

2011 Hunting Program Plan  
Decision Document Package

**BOND SWAMP NWR**

**Contents**

1.2011 Hunting Program Plan

**2011 HUNTING PROGRAM PLAN**

UNITED STATES FISH AND WILDLIFE SERVICE  
BOND SWAMP NATIONAL WILDLIFE REFUGE

2011

Recommended by \_\_\_\_\_ Date: \_\_\_\_\_  
Refuge Manager

Reviewed by \_\_\_\_\_ Date: \_\_\_\_\_  
Refuge Supervisor

Concurrence by \_\_\_\_\_ Date: \_\_\_\_\_  
Regional Chief, NWRS

Approved by \_\_\_\_\_ Date: \_\_\_\_\_  
Regional Director

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## **1. INTRODUCTION**

Bond Swamp National Wildlife Refuge is located along the Ocmulgee River in Bibb and Twiggs Counties, Georgia, approximately 6 miles south of the city of Macon. The refuge was established on October 16, 1989 to protect wetlands and adjacent upland habitats on the Ocmulgee River floodplain. In 1999 the U.S. Fish and Wildlife Service expanded the acquisition boundary of the refuge to provide enhanced protection for approximately 18,000 acres of threatened wetland ecosystem associated with the Ocmulgee River. In 2000 the refuge added 786 acres fee title on the west side of the Ocmulgee River. In July 2006 the Service and the State of Georgia signed a management agreement for the refuge to manage 1,072 acres of state owned land within the acquisition boundary. In 2009 and 2010 the refuge added 581 acres fee title on the west side of the Ocmulgee River. Currently the refuge manages 7,929 acres, of which 5,455 acres are open to hunting.

The refuge is located on the fall line separating two geophysical regions, the Piedmont and the Atlantic Coastal Plain. A rich diversity of habitat types and wildlife occur along this interface area. The natural habitats range from mixed hardwood-pine ridges with exposed granite outcroppings to tupelo gum swamps with abundant beaver swamps, creeks, tributaries, and oxbow lakes.

A major drainage system flows into the wetland area forming much of the rich bottomlands. The drainage system is part of the Alcovy/Ocmulgee Corridor that flows through the Piedmont and Coastal Plain Provinces. These forested wetlands not only provide a rich diversity of fish and wildlife, but they also serve to enhance the quality of the area's water resources.

The forested wetlands on the refuge are an excellent example of an intact and functioning floodplain. Dominant overstory species include black gum, sweet gum, tupelo gum, overcup oak, swamp chestnut oak, water oak, willow oak, red maple, ash, hickory, and sycamore. Common understory species include honeysuckle, trumpet creeper, muscadine, rattan vine, poison ivy, and river cane.

The rich and varied habitats found on the refuge provide for a diversity of wildlife. Endangered species that periodically occur in the area include the shortnose sturgeon and wood stork.

Waterfowl make extensive use of the wetlands during their migration and wintering periods. Principal species include the mallard, wood duck, black duck, blue-winged teal, and ring-necked duck. The area contains outstanding wood duck habitat and is a haven for many species of marsh and water birds. Isolated beaver ponds serve as rookery sites and loafing grounds for water birds.

The floodplain forests of the refuge are extremely important for populations of neotropical migratory birds and other bird species. Species of special concern which use the refuge for nesting and migration include the Swainson's warbler, prothonotary warbler, yellowbill cuckoo, Acadian flycatcher, and wood thrush. Other species include woodpeckers, dove, kingfishers, hummingbirds, goatsuckers, swifts, galliformes, and raptors.

## **2. CONFORMANCE WITH STATUTORY AUTHORITIES**

The mission of the National Wildlife Refuge System is “... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resource and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Improvement Act of 1997). National wildlife refuges provide important habitat for native plants and many species of mammals, birds, fish, insects, amphibian, and reptiles. They also play a vital role in preserving endangered and threatened species. Refuges offer a wide variety of wildlife dependent recreational opportunities. Nationwide, about 25 million visitors annually hunt, fish, observe and photograph wildlife, or participate in educational and interpretive activities on refuges.

The federally legislated purposes for which Bond Swamp National Wildlife Refuge (NWR) was established are “...for the development, advancement, management, conservation, and protection of fish and wildlife resources...” and “...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude...” (Fish and Wildlife Act of 1956 (16 U.S.C. 742f(b)(1))); and for “...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions...” (Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901(b) 100 Stat. 3583)).

The National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd et seq.) provides authority for the Service to manage the Refuge and its wildlife populations. It emphasizes the importance of providing wildlife-dependent recreation opportunities on national wildlife refuges as long as they are compatible with the goal of the refuge. In addition it declares that compatible wildlife-dependent public uses are legitimate and appropriate uses of the Refuge System that are to receive priority consideration in planning and management. There are six priority wildlife-dependent public uses: hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation. It directs managers to increase recreational opportunities including hunting on National Wildlife Refuges when compatible with the purposes for which the Refuge was established and the mission of the National Wildlife Refuge System.

