

OKEFENOKEE NATIONAL WILDLIFE REFUGE

Folkston, Georgia

ANNUAL NARRATIVE REPORT

Calendar Year 1982

U.S. Department of the Interior  
Fish and Wildlife Service  
NATIONAL WILDLIFE REFUGE SYSTEM



(Left to right) 13, 1, 14  
82-A-TCW (12/82)



(Left to right) 6, 7, 9  
82-B-Staff (12/82)





(Back Row) (Left to Right) 4, 15, 24  
 (Front Row) 12, 2, 5, 16  
 82-C-Staff (11/82)



(Left to Right) 10, 3  
 82-D-WCK (11/82)



11  
82-E-JAB (1/82)



(Back Row) (Left to Right) 20, 21  
(Front Row) (Left to Right) 22, 19  
82-F-Staff (10/82)



PERSONNEL

1. John R. Eadie (EOD 08/07/72)	Refuge Manager (GS 13, PFT)
2. Lloyd A. Culp, Jr. (EOD 12/04/78)	Asst. Refuge Manager (GS 11, PFT)
3. Royce R. Huber (EOD 12/30/79)	Asst. Refuge Manager (GS 9, PFT)
4. Ronald A. Phernetton (EOD 01/09/74)	Forester (GS 11, PFT)
5. Tony R. Gooch (EOD 08/18/80)	Forestry Technician (GS 6, PFT)
6. James A. Burkhardt (EOD 06/11/78)	Chief Outdoor Recreation Planner (GS 11, PFT)
7. William C. Kent (EOD 06/03/79)	Outdoor Recreation Planner (GS 7, PFT)
8. Norman T. Lindsay (EOD 04/23/79) transferred to NPS, 06/26/82	Outdoor Recreation Planner (GS 7, PFT)
9. Thomas C. Worthington (EOD 10/07/79)	Outdoor Recreation Planner (GS 7, PFT)
10. Douglas E. Nuss (EOD 01/16/77)	Biological Technician (GS 8, PFT)
11. Augustus H. Saville (EOD 07/22/80)	Biological Technician (GS 8, PFT)
12. Omer L. Bowen (EOD 03/11/63)	Biological Technician (GS 8, PFT)
13. Cecile Davis (EOD 10/16/72)	Administrative Clerk (GS 6, PFT)
14. Dartha Pittman (EOD 12/06/76)	Clerk-Stenographer (GS 5, PFT)
15. Jay Burch (EOD 12/07/61)	Maintenance Mechanic (WG 9, PFT)
16. Virgil Crews (EOD 01/05/69)	Engineering Equipment Operator (WG 8, PFT)
17. Barcus Hamilton (EOD 01/23/69) Retired 05/01/82	Maintenance Worker (WG 6, PFT)
18. James Dixon (EOD 01/23/69) Terminated 08/06/82	Carpentry Worker (WG 7, Temporary)
19. Iva Lee Chesser (EOD 10/08/79)	Laborer (WG 2, TAPER, Intermittent)
20. Vannie Hickox (EOD 07/14/78)	Laborer (WG 2, TAPER, Intermittent)
21. Ralph Davis (EOD 03/30/76)	Laborer (WG 2, TAPER, Intermittent)
22. Nell Snowden (EOD 07/14/77)	Laborer (WG 2, TAPER, Intermittent)
23. Kara Kim Bragg (EOD 05/06/82) Terminated 08/09/82	Biological Technician (GS 5, Temporary)
24. Isiah Lee (EOD 10/28/82)	Laborer (WG 2, Temporary, NTE 1 Year)
25. Gracie Gooch (EOD 12/26/82)	Laborer (WG 2, Temporary, NTE 1 Year)

Review and Approvals

Lloyd A. Culp, Jr.      2/28/83  
Submitted By                      Date

\_\_\_\_\_  
Regional Office Review                      Date

## TABLE OF CONTENTS

	<u>Page</u>
A. <u>HIGHLIGHTS</u>	1
B. <u>CLIMATIC CONDITIONS</u>	1
C. <u>LAND ACQUISITIONS</u>	
1. Fee Title .....	4
2. Easements (Nothing to Report).....	
3. Other (Nothing to Report).....	
D. <u>PLANNING</u>	
1. Master Plan .....	5
2. Management Plan .....	5
3. Public Participation .....	5
4. Compliance with Environmental Mandates (Nothing to Report) .....	
5. Research and Investigations .....	5
E. <u>ADMINISTRATION</u>	
1. Personnel .....	7
2. Youth Programs .....	9
3. Other Manpower Programs .....	11
4. Volunteer Program .....	11
5. Funding .....	12
6. Safety .....	13
7. Technical Assistance .....	17
8. Other Items .....	17
F. <u>HABITAT MANAGEMENT</u>	
1. General .....	19
2. Wetlands .....	19
3. Forests .....	20
4. Croplands (Nothing to Report) .....	
5. Grasslands (Nothing to Report) .....	
6. Other Habitats (Nothing to Report) .....	
7. Grazing (Nothing to Report) .....	
8. Haying (Nothing to Report) .....	
9. Fire Management .....	27
10. Pest Control .....	37
11. Water Rights (Nothing to Report) .....	
12. Wilderness and Special Areas .....	37
13. WPA Easement Monitoring (Nothing to Report) .....	



G. WILDLIFE

1. Wildlife Diversity .....	39
2. Endangered and/or Threatened Species.....	39
3. Waterfowl .....	43
4. Marsh and Water Birds .....	44
5. Shorebirds, Gulls, Terns and Allied Species .....	44
6. Raptors .....	44
7. Other Migratory Birds.....	44
8. Game Birds .....	46
9. Marine Animals (Nothing to Report) .....	
10. Other Resident Wildlife .....	48
11. Fisheries Resources .....	48
12. Wildlife Propagation and Stocking (Nothing to Report).....	
13. Surplus Animal Disposal (Nothing to Report).....	
14. Scientific Collections (Nothing to Report) .....	
15. Animal Control (Nothing to Report) .....	
16. Marking and Banding .....	49
17. Disease Prevention and Control (Nothing to Report).....	

H. PUBLIC USE

1. General .....	49
2. Outdoor Classroom - Students .....	55
3. Outdoor Classroom - Teachers .....	55
4. Interpretive Foot Trails.....	55
5. Interpretive Tour Routes .....	56
6. Interpretive Exhibits/Demonstrations .....	59
7. Other Interpretive Programs (Nothing to Report).....	
8. Hunting .....	60
9. Fishing .....	62
10. Trapping (Nothing to Report).....	
11. Wildlife Observation .....	63
12. Other Wildlife Oriented Recreation .....	63
13. Camping .....	63
14. Picnicking .....	63
15. Off-Road Vehicling (Nothing to Report).....	
16. Other Non-Wildlife Oriented Recreation (Nothing to Report).....	
17. Law Enforcement.....	63
18. Cooperating Associations .....	64
19. Concessions .....	64

I. EQUIPMENT AND FACILITIES

1. New Construction .....	65
2. Rehabilitation .....	65
3. Major Maintenance .....	67
4. Equipment Utilization and Replacement.....	68
5. Communications Systems .....	69
6. Energy Conservation .....	69
7. Other (Nothing to Report) .....	

J. OTHER ITEMS

1. Cooperative Programs .....	69
2. Items of Interest .....	70
3. Credits .....	71

K. FEEDBACK



#### A. HIGHLIGHTS

The year 1982 will be remembered as the year that the refuge headquarters moved to Folkston (Camp Cornelia). The headquarters had been located in Waycross since the refuge was established 45 years ago. The move to Folkston was proposed in 1981 after the completion of the new shop/office facilities at Camp Cornelia. There was considerable debate over whether or not the move was a good decision, but the move was ultimately carried out in October.

After serving ten years and setting a new record for a manager's tenure at Okefenokee, the year ended with Refuge Manager John Eadie preparing to transfer to Washington, D. C., to become the new Deputy Chief of the Division of Refuge Management.

Personnel management was a genuine challenge. Outdoor Recreation Planner Terry Lindsay transferred to the National Park Service, and Maintenance Worker Barcus Hamilton retired. Unfortunately, we were not permitted to fill those vacancies. The YACC program was terminated, so we lost a valuable source of maintenance manpower. Two temporary laborer positions were filled by Isiah Lee and Gracie Gooch at the end of the year to help take up the slack.

A prescribed burn on Billy's Island and Honey Island was accomplished on February 22, 1982, by using aerial ignition. A state-owned helicopter dropped potassium permanganate balls on the islands to start the fire.

Two aircraft crashed in the swamp during the year. In February, a Navy A-6 jet slammed into the swamp less than a mile from The Pocket residences. The two occupants ejected from the jet only seconds before the aircraft crashed, and they suffered only minor scratches and bruises. The occupants of the single-engine privately-owned plane which crashed in August were not as fortunate. Both perished instantly when their plane crashed near Coward Lake.

#### B. CLIMATIC CONDITIONS

Rainfall during 1982 was slightly better than average, but water levels remained below normal due to the 1981 drought. Recorded precipitation was 20 inches below normal during 1981, and water levels reached the lowest levels since the series of ground fires swept through the swamp in 1954-55. Above average rainfall will be needed to overcome 1981's water deficit.

Temperatures were generally normal for this area. Winter temperatures reached into the 80's and dipped into the teens. Summer temperatures reached highs approaching 100 with low temperatures in the 60's.

The drier weather with resulting lower swamp water levels over the past few years have significantly affected the refuge's wetlands. Broom sedge and woody vegetation have encroached into areas which used to be open water or marsh. Wading bird and waterfowl populations have declined, and this trend will be described in more detail in other sections of this report. Of course, the possibility of fires occurring within the swamp has also increased with the lower water levels.



Water levels in Chase Prairie were barely adequate in early March to permit the use of the trailcutter. 82-1-LAC (3/82)



SUWANNEE CANAL RECREATION AREA  
COMPARATIVE WATER LEVELS  
(Feet Mean Sea Level)

	<u>Normal 20-Year Average</u>		<u>1982</u>		<u>1981</u>		<u>1954*</u>	
	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>
January	121.29	121.02	120.52	120.16	121.20	121.04	121.80	121.54
February	121.26	120.97	120.76	120.44	120.50	120.03	121.52	121.16
March	121.40	121.00	121.10	120.57	121.68	121.37	121.16	120.76
April	121.39	120.95	121.30	120.92	121.65	121.05	120.74	120.46
May	121.05	120.95	121.12	120.52	121.01	120.34	120.62	120.06
June	120.75	120.33	120.60	120.14	120.44	120.12	120.30	119.54
July	121.12	120.61	120.83	120.32	120.14	119.60	119.50	118.66
August	121.37	120.98	120.70	120.42	120.24	119.75	118.62	118.18
September	121.66	121.15	120.62	120.26	120.16	119.28	118.16	117.92
October	121.71	121.21	120.90	120.34	119.25	118.78	118.04	117.70
November	121.40	121.09	120.81	120.60	119.54	118.74	117.76	117.56**
December	121.31	121.01	120.82	120.54	119.97	119.42	117.90	117.64

\*Year last fire-encouraging drought occurred and continued into 1955.

\*\*Lowest water level records during 1954-1955 fire year.

PRECIPITATION AND TEMPERATURES  
SUWANNEE CANAL RECREATION AREA

	<u>RAINFALL (Inches)</u>			<u>TEMPERATURES</u>	
	<u>20-Year Average</u>	<u>1982</u>	<u>1981</u>	<u>1982</u> <u>High</u>	<u>Low</u>
January	2.93	3.58	0	82	14
February	3.52	3.17	3.83	83	33
March	3.77	5.13	4.94	89	32
April	3.37	4.99	.33	92	39
May	3.99	5.36	1.96	95	49
June	5.46	6.65	1.51	99	63
July	8.06	9.25	3.85	98	64
August	7.54	1.99	7.48	99	66
September	5.85	5.77	1.00	96	52
October	3.34	5.51	1.45	94	37
November	1.90	1.31	4.10	85	31
December	2.93	3.52	1.82	86	28
	52.66	56.23	32.27	Extremes 99	14

C. LAND ACQUISITION

1. Fee Title

Survey work has finally been completed on Union Camp Corporation's 1978 donated lands and installation of monuments is almost complete. Although calculations for the last boundary adjustments may not be included, Okefenokee National Wildlife Refuge now has 395,898.04 acres of land.

There was no other acquisition during the year. About 16,000 acres of swampland and inholdings still need to be acquired to round out the refuge boundary.



## D. PLANNING

### 1. Master Plan

During October, Construction Project Worksheets were submitted to the Regional Office in order to record estimated costs of our two highest priority projects from our previously submitted Project Description Worksheets. The largest proposed project involved the development of support facilities for our western subheadquarters unit. This project would involve the construction of an equipment storage/maintenance building at the Sill Area, replacement of the Jones Island boathouse, and water treatment/sewage system rehabilitation at Jones Island. Our other proposed project called for the planting of 1,000 acres of unstocked forestlands which were acquired unstocked and the rip-rapping of our northern Sill spillway.

### 2. Management Plan

There were relatively few new planning efforts initiated during 1982. Some very minor revisions were made to the Public Use Management Plan, and some time was spent in preparing for future forest management planning.

Some time was spent in revising the refuge deer hunting plans. The most significant changes involved permitting more shotgun hunts at Cowhouse Island and the initiation of "standby lists" at all hunts to fill those "no show" hunter slots.

A proposal and plan to open the refuge to waterfowl hunting were submitted at the beginning of the year. However, another year of low water levels significantly reduced waterfowl use at Okefenokee. Thus, the proposal was withdrawn.

### 3. Public Participation

An informational meeting was held in the Swamp's Edge Interpretive Center auditorium on November 24, 1982. Members of the Charlton County Development Authority requested the meeting to get public input into the planning process for establishing an experimental research station on the refuge. Dr. Bernard Patten of the Institute of Ecology, University of Georgia, presented a slide program with a question and answer session to the 30 people in attendance. The status of the experimental research station is still in doubt but we are ever hopeful.

### 5. Research and Investigations

A variety of research projects continued on Okefenokee Refuge this year. The University of Georgia's Institute of Ecology is conducting the most comprehensive study under a National Science Foundation grant which establishes a Long Term Ecological Research (LTER) station at Okefenokee.

The University of Georgia is proceeding with plans to develop permanent laboratory and support facilities on the refuge, probably near Camp Cornelia. The details of such a facility are far from set but the refuge and the Service would benefit greatly from this development. So many questions about the best management strategy for the Okefenokee can only be answered with the kind of data obtained from a comprehensive research program.

A permit was issued to the University of Georgia in November for them to occupy, maintain, and improve the old Camp Cornelia shop/office buildings for "furthering biological sciences and wildlife research." This permit expires on December 31, 1985 and provides a temporary home for the LTER. It also puts to good use a building that holds many memories of the refuge's first 50 years.

The following is a summary of the research projects which are in progress at Okefenokee Refuge:

Okefenokee NR82 - "Peat Resource Assessment in Georgia" (41590-1) Georgia Institute of Technology

A grant from the U. S. Department of Energy funded this study to assess the location and quantities of fuel grade peat in Okefenokee and to develop maps depicting peat thickness, distribution, and quantity. Dr. R. J. Didocha is the project leader of this one-year long program.

Okefenokee NR82 - "Ethology and Natural History of the American Alligator" (41590-2) Atlanta Zoological Park

Howard Hunt, Curator of Herpetology for the Atlanta Zoological Park, and a frequent visitor to the refuge since 1972, is conducting this study. Objectives are: (1) to locate and monitor nests; (2) to study comparative nesting success of alligators, identify predators of their eggs; (3) to observe parental behavior and interactions between adult alligators; and (4) to monitor young alligators.

Mr. Hunt found 19 nests along the Suwannee Canal in late May, but by the end of June, each nest had been destroyed by bears (primarily) and raccoons. Successfully hatching nests were almost always near deep water.

This research will continue in 1983.

Okefenokee NR82 - "Okefenokee Swamp Ecosystem Study" (41590-3) University of Georgia

The objectives of this broad based study are to: (1) develop basic ecological knowledge about Okefenokee as an ecosystem-species relationship in the development of basic ecological knowledge about the swamp, to investigate the hydrology of the swamp, the patterns and control of primary productivity, and the basis of food webs and (2) integrate this knowledge into a comprehensive whole ecosystem model which should be able to assess various long-term effects of natural and human



disturbance such as changes resulting from the construction of the Suwannee River Sill, logging, fire, and droughts.

This research will continue in 1983.

Okefenokee NR82 - "Investigations of Fungi in Freshwater Environments and in the Okefenokee Swamp" (41590-4) Illinois Natural History Survey

Dr. J. L. Crane is directing this study which has three objectives: (1) to add to the knowledge of the kinds, relative abundance, and distribution of Ascomycetes and Deuteromycetes fungi in the swamp through an extensive year-round sampling program; (2) to undertake more advanced studies on the fungi found during the course of the study emphasizing their taxonomy; and (3) to provide taxonomic and ecological information on two groups of fungi in a specialized ecological niche that to date has not been previously studied.

This research will continue in 1983.

Okefenokee NR82 - "Geologic and Coal Petrologic Investigations of the Peat Deposits of Okefenokee Swamp" (41590-5) University of South Carolina

Dr. Arthur Cohen has been studying various aspects of Okefenokee's peats since 1970. His research has resulted in many publications and is largely responsible for the generation of new theories about the geologic history of Okefenokee. Objectives of this research are: (1) to determine the botanical and mineralogic composition and physical structure of the peats forming in the Okefenokee Swamp; (2) to reconstruct the geologic history of the swamp; (3) to evaluate some of the early physical changes in peat tissues as they are transformed to the substances observed in lignites and bituminous coals; (4) to establish the geometry and lateral relationships of peat deposits and mineral matter occurring in the swamp and (5) to use these geologic and petrographic characteristics to reconstruct the geologic history and depositional settings of ancient coal deposits.

## E. ADMINISTRATION

### 1. Personnel

Personnel management was constantly on our minds during 1982 because of several significant changes in the staffing pattern at Okefenokee Refuge. We essentially lost two permanent fulltime positions when Maintenance Worker Barcus Hamilton retired in April and Outdoor Recreation Planner Terry Lindsay transferred to the National Park Service in June. Loss of these positions especially hurt our Interpretation and Recreation program, but we were told that the cuts were necessary to comply with Regional personnel ceilings.

When the Young Adult Conservation Corps (YACC) was phased out in March, we lost our largest source of manpower for facilities' maintenance. There were 16 YACC enrollees on board when the year began, but that number continuously dwindled until the program was abolished.

Several temporary positions were established to help counteract the effects of the manpower cuts. Ms. Kim Bragg was hired during May-August as a Biological Technician to assist with the supervision of 15 Youth Conservation Corps enrollees. Mr. Isiah Lee and Ms. Gracie Gooch were hired as laborers in October and December, respectively, on one-year appointments. During June, a crew of ten emergency firefighters was hired for 40 hours of basic firefighter training.

Other personnel actions included the conversion of Clerk-Stenographer Dartha Pittman from part-time to full-time employment. Forestry Technician Tony Gooch was converted from career-seasonal to a full-time appointment, and he was promoted from GS-5 to GS-6. Carpentry Worker James Dixon, who was on a temporary appointment to complete several facility rehabilitation projects, was terminated in July. Mr. Dixon had been on OWCP compensation since April due to a disabling injury he sustained in February.

As the year ended, Refuge Manager John Eadie was preparing to transfer to Washington, D. C., to become the Deputy Chief, Division of Refuge Management.

FIVE-YEAR COMPARISON  
REFUGE STAFFING PATTERN

	<u>PERMANENT</u>		<u>Temporary</u>	<u>TAPER*</u>
	<u>Full-Time</u>	<u>Part-Time</u>		
FY 1982	15	0	2	4
FY 1981	15	2	2	4
FY 1980	16	2	4	4
FY 1979	17	2	6	4
FY 1978	17	2	9	

\*Temporary Appointment Pending Establishment of a Register



# REFUGE STAFFING PATTERN

## CALENDAR YEAR 1982

1. Refuge Manager, GS-13
2. Assistant Refuge Manager, GS-11
3. Assistant Refuge Manager, GS-9
4. Forester (Administration), GS-11
5. Forestry Technician, GS-6
6. Outdoor Recreation Planner, GS-11
7. Outdoor Recreation Planner, GS-7
8. Outdoor Recreation Planner, GS-7
9. Biological Technician, GS-8
10. Biological Technician, GS-8
11. Biological Technician, GS-8
12. Administrative Clerk, GS-6
13. Clerk-Stenographer, GS-5
14. Maintenance Mechanic, WG-9
15. Engineering Equipment Operator, WG-8,
16. Laborer, WG-2
17. Laborer, WG-2
18. Laborer, WG-2 (TAPER, 4 positions, intermittent)

## 2. Youth Programs

The abolition of the Young Adult Conservation Corps (YACC) during 1982 was one of the biggest blows to refuge operations in recent times. Although this station has had as many as 60-70 YACC enrollees with several YACC group leaders, our 15-20 enrollee complement with no YACC staff seemed to be the most efficient situation. With the YACC program, we had an adequate source of manpower to sufficiently maintain our equipment, buildings, and other facilities. It has been a genuine struggle to take up the slack since the program's demise.

We started the year with 16 YACC enrollees, and that number gradually declined until the program's termination in March. The following is a summary of the primary projects in which they were involved during 1982:

1. Cleaned out logs, trees, and other debris from the last mile of the Suwannee Canal to permit easier travel through that area.
2. Marking southwestern refuge boundary.
3. Planting trees in Compartment 6 and Chesser Island.
4. Renovation of Maul Hammock, Bluff Lake, and Minnies' Lake canoe trail shelters.
5. Construction of the new canoe trail shelter at Round Top.
6. Maintaining the Swamp's Edge Information Center including greeting and providing information to refuge visitors.

7. Maintaining all refuge equipment and facilities.

The refuge hosted a 15-enrollee Youth Conservation Corps during June 7-August 13, with 11 enrollees working at Camp Cornelia and 4 enrollees working at Jones Island. Ms. Kim Bragg was hired as a Biological Technician (temporary) to supervise the Camp Cornelia crew. Since funding for the program was barely sufficient to pay the enrollees' salaries, work projects consisted of maintenance and construction projects which were close to the headquarters such as lawn and trail maintenance, vehicle and building maintenance, manning the information center, construction of 300 feet of boardwalk on the Ridley's Island Trail, boat dock repairs, boundary marking, and compilation of water level data. We had a good group of YCC enrollees, and a lot of work was accomplished by them under the able supervision of Ms. Bragg.

