

**HARRIS NECK
NATIONAL WILDLIFE REFUGE**

MCINTOSH COUNTY, GEORGIA

ANNUAL NARRATIVE REPORT

CALENDAR YEAR 1997

**U.S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
NATIONAL WILDLIFE REFUGE SYSTEM**

HARRIS NECK NATIONAL WILDLIFE REFUGE ANNUAL NARRATIVE

Townsend, Georgia
Calendar Year 1997

U.S. Department of the Interior
Fish and Wildlife Service



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INTRODUCTION

Harris Neck National Wildlife Refuge is one of seven refuges administered as part of Savannah Coastal Refuges (SCR). The refuge is located in McIntosh County, Georgia, 50 air miles south of the port city of Savannah. Harris Neck serves as an important link in the chain of refuges along the eastern seaboard, and is the inland base for two neighboring barrier island refuges, Blackbeard Island and Wolf Island, both located south-east of Harris Neck.

The 2,762 acres comprising Harris Neck Refuge have had a long, and at times, controversial history. Distinguished as one of the oldest intensively farmed areas along the Georgia coast, Harris Neck was among the first land grants given to the early English and Scottish settlers in 1750. While staple crops were produced, it was the high quality Sea Island Cotton which brought European fame to the coastal agricultural industry. Unfortunately, poor farming practices soon exhausted the fragile sandy loam soils, and large scale farming was abandoned in 1860.

The Civil War brought an end to the "Old South" plantation era, and Harris Neck was divided into smaller farms. The community, thus established, thrived until the advent of World War II, when the U.S. Government condemned the property for use as an air base. Twelve hundred acres were converted into a triangular landing strip for use as a training facility by the War Department.

After World War II, the property was given to McIntosh County for guardianship and use as a municipal airport. Due to county mismanagement of the land resources, Harris Neck was transferred to the Federal Aviation Agency. On May 25, 1962, the U.S. Bureau of Sport Fisheries and Wildlife (forerunner of the USFWS) acquired the property, and established the area as a migratory bird refuge.

This valuable and productive refuge is managed primarily for marsh and wading birds, waterfowl, resident wildlife, and interpretive and recreational purposes. It is crisscrossed by 15 miles of paved roads and runways once used by P-39 and P-40 fighter planes. These roads and runways now provide visitor access, and facilitate management of the refuge.

The refuge's 2,762 acres includes 665 acres of open fields, 649 acres of mixed forest, 1,295 acres of salt marsh, and 153 acres of freshwater impoundments. Mud flats, thickets, swamps, and ponds are interspersed throughout the refuge.

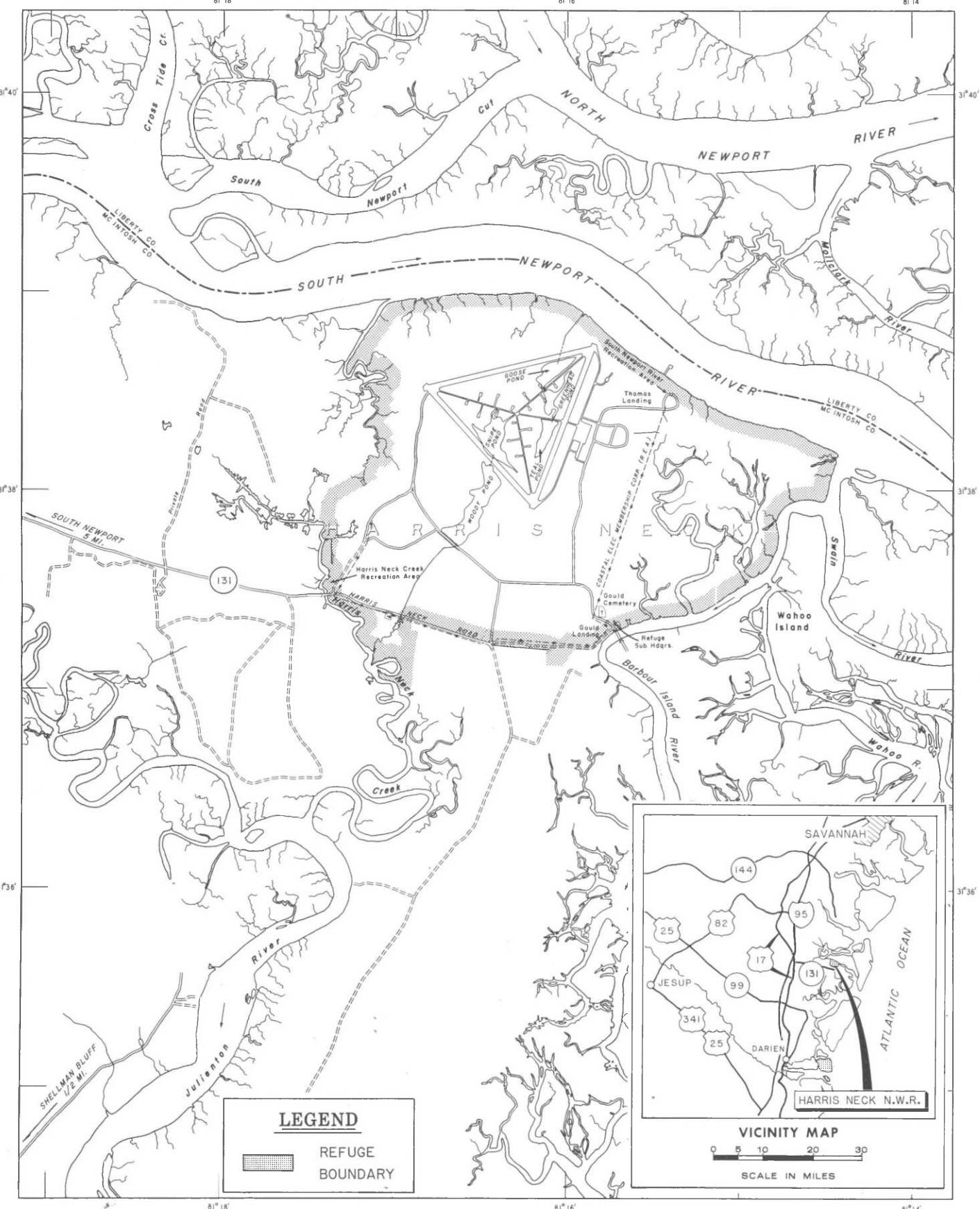
Management of six man-made freshwater impoundments enhances the refuge's importance as a wintering area for migratory birds. They serve as a rookery site for the endangered wood stork, and roosting and feeding areas for waterfowl and wading birds.

HARRIS NECK NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

MCINTOSH COUNTY, GEORGIA

UNITED STATES
FISH AND WILDLIFE SERVICE



COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY U.S. C.G.S.

ATLANTA, GEORGIA
REVISED: 10/87

MAY, 1964

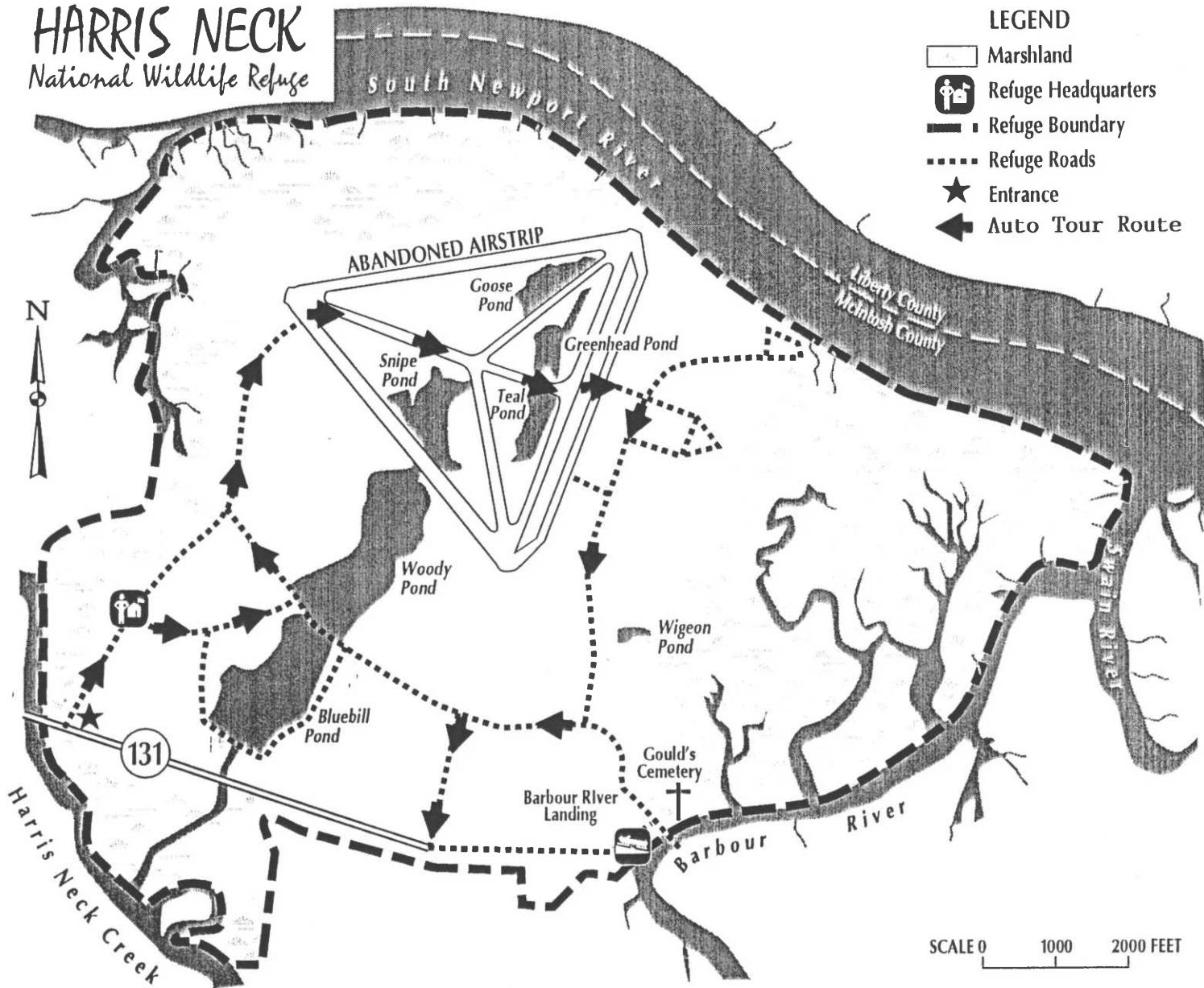
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HARRIS NECK

National Wildlife Refuge



LEGEND

- Marshland
- Refuge Headquarters
- Refuge Boundary
- Refuge Roads
- Entrance
- Auto Tour Route

HIGHLIGHTS

- * Worst year on record for wood stork production on Harris Neck and for other coastal Georgia breeding stork colonies (1b).
- * Six wood storks were netted and fitted with satellite telemetry transmitters on Harris Neck during 1997 (1b).
- * Eighty-four young wood storks were banded during the year (1b).
- * A cooperative agreement between Ducks Unlimited and the refuge provides for the rehabilitation of the refuge's managed impoundments (2a & 5a).
- * An interagency effort produces a no-till planting demonstration on Harris Neck for private landowners (5a).
- * An unfortunate incident results in a drowning on the refuge (6a)
- * The highest annual visitation to Harris Neck refuge occurred during the year (7a).
- * The refuge entered the "distance learning" program through the Georgia State Academic Medical System (GSAMS) during the year (7b).

Climatological Review - 1997

The 30 year precipitation average for the state of Georgia is 56 inches. However, the southeast coast of Georgia averages approximately 64 inches each year (National Weather Service). Temperatures during the year were normal.

Rainfall received by month:

| | |
|-----------|------|
| January | 3.71 |
| February | 2.43 |
| March | 1.51 |
| April | 2.20 |
| May | 2.09 |
| June | 7.31 |
| July | 9.51 |
| August | 3.08 |
| September | 5.13 |
| October | 8.13 |
| November | 4.53 |
| December | 7.67 |

During 1997, tropical storms or hurricanes did not threaten the Georgia Coastline or refuge lands as a result of abnormal weather patterns associated with El Nino. However, during the fall and winter months this same weather phenomenon produced above normal amounts of rainfall. A total of 57.3 inches of rainfall was received at Harris Neck in 1997. Unlike 1996, the precipitation received during the year was not a direct result of weather patterns associated with tropical storms and hurricanes.

1

Monitoring and Studies

1a. Surveys and Censuses

The mid-winter waterfowl survey was conducted on January 10. Only 172 ducks were recorded (100 green-winged teal and 50 blue-winged teal).

The mid-winter American bald eagle survey was conducted on January 10. Although no eagles were recorded during the survey, they frequently use the refuge for roosting and feeding from fall through early spring.

Georgia Department of Natural Resources (DNR) Non-Game Program annually conducts a "Birding Boot Camp" to train individuals who will participate in point-counts of nesting neo-tropical birds. This year's boot camp was conducted on April 14-15 and Harris Neck was used as a field training area.

Eight volunteers conducted the annual Fourth of July Butterfly Survey on Harris Neck during 1997. Thirty-three species and 565 individuals were recorded.

During May and September, an International Migratory Bird Survey was conducted by volunteers. The annual survey is coordinated by Larry Carlise, Biologist Fort Stewart Army Base.

1b. Studies and Investigations

Results from the wood stork nesting study on Harris Neck NWR were analyzed and sent to Savannah River Ecology Laboratory (SREL) and Georgia DNR. This was the worst year for wood stork production at Harris Neck since the birds began nesting in 1988. The nest total was 209, a new record, but many nests were abandoned or chicks died before fledging. Our nesting survey included 166 nests of which 72 (43%) successfully fledged chicks. Chicks fledged per nest was 0.72, and chicks per successful nest was 1.67 the lowest production ever recorded at Harris Neck. A total of 120 young storks were fledged. In addition, 30 chicks were observed dead in the nest with many more missing prior to fledging. Drought conditions during the fall and winter followed by an unseasonably wet summer resulted in conditions that were opposite to normal weather patterns, and limited fresh water food resources. The lack of a fresh water food source is thought to have caused heavy mortality among young chicks who are not able to handle

a salt water diet for the first few weeks of life. Average age at death was 24.7 days. Other Georgia coastal colonies suffered a similar fate.

The University of Georgia's Southeastern Cooperative Wildlife Disease Study (SCWDS) conducted necropsies on five deer from Harris Neck on September 23. We have not received the final report from SCWDS, but the deer examined appeared to be in good condition with low external parasite loads.

A wood stork satellite telemetry project is being conducted by the Atlanta Zoo, Walt Disney Animal Kingdom, The Wildlife Conservation Society, The Georgia Conservancy, The Savannah River Ecology Laboratory - University of Georgia (SREL-UGA), and Savannah Coastal Refuges. The project is funded by the Disney Foundation, Union Camp and SREL-UGA. The objectives of the project are to identify the seasonal movements of wood storks, and to promote public awareness of the endangered wood stork and wetlands preservation.

On August 27 and 28, 1996 four wood storks were captured at Harris Neck on Snipe Pond, using a rocket net. Each bird was banded, fitted with a satellite/radio transmitter and released. Two of the transmitters emit signals on two day intervals for up to 11 months, and two transmit to the satellite every fifth day and should last 23 months. Two of the birds remained close to the release site on Harris Neck with brief feeding flights inland.

However, one of the Harris Neck birds made two brief excursions to Okefenokee NWR, and to the ACE Basin area in South Carolina. One bird roosted northeast of the Refuge on St. Catherines Island. The fourth bird spent most of his time north of the release site on Colonels Island. The birds began to leave the area in late November. One bird wintered near Merritt Island NWR. Another stork stayed west of Orlando then moved southeast to an area just west of Miami. A third stork settled in the Big Cypress area (just west of the Everglades) then moved into the Everglades, and the fourth bird moved into the Everglades. On December 17, 1996 the last signal from the fourth bird, wintering in the Everglades National Park, was received. We have been unable to determine the fate of the bird, but it is for certain that the transmitter is no longer working. The bird is presumed dead. The remaining three birds were near Orlando, Florida when one of the short term transmitters failed. The remaining two birds moved back into the Harris Neck area and a third transmitter signal was lost. Fortunately the radio transmitter on this bird was still working and the bird was found roosting on Harris Neck in the summer of 1997. The one remaining bird with an active satellite transmitter remained near the refuge during the summer months. However, during the winter the bird returned to the Orlando area, but made several trips into south Georgia and was located near Jacksonville, Florida at the close of year. His sporadic behavior can most

likely be attributed to the mild winter. Our traditional thinking of Florida as the wintering habitat for wood storks may need to be expanded to include south Georgia.

The locations of the birds can be followed on the internet. Over 4,000 people have visited the wood stork web site since it opened in October, 1996. The tracking of the storks is also being used in Zoo Atlanta's Distance Learning Program. Zoo Atlanta has presented five different programs to 539 students in 18 different elementary, middle and high schools in Georgia.

As part of a study of post-breeding movements of wood storks in coastal Georgia, six wood storks were captured by rocket netting in Snipe Pond over a two week period in mid-August, 1997. The study is being conducted by the Savannah River Ecology Laboratory - University of Georgia (SREL-UGA), and Savannah Coastal Refuges (SCR). Transmittered birds were tracked, using a small plane, to roost and feeding sites. In addition, major roost sites, on and off refuge, were surveyed during 24 hour periods to determine roosting and feeding frequencies and times. The study will be completed in 1998.



Members of the Savannah River Ecology Laboratory fit an adult wood stork, netted in Snipe pond, with a satellite transmitter (97-HN2 MJ)

SREL-UGA and SCR banded 84 young wood storks from the Harris Neck colony in June, 1997. One of the banded storks has been observed on Anna Marina Island, Florida. A few of the 46 birds banded in 1996 were observed following post breeding dispersal. Four birds were observed on Barnwell Island, South Carolina, two were observed in Snipe Pond on Harris Neck, and one bird was reported at St. Catherines Island, Georgia. Two 1996 birds were observed in Woody Pond in May and August of 1997. Future sightings of banded birds will give us valuable information on post breeding dispersal, survival and nesting area fidelity as the banded birds reach maturity.



