



Florida Fish and Wildlife Conservation Commission

Florida Waterfowl Permit 2018-19 Annual Report

Florida Waterfowl Permit

Section 379.354(8)(a)(i), *Florida Statutes*, establishes a \$5 fee for an annual Florida waterfowl permit for a resident or nonresident to take wild ducks or geese within the state or its coastal waters. Revenue generated from the sale of waterfowl permits or that pro rata portion of any license that includes waterfowl hunting privileges provided for in this paragraph shall be used for conservation, research, and management of waterfowl; for the development, restoration, maintenance, and preservation of wetlands within the state; or to promote the cultural heritage of hunting. Furthermore, the Commission shall prepare an annual report documenting the use of funds generated and shall submit the report to the Governor, the Speaker of the House of Representatives, and the President of the Senate no later than September 1 of each year.

1. Executive Summary

2. Introduction

3. Population Monitoring and Habitat Management

- Resident Species
- Migratory Waterfowl

4. Program Direction and Needs

5. Appendices



Executive Summary

Florida provides temporary refuge to more than 20 species of migratory waterfowl each year. Four species of ducks (mottled ducks, wood ducks, black-bellied whistling ducks and fulvous whistling ducks) regularly nest in the state during the spring and summer. Waterfowl provide significant economic and recreational benefits to the citizens of Florida. This report documents efforts by the Florida Fish and Wildlife Conservation Commission (FWC) to manage Florida's waterfowl during Fiscal Year (FY) 2018-19.

Waterfowl management activities fall into two categories: population monitoring and habitat management. FWC's Waterfowl and Small Game Management Program (WSGMP) coordinated the banding of 508 mottled ducks and 270 wood ducks during 2018. All species of ducks were captured at trap sites, by night-lighting or by use of a pneumatic cannon net. Reports of band encounters allow FWC to measure hunting pressure on these ducks. Hunters can visit www.reportband.gov to report band information.

A main concern for mottled duck conservation is hybridization between introduced domestic mallards and mottled ducks. The mixing of mottled duck and mallard genes could lead to the loss of Florida's mottled duck as a distinct species. The WSGMP continued to devote staff and funding resources to this issue in FY 2018-19.

Providing appropriate waterfowl hunting opportunities for Florida's citizens is a primary mission of the WSGMP. Hunting seasons are established in Florida to maximize hunter opportunity within the constraints of sound resource stewardship and guidelines mandated by the United States Fish and Wildlife Service (USFWS). WSGMP participated in the national process for setting waterfowl hunting regulations and developed recommendations for the FWC Commissioners to consider in May 2019 concerning appropriate regulations in Florida.

Habitat management allows FWC to improve the habitat quality and quantity necessary to support Florida's waterfowl and other wetland wildlife. Waterfowl biologists provided technical assistance on wetland conservation and management issues around the state throughout FY 2018-19. FWC worked with many agencies, organizations, and private landowners to cooperatively manage wetlands.



Introduction

Waterfowl are among the most recognized and economically important wild animals in North America. In Florida, hunters, naturalists and bird watchers spend countless hours enjoying these birds. FWC's Waterfowl and Small Game Management Program (WSGMP) is charged with ensuring the continued well-being of these popular birds for the sustained use and enjoyment of Florida's citizens.

The passage of the Florida Duck Stamp Act in 1979, which resulted from sportsmen's support and efforts, provided a mechanism for funding waterfowl research and management. This act requires that all Florida waterfowl hunters purchase a waterfowl permit. The fee for a waterfowl permit is \$5.00 for both resident and nonresident hunters. The law stipulates that revenue generated from the sale of waterfowl permits or the pro rata portion of any license that includes waterfowl hunting privileges, shall be used for the conservation, research, and management of waterfowl or to promote the cultural heritage of hunting. The law also allows FWC to expend up to 10% of permit revenues to promote hunting and sport-fishing activities with an emphasis on youth participation.

During FY 2018-19, 11,070 waterfowl permits (including 98 five-year permits) were sold. Sportsman's licenses also include a waterfowl permit, and 73,079 of these licenses were sold. Revenue from waterfowl permits and sportsman's licenses totaled \$254,580, of which \$7,498 was set aside to promote youth hunting programs in Florida (e.g. The Beau Turner Youth Conservation Center, Florida Youth Hunting Program, and Ocala Youth Conservation Camp). The remaining permit revenue (\$247,082) and additional revenue from the State Game Trust Fund (primarily from license fees) supported the \$489,922 that was expended on the conservation, research, and management of waterfowl.

