FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
WATERFOWL PERMIT PROGRAM
2012-2013 ANNUAL REPORT

EXECUTIVE SUMMARY

Florida is visited by more than 20 species of migratory waterfowl each year. Four species of ducks regularly nest in the State during 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 2012-2013.

Waterfowl management activities fall into two categories: population monitoring and habitat management. FWC's Waterfowl Management Program (WMP) coordinated the banding of 677 mottled ducks and 626 wood ducks during 2012. Mottled ducks and wood ducks were captured at bait sites and by night-lighting. Reports of band encounters allow FWC to measure hunting pressure on these ducks. Hunters can dial 1-800-327-BAND (inscribed on the band) or 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 FWC WMP devoted substantial effort to this issue in Fiscal Year 2012-2013.

Providing appropriate waterfowl hunting opportunities for Florida's citizens is a primary mission of the FWC WMP. Hunting seasons are established in Florida to maximize hunter opportunity within the constraints of sound resource stewardship and guidelines mandated by the U.S. Fish and Wildlife Service. The FWC WMP participated in the national process for setting waterfowl hunting regulations and developed recommendations for the FWC Commission to consider 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 Fiscal Year 2012-2013. 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. As human impact on the environment has increased, negative impacts on waterfowl populations also have increased. The FWC WMP is charged with ensuring the continued well-being of these popular birds.

The passage of the Florida Duck Stamp Act in 1979 created the FWC WMP and provided a mechanism for funding. This act requires that all Florida waterfowl hunters purchase a waterfowl permit. Beginning July 1, 2010, the Florida Legislature increased the

fee for a waterfowl permit from $3.00 to $5.00 for both resident and nonresident waterfowl 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 legislation also allows FWC to expend up to ten percent of permit revenues to promote hunting and sport fishing activities with an emphasis on youth participation.

During Fiscal Year 2012-2013, 11,238 waterfowl permits (including 174 five-year permits) were sold. Sportsman's licenses also include a waterfowl permit, and 48,775 of these licenses were sold. Revenue from waterfowl permits and sportsman's licenses totaled $195,521, of which $5,902 was set aside to promote youth hunting programs in Florida (e.g. Beau Turner Youth Conservation Center, Florida Youth Hunting Program, Ocala Youth Conservation Camp, etc). The remaining permit revenue ($189,619) and additional revenue from the State Game Trust Fund (primarily from license fees) supported the $587,404 that was expended on the conservation, research, and management of waterfowl during the fiscal year.

During Fiscal Year 2012-2013, the FWC WMP 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 FWC WMP worked cooperatively during the year with several important stakeholder groups, including Ducks Unlimited, Delta Waterfowl and United Waterfowlers of Florida. FWC WMP 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/2361049/duck_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.

Waterfowl management programs are best understood if grouped by species. 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 of ducks present in the State over time. Annual population estimates and other population parameters help in managing maximum hunting opportunity while sustaining healthy waterfowl populations.

Moreover, 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-dependant 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 16,000 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 fourteen habitat joint venture partnerships in the 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 FWC WMP 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 species nest during spring and summer. Mottled ducks remain in Florida throughout the year. Many wood ducks and fulvous whistling ducks remain year-round as well, but some of these birds migrate from Florida for part of the year. Black-bellied whistling ducks also occur in Florida year-round, but there is no information on seasonal movement patterns.

Florida's 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/2361387/duck_FL_MODU_Con_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 Waterfowl Management Program. 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 are primarily the responsibilities of the State of Florida. The Florida mottled duck is sought by

hunters because of its large size and desirable flavor. Florida hunters harvested an estimated 7,900 mottled ducks during the 2012-2013 hunting season, which accounted for approximately 3.0% of the statewide harvest of ducks. 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 2012, 677 mottled ducks were captured and marked with leg bands. Over the past ten years, 6,871 mottled ducks have been banded (Figure 1). Staff analyzes band recovery data to estimate annual survival rates and the proportion of the population that is harvested, as well as to monitor movements.

