

CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE COMPLEX

Homosassa, Florida

ANNUAL NARRATIVE REPORT

Calendar year 1983

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

CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE COMPLEX



"Back in the Saddle Again" 83-2C21-SJM

PERSONNEL

- | | |
|-------------------------------------|--------------------------------|
| 1. Glenn A. Carowan, Jr. (EOD 9/83) | Project Leader, (GS-12 PFT) |
| 2. Stuart J. Marcus (EOD 6/79) | Refuge Manager, (GS-7 PFT) |
| 3. Esther A. Brown (EOD 12/76) | Secretary, (GS-5 PFT) |
| 4. Bob B. Quarles (EOD 3/74) | Maintenance Worker, (WG-7 PFT) |
| 5. Jerre L. Gamble (EOD 7/79) | Refuge Manager, (GS-9 PFT) |
| 6. Robert C. Ziobro (EOD 10/83) | Refuge Manager, (GS-9 PFT) |

CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE
PERSONNEL

- | | |
|-----------------------------------|--------------------------------|
| 1. Edward Collinsworth (EOD 6/67) | Refuge Manager, (GS-11 PFT) |
| 2. Stuart J. Marcus (TRAN 2/84) | Refuge Manager, (GS-7 PFT) |
| 3. Bob B. Quarles (EOD 3/74) | Maintenance Worker, (WG-7 PFT) |

Review and Approvals

Stuart J. Marcus 2/05/84
Submitted by Date

Glenn A. Carowan, Jr. 2/23/84
Complex Office Review Date

John C. Oberhea 3-23-84
Regional Office Review Date



*Stuart J. Marcus, refuge manager and
Esther A. Brown, secretary.*



Bob B. Quarles
Maintenance Worker

CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE

Citrus County, Florida
Hernando County, Florida

ANNUAL NARRATIVE REPORT

Calendar Year 1983

NATIONAL WILDLIFE REFUGE SYSTEM
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U.S. DEPARTMENT OF THE INTERIOR

INTRODUCTION

Chassahowitzka National Wildlife Refuge is located approximately 65 miles north of Tampa on the west coast of Florida. The refuge is situated in the southwest corner of Citrus County and northwest corner of Hernando County.

The name Chassahowitzka is derived from the Creek-Seminole language and when translated means "pumpkin opening place".

The refuge was established as a waterfowl wintering area in 1943. The 30,436 acre refuge is comprised primarily of estuaries, salt marshes, tidal streams and shallow bays with a border of hardwood swampland along the 12 mile eastern boundary. The marshlands are fed fresh water from the Homosassa River which parallels the northern boundary and the Chassahowitzka River which flows east to west through the center of the refuge. The refuge marshlands, shallow bays and tidal streams provide an abundance of aquatic plants and animal life that support thousands of wintering waterfowl, marsh, water and shore birds; and a variety of other animal species that depend upon a marine environment.

In October, 1983, because of it's location and physical facilities, Chassahowitzka Refuge was designated as the administering office for the chain of seven coastal refuges that are dispersed along 200 miles of Florida's Suncoast, from Tampa Bay to the Suwannee River. In addition to Chassahowitzka, the other refuges in the complex include Passage Key, Egmont Key, Pinellas, Crystal River, Cedar Keys and Lower Suwannee.

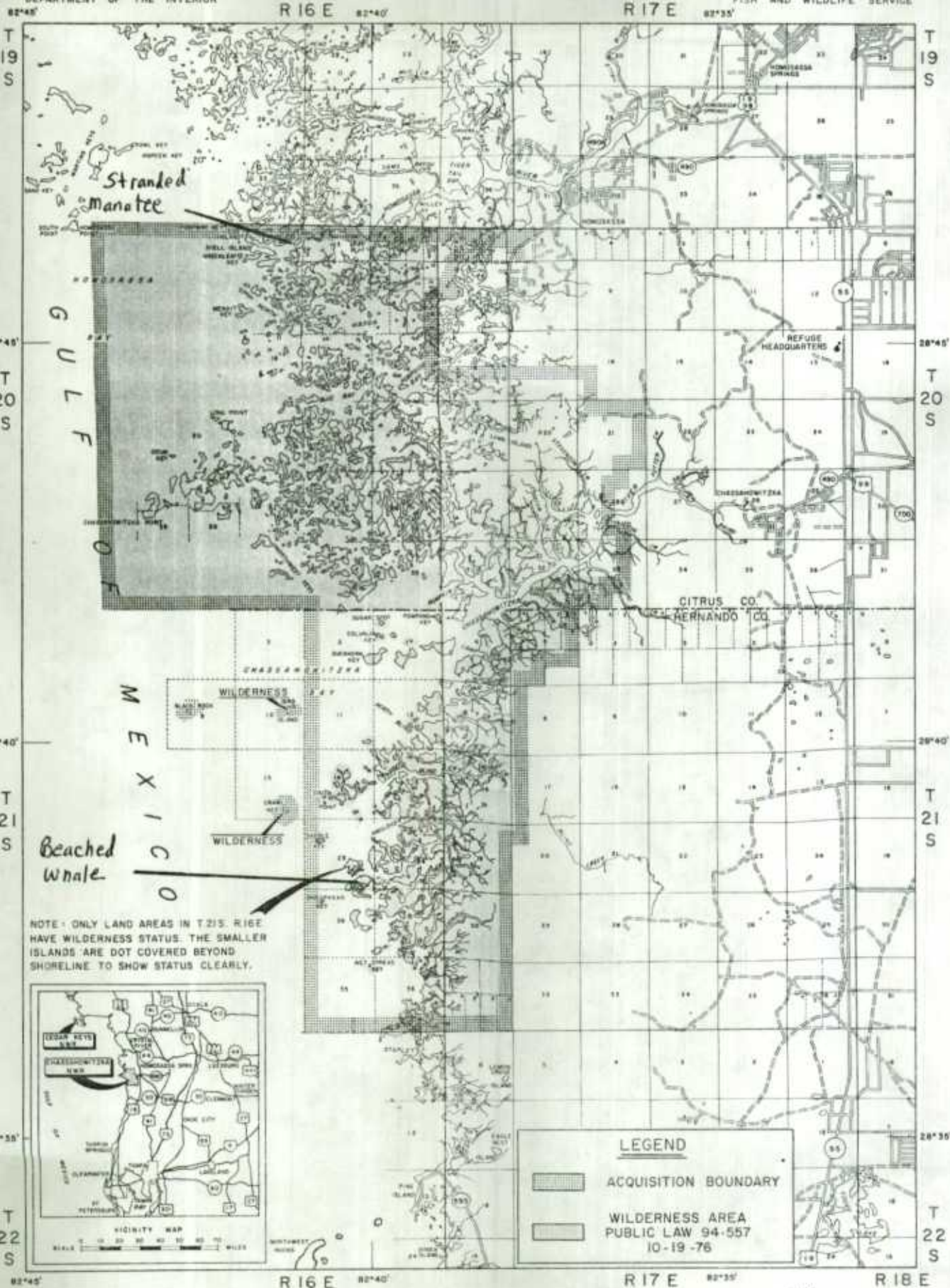
The headquarters for the complex is located four miles south of Homosassa Springs on U.S. Highway 19.

CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

CITRUS AND HERNANDO COUNTIES, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE



NOTE: ONLY LAND AREAS IN T.21S. R.16E HAVE WILDERNESS STATUS. THE SMALLER ISLANDS ARE DOT COVERED BEYOND SHORELINE TO SHOW STATUS CLEARLY.



LEGEND

- ACQUISITION BOUNDARY
- WILDERNESS AREA
PUBLIC LAW 94-557
10-19-76

COMPILED IN THE DIVISION OF REALTY FROM SURVEYS BY G.L.O., U.S.G.S AND AERIAL PHOTOGRAPHY

ATLANTA, GEORGIA

REVISED 5/79
JUNE, 1974

Scale 0 2500 5000 10000 15000 20000 FEET
0 1/2 1 1 1/2 2 2 1/2 3 3 1/2 4 MILES

MEAN DECLINATION
1974

4R FLA 363 404

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A. HIGHLIGHTS

Chassahowitzka Refuge assumed the administrative responsibilities for the seven refuges along Florida's Suncoast. (E)

Refuge Manager Edward Collinsworth retired on April 30th and was replaced by Glenn A. Carowan, Jr. on September 4th. (E-1)

Chassahowitzka National Wildlife Refuge celebrated its 40th anniversary in June. (J-2)

Chassahowitzka National Wildlife Refuge held its first upland big game and small game hunts. (H-8)

Refuge Manager Ed Collinsworth and Secretary Esther Brown received Special Achievement and monetary awards. (J-2)

B. CLIMATIC CONDITIONS

The weather for 1983 was considered "normal" although it was a fairly wet year. Whereas numerous records were broken in 1981 and 1982, none were set this year. We had a cool, but extremely wet winter with only one day reaching the teens. Measurable rainfall occurred on 115 days.

WEATHER SUMMARY

	<u>High</u>	<u>Low</u>	<u>Precip. Inches</u>	<u>Average Precip.</u>
January	82	27	1.67	3.15
February	85	28	6.20	3.55
March	86	33	8.83	4.10
April	89	41	4.98	1.69
May	94	50	1.26	3.86
June	97	63	4.64	6.02
July	95	68	8.95	8.85
August	98	72	8.89	10.07
September	98	57	8.89	6.93
October	95	48	1.23	2.49
November	87	33	4.89	1.79
December	87	18	5.80	2.97
Extremes	98	18	66.23	55.37

C. LAND ACQUISITION

1. Fee Title

Chassahowitzka National Wildlife Refuge was established by the authority of the Migratory Bird Conservation Act on June 15, 1943. Four hundred fourteen acres of public domain land was withdrawn and reserved as part of the refuge under Public Land Order No. 140. Shortly thereafter, 5,343 acres were acquired in Fee Title by the U.S. Fish and Wildlife Service. World War II halted the growth of the refuge but acquisition resumed following the war.

The refuge presently contains 30,436 acres, more or less, with no additions during 1983. The remaining inholdings total approximately 685 acres and are considered priority acquisition. The Division of Realty, Atlanta, submitted a request for condemnation on the remaining tracts in 1980, but we do not expect any action under this alternative. Negotiations on additional lands which were considered for possible acquisition have been delayed indefinitely due to the lack of funds.

3. Other

Mr. and Mrs. Stanley Rising requested a land exchange involving refuge property on Mason Creek. They proposed to exchange 4.5 acres for a 125' x 400' strip of Service owned land because that strip had an established water well site. Since the land exchange would help better define the existing boundary and would prevent further development along this section of Mason Creek, it was a feasible request and one which Realty considered. Nothing was finalized during the year.

D. PLANNING

1. Master Plan

In March the Planning Needs Assessment Report was completed and sent to the Regional Office for review. This report of revised and updated refuge objectives will be used to evaluate future master planning needs. A prioritized list of refuges needing master planning will be forthcoming at which time this station will find out when master planning will be required.

2. Management Plans

A revised hunt plan, including the environmental assessment, Section 7 and FONSI was written and approved in February for Chassahowitzka's first upland game hunt.

The Fire Management Plan for the refuge was prepared and submitted in July.

A revised sign plan was written in August. It pointed out the refuge sign deficiencies, especially the "homemade" variety. Approved replacements were made during the year to the extent the budget allowed.

5. Research and Investigations

No research or investigations were conducted this year by personnel outside the Service.

Routine nesting and populations surveys on reptiles, birds and mammals were conducted during the year. Other investigations included: monitoring waterfowl and upland game harvest, weather, drinking water quality and vegetative resources.



*Bob Quarles checking bluebird nesting box.
1983 - SJM*

A concerted effort to add amphibians, reptiles and mammals to the refuge species lists continued throughout the year. Twenty-nine mammals and 47 amphibians and reptiles have now been confirmed as existing on the refuge.

The refuge bird list was revised and reprinted in December, 1983. It contained 234 species and 21 accidental sightings.

The refuge plant list was revised with a significant increase from 260 species in 1982 to 397 species in 1983 being catalogued. All plants that were recently added were photographed for future reference rather than collecting and drying them for use in a herbarium.



Newly added Catfly-gentain, Eustoma exaltatum

1983-77 SJM

E. ADMINISTRATION

In 1983 the administrative and management responsibilities of Chassahowitzka Refuge were manifested five fold through the expansion of existing refuges, acquisition of new refuges and the eventual consolidation in October of all refuges along Florida's Suncoast into a complex organization of management. Chassahowitzka Refuge was designated as the "mother ship" to bear the administration of the three Tampa Bay Refuges, (Egmont, Passage Key, and Pinellas), the Chassahowitzka Refuge, the new Crystal River Refuge, Cedar Keys Refuge and the rapidly expanding Lower Suwannee Refuge.

Significant changes were in order to effectively administer this diversified conglomerate of geographically dispersed refuges located along this 200 mile stretch of Florida's west coast. Included in these changes were (1) an appeal to truly identify this conglomerate as a complex; (2) the subsequent modification of the organizational cost structure to identify a single AWP level organization (in our case Chassahowitzka Refuge) for the complex thereby consolidating the various individual budgets and annual work plans into one source of financial and program management; (3) the revision of all position descriptions and submission of SF-52's to reflect that Chassahowitzka Refuge was the complex's master duty station; (4) the establishment of a Class B imprest fund cashier with a \$2,000 imprest fund and responsibility for two subcashiers; (5) a request for a cost level organization code for the new Crystal River Refuge; (6) a request to correct the physical locations and mailing addresses for the individual stations in the PFMIS handbook; and (7) a request to modify the PFMIS system so that the Finance Center's monthly reports (OTR, MMR, etc.) reflected not only how and what we were doing on the complex as a whole, but also what, in terms of dollars and manpower, was being directed to meet individual station objectives.

Some of these changes were implemented immediately while others were pending at year's end awaiting a decision from the R.O.

1. Personnel

A. Personnel Change

Mr. Collinsworth retired on April 30th. Ed began his career at Chassahowitzka in 1951 as a clerk-typist. He transferred to Holla Bend as assistant manager in 1959 and to Okefenokee in 1963. He returned to Chassahowitzka in 1967 as the refuge manager. Although Ed Collinsworth was the last remaining refuge manager that did not have a college degree, his expertise, ranging from acquisition to zoology will surely be missed.

Jerre L. Gamble from the Lower Suwannee Refuge served in the interim (April 30 - September 4) as Acting Refuge Manager.

This was definitely a year of change. Fourteen personnel actions were submitted during the year beginning with Refuge Manager Ed Collinsworth's retirement after over 35 years of government service. Glenn A. Carowan, Jr. was selected as Mr. Collinsworth's replacement and reported for duty on September 4, transferring from the Assistant Project Leader's position at the Georgia Coastal Complex.

After eight years of part-time status, Secretary Esther Brown was changed to full-time effective October 2, 1983.

Two new positions were advertised in November; a park technician (law enforcement) and maintenanceman WG-6/7. Certificates had not been received at year's end.

Although the actual moves were not effected until the first of 1984, Assistant Manager Marcus transferred to Hobe Sound Refuge and Mr. Jack Womble transferred from Felsenthal National Wildlife Refuge to become the Assistant Project Leader for the complex.

FIVE YEAR COMPARISON

REFUGE STAFFING PATTERN

PERMANENT

<u>Fiscal Year</u>	<u>Full Time</u>	<u>Part Time</u>	<u>Temporary</u>
1983	3	1	0
1982	3	1	0
1981	3	1	0
1980	3	1	0
1979	3	1	0

Following the establishment of the complex on October 1, personnel increased from three full time and one part time to six full time positions by year's end.

B. Training

Project Leader Carowan, Assist. Manager Marcus and Maintenance Worker Quarles passed firearms requalification at Merritt Island NWR in October.

Messrs. Carowan, Marcus, Quarles and Ms. Brown attended the eight hour defensive driving course given by the National Safety Council at the Adult Education Center in Inverness on December 5th and 7th.

Bob Quarles attended the LE refresher training, Glynco, GA in June. He also received 66 hours of training at the Withlacoochee Vo-Tech Center in Inverness, FL, on small engine repair during night school in September, October and November.

Stuart Marcus participated in the waterfowl wing-bee at Patuxent Research Center, Laurel, MD in February; LE refresher training at Glynco, GA in July; and was awarded honorable mention for a photo entered in the Service's Public Use category photo contest.

4. Volunteer Program

A volunteer program was initiated in 1983, in response to the obviously increasing demand for assistance in educating the local public and thousands of visiting divers as to the plight of the West Indian manatee and the purpose of established sanctuaries and speed restrictions in Kings Bay. The Division of Law Enforcement spearheaded the recruitment of volunteers in an effort to complement their enforcement activities by providing local eyes and ears to document the degree of manatee associated violations.

The program got started late in February when the wintering manatee population was beginning to disperse, so very little was done to pursue the volunteer program.

With the acquisition of the new Crystal River NWR in August 1983, the emphasis for management of manatee population in Kings Bay was thrust upon this administration. It was obvious from the preceeding season, that if we were going to effectively improve our efforts to enforce manatee regulations, it must be done through a combination of enforcement and education since enforcement by itself was definitely not solving the problem. With only a skeleton staff to administer such a concerted effort, we turned to the volunteer program.

On November 30, fifteen days after the manatee season began (November 15 - March 15) FWS policies and the objectives of the volunteer efforts were explained. Each of the twelve volunteers was given a packet of essential information necessary to prepare them for on-site interpretation of manatee problems, life history, regulations, etc. in Kings Bay. The volunteers were given a written test to assess their competency. On December 21st "the lambs were thrown to the wolves" with the expressed condition that under no circumstances were they to initiate any enforcement action -just education and interpretation.



Project Leader Carowan explained that education, not enforcement, was the primary objective of the new volunteer "Manatee Watch". 1983-2C25 SJM

In the first week and a half, the volunteers donated 53 hours -handing out educational materials, answering questions and explaining regulations.



*A 4'x4' aluminum shed was erected on Banana Island
for use by volunteers as a contact station.*

1983 - SJM

While most of the volunteers' early efforts were conducted from the contact station, they felt that they would be much more effective and could contact more people if they were mobile. So--off in their personal boats they went, disseminating information and mingling with boaters and divers, to become a truly effective asset to the protection of this endangered species.



With "Manatee Watch" signs hung from the sides of their boats, the volunteers drew large crowds of interested divers and were able to better explain manatee rules and regulations.

1983 - GAC

5. Funding

The establishment of the Complex in FY 84 combined the Lower Suwannee, Cedar Keys, Crystal River and Tampa Bay Refuge budgets with Chassahowitzka's budget to facilitate financial management.

The following table shows current funding as a complex compared to the funding of the individual stations over the four years prior to the complex's establishment.

FIVE YEAR FUNDING COMPARISON

Chassahowitzka Complex

<u>FY</u>	<u>1260</u>	<u>1480</u>	<u>ARMM</u>	<u>TOTAL</u>
84	\$ 229,000	2,000	47,000	278,000

Chassahowitzka NWR

<u>FY</u>	<u>1210</u>	<u>1220</u>	<u>1240</u>	<u>1400</u>	<u>TOTAL</u>
83	90,000	10,000	15,000	5,000	120,000
82	83,000		15,000	2,000	100,000
81	76,000		13,000	2,000	91,000
80	62,000		33,000	2,000	97,000

Lower Suwannee/Cedar Keys NWRs

<u>FY</u>	<u>1210</u>	<u>1220</u>	<u>1240</u>	<u>1400</u>	<u>TOTAL</u>
83	40,000				40,000
82	131,000		11,000		142,000
81	110,000		10,000		120,000
80	164,000		5,000		169,000

FY83 funds were adequate to maintain operations at Chassahowitzka, Lower Suwannee and Cedar Keys Refuges. However, with the addition of the Tampa Bay refuges; the establishment of the new Crystal River Refuge; the acquisition of an additional 12,287 acres at Lower Suwannee and immediate needs to administer this area; the hiring of two additional full time personnel; the change of station moving costs to fill vacancies; and the increased emphasis on providing more hunting opportunities at Lower Suwannee, all combined to devastate the FY84 budget before the 1984 calendar year began. With the initial FY 84 budget being only 10 percent above fixed costs, it is obvious that funding shortages will definitely affect our operations for the rest of FY 84.

6. Safety

Safety meetings were held monthly. No lost time accidents occurred during the year. Hours worked since the last lost time accident totaled 30,000.

After 35 years of government service, Ed Collinsworth had his first accident in a government vehicle. It resulted in a minor fender-bender in which the other party did not even stop. Repair cost was \$105.

On December 31st while starting the 15 foot Airgator airboat, the carburetor backfired and caught fire. A quick reaction by Maintenceman Quarles, by using a readily available fire extinguisher, averted a potential disaster. A poor safety design allows the two - 18 gallon gas tanks to lie directly below the carburetor, precisely where the flames were shooting out.

7. Technical Assistance

The Florida Marine Patrol and U.S. Coast Guard were assisted occasionally in search and rescue missions and manatee enforcement off refuge.

With the recent staffing of a Corps of Engineers office in Crystal River, we have been able to work more closely with them concerning illegal dredge and fill violations adjacent to our boundaries. The Corps, State Department of Environmental Regulations, along with the County Health Department, have issued several violation notices to these landowners.

Asst. Manager Marcus assisted Biologist James Kelly, Dept. of Natural Resources, with an aquatic plant survey of refuge waters on May 6th. He was primarily concerned with getting a quick overview of dominant vegetative types for future reference in possible research projects.



Carl Melberg, Corps, and Charles Bradley, County Health Dept. inspecting fill and septic tank violations. 1983 -3F14 SJM

Asst. Manager Marcus attended a meeting on cooperative efforts concerning the manatee in Crystal River on January 26th. Most agencies involved with manatee survival were there to give presentations or answer questions from the public.

Assistant Manager Marcus cooperated with a Gainesville, Florida consulting firm by supplying them with species lists and personal observations concerning pollution effects on the refuge. The consulting firm was gathering information for Florida Crushed Stone Co. which plans to build a coal fired plant for their operations in Brooksville. Located only 15 miles from a Class I Wilderness Area, special permits are required for construction because of the possible effects of sulfur dioxide pollution. In October, we received a copy of the firm's final report stating of course, that there would be no permanent damage to the refuge. The report was forwarded to Refuge Supervisor John Oberheu and Joe Carroll, Ecological

Services, Vero Beach, Florida, for review. We have received no further contact since then.

On December 9th, Project Leader Carowan met with representatives of the Corps of Engineers, Citrus County Aquatic Weed Control, and Galen Rathbun and Dave Peterson of the FWS to review the plan for the hydrilla treatment in Kings Bay, Crystal River. The meeting was prompted by complaints from local residents and marina operators whose contention was that hydrilla was adversely affecting recreational uses in Kings Bay.

After reviewing the present management plan, it was agreed that both the summer and winter treatment areas could be expanded without jeopardizing the manatee population. Citrus County was granted increased discretionary zones for using Aquathal-K and mechanical harvesting. Treatment areas where copper and Diquat are used were not expanded. Furthermore, it was agreed that mechanical harvesting would be permitted in the manatee sanctuaries if necessary to control hydrilla in boat lanes and/or to allow manatees better access. Treatment in the sanctuaries was sanctioned only "if the mechanical harvester operator was accompanied by a refuge employee as an observer and treatment was done only during warm fronts when manatees were sufficiently dispersed to avoid a collision". All mechanical treatment adjacent to the sanctuaries during the November 15 - March 31st season must also adhere to the same guidelines, with the exception that Citrus County will be responsible for supplying the observers.

F. HABITAT MANAGEMENT

6. Other Habitats

Chassahowitzka Refuge is comprised primarily of estuaries, salt marshes, tidal streams and shallow bays with a border of hardwood swampland along the 12 mile eastern boundary. The marshlands are fed fresh water from the Homosassa River which parallels the northern boundary and the Chassahowitzka River which flows through the center of the refuge. We have no active habitat management practices and none are planned.

9. Fire Management

No control burning or wildfires occurred this year.

12. Wilderness and Special Areas

The Chassahowitzka Wilderness Area was established on October 19, 1976 by Public Law 94-557. The area presently contains a total of 23,617 acres with 16,881 in Citrus County and 6,736 acres in Hernando County. Land acquisition is not yet complete within the boundary of the area designated as wilderness. As inholdings are acquired, they will automatically be included in the wilderness and the acreage adjusted accordingly. The State of Florida owns the waterbottoms and controls uses on the navigable waters in the Hernando County portion of the wilderness. These navigable waters are not included in the wilderness and are under the jurisdiction of the State.

The Service owns the waterbottoms in the Citrus County wilderness area. Wilderness designation did not change existing fishing, guiding or motorboat uses because such uses were traditional and well established, but it did halt any future habitat manipulations.