During FY 2018-19, the WSGMP continued its efforts to increase public awareness of Florida's waterfowl resources through the agency's website (www.MyFWC.com/duck). The website provides information on Florida's resident and migrant waterfowl, habitat conservation and waterfowl hunting, as well as links to other sites of interest to waterfowl enthusiasts.

The WSGMP worked cooperatively during the year with several important stakeholder groups, including Ducks Unlimited and United Waterfowlers of Florida. WSGMP activities with these groups included coordinating cooperative projects and providing technical assistance on issues of mutual interest.

The Waterfowl Management Strategic Plan (<http://www.myfwc.com/media/3073237/waterfowl-strategic-plan.pdf>), approved for implementation by the FWC Commissioners on February 6, 2008, continues to guide waterfowl management efforts. The plan has three goals: (1) conservation and enhancement of resident waterfowl populations and habitats; (2) leadership in the conservation and enhancement of continental waterfowl populations and habitats; and (3) recreational use and public support resulting in the enhancement and conservation of waterfowl populations and habitat. WSGMP plans to update the strategic plan in 2019-2020.

Florida wetlands support breeding (i.e., resident) and migrant (i.e., wintering) waterfowl, and FWC management targets the populations and habitats of these birds, which are discussed below.



Population Monitoring and Habitat Management

Population monitoring allows the agency to track the number and species of ducks present in the state over time. Annual population estimates, and other population parameters, help in managing maximum hunting opportunities while sustaining healthy waterfowl populations. Accurate population information provides a basis for directing waterfowl conservation efforts where they are most needed and effective.

Habitat management helps to provide the greatest quantity and highest quality habitat possible to support Florida's waterfowl and other wetland-dependent wildlife. Without a large habitat base that includes breeding, migration, and wintering areas, waterfowl populations will decline. Habitat management and conservation have importance beyond their value to waterfowl because wetlands benefit many other plant and wildlife species.

Two external programs enhance FWC's ability to conserve and manage wetland habitat for both resident and migratory waterfowl. Ducks Unlimited provides matching money to help states acquire and enhance wetland habitat. FWC's matching funds for these projects in Florida are budgeted through the Legislature. Since this program's inception, FWC's projects completed by partnering with Ducks Unlimited have helped restore and enhance more than 29,000 acres of wetland habitat in Florida. Florida is part of the Atlantic Coast Joint Venture (ACJV) of the North American Waterfowl Management Plan. Joint ventures create partnerships to plan, fund, and implement habitat projects within their respective geographic areas. The ACJV is one of 22 habitat joint venture partnerships in the continental United States. The ACJV brings together public and private agencies, conservation groups, and other partners focused on the conservation of habitat for native birds in the Atlantic Flyway of the United States from Maine, south to Puerto Rico. The WSGMP provides input on ACJV activities in Florida, which provides substantial benefits to Florida's fish and wildlife resources.

Resident Species

The four species of ducks that regularly breed in Florida are the mottled duck, wood duck, fulvous whistling duck, and black-bellied whistling duck. All four of these species nest during spring and summer. Mottled ducks remain in Florida throughout the year. Many wood ducks, fulvous whistling ducks, and black-bellied whistling ducks remain year-round as well, but some of these birds migrate from Florida for part of the year.

Florida Mottled Duck

Current management for mottled ducks is guided by FWC's, "A Conservation Plan for the Florida Mottled Duck" (<http://www.myfwc.com/media/3073234/modu-conservation-plan.pdf>). The Conservation Plan was revised and approved in 2011 to focus on the long-term (20+ years) management of mottled ducks. A companion Action Plan guides short-term (5 years) management and prioritizes tasks based on immediate conservation needs, funding for research and implementation, and importance relative to competing objectives of the WSGMP. The Conservation Plan serves as a long-term, general roadmap to Florida mottled duck conservation, while the Action Plan will provide details of the routes taken to achieve the goal.

