SANDHILL LAKES MITIGATION BANK (FITZHUGH CARTER TRACT) OF ECONFINA CREEK WILDLIFE MANAGEMENT AREA

ANNUAL REPORT 2008-2009

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INTRODUCTION

The Sand Hill Lakes Mitigation Bank property (referred to herein as the Carter Tract) is a 2,155-acre parcel located in south-central Washington County, approximately 5 miles north of State Road 20 and 1 mile west of State Road 77. The Carter Tract was purchased by the Northwest Florida Water Management District (NWFWMD) in October 2003, and established by the Florida Fish and Wildlife Conservation Commission (FWC) as a tract of Econfina Creek Wildlife Management Area (WMA). A mitigation bank permit from the Florida Department of Environmental Protection (DEP) was issued to the District in August 2005 to manage the property. Management objectives identified by the District 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 District to develop and implement a comprehensive fisheries and wildlife management program for Carter Tract. Following three years of successful partnership, in July 2008 this agreement was renewed for an additional three years.

HABITAT

Ecological and Land Cover Classification

The Carter Tract harbors several distinct ecological communities. A significant portion of the property is 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 850 acres of wetland habitat including cypress (*Taxodium* spp.) with emergent vegetation, degraded hydric pine flatwoods, bayhead wetlands, isolated depression marshes, seepage slopes, and other ecotonal wetland types. Approximately 150-acres are natural solution ponds (isolated, steep-sided karst ponds and shallow, gently-sloping lakes connected by streams and ditches).

Historic communities have been degraded by timber operations and suppression of natural fire regimes. Restoration efforts by NWFWMD, including hardwood control-aerial herbicides (Figure 1), selective timber harvests, longleaf pine and wiregrass (*Aristida stricta*) planting (Figure 2), and prescribed burning (Figure 3) following site preparation activities, have been largely completed on the area, transitioning land cover classifications closer to their targeted goals. A permanent prescribed fire regime is scheduled to be initiated in December 2009, beginning a 2-3 year burn rotation throughout the site.

Figure 1. Aerial herbicide application via helicopter was conducted in June 2009 to control scrub oaks in upland areas on the Carter Tract.

Figure 2. Eighty-five acres of wiregrass (411,760 tublings; left), as well as 319 acres of upland longleaf pine (139,084 seedlings; right) were planted in December 2008 on the Carter Tract.

Figure 3. A total of 138 acres of growing season and 246 acres of dormant season burns were conducted on the Carter Tract between July 2008 and June 2009.

Water Levels and Drought Conditions

Water levels on Carter Tract ponds and creeks have historically fluctuated in cycles lasting several years. Water gauges were installed on the Carter Tract by NWFWMD in 2005, and readings were recorded monthly by FWC field staff beginning in January 2006. Low water levels persisted through 2008 to early spring 2009 on most area ponds (Figure 4), including Green Ponds, which have never been available for public fishing since the area was opened to such in May 2007. Moreover, low water conditions resulted in the alteration of management activities, including limiting electrofishing survey opportunities and continuation of a modified angler quota (lowered from 20 to 16). However, following several large rain events during spring 2009, most area ponds, including the Green Ponds, have refilled or risen (Figure 5). Therefore, Green Ponds were finally opened to fishing in June 2009 (Figure 6).

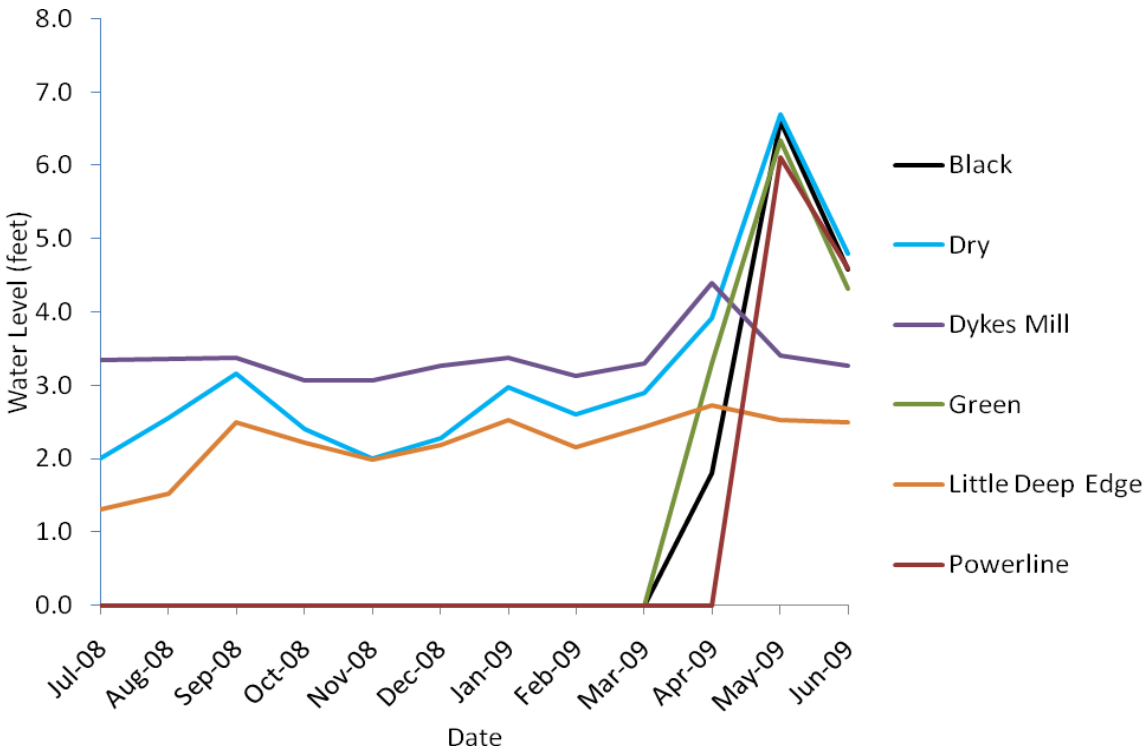

Figure 4. Water levels taken at monthly intervals from July 2008-June 2009 from major ponds located on the Carter Tract of Econfina Creek WMA in Washington County, Florida.

Figure 5. Submerged boat ramp at Dry Pond as a result of heavy spring rains in 2009.

Figure 6. The Green Ponds on the Carter Tract, dry since 2007 (left), finally filled following heavy rains in spring 2009 (right), and were opened to public fishing in June 2009.

Photo Plots

In an effort to visually document the progression of natural areas over time, annual photographs were taken at established locations (plots), facing predetermined directions/bearings. Sixty-three photo plots on the Carter Tract document natural community responses to restoration efforts such as prescribed burning and tree removal, as well as natural events including drought conditions (Figure 7). Infrastructure maintenance and improvements such as road-grading, bridge construction, and facility enhancements are also documented. Photo plot photographs will continue to be taken annually, documenting all habitat types, water bodies, and infrastructure on the area.

Figure 7. A comparison of Garrett pond in April 2008 and April 2009 documenting the effect of previous drought conditions on the Carter Tract of Econfina Creek WMA.

FISH AND WILDLIFE POPULATIONS

Working in cooperation with NWFWMD, 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 2008-09 Fitzhugh Carter Tract Hunting

Regulations Summary and Area Map. Appendix II provides the rules, regulations, and area map unique to the Special Opportunity Fishing Program on Carter.

FRESHWATER FISH

Fish Population Assessment

Fish population assessments are conducted twice a year during spring and fall using two sampling methods: Wegener rings and electrofishing (Figures 8 and 9, respectively). Wegener ring surveys are done at three depth levels to adequately sample the littoral zone for young-of-the-year (YOY) sportfish (Wegener et al. 1974), and are ineffective at depths >1m (Bonvechio 2005). A surge in water levels in spring 2009 (Figure 4) inundated shoreline vegetation, limiting sampling opportunities to fall 2008. Electrofishing was conducted on Dry Pond in October 2008, and Dry and Black Ponds in April 2009.

Figure 8. Wegener ring used to sample percent species occurrence in Black and Dry Ponds on the Carter Tract of Econfina Creek WMA, October-November 2008.

Figure 9. Electrofishing was conducted on Dry Pond in fall 2008 and Dry and Black Ponds in spring 2009 to sample sportfish populations.

Percent occurrence of all species sampled on Black and Dry Ponds in October-November 2008 via Wegener rings was determined and is presented in Appendix III. Fourteen prey species were documented occurring in Dry Pond. The pygmy killifish (*Leptolucania ommata*) was found to be the most abundant prey species, making up 61% of captures, followed by pygmy sunfish (*Elassoma* sp.) and mosquitofish (*Gambusia affinis*), making up 10% and 8%, respectively. Sampling at Black Pond resulted in the capture of eight prey species, the swamp darter (*Etheostoma fusiforme*) being the most prevalent comprising 53% of captures, followed by bluegill (*Lepomis macrochirus*) and the banded topminnow (*Fundulus cingulatus*), making up 27% and 11%, respectively.

Sportfish abundance determined from electrofishing data was calculated as catch per unit effort (CPUE), or the amount (in weight) of fish sampled per minute. During fall 2008, sampling efforts on Dry Pond yielded nine largemouth bass (*Micropterus salmoides*) and seven bluegill, resulting in a CPUE of 0.35 fish/minute. Spring 2009 electrofishing on Black Pond was more successful, resulting in the capture of 31 fish representing four species for a CPUE of 0.50 fish/minute. A breakdown of the number of each species captured at each pond per sampling period is presented in Appendix IV.

Electrofishing and Wegener ring sampling are scheduled to be repeated each spring and fall, given adequate water levels.

Public Fishing

The Special Opportunity Public Fishing Program on the Carter Tract continues to provide anglers with the unique opportunity to fish smaller (farm pond style) bodies of water in an area with comparatively low fishing pressure. Overall, angler participation decreased from that seen during 2007 when the program was initiated. Between July 2008-June 2009, 334 anglers spent almost 1,080 hours fishing on Dry, Black, Deep Edge, and Green Ponds. Angler participation per month was consistent with past trends, with fishing during May-September comprising 72% of all fishing efforts throughout the year (Figure 10). Until spring 2009, local drought conditions continued to impact the fishing program on the Carter Tract, forcing the closing of several area ponds and decreasing the daily angler quota from 20 to 16. Additionally, fishing on the Carter Tract is closed during limited quota hunts and regular hunting days. This safety protocol, along with the onset of colder weather during the fall and winter months, likely explains the drop in angler participation from October – April.

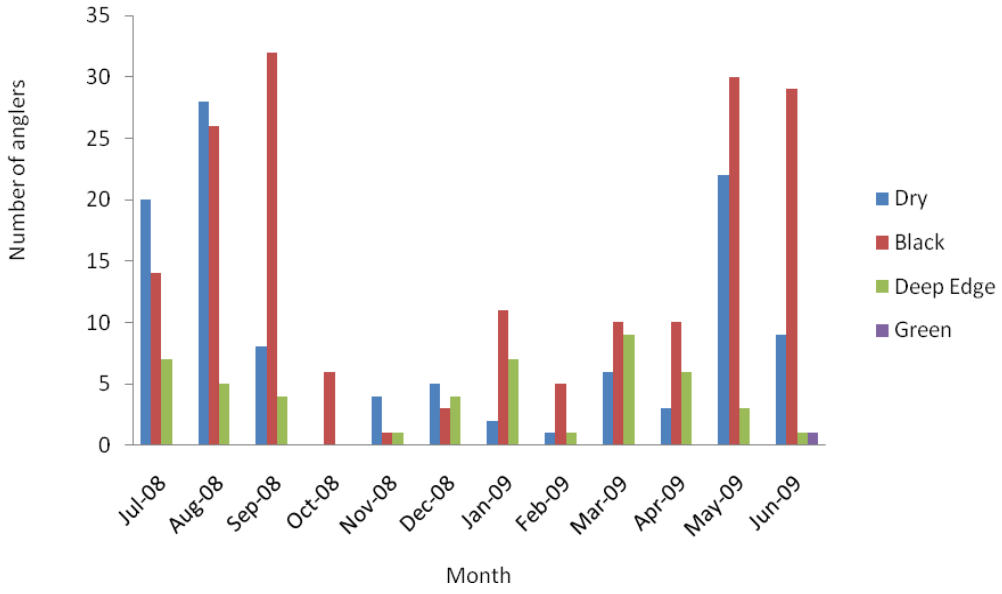

Figure 10. Number of anglers by month utilizing the Special Opportunity Fishing Program on the Carter Tract of Econfina Creek WMA, July 2008 – June 2009.

Fishing pressure on the Carter Tract was calculated based on the total number of possible fishing hours from July 1, 2008 through June 30, 2009. Out of a possible 40,832 fishing hours, anglers fished a total of 1,080 hours, yielding 3% usage. This nearly 7% decrease from 2007-08 use is likely due to the drought conditions outlined earlier. Black Pond was the most fished water body, followed by Dry, Deep Edge, and Green Ponds, respectively. A total of 1,423 fish representing six species were caught on Carter Tract ponds, the majority of which were Bluegill, which made up 85% of all fish caught (Figure 11). Largemouth bass was the second most caught species, comprising 12% of the total catch, followed by warmouth (*Lepomis gulosus*), catfish (*Ameirus nebulosus* and *Ictalurus punctatus*), and black crappie (*Pomoxis nigromaculatus*; Figure 12) making up 2.1%, 0.4%, and 0.3%, respectively. Total number of fish caught and released per pond was calculated based on angler-reported creel data, and is detailed in Appendix V. Fishing success rate, defined as the number of fish caught per hour of fishing effort and calculated for all species on all water bodies combined, was 1.32 fish/hour. Big catches to date are as follows: 26-inches for largemouth bass, 14-inches for black crappie, and 12-inches for bluegill; all from Dry Pond.

Figure 11. A cooler full of keeper bluegill like this one are not uncommon on the Carter Tract.

Figure 12. A nice 12.5-inch Black Crappie caught during summer 2009 by a frequent fisherman on the Carter Tract.

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/mi^2 (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+ 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, as well as habitat.

Population trends

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. In an effort to more accurately estimate population density, in September 2007, the Carter Tract was one of 11 WMAs in Florida to participate in a statewide "*Distance Sampling Pilot Study*", to evaluate the feasibility of line transect methodology for estimating deer population abundance and compare estimates with standard spotlight surveys. Line transect surveys are a type of distance sampling method which utilizes modeling to account for deer detectability. Survey protocols are similar for both methods, but line transect surveys collect data not only on number of deer seen, but also the distance and direction deer are located from the survey vehicle when spotted. A comparison between results of the two survey methods from 2006 and 2007 revealed that line transect estimates were slightly lower but much more precise than standard spotlight density estimates. Therefore, standard spotlight surveys were replaced by line transect surveys during 2008 and will continue to be used in subsequent years.

Line transect surveys

Line transect surveys on the Carter Tract were conducted along two transects, one 2.5-miles long and the other 3-miles long, and were replicated six times in September 2008. Surveys began approximately one hour following official sunset, and were driven along preselected transects via pickup truck with two spotters in the bed, each equipped with a one-million candlepower Q-beam® spotlight. Deer were detected by eye shine and the following data were recorded: number of deer, distance to deer, direction/bearing from vehicle, and age and gender (if determinable). Distance and bearing data were calculated using a Leupold® RXB-IV digital rangefinder/binocular. Figure 13 illustrates the line transect routes used on the Carter Tract, along with locations of deer observed during 2008 surveys.

