshwater Fisheries, pers. comm.). On occasion, electroshocking will be deployed as needed for updates rather than at regularly scheduled intervals.

Public Fishing

The Special Opportunity public fishing program on the Carter Tract continues to provide anglers with the unique opportunity to fish smaller bodies of water with low fishing pressure. Creel surveys from July 2017 - June 2018 yielded 956 anglers logging 2,568.75 fishing hours (Figure 2). Water levels remained relatively stable at all the fishing ponds throughout the 2017-18 reporting year, allowing anglers year-round access to all ponds open to fishing.

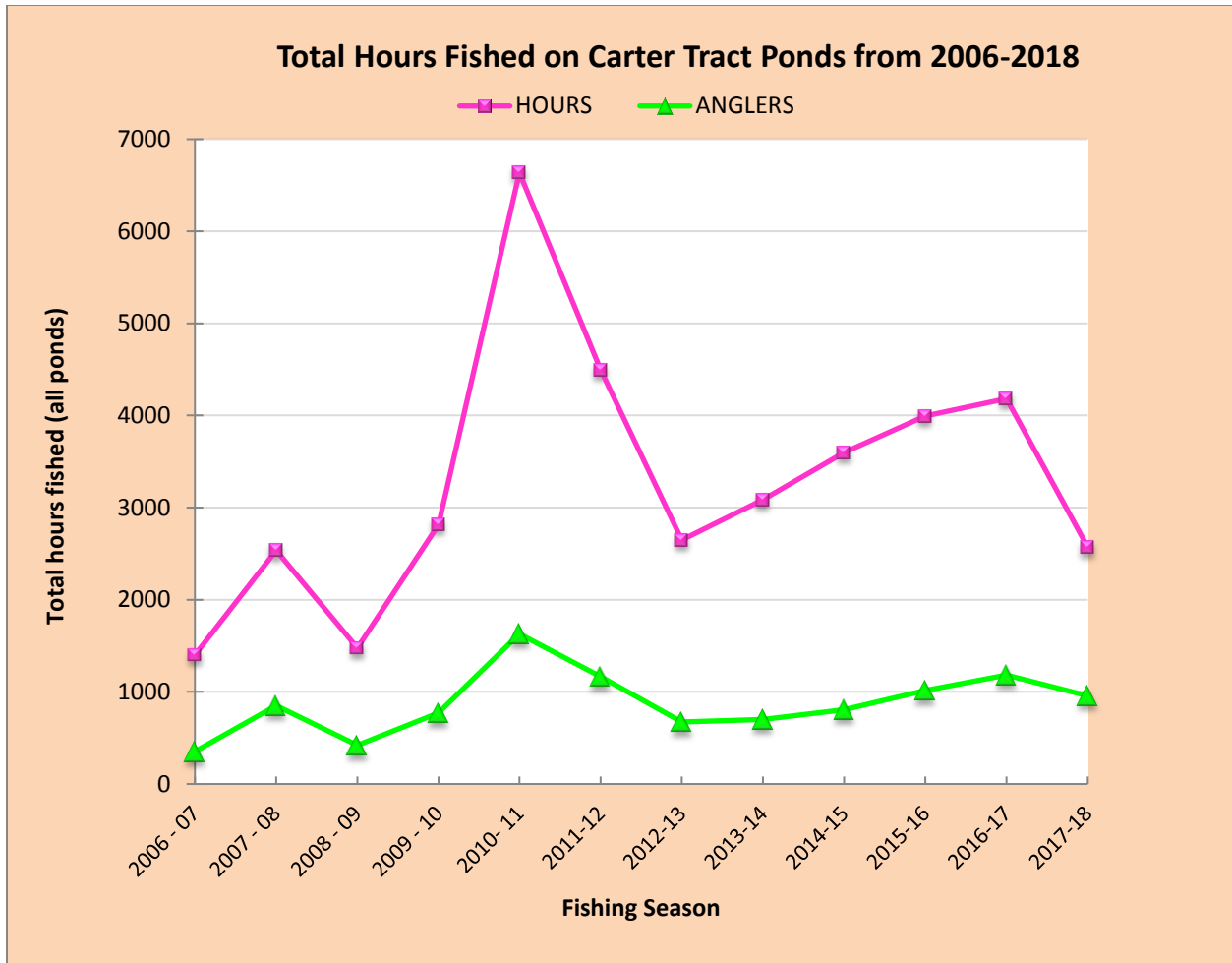


Figure 2. Total number of hours fished from 2007-2018 on all area ponds combined at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

For 2017-18, Dry Pond (1,093 hours) continued to be the most fished, followed by Black Pond (608 hours), Green Pond 3 (528 hours), Green Pond 2 (156 hours), Green Pond 1 (124 hours), and Deep Edge Pond (59 hours). July was the most popular month fishing on the area, while December showed the least participation, due to the number of days the area is closed to fishing but open to hunting (Figure 3).

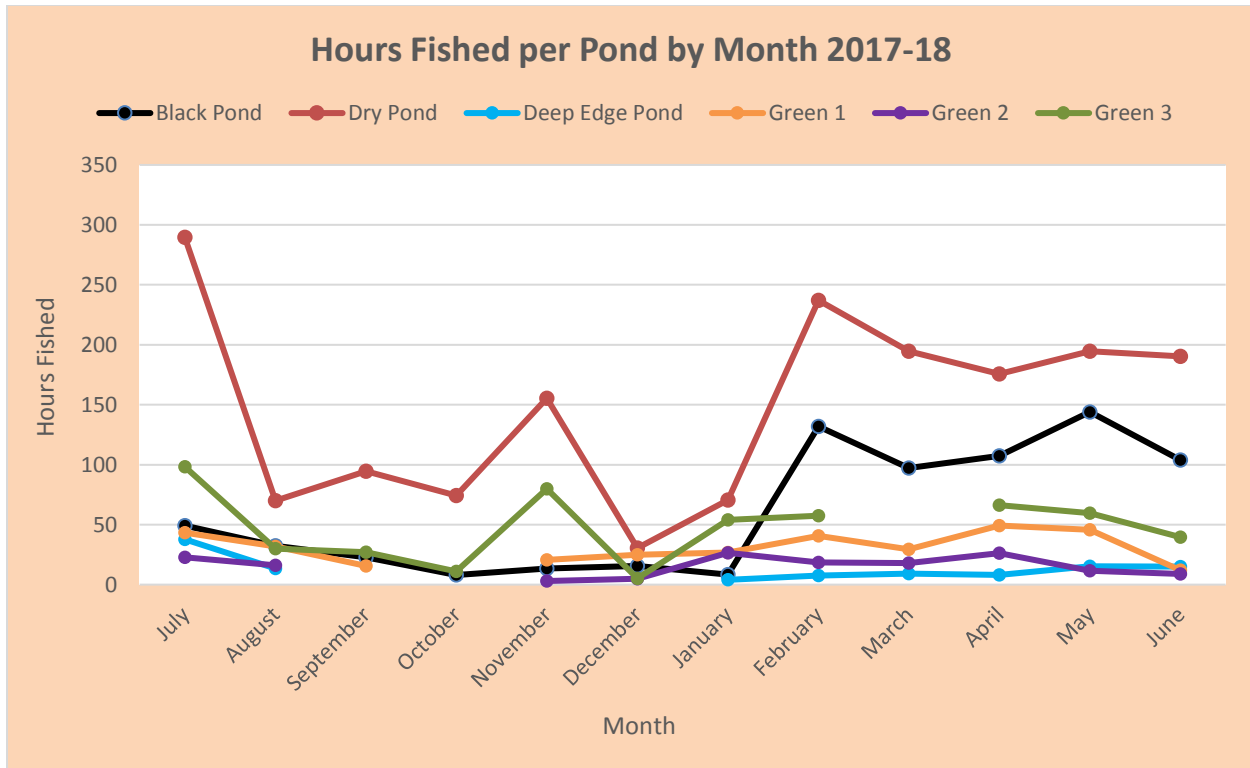


Figure 3. Hours fished per month on Dry, Black, Deep Edge, and Green Ponds in 2017-18 at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

A total of 2,044 fish representing ten species were caught on Carter Tract ponds during 2017-18. Table 1 illustrates the number of fish caught per species for each pond. Bluegill comprised 58.6% of fish caught, followed by largemouth bass, black crappie (*Pomoxis nigromaculatus*), and bullhead catfish (*Ameirus nebulosus* and *Ameirus natalis*) with 21.1%, 17.3%, and 0.1%, respectively. The remaining 2.1% of fish caught were warmouth (*Lepomis gulosus*), chain pickerel (*Esox niger*), spotted gar (*Lepisosteus oculatus*), redbreast sunfish (*Lepomis auritus*), flier (*Centrarchus macropterus*), and redear sunfish (*Lepomis microlophus*).

Table 1. Number of fish caught by species per pond at the Carter Tract of Econfina Creek WMA, Washington County, Florida, July 2017 - June 2018.

| Species | Dry Pond | Black Pond | Deep Edge Pond | Green 1 | Green 2 | Green 3 |
|-----------------|----------|------------|----------------|---------|---------|---------|
| Bluegill | 787 | 165 | 3 | 90 | 14 | 135 |
| Largemouth Bass | 143 | 129 | 32 | 33 | 14 | 78 |
| Black Crappie | 205 | 97 | 0 | 25 | 16 | 10 |
| Catfish | 1 | 1 | 0 | 0 | 0 | 0 |
| Other | 11 | 7 | 0 | 12 | 0 | 13 |

Figure 4 illustrates angler creel trends from 2007-2018 for all water bodies fished. Bluegill was again the most common species caught, followed by largemouth bass; with black crappie these species make up the Carter Tract “Big 3”. A detailed table of all fish caught and released per pond is presented in Appendix III.

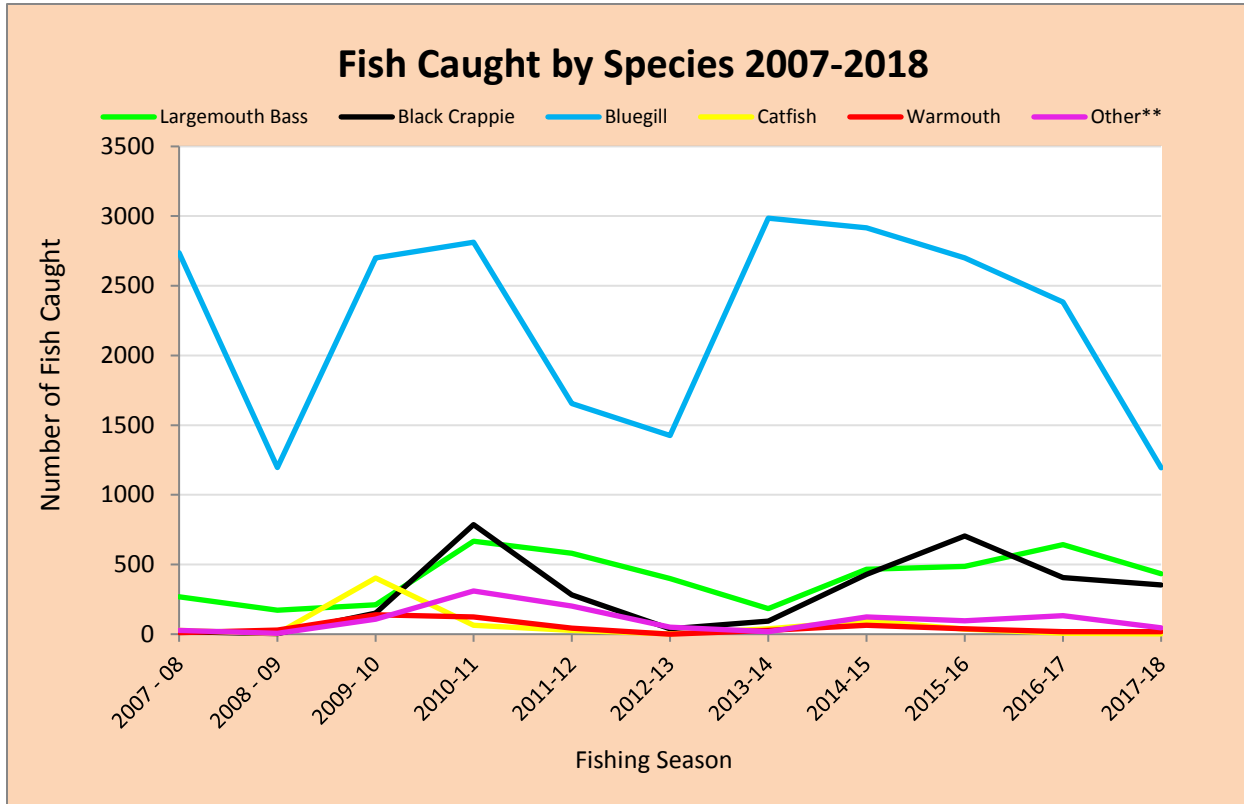


Figure 4. Angler creel trends from 2007-2018 on all area ponds of the Carter Tract of Econfina Creek WMA, Washington County, Florida. **= Other species include Bowfin, Chain Pickerel, Spotted Gar, Redbreast Sunfish, Redear Sunfish, Flier and Shellcracker

Angler success rate, defined as the number of fish caught per hour of fishing effort, was calculated for each pond and all water bodies combined for the 2017-18 fishing season (Table 2; Figure 5). Green Pond 1 was the most productive water body, followed by Dry Pond, Black Pond, Deep Edge Pond, and Green Pond 3, with Green Pond 2 having the lowest success rate.

Table 2. Fishing success rate (fish caught/hours of fishing effort) on area ponds at the Carter Tract of Econfina Creek WMA, Washington County, Florida, July 2017 - June 2018.

| Pond | Angler success rate (fish/hour) |
|-----------|---------------------------------|
| Dry | 1.06 |
| Black | 0.67 |
| Deep Edge | 0.59 |
| Green 1 | 1.33 |
| Green 2 | 0.29 |
| Green 3 | 0.45 |
| All Ponds | 0.8 |

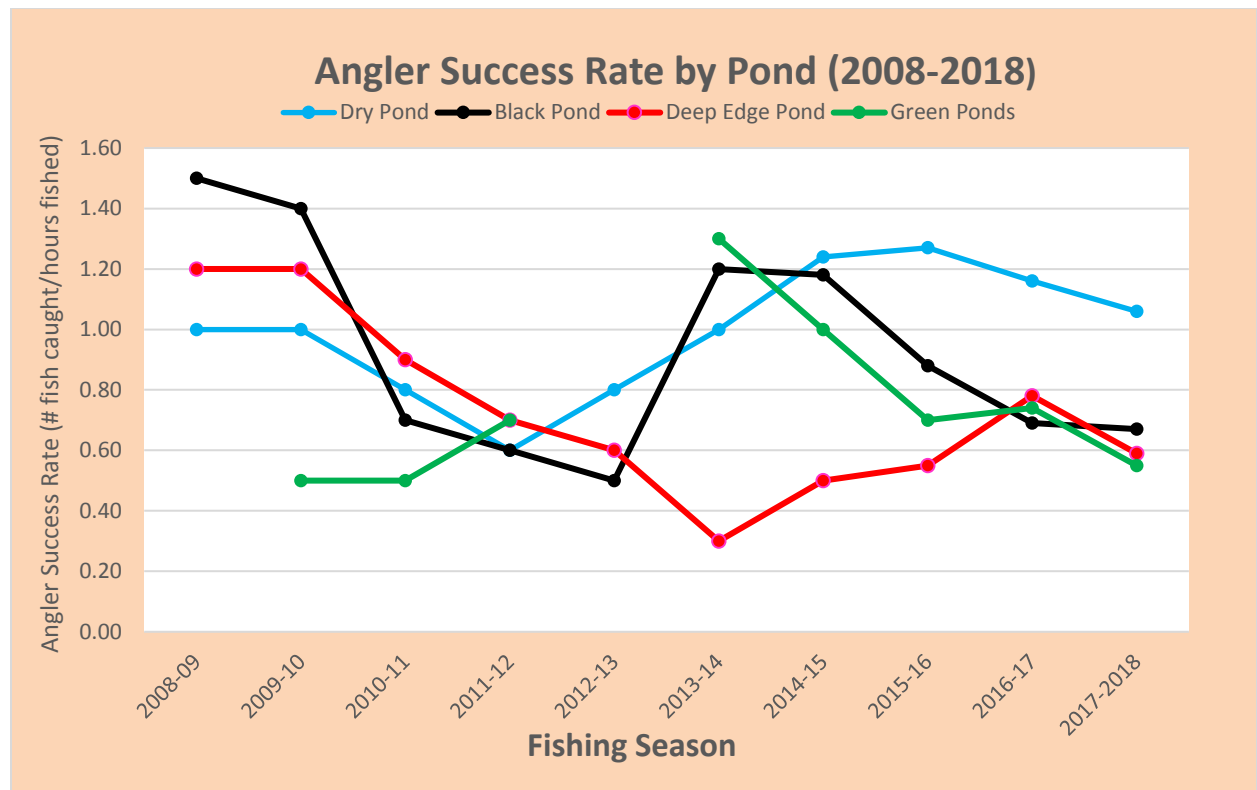


Figure 5. Angler success rate (# fish caught/hour of fishing effort) from July 2008 – June 2018 on area ponds of the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida. Green Ponds were closed to fishing during the 2008-2009 and 2012-2013 fishing seasons due to drought conditions.

WILDLIFE POPULATIONS

White-tailed Deer

Management Objectives

The primary white-tailed deer (*Odocoileus virginianus*) management objective for the Carter Tract is to provide quality hunting opportunities while managing optimal herd health. Specific objectives are to attain a herd density of 16-26 deer/mi² (25-40 acres/deer). With limited hunting dates and a conservative hunt format, our goal is to attain a harvest consisting of antlered deer predominantly in the 3.5+ year old age classes. In addition to offering a quality buck harvest, we plan to bolster and maintain a high degree of hunter participation with the implementation of limited antlerless deer harvest, dependent upon herd expansion. Achieving these objectives requires active monitoring and management of the population

Line-Transect Distance Sampling

Reliable annual indices of population size are fundamental to successful deer herd management. Indices provide an estimate of relative abundance, rather than true population size. However, because the specific relationship between the index and population density is not known, the real value of population surveys is to evaluate trends over time. Deer density on the Carter Tract is estimated using data collected from line-transect distance sampling (LTDS) surveys, which utilizes modeling to account for deer detectability. Precision seems to be higher using the LTDS method compared to standard spotlight surveys.

LTDS on the Carter Tract was conducted along two routes, both 2.9 miles long and were replicated six times in September 2017. Surveys began approximately one hour following official sunset and were driven along the pre-selected routes via pickup truck with two observers in the back, each equipped with a Q-beam® spotlight. Routes were driven at a speed of roughly 3-5 mph. Deer were detected by eye shine and the following data were recorded: number of deer, distance to deer, direction/bearing from vehicle, age (adult versus fawn), and gender (if determinable). Distance and bearing data were calculated using a Leupold® RXB-IV digital rangefinder/binocular. Figure 6 depicts the line transect routes used on the Carter Tract, along with locations of deer observed during 2017 surveys.