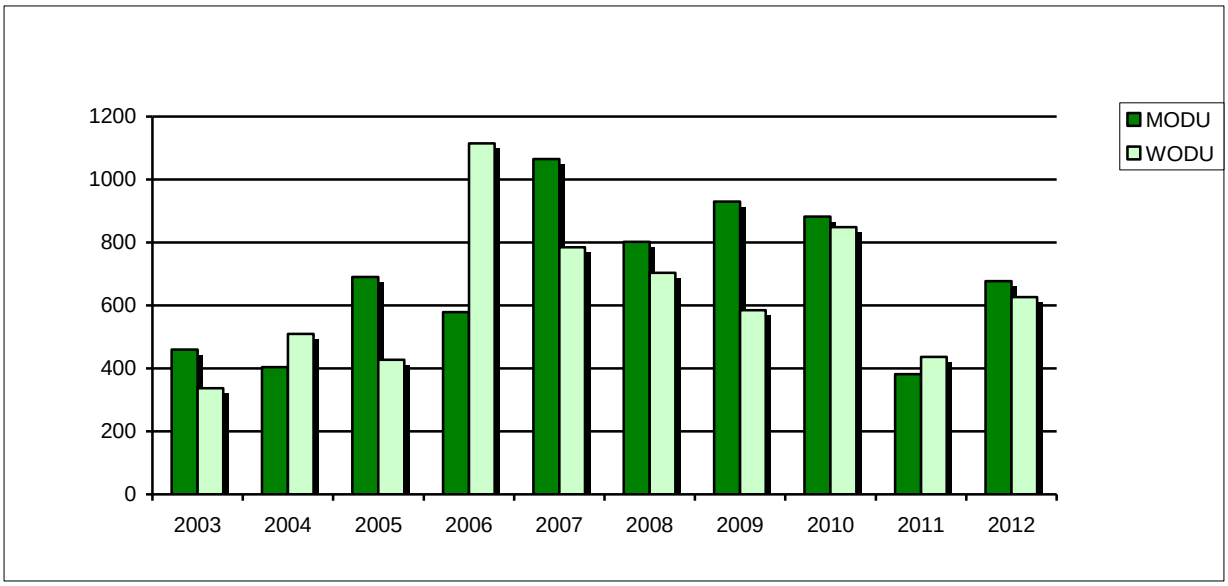

Figure 1. Numbers of Florida mottled ducks (MODU) and wood ducks (WODU) banded statewide by FWC staff, 2003-2012.

The March breeding population survey has been conducted since 1985; from 2003-2009, FWC waterfowl biologists evaluated a new survey method. Survey results indicated that 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 2003-2009, using existing resources and partner funding from the United States Fish and Wildlife Service, FWC was able to fund the population survey, but was unable to fund additional work to develop techniques to identify hybrids. A short-term (3-4 year) shift in priorities was needed so that 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, from 2010-2013, the annual survey was discontinued so that funds could be used for hybridization work. Staff is hopeful that the annual breeding population survey can be resumed in March 2014,

after gaining a better understanding of the impact hybrids may be having on survey results.

Mottled Duck Conservation – During Fiscal Year 2011-2012, FWC biologists completed research examining habitat use, survival, and movements of Florida mottled duck females in the south eastern and south central portion of their range including both urban and suburban areas. Staff continued data analysis and preparation of manuscripts during Fiscal Year 2012-2013. Data from this research will be used to characterize, in detail, the wetlands used by mottled ducks. This information is needed to improve wetland conservation and enhancement efforts within Florida. In 2012, FWC staff completed data collection from the wet season (May-October) and the dry season (November-April) and plan to collect additional wetland data during Fiscal Year 2013-2014.