Ms. Norma Higgins of the Office of Youth Programs inspected the YCC enrollees at work during the first week of the camp and seemed to be favorably impressed by our group.



YCC enrollees applied wood preservative to the information center. 82-2-TCW (7/82)



### 3. Other Manpower Programs

Although many of us thought the program had died with the budget cuts, the CETA program provided us a few extra hands during the summer. We were very fortunate to have a former YACC enrollee, Ralph Boone, work for us at Jones Island a few weeks through CETA, for he had always been an outstanding employee. Two more CETA workers assisted with grounds maintenance at Banks Lake.

### 4. Volunteer Program

Okefenokee's volunteer program expanded from one to ten during the year. Volunteers logged in excess of 700 hours of assistance to various refuge programs during the year. The following table details each volunteer, the total hours worked and major area of assistance:

<u>NAME</u>	<u>HOURS VOLUNTEERED</u>	<u>AREA OF ASSISTANCE</u>
1. Joe Doherty	222.0	Photography, bird census, interpretive programs
2. Sheila Lewis	141.0	Information desk, planned Homestead festival
3. Sheila Willis	70.5	Information desk, slide file organization
4. Sharon Brooker	61.0	General maintenance
5. John Hires	54.0	General maintenance
6. Nora Culp	53.0	YCC leadership, general maintenance, water level recording, bear census
7. Dennis Holt	39.0	Photography, bird census, interpretive program
8. Cheryl Hires	28.0	Information desk, general maintenance
9. Chris Trowell	20.0	Historical research, interpretive program
10. Martha Bragg	13.0	Information desk, general maintenance
TOTAL	701.50	

Our volunteers have all been very enthusiastic and quite adaptable to doing things our way.

The greatest hurdle to the continued success of our program remains finding volunteers with skills that we can use in our program. Two volunteers were terminated this year due to personality conflicts.

We are truly appreciative of the effort of all these individuals as they lend a great deal to our total program. We will be looking into ways of expanding this program during the current fiscal year.

#### 5. Funding

Funding for FY 1982 was relatively conservative as compared to previous years. All BLHP-funded projects had been essentially completed, but two job orders were established to tie up a few loose ends related to our new facilities. A sum of \$16,000 was allotted to complete landscaping for the new facilities (i.e., shop/office, information center, the Pocket residences). Another account in the amount of \$8,000 was established to complete some alterations to the Camp Cornelia office in preparation to move the headquarters from Waycross to Camp Cornelia.

Our 1982 O & M budget had its ups and downs. We started the year with a total of \$538,000, but that was cut to \$506,000 in December, 1981. The fiscal year ended with our budget standing at \$550,100. Obviously, we had some budgetary add-ons which really helped us. However, we did not actually fully regain the funds that were lost earlier in the fiscal year as a total of \$27,400 of the additional funds was ear-marked for YCC expenses and \$7,700 was allotted for the installation of a sand filter sewage treatment facility for the two new Pocket residences.

Other expenditures for the year included \$4,475.81 for the training of an emergency fire suppression crew. The funds for this exercise were not part of our budget, as these expenses were charged to Subactivity 1510 (Emergency Fire Suppression).

#### FIVE-YEAR FUNDING COMPARISONS

<u>FY</u>	<u>1210</u>	<u>1220</u>	<u>1240</u>	<u>6820</u>	<u>8722</u>	<u>8340</u>	<u>1994</u>	<u>1400</u>	<u>TOTAL</u>
1982	274,400	42,000	174,000	51,000			8,700		550,100
1981	183,900	40,000	250,000	42,000	4,000	1,700	1,000		522,600
1980	157,300	20,000	213,000	42,000	4,000	5,000			441,300
1979	135,000	20,000	221,400	34,000	12,400				422,800
1978	90,500	18,200	221,300	34,000	3,900			53,125	421,025



## 6. Safety

With a continuing concern for employee safety on the job, Okefenokee Refuge resumed its efforts for an effective safety program during 1982. At each monthly safety/staff meeting, discussions are held and films are shown to review basic safety precautions for areas such as defensive driving, first aid and general safety awareness. Employees discussed near misses and potential safety problems. Safety inspections are held regularly at refuge work sites. All employees are encouraged to identify potential hazards in their work areas. Employees are urged to hold "tailgate" sessions at each job site to identify and discuss possible hazards.

One of the most important elements in preventing accidents is a good safety attitude among all of the employees. We stress that if every employee takes time to think about what he is doing before undertaking a new job, and makes an effort to be aware of what he is doing and what is going on around him, our accident rate cannot help but to be low.

Special safety programs given this year included first aid and defensive driving courses given to temporary and permanent refuge personnel. Many of our refuge personnel attended one or more fire management courses this year. (see Other Items, page 17). A "surprise" refuge wildfire drill was conducted last summer.

Emergency oxygen equipment was acquired this year. Mirrors, reflector material and improved first aid kits were added to several of our refuge trucks and emergency vehicles.

An overall excellent safety record for Okefenokee this year was marred by a fairly simple accident which caused a disabling back injury and a plane crash which took the lives of two people.

Of the almost 300,000 visitors we had this year, we have had the usual number of incidents involving cuts, scrapes, bumps and an occasional broken bone. Our youth programs (the tail end of YACC and YCC) which are usually plagued with cuts and insect bites had a fair record this year with only three reportable minor injuries.

Following is a summary of reported accidents:

### Refuge Visitors

1. February 12, 1982. While on a low altitude training flight, a military aircraft crashed into the swamp. The crewmembers, Jentzen E. Bull and John J. Spegele, ejected before impact and were not injured. There was no resource damage.
2. March 17, 1982. Florence J. Otwell broke her arm when she slipped while getting out of a canoe.
3. March 19, 1982. Les Garber was struck by the taillight standards of a boat trailer as he was walking along Georgia Highway #177 in Stephen C. Foster State Park. Mr. Garber received two minor cuts.
4. March 20, 1982. James Davis Garth, a two-year old child fell out of a Stephen C. Foster State Park tour boat. The boy's father jumped in

after him. The two were rescued by a nearby fisherman. There were no injuries.

5. April 17, 1982. David Hicks became ill while participating on a Boy Scout canoe outing. He was transferred by ambulance to Charlton County Memorial Hospital, treated and discharged.
6. May 5, 1982. Markus Steinman and Charlotte Ray were injured when Mr. Steinman lost control of the motorcycle the two were riding after encountering a deer. Mr. Steinman broke his shoulder and Ms. Ray received minor cuts and bruises.
7. May 9, 1982. Robert Allen Glover, age 5, fell and struck his head on the pavement of Georgia Highway 177 while playing with some other children in Stephen C. Foster State Park. The boy fainted when he tried to get up and was taken to Clinch Memorial Hospital where he was treated and released.
8. August 7, 1982. Ms. Helen Foreakers, age 96, fell on the steps while entering the museum at Stephen C. Foster State Park. She received cuts on her left leg and hand.
9. August 6, 1982. Brian Keith Rankin and Lisa Boydston were killed when the Piper aircraft in which they were riding crashed into the Okefenokee Swamp near Coward Lake. It is estimated that the plane was travelling at 200-250 knots upon impact, totally destroying the plane and occupants. The couple were reported missing on August 9 and the plane crash site was located on the 10th. A four day recovery operation revealed very little evidence as to the cause of the crash. The accident occurred during a severe thunderstorm.
10. August 21, 1982. Michael J. Andrejko, a South Carolina University student, received an insect bite on his lip while collecting specimens near the Minnies' Lake Rest Shelter. He was treated at Clinch Memorial Hospital.
11. November 13, 1982. Ronnie L. Culver, age 12, fell while jumping on the benches in the museum at Stephen C. Foster State Park, hitting his head on the concrete floor rendering himself unconscious. He was treated for a minor concussion at Clinch County Memorial Hospital.
12. December 4, 1982. Helen Moyses hit her head when her canoe turned over in the Suwannee River Narrows in Okefenokee Swamp.

#### YCC

1. July 7, 1982. Beth Suzanne Bragg experienced a reaction to numerous insect bites while working on a hiking trail. She received first aid treatment.

#### YACC

1. March 2, 1982. Pamela Renee Crews cut her finger on a broken bottle while picking up litter. She received first aid and was taken to Charlton County Hospital for treatment. Enrollees were instructed to wear gloves while picking up litter.



2. March 23, 1982. Charles Brown received eye burns from welding flashes while holding pipes for a refuge employee to hold in place. Enrollee was treated at Clinch Memorial Hospital. Enrollee had been instructed not to look at welding operation. Supervisor was subsequently warned that enrollee should have been wearing goggles.

#### Refuge Personnel

1. February 23, 1982. James Zelton Dixon fell in a boat while trying to load a chemical toilet on the boat. Immediate injuries seemed minor but later on severe back and hip pains began to reoccur and he was unable to continue working. He is currently classified as temporarily totally disabled and is receiving compensation.
2. November 26, 1982. While road testing one of the refuge sedans, Jay Burch encountered one of our local deer herds. He managed to miss most of the deer but one attacked the 1978 Plymouth Volare in the left front fender. Damages were about \$260. There were no injuries except to the deer.



Forester Ron Phernetton huffs and puffs his way through the "step test" to attempt to physically qualify for wildfire suppression activities. 82-3-TCW (6/82)



Okefenokee's finest earnestly attack a fake fire of yellow and red ribbon during a fire drill. 82-4-JAB (6/82)



Refuge personnel are instructed on the use of the fire pumper. 82-5-WCK (1/82)





Forester Ron Phernetton demonstrates the foam application from fire pumper.  
82-6-WCK (1/82)

#### 7. Technical Assistance

A group of eight Latin American land managers accompanied by interpreter Sean Furniss, Refuge Manager, Puerto Rico, visited the refuge from October 23 to October 27, 1982 as part of a cross-country tour examining the land management practices of the U. S. Fish and Wildlife Service. Three Columbian Park Managers accompanied by a National Park Service interpreter toured the refuge on November 2, 1982 looking at land management program.

Dr. L. A. K. Singh of the Government of India spent seven days on the refuge observing the nesting habits and habitat requirements of our alligator population. Howard Hunt, Curator of Reptiles at the Atlanta Zoo, accompanied Dr. Singh on his daily checks of the active alligator nests.

The Telephone Pioneers of Waycross, Georgia, constructed and installed bluebird boxes on the refuge this year as part of their public service functions.

#### 8. Other Items

The following is a list of training sessions which were attended by refuge personnel during 1982:

"Water and Pumps"; "Power Saws" (S-211, S-212) - Merritt Island NWR, Titusville, FL; June 7-11 - attended by Jay Burch, Doug Nuss, Virgil Crews and Tony Gooch.

"Basic Air Operations" (S-270) - Merritt Island NWR, Titusville, FL; June 17-18 - attended by Ron Phernetton and Tony Gooch.



"Fish and Wildlife Service Follow-on Training" - Glynco, GA; June 17-23 - attended by Tom Worthington.

"Crew Boss Training" (S-230) - Ocala National Forest, Camp Ocala, FL; July 14-16 - attended by Lloyd Culp and Royce Huber.

"Intermediate Fire Behavior" (S-390) - Merritt Island NWR, Titusville, FL; August 9-13 - attended by Tony Gooch.

"Safety Chief Training" (S-480) - Withlacoochee Training Center, Brooksville, FL; September 13-17 - attended by Jim Burkhardt.

"Advanced Equipment Operators' Training" - North Carolina Division of Forestry, Kinston, NC; September 27-October 1 - attended by Doug Nuss and Tony Gooch.

"Intermediate Air Operations" (S-370) - Merritt Island NWR, Titusville, FL; October 20-22 - attended by Doug Nuss, Tony Gooch and Ron Phernetton.

#### Banks Lake

On April 16, 1980, the U. S. Fish and Wildlife Service entered a lease agreement with The Nature Conservancy to manage a 3,450-acre portion of Banks Lake, located in Lanier and Lowndes Counties in Southeastern Georgia. The lake and surrounding land (known as Grand Bay) is one of the largest examples of Carolina Bay habitat type in the Coastal Plains of Georgia.

The leased acreage included the northern half of the lake and 17 acres of upland adjacent to the northeastern corner. Efforts were made in 1980 to acquire approximately 10,000 additional acres, which would include the remainder of the lake as well as the 6,800 acres encompassing the Grand Bay area. A proposal to establish the Banks Lake Unit as a National Wildlife Refuge was submitted to the Director of the Fish and Wildlife Service that same year.

In 1981, efforts to receive approval for acquisition of the additional acreage continued. However, appropriations for the acquisition of lands like Banks Lake were cut from the FY 1981 budget because of the new administration's desire to reduce government spending.

The future of Banks Lake remains uncertain. The State of Georgia has expressed interest in acquiring these lands, however, they suffer the same monetary problems as the Fish and Wildlife Service. Private individuals are anxious to purchase the lands for uses ranging from private hunting/fishing preserves to draining the lake and harvesting its valuable stumpwood.

In the spring of 1981, a local citizens' preservation group was formed and met with state, Federal and Fish and Wildlife Service officials in Washington, D. C. to discuss the future of Banks Lake. It was required at that time that the Fish and Wildlife Service maintain its presence until the fate of the lake could be determined. As a result of this meeting, the Service continued to employ a Biological Technician at Banks Lake on a part-time basis. There is no change in the status of Banks Lake in 1982.



The Flatlanders Frolic, an annual event sponsored by the Lions Club of Lakeland, Georgia, once again held a portion of its festivities on Banks Lake on September 6 of this year. The Labor Day celebration provided enjoyment for over 3,000 participants.

Several fishing tournaments were held on Banks Lake this year. The most successful one, as far as people numbers were concerned, was the one sponsored by the Miller Brewing Company on February 15. The tournament was an all species rodeo with the heaviest stringer of fish receiving a \$4,000 boat, motor and trailer. More than 1,200 people participated in the event. First prize was won by an individual with a total stringer weight of 10 pounds 13 ounces. The fish apparently knew that it was not a day to be working their jaws!

A 66-year old fisherman drowned at Banks Lake in September. Biological Technician Gus Saville assisted in the recovery of the body.

Concession operations at Banks Lake were transferred from Jim White to Charles and Marie Tomlinson.

## F. HABITAT MANAGEMENT

### 1. General

The ecological research which has been conducted by the University of Georgia has resulted in the classification of the Okefenokee Swamp habitat into eight major vegetation categories. These categories include islands, prairies, shrub swamps, black gum forests, pure bay forests, pure cypress forests, mixed cypress forests, and upland pine forests and will be discussed in more detail in the following sections.

### 2. Wetlands

More than 370,000 acres of Okefenokee NWR can be classified as wetlands with 19% (75,994 acres) of the total refuge acreage classified as freshwater marsh or "prairie". Wetlands management consists primarily of protection of the refuge's flora and fauna and management of public use to minimize impact of such use on the swamp's ecological system. Presently there is no habitat manipulation planned or accomplished within the refuge's wetlands because there are insufficient data on the swamp's complex eco-system to prepare a sound habitat management plan for the area. Basic ecological research is being conducted by the University of Georgia and, hopefully, will aid in correcting this problem.

It is known that fire has played a major role in the evolution of the Okefenokee Swamp. Without fire to burn the woody vegetation, plant succession would eventually convert this area to a swamp forest. In addition, fire is responsible for maintaining and forming lakes and prairies within the swamp by burning back peat beds. Records indicate that droughts and accompanying fires occurred in 1844, 1860, 1910, 1931, and 1954-55. The 1844 fires were probably the last ones hot enough or persistent enough to burn away the peat bed and kill the woody growth resulting in prairie development. During the fires of 1954-55, approximately 318,000 acres of the swamp and 140,000 acres of the adjacent upland burned.



The construction of the Suwannee River Sill during the early 1960's was the only major attempt to manipulate water levels within the swamp. The purpose of the Sill, a 4½-mile long earthen dam located where the swamp drains into the Suwannee River, is to retain water within the swamp during periods of drought and thus reduce the probability of fire. The Sill was constructed with little regard for potential long-term ecological effects on the swamp because local timber interests did not want more fires to break out in the swamp and spread to the surrounding managed forests. One of the Sill's two water control structures collapsed in 1977 and construction of a new water control structure was completed in 1980. The new structure has the capability of manipulating the water level down to the original bottom elevation of the Suwannee River should research indicate the need.

### 3. Forests

Okefenokee National Wildlife Refuge has approximately 15,500 acres of upland included in its forest habitat management program. An additional 14,000 acres of upland forest are located on islands within the interior of the swamp. These forestlands, located within National Wilderness Area boundaries, are not managed except as noted in the section Unmanaged Forestlands.

Managed forestlands are divided into 15 compartments ranging from 150 to 1,850 acres in size. Their locations are shown on the map on page 21.

Objectives of the forest habitat management program on Okefenokee National Wildlife Refuge are to provide a habitat beneficial to a wide variety of native wildlife species with special emphasis on threatened and endangered species; to enhance forest-wildlife oriented recreation, appreciation and educational opportunities; to demonstrate the benefits of forest-wildlife management on forestlands; to preserve unique vegetative types for scientific study and enjoyment; and to manage forest resources on a sustained yield basis.

Some of the management techniques used to accomplish these objectives are:

1. Long rotation (100 years or more) to provide overmature as well as younger age classes.
2. Selective thinning on an eight to ten-year cycle to maintain an open canopy.
3. Small irregular stand size to provide more diversity and edge effect.
4. Wildlife openings and hardwood stands located throughout the pine stands to provide a greater variety of habitat types and edge effect.
5. Prescribed burning to maintain desired habitat types and to stimulate production of wildlife understory species.

These managed areas, used in combination with adjacent unmanaged areas, provide the wide variety of habitat types necessary to meet the needs of an optimum number of wildlife species as well as to provide an aesthetically-pleasing variety of forestlands.

### Timber Harvest

There were seven (7) active harvesting permits this year including the sale of pulpwood, stumpwood, fence posts and sawtimber. Table No. I (page 24) shows a breakdown of forest products receipts for CY 1982. Table No. II (page 25) is a ten-year forest products removal summary.



# OKEFENOKEE NATIONAL WILDLIFE REFUGE

21

UNITED STATES  
DEPARTMENT OF THE INTERIOR



FLORIDA AND GEORGIA

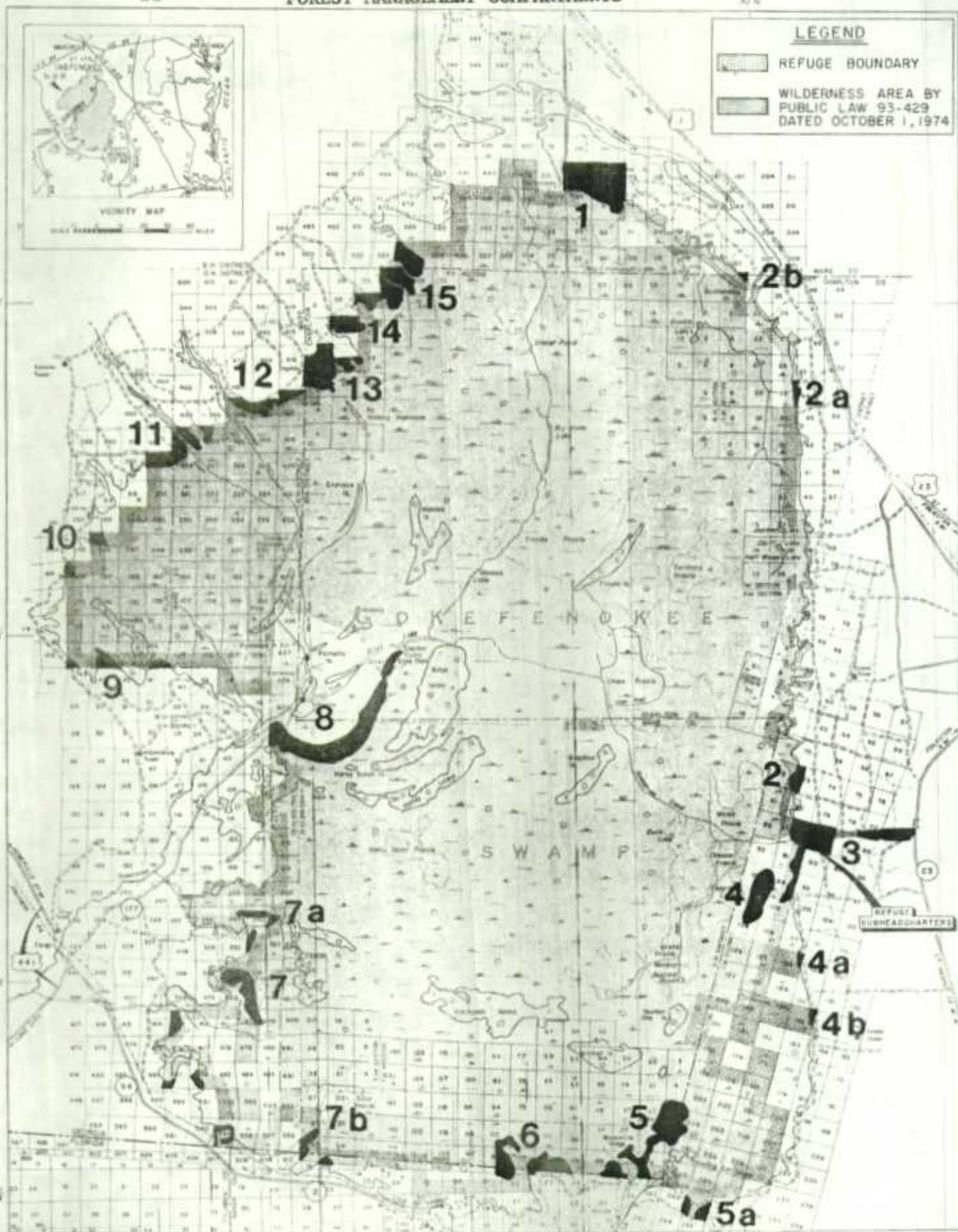
UNITED STATES  
FISH AND WILDLIFE SERVICE

## FOREST MANAGEMENT COMPARTMENTS

N 1/2

### LEGEND

-  REFUGE BOUNDARY
-  WILDERNESS AREA BY PUBLIC LAW 93-429 DATED OCTOBER 1, 1974



REFUGE  
SUBHEADQUARTERS

MEAN  
DECLINATION  
1993

BR CA. 213 103

COMPILED IN THE DIVISION OF REALTY  
FROM SURVEYS BY F.A.W.S. OLD AND  
U.S. ARMY

ATLANTA, GEORGIA

REVISED AND  
JUNE 1983

R 18 E

TALLAHASSEE MERIDIAN

0 1000 2000 3000 4000 5000 FEET

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15



### Timber Stand Improvement and Other Forest Management Techniques

The forest management techniques accomplished this year are those which were prescribed in our forest management prescriptions and Habitat Management Plan. These practices were prescribed to accomplish the forest habitats and wildlife management objectives. The following operations have been completed this year:

Compartment 1 - All of the prescribed management activities were completed this year. Some additional work is to be done to a 16-acre shelterwood stand that was left to establish natural regeneration. The new natural stand is now established and the remaining old trees must be removed soon. A small sale to accomplish this is now being negotiated.