### **3. STATEMENT OF OBJECTIVES**

The following objectives were set during the planning process of Bond Swamp NWR's 2009 Comprehensive Conservation Plan, which relate directly to this hunt plan:

- (1) To preserve and protect a diverse, threatened wetland ecosystem and its associated values.
- (2) To preserve, protect, reestablish, and manage for endangered and threatened species of wildlife.
- (3) To manage for migratory birds with emphasis on providing optimum habitat for wintering waterfowl and enhancing nesting and brood habitat for wood ducks.
- (4) To manage for native wildlife species and their associated habitats.
- (5) To provide opportunities for compatible public, educational, interpretational, and recreational opportunities associated with wildlife and their habitats.
- (6) The objectives set during the refuge expansion project also addressed recreation with the following objective: to work in partnership with the local Ocmulgee Heritage Greenway to protect valuable natural resources and provide quality recreational opportunities.

The National Wildlife Refuge System Manual states that the objectives for refuge hunting programs are as follows:

- (a). To provide the general public with a quality, wildlife- oriented recreational experience and an opportunity to utilize a renewable resource; and
- (b). To maintain wildlife populations at levels compatible with the refuge habitat.

Hunting as proposed in this plan will help the refuge meet its objectives through protecting a threatened ecosystem from damage, protecting the habitat of native wildlife and migratory birds, protecting unique and important plant species, and by providing the public with recreational opportunities associated with wildlife.

#### 4. ASSESSMENT

##### A. Biological

###### Deer

Deer can be found throughout the refuge and the surrounding area. Deer have a high reproductive potential and no effective predation. The white-tailed deer is a native species that can adversely impact its habitat. Deer have the ability to overpopulate areas, resulting in heavy browsing on native forest communities and habitat destruction (Bratton 1979, Halls 1978, Hesselton and Hesselton 1982). If left uncontrolled, white-tailed deer can adversely affect their habitat to the point of altering ecological diversity and succession (Warren 1991). Research has documented that increasing deer populations can alter vegetation composition and diversity, threaten abundance of less common plant species, and alter unique habitats (Bratton 1979). In addition, changes in vegetation attributed to increasing deer populations affect other wildlife species. Studies have documented declines in song bird species density and diversity and bird species richness and abundance where overbrowsing of understory and shrub-layer vegetation occurred. (Boone and Dowell 1986, deCalesta 1994). Impacts of white-tailed deer populations on the environment have been well documented and accepted through research over a period of many years.

Regulated hunting has been proven to be an effective deer population management tool (Hesselton et al. 1965) and is the most effective management tool available to keep deer populations compatible with refuge objectives, functioning to replace historic natural predators. In addition, it has been shown to be the most efficient and least expensive technique for removing deer (Palmer et. al 1980).

###### Feral Hogs

Feral hogs are an invasive, non-native species. They can harbor several infectious diseases, some of which can be fatal to native wildlife. Rooting and wallowing behavior of feral hogs destroys wildlife habitat. Damage includes erosion along waterways and wetlands and the loss of native plants. Additionally, feral hogs compete directly for food with native species, such as deer, bears, turkeys, squirrels, and many other bird and mammal species. They are predators of reptiles, small mammals and deer fawns as well as ground-nesting birds such as turkeys.

Regulated hunting for feral hogs may not reduce the hog populations to desired levels; however it will contribute to the ongoing efforts of the Refuge to control this invasive species. Reduction of the feral hog population would also decrease risk of transmitting diseases to other wildlife species. Fewer feral hogs would decrease competition for food with native wildlife. Hunting of feral hogs provides the refuge with another management tool in reducing this species, and provides a traditional form of wildlife-dependent recreation for the local community.

### Wild Turkey

Turkey populations on Refuge owned tracts often fluctuate as flocks of turkeys move back and forth between public owned and private lands. Additionally, because of the difficulty of accessing many tracts and due to seasonal habitat availability related to river levels, turkey hunting will be physically restrictive and should have minimal impacts on the resident wild turkey population. Wild Turkey seasons will fall within the framework established by The Georgia Department of Natural Resources. Disturbance to target and non-target species should be minimal due to the nature of the wild turkey hunting.

### Small Game

For small game species, negative impacts will be minimal. Studies show that there are only small differences in density and/or mortality rates in squirrels and rabbits on hunted versus non-hunted populations (Mosby 1969, Rose 1977). As a result, limited hunting mortality does not affect the overall status of these species however it would help to lower the risk of diseases such as rabies, distemper, and tularemia, that can plague many small game species. Additionally, hunting of these species will cause only minimal disturbance to other wildlife populations. Everett (1982), monitored movements of wild turkeys before, during and after squirrel, deer and turkey hunts and found no permanent movement out of established ranges which could be attributed to hunting. Hunting seasons will be restricted to maintain quality habitat and to sustain a healthy population.