FWC's plan for addressing the mallard/mottled duck hybridization problem has three objectives: (1) develop genetic and plumage-based techniques to identify pure mottled ducks (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 of mallard genes (introgression) into the mottled duck population by cross-breeding. This effort continued during Fiscal Year 2012-2013. Researchers from the Fish and Wildlife Research Institute's (FWRI) Avian Research Subsection, FWRI's genetics lab in St. Petersburg, and other FWC biologists continued refinement of dichotomous keys, used to separate mottled ducks from mallards and their hybrids. The main focus was collecting data for keys used to identify birds by plumage and collecting genetic material (tissue samples) from 300+ ducks from around the mottled duck range. These data will be used in the validation of the plumage keys. The purpose of this validation is to determine if the accuracy of the various keys holds up under "real world" application. Preliminary validation results suggest the keys perform well, but all data have not been incorporated. Validation of the keys is expected to be completed in fall 2013. If validated, these keys will provide a cost-effective tool to help assess the extent of the hybridization threat, and allow staff to then monitor progress toward minimizing mallard genetic introgression into the mottled duck population. Work on assessing the proportion of hybrids in the mottled duck population also was initiated during Fiscal Year 2012-2013 and will continue during 2013-2014. Once validation is complete, the plumage keys will be used to make an initial assessment of the make-up of the "brown duck" population (i.e., mottled ducks, mallards, and their hybrids) in Florida. FWC will use the keys to assess a sample of ducks from throughout the range of the Florida mottled duck. Capturing the necessary number of ducks to facilitate the inspection of plumage in-hand would not be feasible. Thus, FWC researchers and biologists began development of a remote method of inspecting the necessary feather groups on individual ducks. This method involves taking multiple high resolution images of each bird using a digital camera and super telephoto lens. In 2013-2014, FWC will continue to refine this technique and hope to begin using it to assess the make-up of the population in 2014.

An important part of the strategy for reducing hybridization is an education and communication program. The agency's efforts focus on maximizing public awareness of the issue. Strategies include reducing the sale and subsequent release of mallards and creating an awareness of the problem among stakeholders. In Fiscal Year 2012-2013, staff continued to develop and distribute informational material, make presentations to and contacts with groups and organizations, and coordinate media coverage. Staff continued to

work with FWC's Division of Law Enforcement to remind businesses selling ducks (e.g., feed stores, auctions) about mallard possession and sale regulations.

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 fourth in hunters' bags and made up approximately 5.5% of the total duck harvest in Florida in 2012-2013. The United States Fish and Wildlife Service estimated that 14,600 wood ducks were harvested in Florida during the 2012-2013 regular duck hunting season, which runs from November through January, though not all of the days in these months are open to duck hunting.

Wood Duck Population Management -- Wood ducks inhabit wooded, brushy, or other vegetated wetland areas. Therefore, 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 2012, the FWC WMP coordinated the banding of 626 wood ducks prior to the hunting season. Over the past 10 years, 6,375 wood ducks have been banded (Figure 1). Previous analysis of banding data indicated that a high proportion of 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.

Estimates of hunter effort and harvest are used to help determine whether the extra harvest allowed by the special September duck season in Florida is compatible with the well-being of Florida's wood duck population. Hunters harvested an estimated 600 wood ducks (down from a harvest of 1,600 in 2011) and 8,900 blue-winged teal ducks in Florida during this special season in 2012. There is no evidence to suggest that the September season negatively affected wood duck populations.

Wood Duck Habitat Management -- Wood ducks nest in cavities in 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 and other public water bodies. FWC WMP personnel provided technical assistance to private citizens, government agencies, and groups such as local Ducks Unlimited and Delta Waterfowl 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 40 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). In winter, many fly south,

probably to Cuba. Florida's black-bellied whistling duck population has increased dramatically in recent years, with reports of successful breeding throughout many areas of the State.

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 total estimated duck harvest in Florida during the 2012-2013 hunting season is 267,400 birds. This is a 12% increase from the estimated 2011-2012 season harvest of 235,100 ducks.