The Florida mottled duck is one of approximately 25 closely-related, mallard-type species worldwide. This subspecies (*Anas fulvigula fulvigula*) occurs only in Florida and does not migrate from the state; therefore, management and protection of this bird is primarily the responsibility of the State of Florida. The Florida mottled duck is sought by hunters because of its large size and table fare. Florida hunters harvested an estimated 7,140 mottled ducks during the 2017-18 hunting season, which accounted for

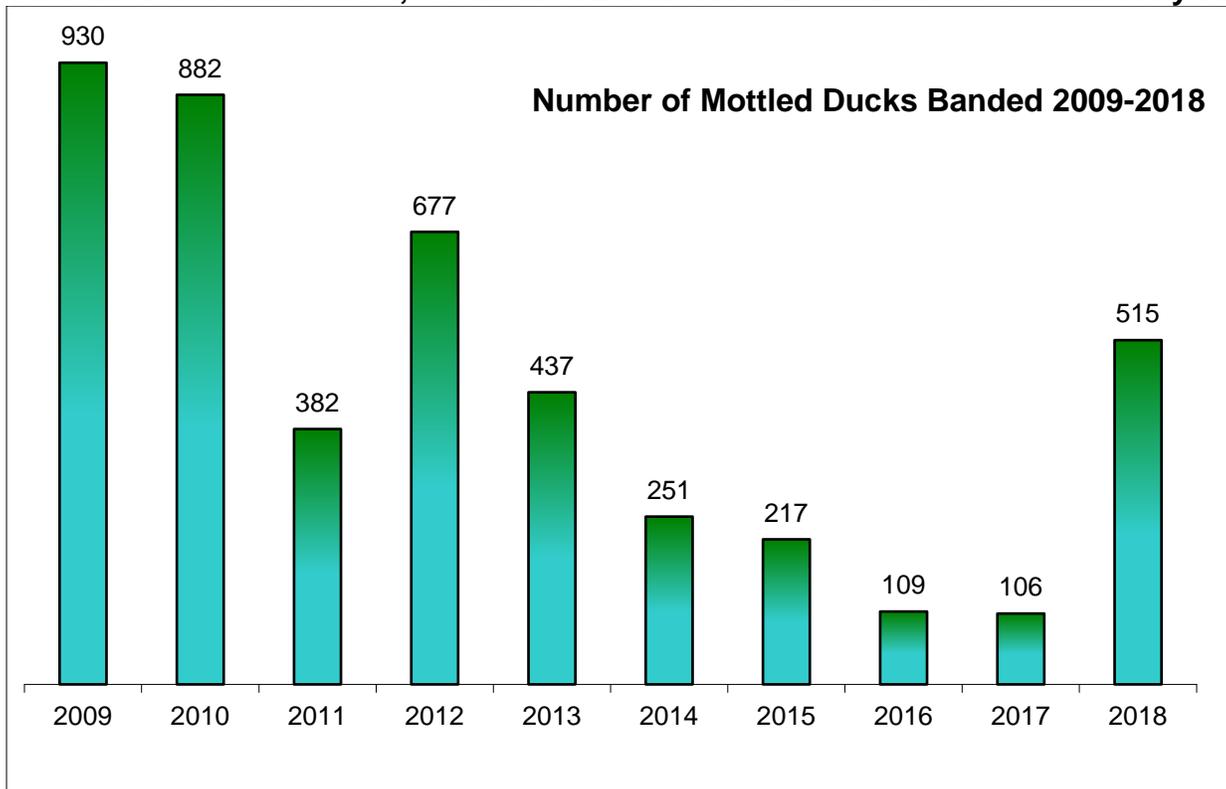


approximately 4.9% of the statewide harvest of ducks, ranking them fifth in Florida's overall harvest. FWC remains concerned about the long-term status of Florida's mottled duck population throughout its range because low reproduction and survival have been documented, important habitat in Florida continues to be altered or lost, and hybridization with feral mallard ducks continues. Because of these concerns, the conservative daily bag limit for the harvest of this species remains at one.

Mottled Duck Population Monitoring and Management

Annual mottled duck population monitoring includes banding and a March aerial survey of the breeding population. During the summer of 2018, 515 mottled ducks were captured and marked with leg bands. Over the past ten years, 4,506 mottled ducks have been banded (see exhibit 1). Periodically, staff analyzes band recovery data to estimate annual survival rates, the proportion of the population that is harvested, and to monitor movements.

**Exhibit 1
Over the Past Ten Years 4,506 Mottled Ducks Have Been Banded Statewide by FWC**



Source: Data collected by FWC's Waterfowl and Small Game Management Program.