Compartment 2b - This small longleaf pine stand near Boatlanding Island is an excellent red-cockaded woodpecker support stand. This area was thinned this year to open up the crown somewhat.

Compartment 3 - Timber marking on one sale is almost completed and another sale is about to begin in the compartment. Several red-cockaded woodpecker support stands will have competing mid-story trees removed and the rest of the compartment will receive a light thinning. Some small, poorly stocked stands will be regenerated. In two small areas, a scattered overstory will be removed from naturally regenerated areas.

Compartments 4a and 4b - These two small stands are located south of Chesser Island (Compartment 4). One poorly stocked stand (4a) was cut and will be replanted with slash and longleaf pine seedlings. Hopefully, this area will provide a support stand which will act as a bridge for red-cockaded woodpeckers between Compartments 4b and other colonies located near Chesser Island and Camp Cornelia. Several colonies used to be located in longleaf pine stands on private lands in this area but the mature stands are now almost totally clear-cut and replanted with slash pine. Compartment 4b, which contains an active red-cockaded colony this year received a heavy thinning to open up the stand. We were relieved to observe that the woodpecker activity did increase after the thinning.

Compartment 8 - Several very dense slash pine plantations were thinned this year.

### Tree Planting

Slash and longleaf pine seedlings were planted on about 60 acres of cutover land in Compartment 6 on the south end of the refuge. This land was cutover before we acquired it about ten years ago. Several hundred acres of this land still need to be planted.

Longleaf pine, slash pine, maple and other hardwood seedlings were planted in a 16-acre area on Chesser Island. This previously unstocked area contains a 2-acre wildlife opening and a cypress pond in addition to the pine and hardwood stands.



Site preparation was also completed on an 80-acre wildfire area on Soldier Camp Island (Compartment 5).



Longleaf pine is planted on every suitable site to provide future red-cockaded woodpecker support stands. This stand, planted in January of 1981, is 1½ years of age. 82-7-TG (7/82)



Forester Ron Phernetton is examining one of his first longleaf pine plantations which was planted in 1976. Prescribed fire will soon be used to cut back some of the understory. 82-8-LAC (9/82)

TABLE NO. 1  
FOREST PRODUCTS RECEIPTS - CY 1982

SPECIAL USE PERMIT NO.	PERMITTEE	PERMIT DATES	PRODUCT	VALUE/UNIT	TOTAL VOLUME	TOTAL VALUE	VALUE CREDIT TO CY 1982
OKE 58 (RO-468)	South Georgia Timber Company	01/01/80- 06/30/82	Pulpwood	\$18.51/cd.	2,314.26 cds.	\$ 42,836.89	\$ 3,517.63
OKE 69	Hercules, Inc.	04/20/81- 09/30/82	Stumpwood	\$6.50/ton	350.05 tons	2,275.34	1,835.28
OKE 70	W. B. Register	08/31/81- 12/31/82	Fence Posts Pulpwood	\$.10/8' post .05/6' post \$10.00/cd.	29,340 posts 87.23 cords	2,653.50	1,444.80
OKE 72	South Georgia Timber Company	09/28/81- 09/30/82	Pulpwood	\$12.00/cd.	42.01 cords	504.24	173.52
OKE 73	South Georgia Timber Company	03/29/82- 04/17/82	Pulpwood	\$15.00/cd.	93.45 cords	1,401.75	1,401.75
OKE 74	South Georgia Timber Company	04/12/82- 06/30/82	Pulpwood	\$15.00/cd.	221.25 cords	3,318.75	3,318.75
OKE 75	South Georgia Timber Company	06/07/82- 06/30/82	Pulpwood Sawtimber	\$20.00/cd. \$40.00/cd.	249.75 cords 212.34 cords	13,488.60	13,488.60
TOTAL RECEIPTS FOR CY 1982							\$25,180.33



TABLE NO. II

## TEN YEAR FOREST PRODUCTS REMOVAL SUMMARY

CY	SAWTIMBER (MBF)	PULPWOOD (CDS)	STUMPWOOD (TONS)	POSTS (EA)	TOTAL VALUE
1973	-	295	-	-	5,696
1974	-	18	357	-	3,637
1975	217.4	296	-	1,400	21,988
1976	-	1,243	1,286	4,309	28,890
1977	-	83	430	20,184	4,761
1978	-	33	551	30,754	5,044
1979	-	743	-	46,964	12,428
1980	-	525	560	-	13,370
1981	-	2,777	74	9,745	48,591
1982	92.3	788	282	22,133	25,180

### Unmanaged Forestlands

In addition to the 15,500 acres of managed forestlands, Okefenokee National Wildlife Refuge has over 14,000 acres of unmanaged upland forest located on islands within the swamp, and 200,000 acres of swamp forest.

Managed Forestlands (15,500 acres - 4%)

Lakes and Prairies (75,994 acres - 19%)

Unmanaged Islands (14,000 acres - 4%) - These islands are very similar to the refuge uplands on the perimeter of the swamp, dominated by pine with hardwood hammocks scattered throughout the higher areas. Major tree species include longleaf pine, loblolly pine, slash pine, pond pine and several species of oaks. On higher areas where longleaf pine dominates, grasses, palmetto, several species of ground oaks and dwarf blueberry and huckleberry are found in the understory. On wetter areas, gallberry and fetterbush is more predominant.

Natural fire has played an important part in the history of these interior islands in the past and is responsible for the open park-like longleaf pine stands located on most of these islands. The red-cockaded woodpecker which inhabits most of these islands prefers these open stands. Prescribed burning has been used to maintain these stands on Billy's, Strange, and Honey Island. Natural fires occurred on Blackjack Island in 1976 and 1981. Prescribed fires are scheduled for several of these islands this winter.

Shrub Swamp (124,819 acres - 31%) - Predominant vegetation types in these areas are fetterbush, titi, sweet spire, poor man's soap and green briar. These areas are extremely thick and many are impenetrable except along wildlife trails.

About 600 acres of this type southeast of Honey Island burned last year when a prescribed fire burned into the swamp from Honey Island. The shrub thicket was reduced to stubble but it regained most of its original height by the end of the first growing season. The swamp must be dry enough so that a fire burns into the root system to eliminate any of this vegetation.

Black Gum Forests (22,027 acres - 6%) - Black gum dominates the canopy with cassine holly occasionally attaining canopy height. Cassine holly and Carolina ash are dominant understory plants.

Bay Forests (22,027 - 6%) - Loblolly bay is the major species with an occasional cypress or black gum found in the canopy. The understory consists of fetterbush with some grasses and sphagnum moss.

Mixed Cypress Forests (84,436 acres - 21%) - Canopy and subcanopy are primarily cypress with a slight mixture of black gum and bay in the subcanopy.



Pure Cypress Forest (36,712 acres - 9%) - These are areas dominated by a cypress canopy. The understory is sparse or non-existent.

The only management activities which take place in these areas are protection, fire management and wildlife and wildlife habitat surveys. Wildlife surveys conducted on these islands include a red-cockaded woodpecker survey. Billy's Island is surveyed annually and active colonies have been located on Black-jack, Mitchell, Number One, Bugaboo and Honey Islands. These more remote islands are surveyed as funding and access allow.

These wilderness islands and the thousands of acres of swamp forest provide large areas of unbroken forest beneficial to some wildlife species less adaptable to the more diversified habitat types found in the managed forestlands.

## 9. Fire Management

### Prescribed Burning

Some of the many benefits of prescribed burning when properly applied are: reduction of wildfire hazard; control of diseases, insects and parasites; increase of available wildlife food supply; seedbed preparation for natural forest regeneration; improvement of access for forest and wildlife management; and enhancement of certain aesthetic qualities.

Prescribed burning is of particular importance in the management of Okefenokee's longleaf pine upland which is used by the endangered red-cockaded woodpecker. Burning helps to maintain these open park-like stands of longleaf pine by killing back the understory and by removing less desired, competing pine species which are less tolerant to fire.



Fuels are raked from red-cockaded woodpecker nesting trees before prescribed burning is initiated.  
82-9-RH (1/82)





Prescribed fire is applied to Forest Compartment No. 3. 82-10-JAB (1/82)

During 1982, 7,021 acres of upland were burned. This includes 1,611 acres of managed forestland, 3,330 acres on Billy's Island and 2,080 acres on Honey Island. Overall burning costs were \$1.13 per acre. As far as we know, this was the first fire on Honey Island since the 1954 wildfire.

For the first time on Okefenokee, we used a helicopter to aid our prescribed burning program in 1982. Billy's Island and Honey Island were burned by dropping plastic balls filled with potassium permanganate crystals out of a Georgia Forestry Commission helicopter. As the balls are ejected, a machine injects ethylene glycol into the balls. The resulting chemical reaction causes the balls to ignite a few seconds after they reach the ground.

Although a solid line cannot be set with these "ping-pong balls", they can be dropped close enough so that almost any firing techniques can be used. Following is an evaluation of this aerial ignition technique:

On February 22, 1982, Billy's Island (3,330 acres) and Honey Island (2,050 acres) were burned using an aerial ignition technique developed by the U. S. Forest Service and the Georgia Forestry Commission.

#### Description of Area

Billy's Island - The island had a two-year rough, last burned in February of 1980. The higher parts of the island support sparse islands of mature (80 years or older) longleaf pine. Most of the island's twenty or more colonies of red-cockaded woodpeckers are located in these sparse longleaf pine stands. The understory in



these areas is dominated by grass, palmetto, dwarf huckleberry and blueberry and some gallberry. Fuels are generally quite light, but continuous and quite flashy. The lower parts of the island are dominated by 25-30 year-old stands of slash pine. The understory in these areas is comprised primarily of gallberry and is quite heavy. The north end of the island has a few oak hammocks and a cemetery that we protect when we fire the island from the ground.

Honey Island - The forest stands as well as understory species are very similar to those of comparable elevations on Billy's Island. The height of the understory was much greater, however, because of the age of the rough (25 years or greater). Several red-cockaded woodpecker colonies were located during the post-burn survey of the island. It is assumed that a careful survey would reveal many more colonies.

#### Weather Conditions

Weather observations at the Camp Cornelia Fire Danger Rating Station were as follows:

Maximum Temperature - 74°  
 Wind Speed (20 feet) - 22 mph (2:30 PM)  
 Wind Direction - Northwest  
 Minimum Relative Humidity - 23%  
 Days since rain: 5 (.51 inches, 5 hours duration)  
 Spread Component - 83  
 Energy Release Component - 52  
 Ignition Component - 55  
 Burning Index - 142

Weather conditions did not meet those specified in the burning prescription (wind speed, minimum relative humidity, ignition component and burning index). We were prepared to burn these islands on February 18 and 19, but the helicopter was "fogged in" in Macon, Georgia. When we could not burn on Friday, February 19, we had planned to put off the burn until after the next rain. On Monday, February 22, word was received that the helicopter was on its way down to the refuge to burn the two islands. It was decided to go ahead with the burn although we did not have the burning conditions we wanted.

#### Burning Methods

Billy's Island - Several passes were made in a northeast-southwest direction along the island, dropping "ping-pong balls" every four chains. The end result was a checkerboard of fires with a four-by-five to a four-by-ten chain spacing. The fires headed in a southeast direction and the strips burned together within a few minutes.

Honey Island - Since the island has not burned since the 1954-55 fire, there was a very heavy rough all over the island. A single pass was made along the downwind side of the island, dropping balls on a four-chain spacing. The fire backed nicely through the heavy rough across the island.

## Results

Billy's Island - Billy's Island, including some of the ponds on the island, received a 100% burn. Most of the island burned before the highest afternoon wind occurred, but there was still a great deal of crown scorch. The fire spotted into the swamp from the east central part of Billy's Island and burned onto Honey Island. The hardwood stand on the north end of the island was completely burned under. On some of the higher areas, mineral soil was exposed. Overall, the burn was more extensive and hotter than we wanted.

Several surveys were made in March, April, May and June to determine the effects of the burn. Overall, in spite of the hot burn, the results were good. The crowns in the pine stands greened up well and there was very little mortality. Most of the trees in the hardwood stand are still living. The red-cockaded woodpeckers have done a good job of cleaning up most of the scorched cavity trees. In fact, some scorched cavity trees which have been inactive for several years were active this year after the birds cleaned up the charred bark.

Overall, the island burned much hotter than we wanted but it recovered well and no significant damage was done.

Honey Island - Honey Island was set with a single downwind pass allowing the fire to back across the island. A very narrow strip between where the fire was set and the southeast edge of the island was allowed to head into the swamp. This narrow strip burned very hot and there was some mortality. The fire did not stop at the swamp's edge, but was whipped about two miles into the swamp by the high wind. About 600 acres of shrub swamp areas were burned. The north end of the island was quite badly scorched where the jump from Billy's Island headed across Honey Island. The remainder of the island was burned by a backing fire and the results were excellent.

Burning costs, including the cost of the helicopter and crew, U. S. Fish and Wildlife Service personnel involved in burning, vehicle mileage and other miscellaneous expenses, were \$.29 for Honey Island and \$.37 per acre for Billy's Island. This is considerably higher than past costs of \$.16 to \$.19 per acre when Billy's Island was burned by ground crews in 1978 and 1980. However, costs should decrease when techniques are improved and if more islands can be burned at one time.

## Findings, Questions and Recommendations

Although burning costs for Billy's Island were higher than in the past and the results were somewhat hotter than expected, we believe that aerial ignition techniques using helicopters are very useful and should be used for prescribed burning on wilderness islands in the Okefenokee Swamp.



If more islands can be burned at one time, provisions made for refueling the helicopter on site and if only one line need be set on an island, burning costs per acre would be much lower. Also, burning costs using ground crews will never again be as low as they were in 1978 and 1980. YACC enrollees assisted with burning during those years. Also, Billy's Island is the most accessible of the wilderness islands, and at that, it pushes a ground crew to the limits of physical endurance to get to the south end of the island, burn it and return during daylight. It would have been much more difficult to burn Honey Island and impossible to burn some of the others.

Some determination needs to be made as to whether or not the best firing techniques were used on Billy's Island. The single downwind strip worked well on Honey Island and would work well on any of the islands we burn for the first or second time providing that weather conditions are stable enough to allow the island to burn out before any major wind shift. Once the understory rough is reduced to the desired level, however, a backing fire will not carry well across the island. Several alternative burning techniques should be considered.

1. Strip-Head Fire or Spot Fire techniques with more favorable burning conditions.

Strips of spot fires several chains apart such as we used this year on Billy's Island or strip head fires if a helitorch is used may produce satisfactory results if weather conditions are more favorable. We normally use strip head fires when we burn the island with ground crews. It may be necessary to let one strip burn out before starting another.

2. Head Fire

This would reduce burning costs. Some very good fire behavior calculations would have to be made to determine the fire intensity. Head fire could be used only on islands with a rough similar to Billy's Island. Islands with a heavy rough would have to be burned several times using other techniques.

3. Flank Fire technique

Another alternative is to set several strips into the wind letting the fire spread perpendicular to the wind. This technique would be useful in medium fuels and would be much faster than a backfire. Winds must be fairly stable.

Although the prescribed fire did escape the bounds of both islands, there was never any danger of an uncontrolled wildfire. The largest fire burned about 600 acres of shrub swamp (fetterbush, greenbriar and other species). The shrub swamp areas were surrounded by cypress standing in water. The escaped portion of the fire was observed until it went out. This fire was probably beneficial to the swamp and improved wildlife habitats and it opens up the possibility of burning larger areas of this shrub swamp type using aerial ignition techniques. Weather conditions would have

to approximate the conditions which existed on February 22, 1982, to carry the fire through the swamp brush. Because of the high moisture content of the swamp vegetation, a great deal of smoke was produced. This must be taken into account if any prescribed swamp burning is done in the future.

Overall, the aerial ignition operation was successful and in the future, should be an important part of our Fire Management Plan. During the FY 1983 burning season, Blackjack Island (1½ year rough), Strange Island (2 year rough, Mitchell, Number One and Bugaboo Islands (all 25 or more years rough) are included in our Prescribed Burning Plan.



A new prescribed burning technique was used on Okefenokee Refuge during the 1982 burning season. A Georgia Forestry Commission helicopter has dropped a line of "ping-pong" balls which are filled with potassium permanganate across Billy's Island. Several fires were set along the 3½ mile length of Billy's Island. A single line, which was set about one hour before, is backing across Honey Island in the background. 82-11-RAP (2/82)





The many small fires enlarge and eventually burn together. The checkerboard spacing of these fires is designed so that the fires burn together before the intensity becomes too high. Billy's Island is burned every two years. 82-12-RAP (2/82)



The single backing line which was set on Honey Island (28-year rough) resulted in very little crown scorch. The only damage occurred when the Billy's Island fire burned a half-mile through the swamp and jumped onto Honey Island. The fire headed through the 28-year old rough and caused the crown scorch which is shown in the lower left portion of this photo. The checkerboard technique of the "ping-pong" balls resulted in some scorch along the edges of Billy's Island. Most of the scorched crowns recovered. 82-13-LAC (3/82)



Low swamp water levels allowed the fire, with the aid of high, gusty winds, to burn a two-mile lobe into the swamp. About 600 acres of dense brush that was north of Honey Island prairie were burned. 82-14-LAC (3/82)



This was the spectacular view from the Pocket of the combined smoke from the 3,330-acre Billy's Island fire, the 2,800-acre Honey Island fire, and the 600 acre wildfire in the swamp. Most of the smoke is from the swamp's fire. 82-15-RAP (2/82)



## OKEFENOKEE NATIONAL WILDLIFE REFUGE

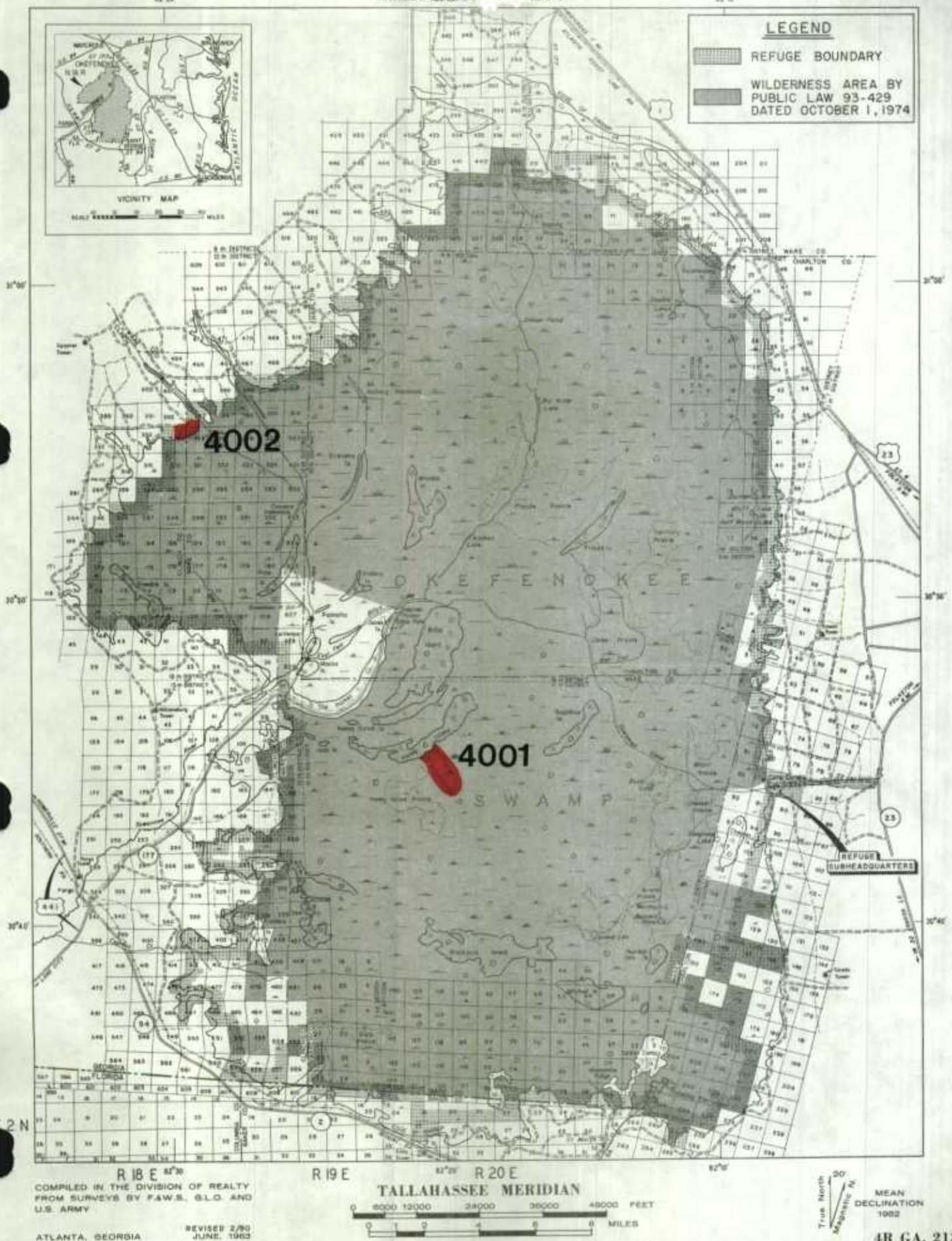
UNITED STATES  
DEPARTMENT OF THE INTERIORFLORIDA AND GEORGIA  
WILDFIRES - CY 1982UNITED STATES  
FISH AND WILDLIFE SERVICE

TABLE I

PRESCRIBED BURNING ACCOMPLISHED (FY 1982 SEASON)

COMPARTMENT	ACRES BURNED	MAN-HOURS	TOTAL COST	COST PER ACRE
3	191	115	\$ 1,852	\$ 9.70
4	89	27	285	3.20
5	1,021	79	1,241	1.22
8	90	104	1,930	21.44
10	220	38	760	3.45
Honey Island	2,080	3	606	.29
Billy's Island	3,330	6	1,241	.37
TOTALS	7,021	372	\$7,915	\$1.13



## Wildfire

The mention of wildfire in the Okefenokee Swamp brings hope for the future of the swamp to some and a threat of destruction to others. The swamp must burn periodically in order to perpetuate itself; in fact, it must burn with a very deep burning fire that can occur only during the driest of years if there are to be lakes and prairies in the Okefenokee Swamp of tomorrow. This kind of fire is a deadly serious matter to those who live here though, for in the past, all of these long-lasting fires have eventually come out of the swamp and destroyed thousands of acres of private property. The desire to do what is good for the swamp and still protect the lives and property of our neighbors results in some very difficult fire management decisions.