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). The FWC WMP 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, on average, approximately 66% of ring-necked ducks harvested in the Flyway are harvested in the State. The FWC WMP 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 appropriate waterfowl hunting opportunities for Florida's citizens is a primary mission of the FWC WMP. Hunting seasons are established in Florida to maximize hunter opportunity within the constraints of sound resource stewardship and guidelines mandated by the U. S. Fish and Wildlife Service. The FWC WMP develops recommendations for the FWC Commission concerning appropriate waterfowl hunting regulations in Florida.

Migratory Waterfowl Habitat Management

Florida lost approximately 260,000 acres of freshwater, emergent wetlands between 1985 and 1996, and additional losses were observed between 2004 and 2009. This habitat type is essential for waterfowl, yet losses continue, primarily due to urbanization and agricultural expansion. Waterfowl management staff provides technical assistance for managing, restoring, and enhancing waterfowl habitat to various agencies, groups, and individuals (Table 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.

Staff continued to work with several entities and private landowners during Fiscal Year 2012-2013 to evaluate numerous wetland projects. Entities included Ducks Unlimited, the Natural Resource Conservation Service Wetlands Reserve Program, the Atlantic Coast Joint Venture, Water Management Districts, the U. S. Fish and Wildlife Service, and numerous local and county governmental entities. Approximately 35 projects, totaling over 80,000 acres were evaluated throughout the State. The majority of the projects were located in the southern half of the State (primarily in Collier, Glades, Hardee, Hendry, Highlands, Martin, Okeechobee, Osceola, Polk and St. Lucie counties). Staff is also involved in several on-going planning efforts as they relate to restoring and enhancing aquatic habitats and restoring water level regulations for Lakes Istokpoga (Highlands County), Okeechobee (Glades, Okeechobee, Martin, Palm Beach, and Hendry counties), Tohopekaliga (Osceola County), Cypress (Lee County), Hatchineha (Osceola County), and Kissimmee (Osceola County).

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 and continues to provide important habitat for migrating, wintering, and resident waterfowl and other wetland-dependent wildlife, as a result of the intensive management. The area is composed of two management units: T. M. Goodwin (Goodwin) and Broadmoor Marsh (Broadmoor).

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), 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. During Fiscal Year 2012-2013, staff burned 705 acres (115 at Goodwin, 590 at Broadmoor), disked 130 acres (Goodwin), and roller chopped 700 acres (175 at Goodwin, 525 at Broadmoor) on the area. Staff also continued with the annual herbicide application program, treating 1301.5 acres of para grass and cattails (289 at Goodwin, 1012.5 at Broadmoor).

As a result of these management activities, waterfowl use of the impoundments is high and waterfowl hunting is in high demand on the area. A total of 1,309 hunters bagged 4,076 ducks (an average of 3.1 ducks per hunter) during the 2012-2013 waterfowl season. In addition to the regular season, special Youth Waterfowl Hunts were held on February 2-3, 2013. The special youth hunt included a variety of events targeted for youth hunters including overnight camping, hunter safety instruction, and meals provided by United Waterfowlers of Florida, Inc. and the Brevard County Airboat Club. Snipe hunting is also permitted on the area, and 69 hunters bagged 337 snipe (an average of 4.9 snipe per hunter) during the 2012-2013 season. Other public use activities included observing waterfowl and other birds, biking, hiking, and fishing.

PROGRAM DIRECTION AND NEEDS

FWC's WMP 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. The 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 (Table 2).

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 the FWC WMP and other entities involved in habitat and conservation issues will remain a challenge. Continued funding of cooperative habitat projects with Ducks Unlimited programs remains vital. FWC continues to seek funding from external grants and other sources to expand productivity.

Table 1. Entities that received technical assistance from waterfowl personnel during Fiscal Year 2012-2013.