Impacts to quail populations from hunting are anticipated to be minimal. Natural mortality accounts for greater loss than does hunting and hunting mortality is compensated for by a decrease in natural mortality (Brennan 1991, Roseberry 1979). Quail populations and their suited habitat will be monitored. Hunting seasons will be restricted to maintain quality habitat and to sustain a healthy population.

### Migratory Birds

Due to the migratory nature of waterfowl, dove, snipe, and woodcock, the availability of resources is determined on a larger scale. The Office of Migratory Bird Management, together with state agencies, set annual regulations establishing seasons and limits for migratory birds. These regulations are carefully established by professionals who consider the welfare of the waterfowl resource on a national and flyway scale. These rules are established and enforced to ensure the continued health and viability of migratory bird populations for future generations of Americans. Migratory bird hunting on Bond Swamp National Wildlife Refuge will occur within the framework provided by The Office of Migratory Bird Management and The Georgia Department of Natural Resources. Migratory bird hunting opportunities on the refuge will be further restricted than the established federal and state framework allows to minimize disturbance and long term population impacts.

Additionally, public waterfowl hunting provides an economical means for statistical data

collection. Random checks of hunters can provide kill ratios, population composition, and bird habit data as well as the possibility of organ collection (gizzards, etc.) for various studies. However, wildlife disturbance associated with waterfowl hunting can impact diurnal and nocturnal use of an area by waterfowl (Cronan 1957, McNeil et al. 1992, Paulus, 1984). Because the Refuge is bisected by the Ocmulgee River, a navigable, public waterway which the Refuge has no management authority, disturbance to waterfowl by public hunting will exist with or without a Refuge waterfowl hunt. Disturbance associated with a Refuge hunt may have an additive effect on reducing waterfowl use within the hunt area however it will be minimal in areas where unrestricted public hunting already occurs in nearby public waters. There are, however, management tools that can be used to minimize and/or mitigate disturbance and the interruption of use of Refuge habitats by wintering waterfowl. Afternoon closure of hunting reduces disturbance (Gordon et al. 1989) as well as reduces the total take of waterfowl (Kirby et al. 1983). Un-hunted managed wetlands provide areas that are utilized as resting and feeding areas when adjacent areas are hunted (Gordon et al. 1989, Paulus 1984).

Privately owned managed wetlands as well as natural bays, ponds, oxbows and marshes within or adjacent to the Refuge acquisition boundary that are permanently set aside for waterfowl sanctuary are few and far between. The areas that have been set aside are heavily used by waterfowl during the day as resting/loafing areas. Many of these areas are now being impacted by land use changes as commercial development continues to grow throughout the region. As Refuge tracts are acquired, consideration will be given to closing isolated water areas to provide additional waterfowl rest sites on the Refuge.

#### B. Economic Feasibility

Many of the annual hunt administration costs including salary, equipment, boundary signs, and maintenance, are also costs associated with other management activities that would be required whether hunting is permitted or not. The cost for hunt brochures, postage and law enforcement are the primary costs directly associated with hunting. Funds are available to meet the conditions set forth in the Refuge Recreation Act. It is anticipated that funding would continue to be sufficient to continue the hunting program in the future.

#### C. Relationship with other Refuge Programs

The proposed hunts are structured in such a way as to offer a quality hunting experience while achieving wildlife management goals and objectives. Big game, waterfowl and small game hunts are alternated to avoid conflicts between the different hunting interest groups. Refuge areas that offer non-consumptive uses such as hiking, birding, photography, and environmental education are either closed to these uses during the hunts or are closed year round to hunting to avoid any conflicts between hunters and these other public use groups.

#### D. Recreational Opportunity

The refuge has placed great emphasis to better serve non-consumptive recreationalists by developing quality public access areas that will be closed to all hunting. Although total non-

consumptive visits are currently low, an area consisting of 165 acres on the northern boundary of the refuge has been closed to all hunting to provide a year-round opportunity for wildlife observation and photography.

## **5. DESCRIPTION OF HUNTING PROGRAM**

### **A. General**

Hunting opportunities on Bond Swamp National Wildlife Refuge, under this plan, could be expanded to include additional firearm and archery hunts for deer; and to include the take of squirrel, rabbit, quail, wild turkey, and migratory birds, including waterfowl, dove, snipe, and woodcock. Hunters may also take feral hog incidental to the hunting of game species listed above. Additional feral hog hunts may be implemented as needed to eradicate the population and protect habitat. This hunt plan will also expand the current 5,455 acres available to hunt on the East side of the Ocmulgee River, to include the entire 6,857 acres owned in fee title by the Service, plus an additional 1,072 acres currently managed by the Service through a management agreement with the Georgia Department of Natural Resources (GADNR). This will increase the acreage available for hunting to a total of 7,127 acres on the East and West side of the Ocmulgee River. All hunting opportunities will fall within the framework of The Office of Migratory Bird Management and GADNR. All hunting opportunities will fall within state seasons established by the GADNR, and all state regulations will apply. Refuge-specific regulations may supplement and further restrict GADNR hunting regulations and seasons (e.g. waterfowl hunts will end at 12pm). These refuge specific regulations may be applied to any hunting opportunity to reduce negative impacts to any species, habitat, or to reduce interference with any other public use opportunity. All hunters will be required to read the refuge hunting brochure and adhere to all regulations contained therein. The refuge hunting brochure must be signed on the front cover and must be carried on his/her person while on the refuge and will serve as the refuge hunting permit. Hunting brochures can be obtained through refuge website, facilities, personnel, or participating distributors.