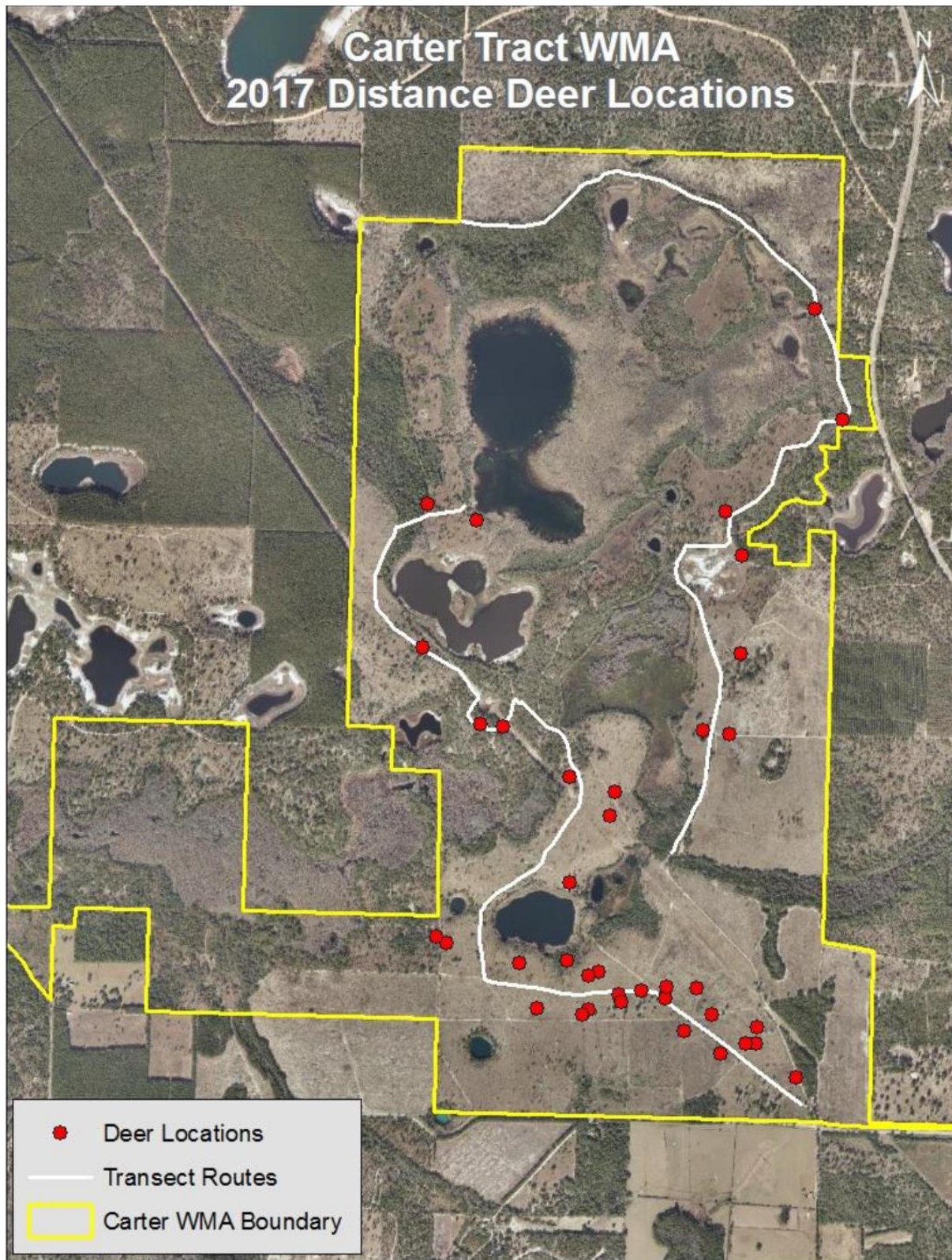


Figure 6. Survey routes and locations of deer observations during the September 2017 line-transect distance sampling conducted on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

The pre-season deer density estimate for 2017 was 7.5 deer/mi² (95% CI: 3.4, 150.8), or 85 acres/deer, using the software DISTANCE 5.0 Release 2 (Thomas et al., 2006). The Cramér-von-Mises goodness-of-fit test performed on these data produced a *p*-value of .700. This index was 36% less than the 11.8 deer/mi² calculated in 2016, and fell below the desired population density index goals for the Carter Tract (Figure 7). However, this index has fallen below the desired 16 deer/mi² before (2007, 2010, 2013, and 2014) and appears part of a normal cyclical fluctuation in the deer density estimate exhibited on the area over the last 10 years (Figure 7). It is important to remember that many factors can influence deer detectability during spotlight transect surveys and may create what appear to be contradictory or confusing population estimates. Typically, variance estimate in DISTANCE has three components: variance due to observers' ability to detect animals along a transect (detection probability); variability between transect lines (encounter rate); and variance due to group size (cluster size). Further, vegetation composition and height, weather variables, recent burning activity, hunting pressure, etc. can all influence deer activity. Although the density estimate varies annually, continued habitat management (prescribed burning, native groundcover restoration, exotics removal) should improve habitat quality for deer in Carter Tract.

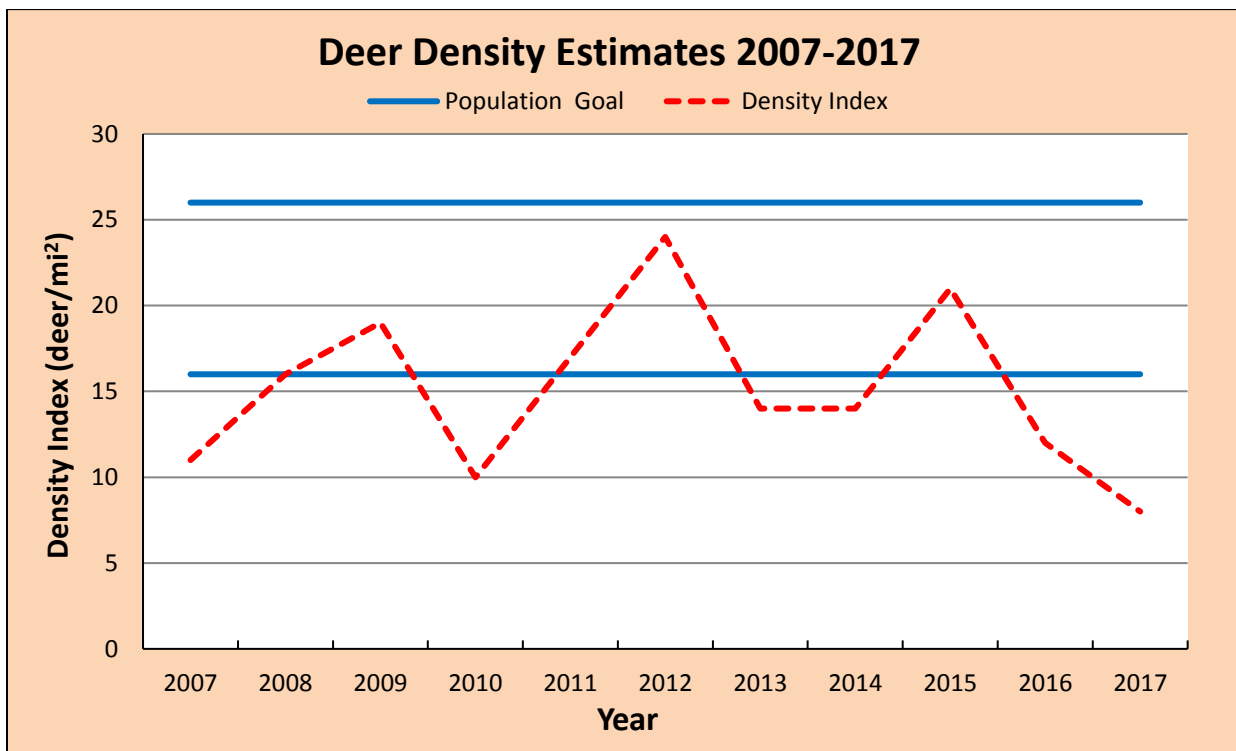


Figure 7. Trend in White-tailed deer density as estimated using line transect distance sampling at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida, 2007-2017.

Hunting Pressure and Harvest

Deer hunters and their guests logged a total of 160 man-days during the 2017-18 season. There is a 16-day archery season (divided into two consecutive hunts), a three-day muzzleloading gun season, and a thirteen-day general gun season divided into three hunts, one in November and two in January. A non-transferable quota permit is required for each of these hunts, and numbers are capped at 15 hunters allowed on the area on any given hunt day. All quota permit hunters were required to check-in/out at the Carter Tract check station to monitor hunter pressure and collect biological data from harvested deer. The most popular hunts were the general gun hunts in January (97 man-days) followed by the archery hunts (50 man-days). A distribution of harvest pressure by hunt for the past six hunting seasons is depicted in Figure 8.

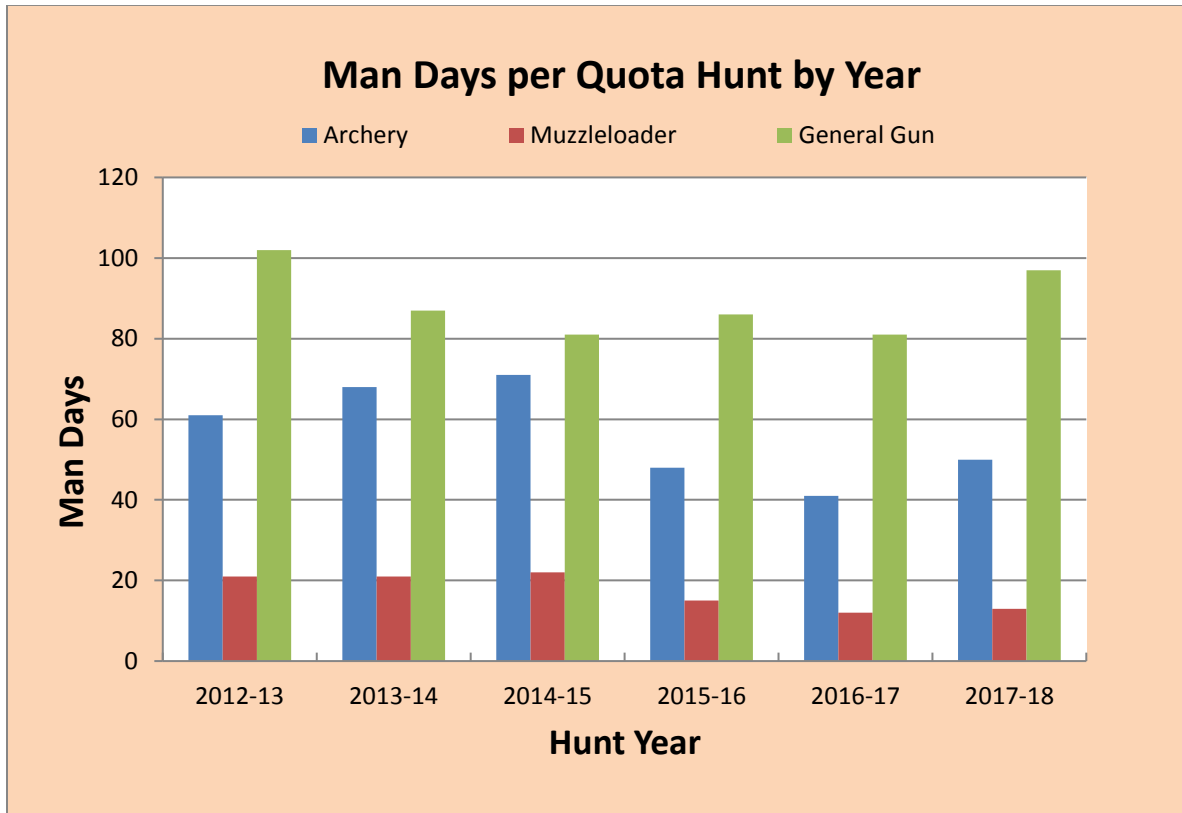


Figure 8. Comparison of hunter participation by quota hunt from 2012-2018 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Nine deer were harvested on the Carter Tract during the 2017-18 hunt season, three does and one buck during archery season and five bucks during the general gun season. With a slight increase in hunter participation during the 2017-18 deer season and the increase in harvested deer, this yields a hunter success rate of approximately 5.6% (1 deer/17.8 man-days of hunting

pressure). Overall hunter success rate (calculated as the number of deer harvested per man-days hunted) is depicted in Figure 9 and is compared over the last twelve deer seasons.

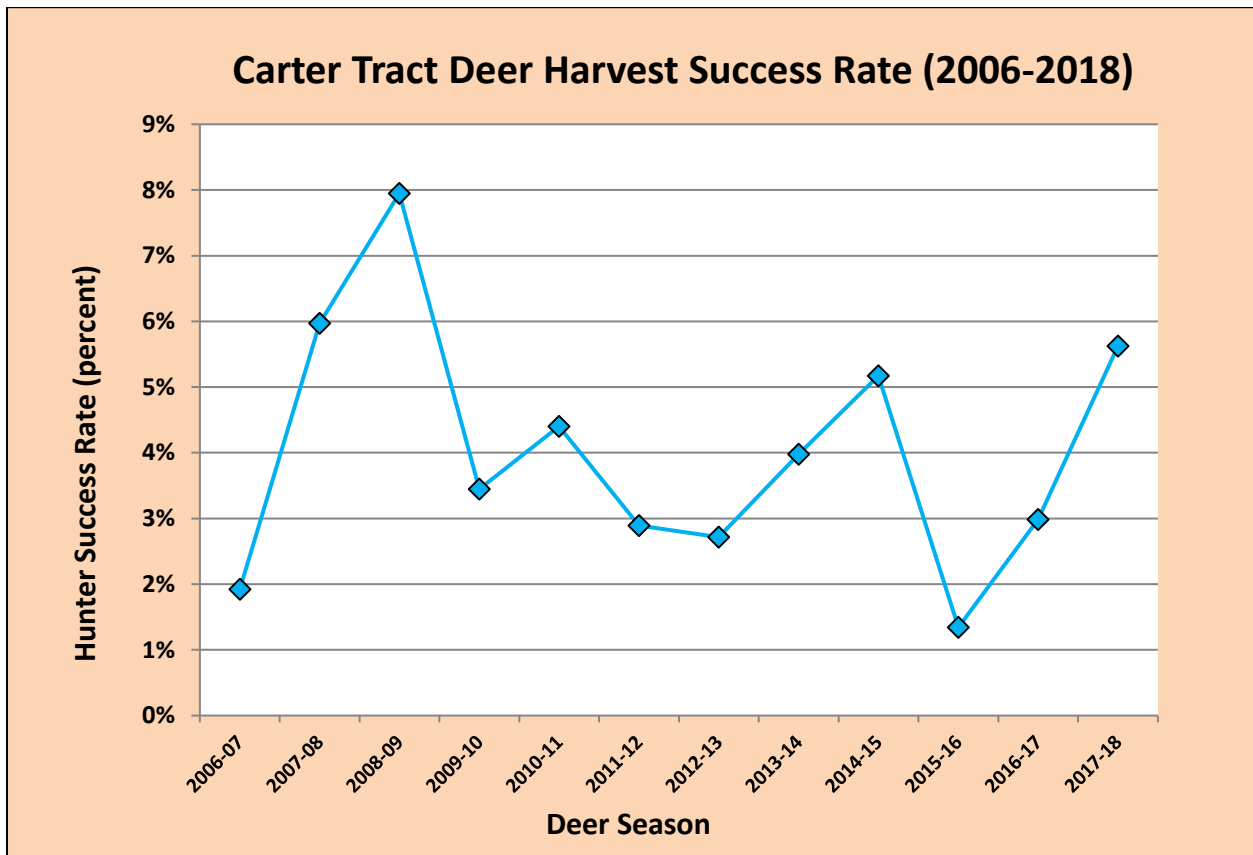


Figure 9. Overall hunter success rate from 2006-2018 at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Mean physical parameters of all deer harvested per 201-18 quota hunt season are presented in Table 3. The recent trend is for area bucks to be harvested primarily during the General Gun II & III hunts. These two hunts occur annually during the last week and a half of January. This coincides with the primary rutting activity and mean conception dates for white-tailed deer in southern Washington County (Garrison et al., 2009). The largest deer harvested this past year was a 10-point, 6.5-year-old buck weighing 165 pounds. This deer is the oldest harvested on the Carter Tract and is the first ≥ 4.5 -year-old (Figure 10).

Table 3. Morphometric parameters of deer harvested during 2017-18 quota hunts on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

| Mean Physical Parameters 2017-18 | | | | | | | |
|----------------------------------|--------|-----------|--------------|---------------|----------------------|-----------------------|--------------------|
| Quota Hunt | Gender | Age (yrs) | Weight (lbs) | Antler points | Avg beam length (in) | Avg beam circum. (in) | Inside spread (in) |
| Archery | Doe | 1.8 | 85.3 | N/A | N/A | N/A | N/A |
| Archery | Buck | 2.5 | 112* | 4 | 10.1 | 2.9 | 8 |
| General Gun | Buck | 3.3 | 144.4 | 6 | 10.8 | 3.1 | 9.3 |

*= estimated, one buck was weighed dressed at 90 pounds

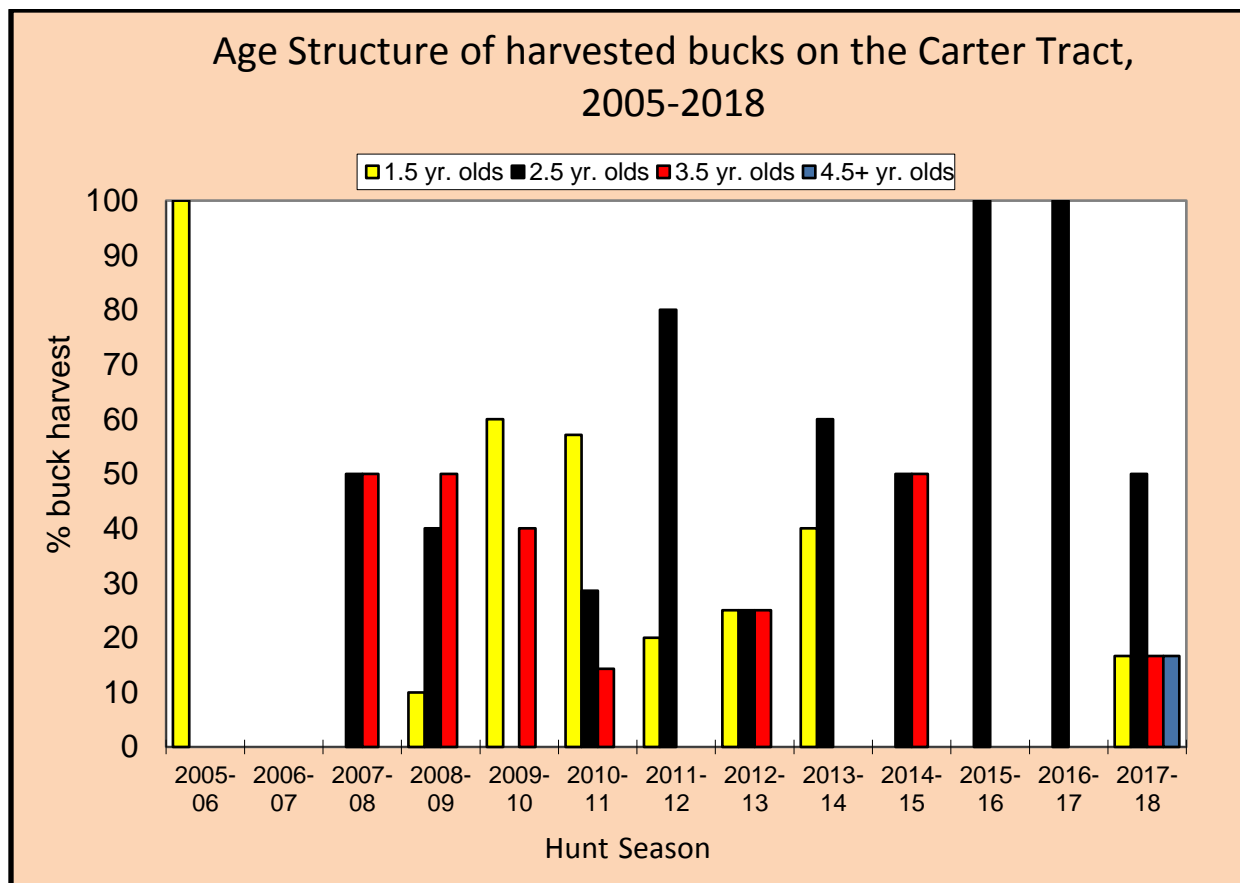


Figure 10. Age structure of bucks harvested during the 2005-2006 through the 2017-18 seasons at Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, FL.

Although, the 2017-18 deer season increased in number of man-days from the previous season by 19% on the Carter Tract, we believe the full potential for deer hunting opportunities on has yet to be realized. However, we expect continued improvement in conjunction with active

habitat management. Considering herd management objectives, additional antlerless harvests are not presently needed to control population levels as a higher density is desirable to meet our population goal and improve hunter success rates. The continued protection of does (outside archery season) is necessary to further bolster recruitment and expedite achievement of herd objectives. Limiting the harvest of does will facilitate increases in herd size and improvements in overall age structure, which should in turn positively affect hunter success.

Chronic Wasting Disease

Chronic Wasting Disease (CWD) is a contagious neurological disease that has been found in captive and wild mule deer (*Odocoileus hemionus*), white-tailed deer, moose (*Alces alces*), and Rocky Mountain elk (*Cervus elaphus*) within 25 states and three Canadian provinces in North America. The disease causes degeneration of the brains of infected animals, resulting in emaciation, abnormal behavior, loss of bodily functions, and death.

Currently the only practical method for diagnosing CWD is through analysis of brain stem tissue or lymph nodes from dead animals. There is no practical live-animal test. Since 2002, the FWC has deployed a comprehensive surveillance and monitoring program for CWD. Staff continues to collect and test tissue samples from hunter killed deer from the Carter Tract and surrounding counties as part of this statewide monitoring program. The presence of any CWD-positive deer would be cause for concern, so we plan to continue CWD surveillance for the foreseeable future.

Wild Hog Management

Since 2014, at the request of NFWFMD, FWC staff have assisted with wild hog control on Carter Tract. historically hogs have always seemed to have been present. It was not until most recently that understory vegetation that is undergoing restoration management has been as negatively impacted. Following the FWC Fiscal Year (FY) calendar, the subject of this annual reporting period-2017-18. Trapping efforts were concentrated from July through August 2017 and mid-April through June 30, 2018. Obviously, operationally, we don't cease on June 30 with our efforts, but continue unabated into the next FY through August. Then, public hunting opportunities run from September through mid-April each year (Appendix I). FWC staff utilized several breaks between hunts to attempt to trap hogs also. Following the removal of 39 hogs

from a combination of hunting and trapping during FY 2016-17, it appears that there remained little hog presence on the area as we moved into FY 2017-18. Four hogs were trapped and removed on August 29, 2017, we then moved into hunting season 2017-18 and no wild hogs were harvested.

