

Project Leader's Official Copy

FAKAHATCHEE STRAND:

A Florida Panther Habitat Preservation Proposal

FLORIDA PANTHER NWR
8860 TOLLGATE BLVD., SUITE 300
NAFLES, FLORIDA 34114



Final Environmental Assessment

April 1985



United States Department of the Interior

FISH AND WILDLIFE SERVICE

75 SPRING STREET, S.W.
ATLANTA, GEORGIA 30303

FLORIDA PANTHER NWR
3860 TOLLGATE BLVD., SUITE 300
NAPLES, FLORIDA 34114

April 18, 1985

To: Recipients of the Final Environmental Assessment "Fakahatchee
Strand: A Florida Panther Habitat Preservation Proposal"

We are pleased to provide you a copy of the subject Final Environmental Assessment developed cooperatively by the Fish and Wildlife Service, the National Park Service, and the State of Florida. The planners are to be commended for a job well done in identifying habitat critically needed by the Florida panther.

Additional copies of the assessment can be obtained free of charge by requesting them from: U.S. Fish and Wildlife Service, 75 Spring Street, SW., Atlanta, Georgia 30303.

Your interest and support in preserving panther habitat is appreciated.

Sincerely yours,

David B. Allen
Acting Regional Director

Enclosure



United States Department of the Interior

FISH AND WILDLIFE SERVICE

75 SPRING STREET, S.W.

ATLANTA, GEORGIA 30303

FINDING OF NO SIGNIFICANT IMPACT

for the

Preservation of

Approximately 88,000 Acres of Habitat

in Collier County, Florida

for the Benefit and Recovery

of the

Endangered Florida Panther

Based on a review and evaluation of the information contained in the supporting reference below, I have determined that the proposed preservation of approximately 88,000 acres of essential habitat of the Florida panther in the Fakahatchee Strand area of the Big Cypress Swamp, Collier County, Florida, will not have a significant affect on the quality of the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969. Accordingly, the preparation of an environmental impact statement on the proposed action is not required.

Supporting Reference

An environmental assessment has been prepared that summarizes various alternatives and subsequent environmental impacts for this habitat preservation proposal including the Fish and Wildlife Service's proposed action. The assessment is on file in the Office of Wildlife Resources and is available for public inspection upon request.

4/17/85
Date


Regional Director

FINAL ENVIRONMENTAL ASSESSMENT

FAKAHATCHEE STRAND: A FLORIDA PANTHER HABITAT PRESERVATION PROPOSAL

Collier County, Florida

ABSTRACT: This final environmental assessment (EA) considers the biological, environmental, and socioeconomic effects of protecting and preserving approximately 88,000 acres of Florida panther habitat in the Fakahatchee Strand area of the Big Cypress Swamp. The impacts of alternative actions and the degree to which each alternative would accomplish habitat preservation goals are examined and evaluated.

The Proposed Action (Alternative 6) of the U.S. Fish and Wildlife Service (FWS) provides for a "team approach" to preservation involving the FWS, the State of Florida, and the National Park Service (NPS). The primary means of preservation will be fee title and easement acquisition; however, other methods such as land exchanges, management agreements, and leases may be used.

For Further Information Contact: Regional Director
U.S. Fish and Wildlife Service
75 Spring Street, SW
Atlanta, Georgia 30303

Prepared By

United States Department of the Interior
Fish and Wildlife Service
Southeast Region
Atlanta, Georgia

April 1985

Executive Summary

The FWS proposes to preserve, through a combination of Federal/State of Florida fee title acquisition, approximately 88,000 acres of critical Florida panther habitat within the Fakahatchee Strand area of Florida (Figure 1). The study area is located in Collier County in the western portion of the Big Cypress Swamp of southwest Florida. The primary purpose of the proposed action is the preservation of habitat that has been identified by the FWS as being critically important for the survival and recovery of the Florida panther in the Big Cypress-Everglades region.

The Florida panther is one of the most endangered mammals in the Nation, with only 20 to 30 individuals inhabiting the Big Cypress-Everglades region. The three population centers within the known range of the panther include the Fakahatchee Strand, the Big Cypress National Preserve, and the Everglades National Park. The latter two populations are relatively secure, while large portions of the habitat used by the Fakahatchee Strand population are threatened with development and land uses unsuitable to the panther. Agricultural activities such as heavy applications of pesticides and chemical fertilizers, ditching, backpumping of water, and the removal of native vegetation pose the greatest threat to the survival of the Florida panther.

The FWS appointed a Recovery Team in 1976 to prepare a Recovery Plan for the Florida panther. The final Recovery Plan was approved by the FWS in December 1981. In this plan, the Recovery Team stated "...it is vital to acquire the remainder of the Fakahatchee Strand and the prairies and cypress forests adjacent to it to insure that a unified management strategy can be effected for the area and to provide an extremely important corridor of natural habitat between the Fakahatchee Strand, the Big Cypress National Preserve, and the Everglades National Park." This specific recommendation is also included in the FWS Regional Resource Plan for the Southeast Region.

The FWS considered the following six alternatives for the preservation of Fakahatchee Strand: (1) no action, (2) strengthen enforcement of regulatory authorities, (3) fee title acquisition by the FWS, (4) acquisition of conservation easements by the FWS, (5) acquisition/management by others, and (6) combination Federal/State acquisition and management (the Proposed Action). All alternatives were considered in light of the degree of resource protection and enhancement offered, the ability to effectively manage the area, the environmental consequences, the costs involved, and the consistency with FWS land acquisition policy. The alternatives are briefly described below:

Alternative 1, No Action - The FWS would not take any additional action under this alternative other than to rely on the existing Federal, State, and local regulatory authorities to conserve the resource values of the Fakahatchee Strand. The desired land protection objectives cannot be achieved to any reasonably successful degree. "No Action" will lessen the chance of survival of the Florida panther and will continue the degradation of panther habitat in the Fakahatchee Strand.

Alternative 2, Strengthen Enforcement of Regulatory Authorities - The FWS would take the following actions under this alternative: (1) conduct the necessary ecological studies to support and document FWS' position in regulatory proceedings, (2) develop a broad statement of FWS concerns and interests for presentation to other agencies, and (3) draft a memorandum of understanding with the Corps of Engineers, the State, and the county to ensure that the FWS is notified of all potentially harmful project proposals and that these agencies understand FWS interests.

Alternative 3, Fee Title Acquisition by the Fish and Wildlife Service - The FWS would acquire fee title to the study area for inclusion in the National Wildlife Refuge System. This acquisition would establish a national wildlife refuge for active, optimum habitat protection benefiting the Florida panther.

Alternative 4, Acquisition of Conservation Easements by the Fish and Wildlife Service - The FWS would acquire conservation easements on lands in the project area. Conservation easements would only partially protect the project area from detrimental land use changes due to differences in the land ownerships and associated considerations. Easements could be used efficiently in certain appropriate situations.

Alternative 5, Acquisition/Management by Others - The FWS would rely on other agencies and organizations to protect and manage the Fakahatchee Strand area. Other agencies with potential acquisition/management interests include the NPS, the Florida Game and Fresh Water Fish Commission (FGFWFC), the Florida Department of Natural Resources (DNR), the South Florida Water Management District (SFWMD), The Nature Conservancy, and the Trust for Public Land.

Alternative 6, Combination of Federal/State Acquisition and Management (Proposed Action) - Under this alternative: (1) the FWS would acquire, in fee title, over 30,000 acres in the northern portions of Fakahatchee Strand, (2) the FWS would encourage the NPS to acquire fee title to about 15,000 acres for addition to the Big Cypress National Preserve, (3) the State and the FWS would cooperate in identifying and implementing protection strategies for the remaining acres west of the Fakahatchee Strand State Preserve, and (4) the FWS and the State would cooperatively manage all acquired and protected lands in the Fakahatchee Strand area as a refuge for the protection of the Florida panther.

Moreover, combined efforts of government agencies and private interests throughout the Everglades and Big Cypress area are necessary to protect the Florida panther habitat outside the Fakahatchee Strand study area. Accomplishment of these proposed land-based and management-oriented recommendations should be attained within 2 to 5 years, or the extinction of the Florida panther will be imminent.

Scoping for this assessment has included several meetings with biologists and environmental planners from other Federal, State, and local agencies to gather data and discuss reasonable alternatives and issues for study and analysis. Additionally, this assessment has been closely coordinated with the FGFWFC. The FGFWFC is currently conducting biological studies of the Florida panther; most of the information pertaining to the panther in this report is a result of these studies.

Letters endorsing the Proposed Action (Alternative 6) have been received from both the Governor of Florida and the Regional Director of the NPS. These letters are the result of the FWS' effort and desire to coordinate the development of this proposal with the key cooperating agencies.

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I. PURPOSE OF AND NEED FOR ACTION



I. PURPOSE OF AND NEED FOR ACTION

A. Introduction

The FWS appointed a team in 1976 to prepare a Recovery Plan for the Florida panther. The final Recovery Plan, approved by the FWS in December 1981, states that in terms of the recovery of the panther "...it is vital to acquire the remainder of the Fakahatchee Strand and the prairies and cypress forests adjacent to it to insure that a unified management strategy can be effected for the area and to provide an extremely important corridor of natural habitat between the Fakahatchee Strand, the Big Cypress National Preserve, and the Everglades National Park." This specific recommendation is also included in the FWS Regional Resource Plan for the Southeast Region and is the purpose for this habitat preservation proposal.

This assessment is to provide an analysis of alternatives and to select a feasible course of action to maintain essential habitat of the Florida panther (Felis concolor coryi) in the Fakahatchee Strand area of the Big Cypress Swamp in southern Florida.

The study area (Figure 1) encompasses approximately 88,000 acres of land in private ownership surrounding the boundary of the Fakahatchee Strand State Preserve (FSSP). The study area has been divided into three subunits for analysis.