Hunting opportunities are subject to change to insure all hunts are biologically sound, provide quality recreation, and are in conformance with Service policy.

Check stations will be used to gather harvest data, provide hunter information, and to serve as a point of contact in case of emergencies or other hunter needs.

A combination of U.S. Fish and Wildlife Refuge Law Enforcement Officers from Piedmont and Bond Swamp Refuges and Georgia DNR Conservation Rangers will provide law enforcement.

All hunting opportunities will be scheduled as to not conflict with other public use opportunities.

A letter of concurrence with this plan from the GADNR is attached. Hunt Coordination is conducted on a bi-annual basis with GADNR biologists.

B. Areas Open to Hunting and Fishing

With exception of Brown’s Mt Environmental Education Facilities and surrounding acreage, areas of special designation, and areas that are closed to public entry, all current acreage managed under Bond Swamp National Wildlife Refuge will be open to hunting opportunities included in this plan (Figure 1). Brown’s Mt Environmental Education Facilities and surrounding acreage will be set aside for year-round, non-consumptive wildlife dependent recreation. Future acreage acquired and administered under Bond Swamp NWR will be considered for management under this hunt plan after all environmental and managerial assessments are completed.

C. Species to be Hunted

<u>Species</u>	<u>Type Hunt</u>	<u>Hunting Period</u>
<b>Upland Game</b>		
Gray/Fox Squirrel	Conventional Gun	Determined Bi-annually within State Hunting Seasons
Eastern Cottontail/ Swamp Rabbits	Conventional Gun	Determined Bi-annually within State Hunting Seasons
Quail	Conventional Gun	Determined Bi-annually within State Hunting Seasons
<b>Migratory Game Birds</b>		Determined Bi-annually within State Hunting Seasons
Waterfowl, Dove, Woodcock, Snipe	Conventional Gun	Determined Bi-annually within State Hunting Seasons
<b>Big Game</b>		Determined Bi-annually within State Hunting Seasons
White-tailed Deer	Conventional Gun / Primitive Weapons	Determined Bi-annually within State Hunting Seasons
Wild Turkey	Conventional Gun/ Primitive Weapons	Determined Bi-annually within State Hunting Seasons
<b>Feral Hogs</b>	Conventional Gun/ Primitive Weapons (Any weapon open legal in open season)	Incidental take allowed during open hunt seasons

## **6. MEASURES TAKEN TO AVOID CONFLICTS WITH OTHER MANAGEMENT OBJECTIVES**

- A. Biological Conflicts: An Intra-Service Section 7 consultation has been prepared. There is no known conflict with any endangered species. Harvest data will be collected and analyzed to ensure that the hunts are biologically sound and an annual hunt evaluation report discussing compatibility will be prepared by the refuge staff. An active law enforcement program will ensure regulation compliance and protect refuge resources.
- B. Public Use Conflicts: Measures taken to reduce conflict with other public uses will include setting hunt dates at a time when there will be minimal conflicts with other uses, establishing no hunting zones around public use facilities, conducting a proactive education program about hunting, and establishing a non-hunting area to allow secure non-consumptive recreation use during hunting seasons. An active refuge law enforcement program will ensure regulation compliance and public protection.

## **7. CONDUCT OF HUNT**

- Persons possessing, transporting, or carrying firearms on National Wildlife Refuges must comply with all provisions of state and local law. Persons may only use (discharge) firearms in accordance with refuge regulations (50 CFR 27.42 and specific refuge regulations 50 CFR Part 32)
- Only non-toxic shot is permitted with the use of a shotgun in designated areas at manager's discretion.
- Hunters are required to report all harvested game (see hunting brochure)
- The refuge is open for public use during daylight hours only
- The use of hunting dogs is only permitted during migratory bird and small game hunts.
- Some areas of the refuge may be zoned or restricted to season of use while other areas may be closed to all public use.
- Motorized boats are permitted at manager's discretion.
- Harvest data will be collected and used to ensure that the hunts are biologically sound and annual hunt evaluation reports discussing compatibility will be prepared by refuge staff.
- An active refuge law enforcement program will ensure regulation compliance and protect refuge resources.