With the conclusion of Spring Turkey Season 2018, FWC staff moved into the intense surveying, monitoring and trapping period of spring/summer. Monthly email status updates of hog management on the area continued to be provided to the NFWFMD during this intense work period. The two Jager Pro® corrals remain established: one in the flatwoods southeast of Dry Pond, and the other relocated to the interface-northeasterly, around Garrett Pond-Diamond Head branch/canal. Frequent and routine scouting for presence on the property (i.e. tracks, on camera, and/or damage to vegetation) was ramped up to daily. Additional FWC game cameras were deployed to detect wild hog presence. On occasion, only several large boars were detected on game cameras, showed no interest in bait at trap sites, and developed no predictable pattern. These few boars continued throughout the season with erratic ingress/egress detected at the interface of Warmouth Pond/Pine Log Creek (Figure 11). No additional hogs were removed through June 30, 2018.

Boundary Fence Breach Management

Wild hogs on the Carter Tract still have several options or exit strategies available with remaining fenceless portions- Warmouth/Pine Log Creek interface and the Garrett Pond/Diamond Head canal interface. FWC currently monitors for fence breaches along the entire boundary of the WMA throughout the year. Figure 11 illustrates where we currently have challenges to the integrity of the boundary fence on the Carter Tract. These challenges include sections of fence that need repair/replacement, portions that are undermined via erosion, and portions where the fence is completely missing from the boundary. Figure 11 also illustrates the location of the two hog corral traps during 2017-18.

Installing fences at the two aforementioned fenceless areas would substantially seal off the vulnerable portions of the area and make access for hogs difficult. In the meantime, FWC personnel will continue to patrol the boundary fence, identifying breaches and repair such with rebar, wire, and any other means necessary. We will continue intensive surveying, monitoring

and trapping and encourage hunters to harvest hogs at every available opportunity in continuing efforts to manage the population.

Figure 12 is also a snapshot of the Google Earth Boundary Breach Catalog (KMZ file) that has been created for tracking the condition of the entire boundary fence on the Carter Tract. Breaches in the fence are visually verified, GPS tagged, and then a picture is taken. The resulting data is converted into a KML file which precisely locates the breach point with an interactive marker on a satellite image of the area. Clicking on the marker accesses the photo of the breach for reference purposes (Figure 12). The utility of this file is that it provides a real time spatial snapshot of the condition of the fence, with both new breaches and recent repairs being mapped and catalogued. Examples of breaches include erosion under the fence, vandalism, missing portions of fence, and damage by fallen trees/debris (Figure 13). This large database is updated during the hunting season, when the necessary man-power needed can be directed away from active surveying, monitoring and trapping. Last update presented on February 26, 2018.

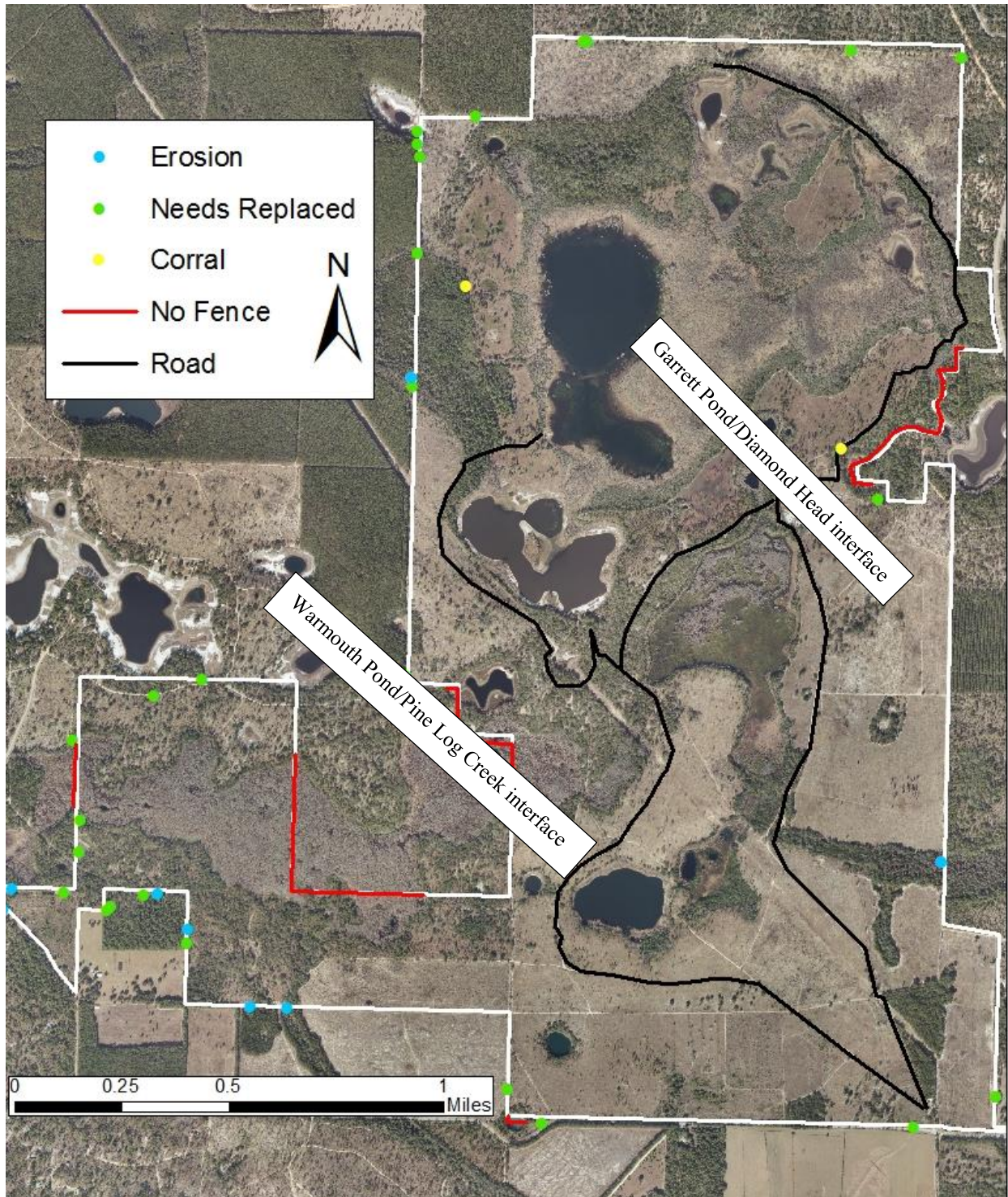


Figure 11. Boundary fence compromises on the Carter Tract as of June 2018. Location of hog corral traps for the year highlighted in yellow.

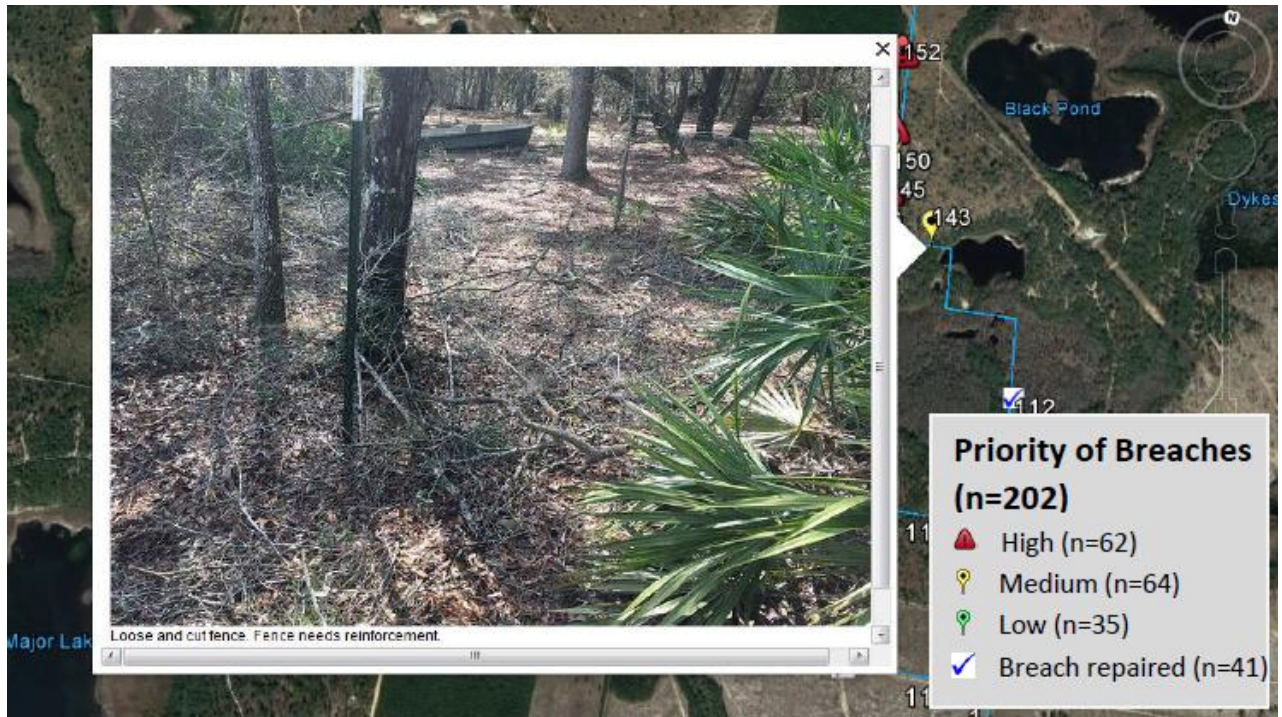


Figure 12. Closeup of the western portion of the Carter Tract showing an example of a boundary breach on the boundary fence west of Warmouth Pond.



Figure 13. Examples of continued Carter Tract boundary fence breaches (clockwise from top left) missing (incomplete) fence, large gap under fence, downed tree, and fence cut (vandalism).

Hog Management Recommendations

We recommend continued hog trapping and harvest concomitant with addressing boundary fence breach issues as part of an integrated hog management approach, as either activity alone will likely produce less than desired results. One can quickly recognize that even a few hogs can cause vegetation damage. Once a sounder locates the fenceless areas and follow the same route, vegetation damage is expected. Our detection rate will be immediate given the level of manpower we are exerting right now in monitoring across the area. Still, the damage has been done.

Consideration for a hog-dog hunting season during the summer months could be another effective tool for the management of hogs on Carter Tract. Whether or not such a hunt results in successful harvest of hogs, the presence of dogs and the pressure they put on the hogs has the potential to limit the impact of hog grazing on native vegetation during the critical summer

growing season, which in turn supports the management objectives of this mitigation bank property. Given the cooperative efforts by FWC and NFWFMD in addressing the boundary fence breach issues, intensive surveying, monitoring and trapping, an abbreviated still-hunting season, then it seems intuitive that the addition of a hog-dog hunting season could likely prove an integral part of the wild hog management program on the Carter Tract.

Wild Turkey

Management Objectives

FWC personnel desire to encourage and maintain a strong population of wild turkey (*Meleagris gallopavo*) on the Carter Tract, to provide a high-quality hunting experience for the public. The NFWFMD prescribed burning regime continues to provide and enhance high quality habitat for wild turkeys by maintaining an open understory and encouraging herbaceous groundcover via habitat improvement activities such as prescribed burning.

Harvest

Spring turkey season on the Carter Tract consists of a two-day youth quota hunt and three quota hunts, each three days in length. Permit holders for all turkey quota hunts were afforded one day prior to each hunt for scouting. We had two hunters participate in the youth turkey quota hunt and twenty-seven hunters participate in the 2018 spring turkey hunts. No turkeys were harvested during the 2018 spring turkey hunt. The turkey harvest success rate (defined as a percentage, calculated as the number of gobblers harvested/man-days of effort) for the Carter Tract from 2007–2018 is illustrated in Figure 14. Quite often weather conditions, experience level of hunters, and hunting pressure on surrounding/adjacent properties can all affect harvest success rates. Further, more frequent mowing of powerline right-of-way at strategic times of the year (just post nest-hatching) can provide better insect habitat for poults. Turkey poults have a high protein demand during the first four weeks of life (Hurst, 1992), and are incapable of flight until approximately ten days old (Williams, Jr. and Austin, 1988). During this flightless period poults are extremely vulnerable to predation. Increasing the amount of protein available (in the form of insect abundance) should help achieve maximum poult growth and improve survival.

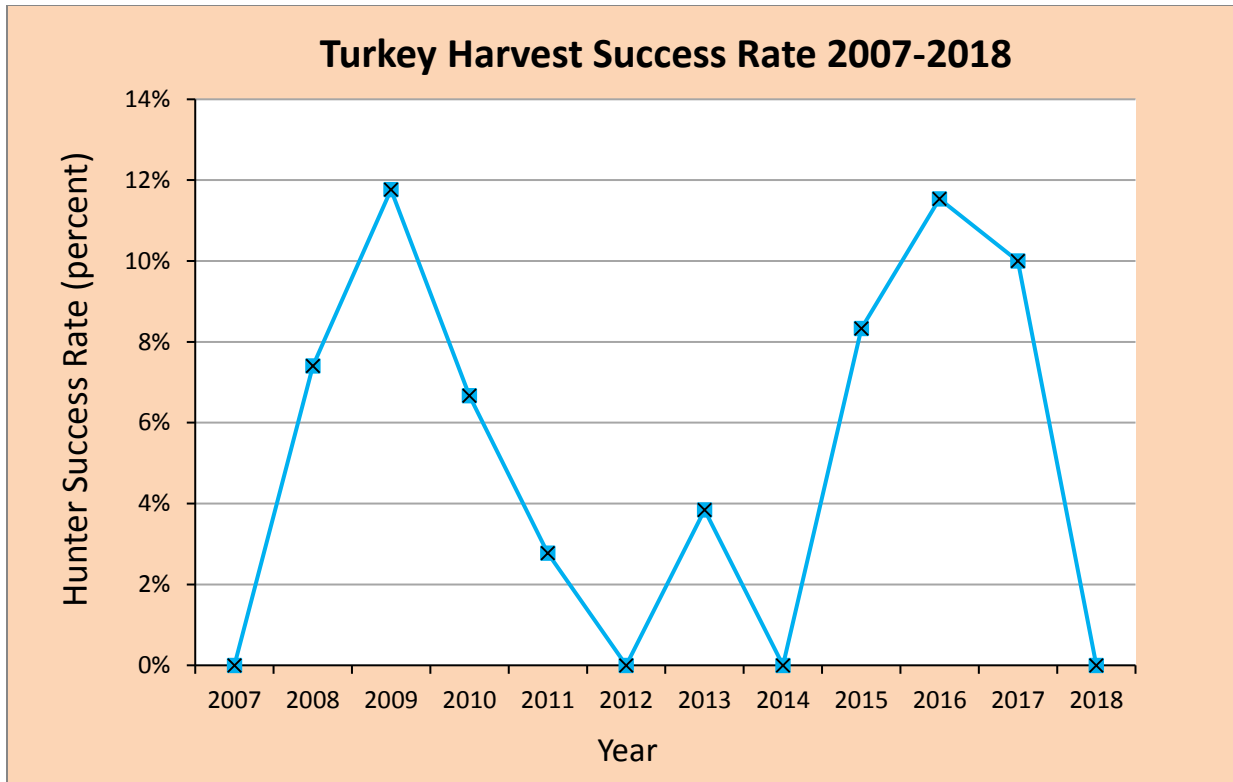


Figure 14. Turkey harvest success rate from 2007-2018 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Small Game

The Carter Tract is open annually to small game hunting during a 16-day non-quota season each December. The area is open first-come first-served to a maximum of 15 hunters on the area on any given time. Gray squirrel (*Sciurus carolinensis*), northern bobwhite (*Colinus virginiana*), wild hogs (*Sus scrofa*), and various waterfowl species are the primary game hunted. Small game hunters devoted 24 man-days in the 2017 small game season (Figure 15) and harvested 19 gray squirrels and 19 quail (Table 4). It is important to note that hunters pursuing waterfowl were more than half of all hunters counted during the small game season and are not in Figure 15. We note that overall hunter participation is very strong during the small game season and we are encouraged by its recent popularity with the public.

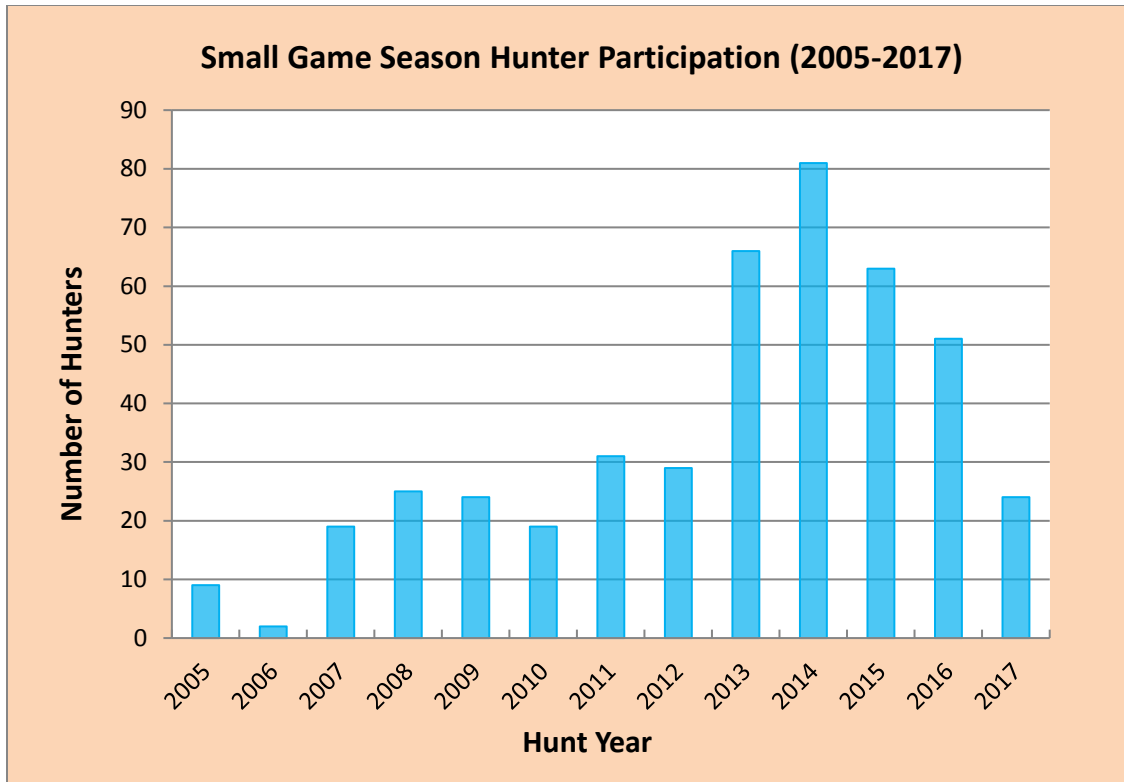


Figure 15. Small game hunter participation on the Carter Tract of Econfina Creek WMA, Washington County, Florida, 2005-2017.

Table 4. Game species and number harvested during the 2017 small game season on the Carter Tract.

| Species | Wild Hog | Gray Squirrel | Dove | Bobwhite Quail |
|------------------|----------|---------------|------|----------------|
| Number Harvested | 0 | 19 | 0 | 19 |

Waterfowl

Harvest

The Carter Tract provides duck hunting opportunities during a special early duck season each September and portions of the general gun and small game seasons coinciding with the phase I and II waterfowl seasons as determined by the U.S. Fish & Wildlife Service (USFWS). For the 2017-18 season duck hunters spent 121 man-days hunting and harvested a total of 72 ducks, representing three species. Four wood ducks (*Aix sponsa*) and four teal (*Anas spp.*) were harvested during the September early duck season. Thirty-one wood ducks and 32 ring-necked ducks (*Aythya collaris*) were harvested during the small game season. One ring-necked duck was harvested during the general gun season. Duck hunter participation trends from 2006-2018

on the Carter Tract are represented in Figure 16. High hunter participation during duck season remains popular (Figure 16) with a harvest rate (number of ducks harvested/man-days of hunting effort) of 0.60 ducks/man-day during the 2017-18 season (Figure 17).

