

REVIEW AND APPROVALS

CURRITUCK NATIONAL WILDLIFE REFUGE

Currituck County, North Carolina

ANNUAL NARRATIVE REPORT

Calendar year 1997, 1998, 1999

|   |                        |
|---|------------------------|
| <u><i>Tim Cooper</i></u><br>Refuge Manager                  | <u>7-15-04</u><br>Date |
| <u><i>Dwight A. Gabriel</i></u><br>Refuge Supervisor Review | <u>7.19.04</u><br>Date |
| <u><i>Jon Andrews</i></u><br>Regional Office Approval       | <u>7-30-04</u><br>Date |

## INTRODUCTION

Currituck NWR is located in northern Currituck County, North Carolina along the Outer Banks barrier island chain. The Currituck Banks are part of an extensive coastal lowland that stretches from Newfoundland southward to Florida, and westward into the Gulf of Mexico. Along the Currituck Banks, inlets have periodically formed and reformed depending on storms, amount of sedimentation, tidal heights, and degree of vegetation on the barrier beach.

Acquisition of Currituck NWR was intended to preserve and protect a part of the NC Outer Banks, one of the largest undeveloped coastal barrier ecosystems remaining on the East Coast. Service ownership ensures perpetuation of basic wetland functions, including nutrient cycling, flood plain and erosion control, and will help preserve the role of Currituck Sound estuaries as nurseries. The sound is an important black duck wintering area. Ownership of the protective buffer east of the productive marshes bordering the sound protects the marsh from direct pollution sources associated with development.

The Outer Banks remained isolated from the mainstream of activity in early America, and those few people who lived there relied heavily on activities associated with the area's natural values for their subsistence. Activity in the Currituck Sound area reached a peak in the late 1800's when commercial fishing and market hunting were at an all time high. A number of hunting clubs were established for sport hunting of waterfowl and drew much of their membership from affluent northern businessmen and professionals.

The navigation hazards along the Outer Banks resulted in numerous shipwrecks along the coast. Lifesaving stations were established along the beach of which several still exist. One station is located on an inholding within the Swan Island Tract (SIT) and is used as a seasonal residence by a private citizen. The Currituck Lighthouse at Corolla still functions throughout the year.

During 1975 and 1976, The Nature Conservancy (TNC) acquired several parcels of land on the Currituck Outer Banks. The two major tracts of land were being utilized by the Swan Island and Monkey Island Hunting Clubs. Funds to purchase these areas were provided by the Mellon Foundation, a sponsor of the National Wetlands Project. TNC transferred approximately 500 acres of the Monkey Island Tract to the State of North Carolina for inclusion in the National Estuarine Sanctuary System as the Currituck Banks component. A narrow strip from sound to sea of about 50 acres was retained by TNC between the Sanctuary and the Monkey Island Tract.

The Migratory Bird Conservation Commission (MBCC) met to consider the Currituck Refuge on August 2, 1983. The MBCC approved the boundary of the refuge in two parcels: the Monkey Island Tract, which is 1.5 miles north of Corolla, NC, and the Swan Island



Tract some 3.5 miles further north. Two phases of acquisition resulted in 1,770 acres in fee title, 166 acres in conservation easement and some hunting blind rights at a cost of \$3.9 million. Two additional tracts (i.e., the County Tracts), 54 acres of marsh and low shrub and hardwood woodland, was acquired on May 18, 1988, through a trade with Currituck County, NC, for Monkey Island and the Waterlily Tract. The County Tracts are located along the west side of Corolla village. All four tracts (i.e., the Monkey Island, Swan Island and two County Tracts) total about 1,824 acres and have been administered by Mackay Island NWR at Knotts Island, NC, since July of 1990. The Currituck Marshes Tract was added to the refuge on September 16, 1997 and consists of 1,142 acres of fresh/brackish marsh.

Part of the agreement for exchange of Monkey Island and the Waterlily Tract (0.1 acres located on the west side of Currituck Sound) for the County Tracts was Currituck County would repair the historical structures on the island, create an environmental education program for school children there and conserve the waterbird nesting area. The County had ten years to repair the structures and begin the education program or Monkey Island reverted back to the Service's ownership, with the Service keeping the County Tracts. The Currituck County Commission voted on May 20, 1998 not to spend the money to complete repairs to the structures and allow the island to revert back to Service ownership. Thus, about eight acres were added to the refuge.

Two additional tracts were added by fee title in 1998. On April 30, the title to the McLean Garner Tract was vested in the United States. This 247 acre parcel is located just over one mile north of the Swan Island Tract along Currituck Sound. The Ocean Associates Tract was added to the refuge on November 2. It consists of 882 acres and is northwest of Penny's (i.e., Luark's) Hill. Thus, at the end of 1998 the refuge consisted of 4,100 acres in fee title.

# TABLE OF CONTENTS

|  | <u>Page</u> |
|--|-------------|
| A. <u>HIGHLIGHTS</u> . . . . .   | 1           |
| B. <u>CLIMATIC CONDITIONS</u> . . . . .                                      | 1           |
| C. <u>LAND ACQUISITION</u> . . . . .   | 1           |
| 1. Fee Title . . . . .   | 1-3         |
| 2. Easements . . . . .   | 3           |
| 3. Other . . . . .   | 3-5         |
| D. <u>PLANNING</u> . . . . .   | 5           |
| 1. Master Plan . . . . .   | NTR         |
| 2. Management Plan . . . . .   | 5           |
| 3. Public Participation . . . . .  | NTR         |
| 4. Compliance with Environmental and<br>Cultural Resource Mandates . . . . . | NTR         |
| 5. Research and Investigations . . . . .                                     | 5-6         |
| 6. Other . . . . .   | 6-7         |
| E. <u>ADMINISTRATION</u> . . . . .   | 7           |
| 1. Personnel . . . . .   | 7-8         |
| 2. Youth Programs . . . . .  | NTR         |
| 3. Other Manpower Programs . . . . .   | NTR         |
| 4. Volunteer Program . . . . .   | 8           |
| 5. Funding . . . . .   | NTR         |
| 6. Safety . . . . .  | NTR         |
| 7. Technical Assistance . . . . .  | NTR         |
| 8. Other Items . . . . .   | 8           |
| F. <u>HABITAT MANAGEMENT</u> . . . . .                                       | 8           |
| 1. General . . . . .   | 8-9         |
| 2. Wetlands . . . . .  | 10-11       |
| 3. Forests . . . . .   | 11          |
| 4. Croplands . . . . .   | NTR         |
| 5. Grasslands . . . . .  | NTR         |
| 6. Other Habitats . . . . .  | 11          |
| 7. Grazing . . . . .   | NTR         |
| 8. Haying . . . . .  | NTR         |
| 9. Fire Management . . . . .   | 11          |
| 10. Pest Control . . . . .   | NTR         |
| 11. Water Rights . . . . .   | NTR         |
| 12. Wilderness and Special Areas . . . . .                                   | NTR         |
| 13. WPA Easement Monitoring . . . . .  | NTR         |



|     |   |       |
|-----|---|-------|
| G.  | <u>WILDLIFE</u>                             | 11    |
| 1.  | Wildlife Diversity                          | 11-12 |
| 2.  | Endangered and/or Threatened Species        | 12-14 |
| 3.  | Waterfowl                                   | 15-20 |
| 4.  | Marsh and Water Birds                       | 20-21 |
| 5.  | Shorebirds, Gulls, Terns and Allied Species | 21    |
| 6.  | Raptors                                     | 22    |
| 7.  | Other Migratory Birds                       | NTR   |
| 8.  | Game Mammals                                | NTR   |
| 9.  | Marine Mammals                              | NTR   |
| 10. | Other Resident Wildlife                     | NTR   |
| 11. | Fisheries Resources                         | NTR   |
| 12. | Wildlife Propagation and Stocking           | NTR   |
| 13. | Surplus Animal Disposal                     | NTR   |
| 14. | Scientific Collections                      | NTR   |
| 15. | Animal Control                              | 22-24 |
| 16. | Marking and Banding                         | NTR   |
| 17. | Disease Prevention and Control              | NTR   |
| H.  | <u>PUBLIC USE</u>                           | 24    |
| 1.  | General                                     | 24    |
| 2.  | Outdoor Classrooms - Students               | NTR   |
| 3.  | Outdoor Classrooms - Teachers               | NTR   |
| 4.  | Interpretive Foot Trails                    | NTR   |
| 5.  | Interpretive Tour Routes, Motorized         | NTR   |
| 6.  | Interpretive Exhibits/Demonstrations        | NTR   |
| 7.  | Other Interpretive Programs                 | NTR   |
| 8.  | Hunting                                     | 25-26 |
| 9.  | Fishing                                     | NTR   |
| 10. | Trapping                                    | NTR   |
| 11. | Wildlife Observation                        | NTR   |
| 12. | Other Wildlife Oriented Recreation          | NTR   |
| 13. | Camping                                     | NTR   |
| 14. | Picnicking                                  | NTR   |
| 15. | Off-Road Vehicling                          | NTR   |
| 16. | Other Non Wildlife Oriented Recreation      | NTR   |
| 17. | Law Enforcement                             | 26-28 |
| 18. | Cooperating Associations                    | NTR   |
| 19. | Concessions                                 | NTR   |
| I.  | <u>EQUIPMENT AND FACILITIES</u>             | 28    |
| 1.  | New Construction                            | NTR   |
| 2.  | Rehabilitation                              | NTR   |
| 3.  | Major Maintenance                           | 28-29 |
| 4.  | Equipment Utilization and Replacement       | NTR   |
| 5.  | Communications Systems                      | NTR   |
| 6.  | Computer Systems                            | NTR   |
| 7.  | Energy Conservation                         | NTR   |
| 8.  | Other                                       | NTR   |

|    |                                |     |
|----|--------------------------------|-----|
| J. | <u>OTHER ITEMS</u> . . . . .   | 29  |
| 1. | Cooperative Programs . . . . . | 29  |
| 2. | Other Economic Uses . . . . .  | NTR |
| 3. | Items of Interest . . . . .    | 29  |
| 4. | Credits . . . . .              | 31  |

|    |                           |     |
|----|---------------------------|-----|
| K. | <u>FEEDBACK</u> . . . . . | NTR |
|----|---------------------------|-----|