### **General Prohibited Activities**

- Taking, collecting, or disturbing any artifact, property, plant, wildlife, or part thereof, other than that specifically permitted by refuge regulation.
- Possession or use of alcoholic beverages
- Driving metal objects into trees or hunting from a tree in which metal objects have been driven

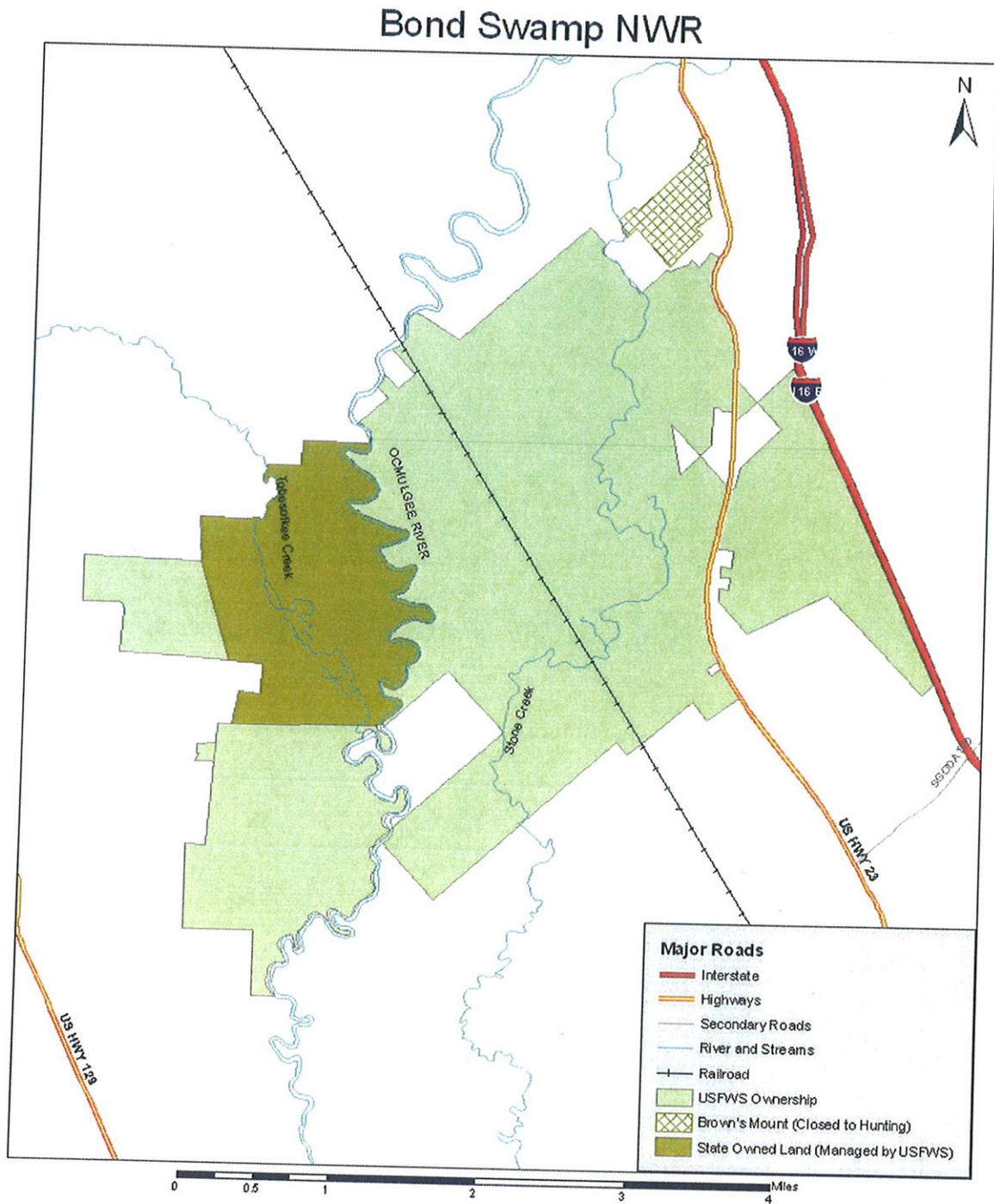
- Marking trails with flagging, blazing, painting, paper, trash, or other devices
- Walking, hunting, fishing, or trespassing on the railroad right-of-way
- Entering the refuge hunts without a refuge hunting permit
- Possessing or hunting with buck shot
- Target shooting
- Off road vehicle travel
- Use of ATVs or other off road vehicles
- Leaving vehicles or trailers on refuge overnight
- Blocking refuge road, boat ramp, or gate with vehicles
- Vehicle travel around a closed gate
- Disturbing, annoying, or interfering with other persons
- Open fires
- Unleashed pets
- Removing live hogs from refuge
- Hunting with or by aid of dogs for deer or feral hogs
- Littering
- Horses or mules
- Camping
- Man-drives for deer or feral hogs

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9. Figure 1.