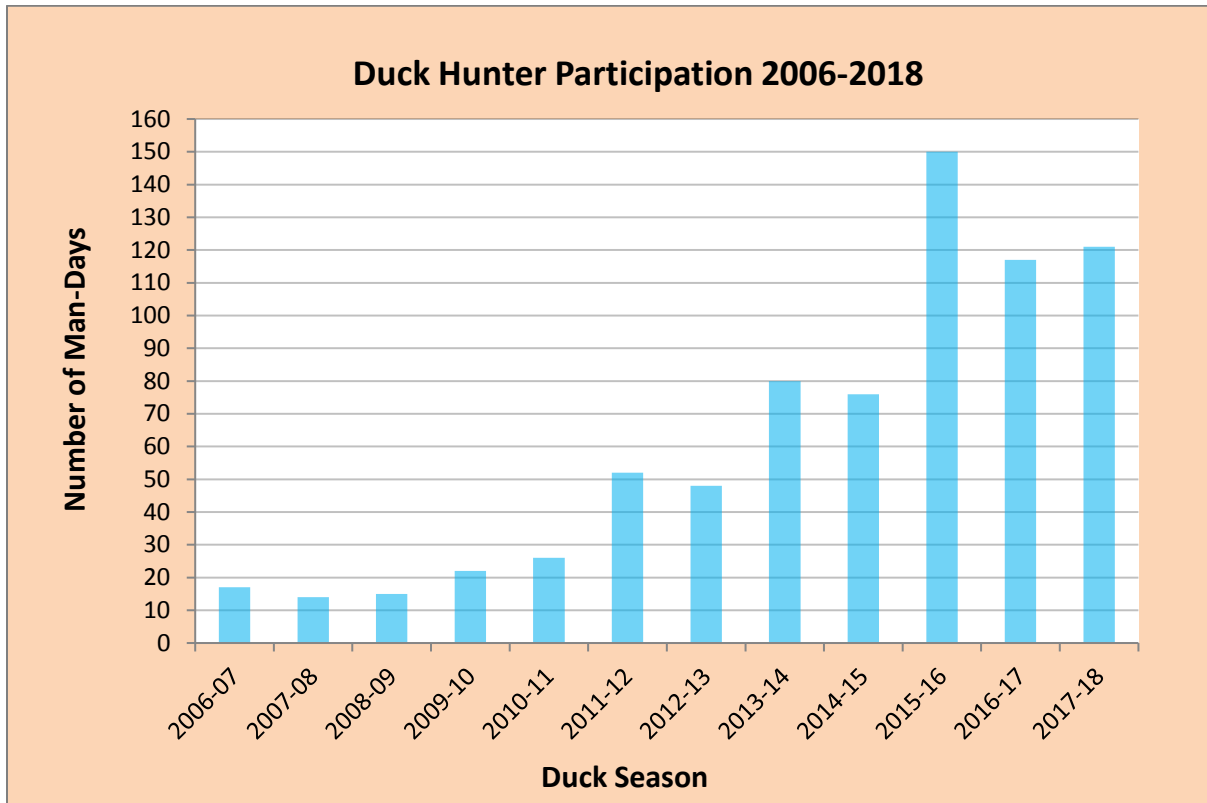


Figure 16. Duck hunter participation from 2006-2018 at the Fitzhugh Carter Tract of Econfinia Creek WMA, Washington County, Florida.

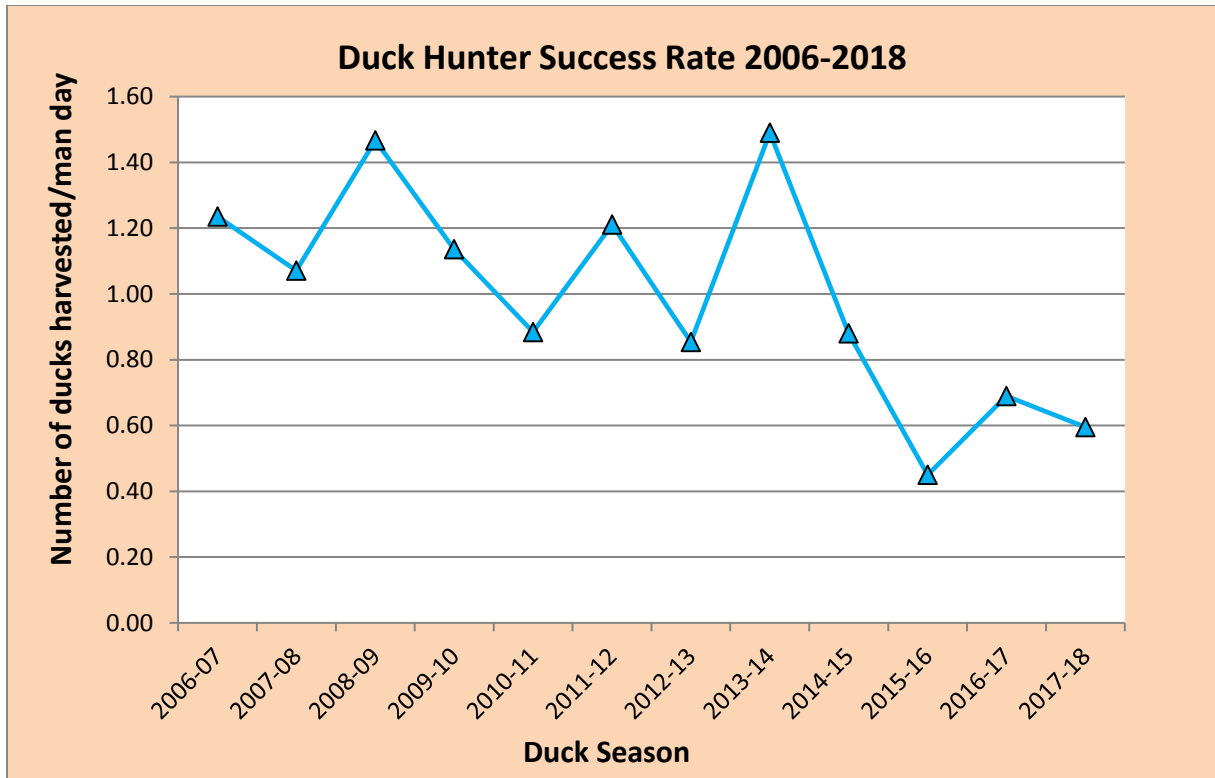


Figure 17. Duck hunter success rate (ducks harvested/man-day) on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida, 2006-2018.

Wood Duck Nest Boxes

Efforts to facilitate local breeding populations of wood ducks continued with the maintenance and monitoring of 48 wood duck nest boxes located throughout the Carter Tract (Figure 18). Boxes are visited each winter to repair or replace nest boxes and predator guards, cleaned of last season’s wood shavings, and replenished with fresh wood shavings for the upcoming nesting season. During the nesting season, boxes are checked twice, once in March to record nests and clutch size and once May-June to record late-nesting ducks and nest fate. Twenty-three wood duck boxes produced clutches during the 2018 nesting season (Figure 19). The Carter Tract wood duck boxes have averaged approximately 19 clutches per nesting season since the first nest checks in 2006.



Figure 18. Current wood duck box locations across the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

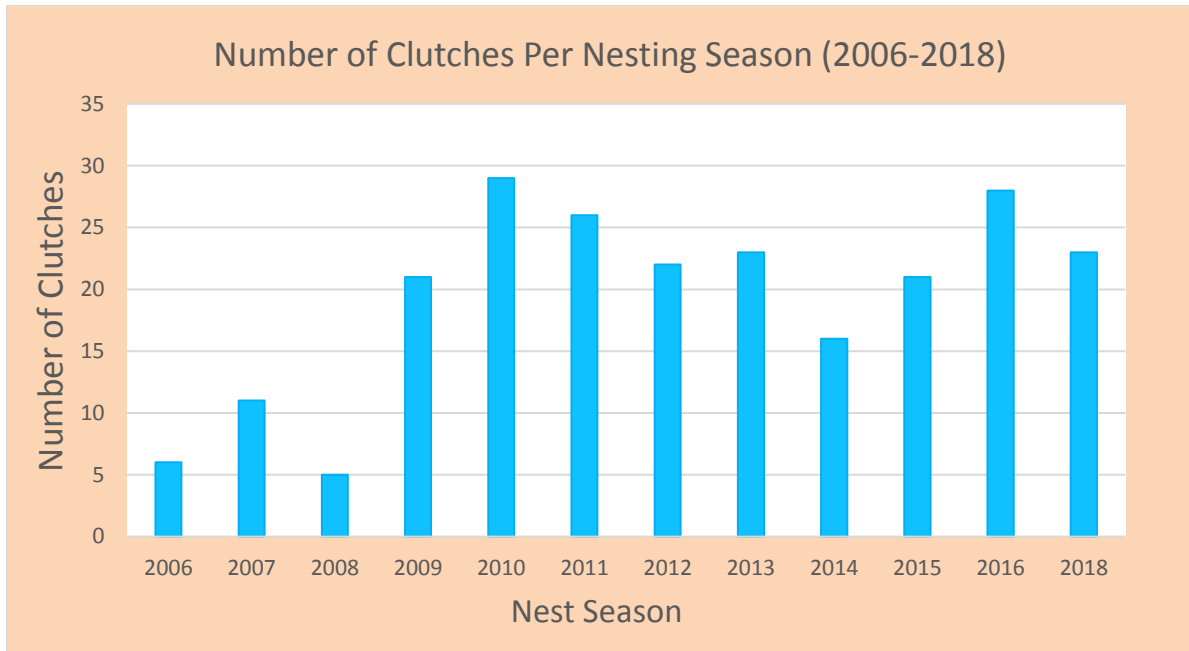


Figure 19. Number of wood duck nest boxes that produced clutches per nesting season from 2006-2018 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Avifauna

The Carter Tract supports a mosaic of unique habitat types that tend to harbor a diversity of bird species. As such, multiple surveys designed to monitor this diversity are conducted annually. For example, surveys of Little Deep Edge Pond and Dykes Mill Pond document their use as wading bird colonies. Passerine point counts note species change over time in relation to habitat restoration. Kestrel boxes are used to determine possible residency status of the Southeastern American Kestrel (*Falco sparverius paulus*). The Bachman’s Sparrow (*Peucaea aestivalis*), identified as a Species of Greatest Conservation Need (SCGN) (FWC 2012), was first observed on Carter Tract in 2015 and is monitored through spring playback surveys. Gamebird populations are monitored using summer whistle counts for Northern Bobwhite (*Colinus virginianus*) and Mourning Doves (*Zenaida macroura*) are banded each summer as part of a national banding program. To date, 130 species of bird have been documented as occurring on the Carter Tract (Appendix IV).

Wading Birds

Most wading birds nest semi-colonially along the edges of lakes or creeks, or in trees and shrubs growing out of water bodies. Little Deep Edge Pond on the Carter Tract has supported a wading bird colony each summer since surveys began in 2007 and a new colony was found on Dykes Mill Pond in 2015. Great Egrets (*Ardea alba*), Cattle Egrets (*Bubulcus ibis*), and Little Blue Herons (*Egretta caerulea*) have historically been the most common species documented, with Tricolored Herons (*Egretta tricolor*), Snowy Egrets (*Egretta thula*), Great Blue Herons (*Ardea herodias*) and Anhinga (*Anhinga anhinga*) also observed. Many species of wading birds are locally affected by wetland drainage associated with urbanization and agricultural expansion. The resulting loss of suitable foraging and breeding habitat in conjunction with increased predation are key threats to Florida's wading birds (FWC 2013). These issues highlight the importance of conservation of unspoiled wetland habitat such as that found on the Carter Tract.

Wading bird surveys are conducted annually from April – July. Adult birds and nest contents are observed at a distance using binoculars and a spotting scope to avoid disturbing the nests. Checks are completed every two weeks, during which time, nestlings get large enough to reliably count using two observers. Nest locations are marked on an image of the rookery to follow the same nest throughout the breeding season.

At the Little Deep Edge colony, seven Great Egret nests produced four chicks. Nests for Little Blue Herons, Tricolored Herons, and Snowy Egrets were not documented this year. Figure 20 illustrates active nests and chick production of wading birds at Little Deep Edge Pond from 2008-2018. A detailed summary of species observed from 2008-2018 using the Little Deep Edge Pond wading bird colony can be found in Appendix V.

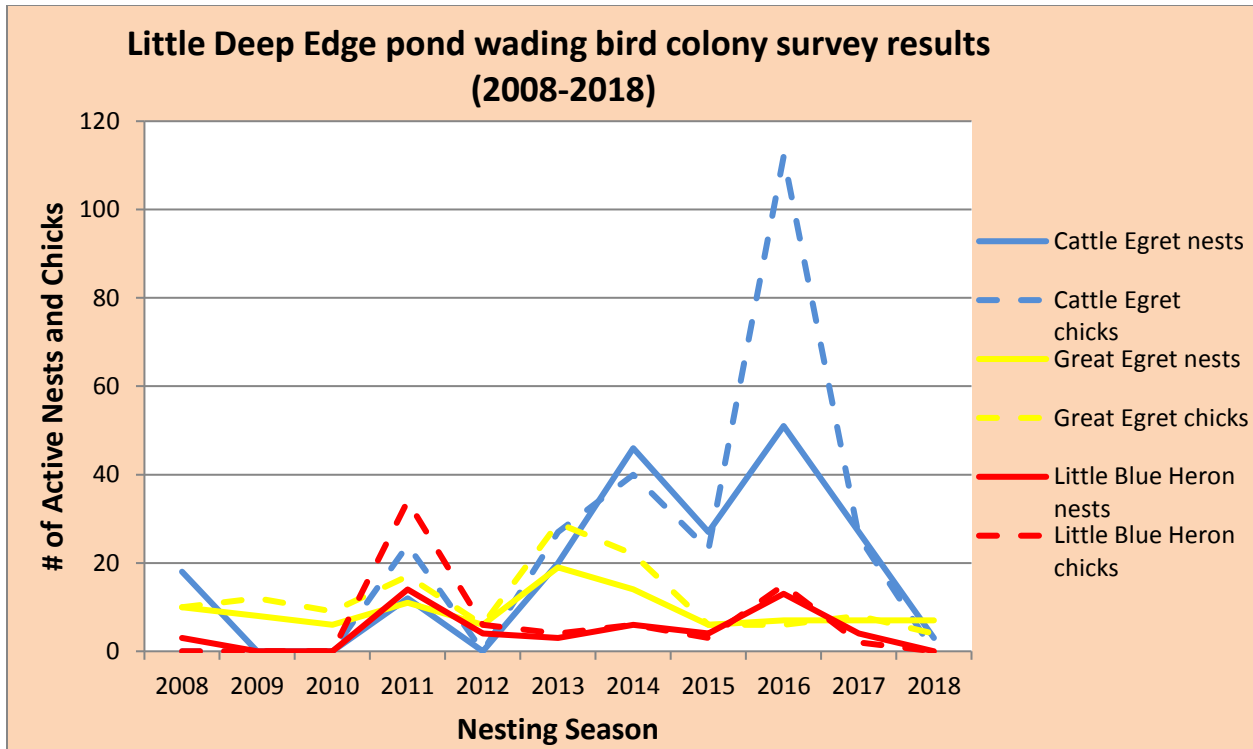


Figure 20. Active nests and chicks observed on Little Deep Edge wading bird colony from 2008-2018, Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

The Dykes Mill pond colony was first discovered in January 2015. During the 2018 breeding season, 17 Great Blue Heron nests produced 13 chicks. This colony is on the southern edge of a cypress dome in the western portion of Dykes Mill Pond. FWC will continue to monitor this colony annually to track nesting success and species composition.

Passerines

Breeding bird point count surveys are conducted on the Carter Tract annually. Point counts document bird species presence and can be used to calculate relative abundance among habitat types (Bibby et al., 1992). Point count surveys are most effective during the breeding season when calling activity is at its peak (Hamel et al., 1996). Point count locations are distributed among the different habitat types across the area as follows: sandhill habitat (Points 2, 6, and 7), wetland/wading bird colony (Point 1), lake edge (Point 8), wet prairie (Point 4), mixed-hardwood forest (Point 3), and early successional grassland habitat (Point 5) (Figure 20). Except for Point 3, all locations have undergone significant habitat enhancement and restoration efforts.

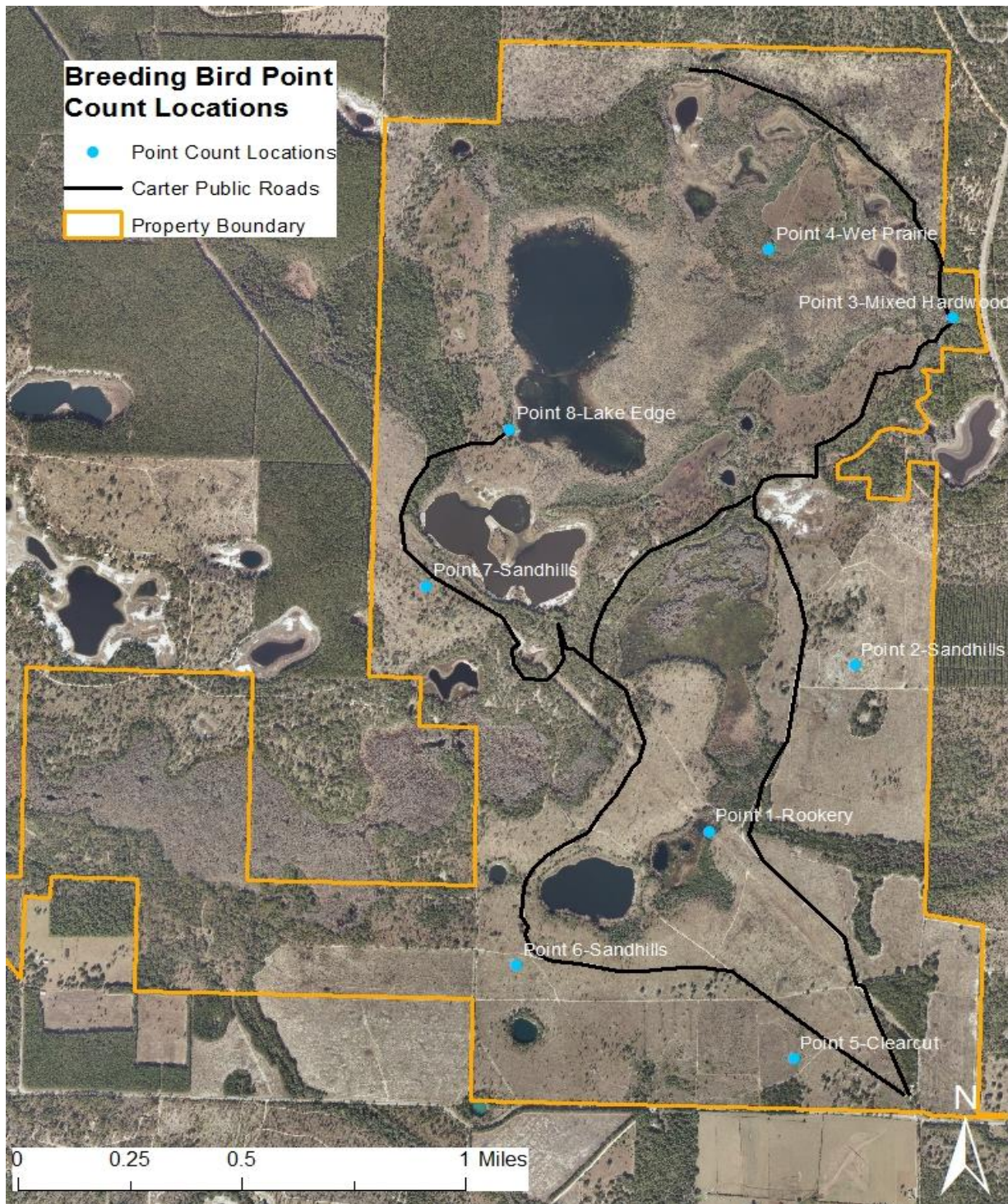


Figure 21. Location of breeding bird point count surveys conducted in May 2018 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Point count surveys were conducted in four consecutive days in May 2018. Surveys were conducted in the early morning, when bird activity is typically highest (Hostetler and Martin

2001). Counts began at dawn and ended by 0830. The order in which each point count location was surveyed was alternated among the four survey days. This was done to ensure that counts were conducted in early-, mid-, and late-morning periods for each location, thus accounting for any bias from birds potentially calling more frequently at certain hours during the count period (Hostetler and Martin, 2001). Following arrival at each count location, observers refrained from movement or sound for two minutes prior to the start of the count. Count duration was ten minutes, during which time all birds seen and/or heard within a 75-meter radius were recorded. Birds observed/heard outside of the 75-meter plot were also noted.

Point count results indicated all habitat types saw an increase in species richness from the previous year except for the mixed hardwood, which remained the same (Table 5). Slight variations in richness will occur year to year depending on the weather conditions and other factors that affect the singing rate of passerines. Species found at each point were indicative of the habitat type. Over the long term, this database will provide a platform for how the habitat management occurring on Carter Tract has shaped the avian diversity on the property.

Table 5. Species richness and most common species per habitat types at breeding bird point count stations in 2018 on Fitzhugh Carter Tract, Washington County, Florida.

| Habitat Type | # of Species within 75m | Most Common Species |
|---------------------|--------------------------------|--|
| Clearcut | 9 | Eastern Meadowlark, Orchard Oriole, Great Crested Flycatcher |
| Sandhill | 26 | Northern Mockingbird, Cedar Waxwing, Eastern Bluebird |
| Lake Edge | 18 | Great Crested Flycatcher, Red-winged Blackbird, Wood Duck |
| Wetland Rookery | 23 | Great Egret, Cattle Egret, Red-winged Blackbird |
| Mixed Hardwood | 10 | White-Eyed Vireo, Northern Parula, Northern Cardinal |
| Wet Prairie | 19 | Northern Parula, Blue-gray Gnatcatcher, Northern Cardinal |

Landscapes comprised of a mosaic of habitat types generally yield higher species diversity than landscapes dominated by a single habitat type. The Carter Tract is a unique combination of freshwater ponds, marshland, uplands, and transitional hardwood hammocks. The inherent habitat diversity of the Carter Tract, combined with the intensive habitat restoration efforts of the NFWFMD, have resulted in a property representing multiple habitat types, each of which contribute to the overall high diversity of avian life which utilizes the property. As each habitat type continues to be maintained within the recommended fire return interval and the longleaf pine continue to mature, we expect this high diversity of avian species to remain on the area.