Although we only had two fires in 1982, one of them, the Cane Creek Fire, was from the resource standpoint, one of the most damaging fires we have had in recent history. The fire burned 83 acres of prime red-cockaded woodpecker habitat, destroying about 50 acres of mature longleaf pine. Most of the stand had to be salvaged and will be replanted with longleaf pine seedlings next year.

Fire 4001 - Honey Island Prairie Fire - This wildfire occurred on February 22, 1982 when the lower than normal swamp water level allowed the gusty winds to push our prescribed fire off from Honey Island into the swamp. The fire smoldered for several days and was finally declared out on March 3, 1982 after it had consumed about 600 acres of heavy swamp brush. The fire was actually beneficial to the swamp and was designated as a wildfire only because it excluded the limits of our prescription.

Fire 4002 - Cane Creek Fire - This lightning-caused fire occurred on May 17, 1982 and burned 83 acres of mature forestland in Compartment 11. Part of this compartment had not received a prescribed fire since 1977. High winds whipped the fire through the five-year rough with such an intensity that even large mature longleaf pines were killed.

## 10. Pest Control

Our pest control program is relegated to the chemical control of vegetational encroachment on boat trails and walking trails. Dalapon and 2,4-D were applied during 1982 to approximately 35 acres along the 120 miles of boat trails for the control of maidencane, spatterdock, and other grasses. Spot applications of Pramitol 5PS and Pramitol 25E along walking trails at Suwannee Canal Recreation Area continue to offer a measure of control for johnsongrass and nutgrass.

## 12. Wilderness and Special Areas

Some 353,981 acres of Okefenokee Refuge were designated in 1974 for preservation under the Wilderness Act. Preservation consists primarily of regulatory enforcement and monitoring the biological and physical features within the swamp. Channelization of streams which drain into the swamp is a major potential threat to the Okefenokee Wilderness because the



channelization significantly alters the streams' physical and biological characteristics. The University of Georgia research program has made good progress in analyzing the effects of the channelization on the streams, but no conclusions can be reached yet on how the channelization actually affects the swamp. As with most ecological studies, such analysis will take a while to complete.

Stream channelization activity was at its peak during the mid-1970's. After an apparent decrease in activity for several years, channelization now seems to be picking up, and we hear rumors that more extensive drainage efforts are being planned. Whether or not much of the proposed drainage activity will be initiated depends on how the Corps of Engineers (COE) interprets the relationship of the channelization activity with wetlands protection regulations. Union Camp Corporation is planning new extensive stream channelization in the vicinity of the swamp, and they contend that the proposed channelization is exempt from regulatory review based on recently issued regulations. Union Camp officials explained their views on this issue to refuge personnel, FWS Ecological Services personnel, Environmental Protection Agency officials, and Corps officials at the COE office in Savannah, Georgia in July, 1982. The Corps has not rushed to make a decision on this issue since their decision will have ramifications all over the country.

The Okefenokee Wilderness legislation mandates the maintenance of approximately 120 miles of boat and canoe trails which were in existence prior to the wilderness legislation. These trails were maintained, and the details of their maintenance are described in the Maintenance Section of this report.

The following areas have been designated for protection as natural areas on the refuge:

1. Threatened Community Research Natural Areas

Pond Cypress Research Natural Area	14,989 acres
Sweet Bay Research Natural Area	2,560 acres
2. Research Natural Areas

Floyd's Island (swamp island)	160 acres
Pine Island (swamp island)	90 acres
Territory Prairie (marsh and bog)	1,450 acres
Blackjack Island (sphagnum bog)	15,027 acres
Cowhouse Island (hardwood hammock)	10 acres
Number One Island (swamp island)	126 acres
3. Public Use Natural Areas

Chesser Island Bay (swamp forest)	100 acres
Chesser Island (hardwood hammock)	11 acres
Floyd's Island (swamp island)	575 acres
Chesser Prairie Rookery (wading bird colony)	3 acres
Chesser Prairie (marsh prairie)	800 acres



## G. WILDLIFE

### 1. Wildlife Diversity

According to the results of a biotic survey, which was recently completed by the University of Georgia, there are 420 vertebrate species known to inhabit the Okefenokee Swamp region. These species include 36 fishes, 37 amphibians, 66 reptiles, 233 birds, and 48 mammals. Such species diversity is due primarily to the natural habitat diversity associated with the Okefenokee Swamp.

### 2. Endangered and/or Threatened Species

Okefenokee is host to five endangered and two threatened species of wildlife as well as three species of plants that are listed by the State of Georgia.

1. American Alligator - The alligator is the animal most people identify with the swamp and the one in which they seem most interested. Visitors usually have the privilege of seeing many because the alligator population at Okefenokee is estimated at 12,000+ animals.

The Cooperative Alligator Survey was conducted by refuge personnel July 23-27. This year's survey produced 856 'gators as compared to the 1981 census when 1,925 'gators were counted and 1980 when 1,156 were present. As a result of the extremely low water conditions in 1981, alligators were concentrated in lakes and river runs located on the census route producing an artificially large number of 'gators observed during that survey. The continuation of the drought into 1982 has reduced food supply and available habitat accelerating the process of "survival of the fittest".

Howard Hunt's study of the nesting success of alligators in the Okefenokee Swamp indicates that the black bear is exerting an effective control on the alligator population through nest predation. This is probably indicative of a density-dependent relationship and is not resulting in a major reduction of the alligator population below the carrying capacity of the habitat.

Three alligators from other states were released in the swamp this year. The Akron, Ohio Zoo brought two small alligators to the Swamp in February and the Boston, Massachusetts Zoo released an 8 foot alligator in April. These alligators were surplus to the needs of these zoos.

2. Eastern Cougar - Several undocumented sightings of panthers were reported in 1982. The most reliable observation to date was made by Mr. Jack Swedburg of the Massachusetts Fish and Game Department, who was on a four-day photographic trip in the swamp in November, 1981. Mr. Swedburg and several other visitors reported that they observed a panther from the Owl's Roost Tower in Chesser Prairie.

3. Ivory-billed Woodpecker - Each year refuge personnel receive a number of reported sightings of this largest and rarest of all North American woodpeckers. These reports, when possible, are sought out with enthusiasm; however, to date -- without success. In most cases, the suspected ivory-billed woodpecker turns out to be a pileated woodpecker, which is fairly common in the swamp.

Judging from old reports, it appears that the ivory-billed was rare even when there were documented sightings in the swamp. John M. Hopkins reported having seen several while cruising timber for the Hebard Cypress Company in 1901-1903. Although Mr. Hopkins spent 40 years working in the swamp, first as superintendent of the Hebard Company and then as manager of the Okefenokee National Wildlife Refuge, he never saw an ivory-billed woodpecker alive in the woods after 1903.

Sam Mizell, a former resident of Billy's Island, brought a wounded ivory-billed to Mr. Hopkins in 1912. This bird had been taken from Craven's Hammock near Minnie's Island in the center of the swamp. Minnie's Island had a considerable amount of mature sweet gum timber and this seems to have been the principal locality of the ivory-billed. This timber was cut during the operations of the Hebard Company between 1909 and 1927. There have been no certain reports of these birds in the swamp since 1912.

4. Bald Eagle - Okefenokee does not have any known bald eagle nesting sites. In recent years, eagles have been a transient species in this area with an occasional sighting reported during the winter months. There were two eagles sighted in and around Okefenokee in 1982. No eagles were observed during the January 4-18 mid-winter eagle survey.
5. Indigo Snake - This large and docile serpent inhabits the upland portions of the refuge. Designated as threatened in 1978, this reptile is a popular item in illegal blackmarket trade. Okefenokee offers over 14,000 acres of suitable habitat for this snake.

An unexpected event resulted in an increase of two indigo snakes on the refuge this year. In February, 1982, an anonymous person left a burlap sack on the doorstep of a refuge employee with a note stating that he had "found these snakes on a construction site and collected them from sure death." He "wanted to do the right thing and give them a proper home." This type of attitude certainly is not very prevalent but a welcome surprise. The two indigo snakes, each 5'2½", were released on Billy's Island, a 3,300-acre upland island which should provide an excellent home for them. On October 20, 1982, a 5½' indigo was observed near Stephen C. Foster State Park and another 5 footer was sighted near Camp Cornelia on November 18, 1982.





These indigo snakes were released on Billy's Island after their unusual, anonymous donation to the refuge. 82-16-RH (4/82)

6. American Peregrine Falcon - Peregrine falcons probably migrate through Okefenokee each year but they are rarely observed. This year was no exception with no observations reported.
7. Red-cockaded Woodpecker - The Okefenokee Swamp is truly unique, but perhaps not as unusual as the behavior and habitat requirements of the red-cockaded woodpecker. This bird can be found in the upland managed forests which surround the swamp and several of the islands within Okefenokee. It is estimated that Okefenokee Refuge had a total population of 225 red-cockaded woodpeckers which produced 19 young in 1982. The annual red-cockaded woodpecker survey was conducted in May, June and July of 1982 resulting in the following:

Compartment	Cavity Trees Located	Active Cavity Trees	% Active	Active Colonies	Observed Nesting Activity
2	1	0	0%	0	0
3	25	13	52%	3	3
4	1	1	100%	1	0
5	10	10	100%	3	0
7	14	6	43%	2	0
8	1	0	0%	0	0
10	2	0	0%	0	0
12	14	4	29%	1	1
13	3	1	33%	1	1
15	15	10	67%	4	2
Billy's Island	100	70	70%	17	2
TOTALS	186	115	62%	32	9

Actual nesting activity decreased from 16 trees in 1981 to 9 trees this year. This is partly because much of the survey was completed late this year, but it also seems to correspond to reduced activity of other species of wildlife throughout the refuge this season. Overall, 62 percent of the cavity trees were active this year which is a slight increase over last year when 61 percent were active. Other competing species were using 5 cavities this year as opposed to 11 last year. Four of these were red-bellied woodpeckers and the other was a screech owl.



Red-bellied woodpeckers will occasionally occupy red-cockaded woodpecker nesting cavities. 82-17-Doherty (5/82)





This red-cockaded woodpecker made its home near the Peckerwood Trail.  
82-18-Doherty (7/82)

Honey Island, near Billy's Island, was visited last winter. Although no thorough survey has been made, at least two active colonies have been located on the island. In addition to the areas regularly surveyed, there are four colonies on Mitchell's Island, five on Blackjack Island, one on Number One Island and one on Bugaboo Island for a total of 48 active colonies on the refuge.

### 3. Waterfowl

The Okefenokee Swamp does not have large concentrations of waterfowl. Although the size and abundant cover of the Okefenokee Swamp prohibit accurate waterfowl surveys, our surveys indicate that peak wintering waterfowl concentrations number approximately 10,000 birds. Wood ducks comprise most of the waterfowl use on the refuge with estimated peak populations of 5,000-6,000 birds. Mallards, ring-necked ducks, hooded mergansers, green and blue-winged teal and the American widgeon also provide significant use during the winter months.

Wood duck numbers and production were below normal this year with limited numbers of birds and broods observed. A survey of the 116 wood duck boxes located on the west side of the refuge revealed only 45% of the boxes were active. Certainly, part of the reduction could be attributed to the extremely low water levels in 1981 and 1982, which reduced food supply and caused many of the boxes to be exposed to mud flats making them less attractive to woodies. Although boxes have predator guards attached, seven percent had predation problems with woodpeckers and rat snakes as the main culprits. Average clutch size was 12 eggs.

#### 4. Marsh and Water Birds

The most commonly observed species in this category include white ibis, great egrets, wood storks, sandhill cranes, anhingas, and great blue herons. Nesting activity of wading birds is generally heavier on the west side of the swamp. This has been especially true of white ibis, which have usually established a rookery for 25,000-75,000 birds on 200 acres at Macks Island. However, the ibis rookery did not develop during 1982. Perhaps, the below-normal water levels over the past two-three years inhibited the rookery's development.

Since whooping cranes historically inhabited this area, the Fish and Wildlife Service began to study the feasibility of establishing a non-migratory whooping crane population at Okefenokee. Dr. James Lewis, unit leader of the Georgia Cooperative Wildlife Research Unit, will head this study.

Because of the vast size of the swamp, it is practically impossible to census accurately the marsh and water bird populations. Our various census routes yield information on population trends. During 1982, our marsh and water bird use appeared to decrease about 40-60% as compared to previous years. Again, this phenomenon is probably due to our prolonged drought.

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

Bird populations in this category are relatively low in number since the Okefenokee Swamp does not have enough open water to attract these birds. Woodcock, snipe, and killdeer comprise most of the use. Occasional various gulls and terns are also observed, as one Forster's tern was observed on the refuge during November, 1982.

#### 6. Raptors

Based on available data, Okefenokee's raptor population is stable. The turkey vulture, black vulture, red-shouldered hawk, and barred owl are the most frequently observed raptors with an estimated population of 400-500 for each of these species.

Sightings of swallow-tailed kites are relatively common -- especially during May and June. Swallow-tailed kites were observed most frequently at the Pocket and Billy's Lake vicinities.

The annual aerial osprey nesting survey was conducted on April 21. A total of 21 nests were located, 9 adult osprey were observed, and 2 young birds were counted. The numbers of osprey nests and adult osprey which were observed were similar to the 1981 survey. However, the number of young osprey dropped from 13 in 1981 to 2 in 1982. Drought conditions, therefore, may have adversely affected osprey reproductive success.

#### 7. Other Migratory Birds

The University of Georgia's Museum of Natural History completed in 1981 a biotic survey of all vertebrates. That survey listed 233 species of birds which inhabited the swamp.



The Okefenokee Bird Club census all bird species in the eastern half of the swamp during their annual Audubon Christmas Bird Count. However, severely inclement weather forced the group to cancel their 1982 census.



Refuge volunteer Joe Doherty provided us with outstanding wildlife photographs. He found this chuck-will's-widow in the Camp Cornelia vicinity. 82-19-Doherty (6/82)



The brown thrasher, Georgia's state bird, is often observed by Okefenokee birders. 82-20-Doherty (6/82)

## 8. Game Mammals

It has been estimated that more than 1,000 deer inhabit the 28,000 acres of upland which are suitable deer habitat. In recent years, there has been a problem with deer overpopulation on certain portions of the refuge. The overpopulation of deer was confirmed through the analysis of deer abomasal parasite counts (APC) of deer from The Pocket and Camp Cornelia vicinities. Therefore, the refuge was opened to deer hunting in 1980 to alleviate this problem. During 1982, deer hunts (either sex) were conducted at Cowhouse Island, Suwannee Canal Recreation Area and The Pocket, and a total of 75 deer were taken. The hunts have been successful in diminishing the overpopulation problem, as the APC's for deer have decreased significantly since 1980.

Refuge personnel will remember 1982 as the "year of the bear." Black bears seemed to be everywhere on the refuge. During October and November, one would often observe four to six bears feeding on acorns in the Camp Cornelia compound -- relatively oblivious to work activities at our shop only 200-300 feet away. A total of 36 bears were observed at The Pocket during the eight days that deer hunts were conducted in that area. During a bear hunt at the Dixon Memorial State Forest which borders the refuge's northern boundary, a bear which weighed in excess of 490 pounds was bagged, and that established a new record for bears bagged in Georgia.



Black bears feasted on acorns in the Camp Cornelia compound. 82-20-WCK (10/82)





After a hearty meal of acorns, this young bear lingered long enough to pose for us.  
82-21-WCK (10/82)

Refuge personnel cooperated with the Georgia Department of Natural Resources (DNR) in studying the population dynamics of the black bears on the refuge. Scent lines, using sardines as bait, were established along several routes in the swamp and monitored by refuge personnel. In addition, one bear was captured by DNR personnel and fitted with a radio collar for tracking purposes. Although the results of the DNR bear studies have not been published, it seems to be obvious that the refuge has a stable and very adequate bear population.

There were no surveys conducted for other game mammals other than listing those species which were observed while working on various field projects. However, it appears that all other game mammal populations (i.e., raccoons, otter, opossum, bobcat) were stable.



Biological Technician Doug Nuss hangs sardines from a tree to establish bear scent station during the bear population index study. 82-22-RH (8/82)

#### 10. Other Resident Wildlife

It has been estimated that a stable population of 2,500 bobwhite quail inhabit the forestlands around the swamp and sandy islands within the swamp. Although there is no effort to actively manage quail habitat, the refuge's prescribed burning program promotes the growth of food plants which are preferred by quail.

Turkeys are observed frequently along the Swamp Island Drive. It has been estimated that the refuge has a growing population of more than 100 birds.

#### 11. Fisheries Resources

Sport fishing remains a popular activity as thousands of fishermen annually try their luck in the swamp. There are thirty-six fish species representing 13 families with largemouth bass, warmouth, sunfish and catfish the most popular catches. Fisheries management in the swamp includes control of angler access to the refuge and active enforcement of state fishing regulations.

In February, 1982, the Georgia Department of Natural Resources electroshocked the Sill barrow ditch to evaluate game fish populations. Results from this survey were inconclusive due to equipment problems. The extremely low water conditions over the past two years has certainly affected fisheries in the swamp, and it is hoped that a comprehensive fisheries resources survey can be conducted in the near future to assist in better managing these species.



## 16. Marking and Banding

Refuge personnel exerted considerable effort in attempting to band our pre-season quota of 240 wood ducks. However, drought caused our waterfowl trap sites to dry up by early July, so our efforts were effectively thwarted. We banded only 59 woodies during the entire summer.

We also had a banding quota of 50 ring-necked ducks. Our efforts in this area were even less successful as low water levels again hampered the establishment of a good waterfowl trapping site. Thus, we did not band any ring-necks.

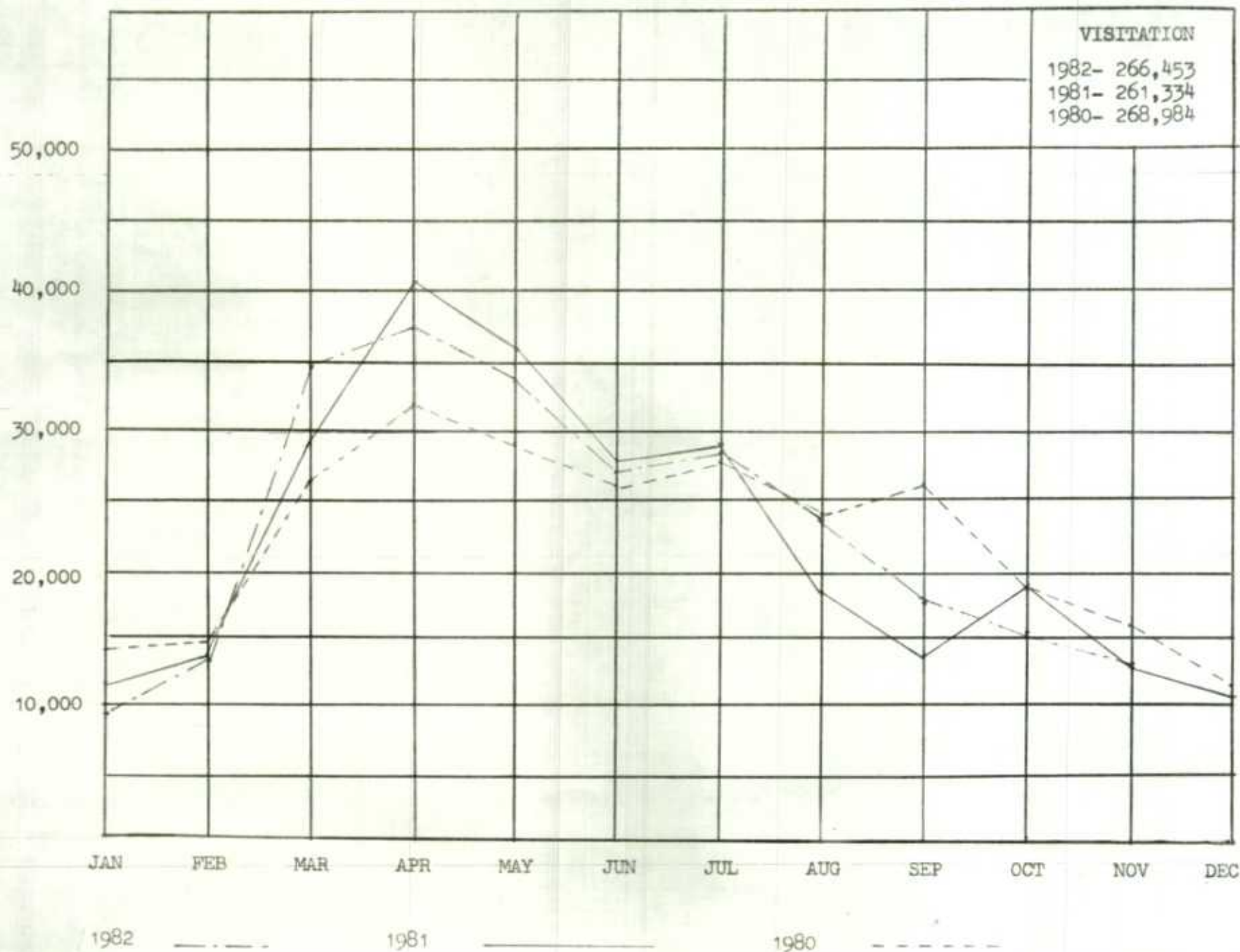
## H. PUBLIC USE

### 1. General

Public use of the refuge increased as the swamp's water level returned to near normal by the year's end. The total number of visitors to Okefenokee during 1982 was 266,453 -- a 2% increase over 1981's total. This was the first increase noted in total visitation since 1977. Moderating gasoline prices, no doubt, had much to do with this.

Over 3½ million people came to Okefenokee during the past 10 years. It is largely because the Service's recognition of the fact that people by the hundreds of thousands are going to come to the refuge and that the refuge had better be prepared for these visitors that we were able to offer a true swamp experience for the multitudes without damaging this unique resource. Our philosophy and planning efforts have been directed towards developing minimum impact recreation and interpretation opportunities (boardwalks, limited canoe trail traffic, limited motorboat use, etc.). To this end, we feel we have succeeded; the swamp shows almost no signs of visitor impacts, and most visitors leave Okefenokee with (we hope) a greater understanding of the swamp, refuge management, and the goals of the Fish and Wildlife Service.