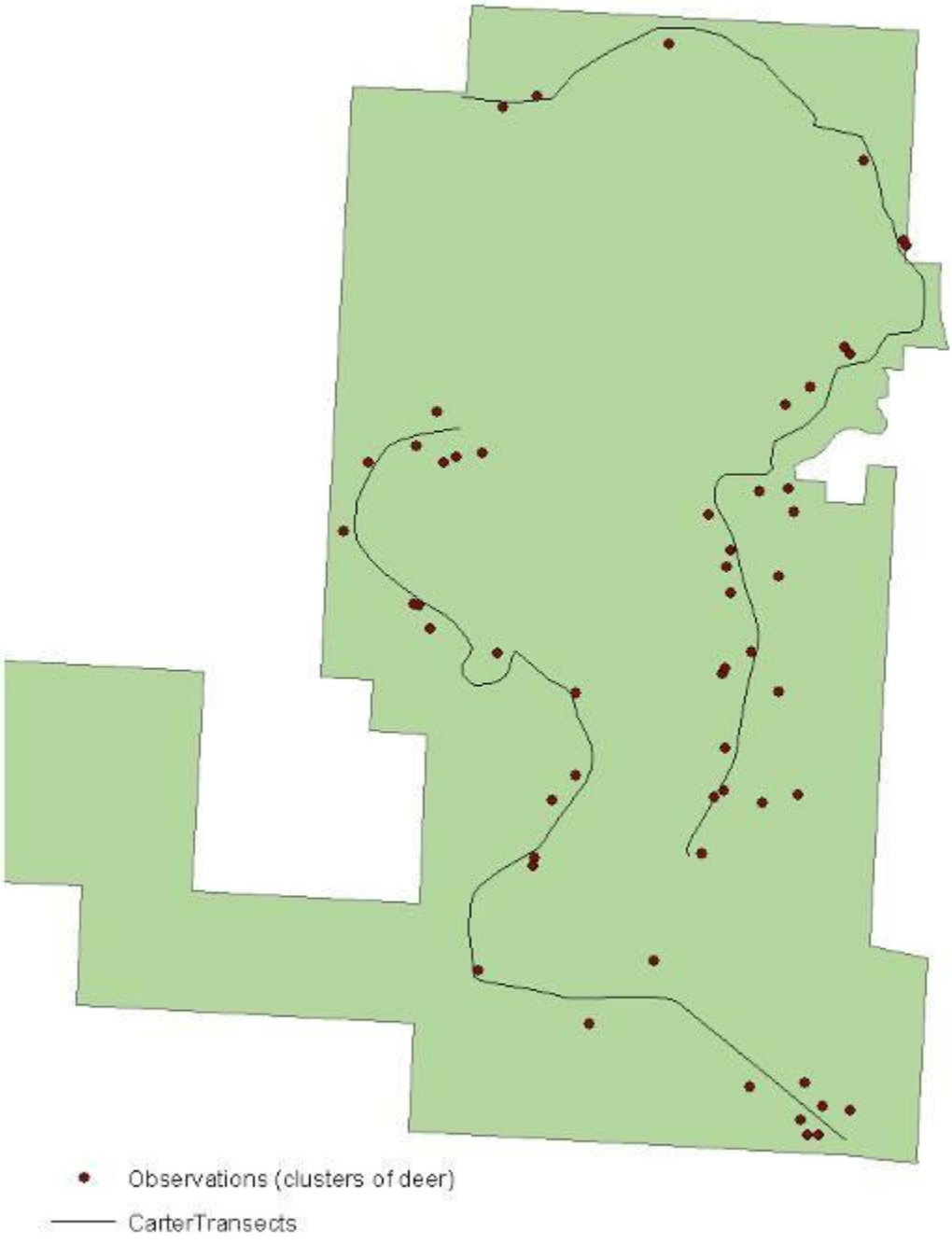

Figure 13. Survey routes and location of deer observations during September 2008 distance sampling technique conducted on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

Preseason deer density for 2008 was estimated at 16 deer/mi^2 (95% C.L. 10.4 – 20.7 deer/mi^2). This index is an increase from the 11 deer/mi^2 estimated during 2007, and just reaches the lower limit of our population goal for the area (Figure 14). As NWFWMD continues habitat improvement activities and restoration efforts, we expect to see the deer population index on the Carter Tract continue to rise and ultimately stabilize within the desired population goal range (16-26 deer/mi^2). Several subsequent years of survey data will be required to produce a clearer relative abundance, from which an assumption of trends in population size can be drawn.

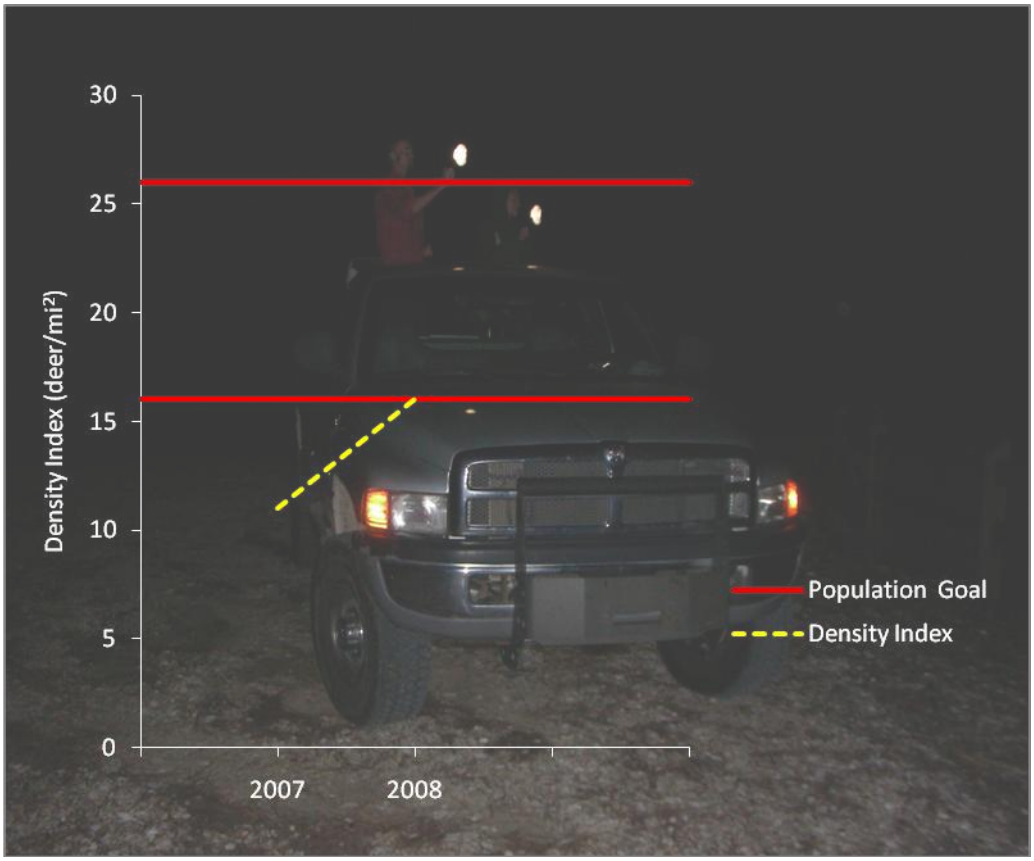

Figure 14. Trend in White-tailed deer density (2007-08) on the Carter Tract as estimated using line-transect distance sampling data.

Harvest and Hunting Pressure

Mandatory check stations were used to monitor hunter pressure and collect biological data from harvested deer. Twelve deer (10 bucks; 2 does) were harvested on the Carter Tract during 2008-09. This is an increase from just four bucks harvested the previous season. Mean physical parameters of all deer harvested per quota hunt season are presented in Table 1. The largest deer harvested this past year was an 8-point, 3.5-year-old buck weighing 132 pounds (Figure 15).

Table 1. Morphometric parameters of deer harvested during specified quota hunts of the 2008-09 season on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

Mean Physical Parameters							
Quota Hunt	**Gender**	**Weight (lbs)**	**Antler points**	**Beam length (cm)**	**Beam circum. (cm)**	**Inside spread (cm)**	**Age (yrs)**
Archery I	Doe	80	-	-	-	-	2.5
	Buck	95	2	16	5	13.5	1.5
	Buck	128	8	34.5	8.6	33.5	3.5
Archery II	Doe	65	-	-	-	-	-
General Gun II	Buck	98	2	24.3	6.3	18	2.5
	Buck	100	4	25.8	6.5	20	2.5
	Buck	114	7	37	7	34	2.5
	Buck	126	8	36.8	9.3	31	3.5
General Gun III	Buck	98	3	29.5	6.5	-	3.5
	Buck	102	3	27.5	7	24	2.5
	Buck	116	6	27	8	22	3.5
	Buck	132	8	43	9.8	44	3.5

Figure 15. This 8-point, 3.5-year old buck was the largest deer harvested on the Carter Tract during the 2008-09 hunting season.

Hunter participation increased during the 2008-09 deer season, with 151 hunters taking advantage of the six quota hunts offered on the Carter Tract (Table 2). This was almost a 200% increase in participation compared to the 2007-08 season which saw just 82 hunters. The third phase of the general gun season quota received the highest participation, with hunters utilizing 60% of the maximum hunt-days available. While this is consistent with the 2007-08 season, hunter participation during both phases of the archery season was significantly higher during the 2008-09 season (Figure 16). Hunt success, defined as the number of deer harvested per man-days of hunting pressure, was estimated at approximately one deer/15 man-days. This is an improvement from the one deer/20 man-days realized in 2007-08, but is still a relatively low harvest rate, most likely a result of the abbreviated hunt format implemented on the Carter Tract. Presently the full potential for deer hunting opportunities on the Carter Tract has not been realized, but is expected to continue to improve in conjunction with habitat quality.

Table 2. Quota hunt dates and hunter participation during the 2008-09 deer season on the Carter Tract of Econfina Creek Wildlife Management Area, Washington County, Florida.

Quota Hunt Dates and Participation					
Quota Hunt	**Season Length (days)**	**Hunt Quota Per Day**	**Potential Max Hunt Man-Days**	**Utilized Hunt Man-Days**	**Hunting Pressure**
Archery I (Oct. 18-24)	7	15	105	29	27.6%
Archery II (Oct. 25-Nov.2)	9	15	135	35	25.9%
Muzzleloader (Nov. 21-23)	3	15	45	5	11.1%
General Gun I (Nov. 27-30)	4	15	60	14	23.3%
General Gun II (Jan. 24-27)	4	15	60	23	38.3%
General Gun III (Jan. 28-Feb. 1)	5	15	75	45	60.0%
Total	32	90	480	151	31.5%

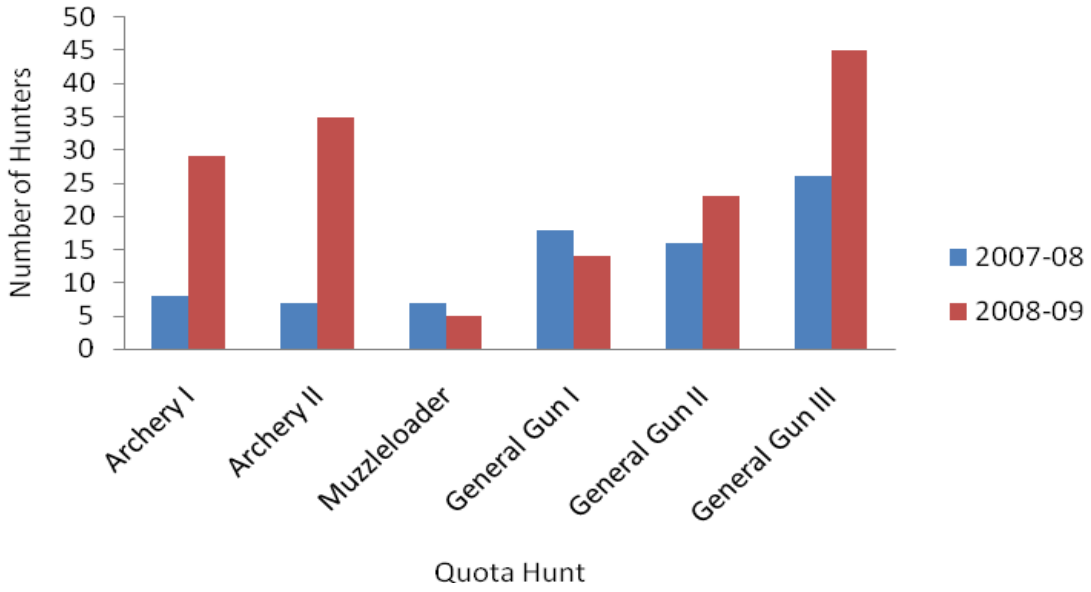

Figure 16. Comparison of hunter participation by quota hunt during the 2007-08 and 2008-09 deer seasons on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

Considering herd management objectives, additional antlerless harvests are not needed presently to control population levels. A higher density is desirable to meet our population objectives and improve hunt success. Protecting does (outside archery

season) is necessary to bolster recruitment and expedite achievement of herd objectives. Presently, limiting the harvest of does will facilitate increases in herd size and improvements in overall age structure, which will in turn effect improvements in hunter success. Physiologic and morphometric indices suggest the population can be maintained at still higher densities before eroding herd health.

Wild Turkey

Management objectives

1. Encourage and maintain a population of wild turkey (*Meleagris gallopavo*), providing a high quality hunting experience to the public.
2. Continue to provide and enhance high quality habitat for wild turkeys through habitat improvement activities such as prescribed burning and maintenance of forest openings.

Harvest

Spring turkey season on the Carter Tract consists of three quota hunts, each three days in length, plus one day prior to each hunt for scouting. Hunters participated in 34 out of a possible 45 man-days of hunting during the 2008-09 turkey season. Four gobblers were harvested, the largest weighing 20-pounds with a 10⅞-inch beard and 1⅛-inch spurs (Table 3; Figure 17). Turkey hunting success (defined as the number of gobblers harvested/man-days of effort) has increased over the last three years from zero in 2007 to 7.4% in 2008 and 11.8% in 2009. Turkey harvesting opportunities on the Carter Tract should continue to improve as a three-year burn regime is established to control scrub oaks and maintain open grassy/herbaceous areas for nesting and bugging.

Table 3. Gobblers harvested by quota hunt during the 2009 Turkey season on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

Quota Hunt	*Weight (lbs)*	*Beard Length (in)*	*Spur Length (in)*	*Age Estimate*
Turkey I (Mar 21-23)	15	10¼	⅝	2
	20	10⅞	1⅛	4+
Turkey II (Apr 3-5)	15	10¾	1⅛	4+
Turkey III (Apr 17-19)	16	10⅝	⅞	3

Figure 17. This mature 20-lb gobbler was harvested during Phase I of the 2009 Spring Turkey Hunt on the Carter Tract.

Small Game

The Carter Tract is open annually to small game hunting during a 16-day non-quota season each December. Hunters are encouraged to utilize this non-quota hunt period not only for hunting popular small game such as gray squirrel (*Sciurus carolinensis*), rabbit (*Sylvilagus* spp.), and northern bobwhite (*Colinus virginiana*), but also for taking wild hogs (*Sus scrofa*), which are known to frequent the area. Small game hunter participation on the Carter Tract continues to increase each year. During the 2008-09season, 28 hunters harvested 36 gray squirrel and two northern bobwhite.

Waterfowl

Harvest

The Carter Tract provides a special five-day early duck season each September. Eight hunters took advantage of this hunt during 2008, harvesting five wood ducks (*Aix sponsa*; 4 drakes and 1 hen; Figure 18). Additionally, the 2008-09 regular waterfowl season coincided with portions of the muzzleloading (November 21-23), general gun (November 27-30 and January 24-28), and small game (December 6-21) seasons on the Carter Tract. Waterfowl hunting during this time yielded a total of seven man-days and a harvest of nine wood ducks (7 drakes and 2 hens) and eight ring-necked ducks (*Aythya collaris*; 4 drakes and 4 hens) for a hunting index of 0.7 hunter-days/duck. This is an improvement over the 2007-08 duck season index of 0.9 hunter-days/duck.