Point count data over the last ten years was used to calculate bird species diversity within the six habitat types represented during annual surveys. Simply counting the number of species observed during a given survey yields species richness. Species richness does not equate to species diversity because it does not account for species evenness (how many individuals of each species are counted). The Shannon-Weiner Diversity Index was used to incorporate species evenness as well as richness into a comparable diversity measure (Shannon 1948, Zar 2010).

Microsoft Excel® was used to calculate the diversity index from 2008-2018 for the six habitat types sampled to determine which habitat types harbor the highest diversity and how they may have changed over the years in response to habitat restoration improvements. The results are graphically depicted in Figure 22. Of the six habitat types surveyed during the spring 2018 point counts, the sandhill, wet prairie, and the lake edge point counts yielded the highest species diversity. The sandhill point counts have supported the highest diversity of bird species in eight of the eleven years point count surveys that have been completed. All habitat types saw an increase in species diversity from last year with exception of the clearcut.

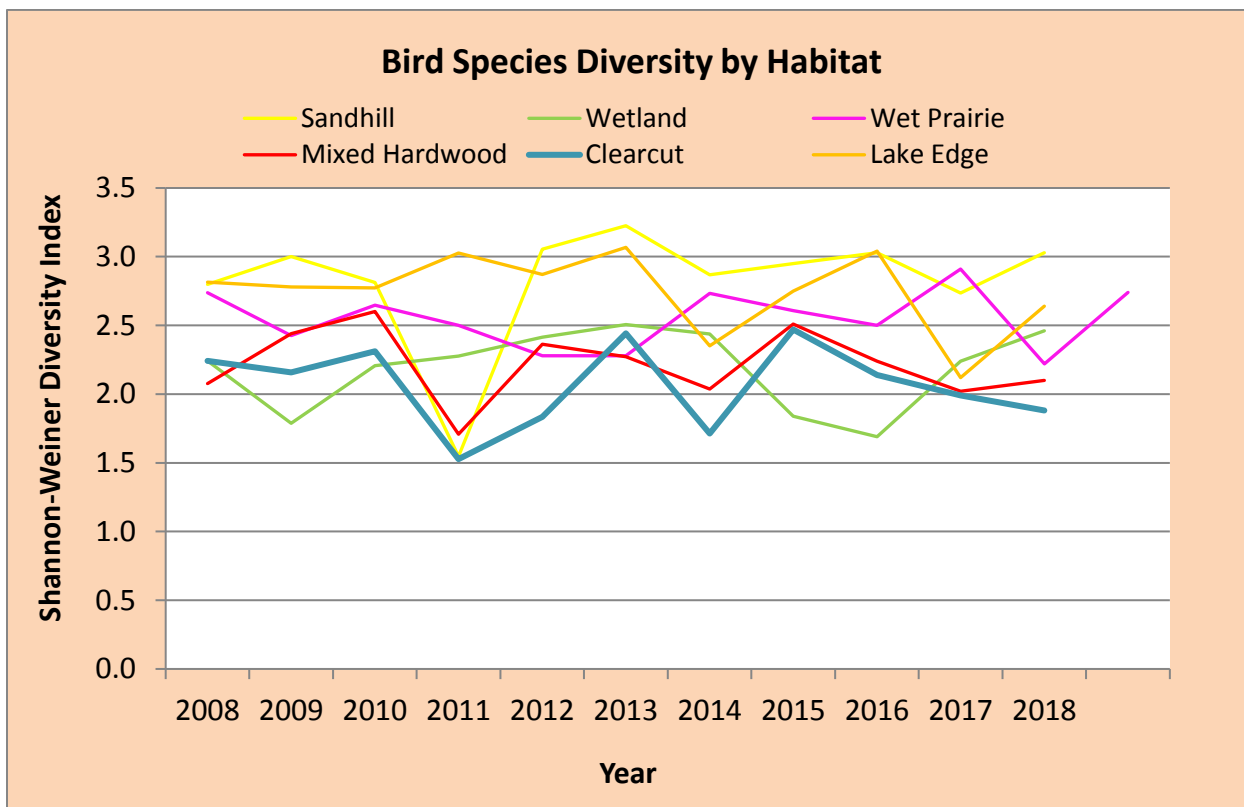


Figure 22. Shannon Wiener Diversity Index (H') compared from 2008-2018 among habitat types at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Bachman's Sparrow playback survey

Bachman's Sparrows (*Peucaea aestivalis*) were first documented on Carter Tract during the spring of 2015 and continue to be monitored. The Bachman's sparrow was once a common species in the southeastern longleaf pine forests but has undergone dramatic population declines in recent decades (Cox 2014). An indicator of southern pine forests, Bachman's sparrows nest and forage on the ground, and are closely associated to areas with diverse, healthy ground cover conditions maintained by frequent prescribed fire.

Survey site selections and protocol closely follow those established by Cox (2014). Sites needed to be at least 250m apart and cover potential breeding habitat (sandhills, flatwoods, scrubby flatwoods, and prairie) to be included. From these criteria, thirteen sites were randomly selected using ArcMap 10.3® GIS (Geographic Information Systems) software (Figure 23). Surveys were conducted under favorable weather conditions in April 2018 and began at sunrise and ended by 0900 hours. Three replicates of the survey were completed. At each station, the observer played a sequence of Bachman's Sparrow vocalizations (45 sec) and silence (15sec) that was repeated three times during a three-minute sampling period.

Bachman's Sparrows were documented at two of the thirteen survey sites (Figure 23). All the birds counted were clustered near the southern portion of Carter Tract, with stations 3 and 8 recording multiple Bachman's sparrow at each point (Figure 23). These two stations are characterized as sandhill habitat, with a dense wiregrass groundcover and longleaf saplings dominating the landscape. With the continued two-year fire return interval, we expect Bachman's sparrows to continue to use Carter Tract and expand into northern portions of the property.

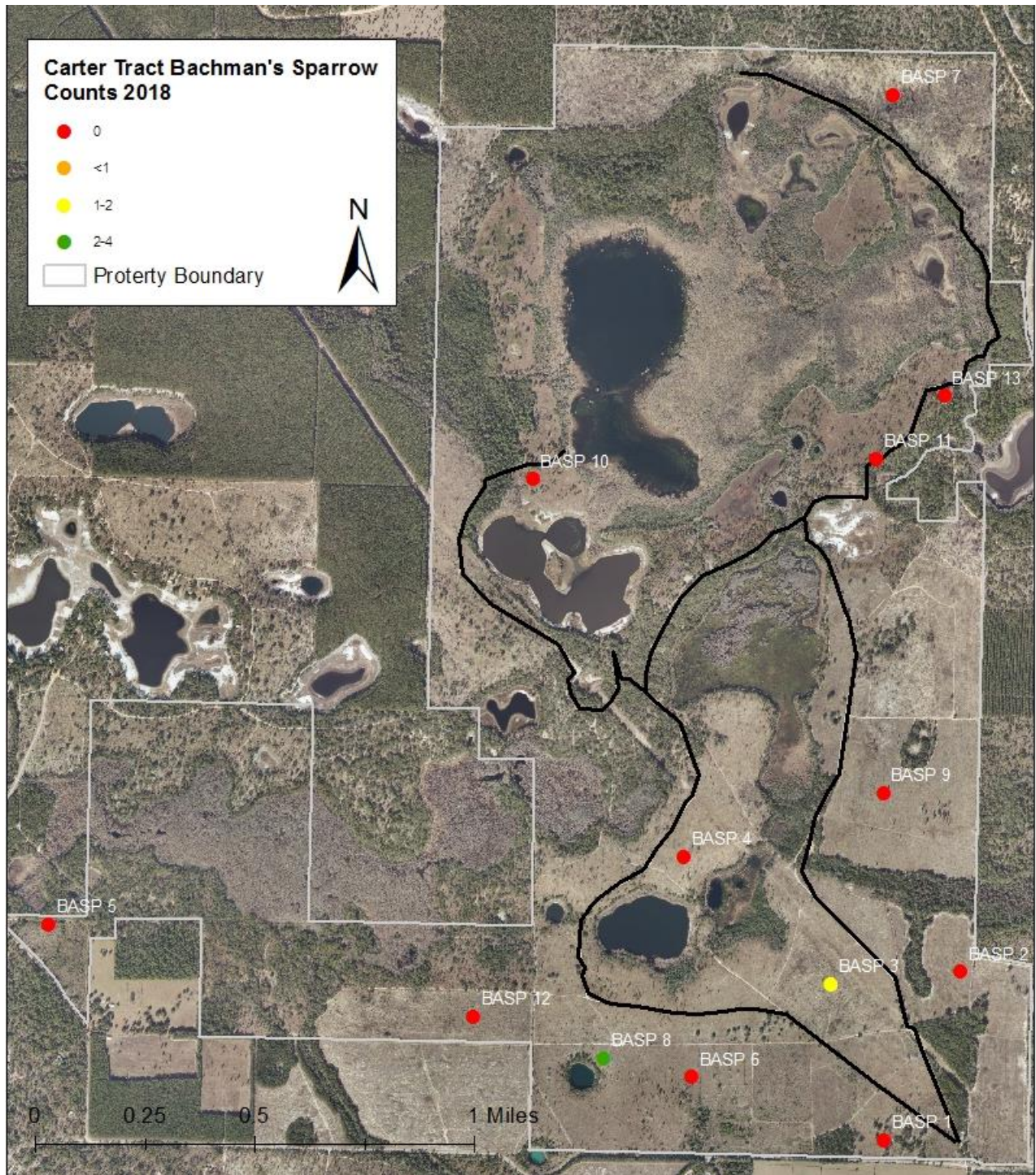


Figure 23. Bachman's Sparrow average counts for survey sites in 2018 on Fitzhugh Carter Tract WMA, Washington County, Florida.

Kestrel Boxes

The Southeastern American Kestrel is a subspecies of the American Kestrel (*Falco sparverius*) found in open pine habitats, woodland edges, prairies, and pastures, with a preference for sandhill habitats. The smallest falcon in the U.S., and a threatened species in the state of Florida, the Southeastern American Kestrel relies on suitable cavity trees as a key habitat feature necessary for breeding (Rodgers, Jr. et al., 1996). Because kestrels are secondary cavity nesters, suitable nest sites are thought to be the most limiting factor and a major contributor to declining populations in Florida (Hoffman and Collopy 1988). The decline of natural nesting and foraging habitats in recent years has prompted the use of nest-box programs to help augment populations. Kestrel boxes can also provide important winter cover for other avian species, such as the Eastern Screech Owl (*Megascops asio*) (Hipes et al. 2001; U.S. Department of Agriculture 1999).

FWC staff consistently observe kestrels annually at the Carter Tract during winter and early spring. However, it is unknown whether the birds are migratory/wintering American Kestrels or resident Southeastern American Kestrels. Although Southeastern American Kestrels are slightly smaller than American Kestrels, the two species cannot be reliably distinguished in the field. Because the Southeastern American Kestrel is the only subspecies of kestrel that breeds in Florida, erecting nest boxes is one method of determining which species is present on the Carter Tract. Therefore, in February 2011, eight nest boxes were installed throughout the Carter Tract following protocol outlined by the U.S. Department of Agriculture (USDA) (1999). Currently, there are seven nest boxes on the area with plans to install more in the coming years (Figure 23).

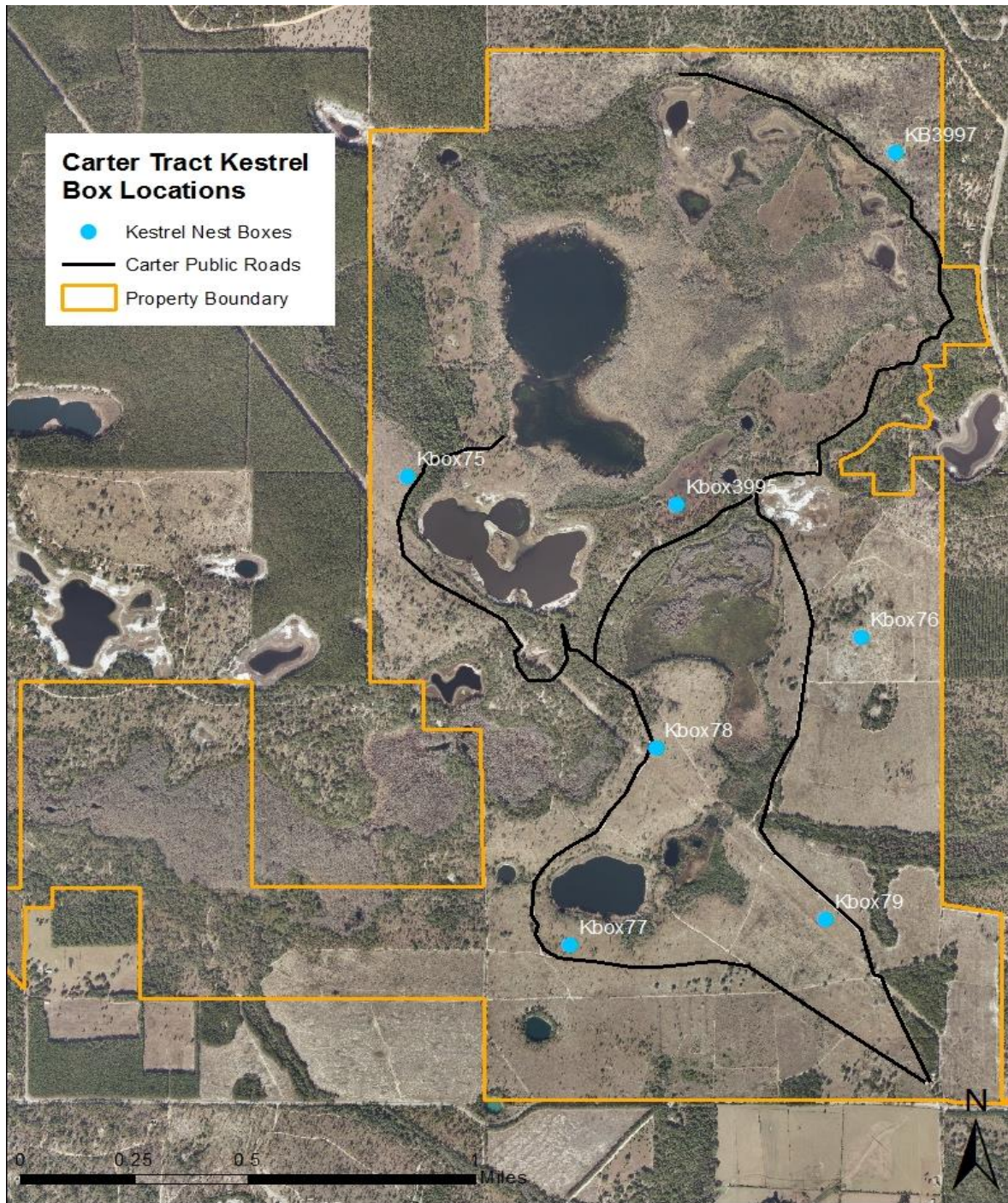


Figure 24. Location of kestrel nest boxes at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

Nest boxes were installed on mature longleaf pine trees, approximately 15 ft from the ground facing a southeast orientation. Trees chosen were those in open areas, far enough away from surrounding trees to discourage squirrels from accessing nest boxes. Boxes were located at least

0.5 miles from the next nearest nest box. Boxes were filled with cedar shavings as nesting material. Aluminum flashing was wrapped around the base of trees to discourage rat snake (*Elaphe* sp.) predation. Nest box monitoring followed protocol outlined by FWC's Fish and Wildlife Research Institute (FWRI).

Three out of the seven nest boxes showed signs of use by kestrels, but no nesting was recorded during spring 2018. A similar kestrel box project on Blackwater WMA has documented breeding kestrels one year following box installation; the 2018 nesting season indicated nesting in five out of 23 nest boxes (Blackwater WMA data courtesy of Matt Smith). Because Blackwater WMA is located just 75 miles west of the Carter Tract, we feel there is a good chance Southeastern American Kestrels will utilize nest boxes in the future. Kestrel boxes will continue to be monitored again during the 2019 nesting season (February – June).

Northern Bobwhite Summer Whistle Counts

Summer whistle counts for the northern bobwhite were used to obtain a population index for this popular gamebird. It has been shown that there is a strong positive relationship between the number of bobwhites whistling in the summer and the number of coveys established the following fall (Rosene 1984; Terhune et al. 2009). Beginning in 2012, we instituted annual summer whistle counts for northern bobwhites to obtain a population index of this species and follow subsequent harvest success on the Carter Tract.

Whistle count surveys were conducted from June 4-20, 2018. Most surveys fell within the June 15 - July 10 calling peak suggested by Rosene (1984) and the mid-June to late-July peak suggested by Terhune et al. (2009). It was important to conduct surveys during peak whistling dates as intensity of whistling is thought to correspond closely with nesting and hatching activity (Terhune et al. 2009), and thus should be a more robust indicator of overall population estimates. Rosene (1984) and Terhune et al. (2009) also suggested that the best time to conduct whistle counts is during the 'calling optimum' that takes place during the two hours following sunrise. We followed this protocol, beginning surveys promptly at sunrise and completing all surveys within the two hours following official sunrise. Surveys lasted for five minutes per station and 12 total stations were chosen that maintained adequate spatial coverage of the upland habitats of the Carter Tract. One-half mile buffers were maintained between stations to decrease the possibility of double-counting birds. Surveys were not conducted when cloud cover was >50%,

wind speed exceeded 12 mph, or under rainy conditions.

Figure 25 illustrates the trend in the mean number of bobwhites heard per station annually during summer whistle count surveys for the past six years at Carter Tract. Mean number of bobwhite heard per station this year was 0.76. Cyclic numbers of male bobwhites leave the health of the population on Carter Tract vulnerable to declines due to weather events like hurricanes or disease. Continuing to keep the upland habitat on a two-year or less burn interval will reduce hardwood encroachment, keep wiregrass from becoming too thick, and provide open areas for quail to feed.

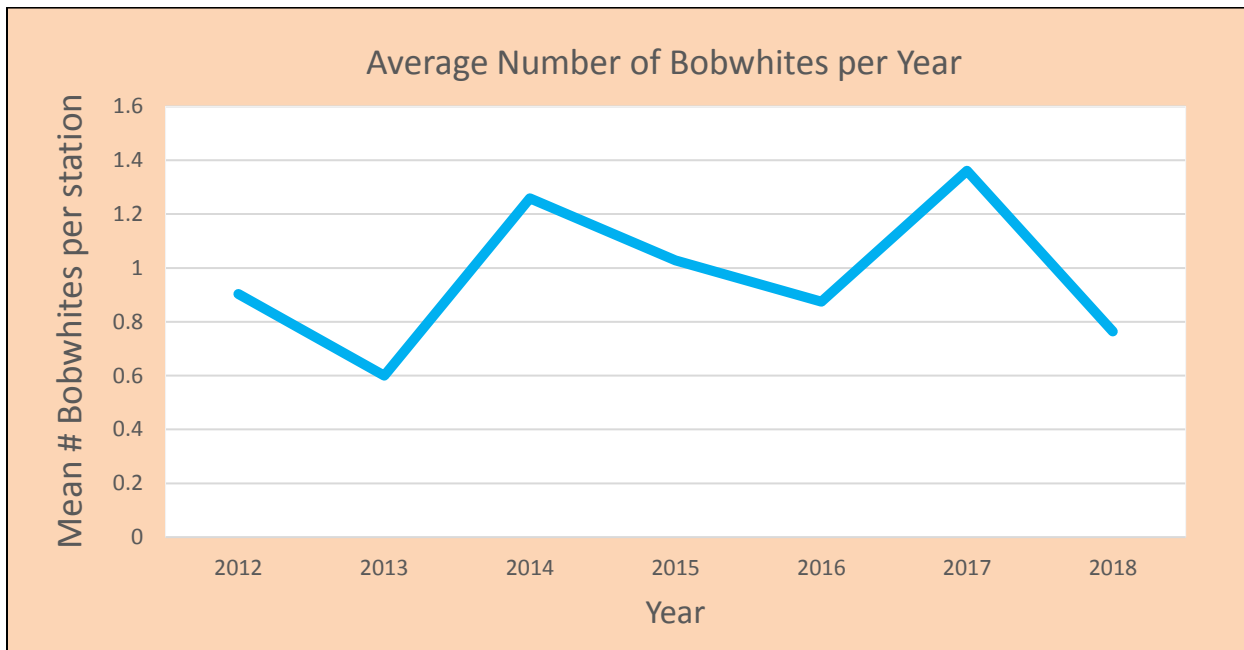


Figure 25. Trend in the mean number of northern bobwhites counted per station during surveys on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida, 2012-2018.