G. WILDLIFE

2. Endangered and/or Threatened Species

<u>Species found on Refuge</u>	<u>USFWS</u>	<u>State</u>	<u>Estimated Population</u>
American Alligator	T	-	700
Atlantic Green Turtle	E	E	200
Atlantic Ridley Turtle	E	E	10
Atlantic Loggerhead Turtle	T	T	10
Eastern Indigo Snake	T	T	20
Brown Pelican	E	T	150
Wood Stork	-	E	25
Bald Eagle	E	T	6
Peregrine Falcon	E	E	1
West Indian Manatee	E	E	20
E - Endangered			
T - Threatened			

Species known to reproduce on the refuge include the alligator, indigo snake, bald eagle and possibly the manatee.

a. West Indian Manatee

When the waters of the Gulf of Mexico warm up, the critically endangered manatee leave the protected warm waters of natural springs and nuclear power plant warm water discharge canals to migrate along the coast of Florida. As many as 20 manatees

spend part of the spring and summer in the Chassahowitzka River. A two-mile stretch of the Chassahowitzka River located within refuge boundaries, was designated a critical area to avoid potential life threatening collisions with speeding boats. Following a local public meeting in early 1979 and publication of regulations, the area was posted "Slow Speed - Minimum Wake" for all motorized boats May 1 through August 31.

During cold weather manatees seek warm water areas for survival. For the fourth year, the refuge staff posted three manatee sanctuaries in the year-round, 72 degree, spring-fed waters of Kings Bay, Crystal River. These areas were posted from November 15th to March 31st and included 11 open water acres which were closed to all water related activities.



Manatee Sanctuaries
1983 - SJM

In 1983 the Chassahowitzka staff also had the responsibility for conducting manatee aerial surveys along the western coast of Florida from the Chassahowitzka River, north to the Suwannee River. Prior to this year, personnel from the Denver Wildlife Center in Gainesville, FL conducted the aerial surveys. During the colder months (October through March) weekly censuses were conducted over the Homosassa River, Crystal River and the Crystal River nuclear power plant discharge canal. The monthly summer survey flights (April - September) covered the same areas plus all the rivers and streams located between Chassahowitzka River and Suwannee River.

Peak manatee populations were counted during the winter surveys because they congregated in clear and generally shallow water which made them easier to count. Of all the manatee herds in Florida, the Crystal River herd is the only one known to be steadily increasing. The peak of 78 in 1977 has increased to 142 in 1983. These numbers represent an estimated 10-15% of the total manatee population.

On May 12th a dependent manatee calf was found dead by refuge staff on an island along the Homosassa River. The newly born three foot manatee was salvaged by the Marine Patrol and was transported by refuge personnel to the Denver Wildlife Research Center in Gainesville for a necropsy. The cause of death was undetermined. This was only the second recorded manatee death known to have occurred within the refuge boundaries.



*Dropping in to see endangered manatees.
1983 -407 JCM*

The total statewide manatee mortality for 1983 was 80; a substantial decrease from the 123 in 1982. Causes of death included: boat/barge collision - 14; navigation locks/flood control structures - 7; crab trap line -1; drowned in culvert -4; natural causes - 5; dependent calves - 18; and undetermined - 31.

b. Bald Eagle

An aerial bald eagle survey was conducted on February 9th. Three active nests were sighted; two on the refuge, the other approximately 1 mile east of the refuge boundary. Both nests on the refuge contained at least one egg each. It was impossible to determine if the other nest had eggs or not. Five adults were counted during the flight, and an immature was observed a few days later while on patrol. At least five eagles have utilized the refuge during the winter/spring months for more than a dozen years.

c. American Alligator

The 18th alligator survey was conducted on July 12th and 13th. The count of 219 'gators over a 12 mile stretch was consistent with the last six years' average. The same route which only contained 16 gators in 1966 now averages 215. The total refuge population is estimated at 700.

Seven 'gator nests were spotted in August by airboat compared to five in 1982 and four in 1981. Four successfully hatched.

3. Waterfowl

Except for the possibility of intensive short stopping, we are at a loss as to why waterfowl populations are continuing on a downward trend. The refuge contained more than adequate natural food resources during the year, and December, 1983 was the coldest reported winter in practically every state north of Florida and in Florida itself. Still no ducks or coots! In the late 60's and early 70's the refuge averaged 15,000 ducks and 30,000 coots, while the average for the late 70's and early 80's was only 4,000 and 5,000 respectively. This year the December peak was only 1,275 ducks and 300 coots.

4. Marsh and Water Birds

The red and black mangrove island rookeries partially recovered from past freeze damages but nesting remained approximately 50% below average. It is hard to understand why hundreds of herons, egrets and cormorants will nest on a mangrove island year after year, yet a similarly vegetated island only a few hundred yards away remains untouched.



Green-backed Heron chicks

1981-109 SJM

5. Shorebirds, Gulls, Terns and Allied Species

Chassahowitzka is not noted for an over-abundance of shorebirds, although at low tides numerous species may be seen on the mud flats and oyster bars. Sandy beaches are absent along this portion of Florida's west coast. Generally, peak populations have remained fairly constant over the years.

6. Raptors

The population of raptors showed no noticeable changes this year.

8. Game Mammals

Big game mammals include the white-tailed deer and feral hog. Populations are estimated at 20 and 50 respectively. There has been some increase in hog activity recently, probably due to the adjacent private hunt clubs which keep releasing them near our boundary.

Small game mammals include the grey squirrel and marsh rabbit.

9. Marine Mammals



Stranded pygmy Sperm Whale.
1983-4F10 BBQ

In addition to the endangered manatee, Atlantic bottlenose dolphins were common in refuge waters.

A pygmy sperm whale (preceding page) "beaching" occurred during the first week in February. Refuge staff on routine patrol, spotted the dead 9 foot whale on a rocky island in Fish Creek about 50 feet from water. Whale sightings are extremely rare in this part of the Gulf due to the shallow waters which extend miles offshore.

10. Other Resident Wildlife

The Florida black bear was infrequently observed on refuge lands, although sightings on the Lykes property east of the refuge were common.



Road-killed black bear found a few miles from the refuge.

83-4F11
Jack Baker (FGFC)



*One must not
forget the "other"
wildlife - a
beautiful 2-inch
Banana Spider.
1983-4025
SJM*

H. PUBLIC USE

1. General

Due to the limited number or lack of staff on the other refuges within the complex, Chassahowitzka personnel assumed the responsibility for responding to the majority of public use requests and inquiries which increased dramatically in 1983 with the addition of the new refuges.

Chassahowitzka Refuge has experienced a moderate increase in public use over the past several years. The current peak of 36,000 visitors, 90% of whom are consumptive users, is expected to double early in 1990. The nine counties, encompassing approximately a 75 mile radius, increased in population from 1.3 million in 1970 to 1.94 million in 1980. According to the 1980 census figures, between 1970 and 1980, Citrus and Hernando Counties have grown by 185% and 161% respectively, ranking first and second overall in the state.

Sixty news articles concerning on and off refuge activities occurred in area newspapers during the year vs. 24 in 1982. Two articles appeared in national magazines. Most articles dealt with such subjects as manatees, hunting and land acquisition.

4. Interpretive Foot Trails

A self-guided 1/2 mile walking trail is located on part of the 40 acre headquarters tract. This is the only part of the refuge that is accessible to the public without a boat. Trail maps showing numbered plant and animal identifications are placed at the beginning of the trail. Recent heavy rains necessitated hauling several hundred yards of fill to build up the lower lying portions of the trail even though this tract is located on an upland site.



Trail Maintenance
1983-3017 SJM

6. Interpretive Exhibits/Demonstrations

In addition to organized groups, over 1500 individuals visited the headquarters contact station; a 50% increase over last year. Persons from 29 states and as far away as England, Mexico, West Germany and Greece, visited the refuge.

Asst. Manager Marcus and Maintenance man Quarles manned an exhibit at the town of Homosassa's centennial birthday party celebration adjacent to MacRae's Bait House on May 9th. Several thousand visitors attended the celebration.

7. Other Interpretive Programs

Thirty-three interpretive tours, involving 872 school kids, were conducted by refuge staff members during the year. The programs began with a slide presentation and ended with a guided tour down part of the Chassahowitzka River. Although there was a 5% decrease in individual participation from last year, the total number of tours increased by approximately 20% following a 40% increase the previous year. An assessment of these activities revealed that approximately 66 staff days were spent providing this type of use, one which will be eliminated in the future due to more pressing demands being placed on this staff.

8. Hunting

Hunting programs were expanded in 1983 to include big game and small game hunts at Chassahowitzka, small game and waterfowl hunts on Lower Suwannee's 5,000 acre Shired Island Tract, and waterfowl and upland game hunts on the newly acquired 12,287 acre Lower Suwannee NWR Brunswick Tract and the 6,000 acre Ocala Tract. While we were adequately prepared to administer the Chassahowitzka and Shired Island hunts, the purchase of the Brunswick Tract in late September and our subsequent decision to hunt this area and the Ocala Tract created some expeditious administrative maneuvers on the part of Chassahowitzka's staff to timely prepare the necessary permit procedures and hunt regulations.

Our October 12 decision to hunt this new area was based primarily on the fact that the State had recently lost 100,000 acres of public hunting lands to private hunt clubs in the Suwannee area. We therefore felt compelled to initiate these hunts and provide more hunting opportunities, realizing that this action would not jeopardize or adversely affect our primary objectives at Lower Suwannee, but would in fact give us increased state and public support for continued acquisition on this refuge.

Time was of the essence, however, since the State's big game season began November 12.

Because of the expected popularity of the previously closed area to public hunting and the limited amount of time, we decided that the first nine days of the State season would be a quota hunt with the remainder of the season being open to all comers. Immediate preparations of hunt regulations were begun for a brochure not yet printed. Rules on how to apply for the hunt were immediately sent to seventeen local newspapers on October 14th, establishing October 31 as the deadline for quota hunt applications.

To apply, hunters mailed in 3 x5 cards with their names and addresses printed on one side. A public drawing was held November 1. Two hundred (200) permits were drawn, validated and mailed back in time for the hunt which began November 12. We received 1,100 applications in one and a half weeks. The 900 applicants that did not get drawn for the quota hunt were allowed to hunt the remainder of the season along with 2350 others who applied before November 30. A total of 4,125 permits were issued for the two Lower Suwannee Refuge hunts and 1345 for the Chassahowitzka hunts. All available permits for the various hunts were distributed by November 30th. After the above situation calmed down a bit, Project Leader Carowan was heard muttering to himself, "We will be prepared for the 1984-85 season!"



The public drawing for Lower Suwannee's quota big game hunt was honored by Miss Citrus County who did the drawing. She was requested to wear a camouflaged bikini, but didn't get the message in time.

Hunter enthusiasm for pursuing porkers and deer on Chassahowitzka's first upland game hunt was high until they learned from experience the extreme difficulty in getting to the prime areas. No road access and extremely low tides prevented most hunters from getting to these areas and with airboats being prohibited from most parts of the refuge due to its wilderness designation, hunting pressure dwindled to almost zero after opening weekend. As of December 31st only six hogs and no deer had been bagged.

Waterfowl hunters on Chasahowitzka faced similar adversity. The 1982-83 hunt season was the worst on record with only 275 ducks being bagged during 225 hunter visits. The 1983-84 season showed signs at year's end of being even worse.

9. Fishing

Fishing accounted for the primary public use activity on Chassahowitzka with 29,000 visits being recorded. Use was up slightly from last year and it was an average year for most catches of sport and game fish. Tarpon fishing was poor this season, so the 1982 world record, a 188 pound tarpon caught on a 12 pound test line in refuge waters, remains safe.

11. Wildlife Observation



*Boy Scouts trying to see a manatee in the waters
of Crystal River*

1983-2A21 SJM

Most of our visitors engaged in some type of wildlife observation but were counted under different activities. Only 10% of the refuge's 36,000 visitors were considered to utilize the refuge specifically for wildlife observation.

17. Law Enforcement

Routine patrol was a primary work element throughout the year. Additional patrol activities were conducted this year to enforce regulations placed on Chassahowitzka, Homosassa and Crystal Rivers for manatee protection. Cooperation and assistance from the State Marine Patrol was minimal and several meetings were scheduled to improve working relationships and solicit better support for manatee enforcement.

Refuge staff issued 47 citations this year, a dramatic increase from the 28 in 1982 and 20 in 1981. Fines of \$50 were paid in all cases that were prosecuted to date, with the exception of one \$250 fine imposed during a mandatory court appearance on October 18. The mandatory court appearance was requested before the U.S. Magistrate in Jacksonville for a violator who made an obscene gesture after failing to slow down his boat in the manatee slow speed area. After Refuge Officer Quarles' testimony the magistrate sentenced the man to 6 months suspended jail sentence, \$250 fine and 18 months supervised probation.

Breakdown of violations as follows:

<u>Offense</u>	<u>Number</u>	<u>Paid</u>	<u>Pending</u>
Speeding in manatee zone	33	32	1
Camping	2	2	
Airboats in closed area	1	1	
Entering closed manatee sanctuary	11	6	5

I. EQUIPMENT AND FACILITIES

1. New Construction

The shower portion of our bathroom was closed in and a door added. This new 3' x 5' storage room now houses the safe and weapons.

4. Equipment Utilization and Replacement

The only major piece of equipment purchased this year was a 14" radial arm saw. A 60 hp Evinrude engine was ordered in September to replace the 11 year old 50 hp motor on the 20' ski barge but it still has not arrived.

A 1981 Jeep C-5 was transferred from National Key Deer NWR in December. Due to the increase in staff, an additional road worthy vehicle was urgently needed.

5. Communications Systems

Our present communication system is inadequate for our needs. The refuges are spread out over a coastal distance of almost 200 miles, making the 55 watt base station at the centrally located Chassahowitzka Refuge useless to all but Chassahowitzka and Crystal River Refuges. Memos were sent to the RO and WO explaining our concerns, and proposals were considered. We have requested \$65,000 from ARMM to help alleviate the problem.

6. Energy Conservation

Total energy consumption of all the refuges is now being lumped under Chassahowitzka. Consequently, figures for the Chassahowitzka base year FY 80 are no longer of value. A new base figure will have to be developed beginning in FY 84.

J. OTHER ITEMS

1. Cooperative Programs

The Florida Division of Forestry, under a perpetual lease agreement, maintains a fire tower, residence and firefighting equipment on the headquarters tract.

Data was furnished to several organizations and individuals for preparation of various research, reference and directory materials on natural resources.

A special use permit was granted to Mr. and Mrs. Stanley Rising allowing them to use an established well located on government property just a few yards from their property line. The permittee was authorized to clean out the well and install protective screening over the concrete block casing to deter contamination by insects or animals. They were also permitted to install a supply pump on the well and pipe across government property to the permittee's property line. Permittee was required to bear all incurred expenses.

The FY-83 Revenue Sharing Act payments were delivered to Citrus and Hernando Counties for \$15,917 and \$4,559 respectively.

2. Items of Interest

Parties are held with all retirements and Ed Collinsworth's retirement was no exception, except possibly for the fact that he had at least three of them! During one Ed received a Special Achievement and monetary award for his extra work in activating the Lower Suwannee Refuge.

Esther Brown also received a Special Achievement and monetary award at the party for her excellent work in the handling of administrative duties of all the refuges.

In June, the refuge staff consisting of Jerre Gamble, Stuart Marcus, Esther Brown and Bob Quarles celebrated Chassahowitzka's 40th anniversary with a fish fry attended by some members of the local press.



*Fortieth anniversary staff -
Jerre Gamble (l) Bob Quarles (c) Stuart Marcus (r)
and Esther Brown. 1983-4D4 SJM*



*Ed starts to open his gifts, but first needs his glasses.
1983-2C18-SJM*



*Ed Collinsworth and Esther Brown receiving awards from John
Oberheu, Refuge Supervisor (L) 1983-2C18-SJM*

Billy Kahn, Department of Natural Resources, "walked by" and visited with refuge staff on October 19th. Mr. Kahn walked through most of the state calling attention to the beauty and plight of natural Florida. The two month walk covered approximately 700 miles.



*Billy Kahn with van that followed him
1983-4D4-SJM*

On December 3rd, Project Leader Carowan and Asst. Manager Marcus attended a reception/buffet with singer/songwriter Jimmy Buffet. Mr. Buffet is a staunch supporter of manatee protection and was here to meet with various groups involved with manatees. He is chairman of the "Save the Manatee" committee, and has donated proceeds from some concerts for their protection. Mr. Buffet has also promoted awareness with several radio and TV commercials.

A statewide manatee poster contest for elementary school children was sponsored by the "Save the Manatee" committee. Winners were selected and they also attended the reception as guests.



Jimmy Buffet (c) with Glenn Carowan and Stuart Marcus
1983-405 UNK



A sample of posters entered by elementary school children.
1983-406 SJM

The following Service personnel visited the refuge during the year for various reasons:

Ben Schaeffer - WO
Art Dixon - WO
Dave Klinger - WO
John Oberheu - RO, Atlanta, GA
Al Bonsack - RO, Atlanta, GA
Bill Swanson - RO, Atlanta, GA
Ron Tansill - RO, Atlanta, GA
Gene Repoff - RO, Atlanta, GA
Dan Frieberg - RO, Portland, OR
Joe Artmann - RO, Minneapolis, MN
Wendell Metzen - ES, Jacksonville, FL
Bruce Blihovde - Lake Woodruff NWR
Neal Carper - Lake Woodruff NWR

Credits

This report was written by Stuart Marcus, edited by Glenn Carowan typed and arranged by Esther Brown.

K. FEEDBACK

Twice this year the refuge staff had to drive to Jacksonville (3 hours away) for court appearances, only to be told to go home because the violator paid the fine that morning. Some of these violators delay paying the fine for months, yet when they are notified of a court appearance date for non-payment when due, they are still allowed to pay the original amount of the fine right up until the last minute. There should be a cutoff date and time for these fines to be paid. If the violators have no intention of contesting the fine in court, warning them that failure to pay by the cutoff date would result in a doubling of the original fine would lessen these problems.

On December 2nd, we received a memo from the Finance Center indicating we were above the Service's goal of the 5% document return goal for the year. We have renewed our efforts to improve and meet that goal. One question remains unanswered though, "Who documents the Finance Center's mistakes?" To add insult to injury, when an error sometimes is made we are required to correct it through an RDS, etc!

How about asking refuges that circulate narratives to make an extra copy so that it could be sent out of the region the first year. Other region reports are very outdated by the time we receive them, and this would save at least a year.

CRYSTAL RIVER NATIONAL WILDLIFE REFUGE
Citrus County, Florida

ANNUAL NARRATIVE REPORT
Calendar Year 1983

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

Figure 1.

PROPOSED
CRYSTAL RIVER NATIONAL WILDLIFE REFUGE
 CITRUS COUNTY, FLORIDA

DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

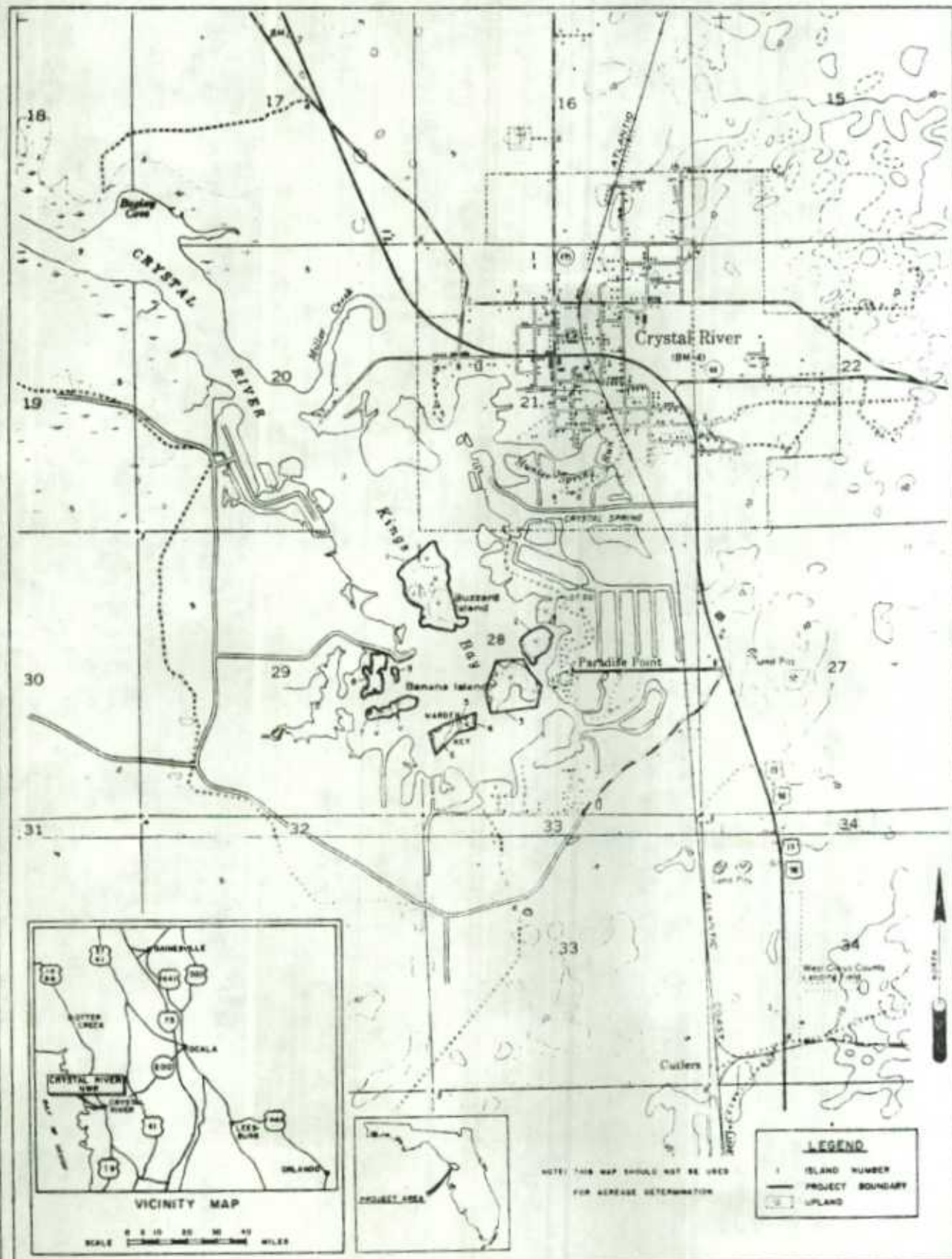
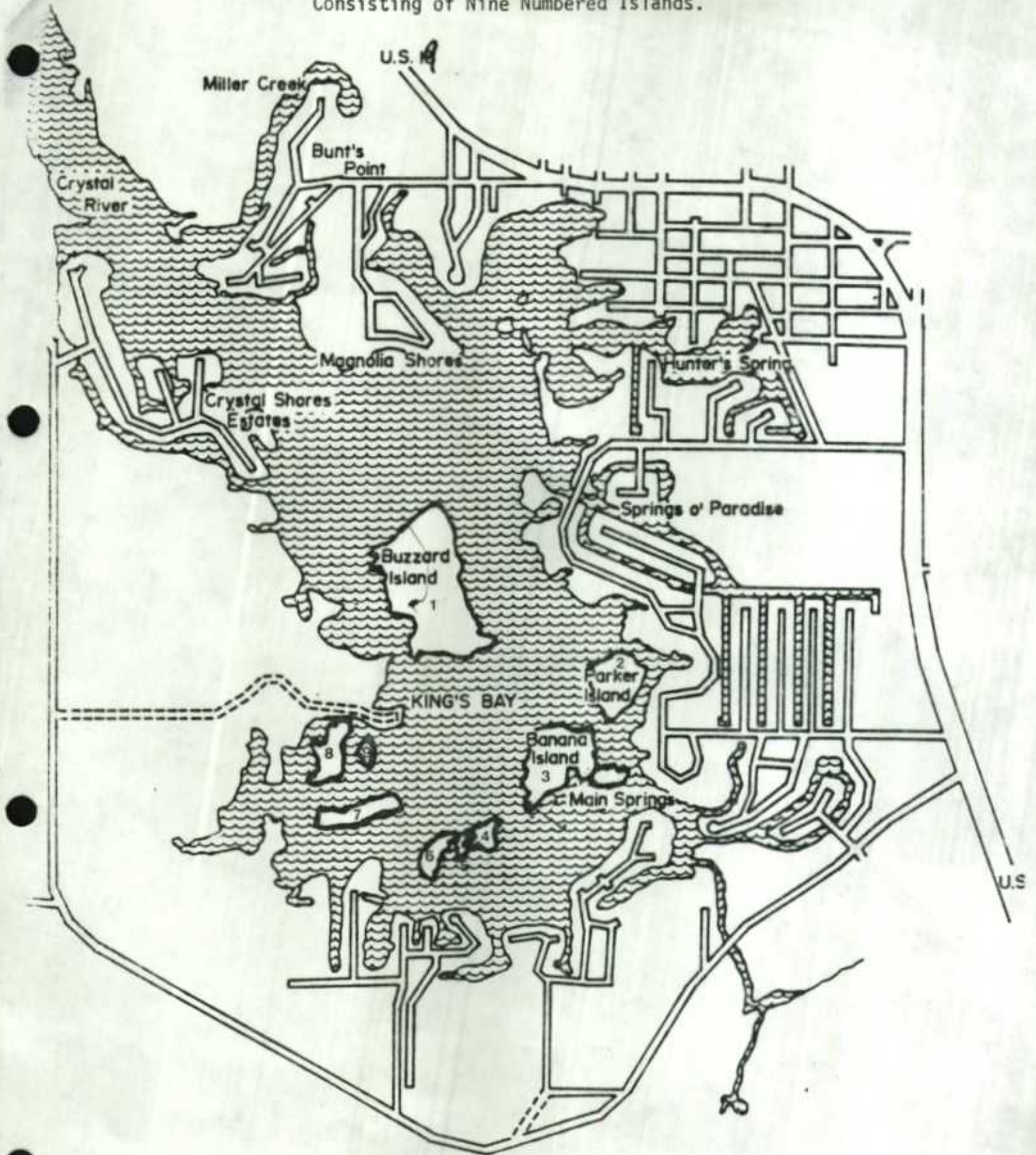


Figure 2 Proposed Crystal River National Wildlife Refuge
Consisting of Nine Numbered Islands.