Figure 18. A nice drake wood duck (*Aix sponsa*) in breeding plumage taken on the Carter Tract during the 2008-09 hunting season.

Wood Duck Nest Boxes

Efforts to monitor and facilitate local breeding populations of wood ducks continue with quarterly monitoring efforts on the 50 nest boxes erected on the Carter Tract in 2005. In January of each year, boxes are cleaned and repairs made as needed. Boxes are checked three times throughout the breeding season (March – September) to determine occupancy and nest fate. Utilization of wood duck nest boxes continues to improve each year, although occupancy dropped slightly during 2008 (Figure 19). This was likely a result of drought conditions that persisted throughout the majority of 2007 and part of 2008, drying up several area ponds completely. Rebounding water levels in spring 2009 likely facilitated the highest percentage of nest box use recorded to date (32%). Also, following initial implementation, it takes several years for a wood duck nest project to develop. Female wood ducks are philopatric, meaning that they typically return to the same areas from which they were hatched, and once they breed, often return to the same nesting site year after year (Hepp et al. 1987). Figure 20 shows the location of nest boxes used by wood ducks on the Carter Tract between 2006 and 2009. A table comparing wood duck box occupancy and nest production for each pond from 2006 – 2009 can be found in Appendix VI.

Figure 19. Wood duck (Aix sponsa) nest box usage and nest production from 2006-09 on the Carter Tract of Econfina Creek WMA, Washington County, Florida (Note: number of boxes used and number of nests is not equal due to double nesting in some boxes).

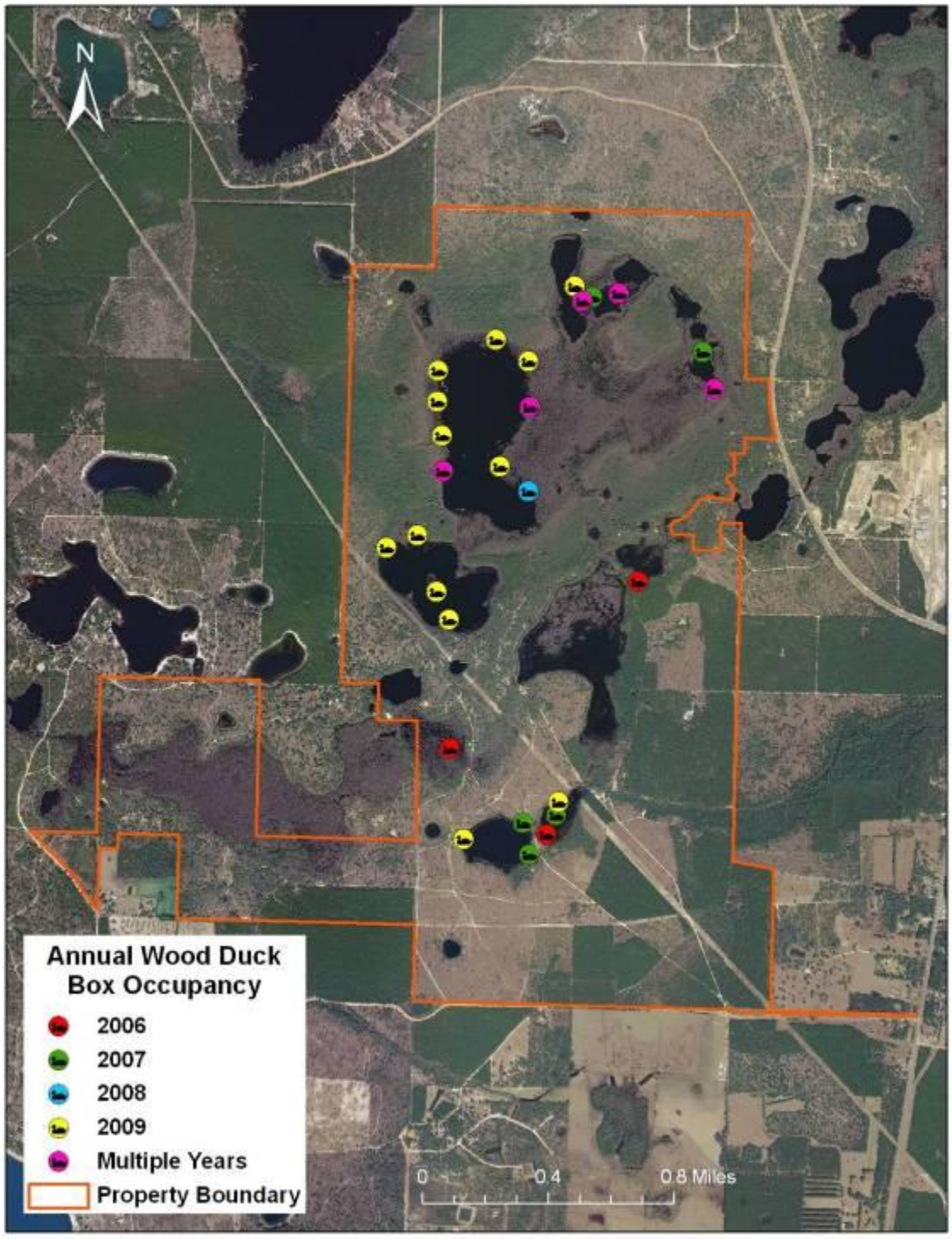

Figure 20. Use of wood duck nest boxes across the Carter Tract of Econfina Creek WMA, Washington County, Florida, 2006-2009.

Evidence of nest box use by a variety of non-target wildlife species has also been documented. Great-crested flycatchers (*Myiarchus crinitus*) are a cavity-dwelling species known for incorporating shed snake skins into nest construction (Harrison 1975). The presence of this type of nest in several wood duck boxes on the Carter Tract suggests this species takes advantage of vacant boxes annually. Other avian species that have been documented in next boxes on the Carter Tract include chimney swifts (*Chaetura pelagic*; Figure 21) and eastern bluebirds (*Sialia sialis*). Owl pellets have also been found in nest boxes, suggesting that eastern screech owls (*Megascops asio*) will use them when vacant. Two species of mammal have also been documented inside wood duck boxes on the Carter Tract: the southern flying squirrel (*Glaucomys volans*; Figure 21) and southeastern myotis (*Myotis austroriparius*) (Figure 21).

Figure 21. Chimney swift (*Chaetura pelagic*) chicks (left), a southeastern myotis (*Myotis austroriparius*; center), and a southern flying squirrel (*Glaucomys volans*; right) found inside wood duck nest boxes on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

Avifauna

Parcels, like the Carter Tract, that support a mosaic of unique habitat types often harbor large numbers of bird species. To date, 110 species of bird have been documented as occurring on the Carter Tract (Appendix VI). This number is expected to increase as the various habitat types on the area continue to be enhanced by restoration efforts and subsequent prescriptions. We would expect through continued habitat enhancement and active management, recruitment of those bird species that rely on specific habitat characteristics (habitat specialists) should increase, while still providing for the more common generalist species.

Wading Birds

Most wading birds nest semi-colonially in groups known as rookeries, often found 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 is one such rookery that has been documented as supporting up to 117 individuals representing six species. Annual rookery survey protocol included weekly shoreline monitoring during the nesting season (March – July) using a spotting scope at the closest distance possible without causing bird disturbance.

In 2008-09, great egret (*Ardea alba*) was the most common species observed, as well as the most reproductively successful. Two species of special concern (SSC) that have been documented on the rookery in previous years are the tricolored heron (*Egretta tricolor*) and little blue heron (*Egretta caerulea*). While both of these species were observed on the rookery in 2008, only a single little blue heron was seen flying over the rookery in 2009. Drought conditions during 2007 dried up Little Deep Edge Pond, resulting in the abandonment of the rookery during that year. Hopefully water levels will remain relatively stable in the future and allow for the continued use of this important rookery by a variety of wading birds species (Table 4).

Table 4. Observations of wading birds at Little Deep Edge Pond rookery, Carter Tract of Econfina Creek WMA, Washington County, Florida, March-July 2008-09.

		Number of Birds Observed		
Species	**Year**	**Present**	**Nesting**	**Chicks**
Anhinga (*Anhinga anhinga*)	2008	6	3	0
	2009	3	unknown	3
Cattle Egret (*Bubulcus ibis*)	2008	25	18	0
	2009	0	0	0
Great Egret (*Ardea alba*)	2008	13	10	10
	2009	31	8	12
Little Blue Heron (*Egretta caerulea*)	2008	8	3	0
	2009	1	0	0
Tricolored Heron (*Egretta tricolor*)	2008	2	unknown	0
	2009	0	0	0
Snowy Egret (*Egretta thula*)	2008	0	0	0
	2009	3	0	0
Green Heron (*Butorides virescens*)	2008	1	0	1
	2009	2	unknown	1

Passerines

Annual point count surveys are conducted on the Carter Tract to document bird species utilizing the area. Point count surveys document bird species presence, and can be utilized for calculating 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).

For comparing species composition across habitat types on the Carter Tract, point count surveys are utilized. Our survey locations were distributed among the different habitat types as follows: sandhill habitat (Points 2, 6 and 7), wetland/wading bird rookery (Point 1), lake edge (point 8), wet prairie (Point 4), mixed-hardwood forest (Point 3), and early successional grassland habitat (Point 5) that was clearcut in 2007 (Figure 22). The point locations (except Point 3) have undergone significant habitat enhancement and restoration efforts. Our point count surveys will continue annually to identify changes in species composition as a result of these habitat improvements. Point counts were conducted over four days during mid-May 2009. Protocol followed was consistent with those used in previous years, and closely follow procedures outlined in Hamel et al. (1996). Surveys were conducted in the early morning, when bird activity was noted to be highest (Hostetler and Martin 2001), with counts beginning at dawn and ending by 0930. The order in which each count location was visited 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 remained still for two minutes prior to the start of the count. Each count lasted ten minutes, during which time, all birds seen and/or heard within a 75-meter radius were recorded. Only birds positively identified were listed by species; other birds seen and/or heard were marked as “unknown”, with distinct plumage characteristics or call patterns noted for possible later identification.

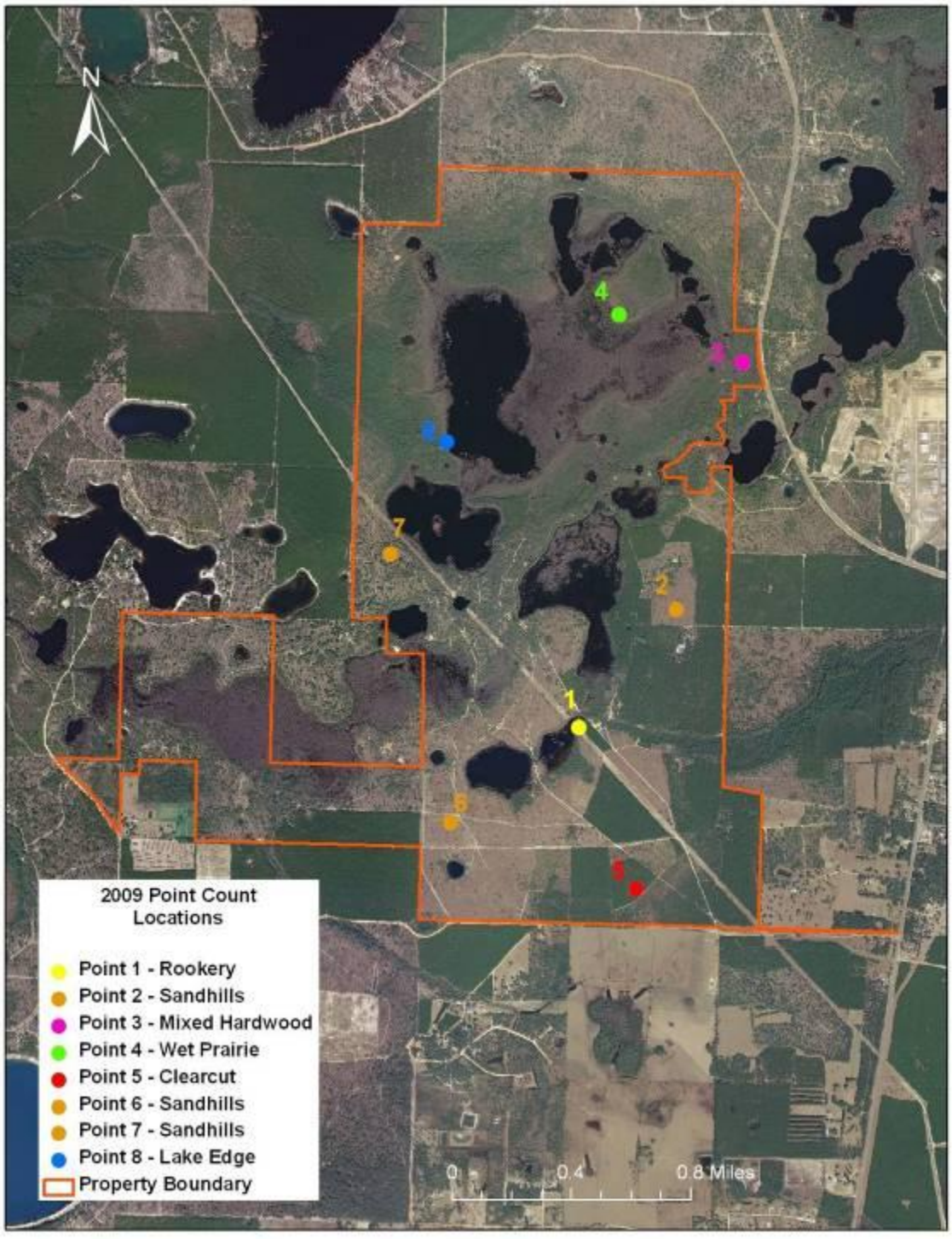

Figure 22. Location of point count surveys conducted during May 2009 on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

The three sandhill point count locations chosen were spatially distinct to represent the entire area of the Carter Tract (Figure 22), and were similar in vegetative composition (tree stem density). Prescribed burns were last conducted on each of the three sandhill point count locations in 2008. The most common species identified were the great-crested flycatcher, common nighthawk (*Chordeiles minor*), eastern towhee (*Pipilo erythrophthalmus*), brown thrasher (*Toxostoma rufum*), and mourning dove (*Zenaida macroura*) (Figure 23). Two neotropical migrants were documented during sandhill counts, including the indigo bunting (*Passerina cyanea*) and summer tanager (*Piranga rubra*).

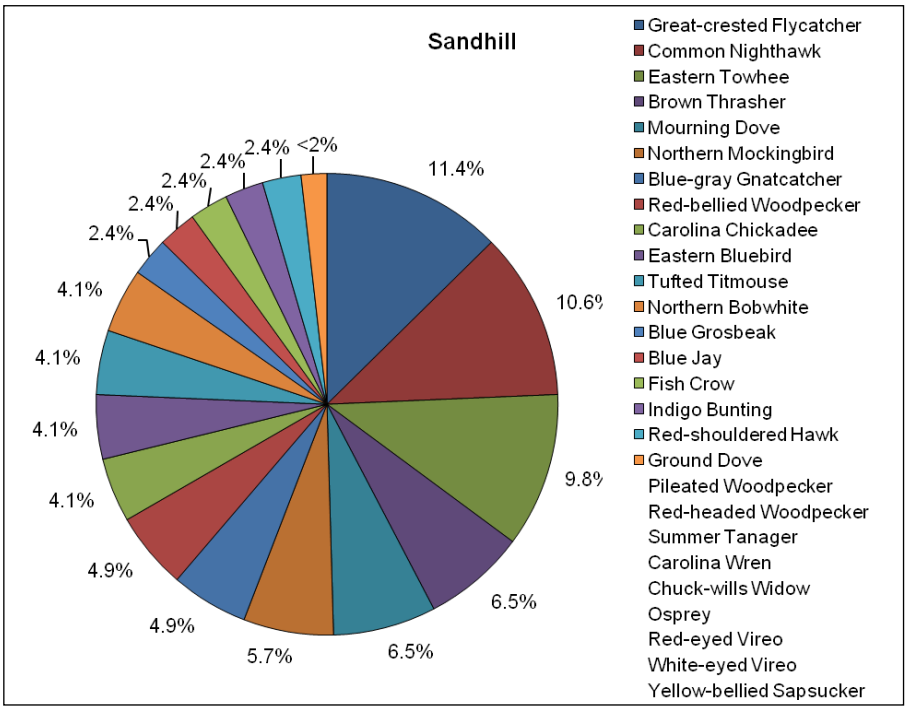

Figure 23. Percent of total detections for bird species identified in sandhill habitats during point counts on the Carter Tract of Econfina Creek WMA, May 2009.