Because of the relationship to the number of calling birds, total calls per station were also recorded. By recording calls, an attempt is made to avoid observer errors in distinguishing the number of individual calling birds as this number increased. Ellis et al. (1972) and Snyder (1978) both noted that the relationship between the numbers of calls and number of calling quail deteriorated rapidly when more than 7 birds per station were heard. It was more difficult for observers to distinguish between individual quail at higher densities. Curtis et al. (1989) and Robinette (1991) observed increased variability in calling when the mean exceeded 4 birds per station. On the Carter Tract, the mean number of different quail heard per station didn't exceed four birds regularly. When this level is surpassed more frequently, it may be appropriate to use

mean number of calls rather than the number of whistling bobwhites as the count index. Moreover, Snyder (1978) also noted 3 replicates were needed to project within 20% of the actual mean 80% of the time, when the call rate averaged 1 quail per station. When the index rate averaged 4 quail per station, 7 replicates were needed. It appears that the 6 replicates on the Carter Tract should be adequate for sufficient sampling of the bobwhite population.

We are encouraged to see more widespread use of the entire Carter Tract property by northern bobwhites and feel that maintaining an aggressive burning regime is the most important management activity NFWMD can do to continue to improve the population on the Carter Tract. Simply put, to manage for northern bobwhite populations, one is essentially managing for the integrity of the forest system that supports this bird; specifically, the sandhills longleaf-turkey oak-wiregrass association with its dendritic pattern of watersheds and frequent fires.

Mourning Dove Banding

As part of a national long-term mourning dove banding program, FWC's Small Game Management Program solicited WMAs throughout the state to participate in this banding work. Since 2007, Carter Tract staff have participated and contributed to Florida's statewide dove-banding project in cooperation with the U.S. Fish and Wildlife Services and Bird Banding Lab. These efforts are integral components in the development and implementation of a long term national harvest management strategy for mourning doves. Hunters play an important role in the success of the program and are encouraged to report leg bands either via telephone or internet.

Trapping was conducted July 6-20, 2017 with traps set in the early morning. Traps were checked after 1-2 hours, depending on weather conditions. Doves were banded using USFWS metal identification bands, and age (HY = hatch year; AHY= after hatch year), sex, and molt sequence data were collected for each bird (Figure 25). Thirty-five mourning doves (21 HY; 10 AHY; 4 unknown) were successfully banded during the 2017 capture/banding effort.



Figure 26. Mourning doves were trapped (left), banded with U.S. Fish and Wildlife identification bands, and age, sex, and molt sequence (right) were recorded in July 2017 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida (arrow denotes the emergence of new primary feather #06 on a hatch year mourning dove).

Table 6. Dove banding results from 2007-2017 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

| Year | # HY (hatch year) birds banded | # AHY (after hatch year) birds banded | # unknown age birds banded | Total # birds banded |
|------|--------------------------------------|---|----------------------------------|-------------------------|
| 2007 | 29 | 7 | 2 | 38 |
| 2008 | 40 | 9 | 1 | 50 |
| 2009 | 10 | 9 | 1 | 20 |
| 2010 | 11 | 13 | 1 | 25 |
| 2011 | 11 | 9 | 0 | 20 |
| 2012 | 12 | 14 | 0 | 26 |
| 2013 | 14 | 11 | 0 | 25 |
| 2014 | 34 | 12 | 0 | 46 |
| 2015 | 9 | 6 | 0 | 15 |
| 2016 | 8 | 7 | 0 | 15 |
| 2017 | 21 | 10 | 4 | 35 |

Herpetofauna

FWC staff employ several methods for surveying and monitoring the herpetofauna population at the Carter Tract. Methods used through the years have included box-style snake traps, drift fencing, pitfall traps, and incidental observations. A comprehensive list of all herpetofauna species (n=64) identified on the Carter Tract from 2005 to present has been compiled (Appendix VI). Sandhill and scrub habitats, as well as seasonal isolated wetlands and small ponds are among the most important and imperiled habitats for southeastern herpetofauna. Most amphibians that rely on seasonal wetlands or ponds for reproduction also require upland habitats (Bailey et al. 2006). The Carter Tract is an example of a good mix of both permanent (e.g. Dry Pond) and intermediate (e.g. Pine Log Creek and Garrett Pond) aquatic habitats interspersed with adjacent upland sandhills.

Gopher Tortoise

The presence of the gopher tortoise (*Gopherus polyphemus*) in the sandhill habitat of the property is significant not only because it is a state Threatened species, but also because their burrows (both active and abandoned) are used by a host of commensalistic species for shelter and foraging (Jackson and Milstrey 1989). Specifically, the federally Threatened eastern indigo snake (*Drymarchon couais couperi*), in addition to the gopher frog (*Rana capito*) and Florida pine snake (*Pituophis melanoleucus*), both imperiled species, are known to use gopher tortoise burrows (Moler 1992; Ashton and Ashton 2008). In previous years, a detailed report on the *Annual Survey and Monitoring of the Gopher Tortoise on the Carter Tract* was submitted by FWC staff separate from this comprehensive annual report. In March 2017, the annual gopher tortoise monitoring was contracted with the Florida Natural Areas Inventory (FNAI). Gopher tortoises are long-lived with robustness in clusters that change gradually over time; therefore, biologists plan to survey and monitor the gopher tortoise population approximately every 3 years.

Bat Houses

In January 2016, FWC staff installed two bat houses, one near Garrett Pond and the other between Dry and Black Ponds (Figure 27). Each site contains two houses installed on opposite sides of the supporting pole and can hold up to 200 roosting bats, or 400 at each site. FWC staff installed the houses in response to the previously occupied roosting sites (two hollow cypress trees on Dry Pond) no longer being used.



Figure 27. Two bat houses were installed on Carter Tract in January 2016. One house was installed between Dry Pond and Black Pond (left) and the other was installed at Garrett Pond (right).

Because many bat species occur in human habitations in Florida, they are particularly vulnerable to intentional eviction, roost destruction, vandalism, harassment, and large-scale colony destruction, thus efforts should be made to preserve known roost sites (Humphrey 1992). Bat boxes were checked in November of 2017 and February of 2018 during daylight hours. During these checks two of the four houses were occupied by one or more bats. One bat was identified as the big brown bat (*Eptesicus fuscus*), a common species in Florida. We will continue to monitor these houses periodically throughout the year to assess their use.

LAW ENFORCEMENT ACTIVITIES



Lieutenant Warren Walsingham

Florida Fish and Wildlife Conservation Commission Law Enforcement Officers patrol the Fitzhugh Carter Tract of the Econfina Creek Wildlife Management Area providing policing to include wildlife, fisheries, and general law enforcement. This FY 2017-2018 officers provided approximately 80 hours of patrol directed to the Carter Tract. There were approximately 65 user contacts for the area with no citations and written warnings issued.

Officers conducted foot patrol and all-terrain vehicle patrols of the interior roads and perimeter of the Carter Tract throughout the year. Officers targeted illegal hunting, trespassing, baiting violations, and night hunting during the hunting season. They focused on possession of alcohol, licensing, bag limit and size limit violations during the allowed fishing season.

Officers responded to and worked complaints about possession of alcohol, dog hunting, hunter harassment, illegal entry, improper check in, and fishing in an unpermitted area.

With relationships being built between biologists, check station staff, and officers most illegal activity was stopped prematurely through education, as the popularity and activity increases in the area.

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Appendix I. Fitzhugh Carter Tract of Econfina Creek WMA Regulations Summary and Area Map, July 1, 2017 – June 30, 2018.



Fitzhugh Carter Tract Econfina Creek Wildlife Management Area

Regulations Summary and Area Map
July 1, 2017 - June 30, 2018



A cooperative public wildlife and recreational area

Northwest Florida Water Management District

Florida Fish and Wildlife Conservation Commission

MyFWC.com



This brochure is designed to provide the public with information and a summary of regulations pertaining to hunting, fishing and other recreational use on the Fitzhugh Carter Tract of Econfina Creek Wildlife Management Area. **Regulations that are new or differ substantially from last year are shown in bold print.** Area users should familiarize themselves with all regulations. For exact wording of the wildlife laws and regulations, see the Florida Fish and Wildlife Conservation Commission's wildlife code, on file with the Secretary of State and state libraries. This brochure, the Florida Hunting Regulations handbook, and quota permit worksheets should provide the information necessary for you to plan your hunting and fishing activities. These publications are available from any Commission office, county tax collector and at MyFWC.com.

Persons using wildlife management areas are required to have appropriate licenses, permits and stamps. The following persons are exempt from all license and permit requirements (except for quota permits when listed as "no exemptions," recreational use permits, antlerless deer permits and the Migratory Bird Hunting and Conservation Stamp [federal duck stamp]): Florida residents who are 65 years of age or older, residents who possess a Florida Resident Disabled Person Hunting and Fishing Certificate; residents in the U.S. Armed Forces, not stationed in Florida, while home on leave for 30 days or less, upon submission of orders; and children under 16 years of age. Children under 16 years of age are exempt from the duck stamp. Anyone born on or after June 1, 1975 and 16 years of age or older must have passed a Commission-approved hunter-safety course prior to being issued a hunting license, except the Hunter Safety Mentoring exemption allows anyone to purchase a hunting license and hunt under the supervision of a licensed hunter, 21 years of age or older.

Licenses and permits may be purchased from county tax collectors, license agents, at MyFWC.com/license or by telephone at 888-486-8336 (hunting) or 888-347-4356 (fishing). A no-cost Migratory Bird Permit is available when purchasing a hunting license. Any waterfowl hunter 16 years of age or older must possess a federal duck stamp.

Quota Permit Information:

Archery - 15, no-cost, quota permits (no exemptions) for each of 2 hunts.
General Gun - 15, no-cost, quota permits (no exemptions) for each of 3 hunts.
Muzzleloading Gun - 15, no-cost, quota permits (no exemptions).
Youth Turkey - 3, no-cost, quota permits (no exemptions).
Spring Turkey - 5, no-cost, quota permits (no exemptions) for each of 3 hunts.

Daily Fishing Permits: 20 anglers are allowed on the area per day. 10 daily permits are available first-come, first-serve at the check station; 10 daily permits can be reserved in advance by calling 850-773-2631. If reserved permits are not filled by 11 a.m., they will become available at the check station first-come, first-serve. Permits are issued with specific lake designations, and anglers are allowed to fish only at the lake for which the permit is issued and must have the permit in their possession at all times.

Permit applications: Hunters must submit electronic applications for quota and special-opportunity permits through the Commission's Recreational License

Issuance Services (RLIS). Worksheets listing hunts, application periods, deadlines and instructions are available at county tax collector's offices, FWC offices or MyFWC.com. Quota application periods occur throughout the year beginning April 1; please refer to the hunting handbook or MyFWC.com for specific dates. Worksheets will be available about 2 weeks prior to each application period.

Guest hunters: For each non-transferable archery, muzzleloading gun, general gun, wild hog, spring turkey and mobility-impaired quota permit issued through the Commission's RLIS, a quota permit holder (host) may take a guest hunter by obtaining a guest permit. Guest hunters are not allowed during youth turkey hunts. A guest hunter must possess a completed guest permit while hunting except the following persons may be a guest hunter without a guest permit: a youth under 16 years of age, a youth supervisor, a mentor license holder or a mentor license supervisor. A host may only bring 1 guest hunter at a time and may only use 1 guest permit per day. The following persons are not considered to be guest hunters: other quota permit holders, non-hunters and exempt hunters (on areas and during seasons that allow exemptions). The host must share the bag limit with the guest hunter and the host is responsible for violations that exceed the bag limit. The guest hunter and host must enter and exit the area together and must share a street-legal vehicle while hunting on the area. The guest hunter may hunt only while the host is on the area. Refer to the quota hunt worksheets for additional information.

Youth and mentor license holders: A supervisor is required to accompany a youth or mentor license holder during all hunts. A youth hunter (less than 16 years of age) must be supervised by a person at least 18 years of age. A mentor license holder must be supervised by a licensed hunter at least 21 years of age. Unless exempt, only those supervisors with proper licenses and permits may hunt. If the supervisor is hunting during any hunt for which quota permits are issued, at least 1 person in the party must be in possession of a quota permit.

Transfer of permits: Quota and guest permits are not transferable. A positive form of identification is required when using a non-transferable permit, except for youth under 16 years of age. The sale or purchase of any quota permit or guest permit is prohibited.

General Area Regulations:

All general laws and regulations relating to wildlife and fish shall apply unless specifically exempted for this area. Hunting or the taking of wildlife or fish on this area shall be allowed only during the open seasons and in accordance with the following regulations:

1. Any person hunting deer or accompanying another person hunting deer shall wear at least 500 square inches of daylight fluorescent-orange material as an outer garment, above the waistline. These provisions are not required when hunting with a bow and arrow during archery season.
2. Taking of spotted fawn, swimming deer or roosted turkey is prohibited.
3. It is illegal to hunt over bait or place any bait or other food for wildlife on this area.
4. Driving a metal object into any tree, or hunting from a tree into which a metal object has been driven, is prohibited.

5. No person shall cut, damage or remove any natural, man-made or cultural resource without written authorization of the landowner or primary land manager.
6. Taking or attempting to take any game with the aid of live decoys, recorded game calls or sounds, set guns, artificial light, net, trap, snare, drug or poison is prohibited. Recorded calls and sounds can be used to hunt furbearers, wild hog and crows.
7. The wanton and willful waste of wildlife is prohibited.
8. Hunting, fishing or trapping is prohibited on any portion of the area posted as closed to those activities.
9. People, dogs, vehicles and other recreational equipment are prohibited in areas posted as "Closed to Public Access" by FWC administrative action.
10. Taking or herding wildlife from any motorized vehicle, aircraft or boat, which is under power is prohibited until power, and movement from that power, has ceased.
11. Most game may be hunted from ½ hour before sunrise until ½ hour after sunset (see exceptions for each season).
12. The release of any animal is prohibited, without written authorization of the landowner or primary land manager.
13. The head and evidence of sex may not be removed from the carcass of any deer or turkey on the area.
14. The planting or introduction of any non-native plant is prohibited, without written authorization of the landowner or primary land manager.
15. Wild hog may not be transported alive.
16. A hunting license is not required to hunt wild hog.
17. Littering is prohibited.
18. It is unlawful to set fire to any forest, grass or woodlands.
19. An FWC Law Enforcement Officer may search any camp, vehicle or boat in accordance with law.
20. Falconers may hunt during the statewide falconry season anytime a management area is open for public access. Falconers are not exempt from quota permits during hunts requiring them.
21. The possession or consumption of intoxicating beverages is prohibited.

Public Access and Vehicles:

1. Open to public access year round. During periods when the area is closed to hunting and fishing, public access other than by foot is prohibited.
2. All persons shall enter and exit at the designated entrance (see map).
3. Parked vehicles may not obstruct a road, gate or firelane.
4. No motor vehicle shall be operated in areas designated as closed to vehicular traffic.
5. Vehicles may be operated only on named or numbered roads.
6. Horses and the use of all-terrain vehicles and bicycles are prohibited.

Hunters and Check Stations:

1. Hunters must check in at the check station when entering and check out when leaving the area and check all game harvested.
2. Hunting equipment may not be taken onto the WMA until after 8 a.m. the day before the opening of a season and shall be removed by 6 p.m. 1 day after the end of the season.
3. On hunt days, the check station hours are 4:30 a.m. to 6 p.m. Refer to the Fishing and Frogging section for check station hours on days open to fishing.

Guns:

1. Hunting at night with a gun is prohibited.
2. Muzzleloading guns used for taking deer must be .40 caliber or larger if firing a single bullet, or be 20 gauge or larger if firing 2 or more balls.
3. Hunting deer with rimfire or non-expanding, full metal jacket (military ball) ammunition is prohibited.
4. Hunting wildlife (other than deer, turkey, quail or migratory birds) with air guns is allowed. Hunting with air guns is prohibited during archery and muzzleloading gun seasons.
5. Children under the age of 16 hunting with a firearm or air gun must be in the presence of a supervising adult.
6. No person shall discharge a firearm or have a loaded firearm in hand while under the influence of alcohol or drugs.
7. For hunting non-migratory game, only shotguns, rifles, pistols, bows, crossbows or falconry may be used.
8. For hunting migratory game, only shotguns, bows, crossbows or falconry may be used. Shotguns shall not be larger than 10 gauge and shall be incapable of holding more than 3 shells in the magazine and chamber combined.
9. Hunting with full automatic firearms, centerfire semi-automatic rifles having a magazine capable of holding more than 5 rounds, explosive or drug-injecting devices and set guns is prohibited.
10. The discharge of a firearm outside of periods open to hunting or in areas closed to hunting is prohibited per s. 790.15 FS.

Dogs:

1. Hunting with dogs, other than bird dogs or retrievers, is prohibited.
2. No person shall allow any dog to pursue or molest any wildlife during any period in which the taking of wildlife by the use of dogs is prohibited.
3. Dogs on leashes may be used for trailing wounded game.
4. For purposes other than hunting, dogs are allowed, but must be kept under physical restraint at all times.

Camping: Prohibited.

Bag and Possession Limits: A guest hunter must share the host's bag limit, except bag limits specified as per person. No person shall exceed statewide bag limits.

1. Deer - Daily limit 2, possession limit 4 (see legal to take for each season).
2. Wild hog - No size or bag limit.
3. Turkey - Daily limit 1, except the youth turkey limit is 1 per quota permit; season limit 2, possession limit 2.
4. Gray squirrel and rabbit - Daily limit 12 per person, possession limit 24 for each.
5. Quail - Daily limit 12, possession limit 24.
6. Raccoon, opossum, armadillo, beaver, coyote, skunk and nutria - No bag limits.
7. Migratory birds - See Florida Hunting Regulations handbook.

Archery Season:

October 21-27 and October 28 through November 5.

Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, archery permit, deer permit (if hunting deer), wild turkey permit (if hunting wild turkey) and migratory bird permit (if hunting migratory birds).

Legal to Hunt - Deer with at least 1 antler having 2 or more points (each point 1-inch or more in length) and having at least 1 antler 5-inches or more in length, antlerless deer (which includes does and bucks with antlers less than 5 inches in length, but not spotted fawn), wild hog, turkey of either sex, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Regulations Unique to Archery Season -

1. Youth less than 16 years of age may harvest antlered deer with at least 1 antler 5 inches or more in length.
2. Hunting with guns or crossbows (except by disabled crossbow permit) is prohibited, except that centerfire shotguns are allowed for hunting migratory birds.

General Gun Season:

November 23-26, January 20-23 and January 24-28.

Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, deer permit (if hunting deer), migratory bird permit (if hunting migratory birds), and state waterfowl permit and federal duck stamp (if hunting waterfowl).

Legal to Hunt - Deer with at least 1 antler having 2 or more points (each point 1-inch or more in length) and having at least 1 antler 5-inches or more in length, wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Regulations Unique to General Gun Season - Youth less than 16 years of age may harvest antlered deer with at least 1 antler 5 inches or more in length.

Muzzleloading Gun Season:

December 2-4.

Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit, muzzleloading gun permit, deer permit (if hunting deer), migratory bird permit (if hunting migratory birds), and state waterfowl permit and federal duck stamp (if hunting waterfowl).

Legal to Hunt - Deer with at least 1 antler having 2 or more points (each point 1-inch or more in length) and having at least 1 antler 5-inches or more in length, wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Regulations Unique to Muzzleloading Gun Season -

1. Youth less than 16 years of age may harvest antlered deer with at least 1 antler 5 inches or more in length.
2. Hunting with archery equipment or guns, other than muzzleloading guns, is prohibited, except that centerfire shotguns are allowed for hunting migratory birds.

Small Game Season:

December 9-24.

Permit, Stamp and License Requirements - Hunting license, management area permit, migratory bird permit (if hunting migratory birds) and state waterfowl permit and federal duck stamp (if hunting waterfowl).

Legal to Hunt - Wild hog, gray squirrel, quail, rabbit, raccoon, opossum, armadillo, beaver, coyote, skunk, nutria and migratory birds in season.

Regulations Unique to Small Game Season - Hunting with centerfire rifles is prohibited.

Spring Turkey Season:

Youth Turkey: March 10-11.

Spring Turkey: March 17-19, March 30 through April 1 and April 13-15.

Permit, Stamp and License Requirements - Quota permit, hunting license, management area permit and wild turkey permit.

Legal to Hunt - Bearded turkey or gobbler.

Regulations Unique to Spring Turkey Season -

1. Legal shooting hours are ½ hour before sunrise until 1 p.m.
2. Hunting other animals is prohibited.
3. Only bows, crossbows and shotguns using a #2 or smaller shot size may be used for hunting.
4. During the youth turkey hunt, only youth under 16 years of age may hunt and must be under the supervision and in the presence of an adult not younger than 18 years of age. Adults with required licenses and permits for taking wild turkeys may participate when in the presence of a youth, but may not harvest a wild turkey.

Trapping: Prohibited.

Migratory Bird Seasons:

Rails, common moorhen, mourning dove, white-winged dove, snipe, ducks, geese, coot, woodcock and crows may be hunted during statewide migratory bird seasons that coincide with the seasons where migratory birds are listed as legal to hunt in this brochure. Migratory birds may also be hunted during the September duck seasons.

Permit, Stamp and License Requirements - Quota permit (if hunting during any quota period), hunting license, management area permit, migratory bird permit and state waterfowl permit and federal duck stamp (if hunting waterfowl).

Legal to Hunt - See Florida Hunting Regulations handbook.

Regulations Unique to Migratory Bird Seasons - All Migratory Bird Regulations shall apply.