The March breeding population survey began in 1985; from 2003 to 2009, FWC waterfowl biologists evaluated a new point-transect survey method to obtain population estimates. The survey has not been conducted since 2009. Prior survey results indicated the mottled duck population continued to be relatively stable; however, the proportion of mottled duck/mallard hybrids in the population is unknown. Without this key piece of information, population estimates will continue to be suspect, as changes in status or trends may be masked or even driven by hybrids. From 2003 to 2009, using existing resources and partner funding from the U.S. Fish and Wildlife Service (USFWS), FWC was able to fund the population survey, but was unable to fund additional work to develop techniques to identify hybrids. A shift in priorities was needed so staff could focus on and fund efforts to develop techniques to identify hybrids and to assess the proportion



and distribution of hybrids in the population. Therefore, in 2010, the annual survey was discontinued so funds could be used for hybridization work. The data collection portion of the mottled duck genetic assessment project was completed in March 2019. Data from this project is now being analyzed and a report, including a correction factor for the presence of mallards and hybrids in survey data, should be completed by early 2020. Even so, it is not known when a population survey will again be conducted. A research proposal for a new small unmanned aerial systems (sUAS) based survey was prepared and accepted through FWC's Fish and Wildlife Research Institute's approval protocol. This new survey development work was to be initiated March 2020 in anticipation of FWC being able to legally use sUAS. However, the amendment to the existing law, which prohibits FWC personnel from using sUAS, did not pass during the 2019 legislative session. Thus, a population survey for mottled ducks is again not forthcoming. Discussions about funding of mottled duck monitoring and conservation efforts both within FWC and with entities such as the USFWS and Ducks Unlimited, which are concerned with the conservation of the Florida mottled duck, remain a priority during the next fiscal year.

Mottled Duck Conservation

FWC's plan for addressing the mottled duck/mallard hybridization problem has three objectives: (1) develop genetic and plumage-based techniques to identify pure mottled ducks using dichotomous keys, (2) assess the proportion and distribution of hybrids in the mottled duck population, and (3) identify and implement mechanisms to minimize the infusion through cross-breeding of mallard genes (introgression) into the mottled duck population.^{1,2,3}

Efforts from previous year's development and validation of plumage keys that effectively differentiate mottled ducks from mallards and their hybrids have been completed. Plumage keys were finalized, and results of this work have been published in the Wildlife Society Bulletin. A pilot study was conducted during FY 2015-16 testing the protocols and methodologies for the assessment of the proportion and distribution of hybrids in the mottled duck population and the full study was implemented during FY 2016-17. The assessment involves using the plumage keys to assess a sample of ducks from throughout the range of the Florida mottled duck. Capturing the necessary number of ducks to inspect plumage in-hand is not feasible. Instead, staff developed and used high-resolution digital photography to obtain multiple high-resolution images of each duck sampled and identified to species using the plumage keys. Data collection was completed in March 2019. This data is now being analyzed and the results will allow FWC to determine the proportion of the brown duck population (i.e., a complex of mottled ducks, mallards, and hybrids) made up of mottled ducks. A final report on this project should be available by early 2020. Data from this work will allow FWC to correct future mottled duck survey data for the presence of mallards and hybrids and define areas or zones of moderate to high hybridization. The latter information is important if FWC is to institute meaningful conservation actions to minimize mallard genetic introgression.

Periodic assessment of the survival and movement of mottled ducks in Florida is important to the conservation of this subspecies. FWC initiated a mottled duck band recovery analysis in 2017 with the goal of assessing geographic, demographic, and temporal variation in survival of Florida mottled ducks. For the first time, such an analysis will incorporate live recapture data, not just data from dead recoveries. Specific objectives for this project are to: 1) estimate annual survival and harvest rates among banding regions (north and south), and sex, age and year during 2000-2013 and 2) evaluate model selection and parameter estimates between dead only models and live-dead models, which include banding recapture data. The focus of our analyses is to aid management and conservation actions for mottled ducks in Florida by providing information and recommendations to aid in future monitoring and assessment of this

¹ Dichotomous keys - a series of pairs of descriptions which are used to classify a group of living things by making choices between the sets of traits and characters described in each pair.

² Plumage - the feathers of a bird.

³ Introgression - the entry or introduction of a gene from one gene complex into another.



population. This work is scheduled to be completed by 2020.