**GEORGIA**  
DEPARTMENT OF NATURAL RESOURCES

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**WILDLIFE RESOURCES DIVISION**

MARK WILLIAMS  
COMMISSIONER

DAN FORSTER  
DIRECTOR

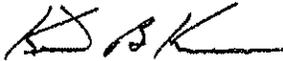
November 17, 2011

Mr. Jacob Tuttle  
718 Juliette Road  
Hillsboro, GA

Dear Mr. Tuttle:

I have received and reviewed your proposed 2011 Bond Swamp National Wildlife Refuge Hunt Plan, and concur that this is an appropriate plan for the Refuge and the wildlife resource. If this agency can be of any assistance in implementing this plan, please do not hesitate to contact me.

Sincerely,



Kevin Kramer  
Region Supervisor

# *Compatibility Determination*

## **Bond Swamp National Wildlife Refuge Compatibility Determination**

**Use:** Hunting

**Refuge Name:** Bond Swamp National Wildlife Refuge.

**Date Established:** October 16, 1989

### **Establishing and Acquisition Authorities:**

The federally legislated purposes for which Bond Swamp National Wildlife Refuge (NWR) was established are "...for the development, advancement, management, conservation, and protection of fish and wildlife resources..." and "...for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude..." (Fish and Wildlife Act of 1956 (16 U.S.C. 742f(b)(1))); and for "...the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions..." (Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901(b) 100 Stat. 3583)).

**Refuge Purpose(s):** The following objectives for Bond Swamp NWR were set during a planning process that included significant public involvement:

- (1) To preserve and protect a diverse, threatened wetland ecosystem and its associated values.
- (2) To preserve, protect, reestablish, and manage for endangered and threatened species of wildlife.
- (3) To manage for migratory birds with emphasis on providing optimum habitat for wintering waterfowl and enhancing nesting and brood habitat for wood ducks.
- (4) To manage for native wildlife species and their associated habitats.
- (5) To provide opportunities for compatible public, educational, interpretational, and recreational opportunities associated with wildlife and their habitats.
- (6) The objectives set during the refuge expansion project also addressed recreation with the following objective: to work in partnership with the local Ocmulgee Heritage Greenway to protect valuable natural resources and provide quality recreational opportunities.

### **National Wildlife Refuge System Mission:**

The mission of the Refuge System, as defined by the National Wildlife Refuge System Improvement Act of 1997, is:

*... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.*

### **Other Applicable Laws, Regulations, and Policies:**

Antiquities Act of 1906 (34 Stat. 225)  
Migratory Bird Treaty Act of 1918 (15 U.S.C. 703-711; 40 Stat. 755)  
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715r; 45 Stat. 1222)  
Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718-178h; 48 Stat. 451)  
Criminal Code Provisions of 1940 (18 U.S.C. 41)  
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; 54 Stat. 250)  
Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686)  
Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j; 70 Stat. 1119)  
Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4; 76 Stat. 653)  
Wilderness Act (16 U.S.C. 1131; 78 Stat. 890)  
Land and Water Conservation Fund Act of 1965  
National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.; 80 Stat. 915)  
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd, 668ee; 80 Stat. 927)  
National Environmental Policy Act of 1969, NEPA (42 U.S.C. 4321, et seq; 83 Stat. 852)  
Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 10989)  
Endangered Species Act of 1973 (16 U.S.C. 1531 et seq; 87 Stat. 884)  
Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319)  
National Wildlife Refuge Regulations for the Most Recent Fiscal Year (50 CFR Subchapter C; 43 CFR 3101.3-3)  
Emergency Wetlands Resources Act of 1986 (S.B. 740)  
North American Wetlands Conservation Act of 1990  
Food Security Act (Farm Bill) of 1990 as amended (HR 2100)  
The Property Clause of the U.S. Constitution Article IV 3, Clause 2  
The Commerce Clause of the U.S. Constitution Article 1, Section 8  
The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, USC668dd)  
Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System. March 25, 1996  
Title 50, Code of Federal Regulations, Parts 25-33  
Archaeological Resources Protection Act of 1979  
Native American Graves Protection and Repatriation Act of 1990

## **Description of Use: Expansion of Hunting Opportunities**

Hunting opportunities on Bond Swamp National Wildlife Refuge, under the 2011 Hunt Plan could be expanded to include additional firearm and archery hunts for deer; and to include the take of squirrel, rabbit, quail, wild turkey, and migratory birds, including waterfowl, dove, snipe, and woodcock. Hunters may also take feral hog incidental to the hunting of game species listed above. Additional feral hog hunts may be implemented as needed to control herd population and habitat management. This hunt plan will also expand the current 5,455 acres available to hunt on the East side of the Ocmulgee River, to include the entire 6,857 acres owned in fee title by the Service, plus an additional 1,072 acres currently managed by the Service through a management agreement with the Georgia Department of Natural Resources (GADNR). This will increase the acreage available for hunting to a total of 7,127 acres on the East and West side of the Ocmulgee River. All hunting opportunities will fall within the framework of The Office of Migratory Bird Management and GADNR. All hunting opportunities will fall within state seasons established by the GADNR, and all state regulations will apply. Refuge-specific regulations may supplement and further restrict GADNR hunting regulations and seasons. These refuge specific regulations may be applied to any hunting opportunity to reduce negative impacts to any species, habitat, or to reduce interference with any other public use opportunity.