1. Hunting ducks, geese and coot with lead shot is prohibited.
2. Centerfire shotguns are allowed for hunting during established area seasons when migratory birds are legal to take.

Fishing and Frogging:

Allowed Friday through Monday (except during periods open to hunting) by permit only.

Permit, Stamp and License Requirements - Daily fishing permit and fishing license (not required when frogging).

Legal to Take - All legal fish (except as provided below) and frogs. See Florida Freshwater Fishing Regulations Summary.

Regulations Unique to Fishing and Frogging - All General Freshwater Fishing Regulations shall apply.

1. Anglers shall check in and out at the check station when entering and exiting the area and shall check all fish taken.
2. Fishing is allowed starting at 6 a.m. Entrance gates close at 8 p.m. during the summer period (March - October) and at 5 p.m. during the winter period (November - February).
3. Fishing is allowed in designated lakes and water bodies only. All other lakes, water bodies and restricted areas are closed to public fishing.
4. Boats are provided for use on each lake; these boats must be kept at the lake on which they are placed. No outside boats are allowed into the area. All state boating regulations, including the use of personal flotation devices (PFDs), apply.
5. Fish may be taken only by hook and line or rod and reel. The use or possession of nets, seines, fish traps, trotlines, set lines or bush hooks, spears, gigs, snatch hooks, crossbow, or bow and arrow is prohibited. Landing nets may be used for fish legally caught from a boat.
6. No person shall take more than 20 panfish in the aggregate per day. Any bluegill or redear sunfish less than 8 inches in total length must be released immediately. No person shall take more than 10 black crappie per day. Any black crappie less than 10 inches in total length must be released immediately. All largemouth bass are catch and release only.
7. Fish may not be filleted, nor the head or tail fin removed, until the angler has checked out at the check station.
8. Anglers will be given a creel kit and are expected to accurately complete the information sheet and return it to the check station upon check out.
9. Shooting frogs is allowed only during the listed open hunting seasons and only with the legal methods of take during each particular season.

General Information:

1. Other recreational uses, including canoeing, kayaking, hiking and bird watching, are allowed on the area and are subject to all area rules and regulations.
2. Information for persons with disabilities can be found at MyFWC.com/ADA.
3. If you have any questions about this material, please call the Fish and Wildlife Conservation Commission at 850-265-3676 (TDD 800-955-8771).
4. The FWC is not responsible for protection of personal property and will not be liable for theft of or damage to personal property.
5. Please report the location of any sick or extremely skinny deer to the Chronic Wasting Disease hotline, toll free at 866-293-9282.

Northwest Florida WMD Rules and Information:

1. This land was acquired by the Northwest Florida Water Management District (District) to protect public water resources. The purpose of the District's land acquisition and management program is to conserve and protect unique and irreplaceable land and water resources, restore areas to their original condition as much as possible and allow controlled multiple recreational and educational uses consistent with this purpose.
2. The District's land management activities for this area may include prescribed burning and timber harvesting during most months of the year. For personal safety reasons, area users should be aware of activities in the area and contact the District's Land Management office at 850-539-5999 with any questions. The District has no responsibility or obligation to identify and/or protect personal property while undertaking its land management activities.

Cooperation Requested:

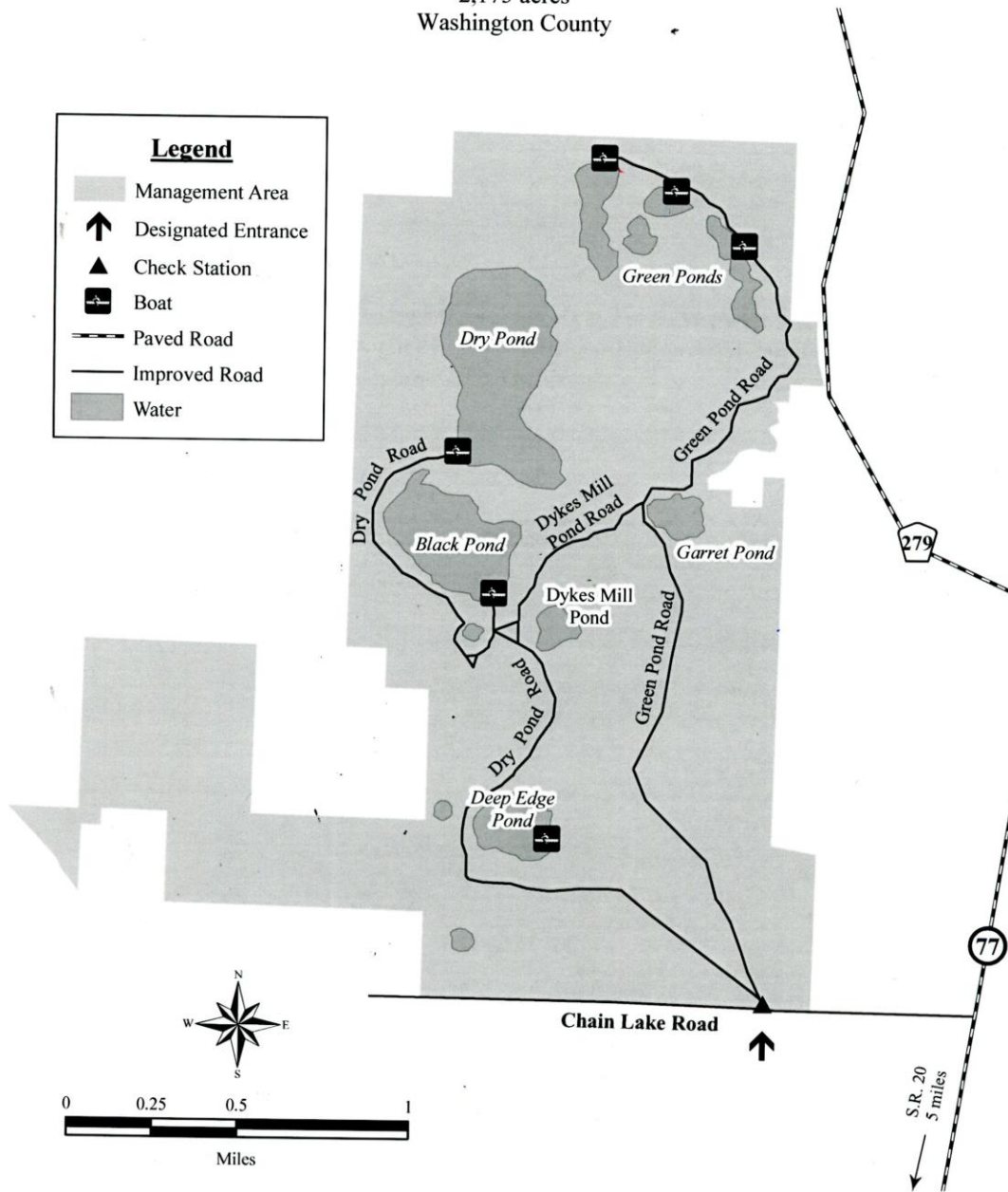
If you see law violators or suspicious activities, contact your nearest Commission regional office or call 888-404-FWCC. You may qualify for a cash reward from the Wildlife Alert Reward Association.

The U.S. Department of the Interior prohibits discrimination on the basis of race, color, national origin, age, sex or disability. If you believe that you have been discriminated against in any program, activity or facility as described above, or if you desire further information, please write to: The Office for Human Resources, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. The project described in this publication is part of a program funded by federal dollars under the Wildlife Restoration Act. Federal funds pay 20 percent of the cost of the program.

FITZHUGH CARTER TRACT

ECONFINA CREEK WILDLIFE MANAGEMENT AREA

2,175 acres
Washington County



Appendix II. 2017-2018 Annual Work Plan and Accomplishment Report for the Fitzhugh Carter Tract of Econfina Creek Wildlife Management Area.

| | Man Days | Salary | FuelCost | Other | Total | Units Accomplishments |
|---|---|---------------|-----------------|--------------|--------------|---|
| Species 9100 - All freshwater fish | | | | | | |
| Activity - 250 | Monitoring and assessments | | | | | |
| | 0.00 | \$0.00 | \$37.76 | \$721.94 | \$759.70 | 0 Monitored area fish populations. NFA* |
| Activity - 342 | Public use administration (non-hunting) | | | | | |
| | 0.00 | \$0.00 | \$2,051.83 | \$18,654.00 | \$20,705.83 | 0 Administered public fishing program via check station. Salary for OPS fishing check station operators included here. NFA* |
| <hr/> | | | | | | |
| Species 9100 Total | 0.00 | \$0.00 | \$2,089.59 | \$19,375.94 | \$21,465.53 | |
| <hr/> | | | | | | |
| Species 9200 - All wildlife | | | | | | |
| Activity - 100 | Administration | | | | | |
| | 0.00 | \$0.00 | \$43.61 | \$714.66 | \$758.27 | 0 General clerical and administrative support to Wildlife Management Area staff. |
| Activity - 101 | Project inspection | | | | | |
| | 0.37 | \$143.51 | \$175.52 | \$3,525.62 | \$3,844.65 | 0 Inspected area projects and activities. Field orientation of land boundaries, features, and habitats. |
| Activity - 103 | Meetings | | | | | |
| | 0.43 | \$137.12 | \$139.88 | \$3,046.65 | \$3,323.65 | 0 Attended landowner, cooperators, scientific, and agency meetings. Attended training workshops and seminars. |
| Activity - 140 | Report writing/editing/manuscript preparation | | | | | |

| | Man Days | Salary | FuelCost | Other | Total | Units | Accomplishments | |
|----------------|-------------------------------------|---------------|-----------------|--------------|--------------|--------------|---|--|
| | 2.62 | \$858.08 | \$260.63 | \$5,058.60 | \$6,177.31 | 0 | Prepared and reviewed annual wildlife reports and completed annual accomplishment report. | |
| Activity - 150 | Personnel management | | | | | | | |
| | 19.78 | \$7,110.66 | \$590.67 | \$7,277.66 | \$14,978.99 | 0 | Supervised volunteer activities. Recruited, hired, and supervised OPS personnel. Attended training workshops and seminars. | |
| Activity - 182 | Data management | | | | | | | |
| | 2.87 | \$1,061.82 | \$111.16 | \$1,811.55 | \$2,984.53 | 0 | Incorporated all data collected into GIS database. Analyzed and summarized WMA databases and pertinent information. | |
| Activity - 200 | Resource Management | | | | | | | |
| | 0.00 | \$0.00 | \$546.00 | \$13,718.84 | \$14,264.84 | 0 | Routine planning, paperwork, purchases and correspondences dealing with daily operations of the WMA. | |
| Activity - 204 | Resource planning | | | | | | | |
| | 22.31 | \$8,330.30 | \$905.04 | \$22,249.79 | \$31,485.13 | 0 | Coordinated work projects related to management activities. Purchased supplies, materials, and equipment for performing routine WMA operations. | |
| Activity - 206 | Prescribed burning - growing season | | | | | | | |
| | 0.00 | \$0.00 | \$0.00 | \$373.45 | \$373.45 | 0 | Assisted Northwest Florida Water Management District with prescribed burning. | |
| Activity - 207 | Prescribed burning - dormant season | | | | | | | |

| | Man Days | Salary | FuelCost | Other | Total | Units | Accomplishments |
|----------------|-----------------------------------|---------------|-----------------|--------------|--------------|--------------|--|
| | 0.00 | \$0.00 | \$31.38 | \$1,431.78 | \$1,463.16 | 0 | Assisted Northwest Florida Water Management District with prescribed burning. |
| Activity - 210 | 0.00 | \$0.00 | \$3.19 | \$47.84 | \$51.03 | 0 | Assisted Northwest Florida Water Management District with locating and treating cogon grass and other invasive exotic plant species on the area. |
| Activity - 211 | Exotic plant control (mechanical) | | | | | | |
| | 0.00 | \$0.00 | \$13.82 | \$292.29 | \$306.11 | 0 | Assisted Northwest Florida Water Management District with locating and treating cogon grass and other invasive exotic plant species on the area. |
| Activity - 212 | Exotic plant control (chemical) | | | | | | |
| | 0.00 | \$0.00 | \$9.30 | \$187.99 | \$197.29 | 0 | Assisted Northwest Florida Water Management District with locating and treating cogon grass and other invasive exotic plant species on the area. |
| Activity - 312 | Informational signs | | | | | | |
| | 0.00 | \$0.00 | \$8.51 | \$138.59 | \$147.10 | 0 | Developed and maintained information signs at kiosk and display boards. |
| Activity - 320 | Outreach and education | | | | | | |
| | 0.00 | \$0.00 | \$78.98 | \$1,510.05 | \$1,589.03 | 0 | Assisted local schools and the general public in wildlife-oriented training, presentations, and development. Participated as a |

| | Man Days | Salary | FuelCost | Other | Total | Units | Accomplishments |
|------------------------------|-----------------------------|---------------|-----------------|--------------|--------------|--------------|---|
| | | | | | | | steering committee member and wildlife facilitator for the Emerald Coast Regional Envirothon. NFA* |
| Activity - 350 | Customer service support | | | | | | |
| | 0.00 | \$0.00 | \$4.25 | \$69.72 | \$73.97 | 0 | Provided information to callers regarding wildlife-based recreation opportunities and area regulations. |
| Activity - 920 | FEM -- buildings/structures | | | | | | |
| | 1.12 | \$330.88 | \$87.22 | \$3,742.87 | \$4,160.97 | 0 | Maintained and repaired area office, storage shed, and equipment workshop with storage bays as needed. |
| Activity - 922 | FEM -- custodial functions | | | | | | |
| | 0.00 | \$0.00 | \$0.00 | \$38.98 | \$38.98 | 0 | Managed/maintained boat landing and other public use areas. |
| Activity - 923 | FEM -- vehicles/equipment | | | | | | |
| | 0.37 | \$95.84 | \$65.68 | \$3,791.22 | \$3,952.74 | 0 | Repaired and maintained vehicles, boats, ATVs and associated equipment, including services-parts and labor. |
| Activity - 926 | FEM -- roads/bridges | | | | | | |
| | 0.00 | \$0.00 | \$12.49 | \$1,238.14 | \$1,250.63 | 0 | Made minor repairs to access roads and bridges as needed. |
| <hr/> | | | | | | | |
| Species 9200 Total | 49.87 | \$18,068.21 | \$3,087.33 | \$70,266.29 | \$91,421.83 | | |
| <hr/> | | | | | | | |
| Species 9210 - Game wildlife | | | | | | | |
| Activity - 182 | Data management | | | | | | |
| | 0.00 | \$0.00 | \$11.70 | \$198.61 | \$210.31 | 0 | Summarized and analyzed survey, |

| | Man Days | Salary | FuelCost | Other | Total | Units | Accomplishments |
|----------------|---|---------------|-----------------|--------------|--------------|--------------|---|
| | | | | | | | biological, harvest and hunter pressure data. |
| Activity - 204 | Resource planning | | | | | | |
| | 0.00 | \$0.00 | \$0.00 | \$8.78 | \$8.78 | 0 | Coordinated work projects related to management activities. Purchased supplies, materials, and equipment for performing routine WMA operations. |
| Activity - 221 | Animal surveys | | | | | | |
| | 1.50 | \$364.18 | \$78.18 | \$2,618.48 | \$3,060.84 | 0 | Conducted deer surveys and other game surveys as needed. |
| Activity - 285 | Nest structures | | | | | | |
| | 0.00 | \$0.00 | \$141.48 | \$3,572.63 | \$3,714.11 | 50 | Maintained and monitored 50 wood duck nest boxes on area waterways. |
| Activity - 295 | Biological data collection, analysis, and reporting | | | | | | |
| | 0.00 | \$0.00 | \$7.97 | \$151.48 | \$159.45 | 0 | Collected harvest and biological data at check station. |
| Activity - 341 | Public use administration (hunting) | | | | | | |
| | 0.00 | \$0.00 | \$1,070.73 | \$10,072.96 | \$11,143.69 | 0 | Administered and managed public hunts. Reviewed area hunt maps and brochures. Compiled weekly harvest and hunting pressure reports. Salary for OPS check station operators included here. |

| | | | | | | | |
|--------------------|------|----------|------------|-------------|-------------|--|--|
| Species 9210 Total | 1.50 | \$364.18 | \$1,310.06 | \$16,622.94 | \$18,297.18 | | |
|--------------------|------|----------|------------|-------------|-------------|--|--|

Species 9211 - White-tailed deer

Activity - 182 Data management

| | Man Days | Salary | FuelCost | Other | Total | Units | Accomplishments |
|--|-----------------|---------------|-----------------|--------------|--------------|--------------|---|
| | 0.00 | \$0.00 | \$7.44 | \$116.03 | \$123.47 | 0 | Summarized and analyzed survey, biological, harvest and hunter pressure data. |
| Activity - 221 | Animal surveys | | | | | | |
| | 1.56 | \$553.70 | \$13.29 | \$0.00 | \$566.99 | 0 | Conducted spotlight surveys employing line transect distance sampling methodology. |
| <hr/> | | | | | | | |
| Species 9211 Total | 1.56 | \$553.70 | \$20.73 | \$116.03 | \$690.46 | | |
| <hr/> | | | | | | | |
| Species 9216 - Hogs | | | | | | | |
| Activity - 291 | | | | | | | |
| | 0.00 | \$0.00 | \$432.44 | \$7,803.83 | \$8,236.27 | 0 | Assisted Northwest Florida Water Management District with controlling wild hogs on the area. NFA* |
| <hr/> | | | | | | | |
| Species 9216 Total | 0.00 | \$0.00 | \$432.44 | \$7,803.83 | \$8,236.27 | | |
| <hr/> | | | | | | | |
| Species 9218 - Quail | | | | | | | |
| Activity - 182 | Data management | | | | | | |
| | 0.00 | \$0.00 | \$2.12 | \$35.29 | \$37.41 | 0 | Summarized and analyzed survey, biological, harvest and hunter pressure data. |
| Activity - 221 | Animal surveys | | | | | | |
| | 0.00 | \$0.00 | \$0.00 | \$114.26 | \$114.26 | 0 | Conducted northern bobwhite calling surveys. |
| <hr/> | | | | | | | |
| Species 9218 Total | 0.00 | \$0.00 | \$2.12 | \$149.55 | \$151.67 | | |
| <hr/> | | | | | | | |
| Species 9226 - Mourning and white-winged doves (migratory and non-migratory) | | | | | | | |
| Activity - 221 | Animal surveys | | | | | | |
| | 0.62 | \$314.25 | \$45.73 | \$754.71 | \$1,114.69 | 0 | Trapped and banded area doves as part of |

| | Man Days | Salary | FuelCost | Other | Total | Units Accomplishments a statewide project and nationwide effort. |
|---|-----------------|---------------|-----------------|--------------|--------------|---|
| Species 9226 Total | 0.62 | \$314.25 | \$45.73 | \$754.71 | \$1,114.69 | |
| <hr/> | | | | | | |
| Species 9240 - Nongame wildlife | | | | | | |
| Activity - 221 | Animal surveys | | | | | |
| | 0.00 | \$0.00 | \$67.55 | \$1,419.45 | \$1,487.00 | 0 Conducted wading bird surveys and monitoring. Conducted herpetofauna surveys and monitoring. Installed and monitored drift fence arrays. NFA* |
| <hr/> | | | | | | |
| Species 9240 Total | 0.00 | \$0.00 | \$67.55 | \$1,419.45 | \$1,487.00 | |
| <hr/> | | | | | | |
| Species 9258 - Southeastern kestrel | | | | | | |
| Activity - 285 | Nest structures | | | | | |
| | 0.00 | \$0.00 | \$30.85 | \$642.17 | \$673.02 | 7 Maintained and monitored seven kestrel nest boxes. |
| <hr/> | | | | | | |
| Species 9258 Total | 0.00 | \$0.00 | \$30.85 | \$642.17 | \$673.02 | |
| <hr/> | | | | | | |
| Species 9271 - Bats | | | | | | |
| Activity - 221 | Animal surveys | | | | | |
| | 0.00 | \$0.00 | \$14.89 | \$415.36 | \$430.25 | 2 Maintained and monitored two bat houses. |
| <hr/> | | | | | | |
| Species 9271 Total | 0.00 | \$0.00 | \$14.89 | \$415.36 | \$430.25 | |
| <hr/> | | | | | | |
| Species 9280 - All threatened and endangered wildlife | | | | | | |
| Activity - 221 | Animal surveys | | | | | |
| | 0.00 | \$0.00 | \$19.94 | \$489.71 | \$509.65 | 0 Conducted herpetofauna surveying and monitoring. NFA* |

| | Man Days | Salary | FuelCost | Other | Total Units Accomplishments |
|--------------------|--------------------|---------------|-----------------|--------------|------------------------------------|
| Species 9280 Total | 0.00 | \$0.00 | \$19.94 | \$489.71 | \$509.65 |
| Project 7281 Total | 53.55 ¹ | \$19,300.34 | \$7,121.23 | \$118,055.98 | \$144,477.55 |

¹Man-days for OPS Biological Scientist III, OPS Fish & Wildlife Technician and OPS Hunting & Fishing Check Station Operators not included here. However, salary for such is included in “Other” expenses category. The 53.55 man-days are additional FWC FTE staff time spent contributing to the Carter Tract cost-share.