Although banding fledgling wood storks is conducted under less than desirable conditions, the refuge has no problem recruiting willing banders for the project (97-HN3 CW).

Snipe Pond is a 28 acre pond used as a wood stork/wading bird feeding pond. Dr. Darold Bowster, University of Georgia, began a study in Snipe Pond to determine optimum fish stocking densities. The goal is to determine the fall stocking density that will result in the greatest biomass of fish during spring and summer draw-downs for feeding wood storks and other wading birds. In addition, the invertebrate community (prey base for the fish) will be assessed, within and outside of enclosures, prior to stocking and again just prior to draw-down. Forty experimental enclosures were set up, invertebrate diversity, densities, etc. were measured and enclosures stocked with different densities of bluegill, provided by Orangeburg NFH, on Oct 4, 1997.

2

Habitat Restoration

2a. Wetland restoration

Six man-made impoundments, totalling 148 acres, on Harris Neck were rehabilitated to restore managed functions and values associated with seasonally flooded wetlands. The work conducted included centerline canal maintenance (5 impoundments), water control structure replacement (6 impoundments), water supply line improvement, control of encroaching and undesirable vegetation, and re-establishment of wetland tree species (2 impoundments). In addition to 400 hours of contracted excavator work, many hours of labor were contributed by SCR employees. The \$100,000+ partnership project between Ducks Unlimited (DU) and the Service was 90% complete by the close of the year (see 5a).



Tractor operator Barrett and forestry technician Gilje complete foundation work prior to the installation of the Goose Pond water-control structure (97-HN4 MJ).



A completed section of the Bluebill impoundment after canal maintenance and root-raking was conducted with an excavator operated from mats (97-HN5 MJ).

2b. Upland restoration

No activity this year.

2c. Deepwater/Riverine restoration

No activity this year.

3

Habitat Management

3a. Water level management

The refuge has two series of manageable impoundments (east and west) with three ponds in each series. The east series consists of Teal Pond (14 acres), Greenhead Pond (14 acres) and Goose Pond (11 acres). The west series consists of Snipe Pond (28 acres), Woody Pond (48 acres), and Bluebill Pond (35 acres). Each series is gravity-fed from one pond to the next. The ability to provide water as needed in refuge impoundments is crucial to the management of wildlife at Harris Neck. Refuge water management begins with the capture of as much rainwater as possible. To supplement natural rainfall accumulations, a 16" deep-well, capable of pumping 2,000 gallons of water per minute, is utilized.

During February, it was necessary to pump water from the 16" well to raise water levels in Woody Pond. By the end of February, the pond was full and wood storks began to initiate nesting activities. During April, May, and June it was necessary to pump water for short durations in Woody Pond to offset evapotranspiration losses.

Draw-down of Snipe Pond began in July to expose fish resources to nesting and fledgling storks. All refuge ponds were drained by the end of September in preparation for impoundment and water-control rehabilitation work to be conducted as part of the Marsh Project agreement between the Service and DU (see 2a & 5a). All work was completed in Snipe Pond by mid October and the impoundment was once again filled to enable fish to be stocked. The remainder of the ponds were beginning to fill towards the close of the year from rainwater capture.

3b. Moist soil management

The refuge manages approximately 20 acres of moist soil areas on a rotational basis. During June, Greenhead Pond was disked to generate a more desirable and diverse plant composition. The ten acres manipulated produced an outstanding crop of Cyperus sp. until it was "re-disked" by feral hogs.



Before disking in Greenhead Pond, moist soil vegetation species present were less than desirable (97-HN6 MJ).



After the soil tillage, a much more desirable moist soil crop was produced, although it was lost prior to seed production, as it was learned feral hogs find the responding plant irresistible (97-HN7 MJ).

3c. Graze/mow/hay

Approximately 30 acres of road edges, levees, and small openings were mowed to promote habitat diversity, maintain access routes, and release established early successional plants during 1997.

3d. Farming

Twelve acres of oats, winter wheat, and clover were no-till planted along the four-mile wildlife drive in October.

3e. Forest management

A grant application for 1,200 bald cypress, 400 black gum, 500 flowering dogwood, and 1,000 live oak was submitted to the National Tree Trust during 1997. The trees will be received early in 1998. The cypress and gum

trees will be planted on newly constructed islands in Woody Pond to re-establish natural nesting habitat for wood stork and other wading birds. The upland species will be used to accelerate succession and create greater diversity in upland areas of the refuge.

3f. Fire management

Prescribed burning

Prescribed Burns -1997

| Date | Station | Unit | Acres | Type | Fire # |
|--------|---------|----------------|-------|---------------|--------|
| 1/14 | HN | Bluebill Pond | 30.0 | Hand Ignition | 4805 |
| 1/17 | HN | C-12 | 65.0 | Hand Ignition | 4952 |
| 1/17 | HN | C-13 | 74.4 | Hand Ignition | 4953 |
| 1/21 | HN | C-11 | 138.6 | Hand Ignition | 4954 |
| 2/19 | HN | C-18 | 98.7 | Hand Ignition | 4955 |
| 7/30 | HN | brush pile # 1 | 0.1 | Hand Ignition | |
| 7/31 | HN | brush pile # 2 | 0.1 | Hand Ignition | |
| Totals | | | 406.9 | | |

Wildfire activity

Nineteen-Ninety-Seven was a quite year for wildfires preparedness and wildfire activity. Our drought index during this time period ran in the mid to upper 500's. The weather pattern during this time period was not conducive for thunder storm development and its associated lighting, so no pre-suppression personnel were stationed on the refuge.

Charles Johnson, engineering equipment operator joined the SCR fire staff and was given the assignment of maintaining the fire breaks on Harris Neck. Keith Penrose joined the complex fire staff as a forestry technician/fire control officer and is responsible for the maintenance of the refuge fire cache and fire equipment.

3g. Pest plant control

The encroachment of cattails in refuge impoundments has become a problem in recent years. Refuge staff began addressing the problem in 1994 with good success. The control of the undesirable plant continued again this year with approximately 20 acres being treated.

4

Fish and Wildlife Management

4a. Bird banding

Eighty-four fledgling wood storks were banded during May. This was the largest number ever banded on Harris Neck refuge (see 1b).

Six wood storks were cannon-netted and fitted with satellite transmitters in August. This was the second year wood storks had been captured on Harris Neck for telemetry study (see 1b).

4b. Disease monitoring and treatment

No activity this year.

4c. Reintroductions

No activity this year.

4d. Nest structures

During January and February, maintenance was conducted on 300 artificial nest structures that have been erected over the past few years for nesting wood storks. The large platforms and boggy ground conditions made the work strenuous. However, the effort was soon rewarded as the first, of many storks, began to appear and build nests on the structures.

Bluebird box checks indicated 90% of refuge bluebird boxes were being used by bluebirds. Ten additional bluebird boxes were erected on Harris Neck in 1997 and another ten boxes were put-up on private lands immediately adjacent the refuge (see 7b).

4e. Predator and exotic control

An intensive feral hog removal strategy was implemented on Harris Neck in 1988. The program has been effective in reducing the impacts of feral hogs on the refuge. However, constant removal efforts remain necessary to keep the population in check. During 1997, approximately 45 animals were removed by refuge staff and hunters.

Fisheries Resource

Stocking of fish in refuge impoundments is part of the refuge's plan to provide ideal feeding areas for wading birds (particularly nesting and fledgling wood storks). In the fall of 1997, Orangeburg National Fish Hatchery in coordination with the state of South Carolina stocked 694,000 bluegill fingerlings in Snipe Pond. The pond will be drawn-down during 1998 to supplement food resources for nesting and fledgling wood storks.

Periodic pumping of ground water during the summer months is necessary to maintain water levels and raise dissolved oxygen levels in impoundments stocked with fish. The refuge has a 16" deep-water well which provides these pumping capabilities, however the ground water utilized can be oxygen deficient. During the year, two 16 foot aeration towers were erected in an attempt to increased dissolved oxygen levels in the water being pumped. The project was a part of the overall impoundment rehabilitation work conducted on Harris Neck between the Service and DU.

A secondary benefit of the tower erection project was to provide better cost-efficiency by placing a greater degree of back pressure on the pumping unit. Time will tell if both objectives were achieved.



The content of dissolved oxygen in ground water pumped to refuge impoundments are enhanced through aeration towers erected as part of the cooperative impoundment rehabilitation project undertaken during the year (97-HN8 MJ).

5

Coordination Activities

5a. Interagency coordination

A Marsh Project Proposal was submitted to Ducks Unlimited in 1996 in an attempt to partnership costs of proposed rehabilitation of three refuge impoundments and associated water supply lines. Mark Vrtiska, Regional Biologist with Ducks Unlimited (DU) out of Jackson, Mississippi toured Harris Neck in 1996 to evaluate the proposed work. As a result of the initial visit, a cooperative agreement was signed in March between DU and the Service. A subsequent visit by DU representatives in April lead to

expansion of the original proposal to include six impoundments encompassing 148 acres. The original agreement between DU and the Service was amended September 1997 from \$25,000 to \$100,000. Ducks Unlimited's contributions equalled one-half of the total project cost and were instrumental in completion of the rehabilitation of the refuge's managed wetlands (see 2a).



As a result of impoundment rehabilitation project, islands were created in Woody Pond for the re-establishment of natural nesting structure (97-HN9 MJ).

Refuge Officer Bryant coordinated with special agent training officials at the Federal Law Enforcement Training Center (FLETC) in Brunswick, Georgia to provide agents in training with boat operation and safety instruction. Two days of the training were conducted at Harris Neck and utilized refuge equipment and facilities. The training occurred during the month of January.

Refuge manager Johnson was contacted in February by Ryan Gardner, Director, McIntosh County Beautiful Campaign. Mr. Gardner requested assistance in litter maintenance of one-mile of roadway traversing the southern boundary of the refuge. Manager Johnson agreed the refuge would accept responsibility for the clean-up of the area.

Keith Tassin, botanist for The Nature Conservancy visited Harris Neck on July 9 to assist with the identification of a flowering perennial believed rare and endemic to the area. Mr. Tassin identified the plant as being an exotic species native to Asia.

Anthony Blunt, marine technician with Georgia DNR Coastal Resources Division visited Harris Neck in August. The meeting was initiated in regard to contacts made by manager Johnson inquiring about a possible outlet for approximately 150 4'x 4' concrete tiles. The tiles were installed by the Military for airfield drainage during World War II and had recently been removed during wetland rehabilitation work by the refuge. Mr. Blount removed a broken section of tile to be tested for saltwater durability and for possible contamination. Favorable results were received from the tests conducted and coordination has begun for the offshore transport of the material. The material is scheduled to be used as a part of Georgia DNR's Outer Continental Shelf Program Initiative to create artificial reef.



Accumulations of concrete tiles from past refuge projects was tripled with the impoundment rehabilitation work conducted during 1997 (97-HN10 MJ).

On October 7, a no-till planting demonstration was held on Harris Neck to illustrate the technique's benefits and to promote a low-cost no-till program offered to private landowners through the U.S. Department of Agricultural's Coastal Resource and Development Agency. The planting demonstration

culminated several months of coordination between refuge manager Johnson and Don White of the National Resource Conservation Service (NRCS). A news release distributed to local press was issued through NRCS in an attempt to attract private landowners interested in wildlife food plantings. Georgia DNR's district biologist for coastal Georgia was invited as a guest speaker and to assist with landowner questions. The planting demonstration attracted 26 people and was considered a success. It is anticipated, future demonstrations will be held on Harris Neck as coordinators continue efforts to explore avenues to promote conservation assistance programs to private landowners.



The no-till demonstration held the attention of those in attendance and was followed by a question-answer session to provide as much information to landowners as possible (97-HN11 SD).

During October, Captain Ken Wheeler, Air Force National Guard, offered assistance in the maintenance of refuge facilities during weekend drills by his unit. On November 25, Captain Wheeler met with SCR managers to discuss possible projects. Replacement of fishing piers on Harris Neck was selected as the work to be conducted. The appropriate paperwork will be forwarded to guard commanders early in 1998.

5b. Tribal coordination

No activity this year.

5c. Private lands activities

A no-till planting demonstration was conducted on Harris Neck to promote no-till planting of wildlife food plots on private lands (see 5a).

Ten bluebird boxes were erected on private lands adjacent the refuge during 1997 (see 8b).

6**Resource Protection****6a. Law enforcement**

Refuge Officer Bryant travelled to Merritt Island NWR to pick up new (used) law enforcement vehicle obtained from the Division of Law Enforcement in January.

Sam Beecher, convicted of baiting deer on Harris Neck in 1996 conducted court ordered community service on the refuge in February 1997. Mr. Beecher's 40 hours of service were utilized through work associated with installation and repair of wood stork nesting structures.

Collateral duty officers Johnson and Barrett attended Law Enforcement Refresher Training in Tallahassee, Florida in March.

On April 6, refuge officer Johnson observed damage to an archeological site and reported to officer Bryant. Bryant, along with regional archeologist, Rick Kanaski investigated and documented the area. Refuge Officer Porter was also called to assist. Remote cameras were placed near the area. Officers also dedicated over eighty hours in surveillance and investigatory duties. Damage, consisting of six large holes dug in the bank and several scattered and broken bottles, was apparently caused by bottle hunters. The investigation was terminated after thirty days with no additional information obtained.

Harris Neck collateral duty officers Johnson and Barrett assisted SCR full-time officers on various occasions throughout the year with vehicle and boat check-points on Savannah NWR. Law Enforcement time committed to other SCR stations by Harris Neck Officers totalled 160 hours.

Larry Horn, convicted of baiting deer on Harris Neck in 1996 served 40 hours of court ordered community service on the refuge in June. Mr. Horn, an accomplished carpenter was valuable in constructing a handicap accessible walkway addition to the Harris Neck Office.

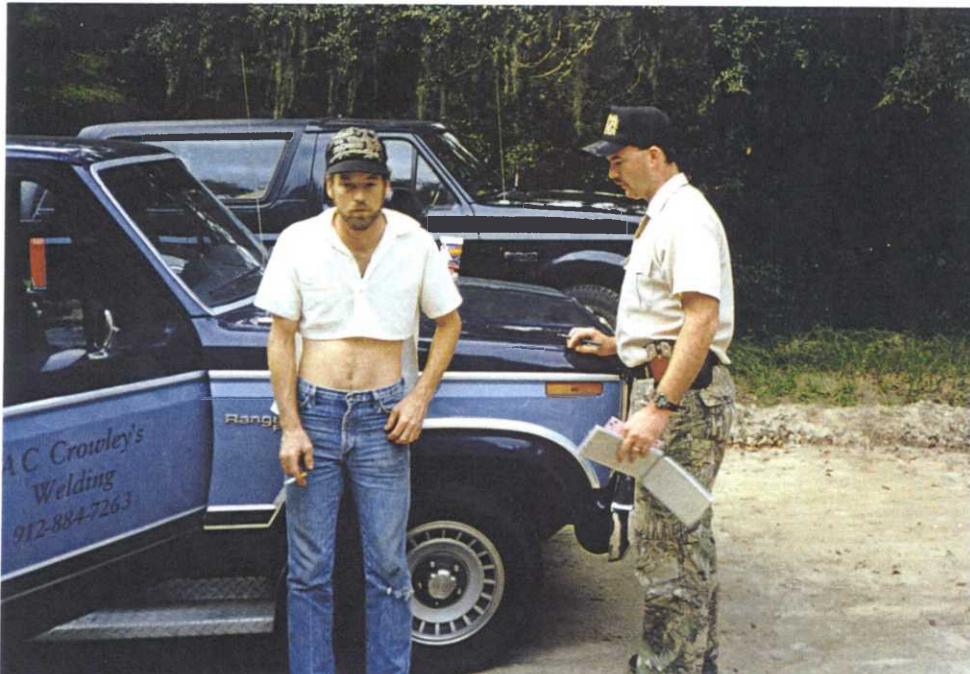
Collateral duty officers Johnson and Barrett travelled to Piedmont NWR for firearm requalification on September 18.

On June 13, Officer Bryant was contacted by the McIntosh County Sheriff's Department in reference to a reported drowning on the refuge. Assisted by Georgia DNR officers, Bryant began a search for the subject in Harris Neck Creek. The individual was recovered near the fishing piers located at the refuge entrance. The coroner's report, along with witnesses' statements, indicated the subject had been drinking heavily and jumped from the pier to swim. Witnesses stated the tidal current in combination with his intoxicated state were primary factors resulting in the death of the individual.

September was a busy month for refuge officers at Harris Neck NWR. On the 20th, refuge officer Bryant assisted the state and county with a vehicle check-point at Barbour River Landing in response to complaints of resource violations and boating under the influence (BUI). Several vehicles were checked and several violations made, including two cases of over the daily limit of shrimp.

On September 27, a vehicle check-point was conducted at the intersection of Harris Neck Road, the exit to the wildlife drive, and entrance to the Barbour River boat landing. McIntosh County Sheriff's Department and Georgia DNR assisted refuge officers.

Numerous violations were cited, more specifically; untagged deer, over daily limit of shrimp, and two driving under the influence (DUI) cases.



Refuge Officer Bryant takes information from an individual encountered during a road check point on the refuge (97-HN12 RP).

Twenty-three Notices of Violations were issued on Harris Neck in 1997, equalling 15% of the total for the entire SCR Complex. The majority of violations on Harris Neck involved trespass after hours and/or into closed areas, night hunting, drug possession, migratory bird and fishing/boating violations.

6b. Permits & Economic uses

In 1985, the Service used special funds to construct a commercial-fishing dock adjacent to the Barbour River boat ramp. Under a Special Use Permit (SUP), the Barbour River Waterman's Association is permitted to use the facility. Activities associated with Waterman's Association during the year included: Suspension of dock privileges for two members in non-compliance with special conditions of the lease agreement (Ernest McIntosh was cited by state wildlife officers for possession of undersize crabs which resulted in a refuge mandated one month suspension of dock privileges in July. Johnny Timmons, was suspended after failure to comply with Service requirements to remove his boat which sank beneath the dock. Mr. Timmons was formally notified on two occasions and given a year to address the problem.