The wetland point count location contains a mixture of open water and freshwater marsh, with a transition zone of emergent aquatic vegetation leading to a sandhill upland. Further, the wading bird rookery on Little Deep Edge Pond is in close proximity of to this point count. The great egret (*Ardea alba*) was by far the most documented species at this location, with red-winged blackbirds (*Agelaius phoeniceus*) the second most common species (Figure 24). Northern bobwhite (*Colinus virginianus*) were heard calling in the sandhills adjacent to the wetland.

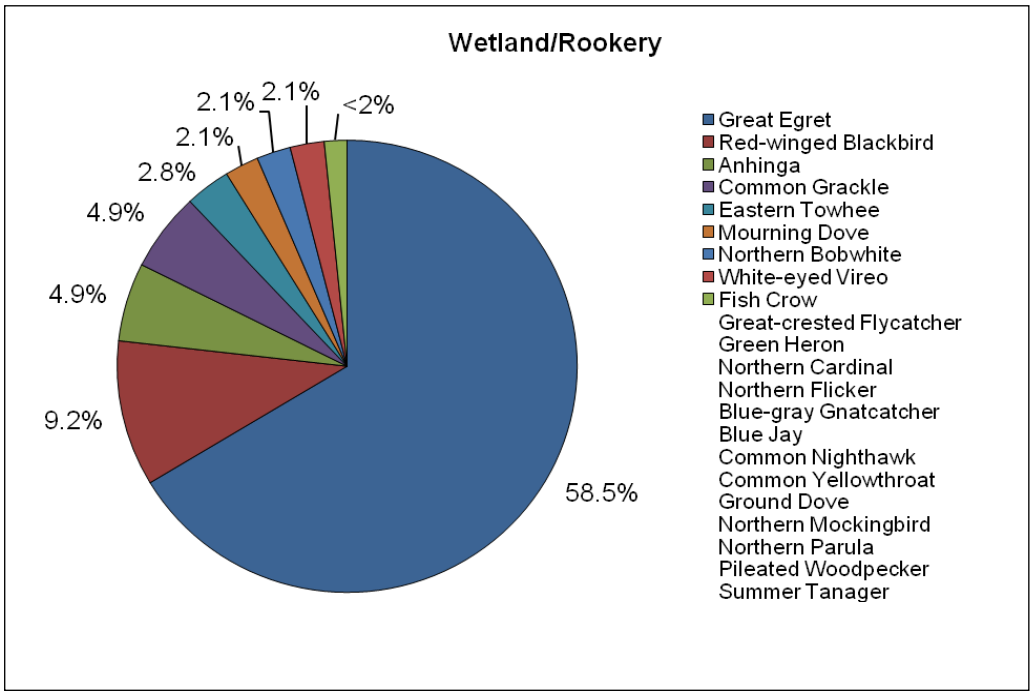

Figure 24. Percent of total detections for bird species identified in wetland/rookery habitat during point counts on the Carter Tract of Econfina Creek WMA, May 2009.

The lake edge point count location is made up of a large body of open water (Dry Pond), and a shrubby transition zone leading to hydric pine on one side and mixed wetland hardwoods on the other. This count therefore yields species found in both aquatic and upland habitat types. The most common species identified was the red-winged blackbird, followed by the great-crested flycatcher and northern cardinal (*Cardinalis cardinalis*) (Figure 25). Consistent with counts done in 2008, a unique breeding summer resident noted at this location was the orchard oriole (*Icterus spurious*). Additionally, the pileated woodpecker (*Dryocopus pileatus*), our largest woodpecker, and a species common in mature forests and hardwood swamps (Sibley 2000), was documented during this point count.

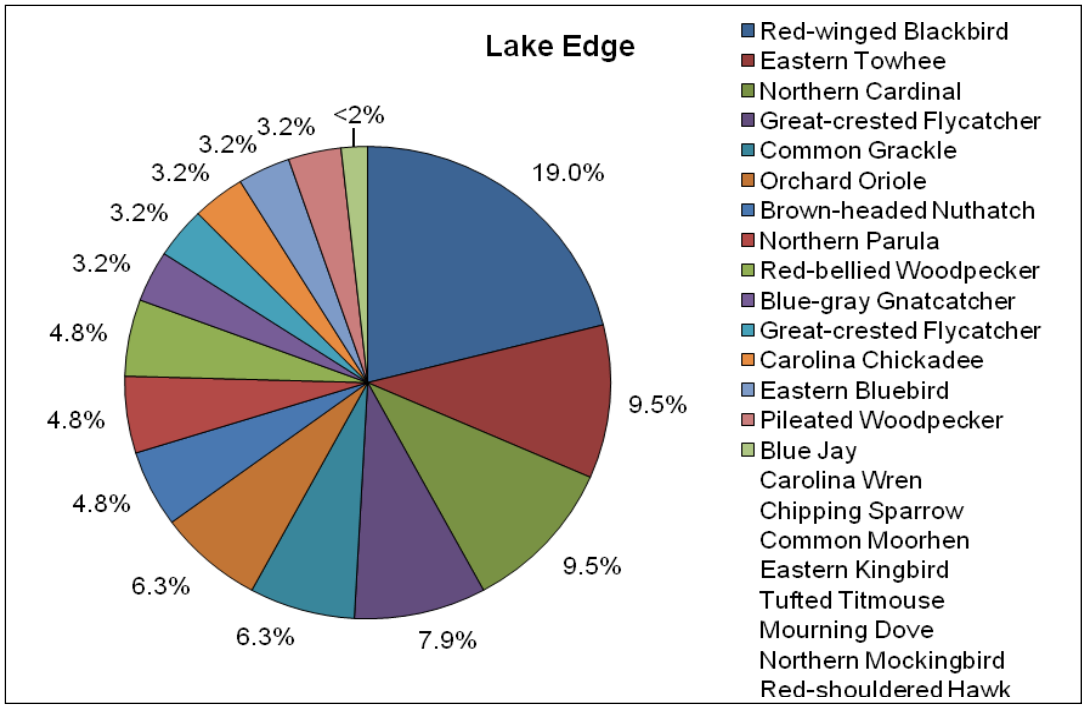

Figure 25. Percent of total detections for bird species identified in lake edge habitat during point counts on the Carter Tract of Econfina Creek WMA, May 2009.

The wet prairie point count location is located adjacent to a cypress swamp. The most common species identified were the great-crested flycatcher, eastern towhee, northern cardinal, and carolina wren (*Thryothorus ludovicianus*) (Figure 26). Carolina chickadees (*Poecile carolinensis*), eastern bluebirds (*Sialia sialis*), and tufted titmice (*Baeolophus bicolor*) were also documented at this location. These three species are secondary cavity nesters, taking advantage of cavities excavated by woodpeckers in standing dead trees (snags) that are often present in this type of habitat due to periodic inundation. Results from this count were highly consistent with those found during 2008 surveys.

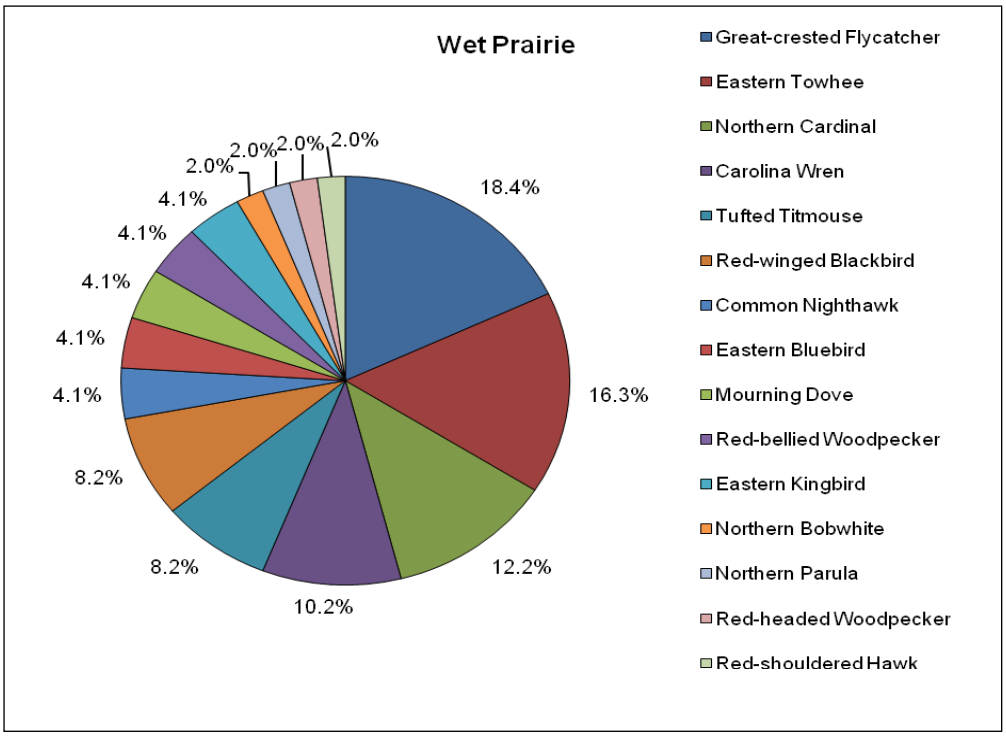

Figure 26. Percent of total detections for bird species identified in wet prairie habitat during point counts on the Carter Tract of Econfina Creek WMA, May 2009.

The mixed hardwood point count location is located in habitat dominated by live and scrub oaks that provide a mostly closed canopy. Carolina wren, northern parula, white-eyed vireo (*Vireo griseus*), northern cardinal, and red-eyed vireo (*Vireo olivaceus*) were the most common species documented at this location (Figure 27). The red-eyed vireo is a shy species that is often heard but rarely seen, as it prefers to forage and sing in the upper canopy of mature forests. Three species of woodpecker (the most among all habitats surveyed) were also noted at this location, including the downy (*Picoides pubescens*) and red-headed (*Melanerpes erythrocephalus*) woodpeckers, and northern flicker (*Colaptes auratus*).

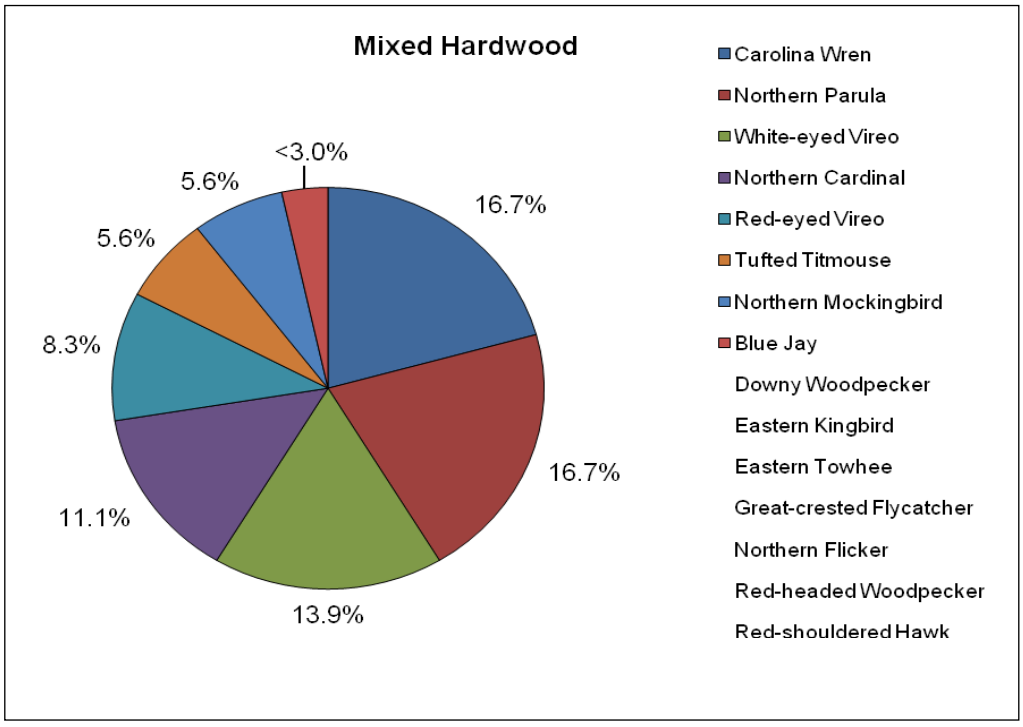

Figure 27. Percent of total detections for bird species identified in mixed hardwood forest habitat during point counts on the Carter Tract of Econfina Creek WMA, May 2009.

The grassland point count location is a former pine plantation that was clearcut in 2007. The northern mockingbird (*Mimus polyglottos*) was the most common species counted at this location, followed by mourning dove, common nighthawk, eastern towhee, and northern cardinal (Figure 28). The bird community at this location should continue to evolve in subsequent years as native groundcover returns through prescribed burning and longleaf pine seedlings continue to emerge. Several species of sparrow, including potentially the secretive Bachman's sparrow (*Aimophila aestivalis*), should start to utilize this open grassland habitat before scrub oaks begin to encroach. Frequent prescribed fire will help keep this habitat grassy/herbaceous by top-killing young scrub oaks and promoting wiregrass and longleaf pine recruitment.

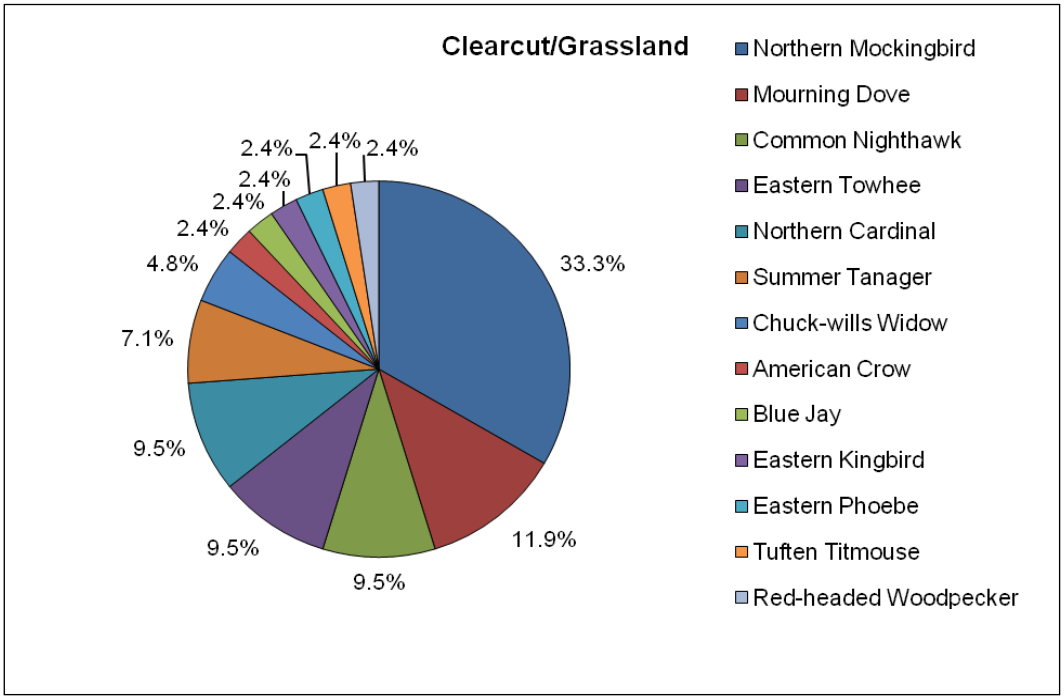

Figure 28. Percent of total detections for bird species identified in clearcut/grassland habitat during point counts on the Carter Tract of Econfina Creek WMA, May 2009.