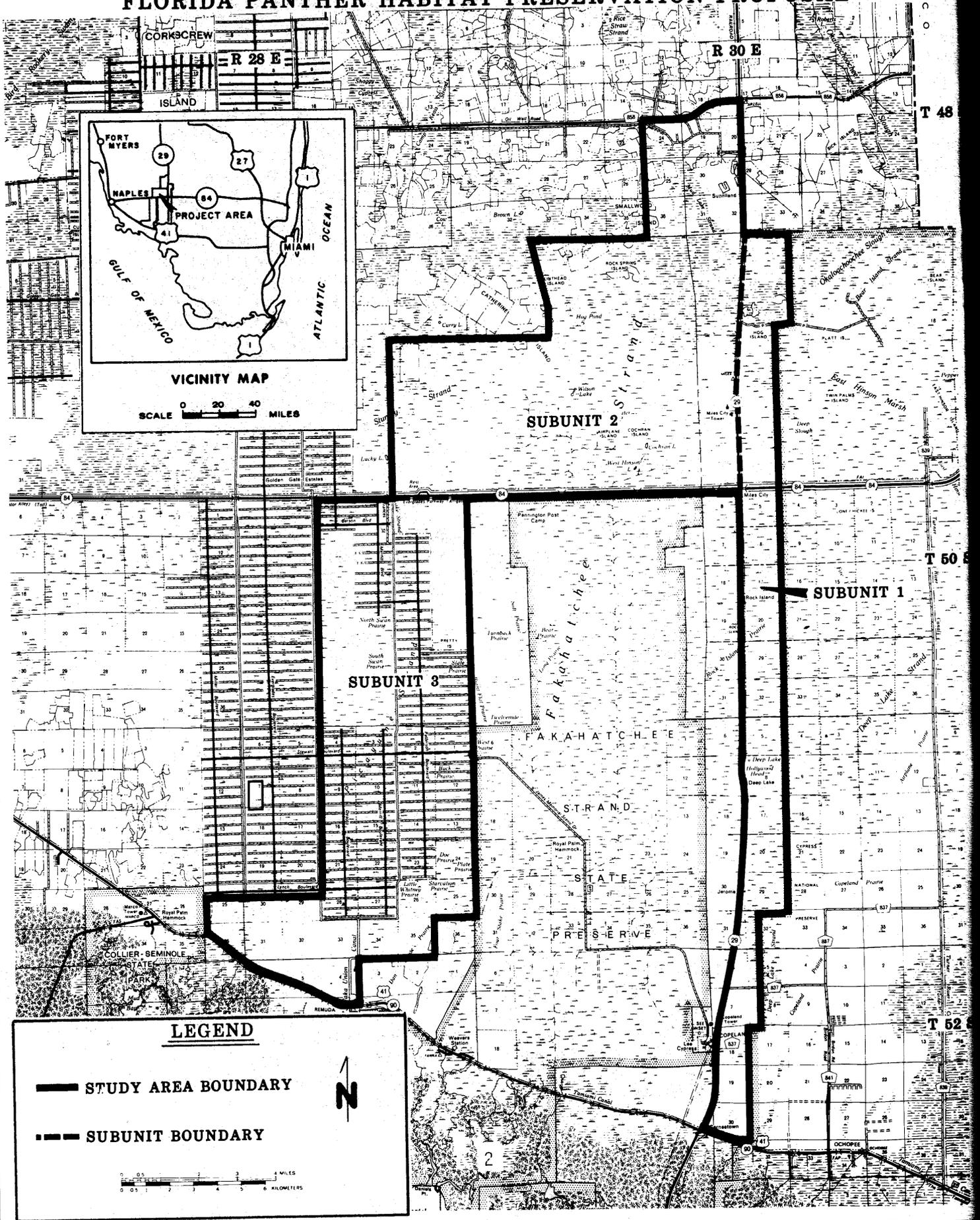
Subunit 1--about 15,000 acres of primarily open prairie habitat between State Highway 29 and the Big Cypress National Preserve (BCNP).

Subunit 2--about 38,000 acres of primarily mixed hardwood and cypress forested swamp habitat north of Alligator Alley (State Highway 84) and west of State Highway 29.

Subunit 3--about 35,000 acres of primarily mixed pine and cypress forest habitat west of the FSSP. This subunit contains a crisscrossing of roads remaining from the Golden Gate Estates (GGE) development in which platted but unsurveyed lands were sold in one and one-fourth acre parcels.

The Fakahatchee Strand is unique and environmentally sensitive. It provides natural flood control, water storage and purification, aquifer recharge, and high quality fish and wildlife habitat. These functions are essential for maintenance of the flora and fauna for which south Florida is well-known. The Strand is particularly recognized for providing habitat that is utilized by the endangered Florida panther.

FIGURE 1 FAKAHATCHEE STRAND FLORIDA PANTHER HABITAT PRESERVATION PROPOSAL



With increasing human population in south Florida and consequent urban expansion, the Fakahatchee Strand's integrity is jeopardized. There are encroachments into Fakahatchee Strand, and more are imminent. Urgent controls are needed to preserve and ensure its integrity. The major reason for preservation of land bordering the FSSP is to protect an ecosystem essential to the survival of the Florida panther.

Recent radio tracking studies of the panther have shown that the existing natural conditions of the study area will need to be conserved to sustain a viable population. Figure 2 shows the home range of five radio-collared panthers inhabiting the Fakahatchee Strand between February 1981 and August 1983 and the relationship of the study area habitats to this population.

The Florida panther is one of the most endangered mammals in the Nation, with perhaps only 20 to 30 individuals inhabiting the Big Cypress-Everglades region. Figure 3 shows the presently known range of the species and its three population centers, including the Fakahatchee Strand. The other two population centers are on public lands in the BCNP and the Everglades National Park. The habitats occupied by the latter two populations are relatively secure while large portions of the habitat used by the Fakahatchee Strand population are threatened with development and land uses unsuitable to the panther.

B. Background

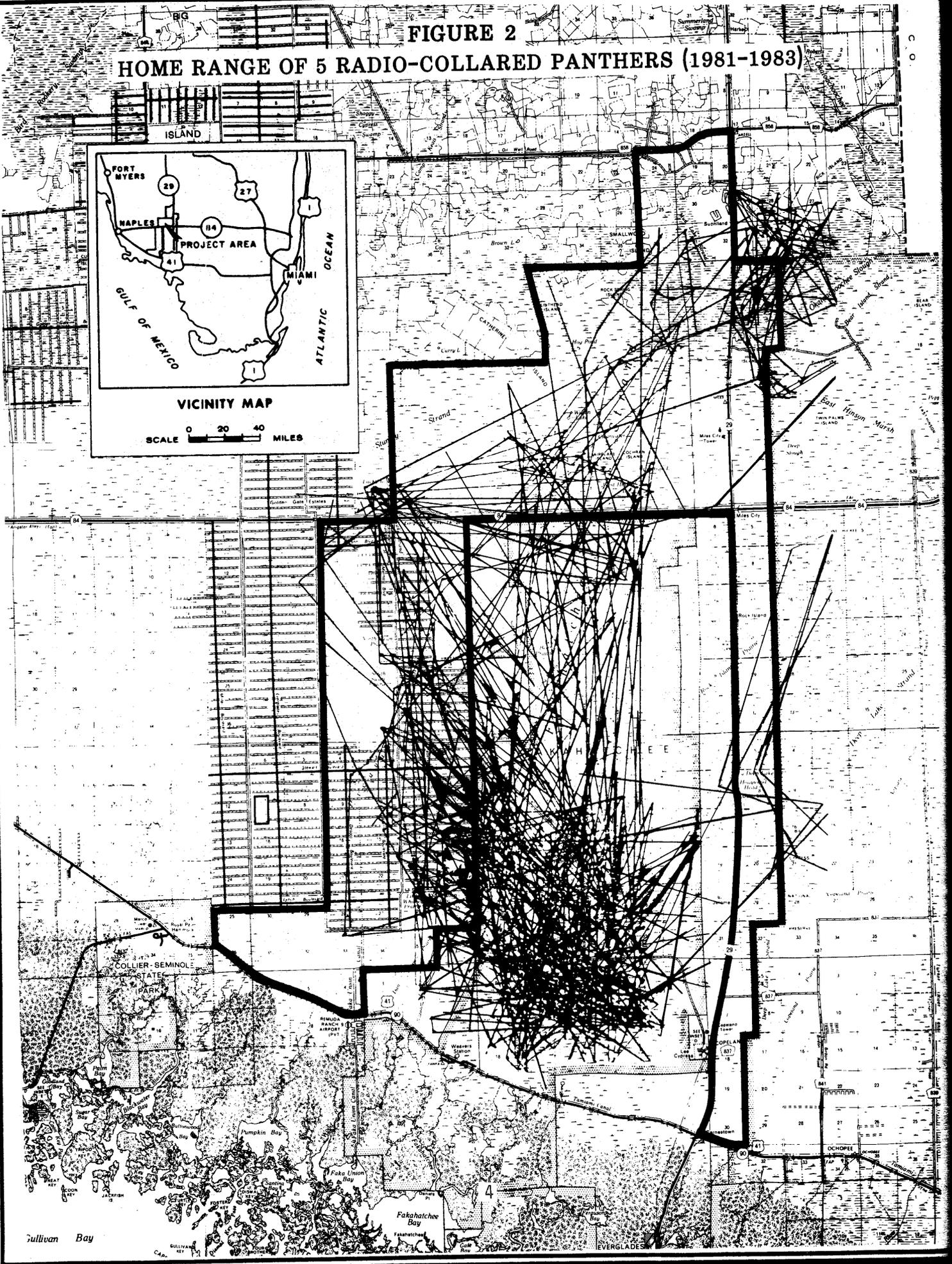
The FGFWFC initiated an investigation in 1976 with the primary objective of finding and geographically delineating at least one population of Florida panthers. During the investigation, panther signs were consistently found in the Fakahatchee Strand as well as the eastern portion of the BCNP and the Everglades National Park.

The DNR began acquiring land for the FSSP in 1974. Authority for acquisition is from the Florida Environmentally Endangered Lands Program. Approximately 44,000 acres of the 60,000-acre FSSP have been acquired.

The BCNP, administered by the NPS, is also in the process of being acquired. This 570,000-acre sanctuary was established in 1974 to ensure "...the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreation values of the Big Cypress Watershed...." About three-eighths of the Big Cypress Watershed is contained in the BCNP and about 500,000 acres have been acquired.

FIGURE 2

HOME RANGE OF 5 RADIO-COLLARED PANTHERS (1981-1983)





The Florida Game and Fresh Water Fish Commission initiated a radio-telemetry study of the Florida panther in 1981. The area occupied (home range) by the Florida panther population in the Fakahatchee Strand has been well documented from this study. (See Figure 2)



The NPS also administers the Everglades National Park, a vast subtropical garden of water, prairie, and forest. The 1,400,533 acre park is home for flora and fauna not found elsewhere in the United States. One of the three known populations of the Florida panther is found in the Hole-in-the-Donut area of the Everglades (see Figure 3).