L. INFORMATION PACKET ---  
(INSIDE BACK COVER)

## A. HIGHLIGHTS

### 1997

RM Ken Merritt got his fifteen minutes of fame when he was interviewed on the prime time news magazine show called "Coast to Coast" on CBS for a segment on the Corolla Wild Horse Fund and its inherent difficulties.

1,142 acres of marsh islands were added to Currituck NWR with the addition of the Currituck Marsh Unit in September.

### 1998

For the first time in recent memory, no wildfires occurred on Currituck NWR.

Two new properties composing 1,129 acres were added to Currituck NWR this year. They are the Ocean Associates Tract and the McLean Garner Tract.

### 1999

Fourteen strandings of loggerhead sea turtles occurred on Currituck NWR and nearby beaches from June 17th-25th. This was the largest number of strandings occurring in this short time frame on northern NC beaches since records were being kept for the area.

The first Currituck NWR waterfowl hunt was held this year beginning on November 10.

## B. CLIMATIC CONDITIONS

As an unmanned station managed by the staff at Mackay Island NWR, no weather conditions are monitored at Currituck. However, since it is just east of Mackay Island NWR, weather conditions at both refuges are likely to be very similar. Significant weather events that occurred in 1998 include two nor'easters (February) and Hurricane Bonney (August). All of these storm events eroded the primary dunes, creating additional openings and washes. In addition, Hurricane Bonney sandblasted signs (5) along the dunes.

## C. LAND ACQUISITION

### 1. Fee Title

When originally proposed, Currituck Refuge had the potential for approximately 15,000 acres on the North Carolina Outer Banks. The 4,100 acres that currently exist is a fragment of what was envisioned in the final Environmental Impact Statement (EIS) in 1980. Primarily, skyrocketing land prices have prohibited the ambitious acquisition originally envisioned.



With the ongoing onslaught of beach front development, the importance of this fragile coastal barrier island ecosystem has become even more evident. Small tracts of land such as the Covington Tract (See section C.3. below) need to be given serious consideration for acquisition before they are subdivided and developed. These parcels are inherently valuable for migratory birds, endangered species, bio-diversity, water quality, dune protection, and will lessen the indirect affects of increased human activity associated with development.

One large property, called the Currituck Marsh Unit, was purchased by fee title on September 16, 1997. This tract consists of 1,142 acres of approximately a dozen marsh grass islands and their dividing creeks. It is situated directly across the sound from Knotts Island, half a mile south of the Virginia/North Carolina state line.



Cabin on the Ocean Associates Property  
Looking East from Currituck Sound

Two properties were purchased by fee title in 1998. The title for the McLean Garner (i.e., Station Landing) Tract was vested in the United States on April 30. This tract borders Currituck Sound, just over one mile north of the Swan Island Tract, and consists of 214 acres of marsh/wetland and 33 acres of uplands. The uplands are a mixture of open fields and maritime forest containing mainly hardwoods (e.g., live oaks). The Ocean Associates Tract officially became part of the refuge on November 2. The tract is 882 acres in size, with 780 acres in fresh/brackish marsh and a narrow shrub-scrub wetlands bordering



the uplands and 102 acres of upland consisting of secondary dunes with mainly sparse herbaceous vegetation.

## 2. Easements

In October, RM Baird began initial negotiations with Whit Sessoms regarding a possible conservation easement on a property bordering and an inholding of the Swan Island Tract. The properties are part of the White Estate, which has nine undivided interests (i.e., there are nine owners of the entire, undivided property). Mr. Sessoms also sent a letter to the Realty Office in Atlanta expressing an interest in developing a conservation easement with the Service on this property. At the time, according to Zeb Mathews of the Realty Office, Mr. Sessoms had an agreement with about 50% of the White heirs. He would need an agreement with all owners prior to the Service's consideration of his easement offer. In his offer, Mr. Sessoms wanted to maintain the hunting rights to the property. Both Zeb and Bill Grabill, Area II Supervisor, stressed that **no landowners would maintain hunting rights on lands the Service purchases or has easements on in the future**. They noted that other agencies (e.g., The Nature Conservancy and the North Carolina Department of Environment and Natural Resources, Estuarine Reserve Program) should be referred to when landowners wish to develop an conservation easement but maintain hunting rights on their land.

## 3. Other

### 1998

As noted in the Mackay Island NWR 1998 Annual Narrative, Regional Office (RO) staff and Mike Bryant, Alligator River NWR RM, visited Mackay Island and Currituck NWRs on November 23-24, 1998. RO staff visiting included Bill Grabill, Area II Supervisor (Refuges), and Zeb Mathews and John Yount of the Realty Office. Discussions of mainly Realty issues were held in the office of Mackay Island NWR on November 23, with a field visit to Currituck NWR held on November 24.

ARM Gates and LEO Panz briefed the visitors on issues of interest provided by Bill Grabill earlier. Input was provided by RO staff. Key discussions on both days related to Realty issues on Currituck NWR included:

a. ARM Gates provided a history of acquisitions on Currituck NWR. The Covington property was mentioned as the highest priority for acquisition. This property is adjacent to the north boundary of the Swan Island Tract and is about 82 acres of upland habitat, mainly sparsely scattered herbaceous vegetated dunes, and 318 acres of marsh and flats wetlands. [Later in the year, it was determined that Mr. Covington only wanted to sell the marsh and wetland portion of the property. We began the process of attempting to purchase such.] Bill Grabill stated that refuge



staff should get in touch with Realtor Larry Riggs and begin pursuing purchase of other upland areas near Currituck NWR that are in danger of development.

b. Develop a RONS or MMS project related to mothballing the historic structures on Monkey Island. This would basically include covering windows with plywood to keep the interiors intact. Bill Grabill suggested we ask Regional Archaeologist Rick Kanaski to visit Monkey Island. See if he could ask the State Historic Preservation Officer to remove the historic buildings from the proposed list of historic places due to their condition, but proceed with care due to local interest in these buildings. Due to our lack of resources to stabilize this eroding island, explore others we could give the island to who will stabilize it and conserve its natural (e.g., rookery) and historic values. Bill felt conservation of the rookery had precedence over the historic structures [The birds were moving their nests to trees around the buildings and activity around these buildings could disturb the birds during the breeding season.] and this should be communicated to Rick Kanaski.

c. Issues related to Mr. Sessoms easement offer (See C.2. above). Zeb indicated he will find money to perform a title search of the disputed "Tar Shack" property (Mr. Raymond Williams of Knotts Island claims ownership of a small inholding on the southeastern end of the Swan Island Tract that has a small shack on it. Mr. Williams is one of the White heirs.). Bill Grabill is going to take a fresh look at hunting rights on the Swan Island Tract.

d. We need a letter from Currituck County indicating that they intend to permit Monkey Island and the Waterlily Tract to revert to Service ownership.

e. RM Baird is working with representatives of The Nature Conservancy (TNC) and Estuarine Reserve (ER) program to build a visitor center on state land and trails running from the sound to ocean on land belonging to all three parties. The Coastal Wildlife Refuge Society is holding \$95,000 for the visitor center project. This money was donated by the power company when they put a line through parts of the refuge earlier. We are waiting for replacement of TNC and ER personnel to pursue this further. Bill Grabill noted that the visitor center should not be built in the right-of-way of NC 12 if there is any chance this will be extended or widened onto ER property.

A few issues regarding management of the refuge were discussed (e.g., control of feral hogs and planned hunting programs). However, Bill Grabill noted that the purpose of their visit was to discuss realty issues. He noted he would like to visit the refuge again to discuss mainly management issues.



On March 23 RM Baird and LEO Panz met with Doug Corbin, Regional Office, and a contract surveyor to evaluate the boundary survey project on the newly acquired Ocean Associates Tract (Currituck NWR). This tract was boundary marked in November by survey contractors, assisted by ARM Gates and LEO Panz.