Overall, our point counts concluded that generalist species such as the great-crested flycatcher, eastern towhee, northern cardinal, and mourning dove continue to dominate most habitat types on the Carter Tract. However, the area contains several habitats important to breeding neotropical migrant species, including mixed hardwood, sandhill, and wet prairie, as well as an important wading bird rookery. As restoration efforts continue and management activities become implemented on a regular timeline (i.e. prescribed burning every 2-3 years), it is expected that more species specializing in their preferred habitat types will be detected in future point count surveys.

Mourning Dove Banding

Contemporary and statistically reliable estimates of harvest rates, survival rates, and geographical distribution and derivation of harvest throughout the United States are necessary to improve science-based harvest management of mourning doves. A three year national pilot banding program was initiated in 2003 to produce data for estimation of these demographic parameters. This cooperative effort between state wildlife agencies, the U.S. Fish and Wildlife Service (USFWS), and the U.S. Geological Survey Bird Banding Laboratory (BBL) resulted in much needed information for improvement of dove harvest management. The pilot study represented the only source of contemporary information available on a large-scale basis (26 states), as the last comprehensive banding program occurred from 1965-1975. Goals and objectives of this study included:

- Estimate age-specific harvest rates and band reporting rates in a representative set of sub-regions in each of the 3 national dove harvest management units.
- Estimate band reporting rates with the same subregions.
- Establish protocols, training, and cost estimates for a future coordinated nationwide banding program designed to monitor harvest and survival rates.
- Provide information on geographical distribution and derivation of harvest.
- Provide initial estimates of annual survival and breeding site fidelity of subregion breeding populations.

The field protocols and sampling designs used and tested by the cooperating state agency field staffs, and the resultant parameter estimates generated from this pilot study, were critical in the design of a cooperative state and federal long-term operational banding program. As part of this national long-term banding program, FWC's Small Game Management Program solicited WMAs throughout the state to participate in this banding work. FWC on the Carter Tract has chosen to participate and contribute to Florida's statewide dove-banding project in cooperation with the USFWS and BBL (Figure 29). 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 at 1-800-327-BAND, or online at www.pwrc.usgs.gov (select "Birds", then "Bird Banding Lab").

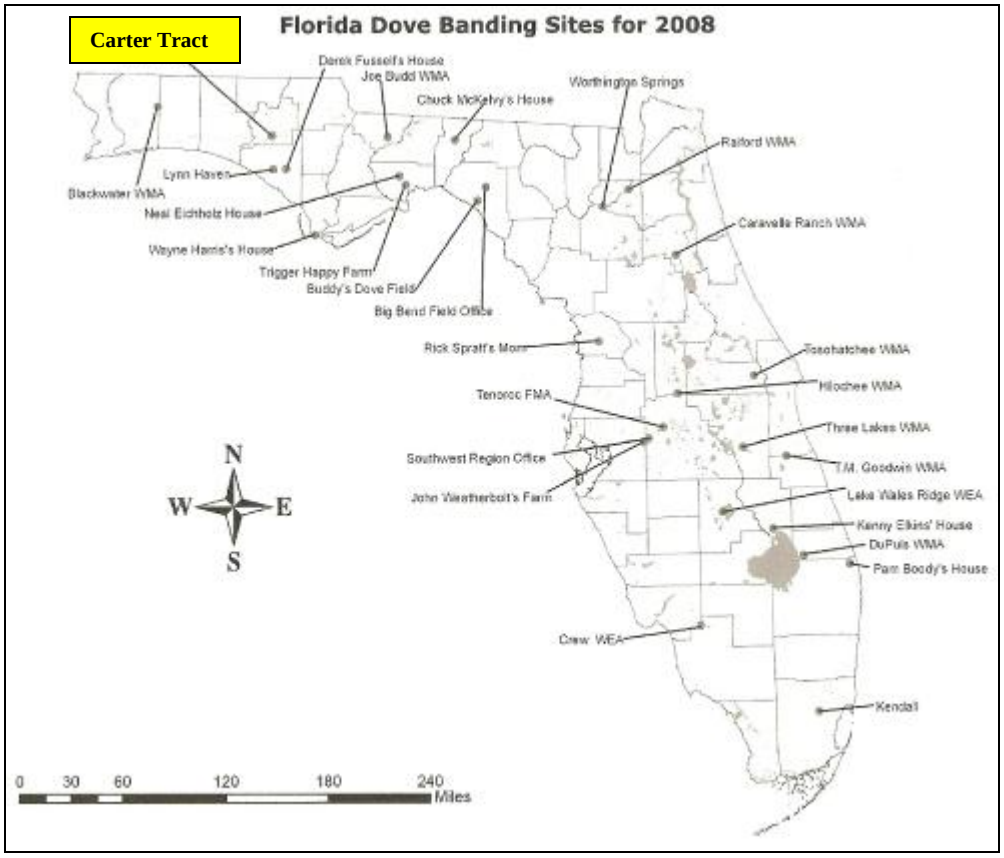

Figure 29. In conjunction with national long-term banding efforts, the Carter Tract of Econfina Creek WMA is one of the sites participating in Florida's statewide dove banding program.

Two sites on the Carter Tract were prebaited with white proso millet seed in June 2008, prior to trapping. Trapping was conducted from July 7-9, 2008, with traps placed in the early morning and late afternoon. Traps were checked after 1-2 hours, depending on weather conditions. Doves were banded using U.S. Fish and Wildlife Service metal identification bands, and age (AHY= after hatch year; HY = hatch year), sex, and molt sequence data were collected for each bird (Figure 30).

Figure 30. Mourning doves were trapped, banded with U.S. Fish and Wildlife identification tags, and age, sex, and molt sequence were recorded in July 2008 on the Carter Tract of Econfina Creek WMA.

Fifty mourning doves (9 AHY:49 HY and 1 unknown) were successfully banded during the 2008 capture/banding effort. This was a 12-bird increase from the 38 doves banded the previous year in 2007. In addition to the 50 doves banded in 2008, one recapture was also reported from an individual originally captured and banded on the Carter Tract in 2007.

Herpetofauna

Sandhill and scrub habitats, as well as seasonal isolated wetlands and small ponds are among the most important and imperiled habitats for southeastern herpetofauna. Additionally, most amphibians that rely on seasonal wetlands or ponds for reproduction also require upland habitats (Bailey et al. 2006). The Carter Tract is a fine example of a good mix of both permanent (e.g. Dry Pond) and intermediate (e.g. Pine Log Creek and Warmouth Pond) aquatic habitats interspersed with adjacent upland sandhills. The presence of the gopher tortoise (*Gopherus polyphemus*) in the sandhill areas of the tract is significant not only because it is a Threatened species, but also because their burrows are

beneficial to a host of commensalistic species that utilize them (both active and abandoned) for shelter and foraging (Jackson and Milstrey 1989). Specifically, the federal and state Threatened eastern indigo snake (*Drymarchon courais couperi*), in addition to the gopher frog (*Rana capito*) and Florida pine snake (*Pituophis melanoleucus mugitus*), both SSC, are known to use gopher tortoise burrows (Moler 1992, Ashton and Ashton 2008). It should be noted that a separate detailed report on the Annual Survey and Monitoring of the Gopher Tortoise on the Carter Tract is scheduled to be completed in the near future.

Herpetofauna surveys were conducted on the Carter Tract during 2008-09 using two common sampling methods: drift fences and aquatic funnel traps. Drift fences were used to intercept adult amphibians and reptiles entering and exiting ponds and wetlands. Drift fences remained in the same locations as originally constructed in 2006, parallel to pond margins on breeding sites with a grassy ecotone and extensive herbaceous ground cover in the adjacent uplands. Drift fences were constructed from standard 100ft x 3ft silt fencing, supported by wooden stakes and attached with heavy duty staples (Figure 231). The bottom edge of the fence material was buried 6-inches below ground to prevent herpetofauna from burrowing underneath. Ten drift fences (Figure 32) were used in conjunction with funnel traps placed at each end and in the middle of both the inside and outside of the fence, for a total of six funnel traps per fence. Funnel traps were constructed from window screening and size and design was modeled after that of Enge (1997).

Figure 31. Drift fence used for sampling herpetofaunal communities on the Carter Tract of Econfina Creek WMA, 2008-09.

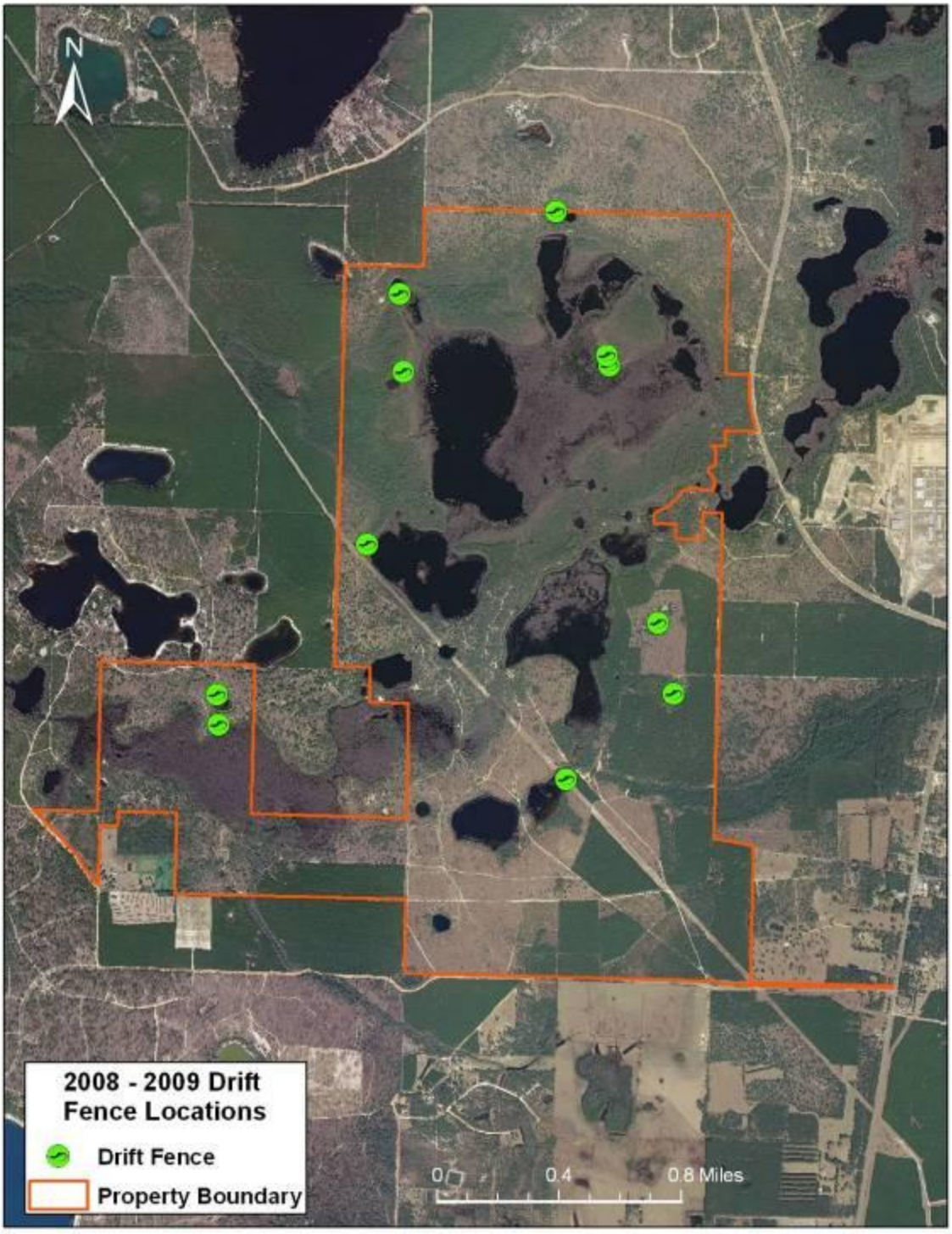

Figure 32. Location of drift fences for herpetofaunal surveys on the Carter Tract of Econfina Creek WMA, Washington County, Florida, 2008-09.

Herpetofauna movements (especially amphibians) are often correlated with rain events (Bury and Corn 1987). Therefore, drift fence surveys were conducted with respect to local weather, with traps opened when rainy conditions were forecast and herpetofauna were expected to be moving. Soil ramps were constructed at the mouth of the mesh funnels to act as a natural surface leading into the trap. Nearby vegetation was used to shade funnel traps from direct sun exposure, and moistened sponges were placed inside traps to decrease the threat of desiccation. Traps were checked in the early morning to minimize trap-induced mortality.

Herpetofauna capture results were consistent with those found during 2007-08 surveys. However, the eastern fence lizard (*Sceloporus undulatus*) and southern toad (*Bufo terrestris*) are two species captured in 2008-09 that were not captured in 2007-08. Out of 20 trap nights between November 2008 to April 2009, 61 individuals representing eight species were captured (Table 5). The Florida cricket frog (*Acris gryllus dorsalis*) was the most captured amphibian species, making up 52% of all drift fence captures.

Table 5. Herpetofauna species captured using drift fences on the Carter Tract of Econfina Creek WMA from November 2008 – April 2009.

Species	*Number of Captures*
Dwarf salamander (*Eurycea quadridigitata*)	5
Eastern narrowmouth toad (*Gastrophryne carolinensis*)	2
Eastern spadefoot toad (*Scaphiopus holbrookii*)	2
Florida cricket frog (*Acris gryllus dorsalis*)	32
Mole salamander (*Abystoma talpoideum*)	5
Eastern Fence lizard (*Sceloporus undulatus*)	1
Southern Leopard frog (*Rana sphenocephala*)	1
Southern toad (*Bufo terrestris*)	13
Total captures	**61**

Aquatic funnel traps were used for the first time during 2009 as another method for surveying herpetofauna communities on the Carter Tract (Figure 33). Aquatic funnel traps (also called "minnow traps") were placed in shallow water at the edges of ponds and wetlands. These traps are particularly successful at capturing adult aquatic salamanders and frogs, as well as salamander larvae and tadpoles. However, aquatic snakes, small turtles, fish, and crayfish are also common captures when using aquatic funnel traps.

Figure 33. Location of aquatic funnel traps used for sampling herpetofauna on the Carter Tract of Econfina Creek WMA, Washington County, Florida, 2009.

Table 6 provides capture results for the eight aquatic funnel traps used on the Carter Tract in 2009. The southern leopard frog (*Rana sphenocephala*) was the most captured species, representing nearly 88% of all aquatic funnel trap captures. One unique capture was a juvenile Florida softshell (*Apalone ferox*) turtle, one of two softshell turtle species found in the Florida panhandle. Incidental non-herpetofauna captures noted during the 2009 sampling period included 53 fish and six crayfish (not included in percent capture calculations).

Table 6. Herpetofaunal species captured using aquatic funnel traps on the Carter Tract of Econfina Creek WMA, 2009.