UPPER CRYSTAL RIVER & KING'S BAY
CITRUS COUNTY, FLORIDA

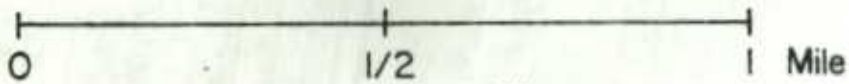
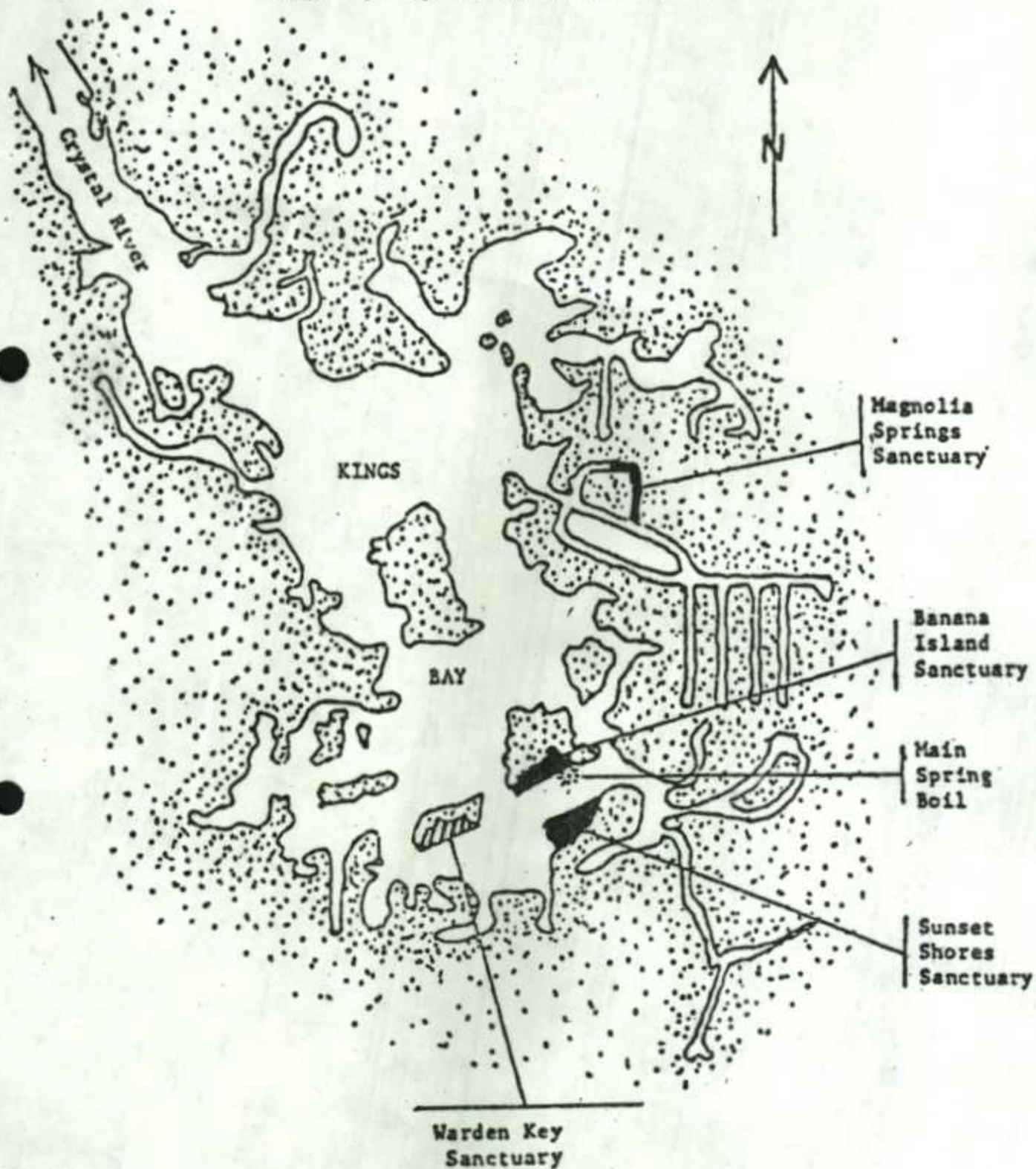


Figure 3

MANATEE SANCTUARIES
Kings Bay, Crystal River, Florida



Dated: November 5, 1980.
Robert S. Cook,
Acting Director, U.S. Fish and Wildlife
Service.
(FR Doc. 80-30198 Filed 11-10-80; 8:45 am)
BILLING CODE 4310-45-26

CRYSTAL RIVER NATIONAL WILDLIFE REFUGE

Approval for the establishment of Crystal River National Wildlife Refuge located in Kings Bay 10 miles north of Chassahowitzka NWR, was given by the Director of the U.S. Fish and Wildlife Service on January 10, 1980. Following the completion of the Environmental Assessment and the project approval by the Director, The Nature Conservancy acquired nine islands containing 33.12 acres, more or less, for holding and transfer to the Service when funds were appropriated for government acquisition. The Nature Conservancy bought the lands from a single land owner for approximately \$425,000; raising all the money in a year-long fund raising drive spearheaded by the citizens of Citrus County and actor Burt Reynolds.

The Preliminary Land Protection Plan for Crystal River Refuge was prepared on August 9, 1983. The most urgent problem was identified as uncontrolled public use and harassment of manatees which winter at the main spring boil. This area is nationally famous to skin divers who flock during winter months to "swim with the manatees". It is not unusual to find more than 100 divers in the main spring boil at one time. This uncontrolled human presence cause a majority of the manatees to leave the warmth of the spring waters to occupy less suitable habitat.

FWS acquisition and management of the area was therefore deemed essential in controlling public use and providing protection for the endangered West Indian manatee from human harassment and often from fatal boating accidents such as propeller strikes.

The refuge was thereby authorized by the Endangered Species Act of 1973 as amended and the Land and Water Conservation Fund Act as amended in 1976. It was bought from The Nature Conservancy for the same price and was officially established on August 17, 1983.

It is ironic however, that even though the islands were bought specifically for "the long term protection of wintering habitat for the endangered West Indian manatee in the headwater springs of Crystal River", we have no control of the water surrounding these islands where the manatees congregate, except through the establishment of special sanctuaries and regulations promulgated through the Endangered Species Act, the Federal Marine Mammal Protection Act and the Florida Manatee Sanctuary Act.

The preservation of these islands therefore only indirectly contributed to the protection of the manatees by eliminating the threat of development which would have had adverse impacts to water quality and would have intensified conflicts between recreational and manatee use in the adjacent springs.

With the exception of boundary posting and boundary patrols, no plans for development or habitat management for these islands have been proposed. As was discussed in the Chassahowitzka narrative, a considerable amount of time was spent during the year enforcing manatee regulations in the sanctuaries adjacent to the refuge islands, enforcing motorboat speed restrictions in Kings Bay, accomplishing aerial manatee surveys, and posting and maintaining the manatee sanctuaries. These activities were considered "off-refuge" activities, but as the lead agency in the State for the protection of the manatee and due to our close proximity to this area, we have assumed management responsibilities for manatees in the Chassahowitzka, Homosassa, Crystal and Lower Suwannee River systems.

The Crystal River Research Management Plan, recently prepared by Dr. Jane Packard with the University of Florida's Cooperative Fish and Wildlife Research Unit, is intended to provide a framework for meeting the present and future needs of the area's developing human community, and will further define our management responsibilities.



Realty Specialists Art Dixon (l) Ben Schaeffer (r) of the Washington office and Al Bonsack (c) RO, inspected manatee sanctuaries and proposed islands that were to become Crystal River National Wildlife Refuge. 83-4D3 SJM



Mrs. Doris Howze, member of our volunteer "Manatee Watch" and member of the Manatee Technical Advisory Committee, with one of our "land" manatees during "Save the Manatee" meeting. Public relations and education continue to play a big role in management activities. 1983 - 4D5 SJM

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

Dixie County, Florida
Levy County, Florida

ANNUAL NARRATIVE REPORT

Calendar Year 1983

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

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

PERSONNEL

Jerre L. Gamble (EOD 7/15/79)

Refuge Manager, (GS-9 PFT)



Review and Approvals

Jerre L. Gamble 2/29/84
Submitted by Date

Sean A. Carowan Jr. 2/23/84
Complex Office Review Date

Regional Office Review Date

INTRODUCTION

Lower Suwannee National Wildlife Refuge, administered by the Chassahowitzka National Wildlife Refuge, is located approximately 115 miles north of Tampa on the west coast of Florida. The refuge is situated in the northwest corner of Levy County and the southwest corner of Dixie County with the Suwannee River dividing the two counties.

Establishment of the refuge was approved by the Director of the U.S. Fish and Wildlife Service on April 10, 1979. The primary objectives of the Lower Suwannee Refuge is to maintain the habitat diversity and productivity of the fish and wildlife resources that naturally occur in the Suwannee River delta area.

The refuge consists of a natural diversity of biotic communities in the lower reaches of the Suwannee River providing a unique combination of habitat types supporting a broad spectrum of both flora and fauna species. Wetland habitat types include (1) tidal river floodplain swamp with vegetation that includes tupelo, bald cypress, water ash and red maple; (2) nontidal river floodplain hydric hardwoods of bald cypress, tupelo, sweetgum oaks and hickories; (3) nontidal pond cypress swamps; (4) tidal and nontidal fresh water marshes characterized by sawgrass, arrowhead, cattail and bulrush; and (5) tidal saline marshes vegetated predominantly with needlerush and saltmarsh cordgrass. Upland habitat types are interspersed among the wetlands. These areas consist of mesic hardwood "hammocks" with vegetation including (1) oaks, hickories and southern magnolia; (2) native slash pine plantations including recent clear-cuts; (4) numerous tree islands of slash pine, red cedar and cabbage palm scattered throughout the expanses of needlerush marsh; and (5) scrub oak dunes.

Current refuge acreage is 23,200 of which 13,229 acres are considered upland while 9,971 acres are marshland below mean high water. The proposed refuge acquisition boundary includes 56,866 total acres.

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE

DIXIE AND LEVY COUNTIES, FLORIDA

UNITED STATES
DEPARTMENT OF THE INTERIOR

UNITED STATES
FISH AND WILDLIFE SERVICE

R 11 E

MAP 1

R 12 E

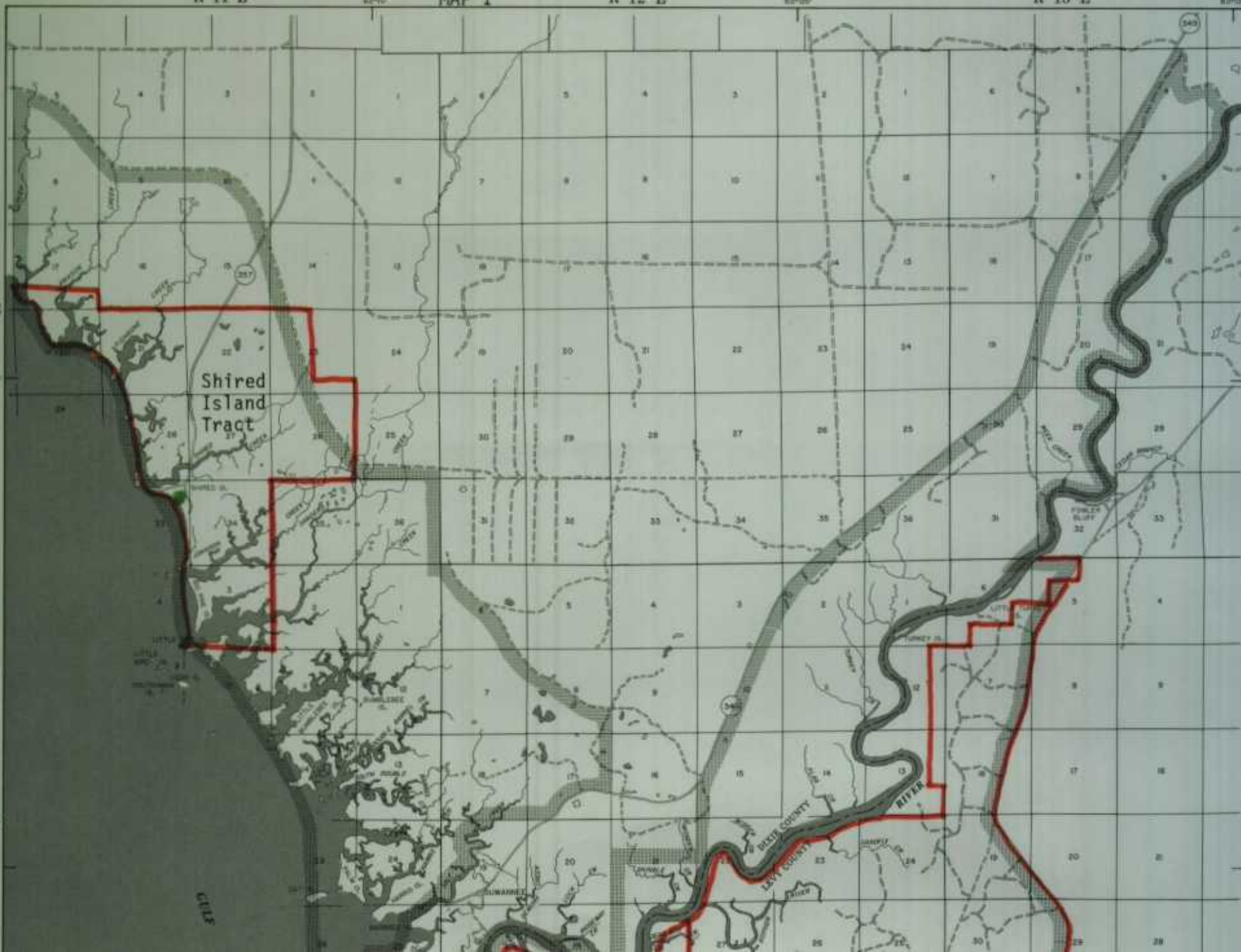
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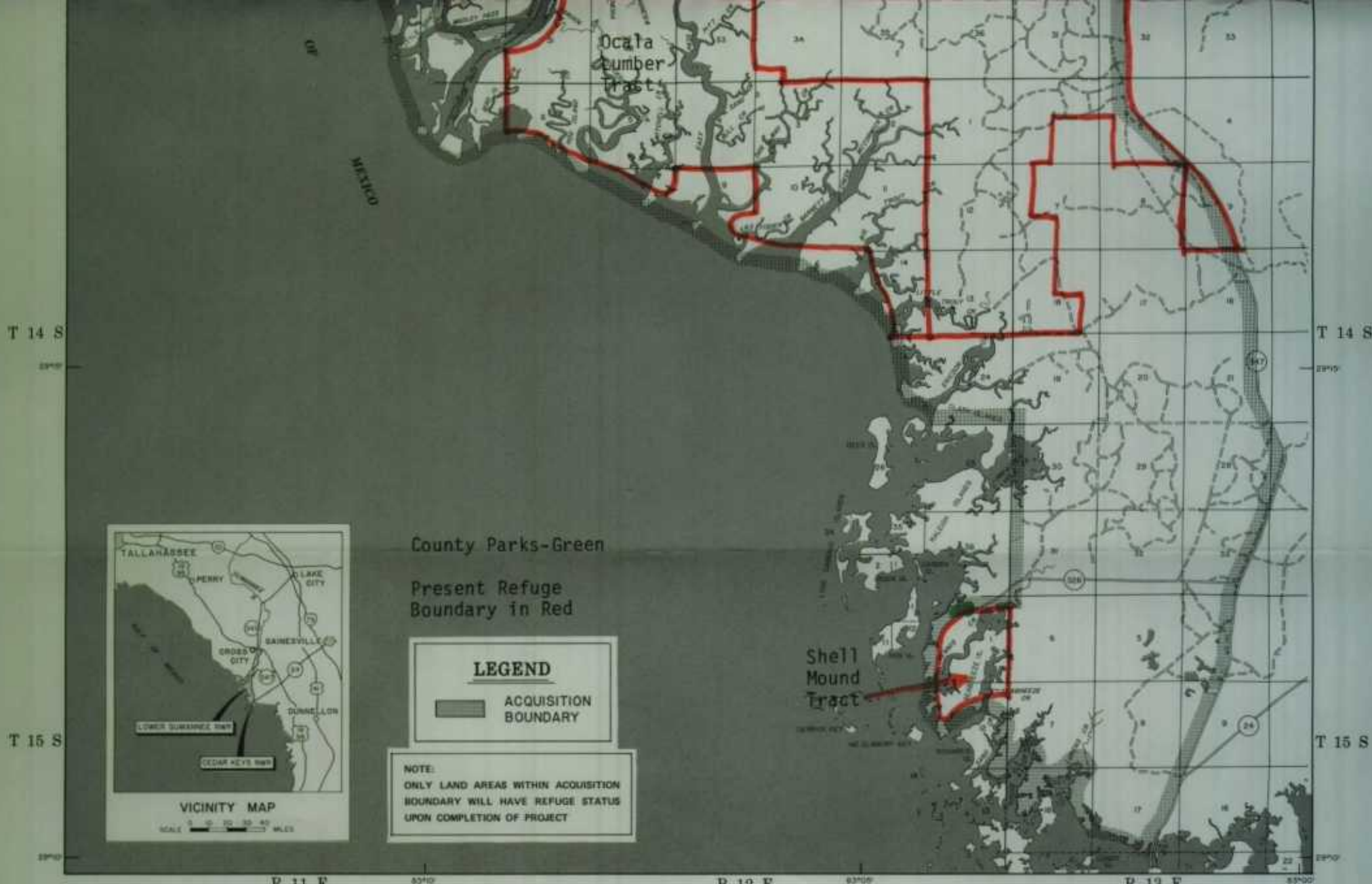
T 12 S

T 12 S

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T 13 S





Ocala
Cumber
Tract

Shell
Mound
Tract

T 14 S

T 14 S

T 15 S

T 15 S

R 11 E

R 12 E

R 13 E

County Parks-Green

Present Refuge
Boundary in Red

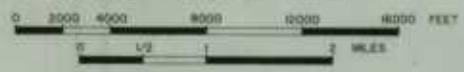
LEGEND

ACQUISITION
BOUNDARY

NOTE:
ONLY LAND AREAS WITHIN ACQUISITION
BOUNDARY WILL HAVE REFUGE STATUS
UPON COMPLETION OF PROJECT



TALLAHASSEE MERIDIAN



MEAN
DECLINATION
1878

COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
AND U.S.G.S.

ATLANTA, GEORGIA MAY, 1978

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I. EQUIPMENT AND FACILITIES

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K. FEEDBACK



View "Way down upon the Suwannee River"
SWE-82-02-JLG

A. HIGHLIGHTS

Refuge Manager Jerre Gamble served as Acting Project Leader for the Chassahowitzka, Cedar Keys, and Lower Suwannee Refuges from April 30-September 4, following Manager Collinsworth's retirement. (E-1)

Lower Suwannee National Wildlife Refuge acquired 2,732 acres and entered into a management/lease agreement with the Nature Conservancy to manage 9,153 additional acres as part of the refuge. (C-1)

Lower Suwannee Refuge opened an additional 18,000 acres to public hunting. (H-8)

B. CLIMATIC CONDITIONS

The weather for 1983 was considered "normal" although rainfall was above average. Measurable rainfall occurred on 115 days totaling 76.78 inches compared to last year's 69.90 inches.

Temperature extremes for the year were represented by a high of 97 degrees F. which was recorded on August 21 while the lowest temperature for the year occurred on Christmas Day with a recording of 16 degrees F.

Weather Summary

	<u>High</u>	<u>Low</u>	<u>Precipitation in Inches</u>
January	75	24	2.17
February	78	29	6.20
March	82	34	10.80
April	83	40	11.05
May	88	54	.48
June	92	58	9.71
July	96	68	6.94
August	97	68	8.80
September	94	54	10.40
October	89	40	1.59
November	81	31	5.61
December	76	16	3.63
Total			<u>76.98</u>

C. LAND ACQUISITION

1. Fee Title

The proposed land acquisition of Lower Suwannee National Wildlife Refuge, an area comprising 56,866 acres, is located along either side of the lower Suwannee River and extending both north and south along the Gulf Coast of Levy and Dixie Counties, Florida. The Gulf of Mexico forms the western boundary while SR 347 establishes the south and eastern boundaries. State Road 349 and Butler Creek define the northern perimeter of the area. Map 1 shows the geographical location of existing and proposed refuge lands.

The Director of the Fish and Wildlife Service approved the establishment of the Lower Suwannee NWR on April 10, 1979. The proposed acquisition of 56,866 acres of wetlands, floodplain lands, tidal creeks and estuarine waters of the area comprise one of the largest undeveloped natural river delta-estuarine complexes in the United States.

Acquisition of the initial tract of land known as Shired Island, containing 5300 acres, was completed May 7, 1979.



Cypress pond on Shired Island SWE-83-03
JLG

Three additional land acquisitions were made during calendar year 1981.

A one acre inholding known as the Shired Island Fish Camp, located on Shired Island, was acquired from Kermit Goodson on May 27, 1981. This one acre parcel contained 11 buildings which were of no value to the Service and were salvaged by a private contractor last year. A boat ramp on the site will continue to be maintained by the Service for public use.

The Ocala Lumber Tract was acquired July 14, 1981 and contained about 5338 acres, the majority in the form of floodplain hardwoods which lie below mean high water.

The Shell Mound Tract, containing 676 acres, was purchased from Carl Irwin on October 30, 1981. It consists mostly of estuarine salt marshes and tidal creeks with several off-shore islands which are remnant dunes. An unusual topographical feature of this tract, as well as Shired Island, is the result of Indian shell mounds (middens). The Indian midden known as "Shell Mound" on the recently acquired Shell Mound Tract is a prominent landmark and has considerable archeological and historical significance.

On July 28, 1983, The Nature Conservancy purchased approximately 12,200 acres from the Brunswick Pulp and Paper Company. The U.S. Fish and Wildlife Service entered into a management/lease agreement with The Nature Conservancy on September 16, 1983 to manage the land (Brunswick Tract) as part of the Lower Suwannee Refuge. On November 15, 1983, the U.S. Fish and Wildlife Service acquired 2,732 acres of the Brunswick Tract from The Nature Conservancy in fee title.

Acquisition funding appropriated for FY 83 was 1.5 million. A projected FY 84 acquisition funding of 2.5 million is expected.

Summary of Lower Suwannee NWR
Land Acquisition Progress

<u>Year</u>	<u>Acres Acquired</u>
1979	5300
1980	---
1981	6015
1982	---
1983	2732

14,047 Total fee title acres.

(Management responsibility for an additional 9,153 acres)

D. PLANNING

1. Master Plan

Interim operation and management plan objectives established for Lower Suwannee Refuge are as follows:

- a. Protect and preserve the basic ecosystem represented by the Lower Suwannee Refuge.

- b. Provide habitat and protection for naturally occurring wildlife with special emphasis on endangered and threatened species.
- c. Provide wildlife oriented recreational opportunities to the public.
- d. Preserve significant archaeological sites.

2. Management Plan

A revised hunt plan was completed during October to include the Ocala and Brunswick Tracts.

Fire management and sign plans have been initiated and are scheduled for completion early next year.

5. Research and Investigations

Wildlife Biologist David Maehr of the the Florida Game and and Freshwater Fish Commission conducted a bobcat census on the Brunswick Tract on December 1 and 2. The census served only as an index but suggests that the area has "a somewhat above average" bobcat population.

Routine population surveys of reptiles, birds (including waterfowl) and mammals were conducted by refuge staff during the year. Other investigations included vegetation resources and weather data.

E. ADMINISTRATION

1. Personnel

Lower Suwannee is administered by Chassahowitzka Complex. Refuge Manager Jerre L. Gamble, stationed near Chiefland, Florida, provided on-site management responsibility for the refuge during the year.

Jerre L. Gamble also served as Acting Project Leader for the complex from April 30 to September. 4.