# TOTAL REFUGE VISITATION BY MONTH



NUMBER OF VISITORS TO REFUGE



ANNUAL VISITATION - OKEFENOKEE NATIONAL WILDLIFE REFUGE  
1982 - 1972

<u>YEAR</u>	<u>VISITORS</u>
1982	266,453
1981	261,334
1980	268,984
1979	277,771
1978	344,262
1977	373,384
1976	361,217
1975	335,058
1974	341,995
1973	314,462
1972	356,585
TOTAL	3,501,505

a. New Releases: A total of 119 news releases concerning refuge activities was issued during 1982.

b. VIP Guests on Refuge:

JANUARY: Dr. John Paling, formerly of Oxford Scientific Films in England, toured the refuge in preparation for the production of a 30-minute long educational film on the Okefenokee for the National Geographic Society.

FEBRUARY: Mike Janis, director of the Akron (Ohio) Zoo released two small alligators that had become surplus to the zoo's needs.

MARCH: William Mitchell and 40 Federal Drug Enforcement trainees from the Federal Law Enforcement Training Center were given a tour of refuge facilities.

Jake Valentine, a retired FWS biologist, visited the refuge.

Ron Odum, Georgia Department of Natural Resources, endangered species biologist; Don Palmer, FWS biologist; Dale Crider, Florida Freshwater Fish and Game biologist; Monty Holcomb, FWS Training Officer at FLETC, all presented programs on bald eagles during the National Wildlife Week "We Care About Eagles" program.

APRIL: Area Forester Verlon Carter inspected the refuge forest management program.

Free-lance photographer/author Bill Thomas gave a program on America's wildlands.

British photographer/author Bryan Sage spent two weeks documenting Okefenokee's wildlife for an article he was publishing in England.

Film maker Dennis Holt began filming a documentary on Okefenokee for Ted Turner's Cable Television Network. This hour-long special will be broadcast sometime in early 1983.

MAY: Regional Director Jim Pulliam and Area Manager Don Hankla visited the refuge.

Deputy Director Eugene Hester vacationed on the refuge.

JUNE: Bill Reffalt, Chief of Division of Refuge Management, carried out a programmatic review.

A Dam Safety Team from Denver inspected the Suwannee River Sill.

JULY: Dr. Fred Davison, President of the University of Georgia, attended the annual Okefenokee research symposium held on the refuge.

AUGUST: Dr. L. A. K. Singh, Crocodilian expert from India, spent seven days with Howard Hunt (Atlanta Zoo) observing nesting habits of alligators.

SEPTEMBER: Three botanists from the Soviet Union were given a tour of the west side.

Sharon Keene and Chuck Schuler from the National Park Service inspected the Swamp's Edge Foot Trail System as a part of the application process for National Recreation Trail status.

OCTOBER: Sean Furniss (Caribbean NWR) accompanied the eight member refuge training class from Latin America for a three-day tour of Okefenokee.

NOVEMBER: Three park officials from Columbia, on a National Park Service sponsored tour, were given a one-day orientation to Okefenokee's operations.

Travis McDaniel from the Atlanta Regional Office inspected refuge operations.

Dr. Jim Lewis (Wildlife Research Unit at University of Georgia) and Dr. George Archibald (International Crane Foundation) looked over the swamp's prairie areas as a possible whooping crane propagation area.



c. Television, Radio, Motion Pictures

The Okefenokee has long been an active place for film makers and journalists of all kinds. 1982 was no exception. In fact, this was an unusually busy year as radio, television and film makers from all over came to do another "Okefenokee Story." A summary of media activity on the refuge includes the following:

- John Paling, Tom Wiewandt, Kevin Peer worked on and off from March to October preparing a 30-minute educational film on the Okefenokee for the National Geographic Society.
- Dennis Holt, a regular on Okefenokee now working for Ted Turner's WTBS television network, spent considerable time filming a one-hour long documentary on the swamp. This film should be aired nationally sometime in early 1983. Refuge Forester Ron Phernetton is interviewed in the film, and Outdoor Recreation Planner Jim Burkhart has a starring role as the "typical tourist."
- National Public Radio's "Radio Smithsonian" broadcast a 15-minute story on the Okefenokee in August.
- The British Broadcasting Company in cooperation with London's Open University and the University of South Carolina spent three days filming a sequence on peat formation and coal development as a teaching aid for geology classes.
- Jacksonville, Florida, CBS affiliate TV-4 filmed a short feature about settlers in the Okefenokee for their PM Magazine show.
- A crew from Educational Television in New York filmed in the Okefenokee for three days for the "1, 2, 3 Contact" portion of the Sesame Street show.
- Randy Mancke from South Carolina's Public Television Station videotaped some of Okefenokee's wildlife for a television series on the south's wild places.
- WTBS Cable Television from Atlanta featured some of our Chesser Island Homestead staff in a portion of their "American Portrait" series.
- Peter Kolstad from Atlanta Radio Station WRFG prepared a program on the Okefenokee which he hoped to broadcast on National Public Radio's "All Things Considered" program.
- Outdoor Recreation Planners Bill Kent and Terry Lindsay were busy with local news media as Bill appeared on Jacksonville's NBC affiliate TV-17 on May 31 in an interview about the effects of low water in the Okefenokee. Terry appeared on Jacksonville's CBS affiliate TV-4 on March 8 and also on two Jacksonville Radio Stations WEXI and WIVY AM promoting National Wildlife Week.



Outdoor Recreation Planner Terry Lindsay  
discussed National Wildlife Week activities  
with Jacksonville CBS affiliate.  
82-23-WCK (3/82)

Forester Ron Phernetton  
was interviewed about red-cockaded  
woodpecker management for a  
production for WTBS.  
82-24-TCW (9/82)





## 2. Outdoor Classroom - Students

Most of the environmental education that occurs on Okefenokee is conducted by Don Berryhill of the state's Cooperative Education Service Agency (CESA). The outdoor classroom is located at the Okefenokee Swamp Park. Schools from throughout southeast Georgia make field trips to the outdoor classroom and spend a half-day participating with the "hands on" environmental education activities.

One teacher workshop, coordinated by Jim Armstrong of the Georgia Department of Natural Resources, for 24 high school teachers was conducted at the Suwannee Canal Recreation Area with the Interpretation and Recreation staff's assistance.

See Public Use Chart, page 59 for 1982 totals.

## 3. Outdoor Classroom - Teachers

See above.

## 4. Interpretive Foot Trails

The Suwannee Canal Recreation Area's Swamp's Edge Foot Trail System gained national recognition when it was given National Recreation Trail status in December.

Work continued on the newest component of this trail system, Ridley's Little Island Trail, as the summer Youth Conservation Corps enrollees helped with construction of the boardwalk sections. Only 275 feet of boardwalk remain to be completed before this trail can be opened.

Vandals defaced or removed several of the interpretive signs on the Peckerwood Trail. Funds became available in September to replace the signs, though we could not afford to purchase the color illustrations of the woodpeckers which accompany the signs. Fortunately for us and for the Service, Mr. Dan Samp of the Regional Sign Center in Minnesota donated his time and talents by hand painting the illustrations gratis.

General maintenance of the 5 3/4-mile long hiking trail system is a different task now that the youth programs have been reduced/eliminated. However, we are keeping the trails clear and they still provide excellent wildlife viewing opportunities.



YCC enrolles helped tremendously on trail maintenance projects. 82-25-TCW (6/82)

#### 5. Interpretive Tour Routes

- a. Watercraft Tours: While the swamp's water levels were generally higher than last year, they remained below average for most of the year (See B. Climatic Conditions), and continued to cause problems for boat travel through the Okefenokee.

The concessioners at each of the three major entrances operate guided boat tours. The Suwannee Canal Recreation Area concessioner was not able to operate two-hour boat tours but did offer a one-hour tour all year. Stephen C. Foster State Park operated their one-hour tour all but three months this year, and the Okefenokee Swamp Park operated their two-hour tour for nine months in 1982.

#### GUIDED BOAT TOURS - PEOPLE

	<u>CY 82</u>	<u>CY 81</u>
Suwannee Canal Recreation Area	10,885	10,123
Stephen C. Foster State Park	5,734	3,207
Okefenokee Swamp Park	7,959	1,014
TOTAL	24,578	14,344



The wilderness canoe camping trails received less use in 1982 than in 1981 because of the trail closures due to low water, particularly during the busy spring months. The following chart lists the canoe trails by color and provides general water level guidelines for trail closures/openings. These are only very general estimates as water temperature and season (regulating peat blow-ups) also determine navigability.

WATER LEVEL MSL AT SUWANNEE  
CANAL RECREATION AREA GAUGE

Yellow - trail to Cedar Hammock closed 5/82	120.68'
Orange - trail from Canal Run to Billy's Lake closed 6/82	120.22'
Red - trail open 2/82	120.65'
Green - trail from Bluff Lake to Floyd's Island - closed all year	
Blue - Canal to Floyd's Island closed 11/82	120.82'
Brown - Trail closed all year	

One new (old) trail was opened this year. An old boat trail into Chesser Prairie from the Suwannee Canal was re-cut, connecting with the yellow trail (2 miles). This trail was dubbed the purple trail and a camping shelter was constructed along the trail near a large tree house known as Round Top. This shelter, the Round Top Shelter, is used primarily by the only (so far) licensed canoe camping guide. An agreement detailing the use of Round Top and guided canoe camping activities was drawn up between the Service, the Suwannee Canal Recreation Area concessioner, and his sub-contractor, Wilderness Southeast, in January.

The licensed guides working for Wilderness Southeast are very well versed in the natural history of the swamp and in refuge management and objectives. Many people who do not feel competent to take an unguided canoe camping trip benefit greatly from this new concession service.

The night tour boat operated only four times because of low water. The boat cannot be safely run when the water level in the Suwannee Canal is less than 120.65'. With normal water levels next spring and summer, we plan to operate the boat at least once a month.

b. Automobile and Tram Tours

We ceased operation of the tram when the Young Adult Conservation Corps program ended. The Swamp Island Wildlife Drive is open to private vehicles during normal Interpretive Center visitor hours.

The Drive is probably the refuge's best place to spot deer, wild turkeys, bears, and red-cockaded woodpeckers. All of the interpretive foot trails at the Suwannee Canal Recreation Area can be reached along the Drive.



The Round Top shelter located in Chase Prairie is the most recent addition to the wilderness canoe trail system. 82-26-TCW (2/82)

INTERPRETATION -- CY 1982

	<u>No. Visits</u>	<u>Activity Hours</u>
Wildlife Trails - Non-motorized		
Self-guided	55,682	140,766
Conducted	131	182
Wildlife Tour Routes - Motorized		
Self-guided	54,515	49,063
Conducted	24,673	40,369
Interpretive Center	35,210	10,563
Visitor Contact Station	71,146	7,115
Interpretive Exhibits - Demonstration		
Self-guided	152,246	33,172
Conducted	17,251	8,625
Other On-Refuge Programs	46,385	23,197
TOTAL	457,239	313,052



ENVIRONMENTAL EDUCATION

	<u>No. Visits</u>	<u>Activity Hours</u>
Students	2,742	10,968
Teachers	<u>180</u>	<u>864</u>
TOTAL	2,922	11,832

6. Interpretive Exhibits/Demonstrations

Rehabilitation to the Swamp's Edge Interpretive Center was completed this year when our YCC enrollees varnished the cedar paneling (interior) and applied wood-life to the exterior woodwork. We are very pleased with the warm look and feel the Interpretive Center now has.

The auditorium was put to good use in March when we hosted a week long program of wildlife lectures and exhibits to coincide with National Wildlife Week. Highlighting the presentations were Georgia DNR Endangered Species Coordinator Ron Odum, who gave a slide show on the state's efforts to repopulate the coast with bald eagles, and FWS Endangered Species Biologist Don Palmer talked about the national status of the bald eagle.

A variety of other programs were offered during the week. The Okefenokee Bird Club sponsored a series of guided "birding" hikes along the boardwalk. The local Sierra Club chapter led a day canoe trip into the swamp. Members of the Georgia Conservancy led an overnight canoe trip. On the final day of the week, a "Wildlife Art" show was held with 25 different artists displaying their work.

Outdoor Recreation Planner Terry Lindsay organized and coordinated all these activities that were enjoyed by over a thousand visitors.

In October, the refuge again participated in the local community's Okefenokee Festival by hosting an open house and folk crafts exhibit at the restored Chesser Island Homestead. Planning for this event has always consumed a lot of staff time but this year, we vastly reduced our staff time by having a volunteer take over the major planning duties.

Approximately 800 visitors enjoyed seeing the traditional crafts such as palmetto broom making, chair caning, quilting, making pillows with spanish moss stuffing and cypress picket riving. Historian Chris Trowell lectured on the history of the Suwannee Canal Company and exhibited some of his rare photographs of pre-refuge Okefenokee.

The refuge continues to maintain an off-refuge exhibit, jointly sponsored with Cumberland Island National Seashore. However, this exhibit is deteriorating and rather than spend the money necessary to rehabilitate it, we are considering removing our portion.

VISITATIONSWAMP'S EDGE INTERPRETIVE CENTER

<u>CY 1982*</u>	<u>CY 1981</u>	<u>CY 1980</u>
35,210	36,251	29,429

CHESSER ISLAND HOMESTEAD

<u>CY 1982*</u>	<u>CY 1981</u>	<u>CY 1980</u>
17,244	17,794	14,759

\*Visitor hours were reduced because of staff shortages.

8. Hunting

An Upland Game and Migratory Game Bird Hunt Plan for Okefenokee was prepared and submitted to the Regional Office with the tentative plan to open Grand Prairie to waterfowl hunting during the winter of 1982. However, because of continued low water conditions, the plan was not adopted in 1982.

Public hunting for white-tailed deer did occur at three areas on Okefenokee this year.

The Suwannee Canal Recreation Area and the Pocket Unit hunts, because of their proximity to high public use areas, were again highly managed hunts. Hunters were selected by public drawing and hunters were transported to and from pre-selected stand sites. Both hunts were successful and we feel we have thinned the deer herds to more healthful levels. We do not plan on continuing the Suwannee Canal hunt next year.

The Cowhouse Island archery and shotgun hunts were very popular with hunters. The archery hunt was less tightly regulated than in previous years with only spot checks from refuge staff. The shotgun hunt was expanded from one to six days to include alternate Saturdays during the state firearm season. Hunters at Cowhouse reported seeing several bears and, for the first time, wild turkeys were seen. A Georgia state record black bear, 493 pounds, was killed on Dixon State Forest, directly adjacent to Cowhouse Island, during a state managed 3-day bear hunt.



HUNTING RESULTS 1982				
	COWHOUSE ISLAND		SUWANNEE CANAL	POCKET UNIT
	ARCHERY	SHOTGUN	SHOTGUN	SHOTGUN
#DAYS	15	6	9	8
#HUNTERS	558	120	235	191
#DOE KILLED	2	13	22	4
#BUCK KILLED	3	3	17	11
#WOUNDED - NOT RETRIEVED	7	0	5	1
HUNTER SUCCESS %	Less than 1%	13%	16.7%	8%
HEAVIEST	No Data	154	150	133
LIGHTEST	No Data	26	35	72



Georgia Department of Natural Resources personnel instructed a hunter safety course at the Suwannee Canal Recreation Area. 82-27-WCK (9/82)



This buck was bagged at Cowhouse Island during the shotgun hunt. 82-28-WCK (10/82)

#### 9. Fishing

Several years of below average water levels have resulted in very poor fishing in what are usually considered some of the best bass waters in the south. Of course, there are always those few fishermen who know the swamp's waters well and who always seem to catch their limit in bream and manage to pull in a few "lunkers" when other fishermen have no luck at all.



This proud fisherman pulled in this largemouth bass from the Sill area. 82-29-RH (4/82)



## 11. Wildlife Observation

Observation of wildlife is as strong a reason for coming to Okefenokee Refuge as viewing the swamp itself, and we make every attempt to assure that visitors have ample opportunities to do so. There are ten walking trails/boardwalks available for foot travel through habitat types which run from upland pine forest to swamp prairie and cypress forest. In addition, two of the three entrances offer boat/motor and canoe rentals for people to view wildlife in the swamp proper on their own and without guides. At two entrances, because of the distances vehicles must travel inside the refuge boundary before they reach a concession area, visitors are able to view many upland species while in their cars. The Swamp Island Drive, at the Suwannee Canal Recreation Area, also offers excellent opportunities for viewing wildlife, particularly white-tail deer and wild turkey.

We recorded 13,998 visitors/9,481 activity hours for foot trail observations, 137,532 visitors/34,384 activity hours for land vehicles, and 18,598 visitors/59,504 activity hours for boat and canoe observers.

## 12. Other Wildlife Oriented Recreation

Okefenokee Refuge offers visitors a camping experience that is definitely wildlife oriented. Camping on the overnight canoe trails obviously is better for wildlife observation, although at the developed campground at Stephen C. Foster State Park and at primitive campsites (organized youth groups only) at Nixon's Hammock and Camp Cornelia, campers are exposed to a myriad of wildlife species ranging from alligators to gopher tortoises and black bear. In 1982, 24,198 people generated 193,584 activity hours in this category.

Picnic areas are provided at all three entrances, and it is virtually impossible for picnickers not to be exposed to wildlife while enjoying a meal. There were 7,546 picnickers using the provided areas, and we allow one activity hour per person.

Photography continued to be a favorite pastime for the visiting public, even though large concentrations of wading birds were not present. We tallied 1,182 photographers for 4,728 activity hours.

## 13. Camping

See Section 12 above.

## 14. Picnicking

See Section 12 above.

## 17. Law Enforcement

A total of 63 cases were made in CY 1982; all were processed through Federal court in Brunswick, Georgia. As of this writing, 16 cases have been closed with 47 still pending. General trespasses, usually violations of posted visitor hours at the Suwannee Canal Recreation Area and at Stephen C. Foster

State Park, were the most numerous violations (31 cases). Violation of stand hours during refuge hunts accounted for six cases.

Refuge Volunteer Dennis Holt discovered a dead alligator with its tail (meat portion) removed while filming in the interior of the swamp. The Division of Law Enforcement offered a reward for information on the incident, but no takers have come forward as yet.

Twice during the year, vandals removed stop logs from one of two water control structures at the Suwannee River Sill. We have stepped up surveillance of the structure, with no results as yet.

Royce Huber and Bill Kent assisted state personnel and Service Special Agents on the opening weekend of dove hunting in the northern zone of the state.

Okefenokee continues to draw visitors from the Federal Law Enforcement Training Center. We are happy to have them, and it provides an opportunity for information exchanges not normally available.

#### 18. Cooperating Associations

The cooperative agreement between Eastern National Park and Monument Association and Okefenokee Refuge has proved to be fruitful for both the Association and the refuge over the past four years. Visitors to our Interpretive Center have fifty-one books, seventeen topographic maps and two interpretive brochures from which they may gain a better understanding of the natural and cultural history of the Okefenokee Swamp and the natural world surrounding them. Total sales for 1982 totalled \$5,574.14.

Unfortunately, this agreement expired in October of 1982, and although the Association is still "carrying" us, they will not continue their activities here. This is due in part to the fact that some members of the Association do not like having a national wildlife refuge treading on their "turf". We have been in touch with many organizations trying to find a new sponsor, with no luck as of yet. It would be a great loss to the refuge and our visitors if we cannot find a sponsor, as the bookstore has proven to be an exceptional asset to the Interpretation and Recreation program and to the refuge as a whole.

#### 19. Concessions

Okefenokee Refuge's three entrances each provide the visiting public with concession operations. Only one of the three pays a percentage of gross income to the government, however, that being the concession operation at the primary Service entrance at the Suwannee Canal Recreation Area. This concessioner's gross income for CY 1982 was \$136,665. Total visitation at this entrance was 75,921.



At the western entrance to the refuge, the State of Georgia operates Stephen C. Foster State Park under a lease agreement with the Service. In addition to offering guided tours, boat, motor and canoe rentals, this entrance has the only approved overnight camping within the refuge boundaries (not counting overnight canoe trips). Total visitation was 79,228.

The northern entrance, Okefenokee Swamp Park, tallied 76,961 visitors in 1982. A non-profit organization operates this entrance and all proceeds (admission fee, souvenirs, etc.) are returned to maintain and improve the park.

## I. EQUIPMENT AND FACILITIES

### 1. New Construction

New construction work was relatively conservative compared to the previous few years since all BLHP-funded construction contracts had been completed during 1981. There were only two force account construction projects accomplished during the year. First, a new 20'x30' camping platform/shelter was constructed in Chase Prairie at a location known as Round Top. This new shelter will accommodate guided canoe trips which are provided through the refuge's concessioner. Building a shelter in the middle of the Okefenokee Swamp is always a major project, but this job was made somewhat easier by floating the refuge's pile driver to the site in order to drive the 50 support pilings through the peat to the underlying sand. Pile driving was still a difficult task, but the pile driver did a better job and was much easier than driving them by hand.

The Youth Conservation Corps (YCC), under the direction of refuge personnel, constructed 300 feet of boardwalk along our Ridley's Little Island Trail. Another 250'-300' section remains to be constructed before the trail is completed.

### 2. Rehabilitation

Much time was spent on several rehabilitation projects during the year. Both the Bluff Lake and Maul Hammock canoe trail shelters received some attention. At Maul Hammock, a completely new deck and roof were installed, while the Bluff Lake Shelter needed a new chemical toilet and deck repairs.

The office at Camp Cornelia was re-modeled in preparation for moving the refuge headquarters from Waycross to Folkston. The work consisted of the addition of ceiling lights, installing additional electrical outlets, carpet installation and the installation of new telephones.

The septic tank for the Pocket residences had to be replaced with a sand filter treatment system. Apparently, the water percolation capability of the soil in that location was not sufficient to accommodate a septic tank with field lines. Percolation tests had been conducted by the county health department, but the tests did not indicate that we would have the problems that we encountered. Nevertheless, the problem now seems to be solved.

Other rehabilitation projects included the paving of the Sill Road by the Georgia Department of Transportation.

A contract was awarded for the rip-rap around the new Sill water control structure, but the contractor defaulted on the contract by never showing up to work.

The Stephen C. Foster State Park completed their boat basin bulkhead renovation during 1982 and initiated the construction of a new fish cleaning shed. Other improvements to the state park museum and boat docks are scheduled for 1983.