Meanwhile, interest in acquiring other tracts of land continued throughout the year. In May, RM Baird met with realtor Larry Riggs of Riggs Realty to look at four properties along the Currituck Outer banks which are for sale. All four properties are within the approved refuge boundary and would be good additions to Currituck NWR. On June 3<sup>rd</sup>, RM Baird toured Nancy Unbehaun and Zeb Mathews from the Atlanta Realty Office around Currituck NWR to view the potential acquisition properties. They met with Larry Riggs, a local realtor, to discuss these properties along the Outer Banks which are within the Currituck NWR approved acquisition boundary. On July 6, ARM Gates and Realtor Larry Riggs showed Mr Kelly Carlton, an appraiser, the four properties near Currituck NWR that we are attempting to purchase. Finally, in November, RM Baird met with Tom Fallrath and Zeb Mathews of the Realty Office to review and visit the proposed acquisitions for the Currituck NWR. Mr. Fallrath determined that all tracts would be pursued, some with Migratory Bird Funds and some with storm moneys.

#### D. PLANNING

##### 2. Management Plan

Refuge staff held a number of meetings with partners during 1998 to discuss opening the refuge to waterfowl hunting. On April 21, RM Baird, ARM Gates and LEO Panz met with Tommy Hughes of the North Carolina Wildlife Resources Commission (NCWRC) and Billy Rose of the Currituck County Game Commission (CCGC) to begin coordination of the hunt. It was decided that new blinds would be placed on the Currituck Marshes Tract. The group would eventually coordinate with TNC and the ER to determine if they wished to open blinds on their properties to hunting at the same time. Another meeting of the same individuals, minus LEO Panz, and Joe Luark and Gary Jones was held on June 16. Mr. Luark and Mr. Jones, who are very familiar with the Currituck Marshes, were invited to assist with location of possible blind sites on the refuge. State enforcement personnel, Tommy Hughe's supervisor, Barb Blonder of TNC and David Winowski of the ER program joined the other representatives in determining additional details of the proposed hunt.

RM Baird began to draft the waterfowl hunting plan for Currituck NWR in December 1998.

##### 5. Research and Investigations

In May 1998, Mr. Lloyd Garcia was issued a Special Use Permit



(SUP) allowing the North Carolina Department of Agriculture and Consumer Services (NCDACS) to place gypsy moth traps on the refuge. This is part of a study funded by the USDA Forest Service to study and slow the spread of this forest pest. The SUP permitted NCDACS to place traps containing a pheromone to attract males at pre-established sampling points. The traps could be placed anywhere within a circle with a half mile radius. Vehicle access was limited to the area between mean low and high tides. The traps were to be checked periodically from May through August and the number of males captured in each counted. Treatment of any areas containing moths was not permitted without written permission of the RM.

ARM Gates and intern Laura Thompson helped North Carolina Department of Transportation personnel place 10' X 10' panels (crosses) on the refuge on July 22 for a study of beach erosion. The study was being conducted by the North Carolina Department of Environment and Natural Resources. The distance from the panels to the shoreline was to be study periodically to determine erosion rates and changes to the shoreline. Each panel was located via the Global Positioning System and entered into a Geographic Information System. A low level flight was used to aerially photograph the area being studied. A set of small-scale aerial photos were supplied to the refuge as part of the project.

The SUPs for both projects mentioned above required that copies of publications resulting from the studies be provided to the refuge.

## 6. Other

### 1998

RM Baird met in Manteo on June 15 with John Taggart and David Wojonowski of the ER and Barb Blonder of TNC to discuss a proposed joint Service-State visitor center/research station. All parties supported the proposed project. TNC is willing to provide some financial support. The building will be built on State land with Federal monies, mainly the \$95,000 held by the CWSR (from North Carolina Power- from earlier construction of a power line through the refuge). A long-term lease with the State will be established.

Plans were also made to build a sound-to-ocean trail from the ER property, through TNC property and the refuge (Monkey Island Tract) to the beach. The three partners received a grant from the National Recreational Trails Funding Program to build phase I of the trail- from the proposed location of the visitor center/research station to the sound. Interns Laura Thompson and Britt Partee assisted ER personnel during the summer with clearing of some pathways for this trail. Phase II of the trail will join phase I, go north through the TNC property to the refuge and then onto the beach. A kiosk will be located at the visitor center and the end of the trail on the beach.



### 1999

On July 19, RM Baird attended the Currituck County Commissioners meeting to listen to a group of concerned citizens regarding driving on the beach north of Corolla, NC. They requested a vehicle permit system be implemented. On August 16, RM Baird attended the another Currituck County Commissioner meeting to readdress the Beach Permit issue. Many northern beach residents are requesting that all vehicles on the beach obtain a permit prior to beach access. This could impact public access to Currituck NWR.

RM Baird escorted Linda Lyon from the Washington Contaminants Office to the Unexploded Ordnance Site on Currituck NWR to discuss strategies for help in remediation.

RM Baird attended an organizational meeting with the North Carolina Wildlife Resources Commission in Corolla, NC along with other interested parties to discuss the proposed Environmental Education Center the Commission is building on the Whalehead Club property. It will be several years before this project is completed.

RM Baird worked closely with Millie Lillie of Congressman Jones' office on a congressional inquiry regarding the Service's jurisdiction on the Ocean Associates tract of the Currituck NWR.

## E. ADMINISTRATION

### 1. Personnel

As an unstaffed refuge, Currituck NWR is managed by the staff at Mackay Island. Its inherent isolation makes it difficult to regularly patrol and survey the parcels. While LEO Panz does spend a considerable part of the summer on the Outer Banks, we depend on interns or volunteers to carry the biological program. Through some monetary help from the Ecological Services Field Office in Raleigh, Mackay Island NWR was able to obtain two summer interns to assist with endangered species work and other tasks, mainly on Currituck NWR. Intern Laura Thompson arrived on May 19<sup>th</sup> and Ron Rogers on the 30<sup>th</sup>. Ron left the refuge for permanent employment with a timber company and was replaced by Britt Partee.

During May of 1998, LEO Panz provided the summer interns with an orientation to the refuge and beach driving training. On June 2, RM Baird, ARM Gates, and the first two summer interns (Laura and Ron) attended training on survey and management of sea turtles, piping plovers and seabeach amaranth at Back Bay NWR. The sea turtle training was provided by Ruth Boettcher, North Carolina Sea Turtle Project Coordinator. Training on piping plovers and seabeach amaranth was provided by Kim Tripp, a biologist with the Raleigh Ecological Services Field Office. ARM Gates and Ron



Rogers attended additional training on sea turtles and seabeach amaranth on Topsail Island on June 26. Again, the sea turtle training was provided by Ruth Boettcher. Two Army Corps of Engineers biologists, Trudy Wilder and an associate, provided training on seabeach amaranth. The training was held on Topsail Island so seabeach amaranth could be observed in the field.

#### 4. Volunteer Program

##### 1998

The summer interns spent a total of 1060 hours of volunteer time on Currituck NWR. Of these, 1016 hours were spent on threatened and endangered species (T/Es) surveys and 44 hours on providing visitor services. Providing visitor services mainly included educating local landowners, renters and beach visitors about various refuge issues, including T/Es.

One other volunteer, A regular on Mackay Island NWR named Tommy Cobb, spent 15 hours "turtle sitting" on Currituck NWR. Although the amount of time was not recorded, members of NEST, a group of volunteers that assist Ruth Boettcher with turtle conservation, assisted the refuge in various ways. For example, one volunteer named Denise Heffernan, who is also an EMT with the Corova Volunteer Fire Department, reported a sea turtle nesting on the beach.

##### 1999

The summer interns spent over 1,300 hours on endangered species conservation on Currituck NWR. Intern Britt Purtee spent 14 night (12 hours/night) insuring hatchling loggerhead sea turtles would reach the Atlantic Ocean safely. The other intern, Justin Rosemier, performed a short study comparing shorebird use of relatively undisturbed beaches in Virginia with those disturbed by vehicle traffic and greater human use in North Carolina. Although more invertebrate food resources were found in the sand in North Carolina, more shorebirds used the undisturbed beaches in Virginia. All told, there were 21 volunteers at Currituck NWR volunteering a total of 1250 hours.

#### 8. Other Items

The extent of beach driving to be permitted between Corolla and the state line has been an issue that comes and goes. However, it appears to be getting more attention in recent years. On January 31, 1998 LEO Panz attended a meeting at the Corova Beach Fire House regarding beach driving ordinance changes.

### F. HABITAT MANAGEMENT

#### 1. General

Currituck NWR is located on the Currituck Banks stretch of North Carolina's Outer Banks barrier island. The Currituck Outer Banks are primarily maintained by a variety of coastal processes



including long shore currents, tides and tidal currents, wave action, storm surges and wind action. These dynamic forces cause shorelines to undergo constant change. The adaptability of this coastal strand to constant physical change is a major part of their natural ecology. The approximate size of the habitat types on the refuge are: 8% sand and dune (primary and secondary dunes), 23% brush and woodlands (including wooded wetlands) and 69% marsh and herbaceous wetlands.