Staff at Lower Suwannee NWR

	<u>Permanent Full Time</u>	<u>Part Time</u>
FY 1983	1	0
FY 1982	1	0
FY 1981	1	0
FY 1980	2	0
Fy 1979	2	0

* One additional FTE was approved for a maintenanceman for FY 84.

5. Funding

See the Chassahowitzka narrative.

Lower Suwannee was fortunate to have been funded adequately during its first years to allow for the purchase of necessary equipment. Temporary office and storage facilities have been established at the refuge manager's residence near Chiefland, Florida. A refuge office and storage facilities are high priority items and are planned for construction on or near the Brunswick Tract in the near future.

6. Safety

Lower Suwannee staff attended monthly safety meetings at Chassahowitzka Refuge. A wide variety of safety topics were covered by viewing safety films and participating in safety discussions.

This station has had a perfect safety record in its nearly five years of existence.

F. HABITAT MANAGEMENT1. General

No manipulation of habitat occurred on the refuge this year. An interim management plan for the refuge was initiated during December. This plan will include recommendations for prescribed burning, timber management practices, road maintenance, etc.

6. Other Habitat

Lower Suwannee Refuge is comprised primarily of natural salt and freshwater marshes, tidal and freshwater creeks, tupelo-cypress swamp forests, cypress sloughs and numerous islands scattered throughout the extensive marshlands. The primary refuge objective is to preserve and protect the natural diversity of valuable and productive wildlife habitats which have been relatively unspoiled by human development.

9. Fire Management

A wildfire was set on Shired Island during January. Approximately 200 acres of salt marsh burned before the fire was contained and extinguished naturally by a large tidal creek. Refuge staff and State Forestry personnel were standing by in case the fire jumped the tidal creek and headed for hardwoods nearby.

No prescribed burning occurred on the refuge this year.

12. Wilderness and Special Areas

All existing and proposed refuge land will undergo consideration for wilderness and special area designation.



Shoreline erosion exposes shell mound on Shired Island
SWE-83-04 JLG

An archaeological study was completed on refuge owned land by a team of Florida State University archaeologists. Several Indian shell mounds (middens) were reported to be of archaeological and historical significance.

G. WILDLIFE

1. Wildlife Diversity

Service determination to preserve and protect unique and critical habitats in their natural condition is well demonstrated in the existing and proposed Lower Suwannee Refuge area. Freshwater from the Suwannee River, coupled with the numerous small streams of the coastal terrace, gives rise to a biologically rich saltwater estuary. Its diversified environment is composed of floodplain hardwoods, timbered swamps and bays, upland pine, freshwater marshes and extensive salt marshes. The diversity of habitats found within the area support a broad spectrum of wildlife species including several endangered or threatened.



Several alligators "sunning" on the Brunswick Tract. SWE-83-05 JLG

2. Endangered and/or Threatened Species

<u>Species found on Refuge</u>	<u>USFWS (Status)</u>	<u>State (Status)</u>	<u>Estimated Population</u>
American Alligator	T	-	450
Atlantic Green Turtle	E	E	30
Atlantic Ridley Turtle	E	E	10
Atlantic Loggerhead Turtle	T	T	10
Eastern Indigo Snake	T	T	40
Eastern Brown Pelican	E	T	475
Florida Scrub Jay	-	T	50
Wood Stork	-	E	35
Bald Eagle	E	T	5
Peregrine Falcon	E	E	2
West Indian Manatee	E	E	45

E - Endangered

T - Threatened

Species known to reproduce on the refuge include the alligator, indigo snake, bald eagle and possibly the manatee.

As many as 65 manatees have been observed utilizing the lower Suwannee River area during spring and summer months for feeding and nursery grounds. During the cold weather months, when the waters of the Gulf of Mexico cool down, manatees seek warm water areas for survival. In the fall, most of the manatees that utilized the lower Suwannee Area during the warmer months, migrate down the Gulf Coast of Florida to warm water natural springs of Kings Bay in the Crystal River.

3. Waterfowl

Large rafts of redhead and lesser scaup that winter off the Gulf Coast drift into this area near the end of the winter period. These rafts contain thousands of ducks and are most impressive.

The primary species on the refuge is the wood duck which is fairly abundant.

4. Marsh and Water Birds

The refuge offered excellent feeding and loafing areas for a number of these species. Most of their nesting occurred just to the south at the nearby Cedar Keys Refuge.

The number of white ibis utilizing the lower Suwannee area for feeding averaged around 60,000 birds during the mid to late 1970's. The average for the 1980's thus far has been fewer than 8,000 birds. Drought conditions and freeze damage to habitat during 1981 may have contributed to the decline. Although weather conditions and habitat have been more favorable the past two years, the large number of white ibis have failed to return.

5. Shorebirds, Gulls, Terns and Allied Species

The narrow beaches of the Gulf coastline and offshore islands, numerous mud and sand bars, and extensive tidal creek banks provided excellent feeding and loafing areas for a wide variety of these species. Peak populations have generally remained constant over the years.



Yellowlegs at Fishbone Creek, Shired Island.
SWE-83-6 JLG

6. Raptors

Eleven active osprey nests were observed on the Ocala Lumber Tract this year. Seven of the nests were located within a one-mile stretch on East Pass of the Suwannee River.

Several active osprey nests were also observed on Shired Island.

The newly acquired Brunswick Tract provided excellent feeding and nesting habitat for several raptorial species. Osprey, barred owls and red-shouldered hawks were fairly abundant. Several swallow-tailed kites were also observed utilizing the area.



Nesting osprey above East Pass,
Suwannee River JLG SWE-83-07

7. Other Migratory Birds

The Lower Suwannee area offered excellent opportunities during the spring and fall for viewing various small birds that migrated up and down the Gulf Coast of Florida. Some of the more interesting species observed included scarlet tanager, indigo bunting, bobolink, ruby-throated hummingbird and several species of warblers.

8. Game Mammals

White-tailed deer and feral hogs are the principal large upland game species. Refuge estimates ranged from 6 to 9 deer per square mile and 12 to 15 feral hogs per square mile in 1983.

Other game mammals include squirrels (eastern gray and fox), rabbits (cottontail and swamp), raccoon and opossum.

9. Marine Mammals

In addition to the endangered manatee, Atlantic bottlenose dolphin were common in refuge waters.

10. Other Resident Wildlife

Several gopher tortoise were present on sandy upland areas of the refuge.

H. PUBLIC USE

8. Hunting

Last year marked the opening of public hunting on Lower Suwannee Refuge when the 5,300 acre Shired Island Tract was opened to big game hunting. This year, big game, small game and waterfowl hunting was permitted with 625 non-quota hunt permits issued. (See hunting regulations and hunt permit attached to back cover). During approximately 350 hunter visits, an estimated 3 deer, 24 feral hogs, 45 grey squirrels, 30 raccoons and 40 ducks were bagged.

The newly acquired Brunswick Tract and adjacent Ocala Lumber Tract totaling 18,000 acres was opened to public hunting this year. Big game, small game and waterfowl hunting was permitted (See hunting regulations attached to back cover and the Chassahowitzka narrative for administrative details).

Approximately 120 of the 200 permitted hunters participated during the 9-day quota hunt (November 12-20). Eleven deer, 14 hogs, 45 grey squirrels, 1 raccoon and 24 armadillos were reported taken during the quota hunt. An additional 3500 permits were issued for the non-quota hunt season. During approximately 2100 hunter visits, an estimated 34 deer, 71 feral hogs, 125 grey squirrels, 45 raccoons and 75 armadillos were bagged.

A hunter check station was operated on the Brunswick Tract during the two weekends of the quota hunt. Management Biologist Wendell Metzen and refuge staff gathered health survey data on deer and hogs taken by hunters. General body condition of the deer and hogs surveyed ranged from poor to good.



The smile of success! Deer taken opening day
on the Brunswick Tract . SWE-83-9 JLG

9. Fishing

Sport and commercial fishing were the main attractions to present refuge areas with an estimated 5,500 annual visits. Some of the more sought after fish included speckled trout, redfish and mullet. The area is also known for its fine oysters and blue crabs.



Fishing the Suwannee River SWE-83-10
JLG



Commercial mullet fisherman on Gulf of Mexico
near Brunswick Tract: SWE-83-11 JLG

Levy and Dixie Counties are ranked first and second respectively for blue crab production within the State of Florida. Levy County harvests nearly 3 million pounds of blue crabs on a yearly average. Dixie County is not far behind with 2.5 million pounds being harvested annually.

11. Wildlife Observation

Wildlife observation by automobile is limited to the one public access road on Shired Island and the road to the Shell Mound Tract. Several former logging roads (now closed by cable gates) on the Shired Island Tract and the Brunswick Tract afford good observation by foot travel. The best wildlife observation opportunities are by boat along the refuge shoreline and off-shore islands.



Alligator basking in the sun on the Suwannee
River SWE-83-12 JLG

12. Other Wildlife Oriented Recreation

Dixie County maintained a one acre park within the refuge on Shired Island. The park was utilized by the general public including hunters and fisherpersons for overnight camping. Flush toilets are the only facilities provided. A refuge boat ramp was maintained nearby for public use.

Levy County also maintained a 9.8 acre park within the refuge's Shell Mound Tract. This park was also utilized by the general public including hunters and fisherpersons for overnight camping. A boat ramp is the only improvement at this park. Other recreational pursuits at these parks included shell collecting, beach hiking, sunbathing, wildlife photographing and canoeing.

14. Picnicking

Picnicking areas were limited to the two county parks within refuge boundaries.

15. Off-Road Vehicling

Periodic, irregular and illegal off-road vehicling occurred on sand embankments and across marshland on Shired Island. No significant damage has resulted thus far.

17. Law Enforcement

Routine patrol was a primary work element throughout the year. Special Agent Charles Bazemore of Gainesville, Florida and Refuge Manager Jerre L. Gamble charged a local citizen with illegal trespass and illegal timber cutting on Shired Island. After the man appeared before a part time Federal Magistrate in Gainesville and rendered a guilty plea, the very lenient judge fined the guilty party a token \$85.00 for cutting an estimated \$400.00 worth of cypress. So much for our justice system!



Illegal cut cypress (29 green trees) on
Shired Island SWE-83-13 JLG

Extensive patrol activities were conducted this year during refuge hunts. Staff from Chassahowitzka, Tampa Bay and Lower Suwannee stayed at the field headquarters located on the Brunswick Tract during several weekends of the hunting season. Due to frequent contact with hunters and effective patrols only three citations were issued. Two citations were issued for transporting loaded firearms through the refuge and one citation was issued for failure to wear the required fluorescent orange material.

I. EQUIPMENT AND FACILITIES

4. Equipment Utilization and Replacement

This year's acquisition of the Brunswick Tract prompted a recall on the following equipment that had been out on loan to other refuges.

1. Model 710 Champion road grader
2. Model 850B Case bulldozer w/fire plow
3. Model 450C John Deere crawler/tractor w/front end loader and backhoe.
4. Model 8000 (2½ ton) GMC transport truck
5. Model 6000 GMC dump truck

A 3-wheel Honda (200 cc Big Red) was purchased this fall for law enforcement patrols.

7. Other

A private contractor completed the salvage operation of the former Shired Island Fish Camp buildings. The last remaining building, a former private residence, was moved to Cross City, Florida, during January.

A three bedroom cypress cabin is the only structure on the newly acquired Brunswick Tract. The cabin was formerly used as a hunting lodge by Brunswick Pulp and Land Company employees. It now conveniently serves as a refuge field headquarters. There is no electrical service to the area but the refuge staff has equipped the cabin with a water pump and portable generator.



Private contractor preparing to move former private residence on Shired Island SWE-83-14 JLG



Cypress cabin on Brunswick Tract serves as field headquarters SWE-83-15 JLG

J. OTHER ITEMS1. Cooperative Programs

A special use permit was issued to Georgia-Pacific Timber Corporation to utilize one mile of roadway on the Brunswick Tract to gain access to their adjoining property.

During February, refuge staff assisted the U.S. Fish and Wildlife Service's Gainesville, Florida Research Lab and Sea World of Orlando, Florida, with the capture of several manatees at Blue Springs State Park. Data was recorded regarding the physical condition and identification of the manatees. Radio collars were mounted on several of the animals for tracking purposes.



Radio collared manatee at Blue Springs
SWE-83-16 JLG

Carl Melburg, biologist with the Army Corps of Engineers, inspected several culvert locations on the Brunswick Tract. One culvert was found to be restricting tidal flow. A larger culvert is planned for the site in the near future.

The annual dove survey was conducted by refuge staff in the Trenton-Wilcox-Bell area.

2. Items of Interest

Refuge Manager Gamble provided a guided tour of Lower Suwannee for Jim Trip of the Environmental Defense Fund, New York and Helen Hood, president of the Suwannee River Coalition, Gainesville, Florida.

Lower Suwannee was host to a project leaders conference held at Cedar Key, Florida on March 29 and 30.

Officials of The Nature Conservancy, Management Biologist Wendell Metzen and Refuge Manager Gamble provided a guided tour of the proposed Brunswick Tract for board members of the Suwannee Water Management District. The board members were considering purchasing this bottomland hardwoods tract along the Suwannee River.

Refuge Manager Gamble attended a one week law enforcement training refresher course at Glynco, Georgia during the last week of May.

Refuge staff and officials from The Nature Conservancy provided a guided tour of the Lower Suwannee area for members of the Richard King Mellon Foundation. Tour activities included a seafood picnic on Shired Island, an airboat tour of the lower Suwannee River and a venison/wild hog cookout on the Dennis Andrews river property. Foundation officers present included President Prosser Mellon, Chairman Mason Walsh and Nature Conservancy Trustees George Taber and Drew Mathison.

Refuge Manager Gamble provided a guided tour of Lower Suwannee for Beth Maynor, photographer with Southern Living Magazine. The magazine will present a feature article regarding lifestyle along the Suwannee River sometime next year.

Refuge Manager Gamble completed Basic Firefighting Training (S-130 and S-190) in Tallahassee, Florida, November 1-3.

The following Service personnel visited the refuge during the year for various reasons:

Ben Shaeffer	WO
Art Dixon	WO
Don Adams	RO, Atlanta, Georgia
John Oberheu	RO, Atlanta, Georgia
Al Bonsack	RO, Atlanta, Georgia
Bill Swanson	RO, Atlanta, Georgia
Gene Repoff	RO, Atlanta, Georgia
Ken Butts	RO, Atlanta, Georgia
Jeff Donahoe	RO, Atlanta, Georgia
Jim Cobb	RO, Atlanta, Georgia
Wendell Metzen	SE, Jacksonville, Florida
Lloyd Stiff	ES, Panama City, Florida

3. Credits

This report was written by Refuge Manager Jerre Gamble, edited by Project Leader Glenn A. Carowan, typed and arranged by Secretary Esther Brown.

CEDAR KEYS NATIONAL WILDLIFE REFUGE
Levy County, Florida

ANNUAL NARRATIVE REPORT
Calendar Year 1983

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

CEDAR KEYS NATIONAL WILDLIFE REFUGE
PERSONNEL

Jerre L. Gamble (EOD 7/79)

Refuge Manager, (GS-9 PFT)



Review and Approvals

Jerre L. Gamble 2/29/84
Submitted by Date

Sherry A. Caroway, Jr. 2/23/84
Complex Office Review Date

Regional Office Review Date

INTRODUCTION

Cedar Keys National Wildlife Refuge is administered by the Chassahowitzka National Wildlife Refuge and is located ninety air miles north of Tampa, Florida in Levy County. The refuge is comprised of nine off-shore islands located in the Gulf of Mexico within five miles of the town of Cedar Key. The islands range in size from 6 to 165 acres with a total land area of 721 acres. Narrow beaches of fine white sand alternated with mangrove swamps and salt marshes border the shorelines, while a hammock of live oak, laurel oak, cabbage palm, red bay, hickory and southern red cedar dominate the higher elevations of the islands. The elevations range up to 52 feet above sea level at Seahorse Key, 5 to 20 feet above sea level on Snake, North, Scale, Hickory (Cedar Point), Richards, Candy and Live Oak Keys, and down to sea level at Deadman's Key which is frequently inundated by tides.

CEDAR KEYS NATIONAL WILDLIFE REFUGE

DIXIE AND LEVY COUNTIES, FLORIDA

UNITED STATES
DEPARTMENT OF THE INTERIOR

UNITED STATES
FISH AND WILDLIFE SERVICE

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R 13 E 83°00'

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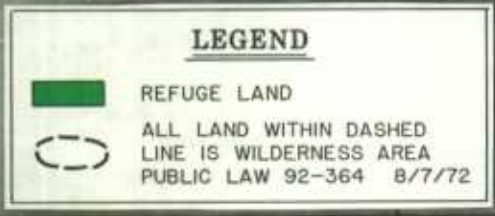
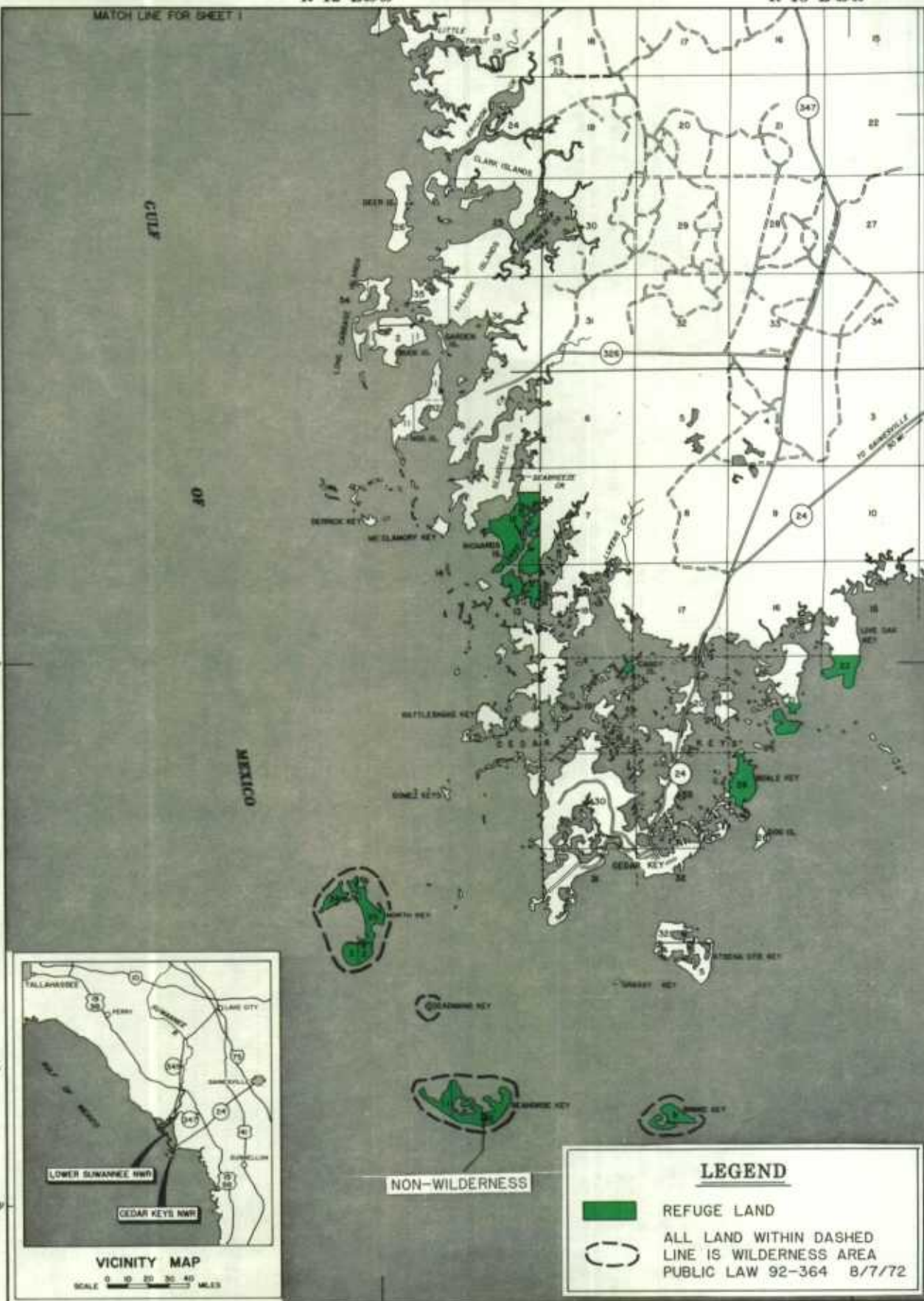
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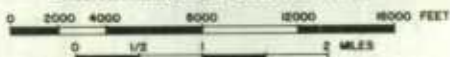
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TALLAHASSEE MERIDIAN



COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
AND U.S.G.S.

ATLANTA, GEORGIA MAY, 1978

54°
TIME MERIDIAN
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I. EQUIPMENT AND FACILITIES

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K. FEEDBACK

A. HIGHLIGHTS

Nesting brown pelican population reaches record level. (Section G-2)

Tornado destroys 20 percent of white ibis nests. (Section - G-4)

B. CLIMATIC CONDITIONS

Levy County is a low lying, subtropical coastal land area. It is within North Florida's frost belt with the result that tropical fruits and vegetables do not flourish. The average annual temperature of about 77 degrees F. ranges from a mean 81 degrees F. August temperature to a 57 degree F. January average.

During the summer months, rain clouds form offshore and move inland to precipitate showers 15 to 20 miles from the coast. This results in nearly twice as much rainfall inland than received on or just off the coast where the Cedar Keys Refuge islands are located. Rainfall measured this year at the nearby Lower Suwannee NWR totaled 76.98 inches compared to last year's total of 69.90 inches. April was the wettest month with 11.05 inches recorded while May was the driest month with only .48 of an inch rainfall.

Temperature extremes for the year were represented by a high of 97 degrees F. recorded on August 21, while the lowest temperature for the year occurred on Christmas Day with a recording of 16 degrees F.

The islands are within the hurricane belt but were not affected by any tropical disturbances this year.

Several tornados passed through the area on April 22nd when a wind velocity of 101 mph was clocked at the Cedar Key pier. Several trees on the refuge shoreline were lost by erosion caused by the 8-10 foot wave action. White ibis were the only colonial birds actively nesting at the time. An estimated 20 percent of their nests and eggs were lost. Brown pelicans were at the nest building stage when the storm occurred. After they made repairs to their nests, the pelicans resumed a normal nesting season.

C. LAND ACQUISITION

1. Fee Title

Cedar Keys National Wildlife Refuge was established July 16, 1929 by Executive Order 5158, signed by President Herbert Hoover.

This order preserved Snake, Bird (Deadman's) and North Keys as a refuge and breeding ground for colonial birds. On November 6, 1936, President Franklin D. Roosevelt signed Executive Order 7484 adding Seahorse Key to the refuge. Acquisition of Scale, Richards and Hickory (Cedar Point) Keys was completed on December 5, 1979. Candy and Live Oak Keys were added during 1980. The refuge comprises approximately 721 acres.

Approximately 3,000 additional acres of coastal marsh and islands (keys) in the Cedar Keys area are under consideration for future acquisition. An environmental assessment has been prepared on the area and personnel from Realty, Atlanta, have made several trips to Cedar Keys in conjunction with the proposals. This land is needed to preserve feeding grounds for the colonial nesting birds that utilize the refuge islands. If acquired, these proposed lands would adjoin the newly established Lower Suwannee Refuge to the north.

D. PLANNING

5. Research and Investigations

"Effects of Long-Term Nutrient Loading" Cedar Keys NWR-83-1 This study is being conducted by the University of Florida under a special use permit. The investigation should show the effects of long-term nutrient loading (caused by large numbers of colonial nesting birds) on the nutrient processing systems within a coastal mangrove lagoon. This is an ongoing study and will take several years to complete.

Eleven routine nesting and population surveys of reptiles, birds and mammals were conducted during the year.

E. ADMINISTRATION

1. Personnel

Cedar Keys and Lower Suwannee National Wildlife Refuges are administered by Chassahowitzka National Wildlife Refuge. The refuge manager stationed at Lower Suwannee also has management responsibility for Cedar Keys. See Chassahowitzka NWR narrative for personnel summary for the complex.

5. Funding

Cedar Keys Refuge is administered by Chassahowitzka Refuge and receives no separate funds. Funding from Chassahowitzka and manpower provided by nearby Lower Suwannee Refuge are adequate at the present time.

F. HABITAT MANAGEMENT

1. General

No manipulation of habitat is planned for Cedar Keys. The primary management objective for Cedar Keys is to preserve the islands in their natural condition and to protect them from unusual human disturbances.

12. Wilderness and Special Areas

On August 12, 1972, the Cedar Keys National Wildlife Refuge was designated a Wilderness Area. The designation applies to Snake, North, Deadman's and Seahorse Keys, except for the three acres leased to the University of Florida. Richards, Hickory (Cedar Point), Scale, Live Oak and Candy Keys acquired since 1972, will be considered for Wilderness status.

G. WILDLIFE

2. Endangered and/or Threatened Species

During 1983, a nesting population of 1750 brown pelicans constructed approximately 775 nests and produced about 1600 young. This year's nesting population represents the highest number recorded since refuge records have been kept.