The renovated boat basin at the Stephen C. Foster State Park significantly improved the appearance of the park. 82-30-RH (4/82)



### 3. Major Maintenance

The maintenance of the 120 miles of boat and canoe trails within the swamp is one of our more time-consuming projects. Maintenance of these trails is a requirement of the Okefenokee Swamp Wilderness legislation. The trails have to be checked regularly to make sure that the trails are navigable, that all directional signs are in place, and the campsites are in adequate repair for use by the visitors. As the trails gradually fill with peat and living vegetation, the trailcutter must be used to cut out the peat. Some herbicides are used (i.e., dalapon and 2,4-D) to control the vegetation which clogs the canoe trails at some points. Fallen trees, limbs and vines must occasionally be chopped out of the trails. The chemical toilets at the campsites must be emptied and cleaned at least once each month -- twice a month during periods of heavy use. Over the past four years, the use and maintenance of the trails have been hampered by low water levels within the swamp, and 1982 was no exception. However, all trails were maintained as water levels permitted.

The trailcutter was used to maintain the Green Trail from Kingfisher Landing to Bluff Lake, the Red Trail from Kingfisher Landing to the 15-mile marker and Mud Lake, all trails in Chase Prairie -- including the trail to the Round Top Shelter, and about one mile of the Yellow Trail in Mizell Prairie. Campsite toilets were maintained at the Canal Forks, Monkey Lake, Coffee Bay, Canal Run, Cedar Hammock, Floyd's Island, Bluff Lake, Maul Hammock, Big Water, Jones Island, and Round Top. The Craven's Hammock campsite was not serviced since the trail was closed for the entire year due to low water levels.

Maintaining the buildings and grounds at the Suwannee Canal Recreation Area, Camp Cornelia, Swamp Island Drive, and Chesser Island required much time. Our high public visibility dictates that all facilities be well maintained. This chore was more of a burden during 1982 since the demise of the YACC program. In addition, a lot of lawn maintenance equipment was beginning to wear out and needed frequent repairs during 1982.

Other smaller but important projects were accomplished during 1982. Some boundary marking was accomplished along the southwestern refuge boundary. but a lot more boundary work remains to be done -- especially as definite boundaries are established for the land donated by Union Camp. The decking on the Suwannee Canal Recreation Area boat dock received some attention as a number of boards rotted. Chlorination systems at Chesser Island, Suwannee Canal, and Camp Cornelia were repaired and maintained as necessary. Home-made chlorination devices were installed on the sewage treatment plants at Suwannee Canal and Chesser Island in an attempt to lower coliform counts. Wood burning stoves were installed in The Pocket residences. One log residence at Camp Cornelia was sold and removed in January.





Outdoor Recreation Planner Jim Burkhart and family were the last occupants of this residence which was sold and removed in January.  
82-31-WCK (1/82)

A summary of various maintenance projects which were accomplished in the refuge's forest-wildlife management compartments is as follows:

- Compartment 1: Graded five miles of roads and maintained all firelines.
- Compartment 2: Graded 1/2 mile of road.
- Compartment 3: Mowed and graded five miles of roads and maintained some firelines.
- Compartment 8: Maintained firelines.

#### 4. Equipment Utilization and Replacement

Some of our more perplexing equipment maintenance problems centered around our use of the trailcutter. In February, as we were returning the cutter from Kingfisher Landing to Camp Cornelia, both left wheels tore off the trailcutter trailer. Examination of the wheels revealed that all the lug bolts on both left wheels had sheared off. The problem was remedied, for the time being, by installing harder lug bolts on the wheels. We were not the only ones to experience this problem. About a month after our trailer failure, Lantana Boatyard (manufacturer of our trailcutter) had one of their trailers fail in the same manner. Apparently, these lug bolts had weakened with time (the trailers that failed were built approximately at the same time). The problem was compounded by the fact that no



suspension was installed on the trailer -- causing more stress on the bolts when the trailer hit bumps on the road. Nevertheless, since this incident, we have maintained a speed of 45 mph with the trailer and an escort vehicle behind the trailer to watch for possible problems.

Another major breakdown occurred on the trailcutter itself. The bearing on one of the two propeller shafts failed and caused the propeller shaft to break. Replacement of the shaft and bearing was a major task, because the parts were expensive and the cutter had to be towed back to our boat-house from 3-4 miles within the swamp in order that the repairs could be made.

Several vehicles are due for replacement, but inadequate refuge budgets prohibit the replacement of vehicles. During 1982, we were able to procure one new Chevrolet pickup. However, at least three more vehicles need to be replaced.

Our International TD-9 tractor received extensive track repairs, the turbo-charger was replaced, and its exterior was painted.

#### 5. Communications Systems

There were several changes in the communications systems during 1982. With the closing of the Waycross headquarters office, the Waycross radio base station was moved to Camp Cornelia, and the old Camp Cornelia base station was retained as a backup unit. Additional telephones were installed in the Camp Cornelia office to accommodate the refuge's clerical staff. Two additional telephone lines were added to the two existing lines, with one of the four lines reserved for public information and canoe trail reservation calls.

#### 6. Energy Conservation

Energy conservation has always been a major concern at Okefenokee Refuge, because energy constitutes a major portion of the refuge's fixed costs. During 1982, efficient wood burning stoves were installed in The Pocket residences to reduce electrical costs in those units. Much of the incandescent lighting in the Camp Cornelia office was converted to the more efficient florescent lights. Building thermostats were maintained at 65°F in the winter and 80°F in the summer to reduce heating and cooling costs.

### J. OTHER ITEMS

#### 1. Cooperative Programs

Refuge personnel delivered checks which were authorized by the Refuge Revenue Sharing Act to four counties. The following counties received revenue sharing funds in 1982.

<u>COUNTY</u>	<u>AMOUNT</u>
Baker County, Florida	\$ 2,418.00
Charlton County, Georgia	118,004.00
Clinch County, Georgia	19,031.00
Ware County, Georgia	120,784.00
TOTAL	\$ 260,237.00

## 2. Items of Interest

Okefenokee Refuge has been fortunate to have had outstanding employees whose contributions have played a major role in accomplishing the complex tasks which are assigned to this station. During 1982, several of these employees were recognized for their good work. Outdoor Recreation Planners Jim Burkhart, Bill Kent, Terry Lindsay and Tom Worthington received special achievement awards for generally upgrading the refuge's interpretation and recreation activities. Mr. Worthington also had a photograph to place second nationally in the Service's photo contest. Clerk-Stenographer Dartha Pittman received a special achievement award for single-handedly taking care of business at the refuge's headquarters during the two-month absence of the Administrative Clerk. Ms. Pittman also worked a detail at Loxhatchee NWR to assist with a backlog of administrative work at that station at the beginning of the year.

Cecile Davis, Ron Phernetton and Royce Huber attended Contracting Officers' Warrant System training in Jacksonville, Florida on February 23-24.

Refuge Manager John Eadie (left) presented a special achievement award to Clerk-Stenographer Dartha Pittman and Outdoor Recreation Planner Tom Worthington received a certificate and an enlargement of his prize winning photograph.  
82-32-WCK (8/82)



### 3. Credits

This report, as usual, was a group effort. Lloyd Culp, Royce Huber, Ron Phernetton, Jim Burkhardt, Bill Kent and Tom Worthington did the writing. Dartha Pittman typed the report, and it was proofread by Cecile Davis. Lloyd Culp supervised the overall report.

### K. FEEDBACK

We will remember 1982 as the year which we scrambled to adjust to cutbacks in personnel and funds. Such austerity forced us to attempt to judiciously reduce our services to the public and resource management activities and still accomplish basic refuge objectives. There are those who may argue that a refuge which is known for its public use, such as Okefenokee, should bear the blunt of the reductions. However, the Okefenokee Swamp is an internationally famous landmark, so it is an undeniable fact that people are going to visit the swamp. Therefore, in order to protect this valuable wetlands resource, it would be wise to manage the public's use in a way which would inhibit the disruptions of natural processes that could result from heavy public use. In addition, a good refuge interpretation program could introduce annually thousands of persons to the refuge system, and this program could help these visitors develop a keen appreciation for wildlife resource management and protection by all entities -- federal, state and private.

During austere times, it seems to be more difficult to tolerate the bureaucracy with which we all must deal. These are the times when refuge managers have to spend an inordinate amount of time on personnel management, finance management and property management. The refuges have fewer personnel to handle these important matters, yet it is absolutely necessary that they be handled efficiently in order to just maintain current activities. Perhaps, an answer to this perplexing problem would be to upgrade administrative support personnel in order that more of the business operations could be turned over to them. Or, information processing techniques could, perhaps, be improved through the use of word processing equipment and computers. Yet, we see clerical positions on refuges downgraded, and little progress in information processing is evident.

To conclude, the cutbacks of 1982 negatively affected employee morale and just simply made refuge management more challenging than ever. Obviously, there was little that the Service could do to prevent the cutbacks, and we realize that we must flow as the political winds blow. We will just have to accept the challenges brought upon us during these times and make the most of what we have. In fact, all refuge personnel throughout the country can be proud of somehow getting the job done despite the obstacles along the way.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Okefenokee National Wildlife Refuge  
Waycross, Georgia

### SPORT FISHING REGULATIONS

Sport fishing on the Okefenokee National Wildlife Refuge, Waycross, Georgia, is permitted in the open water areas connected by established boat runs. Sport fishing shall be in accordance with all applicable State regulations subject to the following special conditions:

- (1) Fishing permitted during posted hours only.
- (2) Boats with motors not larger than 10 h.p., canoes and rowboats permitted.
- (3) Artificial and live bait (except live minnows) permitted.
- (4) Trotlines, limb lines, nets, or other set tackle prohibited.
- (5) Persons entering refuge from main access points must register with the respective concessioner or at a registration station.
- (6) Persons using the sill access ramp on the pocket are required to sign the register when they enter the swamp and again when they leave. Use of launching facilities is permitted as long as parking regulations are not violated. Park regulations are posted at registration station.
- (7) Persons using the Kingfisher Landing access ramp are required to sign the register when they enter the swamp and again when they leave.
- (8) All persons will comply with the regulatory signs posted in all areas.

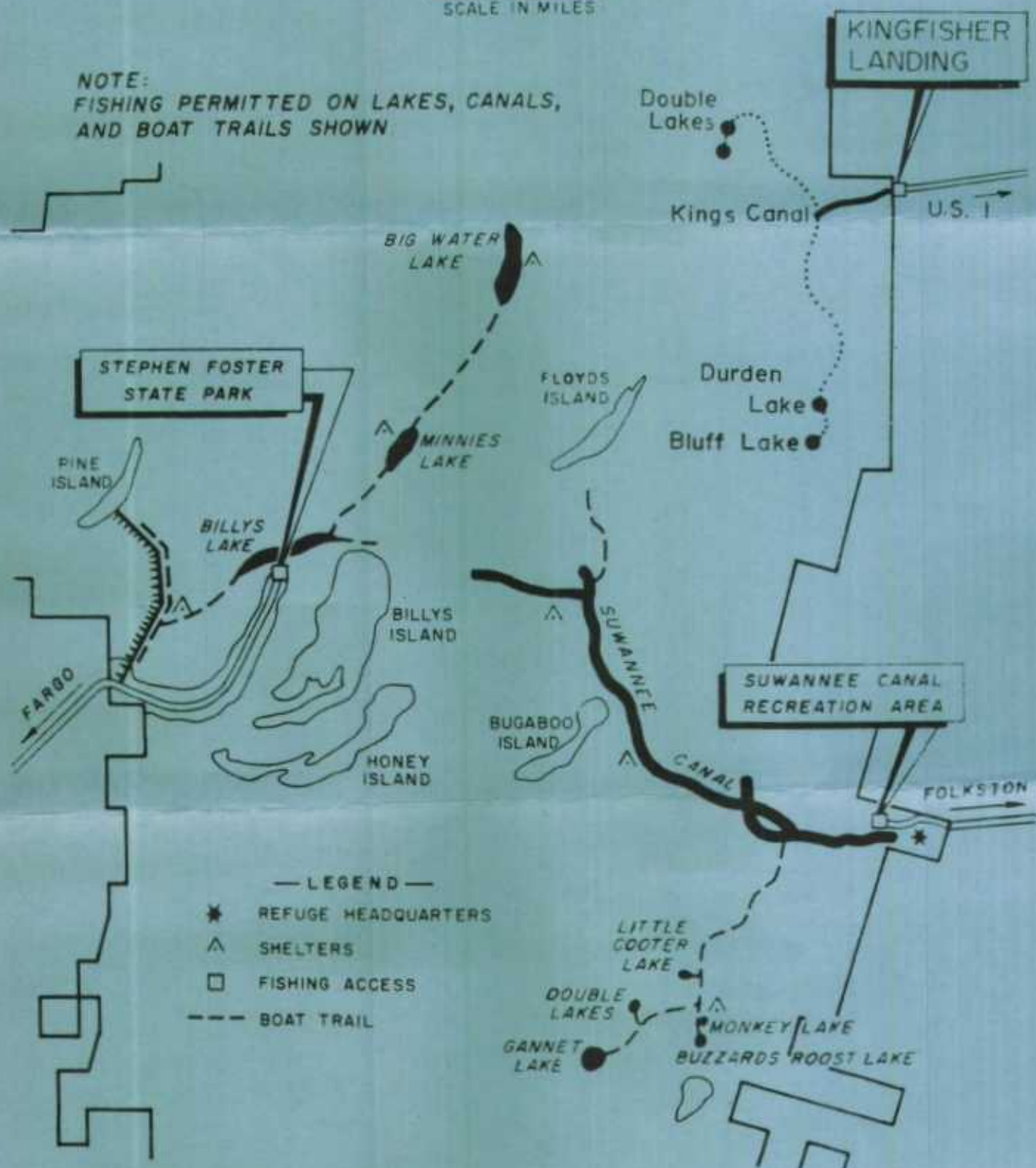
March - 1979



# OKEFENOKEE NATIONAL WILDLIFE REFUGE

0 1 2 4  
SCALE IN MILES

NOTE:  
FISHING PERMITTED ON LAKES, CANALS,  
AND BOAT TRAILS SHOWN





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE REGULATIONS PERTAINING TO PUBLIC USE OF THE OKEFENOKEE NATIONAL WILDLIFE REFUGE

1. Firearms, other weapons, and hunting are not permitted on the refuge.
2. Travel within the refuge is permissible only on designated, established trails. Outboard motors in excess of 10 horsepower are not allowed. Each occupant of a boat is required by Georgia Law to have a Coast Guard approved life preserver with him.
3. The collecting or disturbing of wildlife, plants, minerals or artifacts is prohibited except as noted in the next item.
4. Sport fishing is allowed on designated areas in accordance with Georgia State Laws. The only methods allowed are fishing with pole and line or rod and reel. The use of live minnows as bait is prohibited.
5. Camping, (other than that associated with overnight canoe trips) on the refuge is allowed only in the established campground at Stephen C. Foster State Park.
6. Campfires (other than those associated with island overnight canoe trip camp sites) may be used only in the established campgrounds at Stephen C. Foster State Park. Such fires must be tended at all times and completely extinguished when left. Consult the Park Superintendent about fuel.
7. Pets must be kept in cars or on a leash. Pets are not permitted in boats or in buildings.
8. Swimming and wading are not allowed due to the danger involved from alligators and poisonous snakes.
9. Visitor use is permitted only during specific times posted at refuge entrances.
10. Littering on a national wildlife refuge is against Federal regulations. Leave no litter on the refuge except in designated litter barrels.
11. Neither the Government nor its agents are responsible for the safety of persons permitted on the refuge.
12. Intoxicated or disorderly individuals are not allowed on the refuge and are subject to immediate arrest.

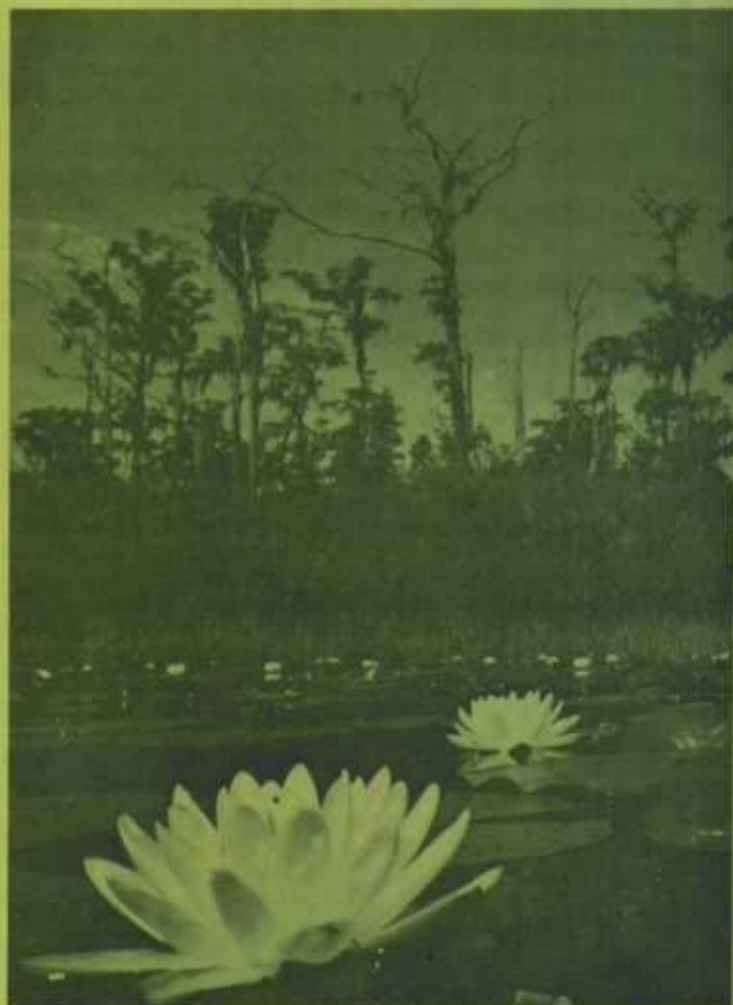
KEEP OKEFENOKEE BEAUTIFUL  
BRING YOUR LITTER BACK TO DOCK

FEEDING OF ANIMALS IS ABSOLUTELY PROHIBITED.



# Okefenokee

National Wildlife Refuge



As you travel through this country, you may see the sign of the flying goose - emblem of the National Wildlife Refuges. Wherever you meet this sign, respect it, for it means that lands and waters have been dedicated to preserving a vital part of our nation's heritage, our native wildlife.







### *REGULATIONS*

Travel on the refuge is restricted to areas designated by the officer in charge. All visitors should register with the concessionaire before leaving the boat dock to enter refuge waters.

Guides must operate through existing concessioners and must have valid licenses obtained from the refuge manager.

Visitors are allowed to be on the refuge only during posted hours, except where specified overnight accommodations are available.

Fires are prohibited on the refuge except in specially designated places.

Firearms and other weapons are not allowed on the refuge except during specially designated periods.

Outboard motors larger than 10 horsepower are prohibited. Each occupant of a boat is required to have a Coast Guard approved life preserver with him.

Fishing is permitted in accordance with Georgia State fishing laws, except that no live fish may be used as bait.

Swimming is not permitted in refuge waters.

Pets must be kept in cars or on a leash not exceeding 6 feet in length. They are not permitted in boats or public use buildings.

Molestation or destruction of plants and animals on the refuge is prohibited.

**OKEFENOKEE SWAMP**, in southeastern Georgia near the Florida boundary, is one of the oldest and most well preserved freshwater wetland complexes in America. It extends about 38 miles from north to south and about 25 miles across at its widest part and contains approximately 412,000 acres. Okefenokee National Wildlife Refuge, established in 1937, occupies over nine-tenths of this fascinating region and is administered by the United States Fish and Wildlife Service.

Okefenokee is actually a vast peat filled bog with many unusual forms of plant and animal inhabitants. The actual origin of the swamp is still subject to much debate with theories ranging from total marine origin to the idea that several freshwater streams and rivers that once traversed the swamp basin have gradually been filled with peat.

The variety of life, as seen by a visitor to Okefenokee, changes throughout the day. Except during the quietness of noonday, the squealing cries of wood ducks and the discordant squawks of herons and egrets are heard repeatedly as you move along the glassy waterways. High overhead a turkey vulture may be soaring, while a flock of white ibis glides at tree top level. The persistent song of the Carolina wren and hammering of woodpeckers on shells of dead trees are most evident while you listen for rolling guttural notes of the Florida sandhill crane. In the spring the bellowing of the old bull alligators furnishes a background for amazing frog choruses.

In the tangled forest of cypress, bay, and gum - with hanging streamers of Spanish moss - are raccoons, bobcats, opossums, and otter. There are also abundant signs of bear and white-tailed deer.

The waters of Okefenokee move slowly, and as they make their lazy way through the cypress forests, they become

stained the color of tea from the tannic acid of swamp vegetation. The principal outlet of the swamp is the Suwannee River, which starts deep in the heart of Okefenokee and flows southwest into the Gulf of Mexico. The St. Marys River empties some of the swamp water into the Atlantic Ocean.

Okefenokee's natural beauty was threatened in 1889 when attempts were made to drain the swamp to facilitate timber removal. Millions of board feet of cypress, pine, red bay, and gum were removed. Not until the best timber had been cut were the region's other values given much consideration.

In 1974, 353,981 acres of the Okefenokee Refuge were included in the National Wilderness System to preserve this unique region of peace and beauty for future generations to enjoy.

In its management of the Okefenokee, the Fish and Wildlife Service plans no development which might disrupt the swamp's natural processes. Nature itself is the landscaper. Already stands of young cypress have hidden the stumps left by early loggers, and eventually they will grow into a new generation of moss-bearded giants to replace the old.

There are three public entrances. At each entrance guided boat tours, walking trails, swamp exhibits, and picnic facilities are available. Information on tour rates and other details may be obtained from the concessionaires.

Besides guided tours, boat rentals and launching, and fishing facilities are available at Stephen Foster State Park and the Suwannee Canal Recreation Area.

Privately owned or rented outboard motors of 10 horsepower or less may be used on either private or rented boats. Travel through the swamp is permitted along designated boat trails during posted hours.

Fishing may be done throughout the year with a Georgia State fishing license and in accordance with Georgia fishing regulations. No live fish may be used as bait. Largemouth bass, bluegill, warmouth, catfish, and pickerel are the fish most commonly taken.

Hunting and weapons are not allowed on the refuge except during specially designated periods. Dogs are permitted only at the public entrances and must be kept on a leash. Collecting or molesting plants or wildlife is prohibited.

**STEPHEN C. FOSTER STATE PARK** - This area on Jones Island, managed by the Georgia Park and Historic Sites Division under a cooperative agreement with the U.S. Fish and Wildlife Service, is the west entrance to the swamp. It is from here that Billy's Lake, Minnie's Lake, and Big Water are most easily accessible. A trip through the winding watercourses connecting these lakes is a never-to-be-forgotten experience.