### 1997

In February the Swan Island Club agreed to purchase seed for planting after we disc the Swan Island Flats. In March, after the initial discussions with Swan Island Hunt Club president David Pender and Club caretaker Joe Luark in February, ARM Andres decided upon planting equal parts American threesquare (Scripus americanus), and two varieties of smartweed (Polygonum pennsylvanicum and hydrpeperoides) in the 143 acre Swan Island Flats. Discussions with Back Bay's biologist John Gallegos concurred with choices. He recommends however that after the discing/planting operation is completed, that we try to keep no more than 2-3" of water on the Flats at least through mid-May to discourage overgrowth of marsh fleabane (Pulchea purpurascens) which thrives in marsh with water depths in excess of 4". The Swan Island Hunt Club also offered additional assistance with logistics and manpower.

### 1998

As noted earlier, Regional Office personnel (i.e., Zeb Mathews and John Yount of Realty and Bill Grabill, Area II Refuges Supervisor) visited Mackay Island and Currituck NWRs to discuss mainly realty issues. However, Bill Grabill discussed two habitat management issues with ARM Gates and LEO Panz. These included:

a. The waterbird rookery on Monkey Island should take management precedence. We should explore ways to conserve the rookery and stabilize the island, especially those ways which will save the Service the expense of taking these actions. For instance, there is a Corps of Engineers cost-share program for stabilizing areas such as Monkey Island. However, they cannot cost-share with other Federal agencies. We should transfer the property to the NCDENR with the agreement they will conserve the rookery and stabilize the island if they wish to accept it. The Corps can cost-share stabilization with the State.

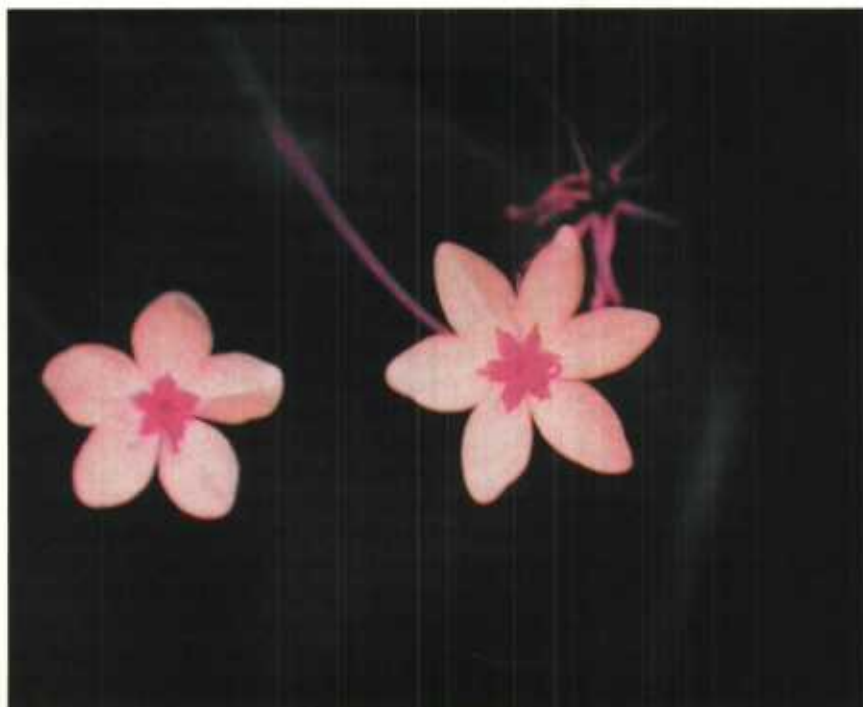
b. We should have Bob Noffsinger visit the refuge to determine if wild hogs are having any adverse affects on native wildlife habitat. If so, find ways to control them.

Bill wishes to visit Mackay Island and Currituck NWRs at a later date to discuss mainly management related issues.

## 2. Wetlands

Two types of wetland areas are situated across the three major land tracts of the refuge; these include the brackish water marshes that border Currituck Sound and the wetland flats between the primary dunes and the ancient secondary dunes.

The most extensive area of the interdunal flats occur on the SIT where the refuge operates a water control structure. This structure is situated in an old ancient dune line where the flats drain into a creek which empties into Currituck Sound (In the early to mid-1880's, this was the "Old Currituck Inlet", passable by large sailing vessels). The structure is adjusted to maintain moist soil conditions by trapping rainwater through the summer to promote moist soil species.



The Delicate Slender Marsh Pink

Rainfall on the Outer Banks is not dependable. In 1994, a Ducks Unlimited MARSH Site Specific Agreement was signed funding a pump facility for this unit. Plans call for the installation of a permanent pump which will be used to maintain moist soil conditions and allow the unit to be flooded in early fall. It is not clear at this time when the pump will be in place and operating. Thus, the water management plan will be amended when pump facilities are in place.

The second type of wetland on the refuge includes the Currituck marshes along the western side of the refuge. These emergent marshes are dominated by *Juncus roemerianus*, *Typha* spp., and *Spartina cynosuroides*. These sizeable marshes are influenced by



wind tides. Management on marshes is limited to prescribed burning and hunting on the Currituck Marshes Tract.

### 3. Forests

Twenty-three percent of the total refuge consists of maritime shrub and forest habitat. A dense shrub thicket occurs on the protected west side of the primary dune system. Dominant shrub species include American holly, yaupon holly, wax myrtle, and live oak. Farther west from the primary dunes, a low, laterally branching maritime forest dominated by live oak and red cedar is found. West of ancient secondary dunes the forest becomes taller and exhibits a more open canopy where loblolly pine is dominant. All of these shrubs and woodland areas provide important resting and cover habitat for neotropical passerines and raptors. Much of the forest has low timber value or is not cost effective to access for a harvest.

### 6. Other Habitats

Approximately 332 acres of beachfront and dune are contained within the Swan Island, Monkey Island and Ocean Associates tracts. The Swan Island and Monkey Island tracts extend eastward to the beach. The refuge's fee title ownership extends along the beachfront out to the mean high water line. The intertidal zone falls within the state's ownership according to state law.

### 9. Fire Management

Both of the wildfires that occurred in 1997 were in Currituck NWR. The first was on the South Flats of the Swan Island Tract and the second was on the McLean Tract, where a sailboat was destroyed. And one prescribed burn of 500 acres was done on the Swan Island Tract.

In 1998 there was no burning done at all, and there were also no wildfires.

Four of the six arson caused wildfires in 1999 occurred in Currituck NWR (Wishes Hammock, Buzzard Bay, Bull Bay Island, and Monkey Island Tract). And there were no prescribed burns in Currituck NWR.

## G. WILDLIFE

### 1. Wildlife Diversity

A rich wildlife diversity occurs across the Currituck Outer Banks due to the diversity of habitats along this area. Avian species comprise the bulk of the wildlife diversity as indicated by over 240 species having been documented at Back Bay NWR which lies some ten miles north of Currituck NWR. The Currituck Outer Banks serves



as a migration corridor for a variety of birds such as acciptors, falcons, neotropical warblers, shorebirds, gulls, terns, and many waterfowl species. Periodic monitoring covers waterfowl and the threatened piping plover.

## 2. Endangered Species

Several endangered and threatened species utilize the Currituck Outer Banks and the refuge or have in the past. These include the loggerhead sea turtle, piping plover, bald eagle, peregrine falcon, and seabeach amaranth. Modest numbers of peregrine falcons pass over the refuge coastline during their fall migration; some occasionally feed and roost in various refuge habitats during this time. A few bald eagles may seasonally pass by the refuge in the fall-winter period. The Asheville Endangered Species Office again transferred funds to support monitoring breeding production of piping plovers on the Currituck Banks. The funding supported the work of the two summer interns.

In the past, piping plovers have used the beach from Penny's Hill to Carova Beach from April through September to breed and rear young. During the International Piping Plover Census, on May 26, ARM Gates and intern Thompson noted seven adult piping plovers feeding on the beach along the refuge and an additional twelve on beaches south of the refuge. These birds were likely migrating through the area. Although interns searched for nesting piping plovers during the breeding season, none were located.

Piping plovers have not nested on Currituck NWR since 1993. The amount of development has increased in recent years due to the strong economy. This has likely lead to more beach driving, which restricts piping plover chicks' access to their only potential feeding area- the ocean front. There is no access from the best nesting areas adjacent to the beach to sound-side feeding areas due to lack of significant washovers. The Outer Banks is relatively wide in the area of the refuge, which restricts the ability of storms to create the type of washovers needed for ideal plover habitat. Washovers create pathways for chicks to move to sound-side habitats which have abundant invertebrate prey. Without these or safe access to the beach, it is difficult for piping plovers to successfully raise young.