Wood Duck

Wood ducks are perhaps the most colorful duck in North America and are admired by people throughout the state. The most abundant resident duck species in Florida, wood ducks also are highly valued by Florida hunters. Wood ducks ranked third in hunters' bags and made up approximately 17.4% of the total duck harvest in Florida in 2017-18. The USFWS estimated 24,875 wood ducks were harvested in Florida during the 2017-18 regular duck hunting season.

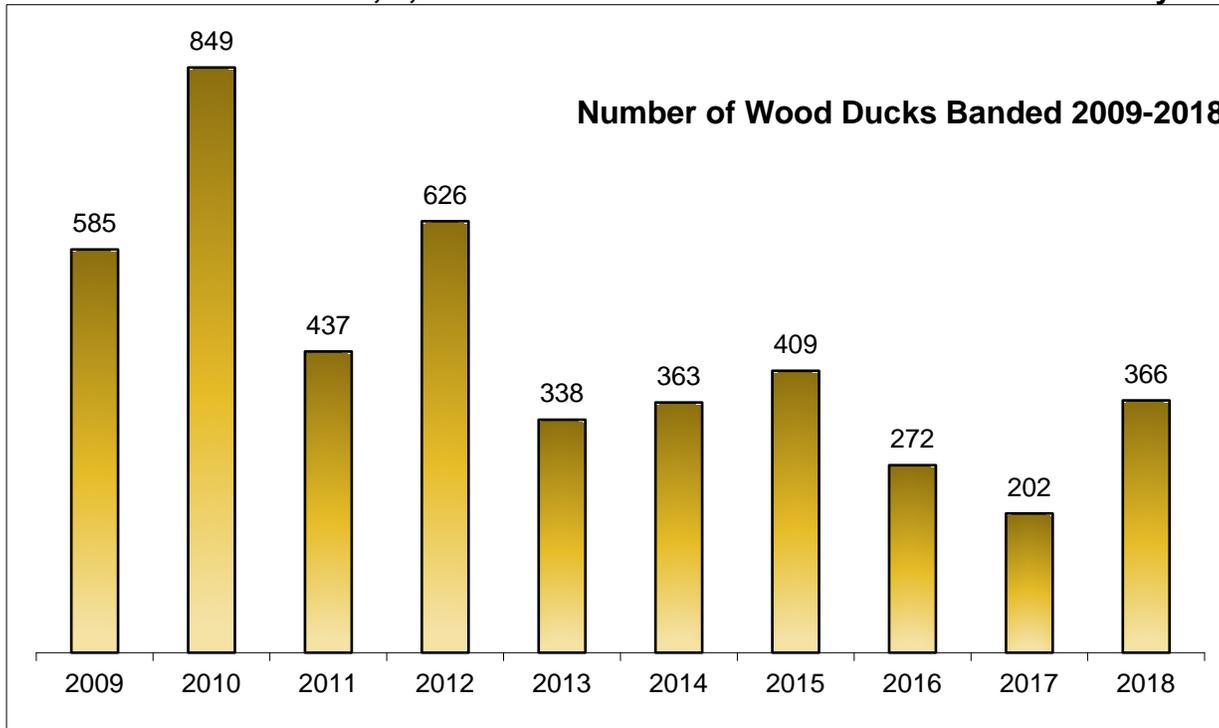
Wood Duck Population Management

Wood ducks inhabit wooded, brushy, or other vegetated wetland areas. Unlike other duck species, wood ducks cannot be counted reliably during aerial surveys. Consequently, populations have been monitored through banding, experimental monitoring of nest boxes, and harvest surveys. These efforts have been critical to continuing the special September duck season for Florida's hunters.

In 2018, WSGMP coordinated the banding of 366 wood ducks prior to the hunting season. Over the past 10 years, 4,447 wood ducks have been banded (see exhibit 2). Previous analysis of banding data indicated that a high proportion of the wood ducks banded during the summer in Florida are harvested by hunters within the state. This information supports increased opportunity for hunting Florida's wood ducks during the September duck season.

Exhibit 2

Over the Past Ten Years, 4,447 Wood Ducks Have Been Banded Statewide by FWC



Source: Data collected by FWC's Waterfowl and Small Game Management Program.



Wood Duck Habitat Management

Wood ducks nest in cavities of trees. Many areas with adequate brood-rearing habitat do not contain trees large enough to have suitable nesting cavities. Fortunately, man-made nest boxes can provide nest sites. FWC staff maintained nest boxes existing on Wildlife Management Areas (WMAs) and other public water bodies in FY 2018-19. WSGMP personnel provided technical assistance to private citizens, government agencies, and groups such as local Ducks Unlimited chapters and Boy Scout troops to erect and maintain nest boxes.