After no action was taken, Mr. Timmons was suspended indefinitely in August.); Installation of new gib crane and hoist system on the docking facility used by the Association; and the annual meeting between the Association and Service which was held on October 6. The annual meeting was held to renew the SUP, collect fees, and discuss topics of concern. Topics discussed included no wake zones, steep incline of public boat ramp, the Associations continued existence, lease rates, selection of new members, law enforcement issues, and facility maintenance. The meeting was informative and constructive and should provide for continued coordination in the upcoming year.

The Georgia Conservancy was issued a permit to conduct tours and conduct environmental education programs on the refuge.

Charlton County Park and Recreation Commission was issued a permit to conduct interpretive tours of the refuge.

The Nature Conservancy was issued a permit to conduct tours of the refuge to promote environmental education.

The U.S. Army Corp of Engineers was issued a permit to conduct environmental contamination investigations during the year.

Darold Bowster, researcher from the University of Georgia was issued a permit to conduct invertebrate investigations in one of the refuge's impoundments.

6c. Contaminant investigation

Efforts to remove four underground storage tanks discovered in 1993 at the refuge boat storage and docking facility continued through 1997. On February 6, refuge manager Johnson was informed by the U.S. Army Corps of Engineers (COE) funding would not be available again this year to remove the four 25,000 gallon fuel tanks containing residual contaminants dating from World War II.

Diesel fuel contaminated with gasoline was delivered to the Harris Neck fuel storage containers early in the year. The contaminated fuel was discovered when diesel fueled equipment began to run sluggish and became inoperable. Fuel samples were sent to Coastal Refining on February 19. Flash-tests revealed the product ignited at 92 degrees Fahrenheit instead of the acceptable temperature of 125-138 degrees Fahrenheit. The source of contamination was undeterminable and the only compensation gained was trade-out of the contaminated fuel delivered.

The COE Rock Island, Illinois division conducted an ordinance investigation on June 24 to determine if hazards related to unknown ordinance disposal during World War II by the military existed on the refuge. The two-day investigation did not reveal any evidence suggesting a need for further investigation.

The COE Savannah, Georgia division conducted a separate and independent investigation on June 24 to determine if soil or water contamination was detectable from lead concentrations associated with World War II shooting ranges. The investigation did not reveal the presence of lead contamination.

6d. Contaminant cleanup

Representatives from Atlas Sand and Gravel of Savannah, Georgia remained interested in the removal of asphalt and concrete associated with the military presence on Harris Neck during World War II. The project was proposed to begin in 1997, however, the removal and recycling project has been postponed until sometime next year.

6e. Water rights management

No activity this year.

6f. Cultural resource management

Rick Kanaski, Regional Archeologist for the Service, conducted two separate investigations on Harris Neck in 1997. Mr. Kanaski reviewed the sites proposed for asphalt removal and conducted field investigations to determine the potential for disturbance to known or unknown archaeological sites. In addition, a field investigation was conducted by Mr. Kanaski after digging was discovered at a known cultural resource site. The disturbance was evaluated and documented on March 8. Further disturbance was not incurred at the site during the year.

6g. Land acquisition support

A preliminary proposal for purchase of 63 acre tract of land, bordered by existing refuge lands on two sides, was forwarded to the Regional Office in Atlanta, Georgia in February. The proposal has been viewed favorably during the review process and has been scheduled to be appraised early in 1998.

7

Public Education and Recreation

7a. Provide visitor services

Visitation to Harris Neck refuge reached 69,675, the highest ever recorded on the refuge. Entry into the refuge at the Harris Neck Creek entrance was monitored by an electronic vehicle counter.

A total of 61,729 visitors were calculated having entered through this gate. The remaining 7,946 visitors accessed the refuge via the Barbour River Landing.

During periods in the spring and summer, wading bird rookery areas were closed except to environmental education groups led by refuge volunteers. Most visitors utilized some of the refuge's public facilities: a four and one-half mile auto tour route, two recreational fishing piers, two boat launching ramps, a commercial fishing dock, two parking lots, portable toilets, and an interpretive/information exhibit kiosk.

Interpretive Programs

Volunteer wildlife interpreters conducted seven group tours on Harris Neck in 1997. Tour participants included members of the Sierra Club-Nancy Cathcart Group (Hilton Head Island, South Carolina); the Georgia Wildlife Federation; the National Land Trust Alliance; the Ogeechee Audubon Society (Savannah, Georgia); and teachers attending South Carolina and Georgia Marine Science Educators Conference.

Environmental Education

Several environmental education programs were conducted on the refuge in 1997. On June 20, Armstrong Atlantic State University's Teachers-Environment-and-Free-Enterprise-Institute (TEFEI), an annual teachers' ecology workshop, incorporated a day of field study at Harris Neck into their two-week summer schedule of activities. Volunteer Dr. Lloyd Newberry, a founder of TEFEI, served as the instructor for the session which covered a variety of topics related to refuge management, objectives, and concerns.

Dr. Newberry also served as an instructor for a group of Armstrong Atlantic State University faculty members participating in a coastal ecology study program. The members toured the refuge on February 21 focusing attention upon the recently rehabilitated impoundment system.

The University of Georgia Marine Extension Service (MAREX) included two field trips to Harris Neck for teachers enrolled in their coastal ecology program. Volunteer, and MAREX instructor, John Crawford taught classes at the refuge on June 21-24, with most attention devoted to habitat management for the endangered wood stork.

Throughout the year, Lyman Hall Elementary School of Hinesville, Georgia conducted classes on Harris Neck under supervision of volunteers. In addition, several school groups were provided with nature study programs directed by manager Johnson and volunteer Tim Anderson.

Special Events

During National Wildlife Refuge Week, the evening of October 17 was set for Harris Neck's second nighttime nature walk. Only 50 passes were issued for the program, however three additional participants were allowed to join the tour. The event drew local media attention from the Darien News, the Savannah Morning News, and Creative Loafing magazine.

Hunting

The second annual archery hunt on Harris Neck took place on September 25-27. The non-quota hunt scheduled for seven days last year was decreased to three in 1997. Approximately 250+ hunters participated harvesting 46 deer and four hogs.

Harris Neck's one-day quota shotgun hunt was held on November 15. More than 500 applicants competed for the 100 slots to be filled. Seventy-three of the selected hunters were present the day of the hunt. Participating hunters harvested 24 deer and 5 hogs.

7b. Outreach

Savannah Coastal Refuges' staff entered the "distance learning" field in 1997. Throughout May, June, July, and August, SCR Ranger Metz and Okefenokee NWR Ranger, Jim Burkhardt devoted many days at Harris Neck to the development of a program on wood storks which could be presented through the Georgia Statewide Academic and Medical System (GSAMS). This comprehensive learning and health care network allows Georgia

students to interact live with instructors at distant locations in the state. Through the use of telephone lines, video cameras, and television monitors, GSAMS links public schools (grades K-12), colleges, universities, adult and technical schools, hospitals, prisons, Georgia's public television network, and Zoo Atlanta together in an interactive, two-way learning environment. In 1997, over 200 GSAMS programs were broadcast to more than 24,500 Georgia students.

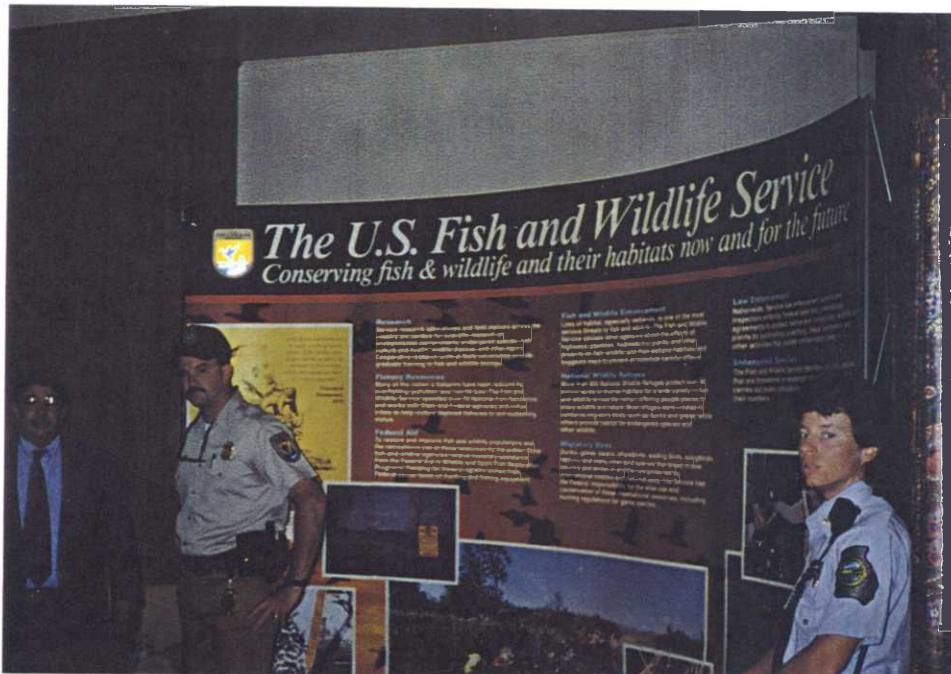


A film crew from the FWS' National Training Center taped comments from Project Leader Drake for the GSAMS broadcast (97-HN13 PEM).

The GSAMS classes featuring Harris Neck's stork management included video footage filmed on the refuge while storks were nesting and while some were banded or fitted with transmitters for electronic tracking. The class sessions were broadcast from Waycross College on October 6 and again on October 7. Ranger Metz and Biological Technician Russ Webb served as the on-camera instructors and they fielded an array of questions from students across the state.

On May 15, Refuge Officer Matt Bryant and Special Agent Patrick McIntosh participated in Armstrong Atlantic State University's annual Career Day. The University's Criminal Justice Department requested U. S. Fish and Wildlife Service (FWS) representation at the event which always highlights

careers in the law enforcement field. Other federal agencies which assisted with programs were the Federal Bureau of Prisons, the U. S. Secret Service, Bureau of Alcohol Tobacco and Firearms, the National Park Service, and the U. S. Marshall Service. The FWS booth included a portable display on the work of the nation's primary conservation agency. Students who expressed interest in FWS careers were provided with information including the Internet web site for job vacancies in the FWS, and Region 4's "Job Hotline" number. Over 200 students visited the Service booth.



Officer Bryant (center), Agent McIntosh (left), and a state officer manned the information booth for wildlife conservation careers (97-HSN14 MB).

News Media Relations

Media coverage of refuge management, wildlife, and special activities included seven articles written by Gail Krueger for **The Savannah Morning News**, and several televised interviews by WTOC-TV (the CBS network affiliate for coastal Georgia) reporter Donald Jones. The Krueger articles covered a variety of topics such as the "Birding Boot Camp" conducted by the Georgia Department of Natural Resources on Savannah and Harris Neck refuges in April; the butterfly survey managed by volunteers on July 29; the ongoing wood stork research coordinated with the Savannah River Ecology Laboratory; and the programs planned to celebrate National Wildlife Refuge Week (October 12-18). Two of the WTOC-TV spots featured highlights of the wood stork research project filmed when storks were banded or fitted

with transmitters. Other WTOC news segments covered events planned for National Wildlife Refuge Week. Reporters from **The Darien News** also wrote articles about the stork project and National Wildlife Refuge Week. **Creative Loafing**, a Savannah weekly newspaper, provided the most comprehensive summary of events planned for National Wildlife Refuge Week and a review of the Savannah Coastal Refuges, with emphasis on recreational opportunities.

Partnerships

The Belvedere Ladies Club solicited the support of the Harris Neck NWR staff in developing a bluebird management plan for Belvedere Island Plantation, the 2,000 acre private residential community located adjacent to Harris Neck NWR. Volunteer Charles Warnock, who maintains several hundred bluebird nest boxes in Chatham County, met with club officers and visited the plantation to determine the area's potential for an increased bluebird population. On June 26, both Charles and Manager Johnson addressed club members at the plantation clubhouse presenting a proposal for the installation and maintenance of bluebird boxes at Belvedere Island. With the support of the club, a plan to install 10 nest boxes was approved.

Subsequently, Charles built the boxes which he and Manager Johnson installed on April 12. A new volunteer recruit from the plantation, Cindy Peterson, received training in nest box monitoring and maintenance.



Refuge Manager Johnson assists Refuge Volunteer Peterson with blue bird box checks on Belvedere Island Plantation located adjacent refuge lands (97-HN15 MJ).

8

Planning and Administration

8a. Comprehensive management planning

No activity this year.

8b. General administration

Harris Neck NWR is part of the Savannah Coastal Refuges Complex which is headquartered in Savannah, Georgia. The complex is comprised of seven national wildlife refuges, totalling 54,027 acres, found along a 100 mile stretch of coastline in Georgia and South Carolina. The seven refuges are Pinckney Island and Tybee Refuges in South Carolina, Savannah (located in

both states along the Savannah River), and Wassaw, Harris Neck, Blackbeard Island, and Wolf Island Refuges in Georgia.

Harris Neck NWR staff during 1997.

Personnel



Refuge Manager Michael Johnson (left); Maintenance Worker Leo Barrett (97-HN16 SG).

| <u>Permanent Full Time</u> | <u>Grade/Series</u> | <u>EOD Date</u> |
|--|---------------------|-----------------|
| 1. Johnson, Michael W. Refuge Manager | GS-11/485 | 07/15/96 |
| 2. Barrett, Leo Maintenance Worker | WG-08/4749 | 11/03/91 |

Maintenance worker Barrett and refuge manager Johnson were awarded On-The-Spot awards during the year.

Tractor operator Barrett was promoted to maintenance worker during the year.

Refuge manager Johnson was promoted during the year.

Volunteer/Work Programs

Twelve of Savannah Coastal Refuges' volunteer tour guides received special training at Harris Neck on September 12. Buddy Sullivan, who also serves as a refuge volunteer, provided an on-site history of Harris Neck, from the colonial era through the post-World War II period when the McIntosh County government was charged with management of the pre-refuge lands. Buddy, author of *Early Days in the Georgia Tidewater*, provided a similar historical review of Blackbeard in 1996; most of the volunteers who attended that training session requested a follow-up historical tour of Harris Neck. Buddy's commentary offered the volunteers a wealth of information which they could utilize when they conducted interpretive programs on the refuge.



Buddy Sullivan (center, in shorts) shared the podium with Regional Archeologist Rick Kanaski (pointing) during the refuge history class (97-HSN17 PEM).

Refuge volunteers contributed valuable time and skills to the following biological, public use, and maintenance activities on Harris Neck NWR during 1997:

Christmas bird count surveys
Mid-Winter waterfowl survey
Mid-Winter Bald Eagle survey
Water bird nesting survey
International migratory bird survey (Partners in Flight)
Grounds upkeep
Interpretive tour for Georgia and South Carolina Marine Educators
Interpretive tour for Sierra Club-Nancy Cathcart group
Interpretive tour for Georgia Wildlife Federation
Interpretive tour for National Land Trust Alliance
Interpretive tour for Ogeechee Audubon Society
Wood stork nesting structure maintenance
Bluebird box checks
Nighttime nature walk tour
Environmental education programs for (MAREX, TFEI, Armstrong Atlantic
Faculty, and Hinesville Elementary classes.

Other Manpower programs

Refuge staff stationed at other refuges within the Savannah Coastal Refuges Complex, fire crew, and YCC employees were instrumental in providing a means to accomplish ongoing activities on Harris Neck throughout the year.

Boyd Blihovde, FWS cooperative education student stationed at Carolina Sandhills NWR, was detailed to Harris Neck for one week during September. Boyd assisted refuge staff with a variety of work including the replacement of the Snipe Pond water-control structure.

Three individuals participated in the YCC program from June to August. The participating youths were from Liberty and McIntosh counties and stationed at Harris Neck, although they assisted with projects on other SCR managed refuges. Their efforts and accomplishments were much appreciated.

Equipment and Facilities

The former on station residence was converted to an office for the Harris Neck staff in January.

During February, a track idler pulley, and starter, were replaced on the 350 John Deere dozer. The engine was re-built a short time later.

The motor was replaced on the electric exit gate in March.

A phase protector was installed at the 16" well pumping station to protect the phase master against frequently experienced power surges. The work was conducted in March.

A 2500 watt Onan gas generator was purchased in April.

A handicap access ramp and walkway addition were added to the Harris Neck office facility in June.

The deteriorated wooden bay shop doors were replaced with galvanized door in July.

The Eulonia radio tower was repaired in September, October, and December for damage incurred from lighting.

During October, six 4'x 8" x 24' oak mats were delivered for heavy equipment work to be conducted in Harris Neck impoundments.

Two galvanized boat trailers were delivered in August for transport of new Boston Whaler boats acquired with storm damage funds.

June 17, Engineers, Ken Quintana and Tony Pardina from the Regional Office in Atlanta surveyed proposed replacement of the maintenance shop roll-up doors and resurfacing of the deteriorated asphalt along the wildlife drive.

The Harris Neck maintenance shop was re-wired in November to met Service standards.

Deteriorated asphalt along the four mile wildlife drive on Harris Neck was classified according to degree of decay in December. The classification process was conducted to aid contractors in the bidding of the project.

Safety

There were no lost time accidents on Harris Neck in 1997 by refuge staff. However, on November 10, forestry-technician Gilje suffered a minor eye injury when a limb struck him in the face while moving a piece of equipment.

Other

Personnel Officer, Charlotte Westfield and Personnel Specialist Jim Nee, from the Regional Office visited Harris Neck in February as part of a desk audit of SCR refuge officer Ray Porter's position. The visit also served as an orientation to a refuge work setting for Mr. Nee, a newly appointed Service employee.

Ten FWS employees training at the Federal Law Enforcement Center Training Center (FLETC) in Brunswick, Georgia were given a tour of Harris Neck on May 11. The day tour focused on refuge management issues, and interpretation of the natural and historical aspects.