### 1997

No data was found for 1997 on sea turtles, piping plover, or sea beach amaranth.

### 1998

Interns also made several searches of all washouts along the beach from the NC/VA line to the fence at Corolla for seabeach amaranth during the summer. This included site where the threatened plant had been found earlier in the 90's. No plants were located. Washouts of the foredunes which occurred during Hurricane Bonnie in August have created additional habitat for this species and piping plovers. Hopefully, they will be found on the refuge in 1999.



Two loggerhead sea turtle nests were located on beaches adjacent to or in the vicinity of the refuge in 1998. On May 26, intern Thompson located a nest on the beach near the north end of the Monkey Island Tract. Interns and refuge personnel monitored this nest nightly from August 20-24. Nightly monitoring, or "turtle sitting," is necessary to insure any hatchlings reach the ocean safely (See below). A mandatory evacuation for Hurricane Bonney was required on August 25. The nest apparently hatched during this evacuation period. A sheriff's deputy patrolling the beach noticed eggshell fragments and some hatchling crawls on the beach on August 27. The number of hatchlings is unknown. We speculate that some hatched on August 26 and then the nest was raided by a predator.



Loggerhead Sea Turtle Nest Site

On July 16, ARM Gates and intern Thompson relocated eggs from a nest located too close to the ocean to a higher location within 100 meters. The adult female may have been disturbed, perhaps by the EMT's who had observed it nesting, and deposited the eggs a short distance from the water. Refuge staff, interns and volunteer Tommy Cobb monitored this nest from September 9 until October 13. Since the nest had apparently not hatched within 90 days of being laid, the longest Ruth Boettcher wants biologists to monitor nests, ARM Gates asked intern Britt Partee to excavate it on October 14. Much to our surprise, the nest contained 49 hatched eggs, 68 unhatched eggs and a live nestling. Somehow we missed the hatching event during our "turtle sitting." The live nestling later died when volunteers were transporting it to the U.S. Coast Guard for release several miles offshore in the Gulf Stream.



Turtle sitting has become a labor intensive event on Currituck NWR. This is necessary due to artificial lighting on the beach, which attracts hatchling turtles away from the water, and beach driving that endangers hatchlings directly and leaves ruts too deep for the young turtles to crawl over and reach the ocean. Sitting is necessary for 55-90 nights after the nest is laid. A variety of activities is necessary each night. First, a smooth "runway" for the young is created from the nest to the ocean by dragging an old harrow without the forks behind an ATV. A mound of sand is created along the back and sides of the nest to force turtles, upon hatching, to begin crawling towards the ocean. Then the nest must be checked at least hourly for hatching. When hatching occurs, actions must be taken to insure turtles reach the ocean safely, including stopping traffic or re-routing it around the nest if there is room; confirming that hatchlings do not move away from the water; educating people who stop to see the action; and leading turtles to the water with a flashlight when necessary. Usually one person monitors the nest and calls for help when turtles hatch. Sheriffs deputies are normally available, as well as other refuge staff. However, staff usually require at least an hour to reach the scene.

Kim Tripp, a biologist with the Raleigh Ecological Services Field Office, toured the refuge with RM Baird in June. Kim was our main point-of-contact for endangered species issues on Mackay Island and Currituck NWRs.

#### 1999

Fourteen strandings of loggerhead sea turtles occurred on Currituck NWR and nearby beaches from June 17th-25th. Ms. Ruth Boettcher, North Carolina Sea Turtle Project Coordinator, indicated that this was the largest number of strandings occurring in this short time frame on northern NC beaches since records were being kept for the area. However, no other strandings occurred during the remainder of the month. The head and left flipper of appropriately sized turtles were collected for a study to determine if an inner ear bone or the humerus can be used to age loggerheads.

July 15: ARM Gates and the summer interns met with NC Wildlife Resources Commission Biologist Dave Allen on Currituck NWR to show him rare species habitats and discuss conservation of these species, especially the piping plover.

No sea turtle nests were found on Currituck NWR this year.

No piping plover nests were found this year, although as many as six adults at a time were observed on the refuge beaches.



3. Waterfowl

## 1996-1997 Winter Waterfowl Data:

| <b>Table 1</b><br><b>Wintering Waterfowl Occurrence on Currituck NWR</b><br><b>1996-1997</b> |         |                    |                         |             |             |
|--|---------|--------------------|-------------------------|-------------|-------------|
| Group  | Percent | Number of Use Days | Difference from 1995-96 | Peak Number | Peak Period |
| Tundra Swans   | 6.4     | 39855              |                         | 1135        | 11/17/96    |
| Canada Geese   | 2.8     | 17319              |                         | 575         | 11/17/96    |
| Snow Geese   | 62.3    | 388985             |                         | 3200        | 01/03/97    |
| Ducks  | 20.1    | 125480             |                         | 1953        | 11/17/96    |
| Coots  | 8.4     | 52332              |                         | 737         | 01/03/97    |
| All Waterfowl  | 100.0   | 623971             |                         | 7000        | 11/17/96    |

Comparisons between the 1996-1997 winter and the 1996-1997 winter were not able to be done due to the lack of data for the 1996-1997 winter. However, it can be said that snow geese made up the majority of winter waterfowl use days and Canada geese made up the minority. Additionally, mallards, green wing teal, and black ducks made up the majority of the duck use day data, while pintail, merganser, bufflehead, and bluewing teal made up the minority (each composing only 0.1% of the use days). There were no scaup or wood ducks seen during the aerial surveys.

**Table 2**  
**Composition of Ducks Wintering on Currituck NWR**  
**1996-1997**

| Species        | Percent | Number of Use Days | Percent Difference from 1995-1996 | Peak Number | Peak Period |
|----------------|---------|--------------------|-----------------------------------|-------------|-------------|
| Black Duck     | 4.2     | 26480              |                                   | 290         | 01/03/97    |
| Gadwall        | 2.8     | 17335              |                                   | 382         | 01/03/97    |
| Mallard        | 5.9     | 36941              |                                   | 4460        | 11/17/96    |
| Pintail        | 0.1     | 373                |                                   | 18          | 01/24/97    |
| Widgeon        | 1.2     | 7333               |                                   | 332         | 11/17/96    |
| Greenwing Teal | 5.0     | 31054              |                                   | 335         | 02/06/97    |
| Scaup          | 0.0     | 0                  |                                   | 0           | 10/18/96    |
| Merganser      | 0.1     | 524                |                                   | 15          | 10/18       |
| Bufflehead     | 0.1     | 562.5              |                                   | 22          | 12/03/96    |
| Shoveler       | 0.2     | 1234               |                                   | 28          | 11/17/96    |
| Ruddy Duck     | 0.4     | 2424               |                                   | 70          | 11/17/96    |
| Wood Duck      | 0.0     | 0                  |                                   | 0           | 10/18/96    |
| Bluewing Teal  | 0.1     | 932                |                                   | 10          | 01/24/97    |
| All Ducks      | 20.1    | 125480             |                                   | 1953        | 11/17/96    |

**1997-1998 Winter Waterfowl Data:**

Seven aerial surveys were conducted on a bimonthly basis, except in January when only one was conducted, to assess waterfowl use during the 1997-98 fall/winter. Overall waterfowl use-days were down 55% from the previous year (Table 1). All groups, except coots, declined. While low waterfowl use was recorded in the Flats, the greatest use occurred on Hay Pond, the Swan Island Marshes, South Johnson Marshes and Judy's Cove. Waterfowl use was not specifically recorded for the Ocean Associates Tract this year. As in previous years, albeit slightly earlier this year, peak use occurred toward the latter half of the season. Snow geese annually frequent Hay Pond from mid-February until they leave in mid-march. About 5,500 snows were observed on this pond on February 21, 1998.

Surprisingly, duck numbers declined even though submerged aquatic vegetation (SAV) in Currituck Sound appeared to be healthy, typical of recent years. However, the most abundant SAV was milfoil, which is not preferred as much as naiads, wild celery, and sago pondweed.



Waterfowl numbers recorded in 1997-98 are low compared to recent numbers, and historical use numbers when tens of thousands of ducks overwintered in Currituck Sound. Although the winter was a very wet one, temperatures were mild. Waterfowl may have overwintered further north.

**Table 3**  
**Wintering Waterfowl Occurrence on Currituck NWR**  
**1997-1998**

| GROUP            | PERCENT | NUMBER OF<br>USE-DAYS | DIFFERENCE<br>FROM<br>1996-<br>1997 | PEAK<br>NUMBER | PEAK<br>PERIOD |
|------------------|---------|-----------------------|-------------------------------------|----------------|----------------|
| Tundra Swans     | 10.9    | 30,486                | -24                                 | 841            | 12/16/97       |
| Canada Geese     | 1.7     | 4,780                 | -72                                 | 120            | 01/06/98       |
| Snow Geese       | 36.1    | 100,893               | -74                                 | 5,500          | 02/21/98       |
| Ducks            | 28.9    | 80,699                | -36                                 | 1,281          | 01/06/98       |
| Coots            | 22.4    | 62,598                | 20                                  | 820            | 01/06/98       |
| All<br>Waterfowl | 100.0   | 279,455               | -55                                 | 6,745          | 02/21/98       |

Table 2 (below) also indicates, with the exception of pintails and widgeon, that use by all duck species declined. Duck use was dominated by puddle ducks that occupied the brackish ponds in the marshes, the Flats, the marsh creeks, and open sound waters. As in most years, black ducks were the most common waterfowl observed. The sound-side marshes of Currituck NWR are excellent habitat for this species. Other common dabblers included gadwall, mallards, pintail, widgeon and greenwing teal. The only divers noted in significant numbers were scaup. No bluewing teal, wood ducks or ruddy ducks were observed on the refuge this year.