The following table summarizes the brown pelican nesting populations and young produced for the last five years.

<u>Brown Pelicans</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Nesting Population	1100	1400	1650	1650	1750
Young Produced	1020	1400	1550	1550	1600



"Nesting Brown Pelicans" CK-83-01 JLG

Other endangered or threatened species periodically observed at Cedar Keys include: American alligator, Florida scrub jay, wood stork, bald eagle and peregrine falcon. Atlantic Ridley, green and loggerhead turtles have been infrequently observed in Gulf waters near refuge islands. Seven West Indian manatees were seen near the public boat ramp at Cedar Key during early May.

3. Waterfowl

No waterfowl species utilize the refuge islands.

Large rafts of redhead and lesser scaup that winter off the Gulf Coast occasionally drift near refuge islands. These rafts, containing thousands of ducks each, are most impressive.

4. Marsh and Water Birds

The number of nesting white ibis averaged approximately 60,000 birds during the mid to late 1970s. The annual average for the 1980s thus far is fewer than 8,000 birds. Drought conditions and freeze damage to habitat during 1981 have contributed to the decline. Although weather and habitat conditions have been generally more favorable the past two years, the large colony of nesting white ibis have failed to return.



"Adult and immature white ibis on Seahorse Key"
CK-83-02 JLG

An estimated 20 percent of white ibis nests and eggs were destroyed on April 22nd by high winds. However, the destruction occurred early enough in the nesting season to allow some renesting.

5. Shorebirds, Gulls, Terns and Allied Species

The extensive shoreline with narrow beaches provides excellent feeding and loafing areas for a wide variety of these species. Peak populations have generally remained constant over the years.

6. Raptors

During 1983, 45 adult osprey constructed 22 nests and produced 22 fledglings compared to last year's 61 adult osprey, 28 nests and 28 fledglings. The wind storm during April was responsible for destroying at least two active osprey nests this year.



"Nesting osprey on Seahorse Key"
CK-83-03 JLG

7. Other Migratory Birds

The Cedar Keys area offers good opportunity during spring and fall for viewing various small birds that migrate up and down Florida's Gulf Coast. Some of the more interesting species observed this year included the scarlet tanager, indigo bunting, bobolink, ruby-throated hummingbird and several species of warblers.



"Ruby-throated hummingbird on Seahorse Key"
CK-83-04 JLG

Approximately 75 ruby-throated hummingbirds were observed on Seahorse Key feeding on lemon tree blossoms during the third week of April.

9. Marine Mammals

Atlantic bottlenose dolphin are common in Gulf waters near refuge islands.

10. Other Resident Wildlife

Marsh rabbits inhabit several of the keys. Their population is estimated at 75.

The larger keys support a moderate population of grey squirrels.

The black rat is found on Seahorse Key and inhabits the area associated with the marine laboratory.

Raccoons are present in small numbers on the refuge islands and undoubtedly do some damage to nesting birds. However, it is believed that their presence is not a serious problem at this time.

Otter and mink have been observed on the islands in the past and are still considered rare visitors.

Several gopher tortoise inhabit Seahorse and Richards Keys.

The Florida cottonmouth moccasin is prevalent on the larger islands with the greatest concentration presently on Seahorse Key where most of the colonial bird nesting occurs. In the past, when most of the bird nesting took place on Snake Key, the highest concentration of snakes occurred there.

H. PUBLIC USE

5. Interpretive Tour Routes

Several individuals and groups were provided with a guided tour of the refuge islands during the year.

9. Fishing

Sport and commercial fishing are the primary attractions to the Cedar Keys area. State waters around the refuge islands are rich in marine resources. Some of the more sought after fish include speckled trout, redfish, sheepshead, Spanish mackerel and mullet. The area is also known for its fine oysters and blue crabs. Levy County ranks first in the state with a blue crab harvest of nearly 3 million pounds annually.

11. Wildlife Observation

Wildlife observation on the refuge is limited to the beaches. The interior of the islands are closed to general public access for purposes of safety and to protect the colonial nesting birds from human disturbance. Access to the refuge islands, due to their offshore locations, is by boat only.

12. Other Wildlife Oriented Recreation

Shell collecting, beachcombing, birdwatching and photography are permitted on the beaches during daylight hours.

14. Picnicking

Picnicking is permitted on the beaches during daylight hours.

17. Law Enforcement

Lower Suwannee personnel patrolled the Cedar Keys on an intermittent basis during the year. The dense vegetation and large number of snakes on the islands are our greatest allies in restricting public use to the beaches.

I. EQUIPMENT AND FACILITIES

2. Rehabilitation

The lighthouse located on Seahorse Key was constructed in 1855 and was active until 1915. It has been nominated as an historical landmark. Major rehabilitation has been proposed for the structure to return it to near original condition and prevent further deterioration to the basic framework. A BLHP team visited the lighthouse in 1978 in reference to the proposal. A comprehensive site evaluation of the architectural and historical significance of the building was completed during 1980 by Florida State University.

J. OTHER ITEMS

1. Cooperative Programs

The lease agreement with the University of Florida to maintain the lighthouse and marine science laboratory on Seahorse Key was continued. The agreement was renewed for ten years effective January, 1982.

The University of Florida's Marine Research Laboratory on Seahorse Key serves as a center for a wide variety of non-refuge related studies. The laboratory also serves as an environmental workshop for visiting students and professionals from various schools, colleges and organizations both in and out of state. Total visits this year were 990 while total visitor activity hours were 32,434.

2. Items of Interest

Refuge Manager Gamble provided a guided tour of Cedar Keys Refuge for 19 members of the Florida Sierra Club.

3. Credits

This report was written by Refuge Manager Jerre Gamble, edited by Project Leader Glenn Carowan and typed and arranged by Secretary Esther Brown.

TAMPA BAY REFUGES

Hillsborough County, Florida
Manatee County, Florida
Pinellas County, Florida

ANNUAL NARRATIVE REPORT

Calendar Year 1983

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

TAMPA BAY REFUGES
PERSONNEL

Robert C. Ziobro (EOD 10/83)

Refuge Manager, (GS-9 PFT)



Review and Approvals

Robert C. Ziobro 2/29/84
Submitted by Date

Ann A. Crumley Jr. 2/23/84
Complex Office Review Date

Regional Office Review Date

INTRODUCTION

Passage Key National Wildlife Refuge, Pinellas National Wildlife Refuge and Egmont Key National Wildlife Refuge comprise what is commonly referred to as the Tampa Bay Refuges. The Tampa Bay area consisting of Pinellas, Hillsborough and Manatee counties (population 2 million and increasing daily) is located on the Gulf coast of Florida's peninsula with St. Petersburg, Tampa and Anna Maria being the principle cities in the respective counties.

Passage Key became a refuge in 1905 when it was a mangrove island with a freshwater lake. This habitat drastically changed when a hurricane destroyed the island in 1920. Passage has been a meandering, slightly vegetated sand bar ranging in size from 10-30 acres ever since. This refuge was designated a Wilderness Area on October 23, 1970.

Pinellas National Wildlife Refuge was established in 1922 and re-defined in 1949; at this time the refuge consisted of Indian Key and Tarpon Key. On February 16, 1981, Mule Key and Jackass Key were purchased and Little Bird Key and Listen Key were conveyed to the FWS for inclusion into Pinellas NWR. All the islands of Pinellas NWR are within the St. Petersburg city limits.

Egmont Key National Wildlife Refuge was established July 10, 1974. The island is approximately 350 acres in size with the northern 60 acres presently under U.S. Coast Guard jurisdiction. About 10 acres are occupied by the Tampa Bay Pilots Association under a Special Use Permit. Egmont Key had a colorful military past which led to its inclusion in the National Register of Historical Places in January, 1979.

The Tampa Bay Refuges are subject to high public use pressure during the warmer months (in this area that's April through October). There are over 160,000 registered boats (25% of the state total) in the Tampa Bay area, and on some days it looks like they're all on the bay.

In addition to the ever increasing public pressure, there is the constant threat of pollution to these refuges. The Port of Tampa is one of the busiest in the southeast. Much of the tonnage consists of petroleum products that are piloted, by members of the Tampa Bay Pilots Association, through the longest shipping channel in the state.

PASSAGE KEY NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

MANATEE COUNTY, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE

R 15 E

82°44'

R 16 E

82°42'

EGMONT CHANNEL

27°36'

27°36'

T 33 S

T 33 S

27°34'

27°34'

27°32'

27°32'

T 34 S

T 34 S

SOUTHWEST CHANNEL

HILLSBOROUGH CO.
MANATEE CO.

NOTE:
APPARENT SHORELINE OF PASSAGE KEY FROM
AERIAL PHOTOGRAPH DATED NOV. 1969



TAMPA BAY

PASSAGE KEY INLET

GULF OF MEXICO

LEGEND

REFUGE LAND
AND
WILDERNESS AREA
PUBLIC LAW 91-504
10/23/70

VICINITY MAP

SCALE IN MILES

0 10 20 30 40

R 15 E

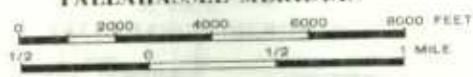
82°44'

R 16 E

82°42'

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

TALLAHASSEE MERIDIAN



True North
Magnetic N
MEAN DECLINATION
1971

ATLANTA, GEORGIA MARCH, 1971

4R FLA 31 403

EGMONT KEY NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

HILLSBOROUGH COUNTY, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE

82°44'

R 15 E

82°44'



EGMONT CHANNEL

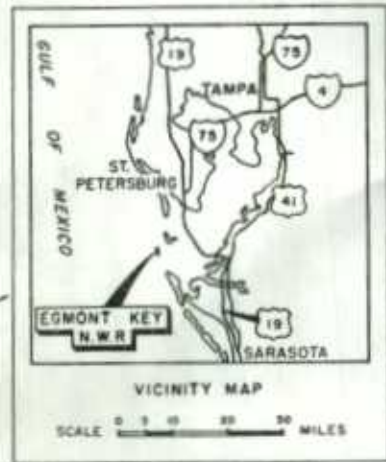


TAMPA BAY

EGMONT KEY

LEGEND

REFUGE BOUNDARY



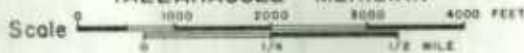
SOUTHWEST CHANNEL

HILLSBOROUGH CO.
MANATEE CO.

R 15 E

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

TALLAHASSEE MERIDIAN



TRUE NORTH
MAGNETIC
MEAN DECLINATION
1973

ATLANTA, GEORGIA OCTOBER, 1973

4R FLA 884 403

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K. FEEDBACK

A. HIGHLIGHTS

Transfer of the Tampa Bay Refuges from the J.N. "Ding" Darling Complex to Chassahowitzka National Wildlife Refuge Complex. (Section E-8)

The Tampa Bay Pilots Association's Special Use Permit is still under review and not finalized. (Section E-8)

Aerial photo documentation of the ever-changing size and shape of Passage Key National Wildlife Refuge. (Section F-12)

B. CLIMATIC CONDITIONS

High winds and rough seas were prevalent the first three months of the year. These actions continued to erode Egmont and Passage Keys at an alarming rate. Although we've been observing these islands for a minute period on the geological time scale, one cannot help but wonder what the condition of these islands will be 10, 20, or 30 years from now. The keys of Pinellas NWR are protected by various land masses and it would probably take a hurricane to alter their condition.

The total precipitation for the year was 5.5" above the normal 54.9. Only four months had rainfall above the average but the deviation was considerable; February, +5.7" March, +4.1"; September +2.6"; and December, +2.8". The two traditionally wettest months had the greatest deviation below average July, -4.8"; and August, -1.6". The remaining six months of the year all had below average precipitation of less than an inch each for a total of -3.3". These precipitation figures were for the mainland; the islands did not receive the same amount of precipitation as St. Petersburg but the figures were proportionate. A rain gauge was installed at the Coast Guard Light Station on Egmont Key to insure more accurate precipitation readings.

C. LAND ACQUISITION

3. Other

A Memorandum of Understanding is being formulated between the U.S. Coast Guard (USCG) and FWS addressing the management of the USCG property on Egmont Key as refuge property. No difficulties are anticipated and the agreement should be formalized in early 1984.

Also, an agreement with the State of Florida is being sought to obtain concurrent law enforcement jurisdiction over the water-bottoms surrounding Passage Key NWR to afford the nesting birds more protection. Hopefully an agreement can be reached prior to the 84 nesting season.

E. ADMINISTRATION

1. Personnel

Tampa Bay Refuges Manager, Robert C. Ziobro, was Acting Project Leader for the J.N. "Ding" Darling Complex from January 10 through April 15. A Special Achievement award for this assignment was received in July.

6. Safety

The only reported injury that occurred in 1983 was a sprained ankle suffered by Refuge Manager Ziobro on September 1. There was no lost time due to the accident.

On July 24, a heart attack victim was brought to the Coast Guard dock on Egmont Key in his own boat. He was rushed, again in his own boat, to an awaiting ambulance on the mainland where he was pronounced dead on arrival. No information was taken because of the time factor involved and it was understood that the heart attack took place while he was fishing from his boat. Earlier in the month another heart attack victim was more fortunate. He survived a heart attack suffered while on the south beach of Egmont and was rushed to a hospital in Manatee County.

This year, as every year, a number of boats became beached on Egmont and Passage Keys due to weather condition and/or carelessness. Fortunately no injuries were known to have occurred.

7. Technical Assistance

Refuge Manager Ziobro became a member of the Tampa Bay Regional Council (TBRPC) Study Committee (later to become the Steering Committee). All the refuges are included in the area covered under TBRPS's Environmental Plan. The council supports our efforts and plans to try and obtain concurrent law enforcement jurisdiction over water-bottoms surrounding Passage Key.

8. Other Items

At the beginning of FY 84 the administration of the Tampa Bay Refuges was transferred from J.N. "Ding" Darling NWR to Chassahowitzka National Wildlife Refuge. This transfer shortened the distance between this satellite and its headquarters by half, and increased the number of refuges administered by Chassahowitzka to seven.

The Special Use Permit for the Tampa Bay Pilots Association (TBPA) remained unsigned. Each time the FWS submitted a revised permit to the TBPA, they had another question about the special conditions. With a little luck, all issues should be resolved in the first few months of 1984. The permit area, including the 99 year Hillsborough County lease area and FWS property, was surveyed in late August by Jim Dinkel of the Realty Division in the Atlanta Regional Office. The TBPA was most cooperative during the survey and wanted the situation (issuing of the Special Use Permit) remedied as soon as possible!

The issuance of the SUP resulted from a trip to the Regional Office in February and a meeting with the TBPA, their lawyer and FWS Regional Office representatives in Tampa in July. Three major provisions of the permit are; fencing of the permitted area, cleaning up of trash pits and removal of the feral cat population.

Revenue sharing checks for \$122.00 were presented to the Pinellas County Commissioners in 1983. Mule and Jackass Keys are the only islands subject to the provisions of the Revenue Sharing Act.



Tampa Bay Pilot Association's permit area in the background;
 looking northeast to eroding gun emplacement in foreground
 83-N-1 RCZ



One of the more than 20 trash pits associated with
 the TBPA
 83-N-2 RCZ



Jim Dinkel surveying TBPA area on Egmont Key
83-N-3 RCZ

F. HABITAT MANAGEMENT

10. Pest Control

There were no chemical applications of herbicides on the Tampa Bay Refuges in 1983 due to other commitments throughout the year. Australian pines and Brazilian peppers will always be problems on these refuges because there has been no attempt to control their abundance on the mainland. It is felt that a concerted three year effort will be needed to bring these exotic species under control on the refuge islands.

12. Wilderness and Special Areas

Egmont Key was listed in the National Register of Historical Places in January, 1979 because of its military significance during the Civil War, Spanish American War (when the island became known as Fort Dade) and World War I. During its history Egmont was used as holding areas for prisoners of war, Seminole

Indians and yellow fever victims, and was a self contained military installation with over 60 buildings, an ice-making plant, four gun-battery emplacements and a railroad. Today the southern most gun-battery emplacement is eroding into the Gulf of Mexico (see photo #1 Section E-8) and the section of railroad leading to this gun emplacement and an outbuilding have already been lost. The inevitable erosion, coupled with vandalism, are all quickly destroying the remaining historical structures on Egmont, thereby also greatly reducing their cultural value.

Passage Key was designated a Wilderness Area on October 23, 1970. This island has changed shape and size so frequently that it is doubtful that the same land that was designated wilderness is still above water today. The following series of aerial photographs, taken over a one year period, illustrates the meandering tendencies of this island. During 1983 there were no hurricanes or tropical storms to enhance the "expected" actions of winds and tides on this low, sparsely vegetated, sand bar.



Altitude 700 feet 1/6/83 (83-N-4 - RCZ)



Altitude 700 feet 4/5/83 (83-N-5 - RCZ)



Altitude 700 feet 6/28/83 (83-N-6 - RCZ)



Altitude 700 feet 9/20/83 (83-N-7 - RCZ)



Altitude 700 feet 1/25/84 (83-N-8 - RCZ)

G. WILDLIFE2. Endangered and/or Threatened Speciesa. Florida Manatees

There was one confirmed sighting of a manatee from the USCG dock on Egmont Key on May 12. Although there were not other confirmed observations, it is presumed that manatee utilized the waters surrounding all the Tampa Bay Refuges because of their abundance in the upper part of Tampa Bay around power plants and in the Alafia River where there is a manatee sanctuary.

b. Eastern Brown Pelican

Brown pelican production on Tarpon Key of Pinellas NWR has remained constant for the past four seasons, with an estimated 900-1000 birds being fledged annually.

On May 26, four brown pelican nests were discovered on Passage Key; one of the nests had two eggs and the other three appeared to be abandoned. This was the first documented recording of pelicans nesting on Passage Key and the first time pelicans had been observed nesting on the ground in the Tampa Bay area. No nests were found during the next census of Passage Key. The nests may have been abandoned due to human disturbance over the busy Memorial Day weekend when no personnel were available for patrol due to mandatory law enforcement training.



Brown pelican sitting on nest at Passage Key
83-N-9 RCZ

c. Wood Stork

Wood storks continued to utilize Tarpon Key and its surrounding waters in increasing numbers. This years peak population of 150 occurred in January.

d. Southern Bald Eagle

No bald eagle nesting occurred on the Tampa Bay Refuges. This year there were only unconfirmed reports of eagles on or near the refuges.

e. Loggerhead Sea Turtle

Loggerhead sea turtles nested on the northern quarter of Egmont's Gulf beach. In 1983 there were six nests and one false crawl, as compared to 17 nests and two false crawls in 1982. Only two nests successfully hatched out and 218 young were produced. The other four nests were destroyed by extreme high tide waters. Five strandings occurred in 1983, one on Passage Key and four on Egmont.

f. Other

The American oystercatcher, little blue heron, tricolored heron, snowy egret, reddish egret, roseate spoonbill and gopher tortoise have all been listed as Species of Special Concern by the State of Florida and utilized one or all of the Tampa Bay Refuges throughout the year.

3. Waterfowl

Lesser scaup, ring-necked duck, blue-winged teal, mottled duck and red-breasted merganser were the main waterfowl species utilizing the waters surrounding the refuge islands. The numbers of these species have remained relatively unchanged, with peak populations of less than 250, since record keeping began in 1978.

4. Marsh and Water Birds

The following table indicates the species and numbers of birds produced on Tarpon Key (excluding brown pelicans) over the last three years.

Species	Young Produced		
	1981	1982	1983
Double-crested cormorant	475	700	660
White ibis	75	50	70
Great blue heron	50	30	35
Little blue heron	10	--	15
Tricolored heron (Louisiana)	50	--	50
Green heron	5	--	7
Black-crowned night heron	15	10	15
Yellow-crowned night heron	25	--	20
Great egret	50	35	35
Snowy egret	25	10	12
Reddish egret*	--	3	--

*First confirmed reddish egret nest on Tarpon Key



Tarpon Key, looking northeast,
St. Petersburg in background 83-N-10 RCZ



Indian Key, Looking east-southeast, Skyway Bridge
Causeway in background 83-N-1 RCZ

Although Tarpon Key and Indian Key are similar in shape and identical in vegetation, no known nesting occurs on Indian Key. Local lore has it that the "Frenchman" and five associates spent five years killing colonial birds for their plumage on Indian Key. None of these species have yet returned. It is even rare to see colonial birds loafing or feeding in the vicinity of Indian Key.

A population of 500 magnificent frigatebirds utilized the islands of Pinellas NWR, mostly Tarpon Key, from June through August. A peak population of 50 roseate spoonbills occurred in late February, also on Tarpon Key.

White pelicans and horned grebes were common visitors to the area, with peak populations of 50 and 30 respectively.

A common loon die-off occurred in 1983. Twelve dead loons were found on refuge islands during February and March. Much higher numbers were reported from the barrier islands south of the refuge in Manatee County. The cause of death was attributed to heavy metal toxicity and a viral infection aggravated by stress from cold weather and inadequate food supplies.

5. Shorebirds, Gulls, Terns and Allied Species

Nesting of these species occurred on Passage Key NWR; the last remaining natural nesting area for these birds in Tampa Bay. The island was closed to public use from April 1 to September 1, in an effort to protect the ground nesting black skimmers, royal terns, sandwich terns, laughing gulls and American oystercatchers. The following table summarizes the production figures for the past three years.

<u>Species</u>	<u>Young Produced</u>		
	1981	1982*	1983
Laughing gull	1900	1300	9000
Black skimmer	425	250	0**
Royal tern	5	100	1500
Sandwich tern	-	0	6
American oystercatcher	4	-	16

*In 1982 the "No-name" storm hit the area, washed over Passage Key in what would have been a banner year for production and killed approximately 20,000 laughing gull, 900 royal tern, and 10 sandwich tern flightless young.

**Although there were 250 black skimmer nests on the south tip of Passage no young were produced. In a five day time span all the eggs disappeared. It is not known whether winds swept them away or someone took them. If someone was mad about the island being closed, and quite a few were, it seems that they would have destroyed the eggs and left the remains on the island. No shells or pieces of shell were found. The same incident occurred on an island owned by the National Audubon Society in upper Tampa Bay.

Non-nesting birds in this category, that were commonly seen on the Tampa Bay Refuges at various times throughout the year included the herring gull, ring-billed gull, willet, knot, short-billed dowitcher, black-bellied plover, killdeer and solitary sandpiper.

6. Raptors

Raptors occurred only in minimal numbers on the refuges. The turkey and black vultures, red-shouldered hawk, osprey, American kestrel, barn owl and screech owl were the most commonly observed species in 1983. Ospreys were seen only during their migration. Although there was suitable nesting habitat, no nesting occurred.

7. Other Migratory Birds

Mourning doves used the islands of Pinellas NWR for roosting during their migrations. A small number also utilized Egmont Key on an almost year round basis.

8. Marine Mammals

Two shark killed bottle-nosed dolphins washed up on Egmont Key in June. The waters between Egmont and Passage Keys are reportedly a mating ground for the lemon shark which would help explain these and other reported dolphin strandings in the area.

10. Other Resident Wildlife

The gopher tortoise, Florida box turtle, Key West and green anole, black snake and the Eastern diamondback rattlesnake occur on Egmont Key.

In May an armadillo was found in the tideline on Egmont Key, no other signs or individuals have been seen.

There are presently 40+ feral cats on Egmont Key that are left-overs from the TBPA "rodent control program". These cats will be removed as one of the provisions of the pilot's Special Use Permit.

H. PUBLIC USE

1. General

Egmont Key received 97% of the public use that occurred on the Tampa Bay Refuges. Most of the 49,500 total visits (40,250 during May through September) occurred on the weekends for a total of 160,500 activity hours. Egmont is listed in an international guide for nude sunbathers as a place to visit while in the Tampa Bay area; so far the nude sunbathers are few and pose no problem. What is rapidly becoming a problem though is the fact that the beach is disappearing and the public is moving their picnicking up into the tree line thereby destroying vegetation which in turn will help the island erode.

Passage Key was closed to the public from April 1 to September 1, an annual occurrence, in an attempt to protect the nesting birds on the island. Public use was permitted the remainder of the year, with shelling being the most popular activity.



A lot of areas along the Gulf and southern edge of Egmont look like this today. This does not limit public use but it does force the users up into the vegetation. 83-N-12 RCZ

The six islands of Pinellas NWR are mangrove islands with no sand beaches. Public use was discouraged because of the importance of Tarpon Key as a nesting site and the other islands as loafing areas. The lagoon in Tarpon Key was closed year round.

Tour boats operated out of Anna Marie, Bradenton and Cortez (in Manatee County) and Pass-a-grille (Pinellas County) to Egmont Key. Prices for the tours ranged from \$9.95 to \$19.95 which includes a box lunch. These tours lasted from two to six hours and accounted for less than 2% of the total visitation since most visitors utilized privately owned boats. Tour boat operators will be issued special use permits in 1984 to determine if their operations should be incorporated into a concession.