A Refuge Revenue Sharing Act check for \$62,000 was presented to the McIntosh County Commissioners on August 19. The check represented revenue sharing payments for Harris Neck, Wolf Island, and Blackbeard Island NWR's. This year's check was \$5,997 more than 1996 but remained \$38,995 less than the amount presented in 1995.

Ann Feltner, Congressional Liaison Officer with the Region 4 External Affairs Office in Atlanta, Georgia and Linda Walker, Vice President Gore's National Performance Review Committee, Atlanta, Georgia were given a tour of Harris Neck as an orientation to the Service's activities on November 12.

FEEDBACK

Each Service employee can make a difference for wildlife, regardless of their job title. The resources for which the Fish and Wildlife Service is responsible for protecting at times seem like the most under appreciated resources in the world, as does the dedication and accomplishments of the Service and its employees. There should be little doubt that employees of the Service are dedicated to their work and mission as they persevere during trying times managing to do more with less (we are even going to have to do more as we continue to lose wildlife habitat and more species face the threat of extinction).

I challenge every employee to maintain the fire and drive within, that led you to the conservation field (the reason was, I presume, to make a difference) and to encourage others through your actions to do the same. All of us know fellow employees who have become battle worn, as daily battles are fought in our jobs, personal lives, and we continue to witness changes within our own agency. We must be supported and supportive to provide the reassurance necessary to accomplish individual goals, as well as, Service goals. We must remember that we have a mission that can only be accomplished through a team effort, and that we as Service employees can make difference, individually and collectively, as can be demonstrated by our track record.

Those who do not believe they can still make a difference, are negatively impacting a team which many have made personal and family sacrifices to join and do not intend to abandon or damage through present or future actions (or lack of actions). A resolution to the fact that a difference can no longer be made or a conveyance of a contentious attitude can be infectious and transmitted (knowingly or unknowingly) to others. **Please recognize what a disservice this is to the resource and generations to come.** As most of us recognize, our jobs are not just any jobs, and each of should make a positive difference every day, even if that difference is silent to others or seemingly unnoticeable. In the long-term, our collective efforts will be noticed and appreciated by all - GUARANTEED! The fish and wildlife resources we protect and manage deserve and require our continued and best collective effort.

APPENDIX

General Administration SCR

Savannah Coastal Refuges Complex staff during 1997

Personnel



Pictured left to right are 1, 4, 3, 9, 6, 8, 5, 7,
2, not pictured 10 (97-SCR1 RK)

A total of 23 permanent full time, four permanent career seasonal, and one term appointment employees make up the staff for the entire complex. The majority are assigned to specific stations and are reported in the appropriate refuge narrative. There are however, nine staff persons that report to the complex headquarters office. They are:

| <u>Permanent Full Time</u> | <u>Grade/Series</u> | <u>EOD Date</u> |
|---------------------------------------|---------------------|-----------------|
| 1. Sam O. Drake Jr. Project Leader | GM-14/485 | 01/09/95 |

| | | |
|---|----------------------------|------------------------|
| 2. Mark Musaus Deputy Project Leader | GM-13/485 | 08/12/90 |
| 3. John Robinette Wildlife Biologist | GS-12/486 | 02/29/88 |
| 4. Jim Stockie Forester/FMO | GS-11/460 | 05/29/96 |
| 5. Patricia E. Metz Refuge Ranger | GS-11/023 | 07/07/77 |
| 6. Chester R. Porter Law Enforcement Officer | GS-07/083 | 10/13/85 |
| 7. Matthew Bryant Law Enforcement Officer | GS-07/083 | 02/28/94 |
| 8. Robin R. Gay Office Assistant | GS-07/303 | 01/26/87 |
| 9. Gail Stewart Secretary | GS-05/318 | 01/10/94 |
| <u>Temporary Full Time</u> | <u>Grade/Series</u> | <u>EOD Date</u> |
| 10. John Metz Maintenance Mechanic Helper, NTE 1 year | WG-05/4749 | 07/21/97 |

In addition there is a permanent fire crew that conducts prescribed burning and wildfire suppression activities on the entire complex. For the last several years we have divided the crew between Savannah and Harris Neck refuges as reporting units. We are in the process of having the entire crew report to Savannah refuge but will do that through attrition. The fire crew includes:



Fire crew left to right 1, 2, 3, 4, 5 (97-SCR2-RK)

| <u>Permanent Full Time</u> | <u>Grade/Series</u> | <u>EOD Date</u> |
|---|---------------------|-----------------|
| 1. Keith Penrose Lead Forestry Technician Savannah NWR | GS-06/626 | 05/26/97 |
| 2. Charles Johnson Engineering Equipment Operator, Savannah NWR | WG-08/5716 | 05/26/97 |

| <u>Career Seasonal</u> | <u>Grade/Series</u> | <u>EOD Date</u> |
|---|---------------------|-----------------|
| 3. John DeBerry Forestry Technician Harris Neck NWR | GS-04/62-4 | 05/02/93 |
| 4. Ricky Owen Forestry Technician Savannah NWR | GS-04/62-4 | 03/02/93 |
| 5. Scott Gilje Forestry Technician, Harris Neck NWR | GS-04/62-4 | 03/01/93 |

Although reporting to specific locations, staff of Savannah Coastal Refuges assist with work projects or management activities at all seven refuges.

No progress was made in this station's attempts to re-instate refuge officer Ray Porter's grade level to GS-8. His position had been submitted for an accretion of duties upgrade to GS-9. Unfortunately, an OPM appeal review determined the position warranted no more than a GS-7. He was downgraded on October 13, 1996 but retains pay for two years. Personnel Officer Charlotte Westfield and Jim Nee audited the job February 24-25. During 1997 new job series were reviewed as well as a regional effort to write new position descriptions for the 083 series from GS-5 through GS-9. Time is running out.

Forestry technician, Scott Gilje, was converted to permanent career seasonal in April 1997 after selection off of a competitive announcement.

Lead forestry technician, Keith Penrose, transferred from the Forest Service in Idaho to serve as the Fire Control Officer.

Engineering equipment operator, Charles Johnson, transferred from Okefenokee NWR where he served as a WG-6 tractor operator.

Maintenance mechanic helper, John Metz, was selected for a NTE one year appointment to be paid out of storm damage funds. He assisted on work projects at various refuges.

Time Off awards were given to Robin Gay and Gail Stewart for their assistance with the Atlantic Flyway Technical meeting held in Savannah, Georgia.

On-The-Spot awards were given to the following staff in the headquarters office or fire program: Gail Stewart, John Robinette, Robin Gay, Mark Musaus, Pat Metz, Jim Stockie, Matthew Bryant, John DeBerry(2), and Scott Gilje.

Staff Training-complex wide

The following training/workshops were attended during the year by SCR staff:

Sam Drake - Ecosystem Management Team Training, Charleston, SC, 1/21-23 and 28-30; Basic and Supervisory Aviation Training, Savannah, GA, 7/10; Motor Boat Operator Training, Harris Neck, NWR, 8/26-27

Mark Musaus - Natural Resource Damage Assessment Course, 1/27-31, Jekyll Island, GA; Law Enforcement Refresher Training, Quincy, FL, 3/10-14; Basic and Supervisory Aviation Training, Savannah, GA, 7/10; Motor Boat Operator Training, Harris Neck NWR, 8/26-27; Team Effectiveness Training (Altamaha Ecosystem) 12/3-5

John Robinette - International Sea Turtle Conference, Orlando, FL, 3/3-6; Basic Supervisory Aviation Safety Training, Raleigh, NC, 8/19 Motor Boat Operator Training, Harris Neck, NWR, 8/26-27

Patricia Metz - Shorebird Identification Workshop, Titusville, FL, 3/17-21.

Randy Isbister - International Sea Turtle Conference, Orlando, FL, 3/3-6

Ray Porter - Law Enforcement Refresher Training, Quincy, FL, 3/10-14; US Customs Blue Lightning Task Force Training, Jacksonville, FL, 6/11-12; Basic Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; PPCT Recertification Training, St. Louis, MO, 8/3-8; Motor Boat Operator Training, Merritt Island NWR, 9/97

Matthew Bryant - Law Enforcement Refresher Training, Quincy, FL, 3/17-21; US Customs Blue Lightning Task Force Training, Jacksonville, FL, 6/11-12; Basic Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; Motor Boat Operator Instructor Certification Course, Delaware, OH, 6/16-20

Jim Stockie - Basic Land Management Officer's Course, FLETC, GA, 3/1-6/20; Basic and Supervisory Aviation Safety Training, Merritt Island, FL, 7/29; Aircraft Water Ditching, Merritt Island, FL, 7/30; Motor Boat Operator Training, Harris Neck NWR, 8/26-27

Michael Johnson - Law Enforcement Refresher Training, Quincy, FL, 3/9-14; Shorebird Identification Workshop, Titusville, FL, 3/17-21; Basic and Supervisory Aviation Safety Training, Savannah, GA, 7/10; Motor Boat Operator Training, Harris Neck NWR, 8/26-27

Leo Barrett - Law Enforcement Refresher Training, Quincy, FL, 3/10-14; Motor Boat Operator Training, Harris Neck, NWR, 8/26-27

Keith Penrose - Basic and Supervisory Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; Hazardous Materials, Merritt Island, FL, 7/23-24; South Carolina Rx Fire Management, Florence, SC, 9/18; PLDO Operator, Merritt Island, FL, 11/13-14

Scott Gilje - S-217, St. Marks NWR, FL, 3/3-8; Basic Aviation Safety, Raleigh, NC, 8/19; S-212, Statesboro, GA, 8/13-15; PLDO Operator, Merritt Island, FL, 11/13-14, Motor Boat Operator Training, Harris Neck NWR, 8/26-27

John DeBerry - New Employee Orientation, Atlanta, GA, 1/27-29; Basic Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; PLDO Operator, Motor Boat Operator Training, Harris Neck NWR, 8/26-27; Merritt Island, FL, 11/13-14

Ricky Owen - New Employee Orientation, Atlanta, GA, 1/27-29; Basic Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; S-212, Statesboro, GA, 8/13-15; PLDO Operator, Motor Boat Operator Training, Harris Neck NWR, 8/26-27; Merritt Island, FL, 11/13-14

Charles Johnson - Basic Aviation Safety, Savannah, GA, 7/10; S-212, Statesboro, GA, 11/13-15

Vic Scott - New Employee Orientation, Atlanta, GA, 1/27-29; Basic Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; S-212, Statesboro, GA, 8/13-15; Motor Boat Operator Training, Harris Neck NWR, 8/26-27

Gene Singleton - Basic and Supervisory Aviation Safety, Savannah, GA, 7/10

Rebecca Schapansky - Motor Boat Operator Training, Harris Neck NWR, 8/26-27

Russ Webb - Basic Aviation Safety, Aircraft Water Ditching, Savannah, GA, 7/10-11; Motor Boat Operator Training, Harris Neck NWR, 8/26-27

Herman Lee - OMC Outboard Motor Training, Morrow, GA, 4/14-18

Volunteer program

The volunteer program for all refuges in the complex is administered out of the headquarters office. Although some volunteers prefer to work at a specific refuge many of the volunteers work wherever they are asked.

The 3,537 hours logged in 1997 by 118 volunteers reflected a drop of over 2,500 hours from the 1996 total. The decline in volunteer hours was anticipated since the transfer of Maintenance Worker Charles Glock in November, 1996 resulted in the loss of the Glock family's annual contribution of 500-800 volunteer hours. In addition, two other volunteers who each normally worked over 500 hours annually reduced their donations due to either personal or job constraints.

Several maintenance projects, such as the repairing of the turtle researcher's cabin on Blackbeard Island and the framing of a fire cache facility at Savannah National Wildlife Refuge (NWR), drew a substantial number of hours from volunteers who normally contributed only a few hours of service annually. Further supplementing the log were hours devoted to the International Shorebird Surveys conducted on Blackbeard and Wassaw Islands in cooperation with the Western Hemisphere Shorebird Reserve Network and the Manomet Bird Observatory.

Special events scheduled to commemorate Earth Week, Coast Weeks, National Wildlife Refuge Week, and the 70th anniversary of Savannah NWR were managed almost exclusively by volunteers. In addition, volunteers provided support during the spring and fall migration counts sponsored by the Partners in Flight program.

Secretary of Interior Bruce Babbitt's visit to Savannah on March 10 also served as an opportunity for Coastal Refuges' volunteers to support the outreach mission of the Savannah-Santee-PeeDee-Altamaha Ecosystem. The Secretary's tour of Ebenezer Creek was intended to promote protection of watersheds and waterways. Volunteers not only secured canoes for the Secretary's entourage, they also transported reporters from the local news media on the paddle down the creek to Savannah.

VOLUNTEER SERVICES ON SAVANNAH COASTAL REFUGES, 1997

| <u>Work or Service Provided</u> | <u>Hours Volunteered</u> |
|--|--------------------------|
| General maintenance (includes litter patrols) | 1,270 |

| | |
|--|--------------|
| Construction projects | 61 |
| Environmental education programs (on and off-refuge) | 348 |
| Hunt management support | 111 |
| Conducting interpretive tours | 270 |
| Other interpretive programs, training (on and off-refuge) | 184 |
| Administrative support | 112 |
| Wildlife management support | 78 |
| Wildlife surveys, censuses | 774 |
| Research/biological assistance | 216 |
| Photography | 44 |
| Other services | 69 |
| TOTAL | 3,537 |

There are a number of issues that do not pertain specifically to one refuge in the complex, and therefore will be covered under this section as part of Savannah Coastal Refuges.

Easements

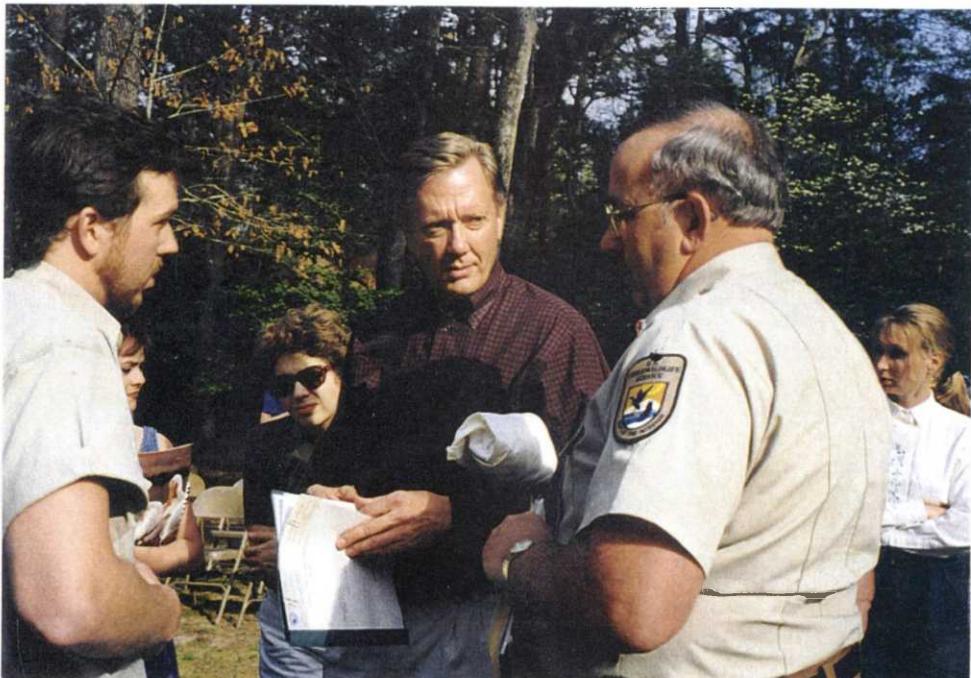
The complex administers 16 Farmers Home Easements in six counties in southeast Georgia. The counties include Burke, Jenkins, Emanuel, Screven, Tattnall, and Wheeler. A total of 810 acres are under some form of restrictive easement and are posted with Service boundary signs. These tracts range in size from three to 217 acres and are difficult to administer because of their distance (45-100 miles) from Savannah.

Fee title lands

There are two tracts of land that were given to the Service by Farmers Home in fee title since no private landowner was interested. One tract is 104 acres in Tattnall County and the other tract is 196 acres in Emanuel County. Both have been posted with refuge boundary signs.

Off refuge activities

Interior Secretary Bruce Babbitt toured Ebenezer Creek in Effingham County on March 12. His advance team had originally planned a tour of the Savannah River through the refuge but after many phone calls and planning the decision was made to change the location. Refuge staff helped provide media coordination and participated in the trip.



Project Leader Drake used the Savannah River setting to discuss River related issues with the Secretary (97-SCR3 PEM).

During discussions at a Man and the Biosphere meeting managers of the Georgia coastal barrier islands decided to meet on a quarterly basis to tour each other's lands and discuss issues of mutual concern. SCR hosted the first meeting on Blackbeard Island May 15. Subsequent meetings were held on St. Catherine and Sapelo Island.

At the request of the Georgia Ports Authority refuge staff reviewed their proposed timber management plan of the Mulberry Grove plantation. This 2500 acre tract is within our proposed acquisition boundary for Savannah refuge. Recommendations were made to the Port Authority to improve the plans long-term impact on wildlife.

Sam Drake presented a program on the coastal refuges to the Ogeechee Chapter of the Audubon Society on October 21.

Ecosystems

SCR is located in two ecosystems. Pinckney Island, Savannah, Tybee, and Wassaw refuges are in the Savannah-Santee-Pee Dee (SSPD) Ecosystem. Harris Neck, Blackbeard Island, and Wolf Island refuges are in the Altamaha Ecosystem. Sam Drake served as the co-team leader for the SSPD Ecosystem team. Participation in ecosystem activities included:

Sam Drake - Regional Facilitation Team meeting, Atlanta, GA, 1/14; SSPD team meetings on 1/21-23&28-30, 5/14-15 and 12/10-12; several days of advanced planning and coordination for meetings.

Mark Musaus- served as SCR representative on the Altamaha team. Team meetings were held on August 6 and December 3-5. Also served as the leader of the Partners In Flight/Migratory Bird sub-committee for both ecosystems. Sub-committee meetings were held on May 6 and then via phone and CC:Mail.