The NCWRC flew a waterfowl survey on the first day of the regular hunting season this year. Refuges in the ecosystem had already planned to perform a survey on the second day. This resulted in some complaints to the refuge office. In addition, Currituck County Game Commission chairman Billy Rose contacted the refuge to determine if the state and refuge surveys could be flown at the same time, or otherwise coordinated. Dennis Stewart, Biologist at Alligator River NWR, told ARM Gates that refuges had tried to coordinate with the state in the past and this had failed. Mainly, the exact day a particular refuge in the ecosystem will be flown is dependent on

schedules of the pilot and several biologists and is affected by weather. One Service pilot flies all refuges in the area when they are in northeast North Carolina and southeast Virginia. Normally bad weather strikes during at least one of the days surveys are conducted. The state has similar problems. Thus, it becomes difficult to match schedules. The two agencies have to continue separate surveys because the methodology each performs, including area covered, is different. Since both are gathering trend data, both wish to continue surveys using the same methods as in the past. This was explained to Billy Rose and the hunters that complained. They requested that we try to avoid opening waterfowl hunting days during aerial surveys.

**Table 4**  
**Composition of Ducks Wintering on Currituck NWR**  
**1997-1998**

| SPECIES           | PERCENT | NUMBER<br>OF<br>USE-DAYS | PERCENT<br>DIFFERENCE<br>FROM<br>1996-<br>1997 | PEAK<br>NUMBER | PEAK<br>PERIOD |
|-------------------|---------|--------------------------|--|----------------|----------------|
| Black Duck        | 30.0    | 24,203                   | -3   | 402            | 02/21/98       |
| Gadwall           | 20.8    | 16,763                   | -9   | 273            | 01/06/98       |
| Mallard           | 18.8    | 15,181                   | -59  | 326            | 01/06/98       |
| Pintail           | 10.8    | 8,746                    | 2,241  | 310            | 01/06/98       |
| Widgeon           | 10.5    | 8,467                    | 15   | 226            | 02/10/98       |
| Greenwing<br>Teal | 5.5     | 4,456                    | -86  | 134            | 02/21/98       |
| Scaup             | 3.2     | 2,601                    | -  | 51             | 01/06/98       |
| Merganser         | 0.2     | 153                      | -71  | 3              | 01/06/98       |
| Bufflehead        | 0.1     | 102                      | -82  | 2              | 01/06/98       |
| Shoveler          | 0.0     | 28                       | -98  | 2              | 11/17/97       |
| Ruddy Duck        | 0.0     | 0                        | -100   | 0              | -              |
| Wood Duck         | 0.0     | 0                        | -  | 0              | -              |
| Bluewing Teal     | 0.0     | 0                        | -100   | 0              | -              |
| All Ducks         | 99.9    | 80,700                   | -36  | 1,281          | 01/06/98       |



## 1998-1999 Winter Waterfowl Data:

| <b>Table 5</b><br><b>Wintering Waterfowl Occurrence on Currituck NWR</b><br><b>1998-1999</b> |         |                    |                         |             |             |
|--|---------|--------------------|-------------------------|-------------|-------------|
| Group  | Percent | Number of Use Days | Difference from 1997-98 | Peak Number | Peak Period |
| Tundra Swan  | 20.2    | 94671              | 210                     | 1485        | 02/17/99    |
| Snow Geese   | 11.2    | 52215              | -48                     | 1190        | 02/17/99    |
| Canada Geese   | 2.0     | 9333               | 95                      | 95          | 01/6/99     |
| Ducks  | 26.6    | 124470             | 54                      | 1740        | 11/21/98    |
| Coots  | 40.0    | 187384             | 199                     | 3918        | 12/03/98    |
| All  | 100.0   | 468072             | 67                      | 5740        | 12/03/98    |

Overall, there was an increase in waterfowl usage this year by all groups of waterfowl except for snow geese (who were down -48% from last year's usage numbers). Coots composed the majority of the use days with 40% and Canada geese had the fewest use days with only 2%. It is interesting to note that coot numbers and tundra swan numbers are up significantly from last year with a percent difference of 199% and 210%, respectively. And the peak number of coots seen on any one day was 3910 on December 3, 1998.

This year's duck data shows an overall increase in duck usage, despite the fact that many duck species were absent. Merganser, bufflehead, shoveler, and wood duck were all absent. Black duck and gadwall made up the majority of the use days comprising 8.5% and 6.4%, respectively. And despite those two groups taking most of the use days, the most ducks of any one species seen on a single day was the greenwing teal with 570 seen on November 2, 1998.

**Table 6**  
**Composition of Ducks Wintering on Currituck NWR**  
**1998-1999**

| Species        | Percent | Number of Use Days | Percent Difference from 1997-98 | Peak Number | Peak Period      |
|----------------|---------|--------------------|---------------------------------|-------------|------------------|
| Black Duck     | 8.5     | 39604              | 63                              | 465         | 12/03/98         |
| Gadwall        | 6.5     | 30330              | 81                              | 458         | no date recorded |
| Mallard        | 2.3     | 10961              | -28                             | 160         | 12/03/98         |
| Pintail        | 1.2     | 5751               | -34                             | 168         | 11/02/98         |
| Widgeon        | 2.9     | 13661              | 61                              | 227         | 02/17/99         |
| Greenwing Teal | 2.5     | 11832              | 165                             | 570         | 11/02/98         |
| Scaup          | 0.8     | 3520               | 35                              | 110         | 11/02/98         |
| Merganser      | 0.0     | 0                  | -100                            | 0           | 09/15/98         |
| Bufflehead     | 0.0     | 0                  | -100                            | 0           | 09/15/98         |
| Shoveler       | 0.0     | 0                  | -100                            | 0           | 09/15/98         |
| Ruddy Duck     | 0.9     | 4317               | -                               | 192         | 12/03/98         |
| Wood Duck      | 0.0     | 0                  | -                               | 0           | 09/15/98         |
| Bluewing Teal  | 0.2     | 957                | -                               | 22          | 02/17/99         |
| All Ducks      | 26.6    | 124470             | 54                              | 1740        | 11/02/98         |

#### 4. Marsh and Water Birds

Many of the 20 species of marsh and water birds that use Mackay Island also frequent wetlands of Currituck NWR either year-round or seasonally. Most heron use is by great blue, little blue and green-backed herons. Common, snowy, and cattle egrets are found on the refuge throughout the year. Glossy ibises and tri-colored herons seasonally frequent refuge marshlands. Other seasonal water bird use is derived from coots, pied-billed grebes, and double-crested cormorants. King and Virginia rails, are the most common rails on most refuge tracts. Infrequent marsh birds include sora, clapper rails, and least bitterns.





Colonial Nesting Waterbird Colony on Monkey Island

#### 5. Shorebirds, Gulls, Terns, and Allied Species

The coastline of the Currituck Banks provides important migratory habitat for a variety of shorebirds during their spring and fall passages. The beach of the Currituck Outer Banks are especially valuable during shorebird migrations due to the lack of regularly exposed tidal (i.e., lunar) mudflats in Currituck Sound and Back Bay where irregular wind tides infrequently expose mudflats in these areas. Several species using this beachfront such as sanderling, least sandpiper, and black-bellied plovers are recognized by the Service as species of special concern which have probably suffered recent declines in their continental populations. Sanderling, ruddy turnstone, semipalmated plovers, and black-bellied plovers are among the most abundant migrants along the Currituck Banks during both migrations.

The Flats, high refuge marsh, and irregularly exposed mudflats on the Currituck Sound are foraged by greater and lesser yellowlegs, solitary and spotted sandpipers, and by willet during spring and fall migrations. Exposed mudflats on the east side of Currituck Sound are heavily used by yellowlegs, semipalmated plovers, and other shorebirds for protection and forage zones during spring Nor'easter storms.

A variety of gulls and terns use the beachfront and other water areas of the refuge tracts. Ring-billed, herring, great black-backed, and laughing gulls are the most common gulls. Common, royal, Sandwich, Forester's and least terns frequent the refuge beachfront from spring through fall.



## 6. Raptors

Moderate numbers of raptors use the refuge during the fall migration. Stopovers are made by peregrine falcons, American kestrels, sharp-shinned hawks, merlin, and Cooper's hawks. Northern harriers are commonly seen over marshlands from December through March.