Species	*Number of captures*
Florida cricket frog (*Acris gryllus dorsalis*)	5
Mole salamander (*Abystoma talpoideum*)	3
Southern Leopard frog (*Rana sphenocephala*)	101
Bullfrog (*Rana catesbeiana*)	1
Pig frog (*Rana grylio*)	3
Florida softshell (*Apalone ferox*)	1
Unknown tadpole species	1
Total captures	**115**

A comprehensive list of all herpetofauna species (n=33) identified on the Carter Tract from 2005 to present can be found in Appendix VIII. Additional survey techniques are scheduled to be implemented on the Carter Tract during 2009-10. These include frog call surveys, hoop trapping for turtles, and terrestrial snake trapping. Frog call surveys are a good way to document species occurrence without necessarily capturing individuals of that species. Several species of tree frogs are difficult to capture, but can easily be heard calling, especially during the spring and summer months. Additionally, the many permanent ponds on the Carter Tract are currently known to provide habitat for three species of aquatic turtle: the Florida softshell, Florida cooter (*Pseudemys floridana*), and chicken turtle (*Dierochelys reticularia*). However, trapping specifically for turtles using hoop traps is likely to reveal additional species thriving in area ponds and wetlands on the

Carter Tract, including the Alligator snapping turtle (*Macrochelys temminckii*), a SSC. Finally, because of their size, large terrestrial snakes such as racers, rat snakes, pine snakes, and coachwhips can be difficult to capture with traditional survey methods. Therefore, we plan to construct terrestrial snake traps for use in upland sandhill habitats, with the goal of censusing terrestrial snake species present on the Carter Tract. The Florida pine snake (SSC) and eastern indigo snake (Threatened) are both large terrestrial snakes that were historically common in the sandhills and longleaf pine ecosystems and are currently on Florida's imperiled species list. Surveying for snakes using traps specifically designed to capture these large terrestrial species is our best chance at documenting their potential presence on the Carter Tract.

FUTURE BIOLOGICAL ACTIVITIES

In a continuing effort to document species diversity across all taxa of vertebrates present on the Carter Tract, additional surveys focusing on small mammal and bat communities are scheduled to be implemented during 2009-10. FWC personnel will focus on small mammal trapping, as well as mist-netting for bats. The diverse habitat types of the Carter Tract have the potential to harbor a number of small mammal species including the Marsh rice rat (*Orysomys palustris*) along pond edges and emergent wetlands, Golden mouse (*Ochrotomys nuttalli*) and Eastern woodrat (*Neotoma floridana*) in mixed hardwood forests, and Cotton and Eastern harvest mouse (*Peromyscus gossypinus* and *Reithrodontomys humulis*, respectively) in the sandhills and pine flatwoods. These species, among others likely present, but not documented, on the Carter Tract, are an integral part of the food chain, providing a prey base for a number of higher order vertebrates from owls and hawks to snakes, fox, coyote, and bobcat. Bat species documentation as been anecdotal at best to date on the Carter Tract. Carter field staff plan to mist net for bats over shallow water bodies in various habitats (sandhills, pine flatwoods, cypress swamps) in an effort to document species occurrence in those areas.

LAW ENFORCEMENT ACTIVITIES

(Lieutenant Hampton Yates reporting)

Florida Fish and Wildlife Conservation Commission officers patrol the Carter Tract providing enforcement to include wildlife and fisheries enforcement and general law enforcement including narcotics and trespass violations. This FY 2008-2009 officers provided 185 hours of patrol directed to the Carter Tract. Activity included sixty three user contacts and one warning for driving in closed area or road during construction.

Officers conducted foot patrol and all terrain vehicle patrols of the interior roads and perimeter for the area. Officers worked illegal hunting, trespass, and baiting violations throughout the hunting season. These were based on officer foot patrol, observations and receiving verbal complaints from users checking out at the check station. Four complaints were worked several times regarding baiting, one on the southwest corner and other on the north end and the last just a ladder stand posted on private land but set up to overlook both the private and Carter Tract properties.

One of these stands have been worked in past years and even resulted in an arrest by an officer a couple of years ago. This stand is still baited every year with corn being thrown over the fence in manner to disclose and potentially hunt deer from the stand overlooking both sides of the property line. Lieutenant Steve Carter worked this site and inspected a camera set up by the suspect. The site was checked multiple times by several officers where the suspect entered from private land and a county road north of the Carter Tract. Photos below are of the stand on the perimeter overlooking the fence with bait broadcast mostly on private side of fence.

The second baited site was on the southwest corner of the area west of the check station. Here a tree stand was established on private land approximately ¼ mile north of the county dirt road there. Area officers found this on their own from perimeter foot patrols and trailing ATV tracks outside the Carter Tract along the perimeter fence. Lieutenant Yates and Officers Jackson, Walsingham, and Morris targeted this site several times in attempts to catch someone hunting overlooking the bait inside the Carter Tract. Catching someone actually broadcasting the corn, hunting in or taking game actually inside the area is difficult to make and takes dedication and luck. Photos below are of Officers Morris and Walsingham at the county road trail, pointing up at the tree stand on private land, standing inside the Carter Tract and of close-up of the corn inside the Carter Tract approximately 30 to 50 yards out.

A third site near the stand was monitored for illegal take of deer inside the area via shooting across the fence from the private land. No one was ever checked there during our spot checks and surveillance at the other stand. Due to the proximity, a surveillance set up was close enough to monitor any shots or someone walking out from this site. See photo below taking from inside the Carter Tract's perimeter fence and looking down a private road beside the stand.

Lieutenant Steve Carter's residence is across from the Carter Tract's field office on the grounds at the main entrance. He uses it as a field station himself. His time is included above on just the foot and perimeter patrols and user contacts. His time with administration and citizen contact at the field office is not documented in this report and is considered routine. His recent transfer to investigations will enhance our ability to detect violations. Other duties, that officers have reported is GPS coordinates for downed trees on perimeter fencing. See photo below of Officer Larry Morris at a perimeter corner on north side near a downed tree on the fence. Area officers during group squad meetings have included the Carter Tract's two baited sites and perimeter patrols for this upcoming hunting season in attempts to catch the violators this year due to the efforts last year late in the hunting season.

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Appendix I. Fitzhugh Carter Tract of Econfina Creek WMA Regulations Summary and Area Map, July 1, 2008 – June 30, 2009.

2008-2009 Hunting Season

Fitzhugh Carter Area

Econfina Creek

Wildlife Management Area

Regulations Summary and Area Map
July 1, 2008 - June 30, 2009

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 and other recreational use on the Fitzhugh Carter Area 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 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 and the Migratory Bird Hunting and Conservation Stamp [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.

Hunting, trapping and fishing licenses, and management area, archery, muzzleloading gun, wild turkey and state waterfowl permits may be purchased from county tax collectors, license agents, the Internet at MyFWC.com/license or by telephone at 1-888-486-8356. 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; available where hunting licenses are sold, at most post offices or at duckstamp.com.

QUOTA PERMIT INFORMATION:

Archery - 15, no-cost, quota permits (no exemptions) for each of 2 hunts.

Muzzleloading Gun - 15, no-cost, quota permits (no exemptions).

General Gun - 15, no-cost, quota permits (no exemptions) for each of 3 hunts.

Spring Turkey - 5, no-cost, quota permits (no exemptions) for each of 3 hunts.

Permit applications (**all application dates are for 2008**): Hunters must submit electronic applications for quota and special-opportunity permits at a license agent, county tax collector's office or online at MyFWC.com. Most quota and special opportunity permits are issued during a random drawing, which includes all applications submitted during the times and dates listed below. Any remaining permits are issued first-come, first-served.

A worksheet with a list of available permits may be obtained 1 - 2 weeks before each application period from FWC offices, tax collectors, license agents and online at MyFWC.com. Application for random drawings begins 10:00 a.m. eastern time on the first day of the application period and ends midnight eastern time on the last day. Archery/Muzzleloading Gun and General Gun quota permit applications may be submitted June **2** - **12**. Spring Turkey quota permit applications may be submitted October **28** - November **6**.

Youth and Mentor exemptions: One youth hunter (15 years of age or younger) hunting during seasons listed as "no exemptions" or one mentor license holder and their respective supervisor may access the area and participate in any quota hunt (except special-opportunity), provided at least one hunter holds a valid quota permit and both hunters share a single bag limit of game. A supervisor for a youth must be 18 years of age or older. A supervisor for a mentor license holder must be a licensed hunter, 21 years of age or older. Only those supervisors with proper licenses and permits may hunt.

Transfer of permits: Quota permits are transferable. Quota permits issued to exempt hunters are transferable only to another person with the same type of exemption, except permits marked "exempt senior" may be transferred to a youth younger than 16 years of age. The sale or purchase of any quota hunt permit is prohibited.

Appendix I (continued)

GENERAL AREA REGULATIONS:

All general laws and regulations relating to wild animal life or freshwater aquatic life 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. This is not required during an archery-only season.
2. Taking of spotted fawn, swimming deer or roosted turkey is prohibited. Species legal to take are listed under each season.
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.
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 one-half hour before sunrise until one-half 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 hogs may not be transported alive.
16. It is unlawful for any person to leave any garbage or refuse, or in any way litter in the area.
17. It is unlawful to set fire to any forest, grass or woodlands.
18. A Fish and Wildlife Conservation Commission Law Enforcement Officer may search any camp, vehicle or boat in accordance with law.
19. The possession or consumption of intoxicating beverages is prohibited.

PUBLIC ACCESS AND VEHICLES:

1. The Fitzhugh Carter area is located west of State Road 77, 5 miles north of Highway 20 on Chain Lake Road.
2. Open to public access year-round.
3. All persons entering or exiting the Fitzhugh Carter area may do so only at a designated entrance (see map).
4. Parked vehicles may not obstruct a road, gate or firelane.
5. No motor vehicle shall be operated on any part of any wildlife management area that has been designated as closed to vehicular traffic.
6. Vehicles may be operated only on named or numbered roads.
7. The use of all-terrain vehicles (ATVs) is prohibited.
8. Horses are prohibited.

HUNTERS AND CHECK STATIONS:

1. Hunters and anglers shall check in and out at the check station when entering and exiting the area and shall check all game and fish taken.
2. Hunting equipment and dogs may be taken onto the WMA after 8 a.m. the day before the opening of a season and shall be removed by 6 p.m. one day after the end of the season.

GUNS:

1. **All firearms shall be securely encased in a vehicle, vessel, camper or tent, during periods when they are not a legal method of take.** Persons in possession of a valid Concealed Weapon or Firearm License may carry concealed handguns.
2. **Target practice is prohibited.**
3. Hunting with a gun and light is prohibited.
4. 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 two or more balls.
5. Children under the age of 16 may not be in possession of a firearm unless in the presence of a supervising adult.
6. No person shall have a gun under his control while under the influence of alcohol or drugs.
7. For taking non-migratory game, only shotguns, rifles, pistols, longbows (including compound and recurve bows), crossbows (during the general gun, small game and spring turkey seasons or by permit) or falconry may be used.
8. For taking migratory game, only shotguns, bow and arrow (not crossbows), and falconry may be used. Shotguns shall not be larger than 10 gauge and shall be incapable of holding more than three shells in the magazine and chamber combined.
9. Firearms using rimfire or non-expanding, full metal jacket (military ball) ammunition are prohibited for taking deer.
10. Fully automatic or silencer-equipped firearms, centerfire semi-automatic rifles having a magazine capable of holding more than five rounds, explosive or drug-injecting devices and setguns are prohibited.

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:

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, season limit 2, possession limit 2.
4. Gray squirrel, quail and rabbit - Daily limit 12, possession limit 24 for each game species.
5. Raccoon, opossum, armadillo, beaver, coyote, skunk and nutria - No bag limits.
6. Migratory birds - See Migratory Bird Hunting Regulations pamphlet.

Appendix I (continued)

ARCHERY SEASON:

October 18 – 24 and October 25 through November 2.

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

Legal to Take - Any deer (except 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 the Archery Season - In addition to these regulations, all General Area Regulations shall apply. Hunting with firearms or crossbows is prohibited, except that centerfire shotguns are allowed for hunting migratory birds when one or more species are legal to take (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).

SMALL GAME SEASON:

December 6 – 21.

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

Regulations Unique to the Small Game Season – In addition to these regulations, all General Area Regulations shall apply. Hunting with centerfire rifles is prohibited.

MUZZLELOADING GUN SEASON:

November 21 – 23.

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

Legal to Take - Deer with at least one 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 the Muzzleloading Gun Season - In addition to these regulations, all General Area Regulations shall apply. Only muzzleloading guns are allowed for hunting, except that centerfire shotguns are allowed for hunting migratory birds when one or more species are legal to take (see Migratory Bird section and the current Migratory Bird Hunting Regulations pamphlet).

GENERAL GUN SEASON:

November 27 – 30, January 24 – 27 and January 28 through February 1.

Permit, Stamp and License Requirements - Quota permit, 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 Take - Deer with at least one 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 the General Gun Season - In addition to these regulations, all General Area Regulations shall apply.

SPRING TURKEY SEASON:

March 21 – 23, April 3 – 5 and 17 – 19.

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

Legal to Take - Bearded turkey or gobbler.

Regulations Unique to the Spring Turkey Season - In addition to these regulations, all General Area Regulations shall apply.

1. Legal shooting hours are one-half hour before sunrise until 1 p.m.
2. The taking of any other animal is prohibited.

TRAPPING: Prohibited.

MIGRATORY BIRD SEASONS:

Rails, common moorhens, mourning doves, white-winged doves, snipe, ducks, geese, coots, woodcock and crows may be taken only during seasons that coincide with the archery, muzzleloading gun, general gun or small game season. Waterfowl hunting is allowed during the special September duck season.

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 Take - See Migratory Bird Hunting Regulations pamphlet.

Regulations Unique to the Migratory Bird Seasons - In addition to these regulations, all General Area Regulations shall apply.

1. The use of lead shot for taking ducks, geese and coots is prohibited.
2. Centerfire shotguns are allowed during established area seasons when one or more migratory birds are legal to take.

FISHING AND FROGGING:

Allowed by permit only.

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

Legal to Take - Bag and size limits will be posted at the check station.