Pat Metz - served as the co-team leader for the Outreach Committee for both ecosystems. The sub-committee met on August 22 and then coordinated via the computer.

Ray Porter serves as the Region 4 Drug Task Force leader for refuges. As such he purchases equipment and obtains training for the task force and coordinates with refuge managers to determine enforcement efforts on field stations on drug related issues. He participated in meetings at Florida Panther and Okefenokee refuges on drug related issues.

Partnerships

As part of the long term management plan for the Savannah Harbor, nesting islands are planned in each spoil disposal area as well as constructing a three acre nesting island off the coast. John Robinette served as the station representative on meetings concerning nest island design and construction. Recommendations were made to the Ports Authority to improve the plans long term impact on wildlife.

John Robinette also serves as station representative on Georgia's state sea turtle committee and a southeast wood stork advisory committee.

Sam Drake and Mark Musaus participated in quarterly harbor maintenance meetings. Hosted by the local assurer for the harbor, Chatham County, the committee reviews all activities related to harbor maintenance, dredging, and spoil disposal area. Three of the active disposal areas are found on refuge lands. Area 1N (Onslow Island) and Area 2A (Hutchinson Island) are part of Savannah refuge and Oysterbed Island is on Tybee refuge.

Sam Drake attended meetings of both the Georgia and South Carolina Wildlife Society.

A Savannah Focus Area was initiated in 1996 to form a partnership of private land owners, the state of South Carolina and SCR with the goal of land conservation primarily on the South Carolina side of the Savannah River. Sam Drake participated in quarterly meetings.

Sam Drake served on the Marsh and Beach subcommittee in the writing of the comprehensive management plan for Sapelo Island, at the request of the Georgia Department of Natural Resources.

Jim Stockie attended the following interagency meetings in relation to his district duties and the fire program:

* 1/27 - Southeast Region Interagency Fire Management meeting in Jackson, MS.

* 3/25 - Carolina Sandhills, Pee Dee NWR's and the North Carolina Department of Forestry concerning fire protection and cooperation on Pee Dee NWR.

* 11/13 - Annual Southeast Interagency Fire Cache oversight committee meeting, London, KY.

* 12/3 - Region 4, FMO Budget Meeting, St. Marks NWR, FL.

* 12/8 - South Carolina Interagency Fire Coordination Meeting, Columbia, SC.

*12/16 - Helicopter contractors meeting, Okefenokee NWR, GA.

Administration

Annual funding for the seven refuges comes in one package for the complex. All budgeting, purchasing, and accounting is done from the headquarters office in Savannah. The same holds true for all personnel matters.

FIVE YEAR FUNDING COMPARISON (In Thousands)

| FY | Refuge O & M | End. Species | Fire | Total Base | Special Funding | Total |
|----|--------------|--------------|-------|------------|-----------------|--------|
| 97 | 1079.9 | 12.0 | 237.5 | 1329.4 | 799.6 | 2129.0 |
| 96 | 996.0 | 12.0 | 264.9 | 1008.0 | 187.3 | 1460.2 |
| 95 | 935.7 | 22.0 | 296.0 | 957.7 | 213.7 | 1467.4 |
| 94 | 897.0 | 12.0 | 227.8 | 909.0 | 217.8 | 1354.6 |
| 93 | 907.1 | 12.0 | 265.2 | 919.1 | 123.0 | 1307.3 |

Not included in this total is 59.5K included in the station budget to cover salary, travel, training and other costs for the regional archeologist stationed at SCR.

FY97 special funding(in thousands) was designated for the following purposes:

| <u>PROJECT</u> | <u>TOTAL</u> | <u>FUND SOURCE</u> |
|----------------------------|--------------|--------------------|
| 1. Volunteer support | .8 | 1261 |
| 2. LE Instructor Training | 4.0 | 1221 |
| 3. Contaminant Cleanup | 14.0 | 1261 CONT |
| 4. Contaminant Invest. | 52.8 | 1261 CONT |
| 5. Replace 3 Pickup trucks | 54.0 | 1262 MMS |
| 6. Replace farm tractor | 50.0 | 1262 MMS |
| 7. Repair fishing piers | 5.0 | 1332 Rec. Fish. |
| 8. Repair storm damage | 614.0 | 2952 Storm |
| 9. YCC | 5.0 | 1262 |

Although there was a significant increase in total station funding, the base budget left very little for discretionary money, especially after covering the deficit in fire funding. Storm damage monies enabled us to catch up on some of the backlog of badly needed maintenance and repair projects.

The storm damage funding was truly a shot in the arm. Several projects for road or building repair required engineering review and design. Since this is two year funding, several projects will not be completed until 1998. FY 97 accomplishments include:

Complex

- Hired one NTE 1 year appointment to assist with force account building rehabilitation and repair.
- Obligated \$50,000 contract for gravel at Savannah and Pinckney refuges.
- Obligated \$28,000 for replacement informational panels and signs.
- Paid seasonal firefighters during month of October (non-fire season) for maintenance of island roads and buildings.
- Replaced LE jon boat
- Purchased 24' Carolina Skiff and motor for hauling equipment and materials to islands.

Savannah

- Requisitioned 20 yd. dump truck
- Purchased two rice field trunks for impoundments
- Purchased 16' equipment trailer
- Purchased two stop log risers for existing rice trunks
- Replaced jon boat

Pinckney Island

- Replaced motor in road grader
- Purchased ATV
- Replaced 16' Carolina Skiff and motor

Harris Neck

- Rehabilitated dock hoist
- Replaced new overhead shop door
- Re-wired shop to code and install new lighting
- Replaced new bush hog and disc

- Purchased portable generator
- Replaced jon boat

Blackbeard Island

- Replaced jon boat
- Replaced 22' Boston Whaler and motor
- Replaced ice machine
- Replaced air condition unit for residence
- Replaced roof on residence and turtle hut
- Replaced riding mower

Wassaw

- Replaced riding mower
- Replaced ATV
- Replaced 22' Boston Whaler and motor

Technical Assistance

Refuge officers, Ray Porter and Matthew Bryant, both served as instructors for the region. Ray continued as the lead PPCT/ Officer Safety instructor for law enforcement In-Service as well as ROBS training for new refuge officers. Matthew served as a motor boat operator instructor for the region.

FMO Jim Stockie and FCO Keith Penrose served as instructors for S-211 training conducted by the Georgia Forestry Commission.

Miscellaneous

Sam Drake and Mark Musaus attended the ARW Project Leader's Meeting in Biloxi, MS on March 1-4.

Mark Musaus was detailed to the regional office as Acting District Manager (Ecosystem 2) on May 12-23 and November 17-21. He also assisted Carolina Sandhills NWR staff September 18-19 in the absence of a project leader. He was also asked to assist with the writing of new positions descriptions and crediting plans for the 083 law enforcement officer series for grades GS-5 to 9. This involved meetings in Atlanta October 6-8 and November 12-14.

SCR assisted with two national meetings that were held in Savannah during the year. Refuge staff assisted with administrative duties and provided refuge tours for participants in the Atlantic Flyway Technical Committee held in June. Savannah was also the site for the National Meeting of Regional

Migratory Bird Coordinators held September 8-11. Again, refuge staff conducted field visits to Savannah and Blackbeard Island refuges and provided our conference room for some of the breakout sessions.

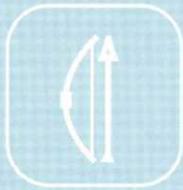
There were two small lot sales held during 1997. Minimum bids were placed on many items in order to insure that the winning bid was higher than the scrap metal value of the property. One sale consisted of jon boats, boat trailers, water pumps, generators, fork lifts, etc. This sale brought in \$9,632.19. The other sale was for a 20' x 60' barge and two large inboard powered aluminum boats. This sale generated \$28,575.00.

A 60 ton boom crane (1984) with a two yard bucket, which had been received from military surplus, was found to be too heavy to be used in our impoundment system. In addition, the engine required extensive repairs. Attempts to locate a refuge which could utilize this crane proved futile. Several refuges were interested, however, the cost to repair the engine and to transport the equipment was prohibitive. M.D. Moody and Sons, a Jacksonville Florida, Northwestern dealer, learned of the crane and expressed an interest in a trade. Working with CGS in Atlanta we were able to trade the crane for a 1995 Hyundai track hoe. The track hoe was less than two years old, had low operating hours and was in excellent condition when received.

In addition, M. D. Moody donated to the refuge, a "Sea Ark" which is a 14' x 40' twin motored pontoon boat. The boat with an original purchase price of \$74,6897.00 was purchased in 1996 and was used during the Olympics. Less than one year old the boat was in excellent condition. The large open deck and loading ramps make this an ideal boat for transporting supplies and equipment. The boat will carry up to 10,000 pounds and is currently being used to transport vehicles and other heavy items to island refuges.

Harris Neck

National Wildlife Refuge Hunting Regulations 1997



1997 Harris Neck NWR Archery Hunt Permit

Deer/Feral Hog - September 25-27, 1997

When signed and in your possession, this brochure serves as your Harris Neck NWR bow hunt permit, and acknowledges your understanding of the regulations contained herein.

Signature

*Harris Neck NWR
McIntosh County,
Georgia*

Harris Neck is one of over 500 National Wildlife Refuges. The primary objective of a National Wildlife Refuge is to provide habitat for the conservation and protection of all species of wildlife. The harvest of surplus animals is one tool used to manage wildlife populations at a level compatible with the environment, provide recreational opportunities, and protect the use of a valuable renewable resource.

Public hunting on Harris Neck National Wildlife Refuge is permitted on approximately 2,400 acres. Certain areas (marked on the map printed on the reverse side) are closed to hunting.

The regulations listed below supplement the general regulations which govern hunting on the wildlife areas as set forth in Title 50, Code of Federal Regulations. Hunting will be in accordance with applicable state (Georgia) regulations.

*General
Hunting
Regulations*

Federal permits are required for all hunts and must be carried on the person while hunting. All hunters must obtain a permit regardless of age. Permits are non-transferable. Only hunt participants with proper licenses and permits will be allowed on the refuge during the hunt. **A Georgia hunting license is required to hunt feral hogs.**

Hunters 15 years of age or under (youth hunters) must have successfully passed a state-approved hunter education course in order to participate in any refuge hunt. Satisfactory completion of the course must be demonstrated by a card or certificate. Youth hunters must be supervised by an adult 21 years of age or older, and must remain in sight and normal voice contact with the adult. During

refuge hunts, the adult may supervise only one youth.

Hunters may place their stands on the refuge one day prior to the opening day of each hunt. Stands must be removed by the end of each hunt.

Hunters must check in at the refuge headquarters between 4:00 and 5:00am and park in the designated areas prior to hunting. Entry by boat is prohibited.

Personal identification (driver's license, or official state identification card) will be required at check-in.

Transportation is not provided to, from, or on the refuge. Any movement within the refuge must be by foot or bicycle. Entry and exit points for motor vehicles are limited to check stations or other specified areas.

Deer harvested during scheduled hunts must be checked by refuge personnel before leaving the refuge.

Hunting from a tree into which a metal object has been screwed or driven to support a hunter is prohibited.

Participating in "man-drives" for deer is prohibited.

Only white-tailed deer and feral hogs may be taken and other wildlife may not be molested in any manner.

From one-half hour before sunrise until 9:00am and from two hours before sunset until sunset hunters must be on their stands.

The possession of alcoholic beverages while hunting is prohibited.

Bow Hunt

All forms of litter should be placed in trash receptacles for proper disposal.

Hunting will not be permitted closer than 100 yards of State Highway 131, the refuge entrance drive, refuge headquarters, Barbour River Landing, Barbour River Road and Gould's Cemetery.

No flagging or trail marking devices are permitted.

Bow hunting for deer and feral hogs will be permitted from September 25-27, 1997 in all areas designated on the map in this brochure.

A total of five deer, only two of which can be bucks, may be taken during this hunt. No limit on Hogs.

Only bows in accordance with state regulations will be authorized. No crossbows will be allowed.

The possession or use of poison or poison pods is illegal.

Hunters may enter the refuge one hour before sunrise.

Vehicles are restricted to authorized routes.

Archery hunters are encouraged to wear a fluorescent orange outer garment while hunting on the ground or walking to and from stands.

Hunters are required to check harvested deer at the refuge exit gate.

Gun hunting for deer on Harris Neck NWR will be permitted on November 15, 1997 within the area delineated on the attached refuge map.

Three deer, either sex, may be taken (bonus tags will be issued for all deer taken).

Gun Hunt

Feral hogs (no bag limit) may also be taken with weapons legal for this hunt.

Shotguns with slugs are the only weapons permitted.

Firearms must be unloaded and cased except during hunting periods.

Target practice is prohibited.

Gun hunters must wear a minimum of 500 square inches of hunter orange-colored material above the waistline.

The attached permit-application for the Harris Neck NWR gun hunt should be used by one hunter only. To apply as a party, applications for all party hunters (a maximum of three) should be stapled together and mailed in a stamped envelope to: Savannah Coastal Refuges 1000 Business Center Drive Parkway Business Center, Suite 10 Savannah, Georgia 31405

Additional applications may be obtained by mail, or picked up at the Coastal Refuges office located in the Parkway Business Center (off I-16 at Chatham Parkway, Savannah, Georgia).

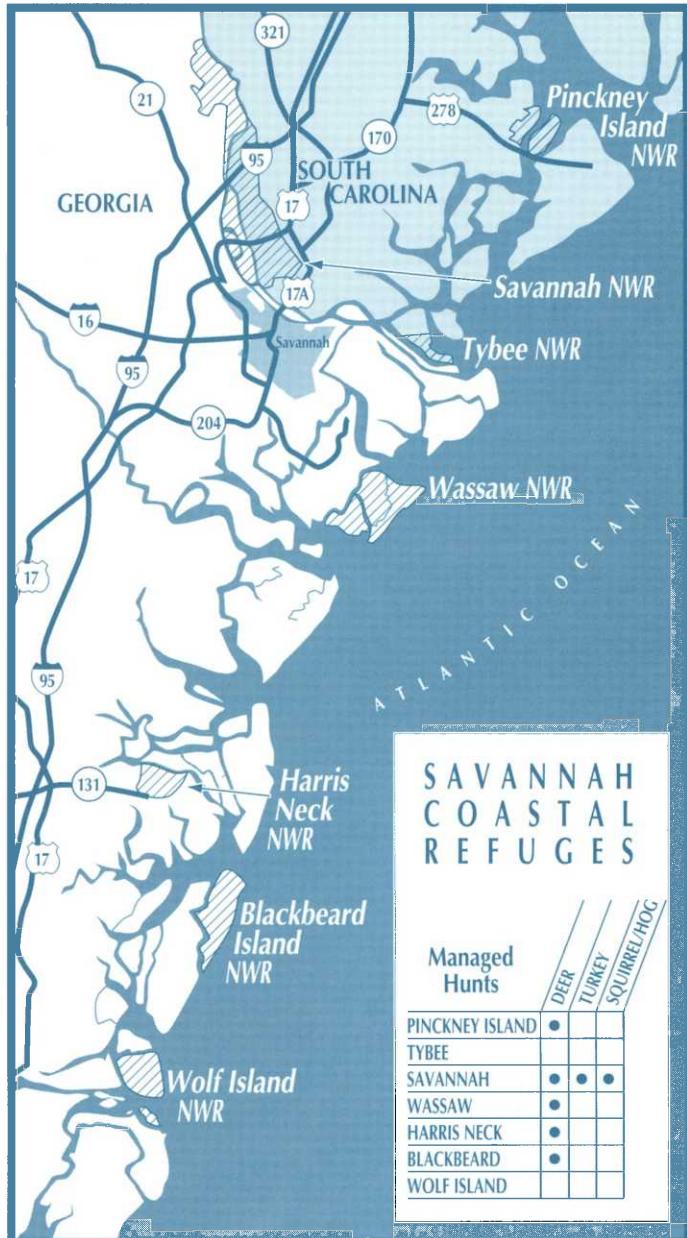
Written requests for applications must be accompanied by a stamped, self-addressed envelope (4 inches by 9 inches or larger), and directed to the Coastal Refuges office.

Only one application may be submitted per hunter. Applications for the hunts must be received by August 31 to be entered in the drawing. The number of permits issued will be determined by management needs.