Throughout the year interviews and tours were given to newspaper reporters from the immediate area. Press releases concerning the closure of Passage Key were issued as well as an interview with radio station WBRD in Bradenton on the subject. "The Islander" newspaper and WBRD repeated the news releases on the closure throughout the season in an effort to help us protect the wildlife. Channel 10, WTVT, the local CBS affiliate did quite a bit of filming on Egmont about the island's history which resulted in two three minute spots.

9. Fishing

Most fishing occurred from boats in waters surrounding the refuges. However, approximately 2,500 people chose to fish from the shore of Egmont this year. The most sought after sport fish included snook, (in season), grouper, speckled trout and redfish.

11. Wildlife Observation

A handful of birding enthusiasts observed the nesting and roosting activities of shorebirds and colonial species on Passage and Tarpon Keys. A few people also wandered into the interior of Egmont Key to observe migratory song birds and gopher tortoises.

12. Other Wildlife Oriented Recreation

Shelling was a very popular pastime along the Gulf Coast of Florida. Passage and Egmont Keys received their fair share of shellers - approximately 25,000 in 1983.

16. Other Non-Wildlife Oriented Recreation

Swimming, water skiing, sunbathing, picnicking and boating were popular activities on Egmont Key; especially over the long summer holiday weekends. Visitors with larger boats often anchored overnight around the island. The old military structures enticed a number of "explorers" to the interior of Egmont.

17. Law Enforcement

The major enforcement problem at the Tampa Bay Refuges was trespass on Passage Key during the nesting season (April 1 - September 1). Three general trespass cases were made in 1983, as compared to nine in 1982; this doesn't mean that there was less trespass, only that less people were caught trespassing!

A case (which resulted in a Congressional Investigation) was made when an individual landed his helicopter on Egmont Key. A fine of \$50.00 was paid -- hardly worth the trouble of initiating a Congressional, especially since there were no prior violations with the FAA or U.S. Customs!

On February 22, the Tarpa Bay Pilots Association's waterline was hacked in two and a blue goose sign chopped down. An early morning rain provided ideal conditions to follow the fresh set of footprints which led to one of the old gun emplacements on Coast Guard property. Inside the emplacement, two individuals were found in camouflage fatigues and had in their possession crossbows, compound bows and a canoe. The Hillsborough County Sheriff's Department was notified and they sent personnel to remove these individuals from the island. It was later found out that one of the men had just signed up for Special Forces training and wanted to get "in the mood". No charges were filed because the unwitnessed vandalism was a misdemeanor, and they possessed the weapons on Coast Guard property. They had rowed the 1½ miles from Mullet Key to Egmont under a Small Craft Advisory! Good Special Forces material!

At various times throughout the year Refuge Manager Ziobro assisted the area's Fish and Wildlife Special Agent, National Marine Fisheries Special Agents, U.S. Customs Special Agents and Florida Game and Fresh Water Fish Commission Officers in their law enforcement activities.

I. EQUIPMENT AND FACILITIES

3. Major Maintenance

The new closed and informational signs for Passage Key were made locally with RO blessings in 1983. These signs were installed and removed at the appropriate times during the year. No signs were lost due to weather or vandalism.

Informational and boundary signs were maintained as needed on Egmont Key throughout the year.

Regular preventative maintenance was performed on the Sea Ox, Courier pick-up truck and Honda ATC. Even with regular maintenance and TLC the salt atmosphere is taking its toll on the ATC, PDQ. This important piece of equipment will need to be overhauled or replaced soon.

J. OTHER ITEMS1. Cooperative Programs

Refuge equipment was stored at the Coast Guard Light Station on Egmont Key and we were permitted to use their dock in exchange for shuttling personnel and equipment to Egmont Key when their needs coincided with our trips out to the island. Personnel at the Light Station also assisted in refuge maintenance on Egmont and Passage Keys when help was needed.

2. Items of Interest

Refuge Manager Ziobro attended the Atlantic Flyway South Project Leaders meeting at Cedar Keys, Florida, March 29 and 30.

Ziobro also attended the law enforcement refresher course at Glynco, Georgia, May 30 -- June 3.

3. Credits

This report was written by Robert C. Ziobro, edited by Project Leader Carowan, and typed by Secretary Esther Brown.

All aerial photographs were taken from U.S. Coast Guard helicopters assigned to the Clearwater Air Station. The pilots, crew and support personnel were most cooperative and their efforts were greatly appreciated.

K. FEEDBACK

The Tampa Bay Refuges continued to be a one-man station. This was adequate during the off season (November-March) but was not sufficient during the high public use period which conflicted with bird nesting on Tarpon and Passage Keys.

The refuge staff (singular) spent the summer months patrolling Passage Key attempting to keep disturbance to nesting birds at a minimum. While 40 hour work weeks could easily have been performed during daylight hours on Fridays, Saturdays and Sundays, the area would then have been left unattended the remainder of the nesting season. It was impossible for one individual to effectively patrol this island. A minimum of two people with different draft boats were needed to maximize our effort.

To further complicate our plight, 1000 - 1500 visitors mobbed Egmont Key every weekend during the summer, vandalizing historical structures, poaching gopher tortoise, and leaving mounds of litter while yet others relished in creating disturbance of rookeries at Tarpon Key. These were not isolated incidents, but were all too common throughout the year.

The human population surrounding Tampa Bay is increasing daily. Presently 2 million people live within 50 miles of the refuges, posing an ever present and compounding problem to the resources on these refuges.

It is time to seriously consider our options as prudent resource stewards and refuge managers. If we do not intensify our efforts in Tampa Bay, the nesting birds could move to other islands in the bay that are protected by the National Audubon Society or nesting may drastically decrease. The Fish and Wildlife Service has an excellent opportunity to educate and inform a large number of people, who from throughout the country live in and visit this area, if adequate personnel were available. As it stands now, one person is spread too thinly throughout the summer months to even approach what is considered standard operating procedures and objectives.

The recent addition of a full time law enforcement position to the Complex's staff will help, but it will not provide the final solution due to similar demands on other refuges within his area of responsibility.

Figure 1.

PROPOSED
CRYSTAL RIVER NATIONAL WILDLIFE REFUGE
CITRUS COUNTY, FLORIDA

DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

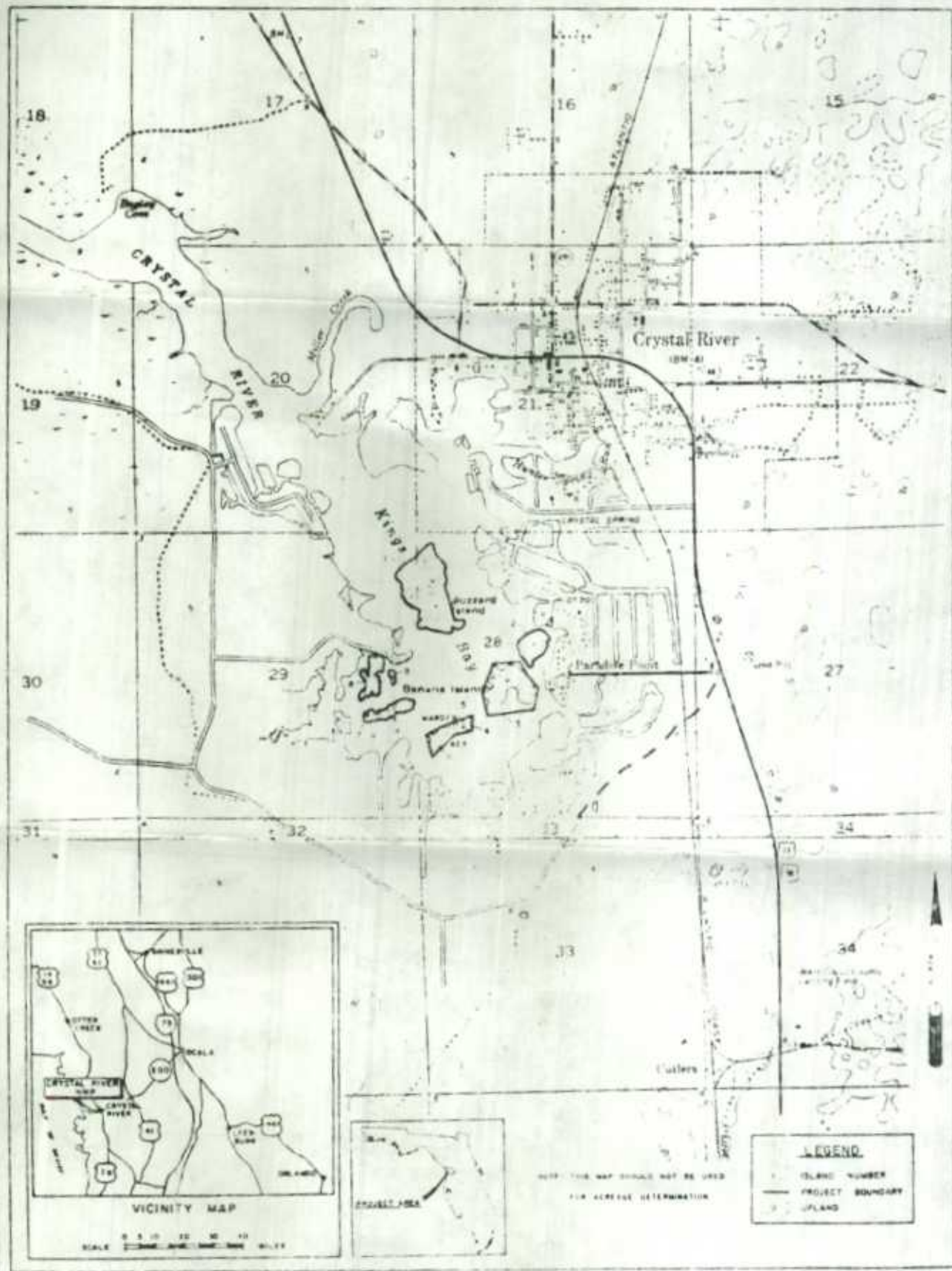
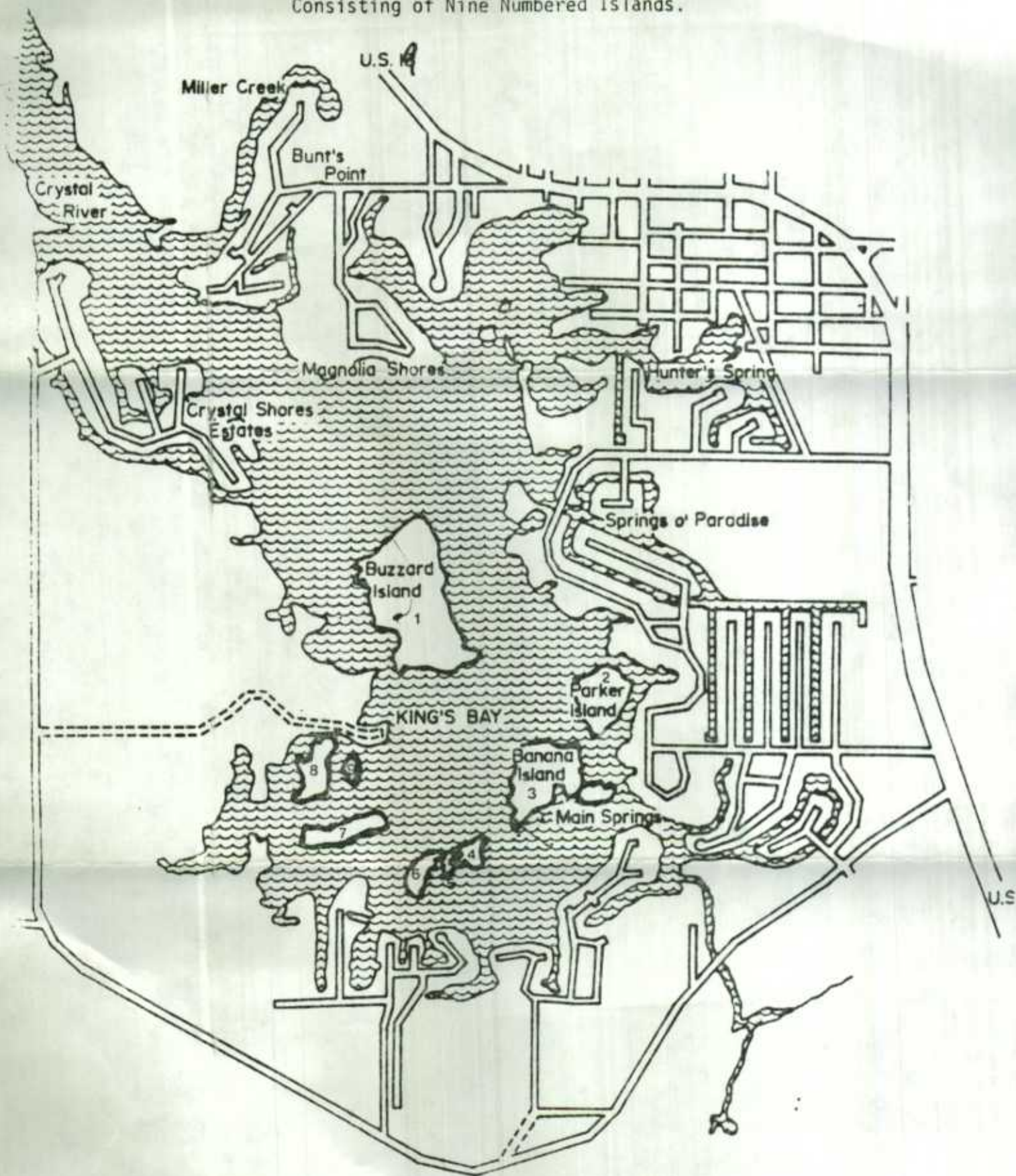


Figure 2 Proposed Crystal River National Wildlife Refuge
Consisting of Nine Numbered Islands.

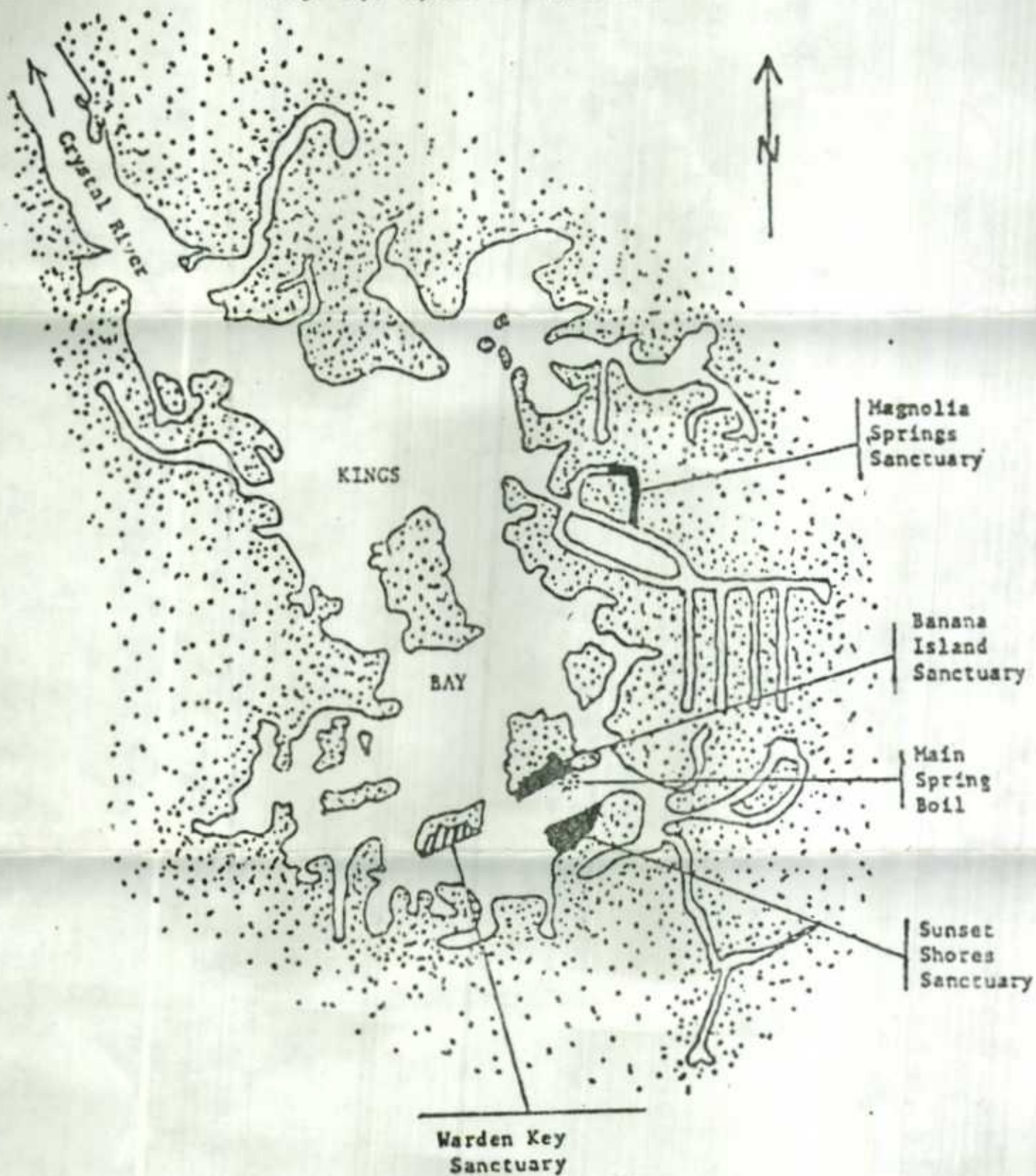


UPPER CRYSTAL RIVER & KING'S BAY
CITRUS COUNTY, FLORIDA

0 1/2 1 Mile

Figure 3

MANATEE SANCTUARIES
Kings Bay, Crystal River, Florida



Dated: November 5, 1980.
Robert S. Cook,
Acting Director, U.S. Fish and Wildlife
Service.
[FR Doc. 80-36188 Filed 11-10-80; 8:48 am]
BILLING CODE 4310-44-M

CEDAR KEYS NATIONAL WILDLIFE REFUGE

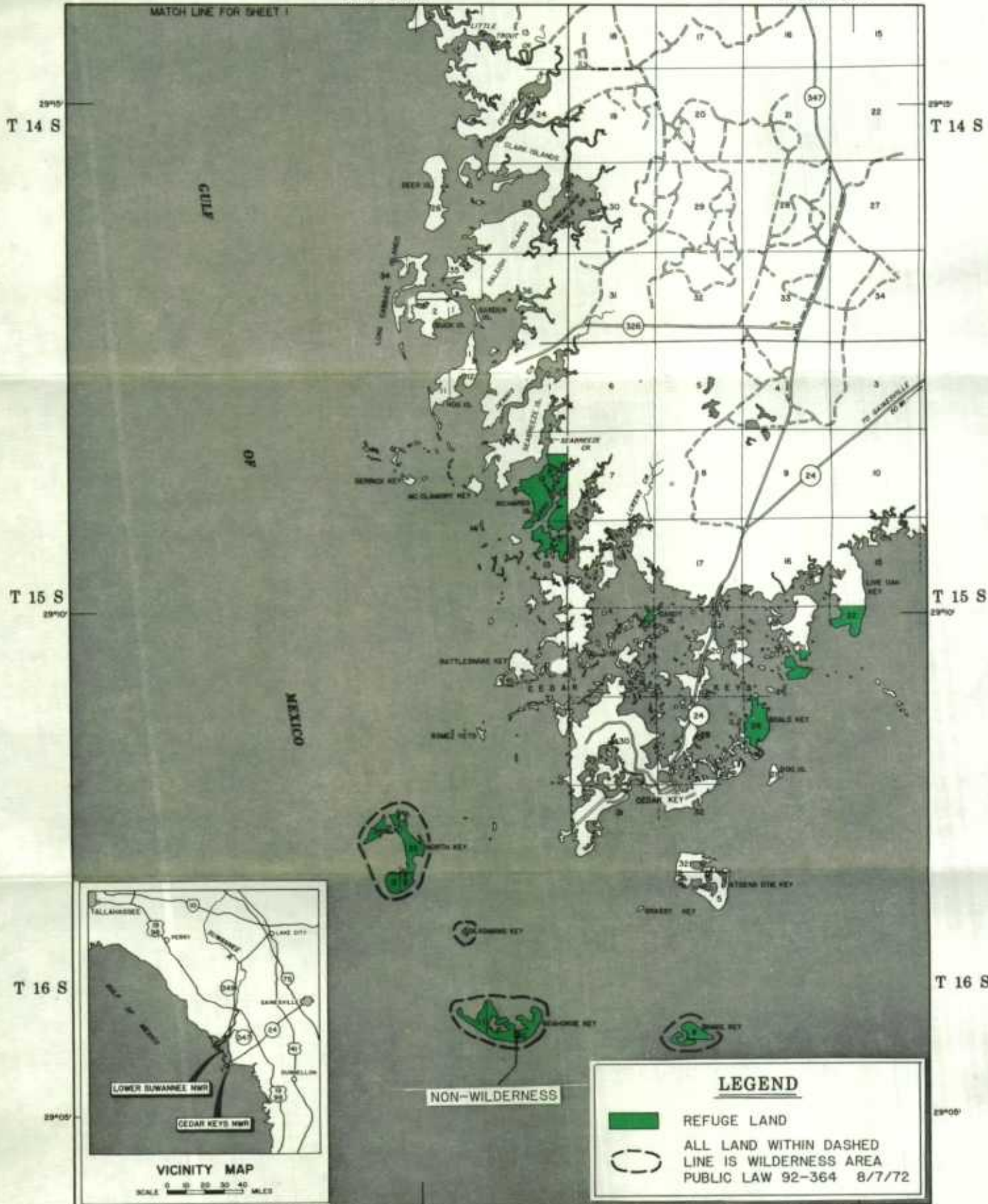
UNITED STATES
DEPARTMENT OF THE INTERIOR

DIXIE AND LEVY COUNTIES, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE

R 12 E 83°00'

R 13 E 83°00'



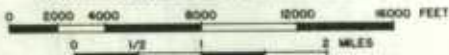
COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
AND U.S.G.S.