Regulations Unique to Fishing and Frogging - All General Area Regulations and 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. On all area lakes and water bodies fishing is allowed only by permit issued by the Commission. Days and hours of operation, fish bag and size limits, angler quotas and other related rules shall be as designated by the Commission and posted at the check station
3. 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:

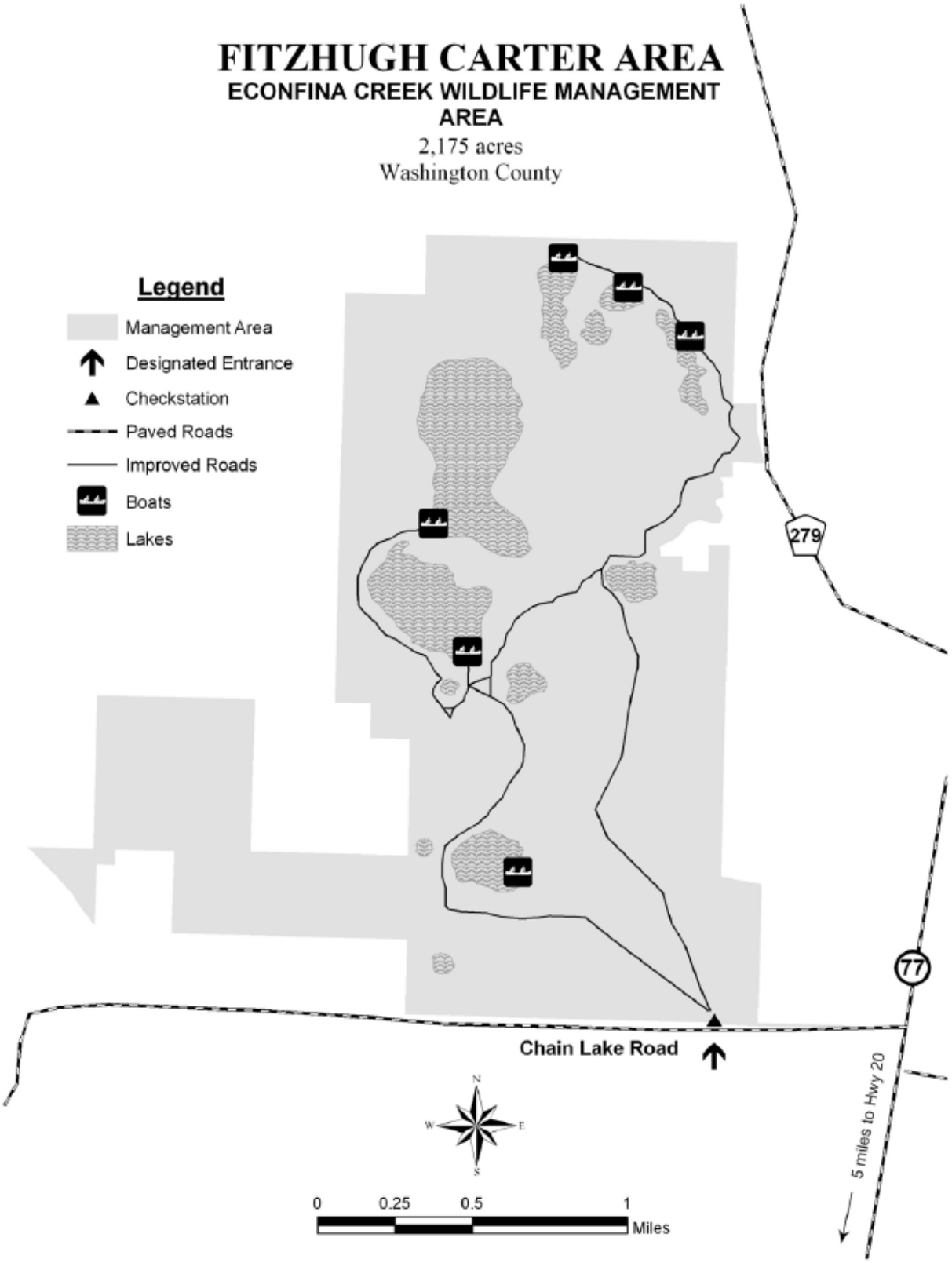
1. Anyone born on or after June 1, 1975 must have passed a Commission-approved hunter-safety course prior to being issued a hunting license.
2. If you have any questions about this material, please call the Fish and Wildlife Conservation Commission at (850) 265-3676 (**TDD** 800-955-8771).

COOPERATION REQUESTED:

If you see law violators or suspicious activities, contact your nearest Commission regional office or call 1-888-404-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 handicap. 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.

Appendix I (continued)



Appendix II. Rules, Regulations, and Area Map unique to the Special Opportunity Fishing Program on the Carter Tract.

FITZHUGH CARTER TRACT
ECONFINA CREEK WMA

Special Opportunity Fishing Program

PUBLIC FISHING ACCESS

RULES, REGULATIONS AND AREA MAP

A PARTNERSHIP BETWEEN THE NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT AND THE FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION

Fitzhugh Carter Tract
Econfina Creek WMA
2830 Chain Lake Road
Chipley, FL 32428
(850) 773-2631

1. All anglers, except those exempt under Florida Statute 372.57, must have a valid freshwater fishing license (call 1-888-FISH-Florida; 347-4356).

2. Fishing is allowed Friday through Monday by daily use permit only. All anglers shall check in and out at the Carter check station and deposit their valid fishing license or other i.d. with the custodian unless otherwise instructed.

3. Anglers must be in possession of the Carter daily fishing permit badge at all times while fishing.

4. Fish may not be filleted, nor their heads or tail fins removed, until the angler has completed fishing for the day. **(An angler has completed fishing for the day only after he/she has checked out at the Carter check station.)**

5. Only boats provided on the area are allowed.

6. Panfish daily bag limit: 20

7. All bluegill and redear sunfish less than 8 inches total length must be released immediately.

8. Daily bag limit for channel catfish: 6

9. Daily bag limit for black crappie: 10

10. All black crappie less than 10" in total length must be released immediately.

9. **All largemouth bass are catch and release only.**

10. The use or possession of nets, seines, fish traps, trotlines, set lines, spears, gigs, snatch hooks, crossbow, bow and arrow or bush hooks is prohibited.

11. Public access is prohibited in areas posted as "Restricted" for protection of threatened or endangered species, or environmentally sensitive areas.

12. Motor vehicles may be operated only on roads and parking areas designated on map and by signage on area.

13. Possession of alcoholic beverages or firearms, camping or open fires on the area is prohibited.

14. Bicycling, all-terrain vehicle use and horseback riding are prohibited on the area.

15. Other recreational uses, including canoeing, kayaking, hiking, and bird watching, are allowed on the area during the same days and hours as public fishing, and subject to the same rules and regulations.

DAYS/HOURS: Fishing on the Carter Tract is open **every Friday through Monday except days coinciding with area hunts**, starting at 6:00 am. Gates close at 8:00 pm during the summer period (March through October) and 5:00 pm during the winter period (November through February).

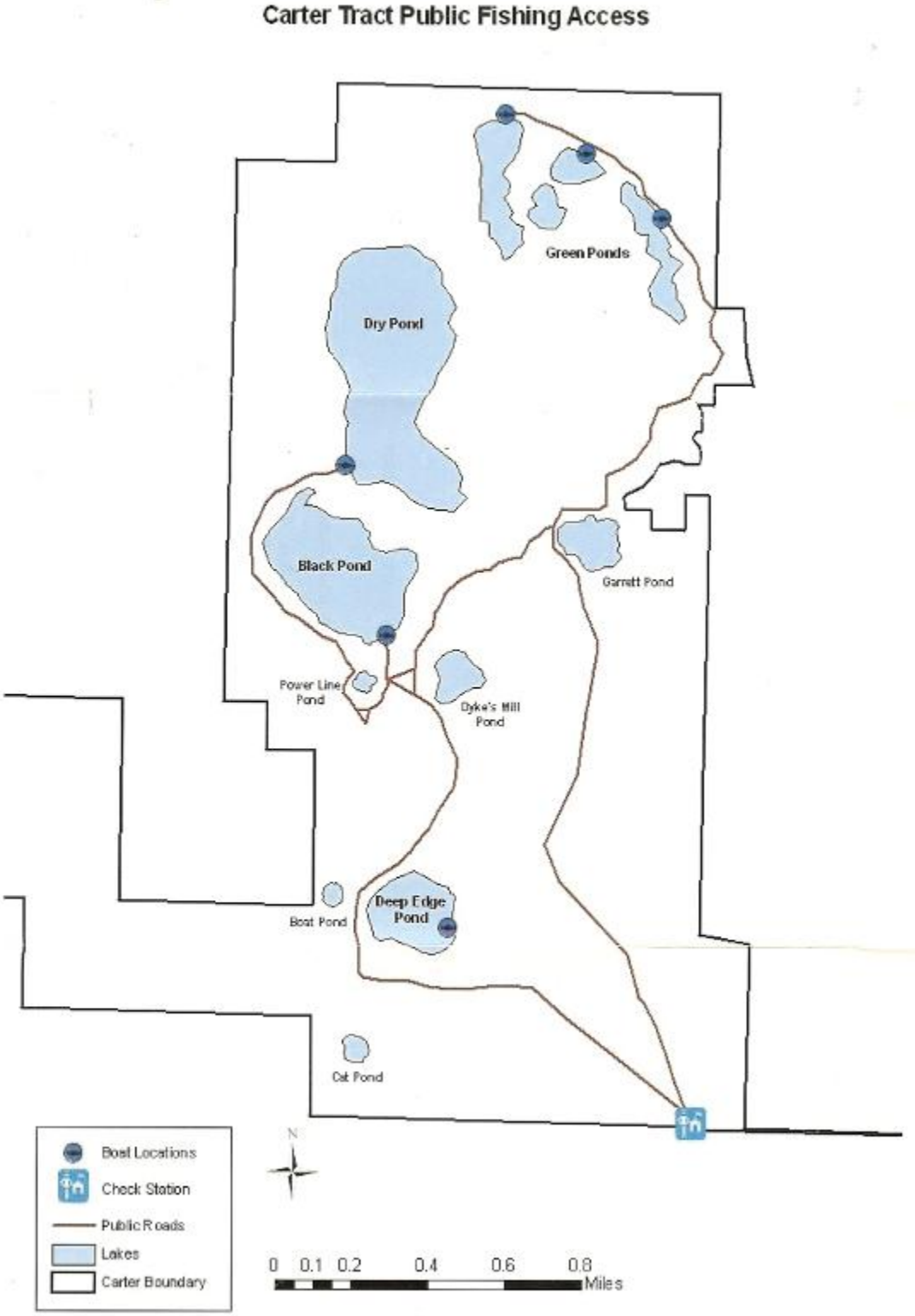
RESERVATIONS: Only sixteen fishermen are allowed on the area at one time. Ten slots are available to reserve ahead by calling the check station at (850) 773-2631; the other six are first-come, first-serve. Reservations can be made for up to 4 days in a 30-day period, and can be made up to 60 days in advance. No more than 2 boats can be reserved per person.

BOATS: No outside boats will be allowed into the area. Eight boats are provided for use on the lakes. Oars, life jackets and flotation cushions are provided. Boats must be kept at the lake on which they are placed. For safety purposes, anglers are required to remain at the lake for which they have been issued the daily use permit. Angler must check back in at check station if he/she wishes to change lakes.

CHECK IN/OUT: All anglers are required to check in and check out at the Carter check station. Upon check in, each angler must leave his/her fishing license at the check station (unless otherwise instructed). A daily fishing permit will then be issued with a specific lake designation. Anglers will receive a creel kit that corresponds to his/her assigned boat. Anglers must fill out the creel information sheet completely and accurately, as well as comply with all regulations. Anglers must possess the daily fishing permit at all times. Fishing licenses may be picked up upon check out, which must be no later than the designated check station closing time. Vehicles must remain only on public roads outlined in this brochure. Fishing hours and days are subject to change due to hunt seasons, management activity, infrastructure work, etc. by posted notice at the main entrance.

GENERAL REGULATIONS: This area is to be closed to the public (other than walk-in hiking) outside the approved fishing or hunting days and times. Fishing rules and regulations follow standards established by the Florida Fish and Wildlife Conservation Commission, and contain, but are not limited to, the following:

Appendix II (continued)



Appendix III. Percent occurrence per sampling depth and total percent occurrence of fish species sampled October-November 2008 via Wegener rings for Black and Dry Ponds on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

Species – Dry Pond	*Survey Depth* Shoreline	0.5 m	1 m	Percent Occurrence
Banded Topminnow (*Fundulus cingulatus*)	4.19	-	-	0.57
Bluegill (*Lepomis macrochirus*)	-	-	0.21	0.09
Bluespotted Sunfish (*Enneacanthus gloriosus*)	2.58	4.69	4	3.89
Brook Silverside (*Labidesthes sicculus*)	-	-	0.11	0.04
Dollar Sunfish (*Lepomis marinatus*)	-	0.1	-	0.04
E. Starhead Topminnow (*Fundulus escabiae*)	11.94	1.4	0.21	2.34
Lake Chub Sucker (*Erimyzon sucetta*)	-	0.1	-	0.04
Mosquitofish (*Gambusia affinis*)	7.74	13.07	1.9	7.65
Pygmy Killifish (*Leptolucania ommata*)	42.58	67.37	83.58	61.06
Pygmy Sunfish (*Elassoma* sp.)	27.1	10.58	7.05	9.80
Swampdarter (*Etheostoma fusiforme*)	3.55	2.3	2.21	2.25
Tadpole Madtom (*Noturus gyrinus*)	-	-	0.12	0.04
Warmouth (*Lepomis gulosus*)	-	0.3	0.21	0.19
Unknown	0.32	0.1	-	0.08

Species – Black Pond	*Survey Depth* Shoreline	0.5 m	1 m	Percent Occurrence
Banded Topminnow (*Fundulus cingulatus*)	43.1	-	-	10.55
Bluegill (*Lepomis macrochirus*)	10.34	28.57	34.74	26.58
Mosquitofish (*Gambusia affinis*)	5.17	3.57		2.53
Pygmy Killifish (*Leptolucania ommata*)	-	-	3.16	1.27
Pygmy Sunfish (*Elassoma* sp.)	-	-	4.21	1.69
Swampdarter (*Etheostoma fusiforme*)	39.66	64.29	50.53	52.74
Warmouth (*Lepomis gulosus*)	-	3.57	7.37	4.22
Unknown	1.72	-	-	0.42

Appendix IV. Catch per unit effort (CPUE) results for sportfish sampled via Electrofishing at Dry and Black Ponds in October 2008 and April 2009 on Carter Tract of Econfina Creek WMA, Washington County, Florida.

Season/Year	*Pond*	*Species*	*N*[a]	*CPUE*[b]
Fall 2008	Dry	Bluegill (*Lepomis macrochirus*)	6	0.09
		Largemouth Bass (*Micropterus salmoides*)	8	0.12
		Totals	**14**	**0.35**
Spring 2009				
	Dry	Bluegill (*Lepomis macrochirus*)	1	0.01
		Largemouth Bass (*Micropterus salmoides*)	1	0.01
		Totals	**2**	**0.03**
	Black	Bluegill (*Lepomis macrochirus*)	21	0.34
		Black Crappie (*Pomoxis nigromaculatus*)	1	0.02
		Largemouth Bass (*Micropterus salmoides*)	8	0.13
		Warmouth (*Lepomis gulosus*)	1	0.02
		Totals	**31**	**0.5**

[a] Number of fish sampled

[b] Catch per unit effort (CPUE) measured in fish per minute

Appendix V. Number of fish caught and released per pond on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

	Pond				
Species	Dry	Black	Deep Edge	Green	Total
Largemouth Bass (*Micropterus salmoides*)					
Total caught[a]	11	110	50	3	174
Bluegill (*Lepomis macrochirus*)					
Kept	82	101	18	5	206
Released	290	569	130	15	1004
Total caught	372	670	148	20	1210
Catfish (*Ictalurus punctatus* or *Ameirus nebulosus*)					
Kept	0	1	0	0	1
Released	0	0	0	4	4
Total caught	0	1	0	4	5
Black Crappie (*Pomoxis nigromaculatus*)					
Kept	0	0	0	0	0
Released	0	2	0	2	4
Total caught	0	2	0	2	4
Warmouth (*Lepomis gulosus*)					
Kept	0	5	0	0	5
Released	2	3	0	20	25
Total caught	2	8	0	20	30
Total catch	**385**	**791**	**198**	**49**	**1423**

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

Appendix VI. Annual occupancy of wood duck (*Aix sponsa*) nest boxes and nest production (2006-2009) by pond on the Carter Tract of Econfina Creek WMA, Washington County, Florida.

	Pond								
Year	Black	Deep Edge	Dry	Garret	Green	Little Deep Edge	Pine Log Creek	Warmouth	All Ponds
2006									
Boxes used				1	2	1	1		5
nests				1	2	1	2		6
2007									
Boxes used		2	1		3	1			7
nests		3	1		3	1			8
2008									
Boxes used			3		1				4
nests			4		1				5
2009									
Boxes used	4	1	7		3	1			16
nests	6	1	9		3	1			20

Appendix VII. List of bird species (n=110) identified on the Carter Tract of Econfina Creek WMA, as of June 2009.