The visitor may stop at Billy's Island, named for Chief Billy Bowlegs, a distinguished leader in the Seminole Wars. He may try his luck as a photographer, or relax and enjoy the solitude and beauty of the swamp.

This is the only entrance where overnight facilities are available. There are camp sites for tents, trailers, or campers as well as cottages for rent.

The Park may be reached by leaving U.S. Highway 441 about half a mile southeast of Fargo, Georgia, and following State Road 177 northeast for about 18 miles. For information on rates and reservations, write Stephen C. Foster State Park, Fargo, Georgia 31631. (Telephone 496-7509 AC 912).

**SUWANNEE CANAL RECREATION AREA** - This, the east entrance, is operated cooperatively by the U.S. Fish and Wildlife Service and a concessionaire. Here the visitor may follow the Suwannee Canal for 11 miles into the heart of the swamp. From the canal he may enter Chesser, Grand, and Mizell Prairies, the swamp's most extensive open areas. The little lakes and 'gator holes that dot the prairies offer some of the Nation's finest freshwater sport fishing. The prairies are also favorite areas for bird watching and are the home of the rare Florida sandhill crane.

Wildlife observation facilities include a wildlife drive, a rubber-tired interpretive tram, hiking trails, a 4,000 ft. boardwalk over the swamp, three observation towers, a specially equipped night tour boat, and a restored home-  
stead.



Many swamp stories are told on the boat tours and along the walks, trails, and drives.

This entrance may be reached by traveling State Highway 23 about 7 miles southwest of Folkston, Georgia, and proceeding west about 4 miles. For further information visit the Swamp's Edge Interpretive Center located at the Recreation Area or write the U.S. Fish and Wildlife Service, P.O. Box 117, Waycross, Georgia 31501 (Telephone 283-2580 AC 912). For information dealing with guided tours, boat and canoe rentals, or fishing, contact the Concessionaire, Suwannee Canal Recreation Area, Folkston, Georgia 31637 (Telephone 496-7156 AC 912).

**OKEFENOKEE SWAMP PARK** - This park, the north entrance to the swamp, is managed by the Okefenokee Swamp Park Association, Inc., a nonprofit private organization. The park is distinct from the Okefenokee National Wildlife Refuge, and most of it is located outside the refuge boundary. Here the visitor can take guided tours by boat along winding watercourses through part of the swamp's most beautiful cypress forest.

There is much to see during a stroll through the park grounds. The boardwalk, museum, animal habitats, serpentarium, botanical gardens, and the observation tower, which is high in the cypress trees, put a lot of Okefenokee in a compact package for all to see.

The park is open at variable hours throughout the year and is located about 8 miles south of Waycross, Georgia, and 5 miles off U.S. Highway 1 and 23. For further information write, wire, or call Okefenokee Swamp Park, Waycross, Georgia 31501, telephone 283-0583 AC 912.

**WILDERNESS CANOEING** - Six canoe trails through the Okefenokee Wilderness may be traveled by canoe campers holding permits for trips lasting from two to six days. For information on the Okefenokee Wilderness Canoe Trail System contact the Refuge Manager, P.O. Box 117, Waycross, GA 31501; phone 912-283-2580.



Okefenokee Swamp, a 412,000-acre peat-filled bog in Ware, Charlton, and Clinch Counties, Georgia, and Baker County, Florida, is one of the nation's great unspoiled areas. Although a considerable amount of timber has been harvested here in past years, most of this great swamp is still little different from what it was when first seen by white men. About four-fifths of the swamp is included in the Okefenokee National Wildlife Refuge, which is administered by the U. S. Fish and Wildlife Service, in the Department of the Interior.

Except for some fifty islands which total about 25,000 acres, Okefenokee Swamp is usually shallowly flooded. Most of the flooded area is more or less densely forested with cypress, blackgum, bay, and maple, with an understory and interspersal of a variety of heaths, smilax, titi, and cassena. About 60,000 acres is flooded marshland or "prairie" which is covered principally with waterlilies, neverwet, pipewort, ferns, maidencane, and a variety of sedges and grasses.

Open water areas are the water courses, the prairie lakes, smaller prairie ponds known as 'gator holes, the twelve-mile-long Suwannee Canal which was dug in 1891-2, and the borrow pit of the Suwannee River Sill, which was constructed in 1958.

The islands and the adjacent upland on the periphery of the swamp are usually covered by pine forests.

This variety of wooded swamp, prairies, lakes, water courses, islands, and pine barrens supports a varied fauna. The following list of reptiles, amphibians, and fishes is based on specimens collected or reliably reported.

Most of the species listed are supported by specimens from Cornell University, Philadelphia Academy of Natural Sciences, United States National Museum, University of Georgia Museum of Natural History, University of Michigan Museum of Zoology, and Florida State Museum. Scientific and common names are based on "A list of common and scientific names of fishes from the United States and Canada" 1970 American Fisheries Society, and "Standard common and scientific names for North American amphibians and reptiles" 1978 Society for the Study of Amphibians and Reptiles.

For further information write Refuge Manager, Okefenokee National Wildlife Refuge, Box 117, Waycross, Georgia 31501.



## NOTES

## REPTILES, AMPHIBIANS AND FISHES OF OKEFENOCKEE



DEPARTMENT OF THE INTERIOR  
U.S. Fish and Wildlife Service

A CHECKLIST OF ANIMALS LIVING  
IN AND AROUND THE OKEFENOCKEE  
SWAMP ON THE OKEFENOCKEE  
NATIONAL WILDLIFE REFUGE



## REPTILES

### Crocodylians

American Alligator (*Alligator mississippiensis*)

### Lizards

Eastern Slender Glass Lizard (*Ophisaurus attenuatus longicaudus*)

Island Glass Lizard (*Ophisaurus compressus*)

Eastern Glass Lizard (*Ophisaurus ventralis*)

Green Anole (*Anolis carolinensis*)

Southern Fence Lizard (*Sceloporus undulatus undulatus*)

Broad-headed Skink (*Eumeces laticeps*)

Northern Mole Skink (*Eumeces egregius similis*)

Five-lined Skink (*Eumeces fasciatus*)

Southern Five-lined Skink (*Eumeces inexpectatus*)

Ground Skink (*Scincella laterale*)

Six-lined Race Runner (*Cnemidophorus sexlineatus sexlineatus*)

### Snakes

Northern Scarlet Snake (*Cemophora coccinea copei*)

Southern Black Racer (*Coluber constrictor priapus*)

Southern Ring-necked Snake (*Diadophis punctatus punctatus*)

Indigo Snake (*Drymarchon corais couperi*)

Corn Snake (*Elaphe guttata guttata*)

Yellow Rat Snake (*Elaphe obsoleta quadrivittata*)

Gray Rat Snake (*Elaphe obsoleta spiloides*)

Eastern Mud Snake (*Farancia abacura abacura*)

Rainbow Snake (*Farancia erythrogramma*)

Eastern Hognose Snake (*Heterodon platyrhinos*)

Southern Hognose Snake (*Heterodon sinus*)

Mole Snake (*Lampropeltis calligaster rhombomaculata*)

Eastern Kingsnake (*Lampropeltis getulus getulus*)

Scarlet Kingsnake (*Lampropeltis triangulum elapsoides*)

Eastern Coachwhip (*Masticophis flagellum flagellum*)

Florida Green Water Snake (*Nerodia cyclopion floridana*)

Yellow-bellied Water Snake (*Nerodia erythrogaster erythrogaster*)

Banded Water Snake (*Nerodia fasciata fasciata*)

Florida Water Snake (*Nerodia fasciata pictiventris*)

Brown Water Snake (*Nerodia taxipilota*)

Rough Green Snake (*Ophiodrys ansivus*)

Florida Pine Snake (*Pituophis melanoleucus mugitus*)

Striped Swamp Snake (*Regina allenii*)

Eastern Glossy Water Snake (*Regina rigida rigida*)

Pine Woods Snake (*Rhadinaja flavilata*)

North Florida Black Swamp Snake (*Seminatrix pygaea pygaea*)

Florida Brown Snake (*Storeria dekayi victa*)

Florida Red-bellied Snake (*Storeria occipitomaculata obscura*)

Eastern Ribbon Snake (*Thamnophis sauritus sackeni*)

Eastern Garter Snake (*Thamnophis sirtalis sirtalis*)

Rough Earth Snake (*Virginia striatula*)

Eastern Smooth Earth Snake (*Virginia valeriae valeriae*)

Eastern Coral Snake (*Micrurus fulvius fulvius*)

Florida Cottonmouth (*Agkistrodon piscivorus conanti*)

Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)

Canebrake Rattlesnake (*Crotalus horridus atricaudatus*)

Dusky Pigmy Rattlesnake (*Sistrurus miliarius barbouri*)

### Turtles

Common Snapping Turtle (*Chelydra serpentina serpentina*)

Alligator Snapping Turtle (*Macrochelys temminckii*)

Florida Red-bellied Turtle (*Chrysemys nelsoni*)

Eastern Chicken Turtle (*Deirochelys reticularia reticularia*)

Florida Cooter (*Pseudemys floridana floridana*)

Red-Eared Pond Slider (*Pseudemys scripta elegans*)

Yellow-bellied Pond Slider (*Pseudemys scripta scripta*)

Florida Box Turtle (*Terrapene carolina bauri*)

Eastern Box Turtle (*Terrapene carolina carolina*)

Striped Mud Turtle (*Kinosternon bauri palmarum*)

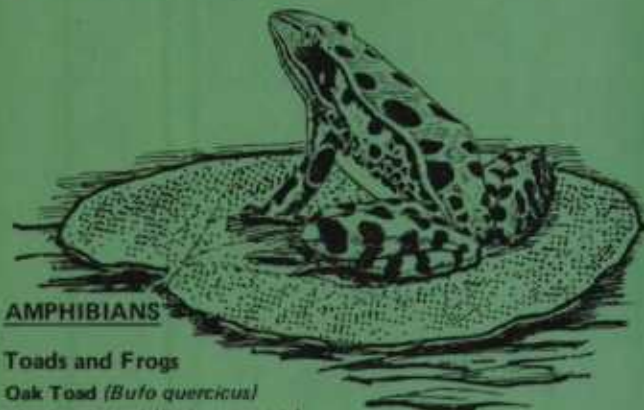
Eastern Mud Turtle (*Kinosternon subrubrum subrubrum*)

Loggerhead Musk Turtle (*Sternotherus minor minor*)

Stinkpot (*Sternotherus odoratus*)

Gopher Tortoise (*Gopherus polyphemus*)

Florida Softshell (*Trionyx ferox*)



## AMPHIBIANS

### Toads and Frogs

Oak Toad (*Bufo quercicus*)

Southern Toad (*Bufo terrestris*)

Florida Cricket Frog (*Acris gryllus dorsalis*)

Gray Treefrog (*Hyla chrysoscelis*)

Green Treefrog (*Hyla cinerea cinerea*)

Southern Spring Peeper (*Hyla crucifer bartramiana*)

Pine Woods Treefrog (*Hyla femoralis*)

Barking Treefrog (*Hyla gratiosa*)

Squirrel Treefrog (*Hyla squirella*)

Little Grass Frog (*Limnodynastes oricularis*)

Southern Chorus Frog (*Pseudacris nigrita nigrita*)

Ornate Chorus Frog (*Pseudacris ornata*)

Eastern Narrow-mouthed Toad (*Gastrophryne carolinensis*)

Eastern Spadefoot Toad (*Scaphiopus holbrooki holbrooki*)

Florida Gopher Frog (*Rana areolata aesopus*)

Bullfrog (*Rana catesbeiana*)

Bronze Frog (*Rana clamitans clamitans*)

Pig Frog (*Rana grylio*)

River Frog (*Rana heckscheri*)

Southern Leopard Frog (*Rana utricularia*)

Carpenter Frog (*Rana virgatipes*)

### Salamanders

Flatwoods Salamander (*Ambystoma cingulatum*)

Marbled Salamander (*Ambystoma opacum*)

Mole Salamander (*Ambystoma talpoideum*)

Tiger Salamander (*Ambystoma tigrinum*)

Two-toed Amphiuma (*Amphiuma means*)

Southern Dusky Salamander (*Desmognathus fuscus auriculatus*)

Southern Two-lined Salamander (*Eurycea bislineata cirriger*)

Dwarf Salamander (*Eurycea quadridigitatus*)

Slimy Salamander (*Plethodon glutinosus glutinosus*)

Gulf Coast Mud Salamander (*Pseudotriton montanus floridanus*)

Many-lined Salamander (*Stereochilus marginatus*)

Striped Newt (*Notophthalmus perstriatus*)

Central Newt (*Notophthalmus viridescens louisianensis*)

Dwarf Siren (*Pseudobranchius striatus* spp)

Eastern Lesser Siren (*Siren intermedia intermedia*)

Greater Siren (*Siren lacertina*)

## FISHES

Florida Gar (*Lepisosteus platyrhincus*)

Bowfin (*Amia calva*)

Eastern Mudminnow (*Umbra pygmaea*)

Redfin Pickerel (*Esox americanus americanus*)

Chain Pickerel (*Esox niger*)

Lake Chubsucker (*Erimyzon sucetta*)

Spotted Sucker (*Minytrema melanops*)

Yellow Bullhead (*Ictalurus natalis*)

Brown Bullhead (*Ictalurus nebulosus*)

Channel Catfish (*Ictalurus punctatus*)

Tadpole Madtom (*Noturus gyrinus*)

Speckled Madtom (*Noturus leptacanthus*)

American Eel (*Anguilla rostrata*)

Golden Topminnow (*Fundulus chrysotus*)

Banded Topminnow (*Fundulus cingulatus*)

Lined Topminnow (*Fundulus lineolatus*)

Starhead Topminnow (*Fundulus notti*)

Mosquitofish (*Gambusia affinis*)

Pygmy Killifish (*Leptolucania ommata*)

Least Killifish (*Heterandria formosa*)

Pirate Perch (*Aphredoderus sayanus*)

Mud Sunfish (*Acantharchus pomotis*)

Flier (*Centrarchus macropterus*)

Warmouth (*Lepomis gulosus*)

Everglades Pygmy Sunfish (*Elassoma evergladesi*)

Okefenokee Pygmy Sunfish (*Elassoma okefenokee*)

Blackbanded Sunfish (*Enneacanthus chaetodon*)

Bluespotted Sunfish (*Enneacanthus gloriosus*)

Banded Sunfish (*Enneacanthus obesus*)

Redbreast Sunfish (*Lepomis auritus*)

Bluegill (*Lepomis macrochirus*)

Dollar Sunfish (*Lepomis marginatus*)

Spotted Sunfish (*Lepomis punctatus*)

Largemouth Bass (*Micropterus salmoides*)

Black Crappie (*Pomoxis nigromaculatus*)

Scalyhead Darter (*Etheostoma barratti*)

Swamp Darter (*Etheostoma fusiforme*)

Blackbanded Darter (*Percina nigrofasciata*)

Brook Silverside (*Labidesthes sicculus*)



**EASTERN HARVEST MOUSE** (*Reithrodontomys humilus humilus*). Found in the prairies and in old fields near the swamp's edge.

**HISPID COTTON RAT** (*Sigmodon hispidus hispidus*). A common mammal in the pine woods and old fields on the upland around the swamp.

**OLDFIELD MOUSE** (*Peromyscus polionotus polionotus*). Feeds on seeds and berries.

**EASTERN WOOD RAT** (*Neotoma floridana floridana*). Fairly common throughout the swamp and in the hammocks on the upland.

**WOODLAND VOLE** (*Microtus pinetorum parvulus*). Tunnels through leaf mold and loose soil near the surface of the upland areas and eats bulbs, tubers and seeds.

**ROUND-TAILED MUSKRAT** (*Neofiber alleni exoristus*). Common in the prairies.



**HOUSE MOUSE** (*Mus musculus musculus*). Formerly common around habitations but now that few people live within the swamp, it has probably disappeared from the area. Very likely it is still common around human habitations in the vicinity of the swamp.

**NORWAY RAT** (*Rattus norvegicus*). Like the above species, this mammal has probably disappeared from the area with the cessation of human habitation.

**BLACK RAT** (*Rattus rattus rattus*). This and the following subspecies were the common barn rats when farming was practiced on some of the islands within the swamp. It probably occurs now on farmsteads in the vicinity of the swamp but not on the refuge.

**ROOF RAT** (*Rattus rattus alexandrinus*). See above.

**EASTERN COTTONTAIL** (*Sylvilagus floridanus malurus*). Common around clearings and in the more sparse pinewoods on the uplands surrounding the swamp and on some of the islands.

**MARSH RABBIT** (*Sylvilagus palustris palustris*). Fairly common on the swamp edge.

**WILD PIG** (*Sus scrofa*). These feral pigs were introduced by the early settlers of the swamp.

**WHITE-TAILED DEER** (*Odocoileus virginianus*). These deer are to be found on the upland entirely around the swamp and on the islands within the swamp. Occasionally they may be seen from the deer stand observation platform, and in the time of low water they may be seen in the prairies.

**ARMADILLO** (*Dasypus novemcinctus mexicanus*). This unusual "armored" mammal was first seen on the refuge in 1963. Since then it has become more numerous and is commonly seen along roadways and trails.



DEPARTMENT OF THE INTERIOR  
U.S. FISH AND WILDLIFE SERVICE

RF-41590-3 January 1982

# Mammals of the Okefenokee National Wildlife Refuge





The varied habitat of Okefenokee Swamp forest and prairie, of swamp edge and of moist and dry upland affords a home for most mammalian species that are known to the southeastern coastal plain.

Most mammals are night prowlers and difficult to observe. Sometimes their tracks, or other signs of activity are all that is visible to remind us that they do exist. A few kinds such as squirrels, otters, deer, rabbits, bobcats and bears are often or sometimes seen during daytime. However, early morning and late afternoon are the best times to observe mammals.

The following list includes 49 species that now live or have recently lived in, or in the immediate vicinity of, Okefenokee Swamp. The list of mammals includes museum records from Cornell University, Florida State Museum, Philadelphia Academy of Natural Sciences, United States National Museum and University of Georgia Museum of Natural History.

Mammals to look for in or near Okefenokee are:

**VIRGINIA OPOSSUM** (*Didelphis virginiana pigra*). Common on the swamp edge and on the islands within the swamp. A night prowler, "Pogo" is often seen by campers at Stephen C. Foster State Park.

**STAR-NOSED MOLE** (*Condylura cristata*). Apparently rare. Has been collected in the swamp near Mixon's Ferry and on Chesser Island.

**EASTERN MOLE** (*Scalopus aquaticus australis*). Generally distributed on the upland adjacent to the swamp and has been found on some of the islands within the swamp.

**LEAST SHREW** (*Cryptotis parva parva*). Rarely seen but probably fairly common. Specimens have been collected on several of the islands, on the swamp edge, and in the pine woods around the swamp.

**SOUTHERN SHORT-TAILED SHREW** (*Blarina carolinensis*). A specimen was collected on Floyd's Island June 12, 1921.

**EVENING BAT** (*Nycticeius humeralis*). One of the most common bats of the Okefenokee. This and other bats are seen at dusk on warm nights in search of flying insects.

**EASTERN PIPISTRELLE** (*Pipistrellus subflavus subflavus*). A fairly common species in the area.

**BIG BROWN BAT** (*Eptesicus fuscus fuscus*). An uncommon species in the area.

**RED BAT** (*Lasiurus borealis borealis*). An uncommon species in the area.

**SEMINOLE RED BAT** (*Lasiurus seminolus*). A common bat of the Okefenokee.

**HOARY BAT** (*Lasiurus cinereus cinereus*). This yellowish-brown bat flies high in the air late at night and will hang in trees when resting.

**NORTHERN YELLOW BAT** (*Lasiurus intermedius floridanus*). Apparently a rare species in the area. Two specimens were collected at King's Canal.

**RAFINESQUE'S BIG-EARED BAT** (*Plecotus rafinesquii*). A rather uncommon species in the area.

**FREE-TAILED BAT** (*Tadarida brasiliensis cynocephala*). An uncommon species in this area although it has been collected at Camp Cornelia.

**BLACK BEAR** (*Ursus americanus floridianus*). Bears range throughout the refuge. While they are rarely seen, their signs are found in all habitats.

**RACCOON** (*Procyon lotor elucus*). The most abundant large mammal on the refuge. It is found in all habitats but is most numerous on the swamp edge. They are commonly seen at the Stephen C. Foster State Park camping area and occasionally along boat trails.

**LONG-TAILED WEASEL** (*Mustela frenata olivacea*). This species is probably more common than the few observations would indicate. Specimens have been collected on Billy's Island and on Chesser Island.

**FLORIDA RIVER OTTER** (*Lontra canadensis vaga*). Occasionally observed along the water courses, especially during the winter.

**FLORIDA STRIPED SKUNK** (*Mephitis mephitis elongata*). This species is generally distributed on the upland surrounding the swamp and is found occasionally on the islands.

**MINK** (*Mustela vison mink*). Very rarely seen in the Okefenokee, this chiefly nocturnal animal is an excellent swimmer.

**RED FOX** (*Vulpes fulva fulva*). This species is rare but occurs occasionally on the upland in the vicinity of the swamp.

**FLORIDA GRAY FOX** (*Urocyon cinereoargenteus floridanus*). Fairly common on the upland around the swamp.

**RED WOLF** (*Canis niger niger*). Formerly this was the species of wolf native to this area. It is believed not to be present here now.

**FLORIDA BOBCAT** (*Lynx rufus floridanus*). Common throughout the swamp and on the surrounding upland. Occasionally seen along the nature drive.

**FLORIDA PUMA** (*Felis concolor coryi*). Apparently this species was never more than of rare occurrence in the vicinity of the swamp.

**SOUTHERN GRAY SQUIRREL** (*Sciurus carolinensis carolinensis*). Abundant in the blackgum-bay forests in the swamp and in the oak woodlands on the upland.

**SOUTHERN FOX SQUIRREL** (*Sciurus niger niger*). Uncommon in the pine forests surrounding the swamp.

**SOUTHERN FLYING SQUIRREL** (*Glaucomys volans querceti*). This species is rarely seen but is probably fairly common. It has been collected on Floyd's and Billy's Islands and Chesser Island.

**GEORGIA POCKET GOPHER** (*Geomys pinetis pinetis*). Uncommon on dry, sandy sites on the east side of the swamp.

**SOUTHEASTERN POCKET GOPHER** (*Geomys pinetis floridanus*). An uncommon species of this area.

**BEAVER** (*Castor canadensis carolinensis*). The first record of beavers actually in the swamp was in 1969. Apparently they have disappeared since then, probably because of alligators.