Hunter's selected by drawing on September 3, 1997 will be notified by September 16. A \$12.50 permit fee must be paid by each hunter

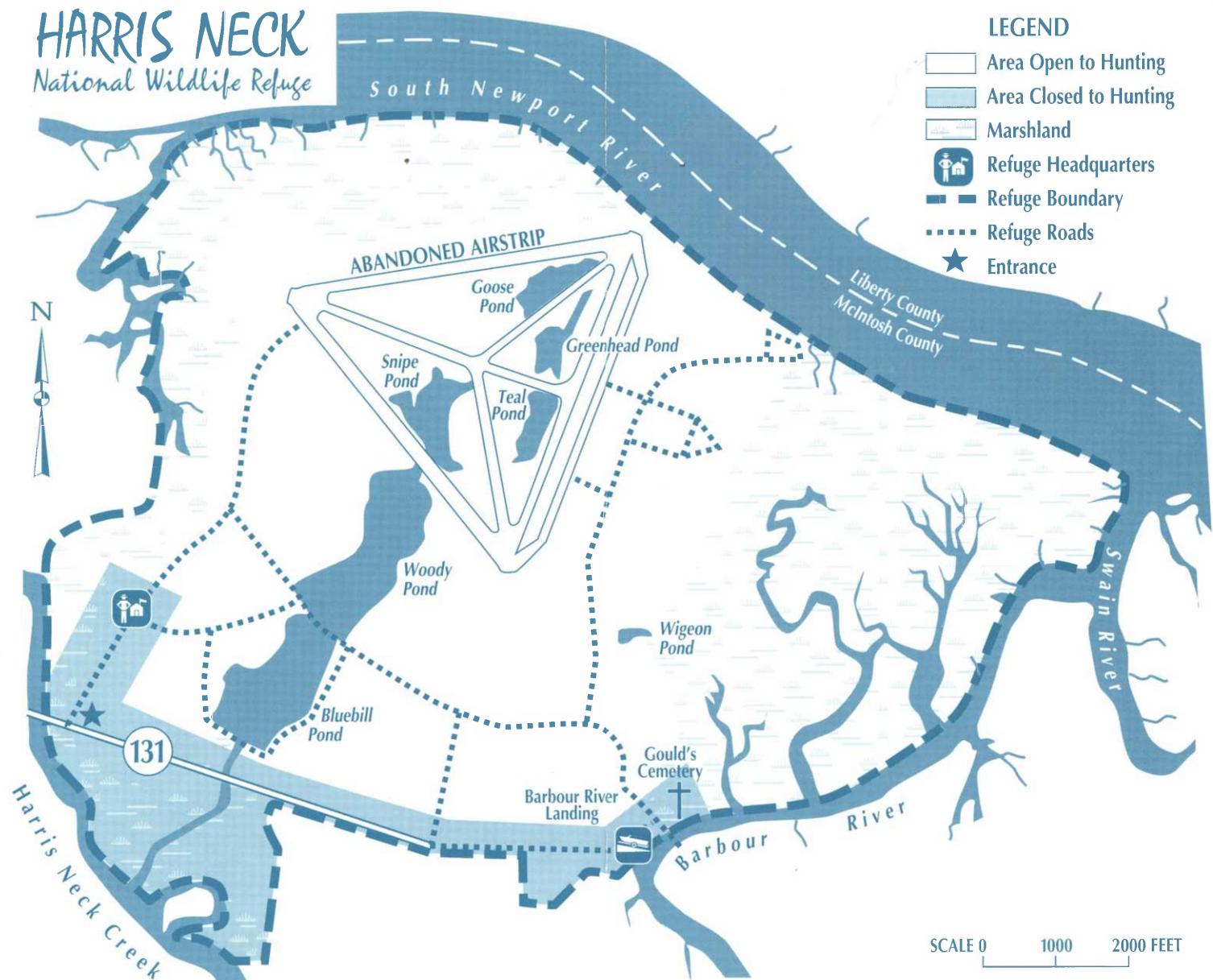
selected by drawing. A personal check, cashier's check, or money order made payable to the U.S. Fish and Wildlife Service must be received at the Coastal office by November 8 to guarantee issuance of a permit to the selected hunter.

Permit Application Procedures



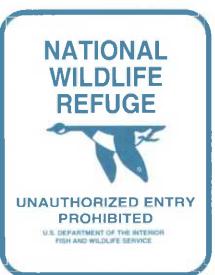
HARRIS NECK

National Wildlife Refuge



Signs Protect Visitors and Resources

Millions of people visit national wildlife refuges each year. The impact of human activity, if not regulated, can degrade these wildlands. Signs control recreational activities while protecting natural resources on the refuge. Please respect the following signs:



This sign delineates the refuge boundary or a restricted access area. You may enter only on designated access routes. Consult manager for restrictions.



This area is closed to all entry. No hunting or sight-seeing is permitted. No roads or trails are open to the public.

**Harris Neck National Wildlife Refuge
Permit Application for the November 15, 1997 Gun Hunt**

Print or Type: _____

Name: _____

Date of Birth: _____

Street Address: _____

City: _____ State: _____ Zip: _____

**Party Hunters: Staple applications together.
(Maximum of three)**

**Harris Neck National Wildlife Refuge
November 15, 1997 Gun Hunt Permit**

To be completed by hunter only if selected by drawing.
This permit is valid only when signed by the refuge
manager and the selected hunter (listed above)

Refuge Manager

I have read the regulations governing hunting on
Harris Neck National Wildlife Refuge and will abide
by them.

Signature of Hunter

U.S. Fish and Wildlife Service
Savannah Coastal Refuges
1000 Business Center Drive
Parkway Business Center, Suite 10
Savannah, Georgia 31405
912/652 4415
<http://www.fws.gov/~r4eao>

U.S. Fish & Wildlife Service
1 800/344 WILD



U.S. Fish & Wildlife Service

Savannah

Coastal Refuges



The chain of national wildlife refuges (NWR) comprising the Savannah Coastal Refuges complex extends from Pinckney Island NWR near Hilton Head Island, South Carolina, to Wolf Island NWR near Darien, Georgia. Between these lie Savannah (the largest unit in the complex), Wassaw, Tybee, Harris Neck, and Blackbeard Island refuges. Together they span a 100-mile stretch of coastline and total 54,077 acres. The Savannah Coastal Refuges are administered from headquarters located in Savannah, Georgia.



photo: Karen & John Hollingsworth ©



Great egret

The Low-Country

Bordered on the west by sandhill ridges and on the east by the Atlantic Ocean, lies a band of low land extending from Georgetown, South Carolina, to St. Mary's, Georgia, known locally as the Low-Country. For over two centuries the diversity of fauna and flora within this region has attracted such naturalists as Alexander Wilson, Mark Catesby, John James Audubon, and William Bartram.

While the Carolina parakeets and ivory-billed woodpeckers which once inhabited the freshwater swamps within this coastal lowland have vanished, many rare and uncommon species remain. The southern bald eagle still soars majestically over the remnants of vast bottomlands such as those contained within the Savannah National Wildlife Refuge. Egrets and herons, once hunted nearly to extinction by the plume hunters of the early 1900's, continue to nest in rookeries such as those on Harris Neck National Wildlife Refuge.

The variety of birdlife within the Low-Country is enhanced by its location on the Atlantic flyway. During the winter months, thousands of mallards, pintails, teal and as many as ten other species of ducks migrate into the area, joining resident wood ducks on the coastal refuges. In the spring and fall, transient songbirds and shorebirds stop briefly on their journey to and from northern nesting grounds.

Among these casual visitors are the diminutive warblers (magnolia, prairie, blackpoll...) and sandpipers (buff-breasted, white-rumped, pectoral...). Many migrant songbirds and shorebirds terminate their southern journey and spend the winter. The hermit thrush, ruby-crowned kinglet, yellow-rumped

Cover photo:
Great blue heron
Gerald Tollison

warbler, black-bellied plover, and sanderling, are a few of the winter residents.

In the heat of the humid summer months, the Low-Country's native flora ripens. The sweet magnolia blossoms, symbolic of the deep South, are abundant and lush beards of Spanish moss thicken with every rain. The live oak trees sport vibrant green manes of resurrection fern.

Visions of the Old South when rice was king in the Low-Country best comes to mind during these lazy summer months. The plantation homes may be gone, but the cultivated lands which made them possible live on. Though rice is no longer grown, the old fields have found new service as habitat for waterfowl and wading birds.



Nothing remains of Laurel Hill Plantation which once stood at the present main entrance to Savannah National Wildlife Refuge, but many of the dikes, originally built by slaves and itinerant Irishmen, and modernized rice field trunks (water control structures) continue to serve in management of the historic Low-Country's marshland.

photo: USFWS



photo: David E. Goeke

Barrier Islands

Barrier islands are so named because they form a barrier between the ocean and the mainland. They are an integral part of a continuous chain of islands and beaches, stretching from Maine to Texas that protect the coast from hurricanes and storms.

Nowhere can there be found a more completely developed system of large barrier islands than on the Georgia Coast. The Spanish called them Guale, the Golden Isles.

Anyone who has spent time at the beach is at once aware of two major forces which affect barrier islands—wind and tides. The energy released by these natural elements is awesome indeed, and has battered our coastline unceasingly for thousands of years. To counter this force, nature has come up with a remarkable defense system—sand. Sand offers enough resistance to absorb and dissipate the tremendous energy of coastal storms and yet responds predictably to gentler wind and waves. Thus, man and his structures on the mainland are protected from the full violence of storms by the barrier islands.

Behind the barrier islands lie salt marshes, described by some as the

world's most productive acreage. Here nutrients from both fresh and salt water mix, providing organic material that moves into the sea to become a major link in the marine food chain. These marshes are also the nurseries for countless marine organisms, including shrimp, oysters, crabs, striped bass, and other commercial and sport species that are particularly important to the coastal economy. Without the protection afforded by the barrier islands, the tidal creeks and salt marshes would be no place for the delicate juvenile stages of so many species.



Such an abundance of life in the salt marsh invites other animals to rest, feed or nest. Located on the Atlantic Flyway, the islands are important to migrating waterfowl, especially those displaced from the rapidly disappearing marshes further up the Atlantic coast. The islands themselves provide ideal habitat for a wide variety of plants and animals, including endangered or threatened species

like the American alligator, peregrine falcon, wood stork, loggerhead sea turtle and southern bald eagle.

Pinckney Island National Wildlife Refuge

Pinckney Island NWR, established December 4, 1975, was once included in the plantation of Major General Charles Cotesworth Pinckney, a prominent lawyer active in South Carolina politics from 1801 to 1815. Few traces of the island's plantation life in the 1800's exist today.

Habitat

The 4,053-acre refuge includes Pinckney Island, Corn Island, Big and Little Harry Islands, Buzzard Island and numerous small hammocks. Pinckney is the largest of the islands and the only one open to public use. Nearly 67% of the refuge consists of salt marsh and tidal creeks. A wide variety of land types are found on Pinckney Island alone: salt marsh, forestland, brushland, fallow field and freshwater ponds. In combination, these habitats support a diversity of bird and plant life.

Wildlife Observation/ Hiking/Bicycling

Studying, viewing and photographing the island's wildlife and scenery are popular activities throughout the year. Over fourteen miles of trails are open to hiking and bicycling. No motorized vehicles are allowed north of the public parking lot.

Hunting

When necessary for management purposes, a deer hunt is held on Pinckney Island (for hunt dates and regulations contact the Coastal Refuges' office).

Directions

The refuge entrance is located on U.S. 278, 18 miles east of Hardeeville, South Carolina, or .5 miles west of Hilton Head Island.

Savannah National Wildlife Refuge

Savannah NWR, established April 6, 1927, consists of 26,349 acres of freshwater marshes, tidal rivers and creeks and bottomland hardwoods.



Tupelo Trail

Management

The 3,000 acres of freshwater impoundments managed for migratory waterfowl were formerly the rice fields of plantations dating back to the mid or late 1700's. Many of the dikes enclosing these pools were originally built during the rice culture era.

Wildlife Observation

All dikes are open to foot travel during daylight hours, unless otherwise posted, and provide excellent wildlife observation points.

Habitat

About half the refuge is bottomland, composed primarily of cypress, gum and maple species. Access to this area is by boat only.

Waterfowl are most abundant from November through February, while alligators and other reptiles are common from March through October. Birdwatching opportunities are good all year but are best from October through April when temperatures are mild and many species of waterfowl and other wintering birds are present.

Auto Route, Hiking



Motorists are welcome on Laurel Hill Wildlife Drive, off S.C. 170, which meanders along four miles of earthen dikes through managed freshwater pools and hardwood hammocks. Cistern Trail and other walking routes are also available to the visiting public. From December 1 to March 15, entry into the impoundment area north of U.S. 17 is prohibited to reduce disturbance while wintering waterfowl numbers are at a peak.

Fishing, Hunting

Fishing is permitted in the freshwater pools from March 15 to October 25 and is governed by South Carolina and refuge regulations. The refuge administers deer, feral hog, squirrel, and turkey hunts during the fall and winter. Permits to hunt on the refuge must be obtained from the Coastal office in Savannah.

Directions

Savannah NWR is located on SC-170, six miles south of Hardeeville, South Carolina via US-17 (Exit 5 off I-95); or one mile north of Port Wentworth, Georgia on GA-25/SC-170 (take I-95 Exit 19 to GA-21 South, then east on GA-30 to GA-25 North.)



photo: David E. Goeke

Tybee National Wildlife Refuge

Tybee NWR was established on May 9, 1938 as a breeding area for migratory birds and other wildlife. The majority of the 100 acre-refuge is covered with sand deposits from the U.S. Army Corps of Engineers' dredging activities in the Savannah River. The more stable portions of the island are densely covered with such woody species as eastern red cedar, wax myrtle, and groundsel. Saltwater marsh borders parts of the island. At low tide the shoreline provides a resting and feeding place for many species of migratory birds.

The refuge is located in the mouth of the Savannah River directly opposite Fort Pulaski National Monument which is 12 miles from Savannah on U.S. 80. **Tybee NWR is closed to public use.**



photo: Jonas Jordan

Nesting osprey

Wassaw National Wildlife Refuge

Wassaw, one of Georgia's coastal barrier islands, was designated a National Wildlife Refuge on October 20, 1969. Unlike many of Georgia's Golden Isles, little development and few management practices have modified Wassaw's primitive character. The 10,070-acre refuge includes beaches with rolling dunes, live oak and slash pine woodlands, and vast salt marshes.

Refuge visitors may enjoy recreational activities such as birdwatching, beachcombing, hiking and general nature studies. The 20 miles of dirt roads on Wassaw Island and seven miles of beach provide an ideal wildlife trail system for hikers. Birdwatching is particularly fruitful during the spring and fall migrations.

The island supports rookeries for egrets and herons, and a variety of wading birds are abundant in the summer months. In summer, telltale tracks on Wassaw's beach attest to nocturnal visits by the threatened loggerhead sea turtles which come ashore for egg laying and then return secretly to the sea.

Hunting, Fishing

Deer hunts (both bow and gun) are scheduled in the fall and winter. The Coastal Refuges' office can provide a schedule of hunt dates and issue hunt regulations. The saltwaters of the refuge marshland are open to fishing throughout the year.

Access

Wassaw NWR is accessible only by boat. Both Wassaw and Pine Island are open to the public during daylight hours—**other upland areas are closed**. Transportation to the refuge must be arranged by the visitor. Several local marinas in the Savannah area (at Skidaway Island and Isle of Hope) and a public boat ramp adjacent to the Skidaway Island bridge can serve as launching sites for trips to Wassaw.

Habitat

Harris Neck National Wildlife Refuge

Harris Neck National Wildlife Refuge was established in 1962 by transfer of federal lands formerly managed by the Federal Aviation Administration as a WWII Army airfield. The refuge's 2,762 acres consist of saltwater marsh, grassland, mixed deciduous woods and cropland. Because of this great variety in habitat, many different species of birds are attracted to the refuge throughout the year.

Wildlife Observation

In the summer, thousands of egrets and herons nest in the swamps, while in the winter large concentrations of ducks (especially mallards, gadwall and teal) gather in the marshland and freshwater pools. Over 15 miles of paved roads and trails provide the visitor easy access to these areas. Some portions of the refuge may be closed seasonally to protect wildlife from human disturbance.



photo: Jim Barber

Fishing, Boating

Fishing is allowed in the tidal creeks bordering the refuge. Piers have been constructed for public use on Harris Neck Creek at the Georgia Route 131 entrance. Access to refuge tidal waters and Blackbeard Island can be gained from a public boat ramp located on the Barbour River (at the termination of Georgia Route 131). The Barbour River Landing is open daily from 4:00 am to midnight, or as posted.

Hunting

Deer hunts are managed on the refuge in the fall and winter. Hunters may obtain a schedule of hunt dates and hunt regulations from the Coastal Office.

Directions

To reach Harris Neck, take Exit 12 off I-95 and travel south on U.S. 17 for approximately one mile, then east on Harris Neck Road for seven miles to the main entrance gate.

Habitat

Blackbeard Island National Wildlife Refuge

Blackbeard Island was acquired by the Navy Department at public auction in 1800 as a source of live oak timber for ship building. A Presidential Proclamation in 1940 changed its designation from Blackbeard Island Reservation to Blackbeard Island National Wildlife Refuge. Today, the refuge's 5,618 acres include maritime forest, salt marsh, freshwater marsh, and beach habitat. In 1975, three thousand acres of the refuge were set aside as National Wilderness.

Wildlife Observation, Hiking, Fishing, Hunting

photo: Tommy King

Blackbeard Island offers a variety of recreational activities year-round. Wildlife observation, especially birdwatching, is excellent throughout the year. In winter months, waterfowl utilize the marshland and man-made freshwater pools, while songbirds abound in the wooded acres in the spring and fall. The existing trails and roads provide hikers with scenic paths ideal for nature study. Saltwater creeks which pass through refuge marshland are open to fishing the entire year. Presently, two archery hunts for deer are scheduled on the island in the fall and winter (for exact dates and hunt regulations contact the Coastal Refuges' headquarters).

Access

Blackbeard Island is accessible only by boat. Transportation to the island is not provided by the Fish and

Wildlife Service. Arrangements for trips to the refuge can be made at Shellman's Bluff. To reach Shellman's Bluff, travel south from Savannah on U.S. 17 for approximately 51 miles to Shellman Bluff Road which terminates at Shellman Bluff on the Julington River. A public boat ramp on Harris Neck NWR (Barbour River Landing) may also be used as a launching site for trips to the island.

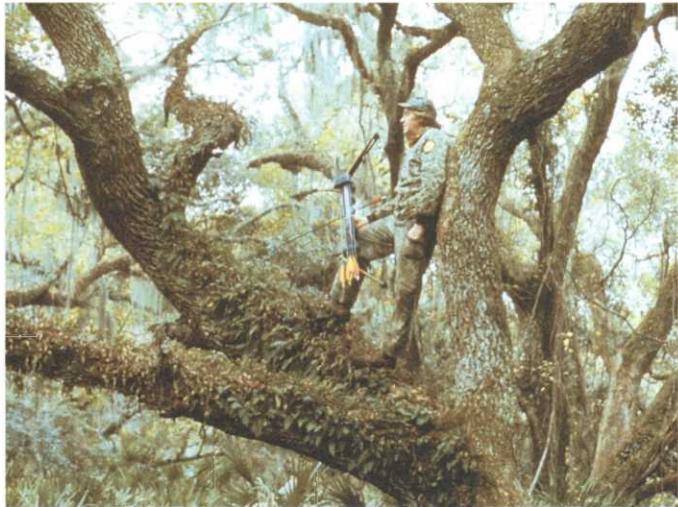


photo: David E. Goeke

Blackbeard Island archery hunter

Wolf Island National Wildlife Refuge

Wolf Island NWR, which includes Egg Island and Little Egg Island, was established on April 3, 1930. The refuge consists of a long narrow strip of oceanfront beach backed by a broad band of salt marsh. Over 75% of the refuge's 5,125 acres are composed of saltwater marshes.