Fulvous and Black-bellied Whistling Ducks

Whistling ducks are more closely related to geese than to ducks. Fulvous whistling ducks have separate populations in Asia, Africa, Madagascar, South America, and North America. Until about 50 years ago, neither fulvous whistling ducks nor black-bellied whistling ducks nested in Florida. Today, nesting fulvous whistling ducks are abundant in South Florida, primarily in habitat provided by rice and other flooded agricultural areas, which provides desirable water and nesting cover (habitat).

Black-bellied whistling ducks have slowly expanded northward and now nest throughout Florida. Banding data indicates that this species moves north-south from Florida to the Carolinas and beyond, but they retreat south when cooler weather appears in fall. These noisy ducks are gregarious and travel in family groups, often being heard well before being seen.

Migratory Waterfowl

This large group includes waterfowl that breed in northern North America and migrate to Florida during the fall and winter. Approximately 20 species of waterfowl regularly spend the winter in Florida, and migratory ducks constitute the majority of all waterfowl harvested by Florida hunters. The estimated duck harvest in Florida during the 2017-18 hunting season totaled 143,300 birds. This is a 9% decrease from the 2016-17 season estimated harvest (165,500) and somewhat lower than the 2001-10 average of 172,890.

Habitat in wintering areas such as Florida is important in the annual cycle of migratory waterfowl. Habitat conditions during this non-breeding period influence survival and subsequent reproduction. Ducks must maintain or improve their body condition during winter to avoid mortality during the spring migration and to meet the physiological demands of the nesting season (i.e., egg laying, incubation). WSGMP devotes considerable resources to monitoring and managing these migrant birds and providing quality habitat.

Migratory Waterfowl Population Management

Ring-necked ducks are particularly important in Florida because they constitute a large proportion of the state's annual waterfowl harvest. A majority of the ring-necked ducks in the Atlantic Flyway spend the winter in Florida, and up to 60% of ring-necked ducks harvested in the Flyway are harvested in Florida. WSGMP provides funding for cooperative banding efforts in Canada, the primary breeding area for this species, and remains vigilant in encouraging Canadian waterfowl managers to continue banding ring-necked ducks on breeding grounds. These efforts are important for providing continued harvest opportunities for this species.

Providing waterfowl hunting opportunities for Florida's citizens is a primary mission of WSGMP. Hunting seasons are established in Florida to maximize hunter opportunity and sustainable use while working within the constraints mandated by USFWS. WSGMP develops recommendations for the FWC Commissioners concerning appropriate waterfowl hunting regulations in Florida. During FY 2013-14, staff worked in conjunction with other state and federal waterfowl biologists to increase teal harvest opportunities based



on a February 2013 assessment of the harvest potential for teal, which showed that harvest rates could be much higher. In response, the Atlantic Flyway Council proposed initiation of an experimental September teal season in Florida, Tennessee, and Kentucky, to be held in association with existing September wood duck and teal seasons. Four additional days of teal-only hunting were offered to Florida's hunters immediately following the special September wood duck and teal season. This additional hunting opportunity will occur for the next hunting season, culminating in September 2019. At that time Florida will recommend that these additional days continue based on the results of an evaluation that determined the additional days do not have a significant impact on non-target bird species.

Migratory Waterfowl Habitat Management

Florida has lost over 260,000 acres of freshwater, emergent wetlands since 1985 and additional losses continue today due to urbanization and agricultural expansion. This habitat type is essential for waterfowl. Waterfowl management staff provides technical assistance for managing, restoring, and enhancing waterfowl habitat to various agencies, groups, and individuals (see appendix 1). Not all technical assistance produces a tangible increase in waterfowl habitat, but this input does cause the welfare of wetlands and associated wildlife to be considered when resource management decisions are made.

FWC continued to work with several entities and private landowners during FY 2018-19 to evaluate numerous wetland projects and provide technical assistance. Entities included the Atlantic Coast Joint Venture, Florida's five Water Management Districts (WMDs), the USFWS, and numerous local and county governmental entities (see appendix 1).