## 15. Animal Control

Unfortunately, at least two types of non-native animals have been left to range over refuge tracts, including feral pigs and horses. Also, with the increased numbers of year-round human residents, no doubt there are also domestic pets on the Currituck tracts. By far, the most prominent issue in recent years has been the existence of what the locals refer to as the "wild" horses.

The origin of the horse herds on the Currituck Banks is unclear. Those that prefer that these remain on the northern Outer Banks claim they descended from horses brought here by the Spanish. Some residents of Knotts Island claim they are horses released by landowners in the recent past. Currituck County has passed legislation protecting them from human disturbance and harm. Little has been done to control their numbers and competition with native plants and wildlife has been apparent in recent years. Throughout 1998, the horses were commonly found in the inter-dunal flats and along the beachfront grazing on native grasses and herbs; again, with the population upswing of full-time residents, the horses are increasingly found near the beachfront homes grazing on grass yards and ornamental flowers and shrubs as well as seeking shelter in the leeward side and carports of the homes.

After numerous "horse-human conflicts", in 1993, and a meeting in Corolla NC, the Refuge was left with a less than acceptable solution to the horse problem. Without consulting the refuge, the County and local populace agreed upon constructing a surf to sound fence north of Corolla; subsequently, twenty horses were herded north onto private, state, and federal lands (including the refuge). This further exacerbated the problem of feral horses on and off the refuge with an existing horse population which is already causing significant environmental damage.

After trying unsuccessfully to block the required state and federal permits to build the fence, (the Service first wanted a management plan in place to protect endangered species outside of the Refuge boundary), plans to erect the fence commenced. One condition of the permit was the requirement to form a committee to develop a long range management plan made up of representatives of the refuge, Corolla Wild Horse Fund, Currituck County, and NC Department of Environment, Health and Natural Resources. One of the resolutions of the committee was to make the number one priority a basic census to determine how many



horses are present, age and sex ratios, band composition, etc.

A 1994 solicitors opinion confirmed the belief that the horses are not owned and the Service can remove them within the guidelines of 50 CFR. The realities are that independent removal by the Service would be very expensive, violate County ordinances, cause a public relations problem, and become a political nightmare.

Numbers of wild horses determined by surveys between 1994-1996 were 24 to 43 from Corolla, NC to the Virginia/North Carolina state line. Current numbers are unknown. Horse use of the refuge is best described as daily. Infrequent visits to Currituck do not adequately document the horse use. The electric fence erected in early 1995 has eliminated the severe competition that the horses gave to feeding wading birds and waterfowl on the Swan Island Flats, however they continue to feed on unprotected native dune and marsh vegetation and a threat to nesting terns and plover and the endangered seabeach amaranth as well as a nuisance and danger to the ever increasing beach vehicular traffic.

Horses continue to get around the fences at the north end of Corolla and at the state line. They must be rounded up and returned to the area between these two fences so they do not create traffic accidents, injure residents or damage vegetation on Back Bay NWR in Virginia. RM Baird attended several meetings of a Virginia Beach Wild Horse Committee in 1998. Citizen volunteers on this committee, the Snows, have been responsible for returning horses to North Carolina that get around the state line fence and end up at Back Bay NWR or in the Sandbridge Community. The committee was formed to deal with these and similar issues surrounding the horses that get into Virginia. The city of Virginia Beach is considering an ordinance, similar to that in Currituck County, which would prevent people from feeding or harassing the horses. This would protect both the horses and people. Horses have injured those getting too close by biting and kicking them. Feral horses will be an issue on Currituck NWR for years to come.

#### 1997

CBS aired a segment on the Corolla Wild Horse Fund and its inherent difficulties during a prime time news magazine show called "Coast to Coast." It contained footage of the over-development of the Outer Banks, a brief interview with the then manager, Ken Merritt, and portions of a coordinated ground/aerial survey conducted by ARM Andres in November 1996.

Feral pigs continue to cause damage to refuge vegetation and roads through their foraging and rooting behavior. Significant damage to the unpaved road running from the beach to the CONNEX on the McClean-Garner Tract was caused by wallowing behavior. This resulted in recommendations by Bill Grabill during his visit, noted above, to study the effect of pigs on refuge plants and animals and find ways to control their numbers. A future hunt

for both wild pigs and deer is being considered for various areas of the refuge. Care must be taken not to disturb the waterfowl hunters on the Swan Island Tract during deer and pig hunts.

On occasion, free-roaming dogs range through the refuge and are a disruption to various wildlife.

#### H. PUBLIC USE

##### 1. General

The refuge is open to beach activities, hiking, birdwatching and photography and visitation totaled 25,000-26,000 . Travel to the refuge is via NC 12 to Corolla and then northward on the beach between the dune line and the ocean. Over 30,000 vehicles travel the beach each year to access the communities of Ocean Beach, Seagull, Swan Beach, North Swan Beach and Carova Beach. It is also the only route for surfers, sunbathers and surf-fishermen. Access is also possible on the sound-side by boat. The refuge presently has no facilities or trails, but visitors may freely explore the dunes and maritime forests during daylight hours. See the Planning section above for information related to the proposed visitor center and hiking trail. Camping, fires and free roaming pets are not permitted.



Another Busy and Beautiful Day at the Beach



## 8. Hunting

Waterfowl hunting rights were retained by the Swan Island Hunt Club when the Swan Island Tract was purchased. The club maintains ten point blinds along the shoreline and three sites inside the fenced area of the "flats."

Waterfowl hunting blind rights were acquired by the Service with the purchase of the Monkey Island Tract. In previous years, the refuge bought ten blind licenses from the county game commission and built duck blinds along the shore. County regulations restrict hunting within 500 yards of a licensed blind, thereby providing a rest area between the refuge and float blind hunters. The Currituck County Game Board established a "Waterfowl Rest Area" in the Shipps Bay area of the Monkey Island Tract in 1997, so blinds no longer need to be constructed. Hunting is prohibited within that rest area.

### 1997

The McLean-Garner Tract was acquired in August and the duck hunting club that had been operating on it lost its lease. The marshes of the former Currituck gunning and Fishing Club were donated to the Service in November, two days before the opening day of duck season. Since there was insufficient time to organize a public hunt, the refuge and Game Board agreed to allow float blinds to hunt the navigable waters if no firearms were carried into the marsh. Hunters were allowed to pursue crippled birds on foot or with a dog.

### 1998 and 1999

The marshes of the former Currituck Gunning and Fishing Club were open to the public hunting by float blinds again this year. Hunters were allowed in the navigable waters of Deep Creek and Wishes Hammock but had to remain at least 500 yards from each other and the private blind on the south end of Wishes Hammock Creek. Hunters were allowed to pursue crippled birds in the marsh on foot or with a dog, if no firearms were carried.

### 1999

The refuge held two public meetings on March 17 and 18 to receive comments on the proposed opening of waterfowl hunting on Currituck NWR. A total of 58 members of the public attended as well as representatives of the NC Wildlife Resources Commission and the Currituck County Game Commission. Overall, there was support for the waterfowl hunting on Currituck NWR. RM Baird met with a small group of Knotts Island residents to discuss the possibility of managing the Currituck NWR waterfowl hunt with volunteers. This program would allow a local to draw for unfilled blinds to be conducted by volunteers. On April 20, RM Baird met with NC Wildlife Resources Commission representatives in Windsor, NC to discuss details of the Currituck NWR waterfowl



hunt. Finally, during the summer the Currituck NWR Proposed Waterfowl Hunting Plan was approved by the Regional Director and sent to the Washington Office this month.

RM Baird, ARM Gates and LEO Panz attended a meeting of the Currituck County Game Commission at the Currituck County Court House on November 3. Details regarding the upcoming waterfowl hunt on Currituck NWR were discussed. The Currituck NWR Waterfowl Hunt began on November 10. Five point blinds were established and licensed through the county game board. Hunters were chosen through the state reservation system and the blinds were open Wednesdays and Saturdays throughout the November-January duck season. This hunting program was brought into reality as a result of cooperative efforts between the refuge, North Carolina Wildlife Resources Commission, Currituck County Game Commission, Currituck County High School, and a group of local volunteers.

#### 17. Law Enforcement

Refuge Officers patrolled on an irregular basis due to the 1.5 hour drive, or 20 minute boat ride to Currituck NWR. A portable building (CONEX) was obtained from military surplus and placed on the SIT in 1995. It holds two ATV's, posts, signs and tools to maintain nearly everything. In 1998, this was moved from the Swan Island Tract to the McClean-Garner Tract. This location is due east from the Brumley Road boat ramp on Knotts Island. Travel time by boat was cut from 20 to 5 minutes. Patrols are still accomplished via ATV. County Deputies enforce state and county laws along the beach strand and have been most cooperative in reporting violations of vehicular trespass above the dune line. A total of 86 law enforcement patrols were made in 1998. A total of 66 law enforcement patrols were made in 1999.