Agricultural activities, entailing heavy applications of pesticides and chemical fertilizers, ditching, diking and backpumping of water, and the removal of native vegetation, pose the greatest threat to the panther. The continuing population growth in south Florida will undoubtedly cause the Fakahatchee Strand prairies to be cultivated in the near future. Also, the plant communities bordering the Fakahatchee Strand are ecological fire types and will require a regularly scheduled program of burning, both to maintain the diversity of habitats and to eliminate the possibility of a dangerous fuel buildup that would allow wildfires to sweep into the Fakahatchee Strand during periods of drought. Use of off-road vehicles in the surrounding prairies and running dogs through the Fakahatchee Strand also pose threats to the existing panther population.

The lands acquired within the boundaries of the FSSP are in a checkerboard pattern with hundreds of private inholdings. This, coupled with the fact that the original boundaries were drawn with protecting the central strand and its rare plant life as the primary concern, while not including the bordering prairies, makes management and protection of the FSSP difficult.

C. Other Agencies, Administrations, and Authorities

The following agencies and authorities have a role in actions pertaining to the project lands.

1. County

Collier County Board of County Commissioners approves local zoning ordinances and any changes in zoning or land use classifications.

2. State

Department of Environmental Regulations reviews and approves activities that affect air and water quality and dredge and fill projects.

Department of Natural Resources manages an extensive system of State parks, preserves, and recreation areas.

FIGURE 3
KNOWN RANGE OF THE FLORIDA PANTHER (JUNE 1982)



FAKAHATCHEE STRAND

RACCOON POINT

HOLE-IN-THE-DONUT

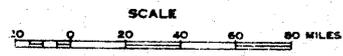
LEGEND



KNOWN RANGE



POPULATION CENTERS



Department of Community Affairs regulates activities within Areas of Critical State Concern to conserve and protect the natural, environmental, and economic resources in such areas. The Big Cypress Area of Critical State Concern is shown in relation to the Fakahatchee Strand Study Area in Figure 4.

South Florida Water Management District operates and maintains a water management system and conducts two permitting programs--surface water management permits and water withdrawal permits.

Southwest Florida Regional Planning Council is active in environmental management through its A-95 reviews and development of regional impact programs.

Game and Fresh Water Fish Commission establishes rules and regulations for fishing and hunting and manages wildlife on State-owned areas. The commission has authority in the BCNP through agreement with the NPS.

3. Federal

Army Corps of Engineers (COE) reviews all activities which affect or modify navigable waters, wetlands, and water quality.

Environmental Protection Agency (EPA) enforces national standards regarding air and water quality and regulates noise pollution.

U.S. Fish and Wildlife Service reviews activities that affect fish and wildlife values of wetlands, administers the Endangered Species Act, and manages the National Wildlife Refuge System.

National Park Service manages the BCNP, which is located adjacent to the project study area, and the Everglades National Park. The BCNP was established for the protection of natural features while permitting such consumptive uses as hunting, off-road vehicle use, and oil exploration if they do not cause the degradation of natural resources. Everglades National Park has a more strict legislative mandate which does not allow for consumptive use. The park has also been designated a World Biosphere and much of the park is designated wilderness.

D. Scoping

Scoping for this assessment has included several meetings with biologists and environmental planners from other Federal, State, and local agencies to gather data and discuss reasonable alternatives and issues for study and analysis.

This assessment has been closely coordinated with the FGFWFC. The FGFWFC is currently conducting biological studies of the Florida panther; most of the information pertaining to the panther in this report is a result of these studies.

II. ALTERNATIVES



II. ALTERNATIVES

Alternative 1: No Action

This is the "status quo" alternative. Under this alternative, the FWS would not take any additional action other than to rely on the existing Federal, State, and local regulatory authorities to conserve the resource values of the study area. Resource values of prime importance in maintaining a viable population of Florida panthers in the Fakahatchee Strand are:

1. Hydrological characteristics. Maintenance of the hydrological aspects of the project area is important in perpetuating the types and diversity of native habitats.
2. Forested characteristics. Maintenance of the overall forested characteristics of the project area is important in providing dense escape cover and habitats capable of sustaining optimum levels of prey for the Florida panther.
3. Pristine characteristics. Maintenance of the project area in a relatively undeveloped state and free from excessive human disturbance is important for sustaining optimum levels of Florida panther use.

Alternative 2: Strengthen Enforcement of Regulatory Authorities

Under this alternative the FWS would take the following actions:

1. Conduct the necessary ecological studies in the project area to support and document FWS positions in regulatory proceedings.

The primary regulatory authorities relating to the protection of the resource values in Fakahatchee are:

Federal

Federal Water Pollution Control Act of 1972
Clean Water Act of 1977
Fish and Wildlife Act of 1956
Endangered Species Act of 1973

State

Florida Statutes: Chapter 380, Environmental Land and Water Management Act of 1972
Florida Statutes: Chapter 403.412, Environmental Protection Act of 1971
Florida Statutes: Chapter 253, State Lands
Florida Administrative Code: Chapter 27 F-3, Boundary and Regulations for the Big Cypress Area of Critical State Concern

Local

County Zoning Ordinances

2. Develop a broad statement of FWS concerns and interests for presentation to other agencies in advance of individual permit applications or other cases. This statement would establish for the record specific FWS concerns about air and water quality, dredge and fill operations, construction, and displacement of native vegetation as related to the long-term protection of the natural resources of the Fakahatchee Strand.
3. Draft a memorandum of understanding with the COE, the State, and the county to ensure the FWS is notified of all pending applications impacting natural resources and that the agencies understand FWS interests.

Alternative 3: Fee Title Acquisition by the Fish and Wildlife Service

Under this alternative the FWS would acquire fee title to the surface estate of land in the study area for inclusion in the National Wildlife Refuge System. This alternative would commit approximately 88,000 acres of land to management by FWS that would provide optimum fish and wildlife habitat.

The project area qualifies for FWS acquisition under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), as amended, and the Land and Water Conservation Fund Act (LWCF), as amended in 1976 (Public Law 94-422). The 1976 amendments to the LWCF provided new direction for acquisition of areas under authority of the Fish and Wildlife Act of 1956 (16 U.S.C. 742 f(a)(5)(1976)). This made LWCF monies available for purchasing areas primarily suitable for activities other than migratory bird conservation.

Based on other agencies' costs to acquire similar lands in the Big Cypress Swamp, fair market value of the study area lands is estimated to approach \$68 million. When acquired, the project lands would be added to the NWRS under the existing authority of the Fish and Wildlife Act of 1956. The primary management objectives of the refuge would be to protect and enhance native habitats for the Florida panther. This objective could be accomplished by active FWS management or through a cooperative effort. The NPS and DNR are currently managing lands adjoining the project area and may have interest in managing project lands. Active management of the area by the FWS would require the support staff, equipment, and facilities necessary to accomplish management objectives.

Alternative 4: Acquisition of Conservation Easements by the Fish and Wildlife Service

Under this alternative, the FWS would acquire conservation easements on lands in the project area. This would give the FWS the right to prevent certain uses on the project lands which would be incompatible with optimum panther use. Land uses that would have only minimal conflict with optimum panther use could be retained in private ownership. In effect, the landowners would transfer certain development rights to the FWS which in turn would prevent future development of the property. The FWS could prevent the uses specified in the easement, but could not engage in any management activities on the property.

Easements would likely be useful when: (1) some, but not all private uses are compatible with refuge objectives and (2) the current owner desires to continue current types of use and occupancy of the land under terms set by the FWS.

Land uses which would need to be controlled or restricted by a conservation easement are:

1. Development rights (commercial, industrial, residential)
2. Alteration of the natural topography
3. Uses affecting the maintenance of native vegetative communities
4. Excessive public access
5. Alteration of the natural water regime

Land uses which could be retained in private ownership are:

1. Hunting rights
2. Grazing rights in accordance with Soil Conservation Service stocking rates
3. Timber management in accordance with good silvicultural practices which maintain the native mixed hardwood and cypress forest communities

The fair market value of conservation easements would likely vary between subunits of the project area. An approximate cost for conservation easements based on a percentage of fee title acquisition follows.

Subunit 1: large tracts - 70% fee title value
5 A. or less - 90% fee title value

Subunit 2: 50% fee title value

Subunit 3: large unsubdivided tracts - 60% fee title value
subdivided tracts - 90% fee title value

Alternative 5: Acquisition/Management by Others

Under this alternative the FWS would rely on other agencies and organizations to protect and manage the study area lands. Other agencies with potential acquisition/management interest include:

Federal Agencies

1. National Park Service - Manages the BCNP which adjoins the study area. During the initial planning of the BCNP, the portion of the study area (about 15,000 acres) located east of State Highway 29 was considered for inclusion in the BCNP, but was excluded from the final boundary delineation because of cost considerations. Should the NPS still have interest, they may consider acquisition and management of the area as part of the BCNP.

Funding - The Land and Water Conservation Fund Act is the primary funding source the NPS uses to acquire lands.

State Agencies

1. Florida Game and Fresh Water Fish Commission - Manages a network of lands for the benefit of wildlife conservation on which appropriate types of recreational opportunities are provided. Traditional uses have been hunting and fishing, but in recent years the management program has been broadened to manage species for nonconsumptive uses. The FGFWFC has been studying the population characteristics of the panther in the Fakahatchee Strand since the late 1970's and is currently preparing a management plan for the species.
2. Florida Department of Natural Resources - The Division of Recreation and Parks manages a network of parks and preserves, including the FSSP.

Funding - The State of Florida has two principal sources of funding under which the study area lands may qualify for acquisition:

- a. Conservation and Recreation Lands Trust Fund (CARL) - Created in 1979, the CARL program provides for the selection and purchase of a broad variety of lands for public enjoyment and protection of natural and cultural resources. Up to \$20 million per year is set aside in the CARL Trust Fund from a portion of the severance taxes levied on phosphate, solid minerals, oil, and gas. Past and current acquisitions have included the State's

environmental gems: barrier islands, beaches, unique natural sites, bird rookeries, and endangered species habitat.

Florida has ranked the FSSP as one of its top priority projects for completion of acquisition. To expedite this process, the Florida legislature recently provided condemnation authority to the DNR for acquisition of the interior portions of the preserve and generally for lands adjoining State Highway 29.