Appendix III. Number of fish caught and released per pond from July 2017 - June 2018 on the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

| Species | Ponds | | | | | | |
|---|------------|------------|-----------|-----------|-----------|------------|-------------|
| | Dry | Black | Deep Edge | Green 1 | Green 2 | Green 3 | All Ponds |
| <i>Bluegill (Lepomis macrochirus)</i> | | | | | | | |
| Kept | 596 | 103 | 0 | 31 | 8 | 39 | 777 |
| Released | 191 | 62 | 3 | 59 | 6 | 96 | 417 |
| Total caught | 787 | 165 | 3 | 90 | 14 | 135 | 1194 |
| <i>Black Crappie (Pomoxis nigromaculatus)</i> | | | | | | | |
| Kept | 192 | 70 | 0 | 23 | 16 | 10 | 311 |
| Released | 13 | 27 | 0 | 2 | 0 | 0 | 42 |
| Total caught | 205 | 97 | 0 | 25 | 16 | 10 | 353 |
| <i>Largemouth Bass[†] (Micropterus salmoides)</i> | | | | | | | |
| Total caught | 143 | 129 | 32 | 33 | 14 | 78 | 429 |
| <i>Warmouth (Lepomis gulosus)</i> | | | | | | | |
| Kept | 3 | 2 | 0 | 0 | 0 | 1 | 6 |
| Released | 1 | 5 | 0 | 3 | 1 | 1 | 11 |
| Total caught | 4 | 7 | 0 | 3 | 1 | 2 | 17 |
| <i>Catfish (Ameirus nebulosus and Ameirus natalis)</i> | | | | | | | |
| Kept | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| Released | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total caught | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| <i>Other (Chain pickerel, Spotted Gar, Bowfin, Redbreast Sunfish,, Redear Sunfish, Flier)</i> | | | | | | | |
| Kept | 3 | 5 | 0 | 0 | 0 | 2 | 10 |
| Released | 8 | 2 | 0 | 12 | 0 | 11 | 33 |
| Total caught | 11 | 7 | 0 | 12 | 0 | 13 | 43 |

[†]Largemouth Bass are catch-and-release only on Carter Tract ponds

Appendix IV. Bird species (n=130) documented on the Fitzhugh Carter Tract of Econfina Creek WMA, as of June 2018.

PODICIPEDIFORMES

Podicipedidae (Grebes)

- Pied-billed Grebe *Podilymbus podiceps*

PELICANIFORMES

Phalacrocoracidae (Cormorants)

- Double-crested Cormorant *Phalacrocorax auritus*

Anhingidae (Darters/Anhinga)

- Anhinga *Anhinga anhinga*

CICONIIFORMES

Ardeidae (Herons, Egrets, and Bitterns)

- Great Blue Heron *Ardea herodias*
- Great Egret *Ardea alba*
- Snowy Egret *Egretta thula*
- Little Blue Heron *Egretta caerulea*
- Tricolored Heron *Egretta tricolor*
- Cattle Egret *Bubulcus ibis*
- Green Heron *Butorides virescens*

Threskiornithidae (Ibises and Spoonbills)

- White Ibis *Eudocimus albus*
- Roseate Spoonbill *Platalea ajaja*

Ciconiidae (Storks)

- Wood Stork *Mycteria Americana*

ANSERIFORMES

Anatidae (Ducks, Geese, and Swans)

- Snow Goose *Chen caerulescens*
- Wood Duck *Aix sponsa*
- Mallard *Anas platyrhynchos*
- Blue-winged Teal *Anas discors*
- Green-winged Teal *Anas crecca*
- Canvasback *Aythya valisineria*
- Redhead *Aythya americana*
- Ring-necked Duck *Aythya collaris*
- Bufflehead *Bucephala albeola*
- Hooded Merganser *Lophodytes cucullatus*

- Ruddy Duck *Oxyura jamaicensis*

ACCIPITRIFORMES

Accipitridae (Hawks and Allies)

- Osprey *Pandion haliaetus*
- Mississippi Kite *Ictinia mississippiensis*
- Swallow-tailed Kite *Elanoides forficatus*
- Bald Eagle *Haliaeetus leucocephalus*
- Northern Harrier *Circus cyaneus*
- Sharp-shinned Hawk *Accipiter striatus*
- Cooper's Hawk *Accipiter cooperii*
- Red-shouldered Hawk *Buteo lineatus*
- Red-tailed Hawk *Buteo jamaicensis*

Cathartidae (New World Vultures)

- Black Vulture *Coragyps atratus*
- Turkey Vulture *Cathartes aura*

FALCONIFORMES

Falconidae (Hawks and Allies)

- American Kestrel *Falco sparverius*
- Merlin *Falco columbarius*

GALLIFORMES

Phasianidae (Grouse, Turkeys, and Allies)

- Wild Turkey *Meleagris gallopavo*

Odontophoridae (New World Quail)

- Northern Bobwhite *Colinus virginianus*

GRUIFORMES

Rallidae (Rails, Gallinules, and Coots)

- Purple Gallinule *Porphyrio martinicus*
- Common Moorhen *Gallinula chloropus*
- American Coot *Fulica americana*

Gruidae (Cranes)

- Sandhill Crane *Grus canadensis*

CHARADRIIFORMES

Charadriidae (Plovers and Lapwings)

- Killdeer *Charadrius vociferous*

CHARADRIIFORMES (continued)

Scolopacidae (Sandpipers, Phalaropes, and Allies)

- Greater Yellowlegs *Tringa melanoleuca*
- Lesser Yellowlegs *Tringa flavipes*
- Solitary Sandpiper *Tringa solitaria*
- Least Sandpiper *Calidris minutilla*
- Common Snipe *Gallinago gallinago*
- American Woodcock *Scolopax minor*

Laridae (Gulls, Terns, and Allies)

- Least Tern *Sterna antillarum*
- Forster's Tern *Sterna forsteri*

COLUMBIFORMES

Columbidae (Pigeons and Doves)

- Mourning Dove *Zenaida macroura*
- Common Ground Dove *Columbina passerina*

CUCULIFORMES

Cuculidae (Cuckoos, Roadrunners, and Anis)

- Yellow-billed Cuckoo *Coccyzus americanus*

STRIGIFORMES

Strigidae (Typical Owls)

- Eastern Screech Owl *Megascops asio*
- Great Horned Owl *Bubo virginianus*
- Barred Owl *Strix varia*

CAPRIMULGIFORMES

Caprimulgidae (Nighthawks and Nightjars)

- Common Nighthawk *Chordeiles minor*
- Chuck-will's Widow *Caprimulgus carolinensis*

APODIFORMES

Apodidae (Swifts)

- Chimney Swift *Chaetura pelagica*

Trochilidae (Hummingbirds)

- Ruby-throated Hummingbird *Archilochus colubris*

CORACIIFORMES

Alcedinidae (Kingfishers)

- Belted Kingfisher *Ceryle alcyon*

PICIFORMES

Picidae (Woodpeckers and Allies)

- Red-headed Woodpecker *Melanerpes erythrocephalus*
- Red-bellied Woodpecker *Melanerpes carolinus*
- Yellow-bellied Sapsucker *Sphyrapicus varius*
- Downy Woodpecker *Picoides pubescens*
- Hairy Woodpecker *Picoides villosus*
- Northern Flicker *Colaptes auratus*
- Pileated Woodpecker *Dryocopus pileatus*

PASSERIFORMES

Tyrannidae (Tyrant Flycatchers)

- Eastern Phoebe *Sayornis phoebe*
- Vermilion Flycatcher *Pyrocephalus rubinus*
- Great Crested Flycatcher *Myiarchus crinitus*
- Eastern Kingbird *Tyrannus tyrannus*

Laniidae (Shrikes)

- Loggerhead Shrike *Lanius ludovicianus*

Vireonidae (Vireos)

- White-eyed Vireo *Vireo griseus*
- Red-eyed Vireo *Vireo olivaceus*

Corvidae (Crows and Jays)

- Blue Jay *Cyanocitta cristata*
- American Crow *Corvus brachyrhynchos*
- Fish Crow *Corvus ossifragus*

Paridae (Chickadees and Titmice)

- Carolina Chickadee *Poecile carolinensis*
- Tufted Titmouse *Baeolophus bicolor*

Sittidae (Nuthatches)

- Brown-headed Nuthatch *Sitta pusilla*

- Indigo Bunting *Passerina cyanea*

PASSERIFORMES (continued)

Troglodytidae (Wrens)

- Carolina Wren *Thryothorus ludovicianus*
- House Wren *Troglodytes aedon*
- Marsh Wren *Cistothorus palustris*

Hirundinidae (Swallows and Martins)

- Purple Martin *Progne subis*
- Tree Swallow *Tachycineta bicolor*
- Northern Rough-winged Swallow *Stelgidopteryx serripennis*
- Barn Swallow *Hirundo rustica*

Regulidae (Kinglets)

- Golden-crowned Kinglet *Regulus satrapa*
- Ruby-crowned Kinglet *Regulus calendula*

Sylviidae (Old World Warblers and Gnatcatchers)

- Blue-gray Gnatcatcher *Polioptila caerulea*

Turdidae (Thrushes)

- Eastern Bluebird *Sialia sialis*
- Hermit Thrush *Catharus guttatus*
- Wood Thrush *Hylocichla mustelina*
- American Robin *Turdus migratorius*

Mimidae (Mockingbirds and Thrashers)

- Gray Catbird *Dumetella carolinensis*
- Northern Mockingbird *Mimus polyglottos*
- Brown Thrasher *Toxostoma rufum*

Bombycillidae (Waxwings)

- Cedar Waxwing *Bombycilla cedrorum*

Cardinalidae (Cardinals and Allies)

- Northern Cardinal *Cardinalis cardinalis*
- Rose-breasted Grosbeak *Pheucticus ludovicianus*
- Blue Grosbeak *Passerina caerulea*

Thraupidae (Tanagers)

- Summer Tanager *Piranga rubra*
- Scarlet Tanager *Piranga olivacea*

Parulidae (Wood-Warblers)

- Orange-crowned Warbler *Vermivora celata*
- Northern Parula *Parula americana*
- Yellow-rumped Warbler *Dendroica coronata*
- Palm Warbler *Dendroica palmarum*
- Black-and-white Warbler *Mniotilta varia*
- Prothonotary Warbler *Protonotaria citrea*
- Common Yellowthroat *Geothlypis trichas*
- Hooded Warbler *Wilsonia citrine*
- Yellow-throated Warbler *Dendroica dominica*
- Pine Warbler *Dendroica pinus*
- Prairie Warbler *Dendroica discolor*

Emberizidae (New World Sparrows)

- Eastern Towhee *Pipilo erythrophthalmus*
- Bachmann's Sparrow *Peucaea aestivalis*
- Chipping Sparrow *Spizella passerine*
- Field Sparrow *Spizella pusilla*
- White-throated Sparrow *Zonotrichia albicollis*
- White-crowned Sparrow *Zonotrichia leucophrys*
- Dark-eyed Junco *Junco hyemalis*

Icteridae (Blackbirds, Orioles, and Allies)

- Red-winged Blackbird *Agelaius phoeniceus*
- Eastern Meadowlark *Sturnella magna*
- Common Grackle *Quiscalus quiscula*
- Brown-headed Cowbird *Molothrus ater*
- Orchard Oriole *Icterus spurius*

Appendix V. Wading bird survey results (2008-2018) from Little Deep Edge Pond at the Fitzhugh Carter Tract of Econfina Creek WMA, Washington County, Florida.

| Species | Number of Birds Observed | | | |
|---|--------------------------|--------|--------------|--------|
| | Year | Adults | Active Nests | Chicks |
| <i>Anhinga (Anhinga anhinga)</i> | 2008 | 6 | 3 | 0 |
| | 2009 | 3 | unknown | 3 |
| | 2010 | 2 | 0 | 0 |
| | 2011 | 2 | 0 | 0 |
| | 2012 | 0 | 0 | 0 |
| | 2013 | 11 | 2 | 3 |
| | 2014 | 14 | 4 | 9 |
| | 2015 | 3 | 0 | 0 |
| | 2016 | 2 | 1 | 0 |
| | 2017 | 0 | 0 | 0 |
| | 2018 | 0 | 0 | 0 |
| <i>Cattle Egret (Bubulcus ibis)</i> | 2008 | 25 | 18 | 0 |
| | 2009 | 0 | 0 | 0 |
| | 2010 | 0 | 0 | 0 |
| | 2011 | 14 | 12 | 24 |
| | 2012 | 0 | 0 | 0 |
| | 2013 | 33 | 20 | 27 |
| | 2014 | 45 | 46 | 40 |
| | 2015 | 34 | 27 | 23 |
| | 2016 | 73 | 51 | 112 |
| | 2017 | 56 | 52 | 44 |
| | 2018 | 3 | 3 | 0 |
| <i>Great Egret (Ardea alba)</i> | 2008 | 13 | 10 | 10 |
| | 2009 | 31 | 8 | 12 |
| | 2010 | 8 | 6 | 9 |
| | 2011 | 14 | 11 | 17 |
| | 2012 | 12 | 6 | 6 |
| | 2013 | 12 | 19 | 29 |
| | 2014 | 19 | 14 | 22 |
| | 2015 | 9 | 6 | 6 |
| | 2016 | 11 | 7 | 6 |
| | 2017 | 11 | 13 | 15 |
| | 2018 | 7 | 7 | 4 |
| <i>Little Blue Heron (Egretta caerulea)</i> | 2008 | 8 | 3 | 0 |
| | 2009 | 1 | 0 | 0 |
| | 2010 | 0 | 0 | 0 |

| | | | | |
|--|------|----|---------|----|
| | 2011 | 20 | 14 | 34 |
| | 2012 | 7 | 4 | 6 |
| | 2013 | 5 | 3 | 4 |
| | 2014 | 14 | 6 | 6 |
| | 2015 | 4 | 4 | 3 |
| | 2016 | 13 | 13 | 15 |
| | 2017 | 10 | 5 | 3 |
| | 2018 | 0 | 0 | 0 |
| <hr/> | | | | |
| Tricolored Heron (<i>Egretta tricolor</i>) | 2008 | 2 | unknown | 0 |
| | 2009 | 0 | 0 | 0 |
| | 2010 | 0 | 0 | 0 |
| | 2011 | 1 | 1 | 1 |
| | 2012 | 0 | 0 | 0 |
| | 2013 | 0 | 0 | 0 |
| | 2014 | 0 | 0 | 0 |
| | 2015 | 0 | 0 | 0 |
| | 2016 | 0 | 0 | 3 |
| | 2017 | 1 | 1 | 0 |
| | 2018 | 0 | 0 | 0 |
| <hr/> | | | | |
| Snowy Egret (<i>Egretta thula</i>) | 2008 | 0 | 0 | 0 |
| | 2009 | 3 | 0 | 0 |
| | 2010 | 0 | 0 | 0 |
| | 2011 | 2 | 2 | 5 |
| | 2012 | 0 | 0 | 0 |
| | 2013 | 0 | 0 | 0 |
| | 2014 | 0 | 0 | 0 |
| | 2015 | 0 | 0 | 0 |
| | 2016 | 3 | 1 | 0 |
| | 2017 | 3 | 1 | 0 |
| | 2018 | 0 | 0 | 0 |
| <hr/> | | | | |
| Green Heron (<i>Butorides virescens</i>) | 2008 | 1 | 0 | 1 |
| | 2009 | 2 | unknown | 1 |
| | 2010 | 1 | 0 | 0 |
| | 2011 | 0 | 0 | 0 |
| | 2012 | 0 | 0 | 0 |
| | 2013 | 0 | 0 | 0 |
| | 2014 | 0 | 0 | 0 |
| | 2015 | 0 | 0 | 0 |
| | 2016 | 0 | 0 | 0 |
| | 2017 | 0 | 0 | 0 |
| | 2018 | 0 | 0 | 0 |

| | | | | |
|--|------|---|---|---|
| Great Blue Heron (<i>Ardea herodias</i>) | 2008 | 0 | 0 | 0 |
| | 2009 | 0 | 0 | 0 |
| | 2010 | 1 | 0 | 0 |
| | 2011 | 0 | 0 | 0 |
| | 2012 | 0 | 0 | 0 |
| | 2013 | 0 | 0 | 0 |
| | 2014 | 0 | 0 | 0 |
| | 2015 | 0 | 0 | 0 |
| | 2016 | 0 | 0 | 0 |
| | 2017 | 0 | 0 | 0 |
| | 2018 | 0 | 0 | 0 |

Appendix VI. Comprehensive list of herpetofaunal species (n=64) documented on the Fitzhugh Carter Tract of Econfina Creek WMA, 2005-2018.

CROCODYLIA (Crocodilians)

Alligatoridae (Alligator and caiman)

- American alligator *Alligator mississippiensis*

TESTUDINES (Turtles)

Kinosternidae (Musk and mud turtles)

- Common musk turtle *Sternotherus odoratus*
- Eastern mud turtle *Kinosternon subrubrum*

Emydidae (Box and Water turtles)

- Florida box turtle *Terrapene carolina bauri*
- Gulf coast box turtle *Terrapene carolina major*
- Three-toed box turtle *Terrapene carolina triunguis*
- Yellow-bellied slider *Trachemys scripta*
- Florida cooter *Pseudemys floridana floridana*
- Eastern chicken turtle *Deirochelys reticularia reticularia*

Testudinidae (Gopher tortoises)

- Gopher tortoise *Gopherus polyphemus*

Trionychidae (Softshell turtles)

- Florida softshell *Apalone ferox*

LACERTILIA (Lizards)

Anguidae (Legless lizards)

- Slender glass lizard *Ophisaurus attenuatus*

Polychridae (Anoles)

- Green anole *Anolis carolinensis*

Phrynosomatidae (Earless, spiny, and horned lizards)

- Southern fence lizard *Sceloporus undulatus undulatus*

Scinidae (Skinks)

- Ground skink *Scincella lateralis*
- Five-lined skink *Eumeces fasciatus*
- Broadhead skink *Eumeces laticeps*
- Southeastern five-lined skink *Eumeces inexpectatus*
- Northern mole skink *Eumeces egregious similis*

Teiidae (Whiptails)

- Six-lined racerunner *Cnemidophorus sexlineatus sexlineatus*

SERPENTES (Snakes)

Colubridae (Colubrid snakes)

- Florida green water snake *Nerodia floridana*
- Banded water snake *Nerodia fasciata fasciata*
- Eastern garter snake *Thamnophis sirtalis sirtalis*
- Eastern ribbon snake *Thamnophis sauritus sauritus*
- Smooth earth snake *Virginia valeriae*
- Eastern hognose snake *Heterodon platyrhinos*
- Mud Snake *Farancia abacura*
- Southern black racer *Coluber constrictor priapus*
- Eastern coachwhip *Masticophis flagellum*
- Rough green snake *Ophedrys aestivus*
- Corn snake *Elaphe guttata guttata*
- Gray rat snake *Elaphe obsoleta spiloides*
- Florida pine snake *Pituophis melanoleucus*
- Scarlet snake *Cemophora coccinea*
- Black swamp snake *Seminatrix pygaea*
- Brown water snake *Nerodia taxispilota*

Elapidae (Coral snakes)

- Eastern coral snake *Micrurus fulvius*

Viperidae (Vipers)

- Florida cottonmouth *Agkistrodon piscivorus conanti*
- Dusky pigmy rattlesnake *Sistrurus miliarius barbouri*
- Eastern diamondback rattlesnake *Crotalus adamanteus*

CAUDATA (Salamanders)

Amphiumidae (Amphiumas)

- Two-toed amphiuma *Amphiuma means*

Sirenidae (Sirens)

- Greater siren *Sirenn lacertina*
- Eastern lesser siren *Siren intermedia intermedia*
- Slender dwarf salamander *Eurycea quadridigitata*

Ambystomatidae (Mole salamanders)

- Mole salamander *Ambystoma talpoideum*

Salamandridae (Newts)

- Central newt *Notophthalmus viridescens lousianensis*

Plethodontidae (Lungless salamander)

- Southeastern slimy salamander *Plethodon grobmani*

ANURA (Frogs and toads)

Pelobatidae (Spadefoots)

- Eastern spadefoot toad *Scaphiopus holbrookii*

Bufoidea (Toads)

- Southern toad *Bufo terrestris*
- Oak toad *Bufo quercicus*

Hylidae (Treefrogs and allies)

- Florida cricket frog *Acris gryllus dorsalis*
- Green treefrog *Hyla cinerea*
- Barking treefrog *Hyla gratiosa*
- Pine woods treefrog *Hyla femoralis*
- Squirrel treefrog *Hyla squirella*
- Bird-voiced treefrog *Hyla avivoca*
- Southern chorus frog *Pseudacris nigrita nigrita*
- Ornate chorus frog *Pseudacris ornate*

Microhylidae (Narrowmouth toads)

- Eastern narrowmouth toad *Gastrophryne carolinensis*

Ranidae (True frogs)

- Bullfrog *Rana catesbeiana*
- River frog *Lithobates heckscheri*
- Pig frog *Rana grylio*
- Southern leopard frog *Rana sphenoccephala*
- Bronze frog *Rana clamitans clamitans*