NC Wildlife Officers and Currituck County Deputies patrol the beach and have been very cooperative in reporting violations of refuge regulations. A permit system was established in March, 1997, for all ATV's and motorcycles. Previously, anyone could ride their ATV's on the beach with no restrictions. The new rules require a permit for each ATV or motorcycle and prohibit persons under 16 from riding them. Currituck County residents receive two free permits each year. Persons renting cottages may obtain a 7 day permit for \$25. North Carolina residents, outside of Currituck County, must obtain a permit at a cost of \$50 per day/vehicle. Out of staters are charged \$75 per day/vehicle. Problems previously encountered with the reckless use of ATV's were practically non-existent this year. Trespassing incidents on the refuge dropped from 138 in 1997 to 72 in 1998 and to only 62 incidents in 1999. The county also restricted camping and bonfires on the beach in 1998, which eliminated many past problems with drunkenness, fire debris and camping litter.

#### 1999



July 5: LEO Panz discovered an estimated \$5,000 damage to the historical structures on Monkey Island.

#### Currituck NWR Statistics for 1997

\*These are included in the Mackay Island Summary

| Type of incident    | # reported | # violation notices | # written warnings |
|---------------------|------------|---------------------|--------------------|
| Aircraft Incident   | 1          | 1                   |                    |
| Arson               | 2          |                     |                    |
| Assist Citizen      | 1          |                     |                    |
| Assist Other Agency | 5          |                     | 2                  |
| Campfire            | 1          |                     |                    |
| Firearms            | 1          |                     | 1                  |
| Hunting Violations  | 1          |                     | 3                  |
| Littering           | 2          |                     |                    |
| MBTA                | 1          |                     | 1                  |
| Traffic             | 16         | 9                   | 7                  |
| Trespass: Animal    | 1          |                     |                    |
| Vehicle             | 138        | 10                  | 4                  |
| Vandalism           | 2          |                     |                    |
| *Totals             | 172        | 20                  | 18                 |

#### Currituck NWR Statistics for 1998

\*these are included in the Mackay Island summary

| Type of incident      | # reported | # violation notices |
|-----------------------|------------|---------------------|
| Assist Citizen        | 2          |                     |
| Assist Other Agency   | 8          |                     |
| Camping               | 1          | 2                   |
| Firearm Violation     | 1          |                     |
| Littering             | 2          |                     |
| Traffic               | 7          | 1                   |
| Trespass: Closed Area | 1          |                     |
| Vehicle               | 72         | 3                   |
| Vandalism             | 2          |                     |
| Wildlife Incident     | 1          |                     |
| *Totals               | 97         | 6                   |

### Currituck NWR Statistics for 1999

\*these are included in the Mackay Island summary

| Type of Incident        | # Reports | Violation Notices | Written Warning |
|-------------------------|-----------|-------------------|-----------------|
| Arson                   | 1         |                   |                 |
| Assist Other Agency     | 3         |                   |                 |
| Domestic Animal         | 1         |                   |                 |
| Firearm Violation       | 3         |                   |                 |
| Hunting Violation       | 1         |                   | 2               |
| MBTA                    | 3         |                   | 4               |
| Ordinance Found         | 1         |                   |                 |
| Property Found          | 1         |                   |                 |
| Suspicious Circumstance | 1         |                   |                 |
| Traffic Violation       | 8         | 2                 | 5               |
| Trespass: Boat          | 1         |                   | 2               |
| Pedestrian              | 2         |                   | 3               |
| Vehicle                 | 62        | 1                 | 13              |
| Vandalism               | 4         |                   |                 |
| Total                   | 92        | 3                 | 29              |

## I. EQUIPMENT AND FACILITIES

### 3. Major Maintenance

#### 1998

Two cabins were located on the McClean-Garner Tract when it was acquired. One is in a state of disrepair, unsalvagable and will eventually be torn down or burned. The other is being maintained as a site where staff can spend the night if work requires such. It received the following maintenance this year:

April- LEO Panz cleaned out the cabin.

May- LEO Panz replaced a window latch, covered holes in a wall, swept out debris and broken glass, trimmed brush, removed two truckloads of debris and trash from the grounds and replaced the door lock and handles.

July- Maintenance mechanic Bob Futrell replaced the windows, doors and trim. He and the interns painted the exterior.

September- LEO Panz trimmed a top for the kitchen cabinets.

Some equipment, such as a lantern and camp stove, were purchased for the cabin. In addition, two bunk beds constructed by Boy



Scouts for the proposed environmental education center on Monkey Island, were moved to the cabin on the McClean-Garner Tract.

The electric fence that surrounds the impoundment in the Flats of the SIT needs annual maintenance. If vegetation touches the wire it shorts out the fence. Therefore, the maintenance staff controls the vegetation at the fence's base. In July, Roundup (herbaceous vegetation) and Accord (woody vegetation) were sprayed on vegetation for about 1.5 feet on either side of the base. Later that month and in August, the interns removed any woody material touching strands of the fence. In October, the bulldozer was used to push invading woody vegetation away from the fence. In December, LEO Panz replaced the chargeable battery and repaired wire that was cut (vandalized) to make the fence operational.

## J. OTHER ITEMS

### 1. Cooperative Programs.

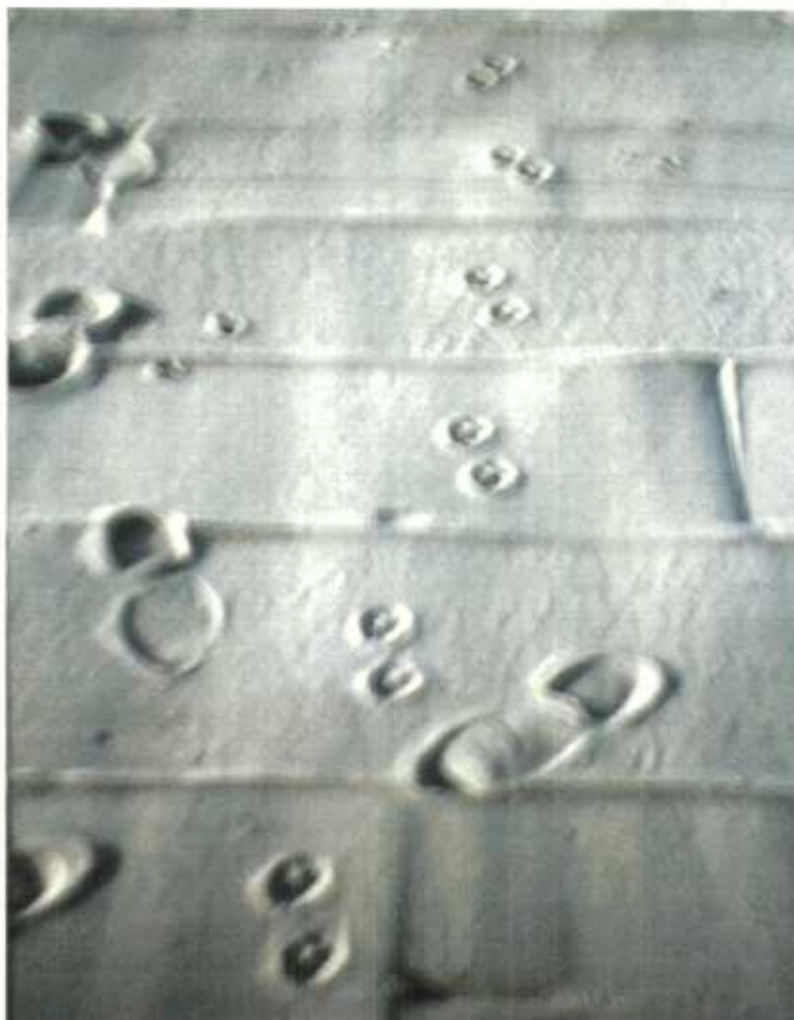
Staff from Mackay Island NWR continue to cooperate with other federal, state and private entities to manage resources on Currituck NWR. These include the NCWRC, NC Estuarine Research Reserve Program, Currituck County Game Commission, TNC and private individuals began planning a hunt for the refuge and some nearby properties. Refuge staff assisted the NCDENR and NCDOT in establishing reference points for a beach erosion study. The refuge is working with TNC and the Estuarine Reserve Program to build a visitor center and trail linking properties owned by these agencies.

### 3. Items of Interest.

In May, Mr. Raymond Williams began repairing the "tar paper shack" on the SIT. Mr. Williams claims to own an inholding on the refuge that we believe belongs to the Service.

In June, the Coastal Wildlife Refuge Society supported the refuge by beginning to sell t-shirts and caps. The designs chosen included a brown pelican on the cap and hatchling sea turtles crawling toward the surf, and some of their predators, on both sides of the t-shirt.

Regional Office staff, including Area II Supervisor Bill Grabill and Zeb Matthews and John Yount of the Realty Office visited the refuge in November. Mainly realty issues were discussed.



"Take Only Pictures, Leave Only Footprints"



#### 4. Credits

Various: Compiled and edited by 2003 refuge staff and volunteer intern, Kelsey Piper.

##### Photo Credits

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