Florida State Agencies

Florida Department of Environmental Protection
South Florida Water Management District
Suwannee River Water Management District
Southwest Florida Water Management District
St. Johns River Water Management District
Florida Department of Health

Other State or Provincial Agencies

Ontario Ministry of Natural Resources
South Carolina Department of Natural Resources

Federal Agencies

U.S. Department of Agriculture--Wildlife Services
U.S. Fish and Wildlife Service
Natural Resource Conservation Service
U.S. Park Service--Gulf Island National Seashore
U.S. Geological Survey

State-Federal Cooperative Entities

Southeastern Cooperative Wildlife Disease Study

Local Government

Highlands, Alachua, and Leon counties

Universities

University of Florida,
    Institute of Food and Agricultural Services
    Department of Wildlife Ecology and Conservation
Auburn University, Department of Forestry and Wildlife
University of California, Davis. Museum of Fish & Wildlife Biology

Non-governmental Organizations

Ducks Unlimited Inc., national, state chapter, and various local chapters
United Waterfowlers – Florida, Inc.
Boy Scouts of America
North American Wetlands Conservation Council
Atlantic Coast Joint Venture
Black Duck Joint Venture
Delta Waterfowl
Conservation Fund

Businesses

Walt Disney World
Dixie Plantation (Madison County)

Florida Citizens

Table 2. List of selected waterfowl management reports and publications during Fiscal Year 2012-2013.

Bielefeld, R. R. 2012. Mottled ducks genetics update. Unpublished report. Florida Fish and Wildlife Conservation Commission. Tallahassee, Florida. USA.

Chaudhari, S., Brent A. Sellers, Stephen V. Rockwood, Jason A. Ferrell, Gregory E. MacDonald, Kevin E. Kenworthy. 2012. Nonchemical Methods for Para grass (*Urochloa mutica*) Control. Invasive Plant Science and Management: January-March 2012, Vol. 5, No. 1, pp. 20-26.

Chaudhari, S., B. A. Sellers, S. V. Rockwood, J. A. Ferrell, G. E. MacDonald, and K. E. Kenworthy. 2012. Integrating chemical and cultural practices to control para grass (*Urochloa mutica*). J. Aquat. Plant. Manage. In Press.

Chaudhari, S., B. A. Sellers, G. E. MacDonald, and S. Rockwood. 2011. Cultural techniques to manage para grass in wetlands. Proc. South. Weed Sci. Soc. 64:333.

Chaudhari, S., B. A. Sellers, G. E. MacDonald, and S. Rockwood. 2010. Control of para grass in Florida wetlands. Proc. South. Weed Sci. Soc. 63:112.

Florida Fish and Wildlife Conservation Commission. 2011. A conservation plan for the Florida mottled duck. Florida Fish and Wildlife Conservation Commission. Tallahassee, Florida, USA.

Roberts, D. and J. Blush. 2013. 2012 Annual Report for the T. M. Goodwin Waterfowl Management Area. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.

Roberts, D. and J. Blush. 2013. 2013 Quarterly Report for the T. M. Goodwin Waterfowl Management Area. Unpublished report. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida, USA.

Rockwood, S. V., C. Mallison, and B. Thompson. 2012. Effects of Herbicide Application and Prolonged Flooding of Para Grass. *Abstract.* Florida Chapter of the Wildlife Society and Florida Exotic Pest Plant Council Joint 2012 Conference, Ocala, Florida, USA.

Seyoum, S., M. D. Tringali, R. R. Bielefeld, J. C. Feddersen, R. J. Benedict, A. T. Fanning, B. L. Barthel, C. Curtis, C. Puchulutegui, A. C. M. Roberts, V. L. Villanova, E. C. Tucker. 2012. Fifty-nine microsatellite markers for hybrid classification studies involving endemic Florida Mottled Duck (*Anas fulvigula fulvigula*) and invasive Mallards (*A. platyrhynchos*). Conservation Genetics Resources; DOI: 10.1007/s12686-012-9622-9.

Varner, D. M., R. R. Bielefeld, and G. R. Hepp. 2013. Nesting Ecology of Florida Mottled Ducks Using Altered Habitats. Journal of Wildlife Management; DOI: 10.1002/jwmg.536.