Wolf Island NWR was designated a National Wilderness in 1975, therefore no public use facilities are planned on the refuge. Though the refuge's saltwaters are open to a variety of recreational activities, **all beach, marsh, and upland areas are closed to the public**. Visitors must make their own arrangements to reach the refuge. Marinas in the Darien, Georgia area may offer transportation to Wolf Island NWR.



photo: Jonas Jordan

Nesting osprey

Wassaw National Wildlife Refuge

Wassaw, one of Georgia's coastal barrier islands, was designated a National Wildlife Refuge on October 20, 1969. Unlike many of Georgia's Golden Isles, little development and few management practices have modified Wassaw's primitive character. The 10,070-acre refuge includes beaches with rolling dunes, live oak and slash pine woodlands, and vast salt marshes.

Refuge visitors may enjoy recreational activities such as birdwatching, beachcombing, hiking and general nature studies. The 20 miles of dirt roads on Wassaw Island and seven miles of beach provide an ideal wildlife trail system for hikers. Birdwatching is particularly fruitful during the spring and fall migrations.

The island supports rookeries for egrets and herons, and a variety of wading birds are abundant in the summer months. In summer, telltale tracks on Wassaw's beach attest to nocturnal visits by the threatened loggerhead sea turtles which come ashore for egg laying and then return secretively to the sea.

Hunting, Fishing

Deer hunts (both bow and gun) are scheduled in the fall and winter. The Coastal Refuges' office can provide a schedule of hunt dates and issue hunt regulations. The saltwaters of the refuge marshland are open to fishing throughout the year.

Access

Wassaw NWR is accessible only by boat. Both Wassaw and Pine Island are open to the public during daylight hours—**other upland areas are closed**. Transportation to the refuge must be arranged by the visitor. Several local marinas in the Savannah area (at Skidaway Island and Isle of Hope) and a public boat ramp adjacent to the Skidaway Island bridge can serve as launching sites for trips to Wassaw.

Habitat

Harris Neck National Wildlife Refuge

Harris Neck National Wildlife Refuge was established in 1962 by transfer of federal lands formerly managed by the Federal Aviation Administration as a WWII Army airfield. The refuge's 2,762 acres consist of saltwater marsh, grassland, mixed deciduous woods and cropland. Because of this great variety in habitat, many different species of birds are attracted to the refuge throughout the year.

Wildlife Observation

In the summer, thousands of egrets and herons nest in the swamps, while in the winter large concentrations of ducks (especially mallards, gadwall and teal) gather in the marshland and freshwater pools. Over 15 miles of paved roads and trails provide the visitor easy access to these areas. Some portions of the refuge may be closed seasonally to protect wildlife from human disturbance.



Wood storks with downy young

Fishing, Boating

Fishing is allowed in the tidal creeks bordering the refuge. Piers have been constructed for public use on Harris Neck Creek at the Georgia Route 131 entrance. Access to refuge tidal waters and Blackbeard Island can be gained from a public boat ramp located on the Barbour River (at the termination of Georgia Route 131). The Barbour River Landing is open daily from 4:00 am to midnight, or as posted.

photo: Jim Barber

Hunting

Deer hunts are managed on the refuge in the fall and winter. Hunters may obtain a schedule of hunt dates and hunt regulations from the Coastal Office.

Directions

To reach Harris Neck, take Exit 12 off I-95 and travel south on U.S. 17 for approximately one mile, then east on Harris Neck Road for seven miles to the main entrance gate.

Habitat

Blackbeard Island National Wildlife Refuge

Blackbeard Island was acquired by the Navy Department at public auction in 1800 as a source of live oak timber for ship building. A Presidential Proclamation in 1940 changed its designation from Blackbeard Island Reservation to Blackbeard Island National Wildlife Refuge. Today, the refuge's 5,618 acres include maritime forest, salt marsh, freshwater marsh, and beach habitat. In 1975, three thousand acres of the refuge were set aside as National Wilderness.

Wildlife Observation, Hiking, Fishing, Hunting

Blackbeard Island offers a variety of recreational activities year-round. Wildlife observation, especially birdwatching, is excellent throughout the year. In winter months, waterfowl utilize the marshland and man-made freshwater pools, while songbirds abound in the wooded acres in the spring and fall. The existing trails and roads provide hikers with scenic paths ideal for nature study. Saltwater creeks which pass through refuge marshland are open to fishing the entire year. Presently, two archery hunts for deer are scheduled on the island in the fall and winter (for exact dates and hunt regulations contact the Coastal Refuges' headquarters).

photo: Tommy King

Access

Blackbeard Island is accessible only by boat. Transportation to the island is not provided by the Fish and

Wildlife Service. Arrangements for trips to the refuge can be made at Shellman's Bluff. To reach Shellman's Bluff, travel south from Savannah on U.S. 17 for approximately 51 miles to Shellman Bluff Road which terminates at Shellman Bluff on the Julington River. A public boat ramp on Harris Neck NWR (Barbour River Landing) may also be used as a launching site for trips to the island.



photo: David E. Goeke

Blackbeard Island archery hunter

Wolf Island National Wildlife Refuge

Wolf Island NWR, which includes Egg Island and Little Egg Island, was established on April 3, 1930. The refuge consists of a long narrow strip of oceanfront beach backed by a broad band of salt marsh. Over 75% of the refuge's 5,125 acres are composed of saltwater marshes.

Wolf Island NWR was designated a National Wilderness in 1975, therefore no public use facilities are planned on the refuge. Though the refuge's saltwaters are open to a variety of recreational activities, **all beach, marsh, and upland areas are closed to the public**. Visitors must make their own arrangements to reach the refuge. Marinas in the Darien, Georgia area may offer transportation to Wolf Island NWR.



Regulations

Questions regarding specific regulations for individual refuges should be directed to the Coastal office. Here, in brief, are some general regulations:



Defacement, damage, or removal of any government structure, sign, or marker is prohibited.



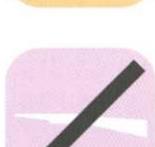
Feeding, capturing or hunting wildlife is strictly prohibited unless otherwise authorized.



All of the refuge's historical, archaeological, and natural resources are protected. Artifact hunting is not allowed. Do not pick flowers or remove vegetation.



Shell collectors are asked to take no live shells and to limit their collection to a handful or so.



Dogs, cats and other pets are not permitted.



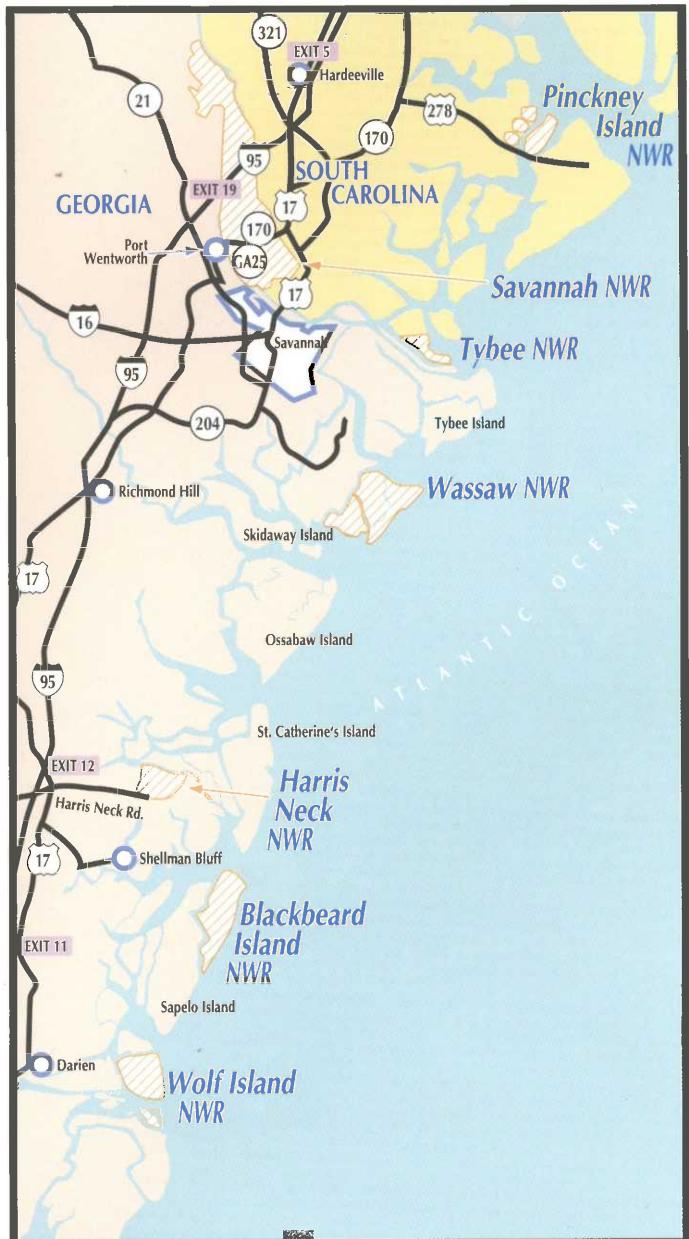
For further information
Call the Savannah Coastal Refuges office during business hours (Monday through Friday, 8:00 am to 4:30 pm; closed on federal holidays: 912/652 4415.



Visit the Savannah Coastal Refuges office located in the Parkway Business Center on Chatham Parkway. To reach the office, take Exit 33-a (Chatham Parkway) off I-16 East to Savannah, Georgia; drive one mile south on Chatham Parkway to the Parkway Business Center. The refuge headquarters occupy Suite 10.

Write to:

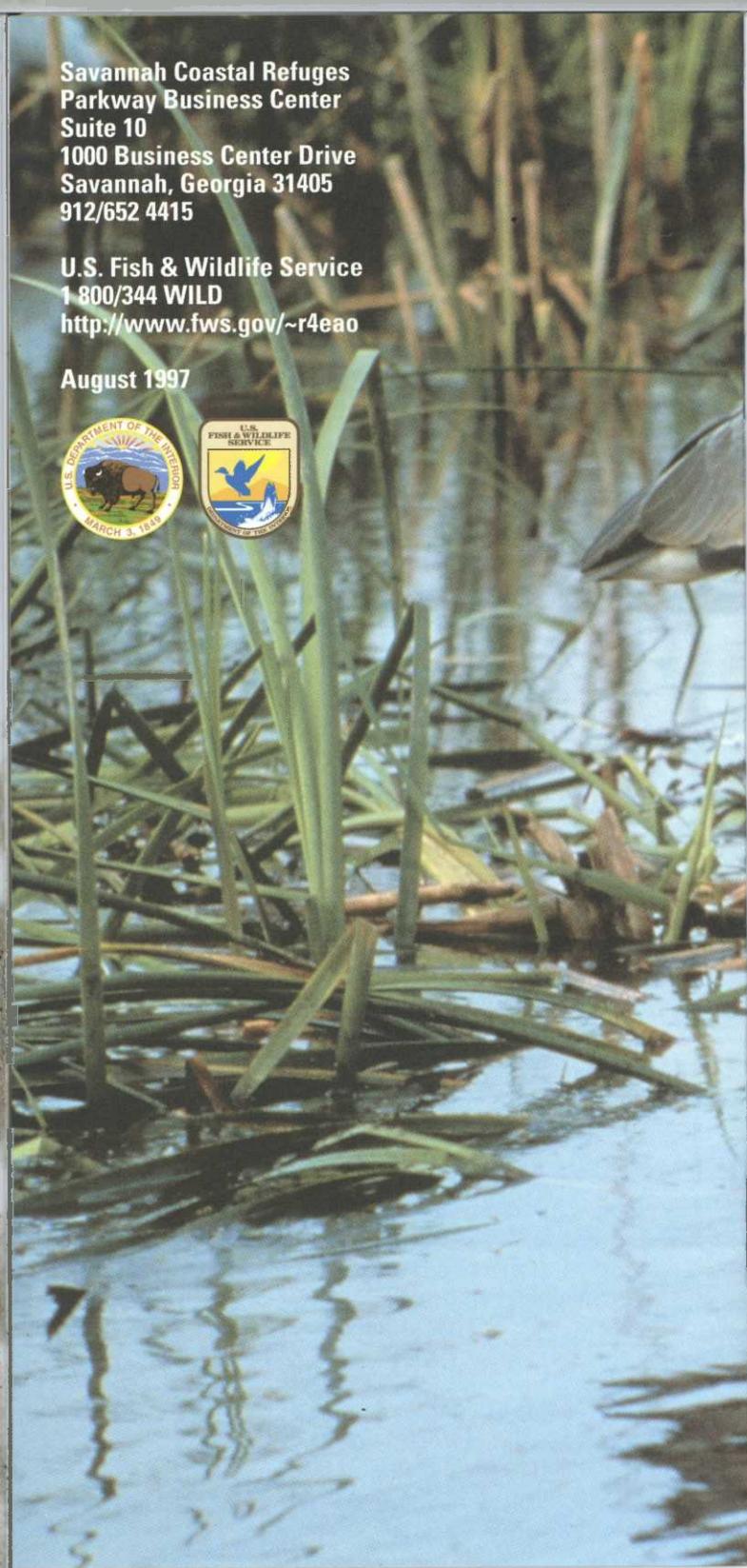
Savannah Coastal Refuges
Parkway Business Center, Suite 10,
1000 Business Center Drive
Savannah, Georgia 31405



Savannah Coastal Refuges
Parkway Business Center
Suite 10
1000 Business Center Drive
Savannah, Georgia 31405
912/652 4415

U.S. Fish & Wildlife Service
1 800/344 WILD
<http://www.fws.gov/~r4eao>

August 1997



Birds of the Savannah Coastal Refuges



Birds

There are seven national wildlife refuges (NWR) administered from the Savannah Coastal Refuges (SCR) office in Savannah, Georgia. The chain of coastal refuges comprising the SCR complex extends from Pinckney Island NWR, near Hilton Head, South Carolina, to Wolf Island NWR, near Darien, Georgia. Between these lie Savannah, (the largest unit in the complex), Wassaw, Tybee, Harris Neck, and Blackbeard Island refuges. Together they span a 100 mile stretch of coastline and total over 54,019 acres.

The diversity of habitat within this acreage enhances the value of these coastal refuges, located strategically along the Atlantic Flyway, to a great variety of migratory birds. Within the complex there are freshwater and saltwater marshes, tidal rivers and creeks, bottomland hardwoods, maritime forests, barrier island beaches, and more.

The list of birds recorded on the seven coastal refuges includes 309 species, of which 25 are accidentals (species sighted less than six times over the last twenty years, and outside of their normal range). The following legend indicates the refuge on which each species is found, as well as the relative abundance and seasonal occurrence of each. Birds known to nest are designated with an asterisk (*) preceding the refuge abbreviation. Birds classified as threatened or endangered are in italics.

This list incorporates the common names for birds recommended by the Sixth (1983) Edition of the A.O.U. Checklist and the 39th Supplement (1993). Species are also listed in the sequence set by the A.O.U.

REFUGE

B Blackbeard Island
H Harris Neck
P Pinckney Island
S Savannah
T Tybee Island
W Wassaw Island
Wo Wolf Island
Complex all refuges

RELATIVE ABUNDANCE

C Common, seen in good numbers in appropriate habitat and season.
FC .. Fairly common, seen in moderate numbers in appropriate habitat and season.
U Uncommon, seen in small numbers and/or not seen every time in appropriate habitat and season.
R Rare, seen in small numbers, between five and ten records over the past twenty years.

SEASONAL OCCURRENCE

PR... Permanent resident, present year-round.
SR... Summer resident, breeds.
SV... Summer visitor, present in summer, but does not breed.
WV... Winter visitor, present in winter.
M... Migrant, transient during spring/fall migration.