- b. Save Our Rivers Act - The Save Our Rivers program was created in 1981 to provide funding for purchasing lands to protect water resources. This program is administered by the State's five Water Management Districts with oversight by the Department of Environmental Regulations. The program is funded through an increase in the documentary stamp tax, a charge levied when a real estate transaction is recorded in a courthouse. This is expected to raise about \$200 million for land acquisition during the next 10 years.

The Fakahatchee Strand study area is in the SFWMD which is expected to receive about \$50 million for water resource-oriented land acquisition. The SFWMD has adopted a 5-year plan for acquisition under the Save Our Rivers program. The Fakahatchee Strand study area, however, has not been included in this plan.

Conservation Organizations

The Nature Conservancy and the Trust for Public Land are two nonprofit organizations that purchase lands within national wildlife refuge boundaries for holding until funds become available for purchase by and transfer to the Federal Government. Both organizations would become involved to some extent in the acquisition of the Fakahatchee Strand.

Alternative 6: Combination of Federal/State Acquisition and Management (Proposed Action)

Under this alternative, the FWS would take the following actions which are depicted in Figure 5:

1. The FWS would acquire fee title to the surface estate of over 30,000 acres located north of Alligator Alley and west of State Highway 29 in subunit 2. The southerly boundary of FWS acquisition would be the northerly right-of-way of the proposed I-75. This area comprises the northern portion of Fakahatchee Strand and is vegetated by a mixed hardwood forest that is flooded during much of the year. The estimated acquisition cost is \$12 million to \$20 million, subject to appraisal.
2. The FWS would encourage the landowners to convey an easement on the remaining lands in subunit 2 to a third party (Audubon or the State of Florida). The easement would be designed to allow the landowners to continue using their property while limiting future use to activities compatible with refuge objectives.
3. The FWS would encourage NPS fee title acquisition of the surface estate of 15,000 acres of land between State Highway 29 and the BCNP. This area primarily consists of wet and dry prairie habitats separated by a scattering of cypress and mixed hardwoods strands. This area would be added to the boundary of the BCNP and managed by the NPS. The estimated acquisition cost is \$6 million to \$10 million, subject to appraisal.
4. The State and the FWS would cooperate in identifying and implementing protection strategies for subunit 3 including enforcement of existing environmental regulations, easements, management agreements, and limited fee title acquisition based on the biological priorities within subunit 3. The greatest priority, however, must be placed on the areas identified for preservation in 1, 2, and 3 above.
5. The FWS and the State would cooperatively manage all acquired and protected lands in the Fakahatchee Strand study area (including the existing FSSP) as a refuge for the protection of the Florida panther.

Other Actions Necessary to Protect Florida Panther Habitat Outside the Fakahatchee Strand Study Area

The extinction of the Florida panther can be averted only through the combined efforts of government agencies and private interests throughout the Everglades and Big Cypress area. Preservation of the Fakahatchee Strand area is very important as it represents one of the three known population centers of the Florida panther. The other areas of critical importance include the Everglades National Park and the BCNP.

FIGURE 5
PROPOSED STATE AND FEDERAL ACQUISITION RECOMMENDED
IN ALTERNATIVE 6 (PROPOSED ACTION)

R 28 E

R 30 E

T 48 S

T 48 S

T 50 S

T 50 S

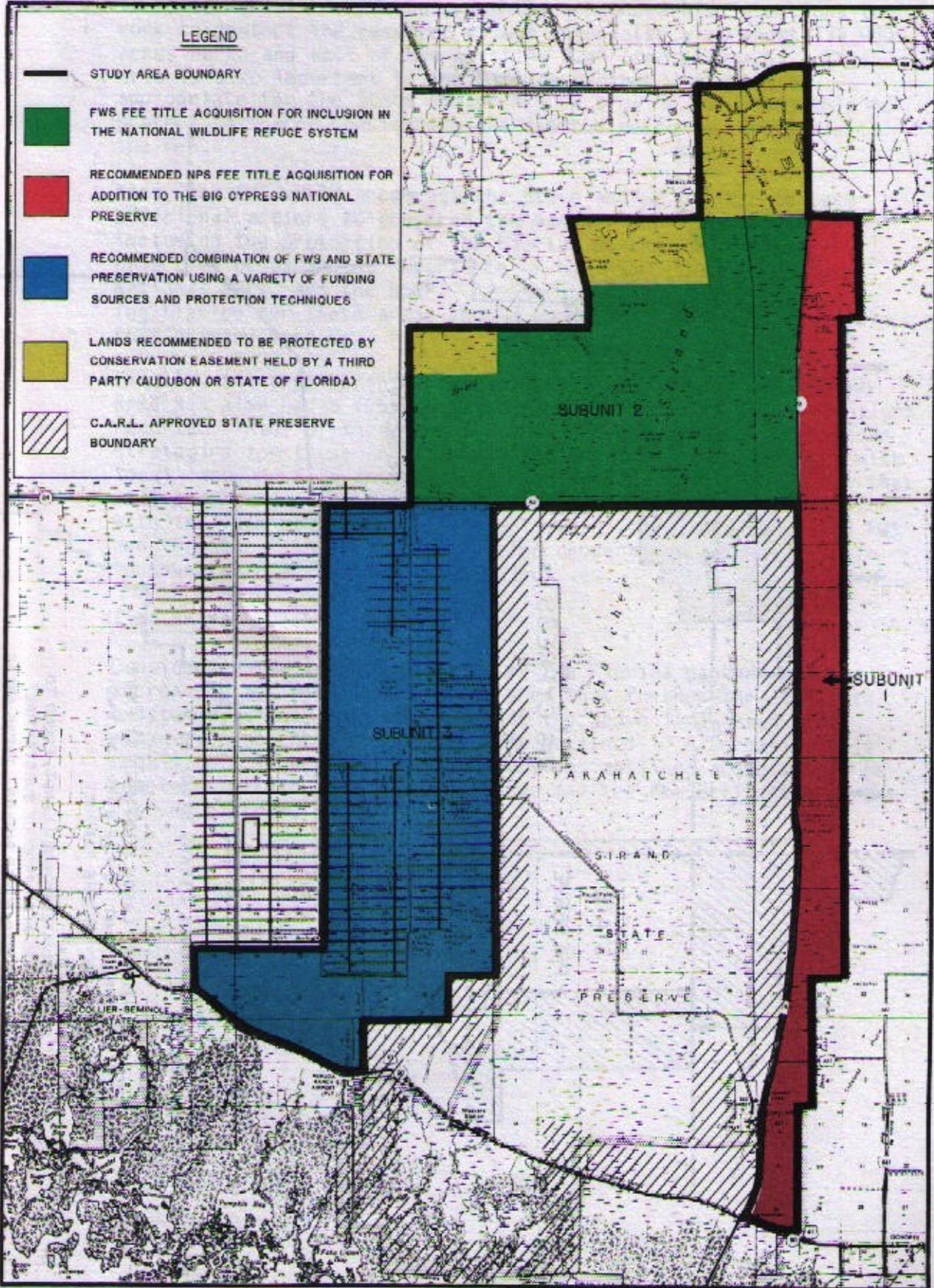
T 52 S

T 52 S

R 28 E

TALLAHASSEE MERIDIAN

R 30 E



LEGEND

-  STUDY AREA BOUNDARY
-  FWS FEE TITLE ACQUISITION FOR INCLUSION IN THE NATIONAL WILDLIFE REFUGE SYSTEM
-  RECOMMENDED NPS FEE TITLE ACQUISITION FOR ADDITION TO THE BIG CYPRESS NATIONAL PRESERVE
-  RECOMMENDED COMBINATION OF FWS AND STATE PRESERVATION USING A VARIETY OF FUNDING SOURCES AND PROTECTION TECHNIQUES
-  LANDS RECOMMENDED TO BE PROTECTED BY CONSERVATION EASEMENT HELD BY A THIRD PARTY (AUDUBON OR STATE OF FLORIDA)
-  C.A.R.L. APPROVED STATE PRESERVE BOUNDARY

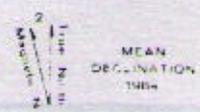
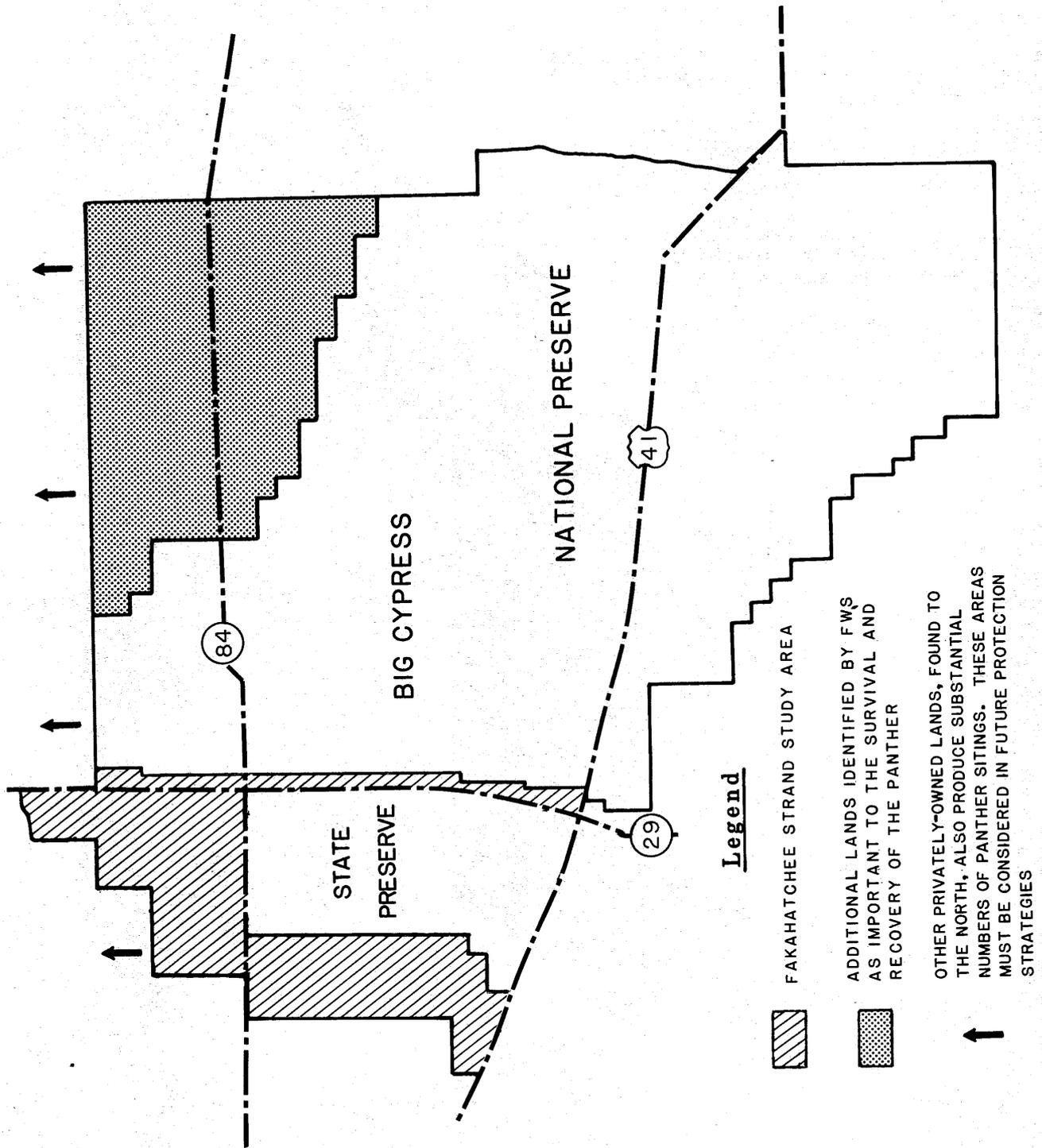