Since 2010, FWC has partnered with United Waterfowlers of Florida to host an annual Waterfowl Summit that provides a forum for networking among agency staff, professionals, sportsmen, and other stakeholders. Invited speakers present the most current information on watershed and wetland science, updates on wetland restoration projects, and creative solutions that fit industry, agriculture, and the priorities of sportsmen and other stakeholders. It is hoped the Waterfowl Summit will identify new wetland restoration funding ideas and partnerships through discussion and awareness.

T. M. Goodwin Waterfowl Management Area

This 6,270-acre area in the upper St. Johns River Basin continues to be intensively managed by staff for waterfowl, providing important habitat for migrating, wintering, and resident waterfowl and other wetland-dependent wildlife. The area is comprised of two management units: T. M. Goodwin (Goodwin) and Broadmoor Marsh (Broadmoor), both of which were formerly intensive agricultural areas.

Prescribed fire, disking, roller chopping, and herbicide application are used on the area to maintain vegetation in an early succession stage (i.e., grasses and herbaceous plants), to control noxious and exotic vegetation, or reduce the height of existing vegetation to create a greater mixture of open water and vegetative cover after flooding. Water level manipulation, in conjunction with disturbance practices, supplies resident and migratory waterfowl with suitable habitat.

Waterfowl use of the impoundments is substantial and waterfowl hunting is in high demand on the area. Utilizing on-site check stations, it was documented that a total of 1662 hunters bagged 4344 ducks (an average of 2.6 ducks per hunter) during the 2018-19 waterfowl season. Three youth-only waterfowl hunts were hosted during the regular season. Two additional youth waterfowl hunts were held on February 3rd and 4th. These hunts included a variety of events targeted for youth hunters including overnight camping, hunter safety instruction, and meals provided by the United Waterfowlers of Florida. A total of 59 youths harvested 50 ducks and 9 coots (small to medium sized water birds) during these hunts. Snipe (wading bird) hunting is also permitted on the area, and 36 hunters bagged 73 snipe (an average of 2.02 snipe per hunter)



during the 2018-19 season. Other public use activities included observing waterfowl and other birds, biking, hiking, and fishing.

Program Direction and Needs

The Waterfowl and Small Game Management Program (WSGMP) has been in existence for more than 30 years. During this time, substantial contributions have been made to the knowledge and habitat base needed to manage and sustain waterfowl in Florida and internationally. Population monitoring efforts yield information necessary for management. Informing the public and the scientific community is an important part of the efforts to ensure the well-being of the waterfowl resource.

The challenge for the future is to continue population monitoring and management, while using up-to-date information to increase involvement in habitat issues. The biggest opportunity to reduce the hybridization threat to mottled ducks by feral mallards is through public education and communication about the issue. Efforts to conserve and manage mottled duck habitat are limited due to the need for additional scientific information on which to base sound recommendations. Coordinating activities between WSGMP and other entities involved in habitat and conservation issues will remain a priority. Continued funding of cooperative habitat projects with Ducks Unlimited programs remains essential. FWC continues to seek funding from external grants and other sources to expand management and monitoring efforts.



Appendices

Appendix 1.

List of entities that received technical assistance from FWC waterfowl personnel during FY 2018-19. In addition to this list, FWC provided this assistance to numerous private citizens.

Florida State Agencies

- South Florida Water Management District
- St. Johns River Water Management District

Other State or Provincial Agencies

- Georgia Department of Natural Resources

Federal Agencies

- U.S. Department of Agriculture--Wildlife Services
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- U.S. National Park Service
- National Aeronautics and Space Administration

Local Government

- Highlands County
- Lake County
- Leon County
- Osceola County
- Seminole County

Universities

- Clemson University, James C. Kennedy Waterfowl and Wetlands Conservation Center
- Louisiana State University
- Southern Illinois University, Cooperative Wildlife Research Lab
- University of California, Davis, Museum of Fish & Wildlife Biology
- University of Florida
- University of Georgia, Warnell School of Forestry and Natural Resources

Non-governmental Organizations

- Atlantic Coast Joint Venture
- Audubon Society
- Boy Scouts of America
- Conservation Foundation of the Gulf Coast
- Ducks Unlimited Inc., national, state chapter, and various local chapters
- Nemours Foundation
- United Waterfowlers - Florida, Inc.



Appendix 2.

List of waterfowl management reports and publications during FY 2018-19.

O'Connell, J. R. and McBride, K. M. 2019. White-Faced Whistling-Ducks (*Dendrocygna viduata*) Captured, Color-Marked, and Released in Broward County, Florida. Florida Field Naturalist 47(1):15-20.