SPECIES

| SPECIES | REFUGES | ABUND. | SEASON |
|-------------------|-------------------|--------|--------|
| <i>Loons</i> | | | |
| Red-throated Loon | B H P S T W Wo FC | WV | |
| Common Loon | Complex | C | WV |
| <i>Grebes</i> | | | |
| Pied-billed Grebe | Complex | C | PR |
| Horned Grebe | Complex | C | WV |
| Red-necked Grebe | Complex | R | WV |
| Eared Grebe | B H T W R | R | WV |

| SPECIES | REFUGES | ABUND. | SEASON | SPECIES | REFUGES | ABUND. | SEASON |
|-----------------------------|------------------------|--------|--------|-----------------------------|------------------------|--------|--------|
| <i>Gannets</i> | | | | Canvasback | Complex | FC | WV |
| Northern Gannet | B P T W Wo FC | WV | | Redhead | Complex | U | WV |
| <i>Pelicans</i> | | | | Ring-necked Duck | Complex | C | WV |
| Brown Pelican | Complex | FC | PR | Greater Scaup | Complex | U | WV |
| <i>Cormorants</i> | | | | Lesser Scaup | Complex | C | WV |
| Double-crested Cormorant | Complex | FC | PR | Oldsquaw | B P T W Wo | U | WV |
| <i>Anhingas</i> | | | | Black Scoter | B P T W Wo | C | WV |
| Anhinga | *B *H *P *S T W Wo C | PR | | Surf Scoter | B P T W Wo | C | WV |
| <i>Herns</i> | | | | White-winged Scoter | B P T W Wo | U | WV |
| American Bittern | Complex | U | WV | Common Goldeneye | S | U | WV |
| Least Bittern | *B *H *P *S *W Wo FC | SR | | Bufflehead | Complex | C | WV |
| Great Blue Heron | *B *H *P *S T *W Wo C | PR | | Hooded Merganser | B H P *S T W Wo | C | WV/PR |
| Great Egret | *B *H *P *S T *W Wo C | PR | | Common Merganser | Complex | U | WV |
| Snowy Egret | *B *H *P *S T *W Wo C | PR | | Red-breasted Merganser | Complex | C | WV |
| Little Blue Heron | *B *H *P *S T *W Wo C | PR | | Ruddy Duck | Complex | C | WV |
| Tricolored Heron | *B *H *P *S T *W Wo C | PR | | <i>Vultures</i> | | | |
| Cattle Egret | B *H P *S T W Wo C | PR | | Black Vulture | *B H P *S T *W Wo C | PR | |
| Green-Heron | *B *H *P *S T *W Wo C | SR | | Turkey Vulture | *B H P *S T *W Wo C | PR | |
| Black-crowned Night-Heron | *B *H *P *S T *W Wo C | PR | | <i>Kites, Hawks, Eagles</i> | | | |
| Yellow-crowned-Night-Heron | *B *H *P *S T *W Wo FC | PR | | Osprey | *B *H *P *S T *W Wo C | PR | |
| <i>Ibises</i> | | | | Am. Swallow-tailed Kite | B H P *S W | U | SR |
| White Ibis | *B *H *P *S W Wo C | PR | | Mississippi Kite | B H P *S T W Wo U | U | SR |
| Glossy Ibis | Complex | FC | PR | <i>Bald Eagle</i> | B H P *S T W Wo C | WV/M | WV |
| <i>Storks</i> | | | | Northern Harrier | Complex | C | |
| <i>Wood Stork</i> | *B *H P S W Wo FC | SR | | Sharp-shinned Hawk | *Complex | FC | PR |
| <i>Swans, Geese, Ducks</i> | | | | Cooper's Hawk | *B *H *P *S T *W Wo FC | PR | |
| Fulvous Whistling-Duck | H S R | WV | | Red-shouldered Hawk | B *H *P *S T W Wo FC | PR | |
| Tundra Swan | S U | WV | | Broad-winged Hawk | P S W | U | SV/M |
| Greater White-fronted Goose | H S U | WV | | Red-tailed Hawk | *B *H *P *S *T *W Wo C | PR | |
| Snow Goose | B H S T U | WV | | Golden Eagle | P S R | WV | |
| Brant | H S R | WV | | <i>Falcons</i> | | | |
| Canada Goose | B *H P S W FC | WV | | American Kestrel | Complex | C | WV |
| Wood Duck | *B *H *P *S T *W Wo C | PR | | Merlin | Complex | U | WV |
| Green-winged Teal | Complex | C | WV | <i>Peregrine Falcon</i> | Complex | U | WV |
| American Black Duck | B H P *S T W Wo C | PR | | <i>Quail, Allies</i> | | | |
| Mallard | B H P *S T W Wo U | PR | | Wild Turkey | H P S | U | PR |
| Northern Pintail | Complex | C | WV | Northern Bobwhite | *H *P *S | C | PR |
| Blue-winged Teal | Complex | C | WV | <i>Rails, Allies</i> | | | |
| Cinnamon Teal | Complex | R | WV | Yellow Rail | S | R | WV |
| Northern Shoveler | Complex | C | WV | Black Rail | B S W | R | SR |
| Gadwall | Complex | C | WV | Clapper Rail | *B *H *P *T *W C | PR | |
| Eurasian Wigeon | S R | WV | | King Rail | *B *S FC | PR | |
| American Wigeon | Complex | C | WV | Virginia Rail | B H P S W | FC | WV |
| | | | | Sora | B H S FC | FC | WV |

| SPECIES | REFUGES | | | ABUND. | SEASON | SPECIES | REFUGES | | | ABUND. | SEASON | SPECIES | REFUGES | | | ABUND. | SEASON | | |
|---------------------------------------|---------|----|----|--------|--------|---------|---------|----|------|---------------------------|----------|---------|---------|----|---|--------|--------|----|----|
| Purple Gallinule | *B | *H | *S | | | FC | SR | | | Laughing Gull | Complex | | C | PR | | | FC | PR | |
| Common Moorhen | *B | *H | *S | | | C | PR | | | Bonaparte's Gull | Complex | | C | WV | | | U | PR | |
| American Coot | B | H | P | S | W | C | PR | | | Ring-billed Gull | Complex | | C | PR | | | | | |
| <i>Plovers</i> | | | | | | | | | | Herring Gull | Complex | | C | PR | | | | | |
| Black-bellied Plover | Complex | | | | | C | WV | | | Great Black-backed Gull | B | P | S | T | W | Wo | U | WV | |
| Lesser Golden-Plover | | H | | T | | R | M | | | Gull-billed Tern | B | H | *P | S | T | W | Wo | FC | SR |
| Wilson's Plover | *B | H | P | S | T | *W | Wo | C | SR | Caspian Tern | Complex | | U | SR | | | | | |
| Semipalmated Plover | Complex | | | | | C | PR | | | Royal Tern | B | H | P | S | T | W | Wo | C | PR |
| <i>Piping Plover</i> | B | H | P | | T | W | Wo | FC | WV | Sandwich Tern | Complex | | FC | SR | | | | | |
| Killdeer | B | H | *P | S | *T | *W | *Wo | C | PR | Common Tern | Complex | | U | M | | | | | |
| <i>Oystercatchers</i> | | | | | | | | | | Forster's Tern | Complex | | C | PR | | | | | |
| Am. Oystercatcher | *B | H | *P | | *T | *W | *Wo | FC | PR | Least Tern | *Complex | | C | SR | | | | | |
| <i>Stilts, Avocets</i> | | | | | | | | | | Sooty Tern | B | P | | T | W | Wo | R | SV | |
| Black-necked Stilt | B | H | P | *S | | W | | U | SR | Black Tern | Complex | | FC | M | | | | | |
| American Avocet | B | H | P | S | | W | | U | M | Black Skimmer | Complex | | C | PR | | | | | |
| <i>Sandpipers, Allies</i> | | | | | | | | | | <i>Pigeons, Doves</i> | | | | | | | | | |
| Greater Yellowlegs | Complex | | | | | C | WV | | | Rock Dove | B | H | P | S | T | W | C | PR | |
| Lesser Yellowlegs | Complex | | | | | C | WV | | | Mourning Dove | *B | *H | *P | *S | T | *W | C | PR | |
| Solitary Sandpiper | Complex | | | | | FC | M | | | Common Ground-Dove | *B | *H | *P | *S | T | *W | U | PR | |
| Willet | *B | *H | *P | S | *T | *W | *Wo | C | PR | <i>Cuckoos</i> | | | | | | | | | |
| Spotted Sandpiper | Complex | | | | | C | M | | | Black-billed Cuckoo | | S | | W | | | U | M | |
| Upland Sandpiper | | P | S | T | W | Wo | R | M | | Yellow-billed Cuckoo | *B | *H | *P | *S | T | *W | C | SR | |
| Whimbrel | B | H | P | | T | W | Wo | U | M | <i>Owls</i> | | | | | | | | | |
| Long-billed Curlew | | H | | | | R | WV | | | Common Barn Owl | *B | H | P | *S | | W | U | PR | |
| Marbled Godwit | B | P | | | | FC | WV | | | Eastern Screech Owl | *B | *H | *P | *S | | *W | C | PR | |
| Ruddy Turnstone | B | H | P | | T | W | Wo | C | PR | Great Horned Owl | *B | *H | *P | *S | T | *W | U | M | |
| Red Knot | B | H | P | | T | W | Wo | FC | WV | Barred Owl | *B | *H | *P | *S | | *W | C | PR | |
| Sanderling | B | H | P | | T | W | Wo | FC | WV/M | Long-eared Owl | | P | S | | | | | | |
| Semipalmated Sandpiper | Complex | | | | | R | M | | | Short-eared Owl | | P | S | | | | | | |
| Western Sandpiper | B | H | P | S | | W | C | PR | | <i>Nightjars</i> | | | | | | | | | |
| Least Sandpiper | B | H | P | S | | W | Wo | C | PR | Common Nighthawk | *B | *H | *P | *S | T | *W | Wo | C | SR |
| White-rumped Sandpiper | | P | S | | W | U | M | | | Chuck-will's widow | *B | *H | *P | *S | | *W | Wo | PR | |
| Pectoral Sandpiper | B | H | P | S | T | W | Wo | FC | M | Whip-poor-will | B | H | P | S | | | C | PR | |
| Purple Sandpiper | | | | T | | FC | WV | | | <i>Swifts</i> | | | | | | | | | |
| Dunlin | B | H | P | S | T | W | Wo | C | WV | Chimney Swift | *B | H | *P | *S | T | W | C | SR | |
| Stilt Sandpiper | | P | S | | | U | M | | | | | | | | | | | | |
| Buff-breasted Sandpiper | | | S | | | R | M | | | <i>Hummingbirds</i> | | | | | | | | | |
| Short-billed Dowitcher | Complex | | | | | C | M | | | Rudy-throated Hummingbird | *B | *H | *P | *S | T | *W | Wo | C | WV |
| Long-billed Dowitcher | B | P | S | | W | Wo | U | M | | <i>Kingfishers</i> | | | | | | | | | |
| Common Snipe | Complex | | | | | C | WV | | | Belted Kingfisher | B | H | *P | *S | | *W | C | PR | |
| Am. Woodcock | B | H | P | S | | FC | WV | | | <i>Woodpeckers</i> | | | | | | | | | |
| Wilson's Phalarope | | P | S | | | U | M | | | Red-headed Woodpecker | *B | *H | P | S | | | | | |
| <i>Gulls, Terns, Skimmers, Allies</i> | | | | | | | | | | Red-bellied Woodpecker | *B | *H | *P | *S | | | | | |
| Parasitic Jaeger | B | P | | W | | R | WV | | | Yellow-bellied Sapsucker | B | H | P | S | | | | | |
| | | | | | | | | | | Downy Woodpecker | *B | *H | *P | *S | | | | | |

| SPECIES | REFUGES | ABUND. | SEASON | SPECIES | REFUGES | ABUND. | SEASON | SPECIES | REFUGES | ABUND. | SEASON | | | | | | | | |
|--------------------------------|-------------------|--------|--------|---------------------------------|-------------------|--------|--------|-----------------------------|---------------------|--------|--------|--|--|--|--|--|--|--|--|
| Veery | P S W | FC | M | Prairie Warbler | B H P S W | C | SR | Lapland Longspur | H | R | WV | | | | | | | | |
| Gray-cheeked Thrush | H P S W | FC | M | Palm Warbler | B H P S W | C | WV | Bobolink | B H P S W | C | M | | | | | | | | |
| Swainson's Thrush | H P S W | FC | M | Bay-breasted Warbler | P S | R | M | Red-winged Blackbird | *B *H *P *S *T *W | C | PR | | | | | | | | |
| Hermit Thrush | B H P S W | C | WV | Blackpoll Warbler | B H P S W | C | M | Eastern Meadowlark | *B *H *P *S *W | C | PR | | | | | | | | |
| Wood Thrush | *H *P *S *W | C | SR | Black-and-white Warbler | B H P S W | U | PR | Western Meadowlark | H S | U | WV | | | | | | | | |
| American Robin | B H P S W | C | WV | American Redstart | B H P S W | C | M | Rusty Blackbird | H P S W | C | WV | | | | | | | | |
| <i>Mimic Thrushes</i> | | | | | | | | | | | | | | | | | | | |
| Gray Catbird | B *H *P *S W | FC | PR | Prothonotary Warbler | B H P *S W | FC | SR | Brewer's Blackbird | P S | R | WV | | | | | | | | |
| Northern Mockingbird | *B *H *P *S *T *W | C | PR | Worm-eating Warbler | B H P S W | U | M | Boat-tailed Grackle | *B *H *P *S T *W Wo | C | PR | | | | | | | | |
| Brown Thrasher | Complex | C | PR | Swainson's Warbler | P S | U | SR | Common Grackle | *B *H *P *S *W | FC | PR | | | | | | | | |
| <i>Pipits</i> | | | | | | | | | | | | | | | | | | | |
| Water Pipit | B H P S | U | WV | Ovenbird | B H P S W | C | M | Brown-headed Cowbird | *B H P S *W | C | PR | | | | | | | | |
| <i>Waxwings</i> | | | | | | | | | | | | | | | | | | | |
| Cedar Waxwing | B H P S W | C | WV | Kentucky Warbler | P S | FC | SR | Orchard Oriole | *B *H *P *S *W | C | SR | | | | | | | | |
| <i>Shrikes</i> | | | | | | | | | | | | | | | | | | | |
| Loggerhead Shrike | *B *H *P *S W | C | PR | Common Yellowthroat | *B *H *P *S *W | C | PR | Northern (Baltimore) Oriole | B P S W | FC | WV | | | | | | | | |
| <i>Starlings</i> | | | | | | | | | | | | | | | | | | | |
| European Starling | *H *P *S W | C | PR | Hooded Warbler | B H P *S W | C | SR | Purple Finch | B H P S W | C | WV | | | | | | | | |
| <i>Vireos</i> | | | | | | | | | | | | | | | | | | | |
| White-eyed Vireo | *B *H *P .. *S *W | FC | PR | Wilson's Warbler | P S | R | M | Pine Siskin | H P S | FC | WV | | | | | | | | |
| Solitary Vireo | B H P S W | FC | WV | Canada Warbler | P | R | M | American Goldfinch | B H P S W | C | WV | | | | | | | | |
| Yellow-throated Vireo | *B *H *P *S *W | FC | SR | Yellow-breasted Chat | *P *S | C | PR | Evening Grosbeak | P S | U | WV | | | | | | | | |
| Warbling Vireo | W | U | M | Summer Tanager | *B *H *P *S *W | C | SR | House Sparrow | *H *P *S | C | PR | | | | | | | | |
| Philadelphia Vireo | P S W | U | M | Scarlet Tanager | P S | U | M | <i>Accidentals</i> | | | | | | | | | | | |
| Red-eyed Vireo | *B *H *P *S *W | C | SR | Northern Cardinal | *B *H *P *S *W | C | SR | Wilson's Storm Petrel | B P W | | | | | | | | | | |
| <i>Emberizids</i> | | | | | | | | | | | | | | | | | | | |
| Blue-winged Warbler | P S | R | M | Rose-breasted Grosbeak | P S | R | M | Am. White Pelican | B P S T W Wo | | | | | | | | | | |
| Golden-winged Warbler | P S | R | M | Blue Grosbeak | P S | R | M | Great Cormorant | B W Wo | | | | | | | | | | |
| Tennessee Warbler | P S | R | M | Indigo Bunting | B H P *S W | C | SR | Magnificent Frigatebird | B W Wo | | | | | | | | | | |
| Orange-crowned Warbler | B H P S | FC | WV | Painted Bunting | *B *H *P *S *W Wo | C | SR | Reddish Egret | S | | | | | | | | | | |
| Nashville Warbler | P W | R | M | Rufous-sided Towhee | *B *H *P *S *W | C | WV | Roseate Spoonbill | B H S W | | | | | | | | | | |
| Northern Parula | *B *H *P *S *W | C | SR | Bachman's Sparrow | H S | U | PR | Mute Swan | S | | | | | | | | | | |
| Yellow Warbler | B H P S W | C | M | Chipping Sparrow | B H P S W | C | WV | Rough-legged hawk | P | | | | | | | | | | |
| Chestnut-sided Warbler | B P S W | R | M | Field Sparrow | B H P S W | C | WV | Limpkin | S | | | | | | | | | | |
| Magnolia Warbler | B H P S W | U | M | Vesper Sparrow | B H P S W | C | WV | Sandhill Crane | H S | | | | | | | | | | |
| Cape May Warbler | B H P S W | FC | M | Savannah Sparrow | Complex | C | WV | Red-necked Phalarope | S | | | | | | | | | | |
| Black-throated Blue Warbler | B H P S W | C | M | Grasshopper Sparrow | H | U | WV | Red Phalarope | S W | | | | | | | | | | |
| Yellow-rumped (Myrtle) Warbler | Complex | C | WV | Henslow's Sparrow | P S | U | WV | Groove-billed Ani | S | | | | | | | | | | |
| Black-throated Green Warbler | B P W | U | M | Sharp-tailed Sparrow | B H P T W Wo | U | WV | Snowy Owl | S | | | | | | | | | | |
| Blackburnian Warbler | B P S W | R | M | Seaside Sparrow | *B *H *P *W *Wo | C | PR | Olive-sided Flycatcher | S | | | | | | | | | | |
| Yellow-throated Warbler | *B *H *P *S *W | C | PR | Fox Sparrow | B H P S W | FC | WV | Vermillion Flycatcher | H | | | | | | | | | | |
| Pine Warbler | *B *H *P *S W | C | PR | Song Sparrow | B H P S W | C | WV | Western Kingbird | H S | | | | | | | | | | |
| | | | | Lincoln's Sparrow | H | R | WV | Scissor-tailed Flycatcher | B H | | | | | | | | | | |
| | | | | Swamp Sparrow | B H P S W | C | WV | Common Raven | H S | | | | | | | | | | |
| | | | | White-throated Sparrow | B H P S W | C | WV | Sprague's Pipit | H S | | | | | | | | | | |
| | | | | White-crowned Sparrow | S | R | WV | Clay-colored Sparrow | B | | | | | | | | | | |
| | | | | Dark-eyed (Slate-colored) Junco | B H P S W | C | WV | Lark Sparrow | B | | | | | | | | | | |
| | | | | | | | | Snow Bunting | T | | | | | | | | | | |
| | | | | | | | | Yellow-headed Blackbird | S | | | | | | | | | | |

Sighting Notes

Date: _____ Time: _____ to: _____

Weather: _____

No. of species: _____

Route or area: _____

Observers: _____

Remarks: _____

Ethics for Birdwatching

Take care not to disturb nesting birds, exposing eggs and young to extreme temperatures and predation.

Disturb wintering wildlife as little as possible, particularly during critical feeding and resting periods. They need all of their energy reserves to withstand the stresses of harsh weather and migration.

Do not litter. Many birds die when they become entangled in fishing lines, 6-pack rings and other trash, or when they mistake garbage for food.

To report unusual sightings or for further information contact:

Savannah Coastal Refuges

Parkway Business Center - Suite 10

1000 Business Center Drive

Savannah, Georgia 31405

Acknowledgments

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Cover Photo: Wood Stork adult and juvenile in nest at Harris Neck National Wildlife Refuge, by Jonas Jordan.



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