**COTTON MOUSE** (*Peromyscus gossypinus gossypinus*). Common throughout the area.

**GOLDEN MOUSE** (*Ochrotomys nuttalli aureolis*). This species is probably rare. It has been found in hammocks on the islands.

**MARSH RICE RAT** (*Oryzomys palustris palustris*). A fairly common mammal throughout the swamp.



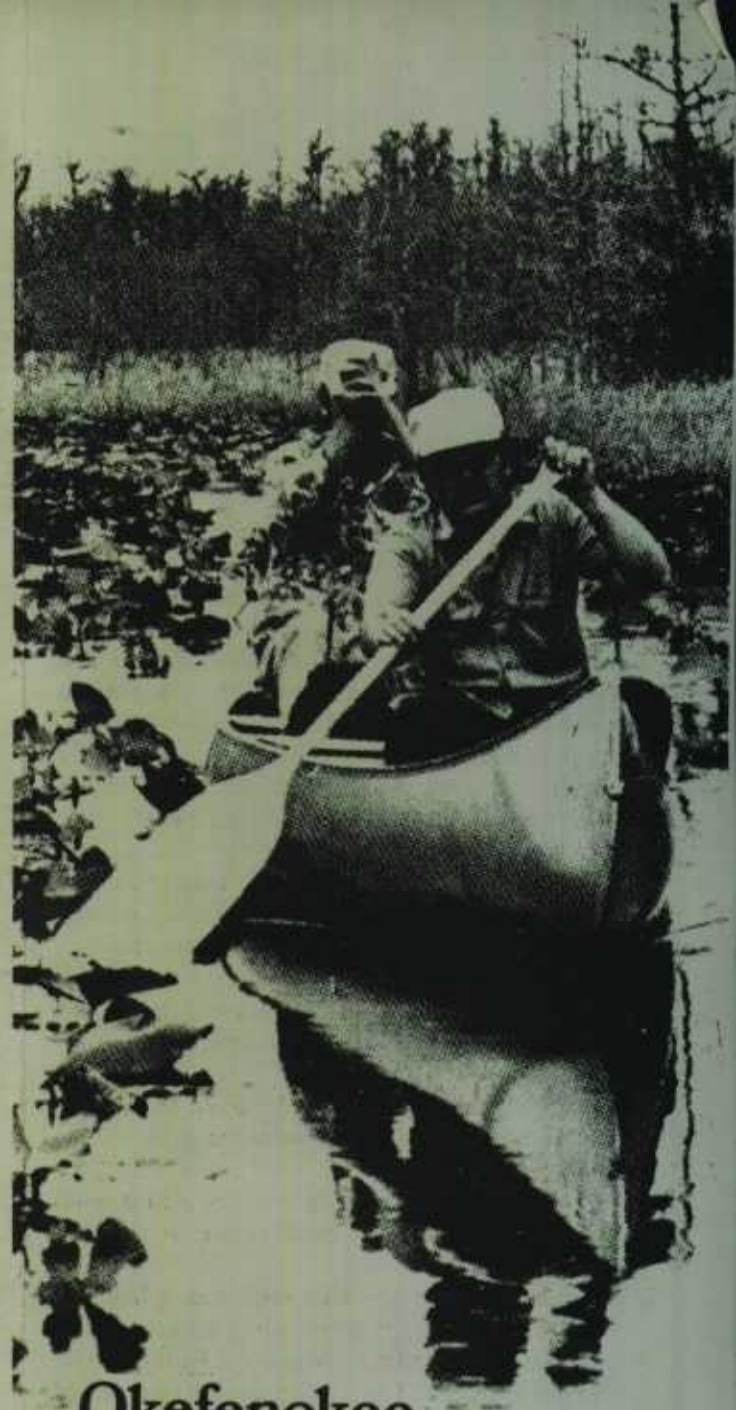
## Okefenokee Overnight Canoe Stops

Distances between overnight stops (Islands or dry land in *italics* - Platforms in **bold**) over approved routes of travel.

1. *Kingfisher Landing* to **Maul Hammock** - 12 miles
2. **Maul Hammock** to *Big Water* - 11 miles
3. *Big Water* to *Stephen Foster* - 8 miles (Fee charged to camp at Stephen Foster)
4. *Stephen Foster Park* to *Floyds Island* - 8 miles
5. *Floyds Island* to **Bluff Lake** - 9 miles
6. **Bluff Lake** to *Kingfisher Landing* - 8 miles
7. *Big Water* to *Floyds Island* - 4 miles
8. *Stephen Foster* to *Cravens Hammock* - 9 miles
9. **Suwannee Canal Recreation Area** to *Cedar Hammock* - 7 miles
10. **Suwannee Canal Recreation Area** to *Canal Run Shelter* - 10 miles
11. *Canal Run Shelter* to *Stephen Foster Park* - 7 miles
12. *Cedar Hammock* to *Floyds Island* - 9 miles
13. *Floyds Island* to **Suwannee Canal Recreation Area** - 13 miles



DEPARTMENT OF THE INTERIOR  
U.S. FISH AND WILDLIFE SERVICE



Okefenokee  
Canoe  
Regulations



## OKEFENOKEE NATIONAL WILDLIFE REFUGE

### GENERAL TRIP CANOEING REGULATIONS

1. Overnight canoeing trips by reservation and permit only.
2. A nonrefundable fee of one dollar per person per night of camping in the refuge must accompany a list of names and addresses of all members of a canoe party before a permit can be issued. This list must be in the refuge office no later than ten days prior to reservation date or trail reservation will be cancelled. Payment of the fee must be by cash, money order, cashiers or certified check. **PERSONAL CHECKS WILL NOT BE ACCEPTED!**
3. Canoeists must camp only at assigned camp sites on assigned dates. Canoeists must remain at camp sites between sunset and sunrise.
4. Canoeists must use only assigned trails and must travel only in assigned directions.
5. Canoeists must sign in and out of the refuge and in and out of each overnight stop.
6. All camp sites and trails must be maintained litter free. Litter may be disposed of at exits.
7. Portable toilets are still required. Chemical toilets at overnight stops must be kept clean and used according to posted instructions. Advise ranger if toilet is inoperable or out of supplies.
8. Human waste materials from portable toilets must be disposed of only at exits. Do not use garbage cans, chemical toilets or the swamp for disposal.
9. Maximum canoe party size is 10 canoes and/or 20 people. Minimum canoe party size is 2 people.
10. Pets are not allowed.
11. Each canoeist must have a Coast Guard approved life saving device.
12. Each canoe must have a compass and flashlight.
13. No swimming.
14. All launches must be prior to 10 AM.
15. Use no nails on camping platforms and cut no vegetation. Platforms, all of which are half covered, are suitable for popup tents.
16. Open fires are limited to island stops and at certain locations at these stops. Gasoline stoves are recommended.
17. Vehicles parked overnight at entrances or exits are left at owner's risk and must display a parking placard issued with canoeing permit. Vehicles must be parked in designated area at each entrance or exit.
18. No motors permitted on reserved canoe trips.
19. Equipment reservations and rentals must be made directly with concessionaires. Equipment must be picked up from and returned to concessionaires.
20. Color coded markers designate specific trails and white-topped posts provide guidance between markers.
21. Commercial guiding is absolutely illegal unless carried out by Suwannee Canal Recreation Area, Stephen C. Foster State Park, and Okefenokee Swamp Park personnel. Refuge visitors should require guides to display approved guide licenses.

22. Day-use only canoeing is allowed without a permit but only to those points marked "Permit Required Beyond This Point."
23. Vehicle shuttle is not available and must be arranged by canoeists.
24. Know and understand all refuge regulations. Violators will be cited without warning.

**DON'T BEGIN OR END YOUR  
TRIP ON AN UNHAPPY NOTE!  
KNOW, UNDERSTAND, AND  
FOLLOW ALL REFUGE  
REGULATIONS**

For canoeing reservations call no earlier than <sup>Two</sup> ~~one~~ in advance of planned trip.

months

Refuge Manager  
Okefenokee National Wildlife Refuge  
P.O. Box 117  
Waycross, Georgia 31501  
Phone: (912) 283-2580

**PLEASE NOTE CAREFULLY** - Summer temperatures and humidity on Okefenokee National Wildlife Refuge are usually very high and oppressive. Mosquitoes are bad at night from May through September and often at other times depending upon weather conditions. Yellow (Deer) and black flies are numerous during the summer months and can inflict painful bites. **YOU SHOULD BE AWARE OF THESE DISCOMFORTS WHEN PLANNING SUMMER CANOE TRIPS THROUGH OKEFENOKEE.**



These additional 25 species are of very rare or accidental occurrence.

NOTES:



## A CHECK-LIST OF BIRDS LIVING ON THE OKEFEENOOKE NATIONAL WILDLIFE REFUGE



	S	S	F	W
Common Loon	r		r	r
Horned Grebe	u		u	u
Pied-billed Grebe	c	r	c	c
Double-crested Cormorant	o	r	o	o
Anhinga*	c	c	c	c
Great Blue Heron*	c	c	c	c
Green Heron*	c	c	c	o
Little Blue Heron*	c	c	c	c
Cattle Egret*	c	c	c	c
Great Egret*	c	c	c	c
Snowy Egret*	u	u	u	o
Louisiana Heron*	o	o	o	o
Black-crowned Night Heron	c	o	c	c
Yellow-crowned Night Heron	u	u	u	u
Least Bittern*	o	o	r	
American Bittern	u	u	u	c
Wood Stork*	o	c	o	o
Glossy Ibis	r		r	r
White Ibis*	c	o	a	c
Canada Goose	o		o	o
Mallard	c		c	c
Black Duck	c		c	c
Gadwall	o	o	o	o
Pintail	u	u	u	u
Green-winged Teal	c		c	c
Blue-winged Teal	u	u	u	
American Wigeon	u		u	u
Northern Shoveler	u		u	u
Wood Duck*	c	c	c	c
Redhead	o	o	o	o
Ring-necked Duck	c		c	c
Canvasback	r		r	r
Greater Scaup	r		r	r
Lesser Scaup	u		u	u
Common Goldeneye	r		r	r
Bufflehead	r		r	r
Ruddy Duck	o		o	o
Hooded Merganser*	c	r	c	c
Red-breasted Merganser	r		r	r
Turkey Vulture*	c	c	c	c
Black Vulture*	c	c	c	c
Swallow-tailed Kite	r	r	r	r
Sharp-shinned Hawk	r		r	r
Cooper's Hawk	o	r	o	o
Red-tailed Hawk*	u	r	u	u
Red-shouldered Hawk*	c	c	c	c
Broad-winged Hawk	o		o	o
Bald Eagle	r		r	r
Marsh Hawk	o		o	o
Osprey*	u	u	r	u
Peregrine Falcon	r		r	r
Merlin	r		r	r
American Kestrel*	c	o	c	c
Bobwhite*	c	c	c	c
Turkey*	r	r	r	r
Sandhill Crane*	c	c	c	c
King Rail*	r	r	r	r
Virginia Rail	r		r	r
Sora	r		r	r

	S	S	F	W
Purple Gallinule*	u	u	u	u
Common Gallinule*	u	u	u	u
American Coot	c		c	c
Killdeer	c		c	c
American Woodcock	u	r	u	u
Common Snipe	c		c	c
Spotted Sandpiper	u		u	u
Solitary Sandpiper	o		o	o
Willet	r		r	r
Greater Yellowlegs	u		u	u
Lesser Yellowlegs	u		u	u
Dunlin	r		r	r
Dowitcher (species?)	o		o	o
Semipalmated Sandpiper	o	o	o	o
Western Sandpiper	r		r	r
Sanderling	o		o	o
Herring Gull	r		r	r
Black Tern	r	r	r	r
Mourning Dove*	c	c	c	c
Ground Dove*	c	c	c	c
Yellow-billed Cuckoo*	c	c	c	c
Black-billed Cuckoo	r		r	r
Screech Owl*	u	u	u	u
Great Horned Owl	u	u	u	u
Barred Owl*	c	c	c	c
Chuck-will's-widow*	c	c	c	c
Whip-poor-will	o		o	r
Common Nighthawk*	c	c	c	c
Chimney Swift	c	c	c	c
Ruby-throated Hummingbird*	u	u	u	u
Belted Kingfisher*	c	u	c	c
Common Flicker*	c	c	c	c
Pileated Woodpecker*	c	c	c	c
Red-bellied Woodpecker*	c	c	c	c
Red-headed Woodpecker*	c	u	c	u
Yellow-bellied Sapsucker	c		c	c
Hairy Woodpecker*	o	o	o	o
Downy Woodpecker*	c	c	c	c
Red-cockaded Woodpecker*	u	u	u	u
Eastern Kingbird*	c	c	c	c
Great Crested Flycatcher*	c	c	c	c
Eastern Phoebe	c		c	c
Acadian Flycatcher*	u	u	u	u
Eastern Wood Pewee*	c	c	c	c
Tree Swallow	c		o	c
Barn Swallow	c	c	c	c
Purple Martin*	r	u	c	o
Blue Jay*	c	c	c	c
Common Crow*	o	o	o	o
Fish Crow*	c	c	c	c
Carolina Chickadee*	u	u	u	u
Tufted Titmouse*	c	c	c	c
White-breasted Nuthatch	r	r	r	r
Red-breasted Nuthatch	r		r	r
Brown-headed Nuthatch*	c	c	c	c
Brown Creeper	o		o	o

	S	S	F	W
House Wren	u		u	u
Winter Wren	u		u	u
Bewick's Wren	r		r	r
Carolina Wren*	c	c	c	c
Long-billed Marsh Wren	o		o	o
Short-billed Marsh Wren	u		u	u
Mockingbird*	c	c	c	c
Gray Catbird	c	c	c	c
Brown Thrasher*	c	c	c	c
American Robin	c		o	o
Wood Thrush*	u	u	u	u
Hermit Thrush	u		u	u
Swainson's Thrush	r		r	r
Gray-cheeked Thrush	r		r	r
Veery	u		u	u
Eastern Bluebird*	c	c	c	c
Blue-gray Gnatcatcher*	u	u	u	u
Golden-crowned Kinglet	u		u	o
Ruby-crowned Kinglet	c		c	c
Water Pipit	o		o	o
Cedar Waxwing	c		u	c
Loggerhead Shrike*	c	c	c	c
Starling	o	o	o	o
White-eyed Vireo*	c	c	c	u
Yellow-throated Vireo*	r	r	r	r
Solitary Vireo	o		o	o
Red-eyed Vireo*	u	u	u	u
Black-and-white Warbler	u	o	u	o
Prothonotary Warbler*	c	c	c	c
Swainson's Warbler*	r	r	r	r
Warm-eating Warbler	u		u	r
Golden-winged Warbler	o		o	o
Blue-winged Warbler	o		o	o
Orange-crowned Warbler	u		u	u
Northern Parula Warbler*	c	c	c	o
Yellow Warbler	u		u	u
Magnolia Warbler	r		u	u
Cape May Warbler	u		u	u
Black-throated Blue Warbler	u		u	u
Yellow-rumped Warbler	o		o	u
Black-throated Green Warbler	r		r	r
Cerulean Warbler	r		r	r
Blackburnian Warbler	u		u	u
Yellow-throated Warbler*	c	c	c	o
Chestnut-sided Warbler			r	r
Blackpoll Warbler	u		u	u
Pine Warbler*	c	u	c	c
Prairie Warbler	u		u	u
Palm Warbler	c		c	c
Ovenbird	u		u	u
Northern Waterthrush	r		r	r
Louisiana Waterthrush	o	r	o	o
Kentucky Warbler	o		o	o
Connecticut Warbler	o		o	o
Common Yellowthroat*	c	u	c	c
Yellow-breasted Chat	r		r	r
Hooded Warbler*	u	u	u	u
Canada Warbler	r		r	r
American Redstart	c	r	c	c



## PLEASE READ CAREFULLY

**QUALITY CONTROL:** Each canoe trail will be limited to one party daily, and each party will be limited to a maximum of 10 canoes and/or 20 persons. Canoeists are responsible for keeping trails free from litter. This means that litter must be held until after you leave the swamp; litter left by previous parties should be retrieved. Motors are not permitted on canoe trips.

**WILDLIFE:** Wildlife abound in the Okefenokee every month of the year. Sandhill cranes, ducks and other migratory birds are most numerous from November through March. Otter are commonly seen during cold weather when alligators are relatively inactive. Alligators are active in the summer and are observed sunning on banks mostly during spring and fall.

In general, mosquitoes are no problem except after dark from April through October. They are rarely encountered during the daytime. Deerflies, although a biting menace at times during the summer, are not as bad deep in the swamp. There is no need to fear snakes or alligators as long as normal precautions are taken and animals or nests are not molested.

**FISHING:** Sport fishing is permitted during posted hours in accordance with Georgia State Law and refuge regulations. Live minnows are not permitted as bait in Okefenokee waters. Bass fishing is best in early spring and late fall, but a lot depends upon water levels, moon phase, weather, and the skill of the fisherman.

**SUGGESTED SUPPLIES:** 1) Rope for pulling canoe; 2) Drinking water; 3) Insect repellent; 4) Mosquito netting; 5) Rain gear; 6) First aid kit; 7) Snake bit kit; 8) Extra batteries; 9) Litter bags; 10) Pop tent and/or jungle hammock and sleeping bag. Canoes, other camping equipment, and services are available for rent from the concessioner, Suwannee Canal Recreation Area, Folkston, Georgia 31537. Phone 912/496-7156.

### DESIGNATED CANOE TRIPS:

1. Kingfisher—Maul Hammock—Big Water—Stephen Foster—3 days (31 miles)
2. \*Kingfisher—Bluff Lake—Floyd's Island—Stephen Foster (via Floyds Prairie)—3 days (24 miles)
3. Kingfisher—Bluff Lake—Floyd's Island—Stephen Foster (via Suwannee Canal Run)—3 days (27 miles)
4. Suwannee Canal—Cedar Hammock—Suwannee Canal—2 days (12 miles)
5. Suwannee Canal—Suwannee Canal Run—Stephen Foster—2 days (17 miles)
6. \*Suwannee Canal—Cedar Hammock—Floyd's Island—Stephen Foster (via Floyds Prairie)—3 days (24 miles)
7. Suwannee Canal—Cedar Hammock—Floyd's Island—Stephen Foster (via Suwannee Canal Run)—3 days (27 miles)
8. Stephen Foster—Crawens Hammock—Stephen Foster—2 days (18 miles)
9. \*Suwannee Canal—Cedar Hammock—Floyd's Island—Suwannee Canal—3 days (29 miles)
10. \*Suwannee Canal—Cedar Hammock—Floyd's Island—Bluff Lake—Kingfisher—4 days (32 miles)
11. Kingfisher—Maul Hammock—Big Water—Floyd's Island—Bluff Lake—Kingfisher—5 days (43 miles)
12. Kingfisher—Bluff Lake—Kingfisher—2 days (15 miles)
13. \*Kingfisher—Maul Hammock—Big Water—Stephen Foster—Floyd's Island—Bluff Lake—Kingfisher—6 days (55 miles)

Note: Short portage across Floyd's Island required on all trips crossing this island.

Please note—The state charges a camping fee at Stephen Foster State Park and there are boat launching fees at Stephen Foster and the Suwannee Canal Recreation Area.

\*Starting point and destination may be reversed, but only by permit.

Mileages shown are total for each trip.

**PERMITS:** Canoe trips into the Okefenokee Wilderness may be reserved no earlier than ~~two~~ <sup>three</sup> ~~weeks~~ <sup>months</sup> in advance. A one dollar per person per night User Fee is charged for each member of a canoe party. For reservations write or phone:

Refuge Manager  
Okefenokee National Wildlife Refuge  
P.O. Box 117  
Waycross, Georgia 31501  
Phone: 912/283-2580

The following information should be submitted with your written request for a permit:

1. Date trip is planned.
2. Choices of canoe trails.
3. Expected number of canoes in party (a maximum of 10 canoes—20 persons—is permitted).
4. Name of person in charge.
5. Names and addresses of all participants.
6. A money order, cashier's or certified check for one dollar per person per night camping. Personal checks will not be accepted.

**PHYSICAL CONDITIONS:** The swamp terrain is flat; there is no fast water and very little dry land. Your paddle will be used every inch of the way as you wind through cypress forests or cross open "prairies" exposed to the sun and wind. You may have to get out of your canoe and push across peat blowups or shallow water. Water levels in the Okefenokee Swamp sometimes become too low to permit use of certain trails; when this occurs, parties holding reservations will be notified.

**WEATHER:** Daytime temperatures are mostly mild. However, during June, July, August and September the swamp can be hot and humid with temperatures ranging above 90°. Winter days range from below 40° to 80°, but much of the time temperatures are in the fifties and sixties. Summer nights are warm, and winter nighttime temperatures can be near or below freezing. Record lows have dipped to 18°. The rainy season is normally from June through September. Many summer afternoons are drenched with localized thundershowers. Lightning is probably the most dangerous feature of an Okefenokee experience.

**SAFETY:** Each traveler is required by law to have a Coast Guard approved life preserver in his possession. Each canoe must contain a compass and a flashlight. Each canoeist must register when entering and leaving the swamp. Due to danger from alligators, pets may not be taken into the swamp. For the same reason, swimming is not permitted. Minimum party size for safety is two persons. Parties will not be permitted to launch later than 10:00 a.m. to insure that the overnight stop is reached before dark.

**CAMPING:** Overnight camping is permitted only at designated overnight stops. You must register at each stop. Since firm land is not available at all overnight stops, a 20' x 28' wooden platform is provided. Pop tents are recommended. No nails should be used and no trees or limbs should be cut. Open fires are not permitted except at specified areas, so gasoline, bottle gas or similar types of stoves will be required if you plan to cook meals. You must remain at the designated overnight area between sunset and sunrise. You may camp only one night per rest stop. Portable toilets with disposable bags are required even though overnight camp sites are outfitted with chemical toilets.

DO NOT FEED WILD ANIMALS  
THEY WILL BITE



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



# Wilderness Canoeing in Okefenokee

PLEASE REMIT  
10¢ FOR CANOEING  
BROCHURE



## National Wildlife Refuge



# Okefenokee Canoeing Trails



Markers are placed one mile apart with mileage figures shown on the sign. Numbering begins at Kingfisher Landing for the red and green trails, at the Suwannee Canal for the yellow trail and orange trail, and at Stephen Foster for the brown trail. White posts without signs are installed where additional guidance is needed. Guides are not required or needed.