Upland Game Birds
Mourning Dove *Zenaida macroura*
Northern Bobwhite *Colinus virginianus*
Wild Turkey *Meleagris gallopavo*

Waterfowl
American Coot *Fulica Americana*
Anhinga *Anhinga anhinga*
Blue-winged Teal *Anas discors*
Bufflehead *Bucephala albeola*
Common Moorhen *Gallinula chloropus*
Double-crested Cormorant *Phalacrocorax auritus*
Hooded Merganser *Lophodytes cucullatus*
Pied-billed Grebe *Podilymbus podiceps*
Ring-necked Duck *Aythya collaris*
Snow Goose *Chen caerulescens*
Wood Duck *Aix sponsa*

Wading Birds
Cattle Egret *Bubulcus ibis*
Great Blue Heron *Ardea herodias*
Great Egret *Ardea alba*
Greater Yellowlegs *Tringa melanoleuca*
Green Heron *Butorides virescens*
Lesser Yellowlegs *Tringa flavipes*
Little Blue Heron *Egretta caerulea*
Roseate Spoonbill *Platalea ajaja*
Sandhill Crane *Grus Canadensis*
Snowy Egret *Egretta thula*
Tricolored Heron *Egretta tricolor*
White Ibis *Eudocimus albus*
Wood Stork *Mycteria americana*

Raptors
American Kestrel *Falco sparverius*
Bald Eagle *Haliaeetus leucocephalus*
Barred Owl *Strix varia*
Cooper's Hawk *Accipiter cooperii*
Eastern Screech Owl *Megascops asio*
Great Horned Owl *Bubo virginianus*
Northern Harrier *Circus cyaneus*
Osprey *Pandion haliatus*
Red-shouldered Hawk *Buteo lineatus*
Red-tailed Hawk *Buteo jamaicensis*
Sharp-shinned Hawk *Accipiter striatus*

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

Hummingbirds
Ruby-throated Hummingbird *Archilochus colubris*

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

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

Shore Birds
Common Snipe *Gallinago gallinago*
Least Tern *Sterna antillarum*

Other
Belted Kingfisher *Ceryle alcyon*
Chimney Swift *Chaetura pelagica*
Common Ground Dove *Columbina passerina*
Yellow-billed Cuckoo *Coccyzus americanus*

Appendix VII (continued)

Passerines

American Crow *Corvus brachyrhynchos*
American Robin *Turdus migratorius*
Barn Swallow *Hirundo rustica*
Black and White Warbler *Mniotilta varia*
Blue Grosbeak *Passerina caerulea*
Blue Jay *Cyanocitta cristata*
Blue-gray Gnatcatcher *Polioptila caerulea*
Brown Thrasher *Toxostoma rufum*
Brown-headed Cowbird *Molothrus ater*
Carolina Chickadee *Poecile carolinensis*
Carolina Wren *Thryothorus ludovicianus*
Cedar Waxwing *Bombycilla cedrorum*
Chipping Sparrow *Spizella passerine*
Common Grackle *Quiscalus quiscula*
Common Yellowthroat *Geothlypis trichas*
Dark-eyed Junco *Junco hyemalis*
Eastern Bluebird *Sialia sialis*
Eastern Kingbird *Tyrannus tyrannus*
Eastern Meadowlark *Sturnella magna*
Eastern Phoebe *Sayornis phoebe*
Eastern Towhee *Pipilo erythrophthalmus*
Field Sparrow *Spizella pusilla*
Fish Crow *Corvus ossifragus*
Golden-crowned Kinglet *Regulus satrapa*
Gray Catbird *Dumetella carolinensis*
Great Crested Flycatcher *Myiarchus crinitus*
Hermit Thrush *Catharus guttatus*
Hooded Warbler *Wilsonia citrine*
Indigo Bunting *Passerina cyanea*
Loggerhead Shrike *Lanius ludovicianus*
Marsh Wren *Cistothorus palustris*
Northern Cardinal *Cardinalis cardinalis*
Northern Mockingbird *Mimus polyglottos*
Northern Parula *Parula Americana*
Northern Rough-winged Swallow *Stelgidopteryx serripennis*
Orange-crowned Warbler *Vermivora celata*
Orchard Oriole *Icterus spurious*
Palm Warbler *Dendroica palmarum*
Pine Warbler *Dendroica pinus*
Prothonotary Warbler *Protonotaria citrea*
Purple Martin *Progne subis*
Red-eyed Vireo *Vireo olivaceus*
Red-winged Blackbird *Agelaius phoeniceus*
Ruby-crowned Kinglet *Regulus calendula*

Passerines (cont.)

Scarlet Tanager *Piranga olivacea*
Summer Tanager *Piranga rubra*
Tree Swallow *Tachycineta bicolor*
Tufted Titmouse *Baeolophus bicolor*
White-crowned Sparrow *Zonotrichia leucophrys*
White-eyed Vireo *Vireo griseus*
White-throated Sparrow *Zonotrichia albicollis*
Yellow-rumped Warbler *Dendroica coronata*
Yellow-throated Warbler *Dendroica dominica*

Appendix VIII. Comprehensive list of herpetofaunal species (n=33) documented on the Carter Tract of Econfina Creek WMA, 2005 – present.

Salamanders
Mole salamander *Ambystoma talpoideum*
Central newt *Notophthalmus viridescens louisianensis*
Dwarf salamander *Eurycea quadridigitata*
Slimy salamander *Plethodon glutinosus*
Lesser siren *Siren intermedia intermedia*
Greater siren *Siren lacertina*

Anurans
Eastern spadefoot toad *Scaphiopus holbrooki*
Bullfrog *Rana catesbeiana*
Pig frog *Rana grylio*
Southern leopard frog *Rana sphenocephala*
Eastern narrowmouth toad *Gastrophryne carolinensis*
Southern chorus frog *Pseudacris nigrita nigrita*
Southern toad *Bufo terrestris*
Florida cricket frog *Acris gryllus dorsalis*
Green treefrog *Hyla cinerea*

Crocodilians
American alligator Alligator mississippiensis

Turtles
Florida cooter Pseudemys floridana floridana
Eastern chicken turtle Deirochelys reticularia reticularia
Three-toed Box turtle Terrapene carolina triunguis
Gopher tortoise Gopherus polyphemus
Florida softshell Apalone ferox

Lizards
Green anole *Anolis carolinensis*
Eastern fence lizard *Sceloporus undulatus undulatus*
Six-lined racerunner *Cnemidophorus sexlineatus sexlineatus*
Southeastern five-lined skink *Eumeces inexpectatus*
Ground skink *Scincella lateralis*

Snakes
Southern black racer *Coluber constrictor priapus*
Banded water snake *Nerodia fasciata fasciata*
Rough green snake *Opheodrys aestivus*
Eastern garter snake *Thamnophis sirtalis sirtalis*
Cottonmouth *Agkistrodon piscivorous*
Eastern diamondback rattlesnake *Crotalus adamanteus*
Dusky pigmy rattlesnake *Sistrurus miliarius barbouri*

Appendix IX. 2008-2009 Annual Work Plan for the Carter Tract of Econfina Creek Wildlife Management Area.

FY 2008-09
Project 7281 - NW FLORIDA WATER MANAGEMENT DISTRICT LANDS

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
Species 9100 - All freshwater fish							
Activity - 140	Report writing/editing/manuscript preparation						
	3.00	$597.30	$39.72	$0.00	$637.02	0	Prepare fisheries reports and proposals as needed. NFA.
Activity - 221	Animal surveys						
	12.00	$2,389.20	$158.88	$900.00	$3,448.08	0	Conduct sampling of fish populations via electroshocking, gill netting, block netting, and/or using rotenone as needed to assess population demographics (101920/19 = $400 for supplies and equipment) (100340/29 = $500 for supplies and equipment). NFA.
Activity - 250	Monitoring and assessments						
	10.00	$1,991.00	$132.40	$200.00	$2,323.40	0	Population monitoring and assessment of aquatic resources. Comprehensive sportfish population assessment (101920/19 = $200 misc. materials and supplies). NFA.
Activity - 287	Stocking enhancements/population augmentation						
	2.00	$398.20	$26.48	$0.00	$424.68	0	Restocking of native fish into selected water bodies as needed. NFA.
Activity - 320	Outreach and education						
	2.00	$398.20	$26.48	$0.00	$424.68	0	Coordinate and/or administer special fishing events such as kids fishing days or stakeholder committee events.

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
							NFA.
Activity - 342	Public use administration (non-hunting)						
	3.00	$597.30	$39.72	$26,550.00	$27,187.02	0	Conduct creel surveys at check stations. Administer public fishing events (100340/29 = $26,050 for OPS check station operators) (100340/29 = $500 equipment, materials and supplies). NFA.
Species 9100 Total	32.00	$6,371.20	$423.68	$27,650.00	$34,444.88		
Species 9200 - All wildlife							
Activity - 100	Administration						
	3.00	$597.30	$39.72	$0.00	$637.02	0	General supervisory, clerical and administrative duties.
Activity - 101	Project inspection						
	9.00	$1,791.90	$119.16	$0.00	$1,911.06	0	Inspect area projects and activities. Field orientation of land boundaries, features and habitats.
Activity - 103	Meetings						
	10.00	$1,991.00	$132.40	$1,000.00	$3,123.40	0	Attend landowner, cooperator, scientific and agency meetings and training (101920/19 = $1,000 travel, per diem and registration fees).
Activity - 140	Report writing/editing/manuscript preparation						
	7.00	$1,393.70	$92.68	$1,000.00	$2,486.38	0	Prepare annual and wildlife management reports and proposals as needed (100340/29 = $1,000 for copies and binding).
Activity - 150	Personnel management						
	5.00	$995.50	$66.20	$27,374.00	$28,435.70	0	Supervise volunteer activities. Recruit, hire and supervise

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
							OPS. (101920/19 = $26,874 for OPS Field Technician) (100340/29 = $500 equipment, materials and supplies).
Activity - 182	Data management						
	6.00	$1,194.60	$79.44	$2,000.00	$3,274.04	0	Digitize habitat features for use in GIS database. Incorporate all data into GIS database. Analyze and summarize WMA databases and pertinent information (100340/29 = $2,000 misc. materials, equipment and supplies).
Activity - 200	Resource Management						
	5.00	$995.50	$66.20	$2,000.00	$3,061.70	0	Routine planning, paperwork, purchases and correspondences dealing with daily operations of the WMA (100340/29 = $2,000 office supplies, custodial materials and supplies).
Activity - 204	Resource planning						
	10.00	$1,991.00	$132.40	$2,500.00	$4,623.40	0	Coordination of work projects related to management activities. Prepare written work plans and proposals (100340/29 = $2,500 equipment, materials and supplies).
Activity - 276	Commission rule development and review						
	1.00	$199.10	$13.24	$0.00	$212.34	0	Develop and submit area rule changes, includes preparation, review, advertisement, promulgation and publishing. NFA.
Activity - 281	Other resource management? (was Technical assistance)						

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
	5.00	$995.50	$66.20	$0.00	$1,061.70	0	Provide technical information and assistance to cooperators or other state agencies regarding wildlife management and habitat.
Activity - 294	Program coordination and implementation						
	5.00	$995.50	$66.20	$0.00	$1,061.70	0	Intra and interagency coordination.
Activity - 312	Informational signs						
	3.00	$597.30	$39.72	$500.00	$1,137.02	0	Erect and maintain informational signs and kiosks as needed (100340/29 = $500 for materials and supplies).
Activity - 320	Outreach and education						
	5.00	$995.50	$66.20	$500.00	$1,561.70	0	Make wildlife management presentations to elementary schools and general public (100340/29 = $500 misc. materials and supplies).
Activity - 350	Customer service support						
	5.00	$995.50	$66.20	$0.00	$1,061.70	0	Provide information to callers regarding fish and wildlife-based recreation opportunities and area regulations.
Activity - 920	FEM -- buildings/structures						
	5.00	$995.50	$66.20	$2,000.00	$3,061.70	1	Maintain and repair area office as needed (100340/29 = $2,000 utilities, custodial supplies and materials).
Activity - 923	FEM -- vehicles/equipment						
	3.00	$597.30	$39.72	$4,500.00	$5,137.02	0	Repair and maintain vehicles, boats, ATVs and associated equipment (100340/29 = $4,500 repairs, parts and

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
							supplies).
Activity - 926	FEM -- roads/bridges						
	2.00	$398.20	$26.48	$0.00	$424.68	0	Make minor repairs to access roads as needed.
Activity - 928	FEM -- fences						
	1.00	$199.10	$13.24	$0.00	$212.34	0	Maintain and erect gates and fences as needed on access roads and boundaries.
Species 9200 Total	90.00	$17,919.00	$1,191.60	$43,374.00	$62,484.60		
Species 9210 - Game wildlife							
Activity - 140	Report writing/editing/manuscript preparation						
	3.00	$597.30	$39.72	$0.00	$637.02	0	Prepare deer and game management recommendations and harvest reports as needed.
Activity - 182	Data management						
	5.00	$995.50	$66.20	$0.00	$1,061.70	0	Analyze data collected from biological samples from harvested game, surveys and inventories.
Activity - 221	Animal surveys						
	11.00	$2,190.10	$145.64	$500.00	$2,835.74	0	Conduct deer surveys and other game surveys as needed (101920/19 = $500 survey equipment, materials and supplies).
Activity - 285	Nest structures						
	10.00	$1,991.00	$132.40	$1,000.00	$3,123.40	0	Install and maintain wood duck nest boxes (100340/29 = $1,000 misc. materials and supplies).
Activity - 295	Biological data collection, analysis, and reporting						
	10.00	$1,991.00	$132.40	$500.00	$2,623.40	0	Collect biological data and samples from harvested game

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
							at check station (100340/29 = $500 misc. materials and supplies).
Activity - 341	Public use administration (hunting)						
	12.00	$2,389.20	$158.88	$2,490.60	$5,038.68	0	Review area hunt maps and brochures. Compile weekly harvest reports and hunter pressure. Administer public hunts (101920/19 = $2,490.60 for supplies, equipment and materials for operating check station).
Species 9210 Total	51.00	$10,154.10	$675.24	$4,490.60	$15,319.94		
Species 9240 - Nongame wildlife							
Activity - 140	Report writing/editing/manuscript preparation						
	2.00	$398.20	$26.48	$0.00	$424.68	0	Prepare herpetofauna survey progress reports. NFA.
Activity - 221	Animal surveys						
	18.00	$3,583.80	$238.32	$1,500.00	$5,322.12	0	Conduct wading bird surveys and monitoring. Conduct herpetofauna surveys and monitoring. Install and monitor drift fence arrays (101920/19 = $500 misc. materials and supplies) (100340/29 = $1,000 for supplies and equipment). NFA.
Species 9240 Total	20.00	$3,982.00	$264.80	$1,500.00	$5,746.80		
Species 9280 - All threatened and endangered wildlife							
Activity - 140	Report writing/editing/manuscript preparation						
	2.00	$398.20	$26.48	$0.00	$424.68	0	Prepare gopher tortoise survey and monitoring progress report. NFA.
Activity - 182	Data management						

	Man Days	Salary	FuelCost	Other	Total	Units	Accomplishments
	2.00	$398.20	$26.48	$0.00	$424.68	0	Analyze and summarize gopher tortoise survey data. NFA.
Activity - 221	Animal surveys						
	13.00	$2,588.30	$172.12	$2,000.00	$4,760.42	0	Coordinate and conduct gopher tortoise survey and monitoring (101920/19 = $1,000 misc. materials and supplies) (100340/29 = $1,000 for supplies and equipment). NFA.
Species 9280 Total	17.00	$3,384.70	$225.08	$2,000.00	$5,609.78		
Project 7281 Total	210.00	$41,811.00	$2,780.40	$79,014.60	$123,606.00		

ORG - Category Breakdown

ORG	EO	Category	Total
77352030100	19	101920	$32,964.60
77352030100	29	100340	$46,050.00