**Availability of Resources:** Many of the annual hunt administration costs including salary, equipment, boundary signs, and maintenance, are also costs associated with other management activities that would be required whether hunting is permitted or not. The cost for hunt brochures, postage and law enforcement are the primary costs directly associated with hunting. Funds are available to meet the conditions set forth in the Refuge Recreation Act. It is anticipated that funding would continue to be sufficient to continue the hunting program in the future.

## **Anticipated Impacts of the Use**

### **A. Biological**

#### Deer

Deer can be found throughout the refuge and the surrounding area. Deer have a high reproductive potential and no effective predation. The white-tailed deer is a native species that can adversely impact its habitat. Deer have the ability to overpopulate areas, resulting in heavy browsing on native forest communities and habitat destruction (Bratton 1979, Halls 1978, Hesselton and Hesselton 1982). If left uncontrolled, white-tailed deer can adversely affect their habitat to the point of altering ecological diversity and succession (Warren 1991). Research has documented that increasing deer populations can alter vegetation composition and diversity, threaten abundance of less common plant species, and alter unique habitats (Bratton 1979). In addition, changes in vegetation attributed to increasing deer populations affect other wildlife species. Studies have documented declines in song bird species density and diversity and bird species richness and abundance where overbrowsing of understory and shrub-layer vegetation occurred. (Boone and Dowell 1986, deCalesta 1994). Impacts of white-tailed deer populations on the environment have been well documented and accepted through research over a period of many years.

Regulated hunting has been proven to be an effective deer population management tool (Hesselton et al. 1965) and is the most effective management tool available to keep deer populations compatible with refuge objectives, functioning to replace historic natural predators. In addition, it has been shown to be the most efficient and least expensive technique for removing deer (Palmer et. al 1980).

### Feral Hogs

Feral hogs are an invasive, non-native species. They can harbor several infectious diseases, some of which can be fatal to native wildlife. Rooting and wallowing behavior of feral hogs destroys wildlife habitat. Damage includes erosion along waterways and wetlands and the loss of native plants. Additionally, feral hogs compete directly for food with native species, such as deer, bears, turkeys, squirrels, and many other bird and mammal species. They are predators of reptiles, small mammals and deer fawns as well as ground-nesting birds such as turkeys.

Regulated hunting for feral hogs may not reduce the hog populations to desired levels; however it will contribute to the ongoing efforts of the Refuge to control this invasive species. Reduction of the feral hog population would also decrease risk of transmitting diseases to other wildlife species. Fewer feral hogs would decrease competition for food with native wildlife. Hunting of feral hogs provides the refuge with another management tool in reducing this species, and provides a traditional form of wildlife-dependent recreation for the local community.

### Wild Turkey

Turkey populations on Refuge owned tracts often fluctuate as flocks of turkeys move back and forth between public owned and private lands. Additionally, because of the difficulty of accessing many tracts and due to seasonal habitat availability related to river levels, turkey hunting will be physically restrictive and should have minimal impacts on the resident wild turkey population. Wild Turkey seasons will fall within the framework established by The Georgia Department of Natural Resources. Disturbance to target and non-target species should be minimal due to the nature of the wild turkey hunting.

### Small Game

For small game species, negative impacts will be minimal. Studies show that there are only small differences in density and/or mortality rates in squirrels and rabbits on hunted versus non-hunted populations (Mosby 1969, Rose 1977). As a result, limited hunting mortality does not affect the overall status of these species however it would help to lower the risk of diseases such as rabies, distemper, and tularemia, that can plague many small game species. Additionally, hunting of these species will cause only minimal disturbance to other wildlife populations. Everett (1982), monitored movements of wild turkeys before, during and after squirrel, deer and turkey hunts and found no permanent movement out of established ranges which could be attributed to hunting. Hunting seasons will be restricted to maintain quality habitat and to sustain a healthy population.

Impacts to quail populations from hunting are anticipated to be minimal. Natural mortality accounts for greater loss than does hunting and hunting mortality is compensated for by a decrease in natural mortality (Brennan 1991, Roseberry 1979). Quail populations and their suited habitat will be monitored. Hunting seasons will be restricted to maintain quality habitat and to sustain a healthy population.