ATLANTA, GEORGIA MAY, 1978

R 12 E 83°00'

TALLAHASSEE MERIDIAN

R 13 E 83°00'



MEAN
DECLINATION
1978

4R FLA 114 404

PINELLAS NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

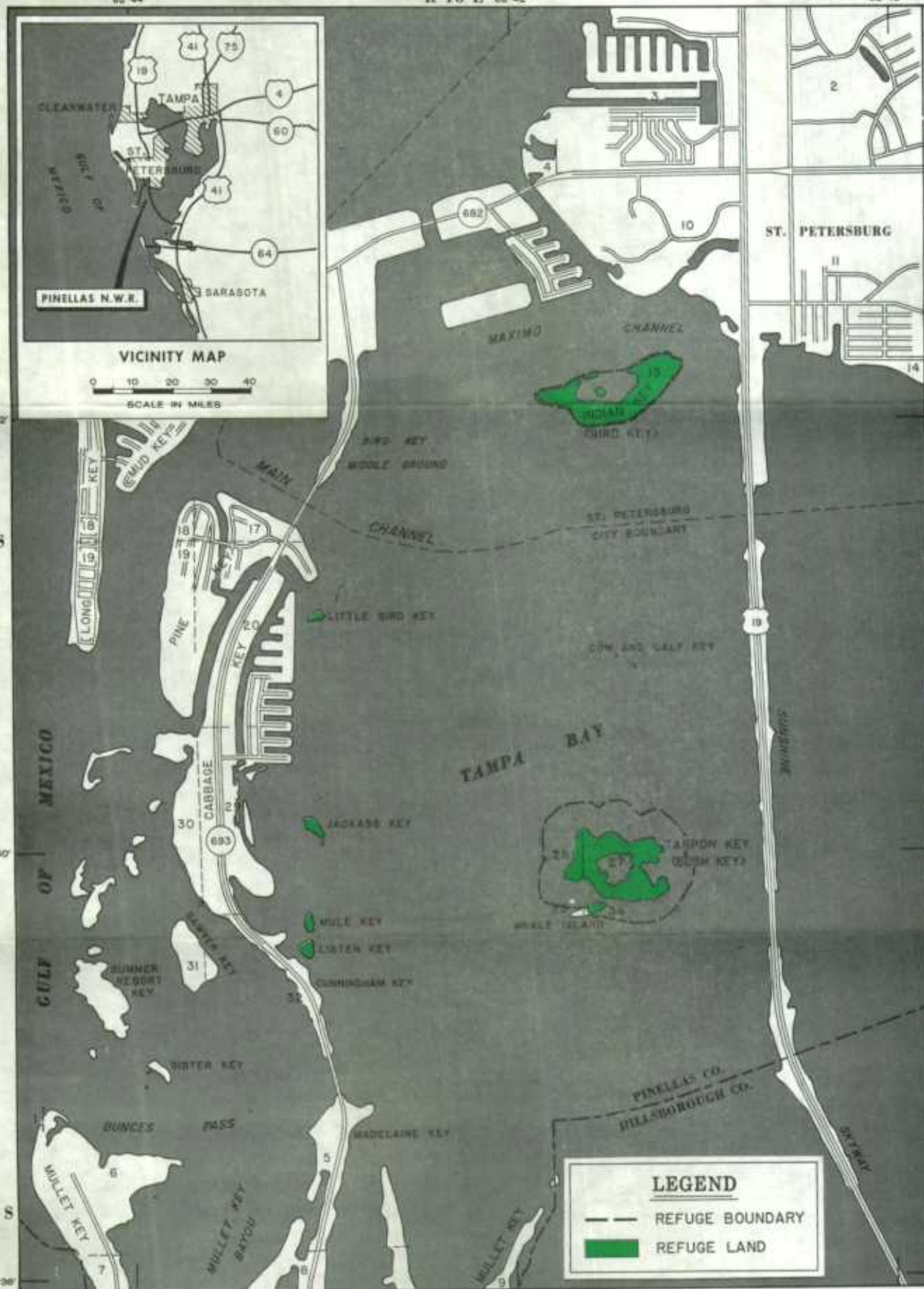
PINELLAS COUNTY, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE

82°44'

R 16 E 82°42'

82°40'



T 32 S

T 32 S

27°40'

27°40'

T 33 S

T 33 S

27°38'

27°38'

82°44'

R 16 E 82°42'

82°40'

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

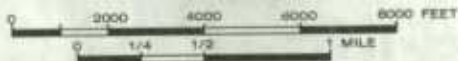
TALLAHASSEE MERIDIAN

1°7' Magnetic N
True North

MEAN
DECLINATION
1981

ATLANTA, GEORGIA

JUNE 1981



4R FLA 433 403

PASSAGE KEY NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR
82°40'

MANATEE COUNTY, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE
82°42'

R 15 E

82°44'


R 16 E

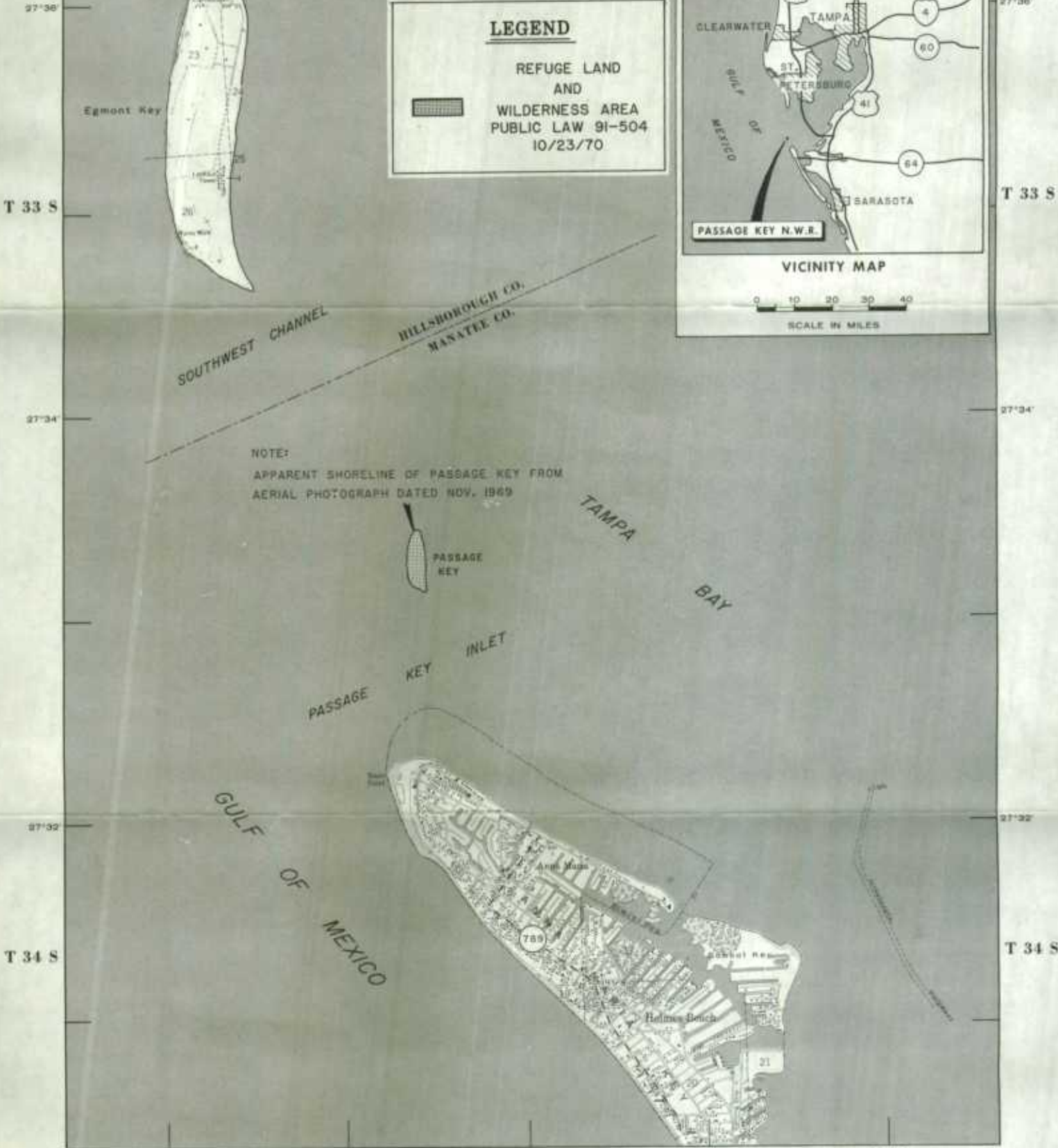
82°42'

EGMONT CHANNEL

LEGEND

REFUGE LAND
AND
WILDERNESS AREA
PUBLIC LAW 91-504
10/23/70

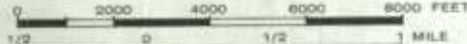




82°46' R 15 E
COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY U.S.G.S.

82°44' R 16 E
TALLAHASSEE MERIDIAN

82°42'
True North
Magnetic N.
MEAN DECLINATION
1971



ATLANTA, GEORGIA MARCH, 1971

4R FLA 31 403

EGMONT KEY NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

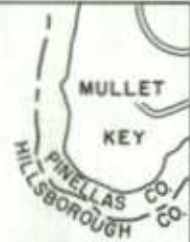
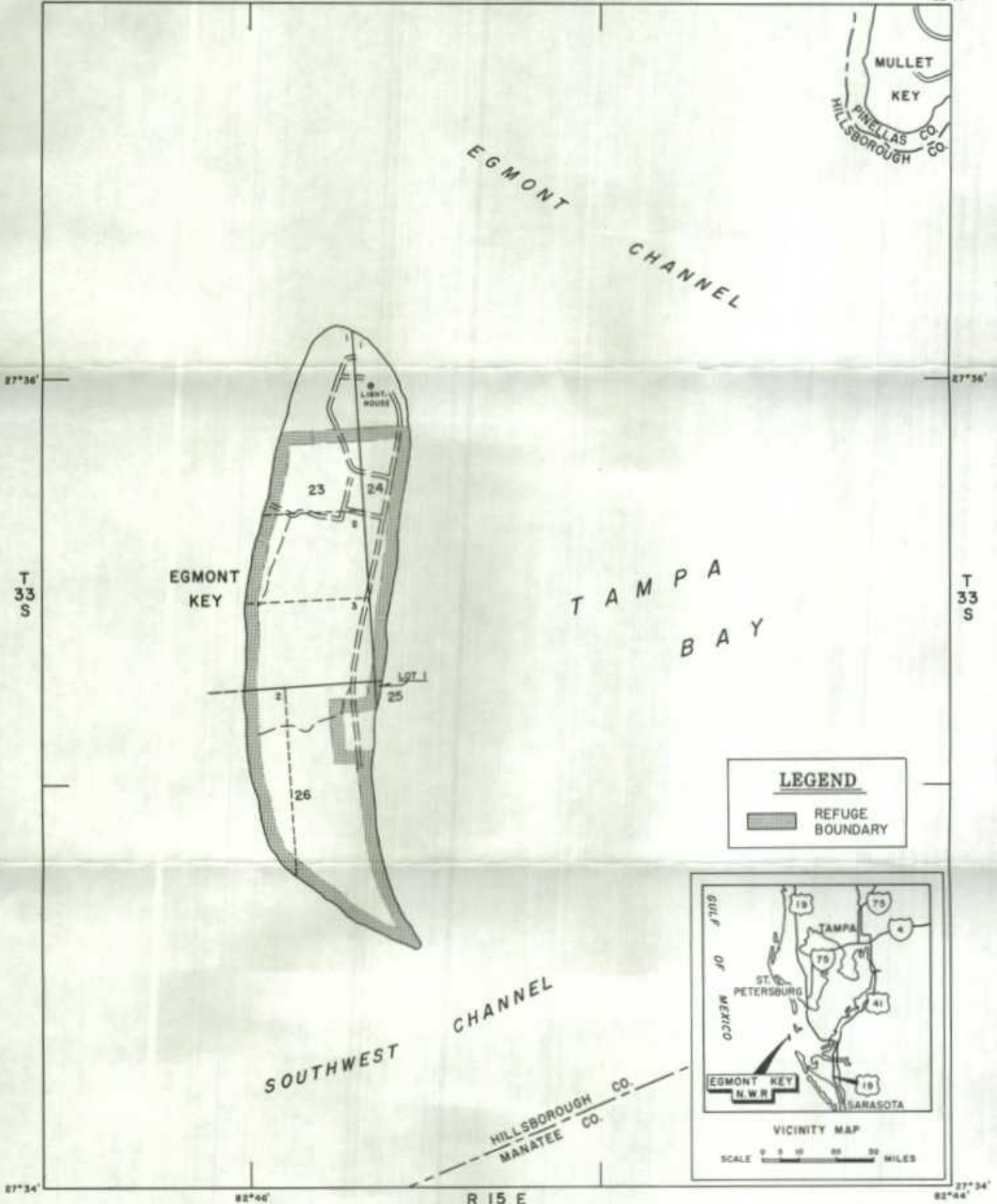
HILLSBOROUGH COUNTY, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE

82°46'

R 15 E

82°44'



LEGEND

REFUGE BOUNDARY



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



MEAN DECLINATION 1975

ATLANTA, GEORGIA OCTOBER, 1973

4R FLA 884 403

	Sp	S	F	W
_____ *Eastern Bluebird	u	u	u	u
_____ Veery	u		u	
_____ Gray-cheeked Thrush	o		o	
_____ Swainson's Thrush	o		o	
_____ Hermit Thrush				u
_____ Wood Thrush	c		c	
_____ American Robin	c		c	a
_____ Gray Catbird	c		c	c
_____ *Northern Mockingbird	c	c	c	c
_____ *Brown Thrasher	c	c	c	c
_____ Water Pipit				u
_____ Cedar Waxwing	u		u	u
_____ *Loggerhead Shrike	c	c	c	c
_____ *European Starling	c	c	c	c
_____ *White-eyed Vireo	c		c	c
_____ Solitary Vireo	c	c	c	c
_____ *Yellow-throated Vireo	o		o	
_____ *Red-eyed Vireo	c	c	c	
_____ Orange-crowned Warbler	u		u	u
_____ Northern Parula	c	c	c	u
_____ Yellow Warbler	u	u	u	
_____ Magnolia Warbler	u		u	
_____ Cape May Warbler	u		u	
_____ Black-throated Blue Warbler	u		u	
_____ Yellow-rumped Warbler	c		c	a
_____ Black-throated Green Warbler	u		u	
_____ *Yellow-throated Warbler	c	c	c	c
_____ *Pine Warbler	c	c	c	c
_____ *Prairie Warbler	c	c	c	c
_____ Palm Warbler	c		c	c
_____ Blackpoll Warbler	u		u	
_____ Black-and-white Warbler	o		o	o
_____ American Redstart	u		u	
_____ Prothonotary Warbler		u		
_____ Worm-eating Warbler	u		u	
_____ Ovenbird	c		c	c
_____ Northern Waterthrush	u		u	
_____ Louisiana Waterthrush	u		u	
_____ Connecticut Warbler	u		u	
_____ *Common Yellowthroat	c	c	c	c
_____ Hooded Warbler	c	c	c	
_____ Yellow-breasted Chat	u		u	
_____ *Summer Tanager	u	c		u
_____ Scarlet Tanager	u		u	
_____ *Northern Cardinal	a	a	a	a
_____ Rose-breasted Grosbeak	r		r	
_____ Blue Grosbeak	c	u		
_____ Indigo Bunting	u		u	
_____ Painted Bunting	r	r	r	r
_____ *Rufous-sided Towhee	c	c	c	c
_____ Bachman's Sparrow	r	r	r	r
_____ Chipping Sparrow	r		r	u
_____ Field Sparrow	u		u	u
_____ Vesper Sparrow				c
_____ Savannah Sparrow	c		c	a
_____ Grasshopper Sparrow				u
_____ Henslow's Sparrow				u
_____ Le Conte's Sparrow				u
_____ Sharp-tailed Sparrow				u
_____ *Seaside Sparrow	c	c	c	c
_____ Song Sparrow	c		c	c
_____ Swamp Sparrow	c		c	c
_____ White-throated Sparrow	a		a	a
_____ Dark-eyed (Northern) Junco	o			u
_____ Bobolink	o		o	
_____ *Red-winged Blackbird	a	a	a	a

	Sp	S	F	W
_____ *Eastern Meadowlark	c	c	c	c
_____ Rusty Blackbird				c
_____ *Boat-tailed Grackle	a	a	a	a
_____ *Common Grackle	u	u	u	u
_____ Brown-headed Cowbird				o
_____ Northern Oriole	o	u	o	
_____ American Goldfinch				c
_____ House Sparrow	r	r	r	r

These additional 21 species are of accidental occurrence, in most instances substantiated by only one or two records.

Sooty Shearwater	Black-necked Stilt
Brown Booby	American Avocet
Northern Gannet	Buff-breasted Sandpiper
Reddish Egret	Sooty Tern
Glossy Ibis	White-winged Dove
Roseate Spoonbill	Western Kingbird
Fulvous Whistling Duck	Scissor-tailed Flycatcher
Canada Goose	Bank Swallow
American Oystercatcher	Scrub Jay
	Bewick's Wren
	Northern Phalarope

NOTES

Date _____ No. Species _____

Observer(s) _____

Weather _____

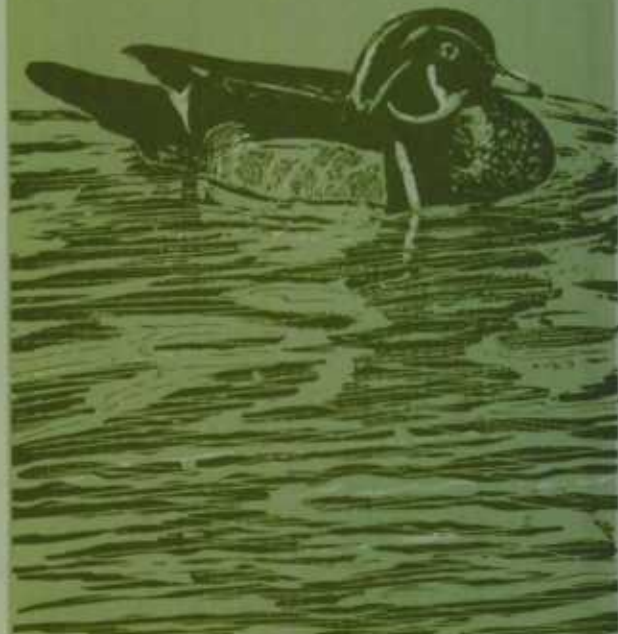
Time Afield _____

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

RF-41510-2 - November 1983

BIRDS

CHASSAHOVITZKA
NATIONAL WILDLIFE REFUGE
FLORIDA



**BIRDS OF THE
CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE**

Chassahowitzka National Wildlife Refuge is located on the Gulf Coast of Florida, in Citrus and Hernando Counties. It comprises 30,500 acres of coastal saltwater bays, estuaries and brackish marshes. The office is 4 miles south of Homosassa Springs on U.S. Highway 19.

Chassahowitzka National Wildlife Refuge was established in 1943, primarily to benefit waterfowl. Peak wintering waterfowl populations number in the thousands for ducks and coots. Other birds present include: herons, egrets, rails, raptors, and songbirds; many of which nest on the refuge.

The objective of the Fish and Wildlife Service is to wisely manage and maintain the refuge's natural resources.

This folder lists 234 species observed since 1951 by refuge personnel and visiting ornithologists. Another 21 species are of accidental occurrence and listed separately on the last page. The list was adopted in accordance with the July, 1982 American Ornithologists' Union (A.O.U.) update.

Symbols for seasonal abundance of each species are coded as follows:

SP - March - May
S - June - August
F - September - November
W - December - February

a - abundant - a common species which is very numerous
c - common - certain to be seen in suitable habitat
u - uncommon - present, but not certain to be seen
o - occasional - seen only a few times a season
r - rare - seen at intervals of 2 to 5 years
* - nests on refuge

	Sp	S	F	W
Common Loon	u		c	c
*Pied-billed Grebe	c	c	c	c
Horned Grebe				u
American White Pelican	c		c	c
Brown Pelican	c	c	c	c
*Double-Crested Cormorant	a	a	a	a
*Anhinga	c	c	c	c
Magnificent Frigatebird	c	c	c	o
American Bittern	u	u	u	u
*Least Bittern	u	u	u	u
*Great Blue Heron	a	a	a	a
*Great Egret	a	a	a	a
*Snowy Egret	a	a	a	a
*Little Blue Heron	c	c	c	c
*Tricolored (Louisiana) Heron	a	a	c	c
*Cattle Egret	c	c	c	c
*Green-backed (Green) Heron	c	c	c	c
*Black-crowned Night-Heron	a	a	c	c
*Yellow-crowned Night-Heron	c	c	c	c
*White Ibis	a	a	a	a
Wood Stork	u	c	u	u
Tundra (Whistling) Swan		r	r	
Greater White-fronted Goose		r	r	
Snow Goose	r		r	r

	Sp	S	F	W
Wood Duck	c	c	c	c
Green-winged Teal	a		a	a
American Black Duck	c	c	a	
Mottled Duck	r	r	r	r
Mallard	a		a	a
Northern Pintail	a		a	a
Blue-winged Teal	a	u	a	a
Northern Shoveler	u		u	u
Gadwall	c		c	c
American Wigeon	a		a	a
Canvasback	c		c	c
Redhead	c		c	c
Ring-necked Duck	c		c	c
Greater Scaup	r		r	r
Lesser Scaup	a		a	a
Common Goldeneye	o		o	o
Bufflehead	u		u	u
Hooded Merganser	a		u	a
Common Merganser	o		r	o
Red-breasted Merganser	a		a	a
Ruddy Duck	o		o	o
*Black Vulture	c		c	c
*Turkey Vulture	a	a	a	a
*Osprey	c	c	c	c
*American Swallow-tailed Kite	u	u	o	o
*Bald Eagle	u	o	u	u
Northern Harrier (Marsh Hawk)	c		c	c
Sharp-shinned Hawk	u		u	u
Cooper's Hawk	u	u	u	u
*Red-shouldered Hawk	c	c	c	c
Broad-winged Hawk				u
Short-tailed Hawk	r	r	r	
*Red-tailed Hawk	u	u	u	u
*American Kestrel	c	c	c	c
Merlin				r
Peregrine Falcon				o
*Wild Turkey	u	u	u	u
*Northern Bobwhite	a	a	a	a
Yellow Rail				u
*Black Rail	u	u		
*Clapper Rail	c	c	c	c
King Rail	u	u	u	u
Virginia Rail	c		c	c
Sora	c		c	c
Purple Gallinule	u	u	u	u
*Common (Gallinule) Moorhen	c	c	c	c
American Coot	a	o	a	a
*Limpkin	u	u	u	u
Sandhill Crane	r	r		
Black-bellied Plover	o		o	u
Snowy Plover				u
Wilson's Plover	u	u	c	c
Semipalmated Plover	o		o	c
Piping Plover				u
*Killdeer	c	c	c	c
Greater Yellowlegs	c		c	c
Lesser Yellowlegs	r		r	
Solitary Sandpiper	o		o	
Willet	c	c	c	c
Spotted Sandpiper	c		c	c
Whimbrel	r		r	
Marbled Godwit				r
Ruddy Turnstone	o		o	u
Red Knot	r		r	
Senderling				u
Semipalmated Sandpiper	o		o	c
Western Sandpiper				r
Least Sandpiper	c		c	c

	Sp	S	F	W
Pectoral Sandpiper	r		r	
Dunlin				c
Stilt Sandpiper				u
Short-billed Dowitcher	c		c	c
Long-billed Dowitcher	u		u	u
Common Snipe	c		c	c
American Woodcock				r
Laughing Gull	u	u	u	c
Bonaparte's Gull				c
Ring-billed Gull	c		c	c
Herring Gull	c		c	c
Caspian Tern	o		o	o
Royal Tern	c		c	c
Sandwich Tern	u	o	o	o
Common Tern	o			c
Forster's Tern	u			u
Least Tern	c	c	c	u
Black Tern	o	u	o	
Black Skimmer	o	o	o	o
*Mourning Dove	c	c	c	c
*Common Ground-Dove	c	c	c	c
Budgerigar	r	r		
Black-billed Cuckoo	r		r	
Yellow-billed Cuckoo	o	c	o	
Common Barn-Owl	r	r	r	r
*Eastern Screech-Owl	c	c	c	c
*Great Horned Owl	u	u	u	u
*Barred Owl	c	c	c	c
Short-eared Owl				u
*Common Nighthawk	c	c	c	
*Chuck-will's widow	c	c	c	c
Whip-poor-will				u
Chimney Swift	o	o	o	
*Ruby-throated Hummingbird	u	u	u	u
*Belted Kingfisher	c	c	c	c
*Red-headed Woodpecker	u	u	u	u
*Red-bellied Woodpecker	u	u	u	u
Yellow-bellied Sapsucker	u	u	u	u
*Downy Woodpecker	u	u	u	u
*Hairy Woodpecker	u	u	u	u
*Northern Flicker	c	c	c	c
*Pileated Woodpecker	u	u	u	u
Eastern Wood-Pewee	u	u	u	
Acadian Flycatcher	u			
Eastern Phoebe				c
*Great Crested Flycatcher	c	c	c	
*Eastern Kingbird	c	c	c	r
*Gray Kingbird	c	c	c	c
*Purple Martin	c	c	c	
Tree Swallow	c		c	a
*Northern Rough-winged Swallow	u	o	u	
Barn Swallow	o		o	
*Blue Jay	c	c	c	c
*American Crow	c	c	c	c
*Fish Crow	c	c	c	c
*Carolina Chickadee	c	c	c	c
*Tufted Titmouse	c	c	c	c
*White-breasted Nuthatch	u	u	u	u
*Brown-headed Nuthatch	c	c	c	c
Brown Creeper				u
*Carolina Wren	c	c	c	c
House Wren	o		o	c
Winter Wren	o		o	u
Sedge (Short-billed Marsh) Wren	u		u	u
*Marsh (Long-billed Marsh) Wren	c	c	c	c
Golden-crowned Kinglet	u		u	u
Ruby-crowned Kinglet				u
*Blue-gray Gnatcatcher	u	u	u	u

**LOWER SUWANNEE
NATIONAL WILDLIFE REFUGE**

(Administered by Chassahowitzka National Wildlife Refuge)

**Route 2, Box 44
Homosassa, Florida 32646**

HUNTING REGULATIONS

GENERAL PROVISIONS

Lower Suwannee Refuge is one of over 400 national wildlife refuges. The primary objective of a national wildlife refuge is to provide habitat for the conservation and protection of all species of wildlife. The harvest of surplus animals is one tool used to manage wildlife populations. Carefully managed hunts maintain wildlife populations at a level compatible with the environment, provide wholesome recreational opportunities and permit the use of a valuable, renewable resource.

The regulations listed below supplement the general regulations which govern hunting on wildlife refuge areas as set forth in Title 50, Code of Federal Regulations. Hunting will be in accordance with applicable State regulations and the following special refuge regulations.

GENERAL HUNTING REGULATIONS

Public hunting of feral hogs and all legal game except turkeys and gopher tortoise is permitted on 23,000 acres of the Lower Suwannee National Wildlife Refuge. A map of the open area is found on the reverse side.

Motor vehicles are restricted to the roads so designated on the reverse map. These roads will be open from November 12 through January 8. After this time, access will be by foot only. The hunt area can be reached by State Roads 347 and 357.

All hunters must wear a minimum of 500 square inches of fluorescent orange-colored material above the waistline during deer season.

Limited camping space is available at the county campsites shown on the map.

No camping or fires are permitted on refuge lands.

The use of dogs is permitted for waterfowl and quail hunting. Dogs must be under control at all times. Dogs are not permitted for other types of hunting.

It is unlawful to drive a nail, spike or other metal object, including climbing or screwtype spikes, into any tree or to hunt from any tree in which a nail, spike or other metal object has been driven.

PERMIT INFORMATION

A free permit is required for all persons hunting in the area. Permits must be carried when hunting. State management area stamps are not required.