FIGURE 6
ADDITIONAL LANDS IDENTIFIED BY THE FWS AS IMPORTANT TO THE FLORIDA PANTHER



The Governor of Florida has recently announced his intentions to work to protect the resource values associated with about 135,000 acres north and east of the existing BCNP (see Figure 6). This area is also important to the Florida panther. It will be appropriate for the State and/or NPS to provide the leadership to protect this area considering the limited resources available to the FWS.

Also, the FWS would encourage the State and/or the NPS to take additional actions to preserve the panther and its habitat, including the protection of the Florida panther as a primary objective of paramount importance of the FSSP, the Everglades National Park, and the BCNP. Amendments to the authorizing legislation for these areas should be sought, if needed, to reflect this primary purpose.

Finally, the area north of the BCNP and Fakahatchee Strand study area has also had a substantial number of sightings and panther signs reported. Many of these areas are farmed and grazed. Protection strategies for these areas should include cooperative efforts with local landowners to assist in developing farm management plans that will provide protection for the panther and its habitat consistent with the farming and grazing objectives of the landowner. The FWS and the State should seek to develop cooperative agreements with landowners to accomplish these objectives.

Time Frame

Considering the tenuous position of the Florida panther and the increasing activity in the study area that further threatens its existence, timely accomplishment of the above land-based and management-oriented recommendations outlined in Alternative 6 is requisite. To be effective, the actions outlined above should be completed within 2 to 5 years, or we may see the extinction of the Florida panther.



III. AFFECTED ENVIRONMENT



III. AFFECTED ENVIRONMENT

A. Introduction

The Fakahatchee Strand is located in Collier County in the western portion of the Big Cypress Swamp of southwest Florida.

A strand is a forested water course composed of plaited upland and wetland areas. A number of strands in the Big Cypress Swamp convey water from north to south and southwest toward the Gulf of Mexico. The largest of these is the Fakahatchee Strand which extends some 20 miles from north of Alligator Alley (State Highway 84) to the estuaries near Everglades City. The Fakahatchee is composed of several water courses, numerous ponds, and slightly elevated land containing hammock forest.

The Fakahatchee Strand is one of the larger remaining wilderness habitats in Florida. Because of its size, diversity, and relative inaccessibility, it supports a variety of wildlife. It is one of the few remaining retreats of the Florida black bear (Ursus americanus) and the panther. Raccoon (Procyon lotor), otter (Lutra canadensis), and whitetail deer (Odocoileus virginianus) are often seen. Wading birds are seasonally abundant.

B. Physical Environment

1. Climate

The subtropical climate in the Big Cypress Swamp area is directly responsible for many of the swamp's features. It is warm enough to permit year-round growth of many forms of plant life and wet enough to replenish the areas of standing water during the rainy season. The normal rainy season occurs from the latter part of May through October when two-thirds of the rainfall occurs. Annual precipitation generally ranges from 45 to 65 inches. Temperatures occasionally fall below freezing in winter and rise above 90°F during the summer with an average annual temperature of about 73°F.

2. Geology

The Tamiami Limestone Formation underlies most of Collier County. The region around the Fakahatchee Strand is known geologically as a "karst" region. Karst features develop when limestone is raised above sea level and is exposed in an area of high precipitation. Water containing carbon dioxide seeps into openings in the soluble rock and removes

some of it. The Fakahatchee Strand follows an old erosion feature in the surface rock. Other karst features include some very deep sinkholes in the area such as Deep Lake near Copeland which has a depth of 97 feet.

3. Soils

Soils are predominantly organic peats in the mixed hardwood strand areas ranging in thickness up to 7 feet. A thin layer of mineral soil, especially marl and sand, is dominant on the prairies.

4. Mineral Resources

Mineral resources that can be expected to occur in economic quantities in southern Florida are limited to: (1) construction materials such as limestone, high silica sand, and clay; (2) agricultural materials such as phosphate rock, limestone, marl, and peat; and (3) organic fuels, mainly oil and gas. Of these, only oil and gas, limestone, and peat may occur in economical deposits in the study area.

Limestone--An important mineral resource of the region, limestone is currently being strip mined adjacent to the study area near Copeland within the Fakahatchee Strand and in the Bear Island area near Sunniland.

Peat--Used throughout the United States as a soil conditioner, commercial production of peat currently occurs only in the central and northern portions of the State. The study area lands located north of Alligator Alley have peat deposits ranging in thickness up to 7 feet.

Oil and Gas--The Sunniland formation is the only oil-producing sedimentary zone in southern Florida. The northeastern corner of the study area is located within the Bear Island oil field which was discovered during the early 1970's. This field currently produces about 2,500 barrels of crude oil a day.

5. Hydrology

Summer rains are usually intense, frequent, and short in duration. Winter rains usually result from frontal systems and are of longer duration but less intense. During the summer rainy season, shallow depressions fill with water and, because of the poor drainage, the water stands on the land until it evaporates or slowly drains. Thus, as much as 90 percent of the area is inundated to depths ranging from a few inches to more than 3 feet at the height of the rainy season. During winter drydown, water is concentrated in depressions formed by dips or low spots in the bedrock.

These physical characteristics interacting with climatic conditions produce generalized and localized hydroperiods that directly influence the flora and fauna.

In the vicinity of the study area, all drainage occurs through sloughs, strands and canals. The major drainage features are the Okaloacoochee Slough, the Fakahatchee Strand, the Barron River Canal, the Turner River Canal, and the East Hinson's Marsh. Figure 7 is a map showing the direction of flow.

The Fakahatchee Strand is the southwest branch of the Okaloacoochee Slough and is the major wetland extension of the Slough. The Strand extends south from the Slough about 20 miles and enters into the Alligator Alley borrow canal. Drainage occurs under existing structures and passes into the Strand south of Alligator Alley. Here, the flow continues its southerly course and eventually flows under the Tamiami Trail into the estuary.

C. Biological Environment

The Fakahatchee Strand was logged in the late 1940's and early 1950's when most of the large cypress trees were removed. Railroad track beds of elevated earth were constructed in the Fakahatchee Strand to support small logging trains which were used to remove the cypress logs. After logging was completed the rails were removed, but the track beds remained and are now densely forested.

The Fakahatchee is still a diverse and interesting botanical area. Large oaks (Quercus spp.), red maples (Acer rubrum), cabbage palms (Sabal palmetto), and a variety of tropical trees form a dense canopy. Royal palms (Roystonea elata) tower above the canopy, and a large variety of epiphytes, ferns, and shrubs form a dense understory. Pop ash (Fraxinus caroliniana), pond apple (Annona glabra), and cypress (Taxodium spp.) dominate the deep-water areas. The Strand has long been known for its abundant and diverse airplants; over 45 species of orchids have been found, of which many are now rare.

The plants and animals of the Fakahatchee Strand depend on abundant water and seasonal flooding. The distribution of plants is controlled, in part, by the depth and duration of flooding. The animal communities are, in turn, closely related to the plant communities and the water regime. The animals of the strand are water-dependent or water-tolerant.

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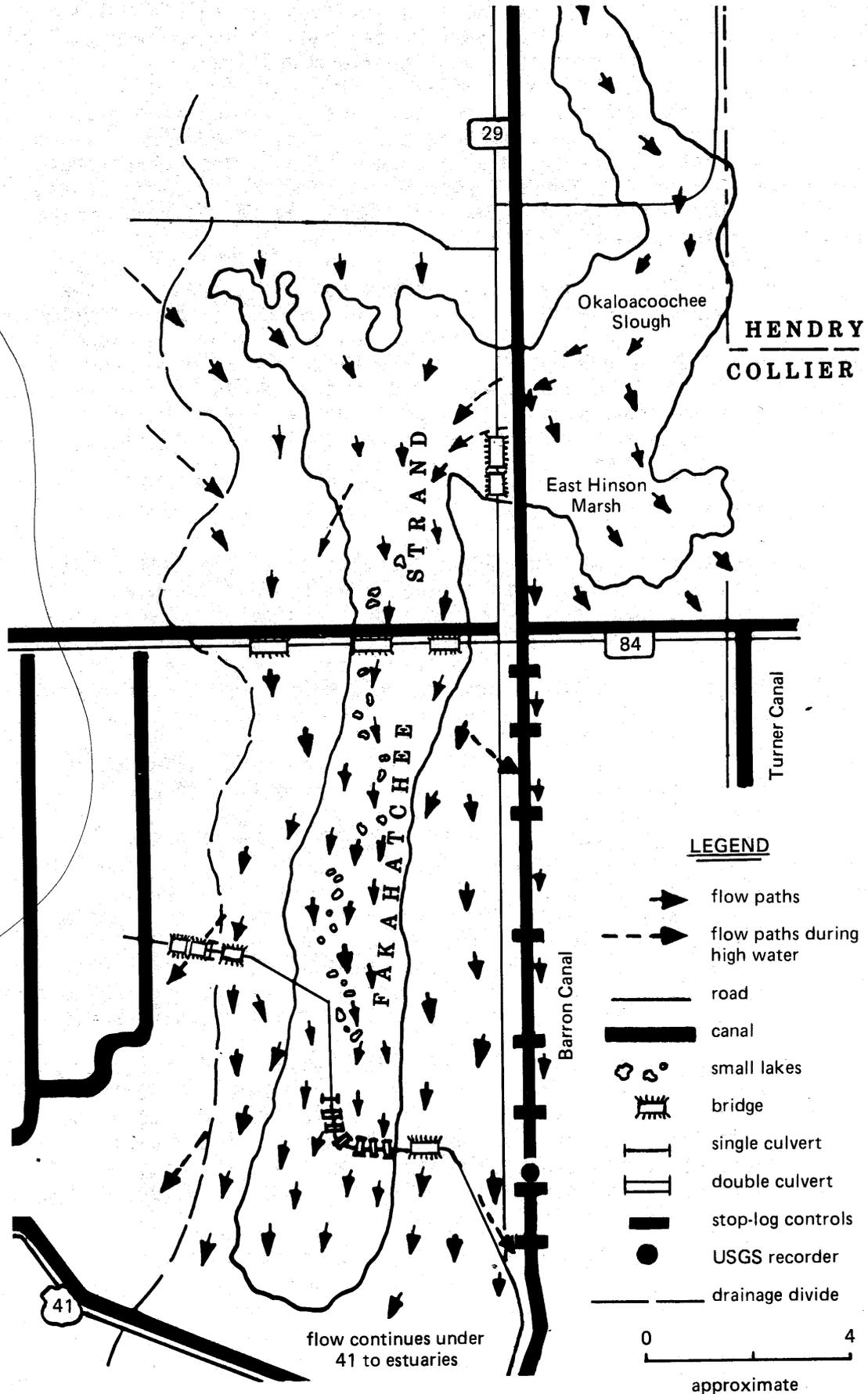
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FIGURE 7