## Migratory Birds

Due to the migratory nature of waterfowl, dove, snipe, and woodcock, the availability of resources is determined on a larger scale. The Office of Migratory Bird Management, together with state agencies, set annual regulations establishing seasons and limits for migratory birds. These regulations are carefully established by professionals who consider the welfare of the waterfowl resource on a national and flyway scale. These rules are established and enforced to ensure the continued health and viability of migratory bird populations for future generations of Americans. Migratory bird hunting on Bond Swamp National Wildlife Refuge will occur within the framework provided by The Office of Migratory Bird Management and The Georgia Department of Natural Resources. Migratory bird hunting opportunities on the refuge will be further restricted than the established federal and state framework allows to minimize disturbance and long term population impacts.

Additionally, public waterfowl hunting provides an economical means for statistical data collection. Random checks of hunters can provide kill ratios, population composition, and bird habit data as well as the possibility of organ collection (gizzards, etc.) for various studies. However, wildlife disturbance associated with waterfowl hunting can impact diurnal and nocturnal use of an area by waterfowl (Cronan 1957, McNeil et al. 1992, Paulus, 1984). Because the Refuge is bisected by the Ocmulgee River, a navigable, public waterway which the Refuge has no management authority, disturbance to waterfowl by public hunting will exist with or without a Refuge waterfowl hunt. Disturbance associated with a Refuge hunt may have an additive effect on reducing waterfowl use within the hunt area however it will be minimal in areas where unrestricted public hunting already occurs in nearby public waters. There are, however, management tools that can be used to minimize and/or mitigate disturbance and the interruption of use of Refuge habitats by wintering waterfowl. Afternoon closure of hunting reduces disturbance (Gordon et al. 1989) as well as reduces the total take of waterfowl (Kirby et al. 1983). Un-hunted managed wetlands provide areas that are utilized as resting and feeding areas when adjacent areas are hunted (Gordon et al. 1989, Paulus 1984).

Privately owned managed wetlands as well as natural bays, ponds, oxbows and marshes within or adjacent to the Refuge acquisition boundary that are permanently set aside for waterfowl sanctuary are few and far between. The areas that have been set aside are heavily used by waterfowl during the day as resting/loafing areas. Many of these areas are now being impacted by land use changes as commercial development continues to grow throughout the region. As Refuge tracts are acquired, consideration will be given to closing isolated water areas to provide additional waterfowl rest sites on the Refuge.

### B. Economic Feasibility

Many of the annual hunt administration costs including salary, equipment, boundary signs, and maintenance, are also costs associated with other management activities that would be required whether hunting is permitted or not. The cost for hunt brochures, postage and law enforcement are the primary costs directly associated with hunting. Funds are available to meet the conditions set forth in the Refuge Recreation Act. It is anticipated that funding would continue to be sufficient to continue the hunting program in the future.

C. Relationship with other Refuge Programs

The proposed hunts are structured in such a way as to offer a quality hunting experience while achieving wildlife management goals and objectives. Big game, waterfowl and small game hunts are alternated to avoid conflicts between the different hunting interest groups. Refuge areas that offer non-consumptive uses such as hiking, birding, photography, and environmental education are either closed to these uses during the hunts or are closed year round to hunting to avoid any conflicts between hunters and these other public use groups.

**Determination (check one below)**

Use is Not Compatible

Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** Hunting may be permitted in accordance with special refuge and State of Georgia regulations and licensing/permitting requirements, with the following exceptions:

**Justification:** The Service's current policy is to expand and enhance opportunities for quality hunting and fishing on national wildlife refuges. Hunting is considered to be compatible with the refuge purpose and meets one of the refuge objectives, to provide for compatible wildlife-dependent recreation. Allowing hunting follows current Service policy to expand and enhance opportunities for quality fishing and hunting on refuges. Allowing hunting also helps to maintain and build support for the Service and other wildlife conservation efforts. There has been substantial historical use of these upland areas for hunting. Based on the available information, there is no indication of adverse biological impacts associated with these activities.

Allowing well managed hunting of white-tailed deer, turkey, quail, squirrels, rabbits, and feral hogs are consistent with refuge objectives and follows current Service policy. The interim hunt plan is conservatively based and designed to meet management needs. The primary purpose of allowing public hunting of white-tailed deer and feral hogs is to control herbivore populations in balance with their habitat and other wildlife species. The proposed hunt program will provide quality public recreation through the harvesting of a renewable natural resource.

During the comprehensive conservation planning process, which was completed with appropriate public input, the Service considered additional and expanded public use opportunities. There are a number of situations where refuge closures or restrictions may be warranted. Examples of these situations include, but are not limited to, the protection of endangered species, protection of colonial bird rookeries, establishment of sanctuary areas for waterfowl, or conflicts with other refuge management programs.

Based on the available information, it has been determined that the expected level of public hunting of white-tailed deer, turkey, quail, squirrels, rabbits, and feral hogs that will occur within the Bond Swamp NWR is compatible with the purposes for which the refuge was established and is biologically sound.

**NEPA Compliance for Refuge Use Description:** *Place an X in appropriate space.*

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

**Mandatory 15-year Re-evaluation Date:**

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