SPECIFIC HUNT REGULATIONS

- Species . . . Feral hogs and all legal game as defined by State law, except turkey and gopher tortoise. **DEER-BUCKS ONLY**
- Season . . . November 12 - March 4.
- Sex Feral hogs - either sex - no size limit.
- Bag Limit . . Feral hogs - no limit.
All other legal game - State regulations.
- Weapon . . . State regulations.

**CLOSED TO
EITHER SEX
1/26/83**



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

RF-41515-6-October 1983





Hunting Regulations



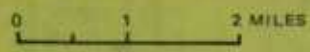
Lower Suwannee National Wildlife Refuge



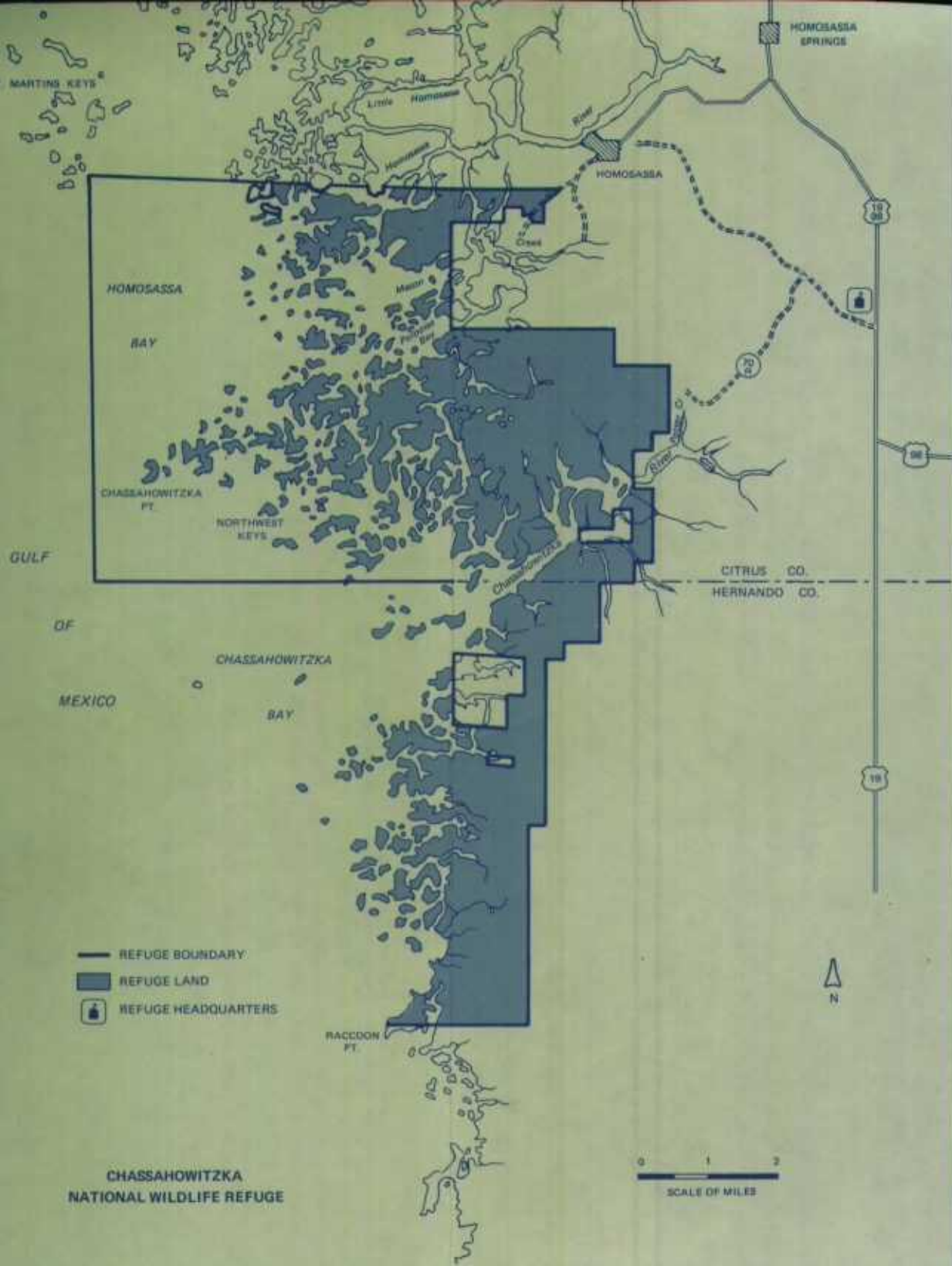
LEGEND

-  REFUGE BOUNDARY
-  CAMPING AREA
-  ROAD OPEN TO VEHICLES - November 12 - January 8
-  PRIVATE PROPERTY

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE



Chassahowitzka National Wildlife Refuge



Chassahowitzka National Wildlife Refuge

CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE, one of a nation-wide system of refuges, is on Florida's Gulf Coast about 65 miles north of St. Petersburg. It comprises 30,500 acres of saltwater bays and estuaries and brackish marshes with a fringe of hardwood swamps along the eastern boundary. The northern boundary parallels and includes much of the Homosassa River. The refuge extends southward across the scenic Chassahowitzka River for 12 miles to its southern boundary at Raccoon Point.

Refuge headquarters is on U.S. Highway 19, four miles south of Homosassa Springs. The refuge proper is accessible only by boat from the Homosassa and Chassahowitzka Rivers or Mason Creek.



Aerial View of the Refuge

HABITAT AND WILDLIFE - The refuge was established in 1943 primarily to benefit waterfowl in an area long famous as a wintering area for ducks and coots. Wigeons, pintails, black ducks, mallards, gadwalls, redheads, canvasbacks and eleven other species numbering in the thousands, spend their winters here.

Chassahowitzka National Wildlife Refuge preserves a section of unspoiled esturine habitat along the Gulf of Mexico coast that is essential for a balanced breeding and feeding ground for marine life. Shallow bays support an abundant growth of muskgrass which provides food for ducks and coots. Inland from the bays are the brackish creeks and ponds where widgeongrass, watermilfoil and other duck foods grow in profusion. The eastern boundary provides a few thousand acres of swamp habitat where oaks, cypress and red cedar grow. The outer islands consist mainly of red and black mangrove which provides excellent habitat for colonial nesting birds.



Hunting and Fishing are the Primary Recreational Uses on the Refuge

Although most waterfowl at Chassahowitzka National Wildlife Refuge migrate north when spring arrives, many other birds are year-round residents. Large numbers of cormorants; great blue, little blue, green, black-crowned and yellow-crowned night herons; and great, snowy, and cattle egrets nest on the outer keys. Osprey are common and raise their young here.

Many other species of migratory birds, including rails, gallinules, hawks and songbirds inhabit the area. A large flock of white pelicans, whose beauty in flight is equaled by few other birds, winter on the refuge. More than 250 species of birds have also been observed on the refuge.

Other animals inhabiting the refuge include numerous alligators and raccoons. Otters are seen occasionally exhibiting their aquatic skills. Deer, turkey, black bear, and predators such as the bobcat are residents of the refuge. Endangered species include nesting bald eagles,



Eastern Fox Squirrel Eating an Acorn

manatees, marine turtles and occasionally peregrine falcons. Over 40 species of amphibians and reptiles and more than 25 species of mammals have been recorded on the refuge.

MANAGEMENT - Management objectives of this refuge are oriented toward preservation and protection of the land resource and its wildlife populations. Management practices are minimal except for law enforcement activities and animal censuses.

VISITING THE REFUGE - With the exception of the headquarters facilities, the refuge is accessible by boat only. Visitors are welcome to visit the refuge at all times. A one-half mile self-guided nature trail is located around the refuge headquarters. The best seasons for observing wildlife are winter and late spring. Guided tours for scientific and educational groups may be arranged by contacting the Refuge Manager, Route 2, Box 44, Homosassa, FL 32646. The telephone number is (904) 382-2201.



School Group on Self-guided Nature Trail

Fishing is excellent in all waters of the refuge. Redfish and speckled trout are abundant from September to June. Bass and bream fishing are enjoyed throughout the year by visitors. A public waterfowl hunting area on the refuge offers some of the best duck hunting in Florida. Although camping is not permitted on the refuge, there are numerous campgrounds nearby.

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

Sp S F W

	Sp	S	F	W
* American Crow	c	c	c	c
* Fish Crow	c	c	c	c
* Carolina Chickadee	c	c	c	c
* Tufted Titmouse	c	c	c	c
* White-breasted Nuthatch	u	u	u	u
* Brown-headed Nuthatch	c	c	c	c
Brown Creeper			u	
* Carolina Wren	c	c	c	c
House Wren	o	o		u
Winter Wren	o	o		
Sedge (Short-billed Marsh) Wren	u		u	u
* Marsh (Long-billed Marsh) Wren	c	c	c	c
Golden-crowned Kinglet	u		u	u
Ruby-crowned Kinglet				u
* Blue-gray Gnatcatcher	u	u	u	u
* Eastern Bluebird	c	c	c	c
Veery	u		u	
Gray-cheeked Thrush	o		o	
Swainson's Thrush	o		o	
Hermit Thrush				u
Wood Thrush	c		c	
American Robin	c		c	a
* Gray Catbird	c		c	c
* Northern Mockingbird	c	c	c	c
* Brown Thrasher	c	c	c	c
Water Pipit				u
Cedar Waxwing	u		u	
* Loggerhead Shrike	c	c	c	c
* European Starling	c	c	c	c
* White-eyed Vireo	c	c	c	c
Solitary Vireo	c		c	c
* Yellow-throated Vireo	o		o	
* Red-eyed Vireo	c	c	c	c
Orange-crowned Warbler	u		u	u
Northern Parula	c	c	c	c
Yellow Warbler	u	c	u	
Magnolia Warbler	u		u	u
Cape May Warbler	u		u	u
Black-throated Blue Warbler	u		u	u
Yellow-rumped Warbler	c		c	c
Black-throated Green Warbler	u		u	u
* Yellow-throated Warbler	c	c	c	c
* Pine Warbler	c	c	c	c
* Prairie Warbler	c	c	c	c
Palm Warbler	c		c	c
Blackpoll Warbler	o		o	o
American Redstart	u		u	
Prothonotary Warbler		u		
Worm-eating Warbler	u		u	
Ovenbird	c		c	
Northern Waterthrush	u		u	
Louisiana Waterthrush	u		u	
Connecticut Warbler	u		u	
* Common Yellowthroat	c	c	c	c
Hooded Warbler	c	c	c	c
Yellow-breasted Chat	u		u	
* Summer Tanager	u		c	u
Scarlet Tanager	u		u	
* Northern Cardinal	a	a	a	a
Rose-breasted Grosbeak	r		r	
Blue Grosbeak	c			
Indigo Bunting	u		u	
Painted Bunting	r	r	r	r
* Rufous-sided Towhee	c	c	c	c
* Bachman's Sparrow	u	u	u	u
Chipping Sparrow	u		u	u
Field Sparrow	u		u	u
Vesper Sparrow				c

Sp S F W

	Sp	S	F	W
Savannah Sparrow	c		c	a
Grasshopper Sparrow				u
Henslow's Sparrow				u
Le Conte's Sparrow				u
Sharp-tailed Sparrow				u
* Seaside Sparrow	c	c	c	c
Song Sparrow	c		c	c
Swamp Sparrow	c		c	c
White-throated Sparrow	a	a	a	a
Dark-eyed (Northern) Junco	o		o	u
Bobolink	c		o	
* Red-winged Blackbird	a	a	a	a
* Eastern Meadowlark	a	a	a	a
Rusty Blackbird				c
* Boat-tailed Grackle	a	a	a	a
* Common Grackle	u	u	u	u
Brown-headed Cowbird				a
Orchard Oriole	u	c	u	
Northern Oriole	o	u	o	
American Goldfinch				c
House Sparrow	c	c	c	c



These additional 20 species are of rare or accidental occurrence, in most instances substantiated by only one or two records.

Sooty Shearwater	Buff-breasted Sandpiper
Brown Booby	Sooty Tern
Northern Gannet	White-winged Dove
Reddish Egret	Yellow-bellied Flycatcher
Scarlet Ibis	Western Kingbird
Glossy Ibis	Bewick's Wren
Canada Goose	Warbling Vireo
Sandhill Crane	Black-whiskered Vireo
Black-necked Stilt	Tennessee Warbler
Long-billed Curlew	Blackburnian Warbler

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

RF-41511,15-2 November 1983

BIRDS

CEDAR KEYS AND LOWER SUWANNEE
NATIONAL WILDLIFE REFUGES
FLORIDA



CEDAR KEYS NATIONAL WILDLIFE REFUGE, established July 16, 1929, is located 90 air miles north of Tampa, Florida, in Levy County. The refuge is comprised of several islands located in the Gulf of Mexico near the town of Cedar Key, Florida. The islands range in size from 6 to 165 acres.

Historically, Cedar Keys Refuge has been of tremendous value as a nesting area for colonial birds. With a recorded peak of over 200,000 nesting birds in a single year, the refuge ranks as one of the largest nesting areas in Florida.

LOWER SUWANNEE NATIONAL WILDLIFE REFUGE is located north of Cedar Keys Refuge in Levy and Dixie Counties. The refuge presently consists of three separate land tracts totaling approximately 13,000 acres.

The refuge was established in March, 1979, with the objective of preserving 54,000 acres of the Suwannee River delta-estuary. Approximately 40,000 additional acres of coastal marshes, bottomland hardwoods, offshore islands and upland fringe are proposed for acquisition.

This folder lists 238 species observed since 1979 by refuge personnel and visiting ornithologists. Another 20 species considered rare or out of their normal range are listed separately on the last page. This list was adopted in accordance with the July 1982 American Ornithologists Union (A.O.U.) update.

The symbols for seasonal abundance of each species are coded as follows:

- SP - March - May
- S - June - August
- F - September - November
- W - December - February

- a - abundant - a common species which is very numerous
- c - common - certain to be seen in suitable habitat
- u - uncommon - present, but not certain to be seen
- o - occasional - seen only a few times during a season
- r - rare - seen at intervals of 2 to 5 years
- * - nests on refuge

	Sp	S	F	W
Tundra (Whistling) Swan		r	r	
Greater White-fronted Goose		r	r	
Snow Goose	r	r	r	
*Wood Duck	c	c	c	c
Green-winged Teal	c	c	c	c
American Black Duck	c	c	c	c
Mottled Duck	r	r	r	r
Mallard	c	c	c	c
Northern Pintail	c	c	c	c
Blue-winged Teal	c	c	c	c
Northern Shoveler	c	c	c	c
Gadwall	c	c	c	c
American Wigeon	c	c	c	c
Canvasback	c	c	c	c
Redhead	c	c	c	c
Ring-necked Duck	c	c	c	c
Greater Scaup	r	r	r	
Lesser Scaup	c	c	c	c
Common Goldeneye	o	o	o	o
Bufflehead	o	o	o	o
Hooded Merganser	c	u	c	
Common Merganser	u	u	u	u
Red-breasted Merganser	a	a	a	a
Ruddy Duck	u	o	u	
*Black Vulture	c	c	c	c
*Turkey Vulture	c	c	c	c
*Osprey	c	c	c	c
American Swallow-tailed Kite	u	u	u	u
*Bald Eagle	u	u	u	u
Northern Harrier (Marsh Hawk)	c	o	c	c
Sharp-shinned Hawk	u	u	u	u
Cooper's Hawk	u	u	u	u
*Red-shouldered Hawk	c	c	c	c
Broad-winged Hawk				u
*Red-tailed Hawk	u	u	u	u
*American Kestrel	c	c	c	c
Merlin				r
Peregrine Falcon			o	o
*Wild Turkey	c	c	c	c
*Northern Bobwhite	a	a	a	a
Yellow Rail				u
*Black Rail	u	u		
*Clapper Rail	c	c	c	c
King Rail	u	u	u	u
Virginia Rail	c	c	c	c
Sora				c
Purple Gallinule	u	u	u	u
*Common (Gallinule) Moorhen	c	c	c	c
American Coot	c	o	c	a
* Limpkin	u	u	u	u
Black-bellied Plover	u	c	c	c
Snowy Plover				o
Wilson's Plover	u	u	c	c
Semipalmated Plover	u	u	c	c
Piping Plover				o
*Killdeer	c	c	c	c

	Sp	S	F	W
American Oystercatcher	o		c	c
Greater Yellowlegs	c		c	c
Lesser Yellowlegs	r		r	
Solitary Sandpiper	o		o	
Willet	c	c	c	c
Spotted Sandpiper	c	o	c	c
Whimbrel	r		r	
Marbled Godwit				u
Ruddy Turnstone	o	o	u	u
Red Knot	o		o	
Sanderling				u
Semipalmated Sandpiper	o		o	c
Western Sandpiper	o		o	o
Least Sandpiper	c		c	c
Pectoral Sandpiper	r		r	
Dunlin	o	o	o	c
Stilt Sandpiper				u
Short-billed Dowitcher	c	c	c	c
Long-billed Dowitcher	c	c	c	c
Common Snipe	c		c	c
American Woodcock				o
Laughing Gull	c	c	c	c
Bonaparte's Gull				o
Ring-billed Gull	c	c	c	c
Herring Gull	c	o	c	c
Great Black-backed Gull				o
Caspian Tern	c	c	c	c
Royal Tern	c	c	c	c
Sandwich Tern	c	u	u	u
Common Tern	c	c	c	c
Forster's Tern	u		u	c
Least Tern	c	c	c	c
Black Tern	c		o	
Black Skimmer	o	o	o	o
* Mourning Dove	c	c	c	c
* Common Ground-Dove	c	c	c	c
Black-billed Cuckoo	r		r	
Yellow-billed Cuckoo	o	c	o	
Common Barn-Owl	u	u	u	u
* Eastern Screech-Owl	c	c	c	c
* Great Horned Owl	u	u	u	u
* Barred Owl	c	c	c	c
Short-eared Owl				u
* Common Nighthawk	c	c	c	c
* Chuck-will's widow	c		c	c
Whip-poor-will				u
Chimney Swift	c	c	c	c
* Ruby-throated Hummingbird	u	u	u	u
* Belted Kingfisher	c	c	c	c
* Red-headed Woodpecker	u	c	c	c
* Red-bellied Woodpecker	u	u	u	u
Yellow-bellied Sapsucker	c	c	c	c
* Downy Woodpecker	c	c	c	c
* Hairy Woodpecker	c	c	c	c
Red-cockaded Woodpecker	r	r	r	r
* Northern Flicker	c	c	c	c
* Pileated Woodpecker	c	c	c	c
Eastern Wood-Pee-wee	c	c	c	c
Acadian Flycatcher				u
Eastern Phoebe				c
* Great Crested Flycatcher	c	c	c	c
* Eastern Kingbird	c	c	c	c
Gray Kingbird	c	c	c	c
* Purple Martin	c	c	c	c
Tree Swallow	c		c	a
* Northern Rough-winged Swallow	u	o	u	
Bank Swallow	o			o
Barn Swallow	o			o
* Blue Jay	c	c	c	c
* Scrub Jay	c	c	c	c



	Sp	S	F	W
Common Loon	u		c	c
* Pied-billed Grebe	c	c	c	c
Horned Grebe				u
American White Pelican	o		o	o
* Brown Pelican	c	c	c	c
* Double-crested Cormorant	a	a	a	a
* Anhinga	c	c	c	c
Magnificent Frigatebird	c	c	c	o
American Bittern	u	u	u	u
* Least Bittern	u	u	u	u
* Great Blue Heron	a	a	a	a
* Great Egret	a	a	a	a
* Snowy Egret	a	a	c	c
* Little Blue Heron	a	a	c	c
* Tricolored (Louisianan) Heron	a	a	c	c
* Cattle Egret	c	c	c	c
* Green-backed (Green) Heron	c	c	c	c
* Black-crowned Night-Heron	c	c	c	c
* Yellow-crowned Night-Heron	c	c	c	c
* White Ibis	a	a	a	a
Roseate Spoonbill	o	o	o	r
Wood Stork	u	c	u	u

The University of Florida at Gainesville leases the lighthouse and three acres of land on Seahorse Key for marine research purposes.

There are no plans for further developments on Cedar Keys Refuge. The development of improved public access to the islands would be completely incompatible with refuge management and wilderness objectives and therefore, will not be considered.

The Cedar Keys National Wildlife Refuge is administered by Chassahowitzka National Wildlife Refuge. Requests for additional information should be addressed to the *Refuge Manager, Route 2, Box 44, Homosassa, Florida 32646*. The telephone is 904-~~828~~-2201.

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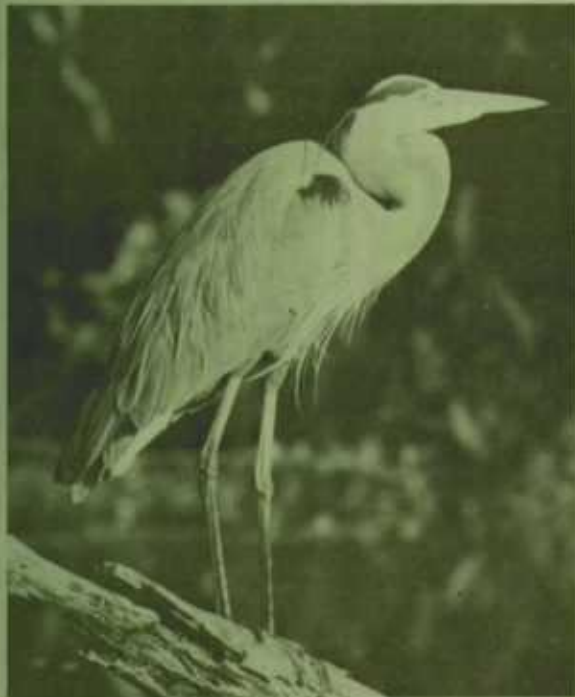


**Cedar Keys
National Wildlife Refuge**

CEDAR KEYS NATIONAL WILDLIFE REFUGE

Cedar Keys National Wildlife Refuge, one of a nationwide system of refuges, is located ninety air miles north of Tampa, Florida, in Levy County. The refuge is comprised of several off-shore islands located in the Gulf of Mexico, within five miles of the town of Cedar Key, Florida. The islands range in size from 6 to 165 acres.

The refuge was established July 16, 1929, by Executive Order 5158 signed by President Herbert Hoover. This order preserved Snake, Bird (Deadman's) and North Keys as a refuge and breeding ground for colonial birds. On November 6, 1936, President Franklin D. Roosevelt signed Executive Order 7484 adding Seahorse Key to the refuge. Acquisition of Richards, Scale, Hickory and Live Oak Keys occurred during 1979-80. Approximately 3100 additional acres of coastal marshes and islands in the Cedar Keys area are under consideration for acquisition.



HABITAT AND WILDLIFE

Cedar Keys historically has been of tremendous value as a nesting area for colonial birds. With a recorded peak of over 200,000 nesting birds in a single year and an average of about 50,000 over several years' span, Cedar Keys ranks as one of the largest nesting areas in Florida. The more abundant nesting species include the white ibis, common egret, double-crested cormorant, roseate spoonbill, and great egret.



Cedar Keys provides ideal nesting and feeding conditions for the brown pelican and hosts the most northern nesting colony of any significance on the Gulf Coast. More than 1200 of this endangered species has been recorded on Seahorse Key. The osprey is also a common nester on the refuge with an annual average of about 25 nests.

Some ten species of reptiles have been recorded on the refuge. Unusually dense populations of cottonmouth-water moccasins are present on Snake, North and Seahorse Keys.

Mammals are relatively scarce on the refuge. Exceptions are the gray squirrel and black rat on Seahorse Key and the marsh rabbit and raccoon on all the larger islands. River otter and mink are rare visitors.

Seahorse Key, the outermost refuge island, was formed as a huge sand dune many thousands of years ago. This dune is now evident as a prominent central ridge which rises abruptly to an elevation of 52 feet. The central ridges of the other keys are less obvious, extending only five to 20 feet above sea level.

The elevated ridges are dominated by an upland forest of cabbage palm, red bay, live oak and laurel oak. Characteristic understory plants include cherry laurel, saw palmetto, youpon, wild olive, prickly pear, cedar and Spanish bayonet. The lower elevations of the islands, comprising almost 40 percent of the total refuge acreage, are subject to frequent tidal flooding and are dominated by mangrove swamps and patches of salt marsh.

MANAGEMENT AND VISITING THE REFUGE

Because of its small size and importance to wildlife, Cedar Keys National Wildlife Refuge can support only limited public use if it is to meet the objectives for which it was established and if its wilderness character is to be preserved as required by the Wilderness Act.

Only the beaches are open to the public. The season for public use extends from July through December annually. The interior of the islands is closed to general public access for purposes of safety and to protect the flora and fauna of the islands.

Access is by boat only. All the islands are surrounded by shallow sand and mud flats which make them relatively inaccessible. At low tide, few sites along the shores can be reached by boat. Shell collecting, picnicking, beachcombing, birdwatching and photography are permitted on the beaches during daylight hours. Hunting, camping or fires are not permitted.