WATER FLOW THROUGH THE FAKAHATCHEE STRAND STUDY AREA



1. Vegetation

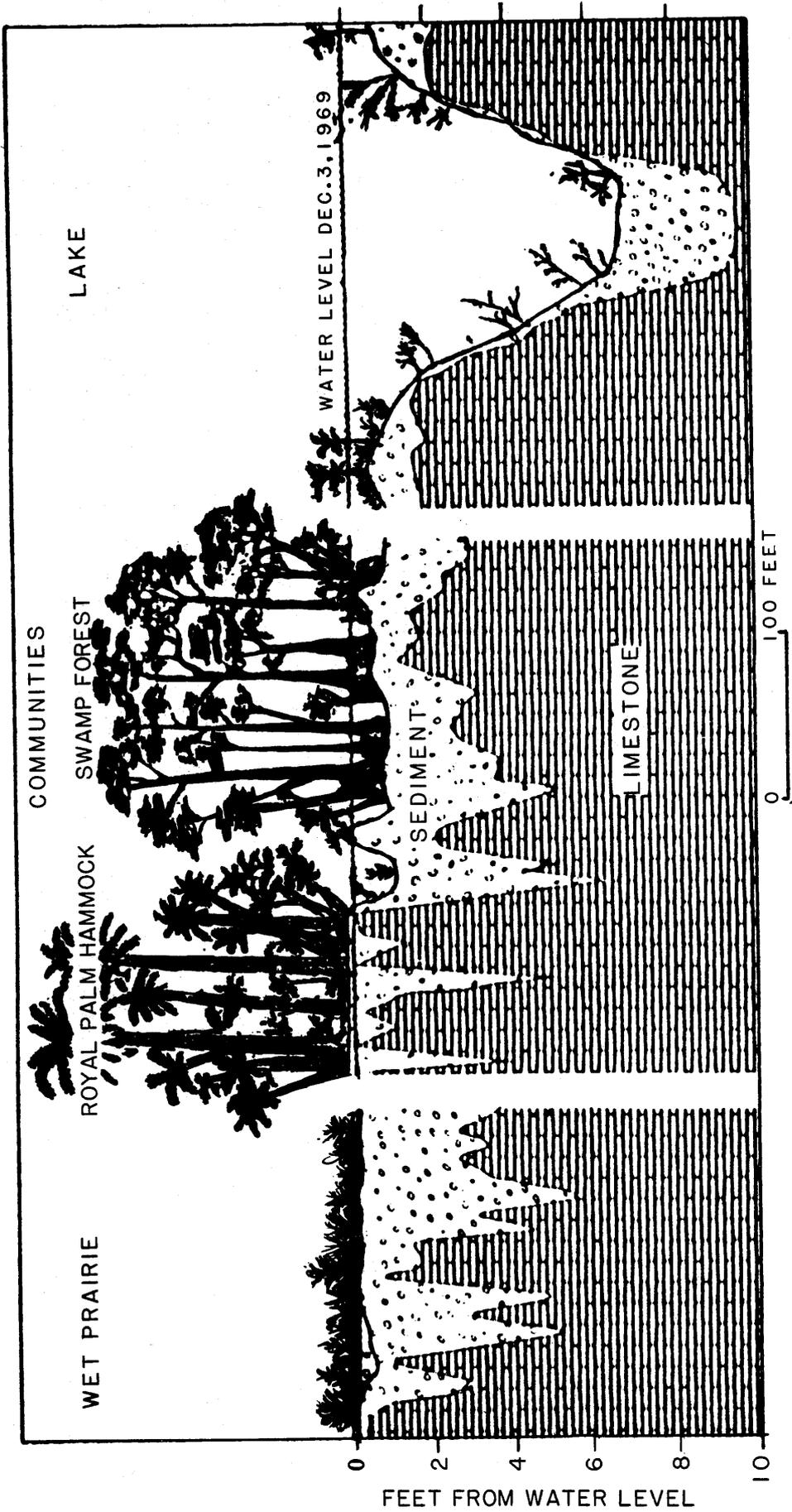
The project area contains a diversity of plant communities (Figure 8). Changes in elevation as small as 6 inches and variation in soil types cause marked differences of vegetative types. Also affecting vegetation is the length of the time that standing water is present. The following is a discussion of plant communities found in and around the Fakahatchee Strand area.

Mixed Hardwood Swamp Forest--This community is dominated by diverse hardwoods, including red maple, sweet bay (Magnolia virginiana), pop ash, wax myrtle (Myrica cerifera), cocoplum (Chrysobalanus icaco), dahoon holly (Ilex cassine), myrsine (Myrsine quianensis), willow (Salix caroliniana), red bay (Persea borbonia), and swamp bay (P. palustris). These trees are the previous understory of cypress forest stands that were cut. These species combine in a dense tangle of trees, shrubs, and vines along with ferns and numerous epiphytes and usually grow in elongated stands that follow low drainage areas. Pure stands of pond apple may grow in the wettest sloughs, while live oak (Quercus virginiana) may dominate on higher ground in such stands. Mixed swamp forests grow in deep mineral soil depressions with organic soils as deep as 7 feet. While considerable variation occurs in hydroperiod, depending on the microtopography, most of the land is seasonally flooded for at least several months and up to 290 days annually.

Cypress Forests--This community type consists of open forests of small cypress trees (Taxodium distichum) and a scattered, sparse growth of herbaceous plants such as sawgrass (Cladium jamaicensis) and beak rushes (Rhynchospora) growing on a thin layer of marl soil or sand over limestone. Cypress domes and strands with larger trees occur over much of the forest. Domes are circular or egg-shaped forests that appear dome-shaped in profile. The trees are tallest in the center and become successively shorter toward the borders. Strands are elongated areas of large trees that follow drainage depressions. Both water and soils are deeper in the domes and strands than in the surrounding open forest. Shrubs and small swamp trees, such as wax myrtle, cocoplum, and pond apple, are common understory species within the domes and the strands.

Prairies--Prairies are associations of mixed grasses, sedges, and other herbaceous plants with few trees. Prairies may be seasonally inundated for months (wet prairies) or seldomly inundated (dry prairies), depending on elevation. Many prairies are intermediate between these two types. Common species in wet prairies include

FIGURE 8



Vegetal transect in the Big Cypress showing wet prairie, hammock, swamp forest, and lake in the Fakahatchee Strand.

maidencane (Panicum hemitomon), blackhead rush (Schoenus nigricans), star dichromena (Dichromena colorata), muhly (Muhlenbergia capillaris), water dropwort (Oxypolis filliformis), the low shrub stillingia (Stillingia spp.) and scattered marsh vegetation, particularly sawgrass. Common species in dry prairies include saw palmetto (Serenoa repens) and some of the grasses and sedges found in the pine forest.

Hammocks--Hammocks are isolated tree islands surrounded by other vegetation types. Hammocks occur on elevated land one to three feet above the surrounding terrain. These elevated bedrock areas are overlaid by a layer of sandy peat. These areas are rarely flooded, however, they do maintain high soil moisture conditions because of the high organic content in the soil and a humid, shady microclimate created by the lush vegetation.

Hammocks are composed of dense forests of hardwood trees, palms, shrubs, vines, ferns, and numerous epiphytes. They represent climax vegetation in the region and generally possess more tropical species than any of the other community types.

Individual hammocks are usually characterized by the dominance of several species. Maple and laurel oak (Quercus laurifolia) predominate in lower areas of the hammocks, while live oak and cabbage palm dominate the higher ground. West Indian trees, such as gumbo limbo (Bursera simaruba), paradise tree (Simarouba glauca), lancewood (Nectandra coriacea), and Simpson's stopper (Myrcianthes fragrans) often occur in the understory.

Mixed Pine and Cypress Forests--These are open forests of pine (Pinus elliotii), cypress, and cabbage palm with an understory of mixed herbaceous plants, shrubs, and scattered hardwood trees. Prairies are interspersed among pine and cypress forest communities.

Pine Forests--These communities are open forests of pine, cabbage palm, saw palmetto, and scattered hardwood shrubs and trees.

Pop Ash or Pond Apple Sloughs and Ponds--These plant communities occur in the deepest drainage area that meanders through the center of the Fakahatchee Strand where, under natural conditions, there would be some water standing year-round. The dominant trees are either pop ash, a North American tree, or pond apple, a tree of West Indian origin, or a combination of both. These are both small trees with multiple trunks and rough bark that usually support an incredible profusion of epiphytic



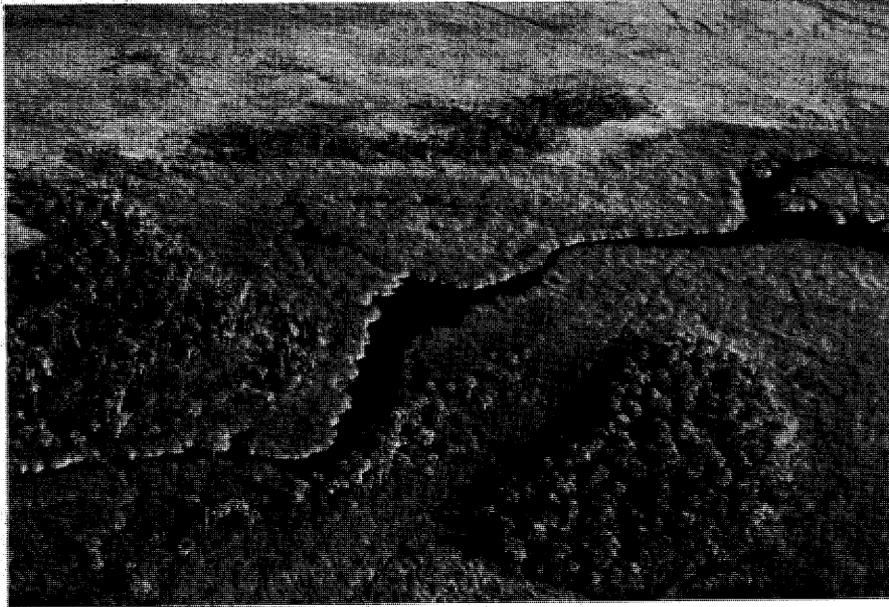
Fakahatchee Strand is noted for its abundance and unique association of orchids and other subtropical vegetation.



Mixed hardwood swamp habitat.

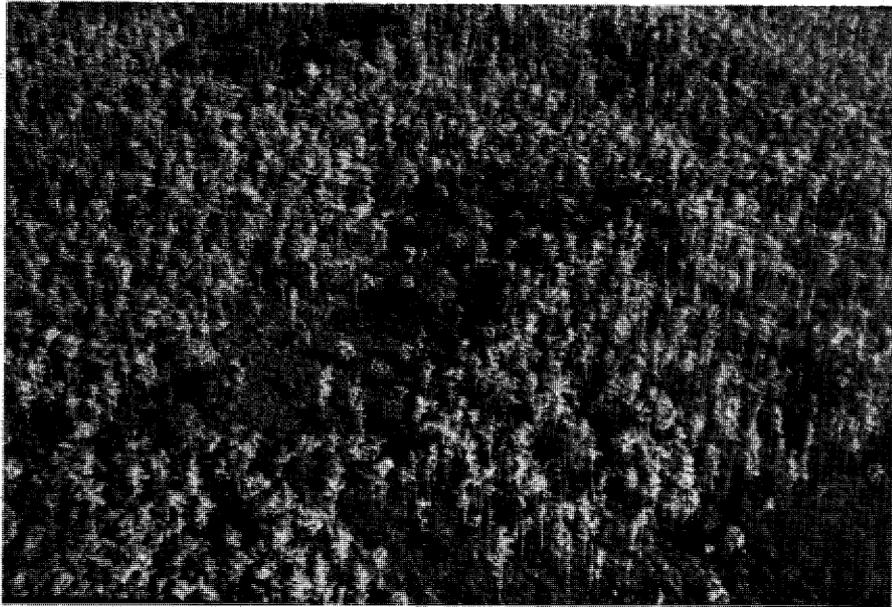


Prairie habitat.



Wet prairie habitat in southern portion of study area.





Mixed pine and cypress forest habitat.



Slough habitat.

orchids and bromeliads. Common emergents here are giant cutgrass (Zizanopsis miliacea), pickerel weed (Pontederia cordata), and lanceleafed arrowhead (Sagittaria lancifolia).

Lakes--A chain of small lakes extends throughout the central slough mentioned above. Most of these lakes are too deep for emergent vegetation, but may become covered with water lettuce (Pistia stratiotes) at times.

2. Wildlife

The Fakahatchee Strand is well known for its diversity and abundance of wildlife. During the rainy season, forage fish populations expand and populate all aquatic habitats. Other wildlife (mammals, birds, reptiles, and amphibians) typical of the south Florida environments are abundant in this area.

The State of Florida has compiled a list of plant and animal species considered rare, threatened, or endangered within Florida. All species considered threatened or endangered in the United States (appearing on the Federal List of Threatened and Endangered Species) are also found in the Florida list. At least 30 species of plants and animals found in the project area are on the Florida list.

The following nine species on the U.S. Department of the Interior, Fish and Wildlife Service, Federal List of Endangered and Threatened Species, are found in the area:

wood stork (Mycteria americana)
snail kite (Rostrhamus sociabilis plumbeus)
Florida panther (Felis concolor coryi)
American alligator (Alligator mississippiensis)
bald eagle (Haliaeetus leucocephalus)
Cape Sable seaside sparrow (Ammospiza maritima mirabilis)
red-cockaded woodpecker (Picoides borealis)
eastern indigo snake (Drymarchon corais couperi)
peregrine falcon (Falco peregrinus)

Florida panther--The current Florida panther population is a remnant of that which existed several hundred years ago. The panther, one of 30 subspecies of the cougar group, previously ranged from Louisiana and the lower Mississippi River Valley east through Arkansas, Mississippi, Alabama, Georgia, Florida, Tennessee, and South Carolina. The decline of the panther is attributed to overhunting and destruction of wilderness. Current documented distribution of the panther is confined to south Florida.

Early records indicate that the panther was common in Florida through the first part of the 20th century. Even in the 1930's and 1940's organized hunts achieved a high degree of success. This hunting, coupled with habitat disruption, caused a marked decline in the panther population by the 1950's. The decline was recognized by the Florida government, and in 1958 the species was granted complete legal protection in the State.

Despite the law, a number of factors apparently caused continued reduction of the panther population. Serious loss of habitat occurred in southern Florida through drainage, housing development, oil field activity, lumbering, and road construction. Probably the only reason the panther still remains in south Florida is that the Big Cypress Swamp/Everglades Region has been virtually impenetrable to man. Only the most hardy individuals who could build and maintain specialized equipment went into the area.

The first road through the area was the Tamiami Trail built in 1928 to connect Miami with Naples; however, the majority of the area remained isolated. In the late 1940's and early 1950's virtually the entire region was logged. This, associated with accompanying wildfires, created ideal habitat for whitetail deer. The deer herd expanded until the forest canopy began closing in the mid-1960's, at which time deer die-offs occurred. It is assumed the panther population reached its highest level during this period and that the majority of the present panthers are offspring of the animals born in this period.

With the construction of Alligator Alley in 1966-67, the area became easily accessible. Several major access roads have subsequently been built off of Alligator Alley. Off-road vehicles (ORV) have become more efficient and easier to obtain by the general public. A vast system of canals has caused a general drying of the region which allows these vehicles to go more places. All these factors, plus the continual chipping away of the remaining habitat by the increasing human population, have resulted in progressive shrinkage of the wilderness character of the Big Cypress-Everglades Region, an area essential to panther survival. To prevent the extinction of the Florida panther, the remaining undisturbed areas will have to be managed to simulate wilderness conditions. This will involve controlling the number of people that use the area and how, when, and where they can use it.

In 1976, the FGFWFC initiated extensive field searches for panther signs. With only three exceptions, all valid evidence of the panther's presence has come from Lake

Okeechobee southward. Consistently valid panther signs come from the Fakahatchee Strand, the Raccoon Point area of the BNCP, and the Hole-in-the-Donut area of Everglades National Park (see Figure 3). These areas are apparently population centers, and panthers reported outside these areas are probably transients.

3. Fish

The bulk of the aquatic animal biomass in the Fakahatchee Strand is composed of a variety of fish species representing 24 families. The most common species are mosquitofish (Gambusia affinis), flagfish (Jordanella floridae), and least killifish (Heterandria formosa). These three species represent 75 percent of the fish population and 85 percent of the fish biomass in the project area. This fishery is a major link in the food chain in the Fakahatchee Strand.

Population densities fluctuate dramatically from low-density, widely distributed wet season populations to highly concentrated populations found in "gator holes" and other scattered permanent water areas during the dry season. Significant wading bird predation occurs on larger fish during the dry season. The endangered wood stork occasionally utilizes concentrated fish populations as a major food source.

Sport fishing for larger fish species is limited due to the isolation and inaccessibility of fishable waters. The fishing pressure that does occur is directed to accessible canals and road ditches where pickerel (Lepisosteus spp.), sunfish (Lepomis spp.), and bass (Micropterus salmoides) can be found. Generally, no significant sport, commercial, or subsistence fishing occurs on the project area.

D. Socioeconomic Environment

1. Economic and Social Conditions

Clean air, a subtropical climate, and diverse recreational opportunities make Collier County extremely desirable to tourists, retirees, and year-round residents. The extensive natural resources of the county have been widely advertised and marketed resulting in phenomenal growth, especially along the coast. Rapid growth and lack of environmental safeguards prior to 1970 resulted in the loss or significant alteration of many acres of productive wetlands and upland habitats. Prior to 1973, canal dredging, wetlands drainage, and fire markedly reduced viable interior wetlands. This alteration of beneficial wetlands

preceded the major growth era with unmanaged growth further affecting water quality, water storage capacity, and the diversity and abundance of wildlife in the county.

In 1980, Collier County had a population of 85,971 or 126 percent greater than the 1970 population. When compared to Florida's 43 percent rate of growth and the 11 percent rate for the United States, Collier County's growth was phenomenal.

Collier County's economy is heavily dependent upon the tourist industry which has contributed to the rapid growth of the county. This dependence on one kind of income puts Collier County in a somewhat tenuous position. If the tourist season is poor, Collier County's economy is greatly affected.

However, Collier County's economy is not totally dependent on tourism. The agricultural sector of the economy is quite substantial and adds a certain amount of diversification and stability to the economy of Collier County.

2. Cultural Resources

Although no systematic cultural resource survey has been conducted on the study area, five sites have been recorded in the Florida Master Site File. Most of these sites are shell middens of varying sizes with some containing animal-bone, shell tools, and pottery. This type of site is common within Circum-Glades culture areas and probably represents seasonal occupations. Sites in this area usually date from ca. 500 B.C. to European contact; however, earlier dates might also be expected.

The basic subsistence pattern of hunting, gathering, and fishing seems to have persisted throughout the history of the Glades culture. While other Florida cultures to the north gradually made the transition to agricultural production, people of the Circum-Glades area remained relatively unchanged for two millenia. Not only did their subsistence pattern endure, but their technology changed very little over this long time span. This phenomenon is somewhat unusual in prehistory and is attributable to people who were very efficient at exploiting the resources within their environment.

There is a possibility of sites dating earlier than Glades times being present on this property. During prehistoric periods of lower sea levels, when water was in short supply on the peninsula, the sinkholes were very often a focus of activity for Paleo-Indian (ca. 12,000 B.C.-

6500 B.C.) and Early Archaic (ca. 6500 B.C.-5000 B.C.) peoples. Any sinkholes in the study area should be considered possible locations for early sites.

E. Land Use

1. Agricultural Use

Livestock grazing is currently the primary agricultural use in the study area. Cattle operations are limited to calf production. Low soil fertility and lack of suitable grazing forage make cattle raising only marginally successful.

2. Industrial Use

There are no industrial sites located in the study area; however, limerock mining and oil production occur on lands adjacent to the study area. The Copeland Road Prison and a Florida Forestry tower are located in the study area along State Highway 29.

3. Residential Use

Subunit 1 - There are about 15-20 single family residences in this portion of the study area. These are located along State Highway 29 near Copeland and Jerome. These two small communities are being excluded from the alternatives considering land acquisition.

Subunit 2 - Two permanent residences are located along State Highway 29 in this portion of the study area.

Subunit 3 - There are no permanent residences in this portion of the study area, but the GGE subdivision indicates that residential development could eventually occur.

4. Transportation/Access

State Highways 29 and 84 (Alligator Alley) transect the study area. Traffic on State Highway 29 has resulted in the known death of four panthers since 1979. State Highway 84 is in the planning phase of being upgraded from a two-lane State highway to a four-lane interstate highway (extension of I-75). State Highway 29 is in the planning phase for resurfacing and widening.

5. Recreational Use

Hunting is the primary recreational activity in the study area. Hunting rights to most of the lands in subunits 1 and 2 are leased to hunting clubs or reserved for friends of landowners. Recreational use of subunit 3 is mostly uncontrolled and illegal hunting is prevalent.

The ORV traffic in the area has increased in the recent past. These small, lightweight vehicles are used by hunters and other recreational enthusiasts to enter heretofore relatively inaccessible areas. Popularity of this form of recreation will probably increase in the future.

6. Ownership

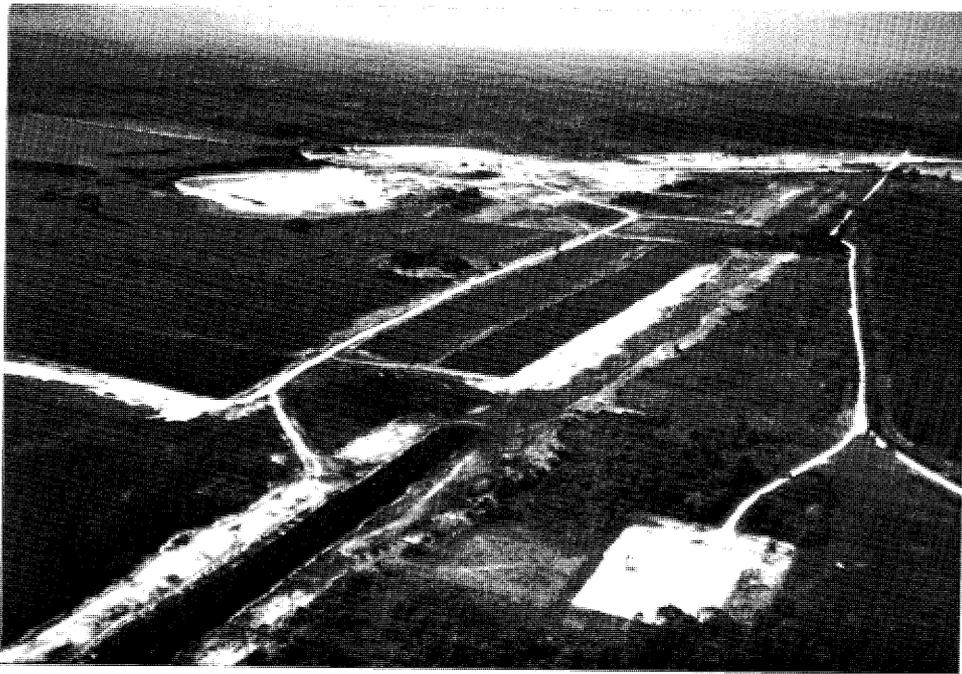
The pattern of land ownership in the study area is as follows:

- Subunit 1: East of State Highway 29 contains primarily two ownerships.
- Subunit 2: Primarily two ownerships.
- Subunit 3: Approximately 10,000 ownerships including the GGE subdivision.



Excessive off-road vehicle use in portions of subunit 1.

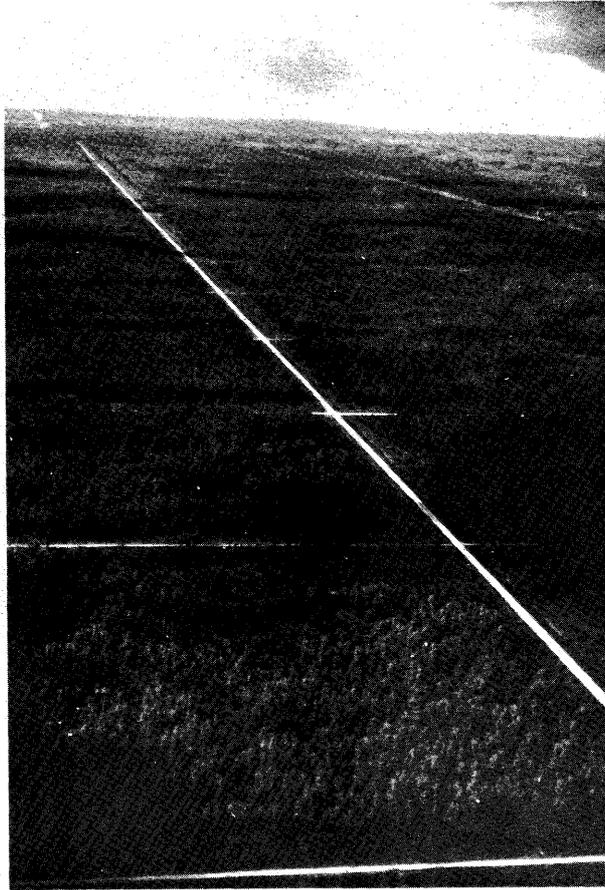




Strip mining limerock in Bear Island area adjacent study area lands.



Wetland drainage and timber land clearing for truck crops in subunit 2. This work was accomplished without required permits.



Road system in subunit 3 ($\frac{1}{4}$ mile apart) provides ready access for conversion to other uses such as agricultural production or residential construction.



IV. ENVIRONMENTAL CONSEQUENCES



IV. ENVIRONMENTAL CONSEQUENCES

This section discusses the impacts of the six alternatives on the environmental components of the study area described in the preceding section.

A. Alternative 1: No Action

Alternative 1 is the "status quo" alternative.

Land use history, current land use practices, and apparent land use trends in the project area and similar localities strongly indicate that during the next decade project area resource values will be severely diminished by land use changes, primarily residential development and intensive agriculture, if action is not taken.

Subdivision development and intensive agricultural operations would cause: (1) reduced primary productivity in altered forested wetlands; (2) contaminant laden runoff water during wet periods; (3) diminished water storage; and (4) loss of hardwoods-provided food, cover, and diversity. This would result in a severe disruption of the existing ecological integrity of the project area and an overall decline in the life support capabilities of the present aquatic, wetland, and terrestrial habitat complex. Upland- and wetland-dependent wildlife and existing wildlife-related public values would be adversely affected.

The habitat protection available under existing laws and regulations is believed to be insufficient to prevent considerable degradation of existing resource values. The primary regulatory programs providing resource value protection are the COE Section 404 permit program, administered under authority of the Water Pollution Control Act, and the Florida Department of Environmental Regulation's dredge and fill and water pollution control permit programs as listed in Section II. Under these programs, permits would be required for most types of work in hardwood swamp and wet prairie communities. However, wetlands not contiguous with navigable waters (such as isolated freshwater marshes, certain hydric hardwoods, and pond cypress swamps) are excluded from State and Federal permitting jurisdiction, and no permits are needed for any activities on uplands. Thus, portions of the project area habitat complex are not adequately protected by permit programs.



Drainage and conversion of forested wetlands to agricultural use threatens portions of study area. Site pictured is located outside of study area adjacent subunit 2. Pictures were taken in wet season during flooding and depict wetland characteristics of area.



There is no assurance that even this limited protection would be permanent. Regulatory programs change; for example, recent Federal regulatory reforms have made permit issuance for work in wetlands more likely. In addition, regulatory agencies must determine whether permit issuance would be in the overall public interest. Fish and wildlife conservation is only one of several public interest factors considered in permit issuance decisions. If fish and wildlife conservation is outweighed by other factors, permits for alteration of project area waters and wetlands could be issued.

Even though permits may be required for certain types of work, numerous projects are constructed illegally throughout the United States every year. Restoring preproject fish and wildlife values requires reestablishment of the original topography and regeneration of preproject biotic communities. For a variety of reasons, restoration may be socially, politically, or technically infeasible. If attempted, restoration can take years or decades to become complete (e.g., restoration of wetland forests). At times, regulatory and/or enforcement agencies decline to pursue the legal actions necessary to require restoration, or court decisions omit restoration. Thus, violations of permitting programs can permanently degrade or destroy the fish and wildlife values of these wetlands supposedly protected by regulatory programs.

Based on the preceding discussion, it is concluded that the desired land protection objectives cannot be achieved to any reasonably successful degree under this alternative. Specifically, "No Action" will lessen the chance of survival of the Florida panther and will continue the degradation of panther habitat in the Fakahatchee Strand.

B. Alternative 2: Strengthen Enforcement of Regulatory Authorities

This alternative would require formalized and aggressive FWS policies to maximize the effectiveness of existing environmental programs for conservation of the project area. Increased law enforcement, public education and awareness, and staffing and administration would contribute to the strength of existing regulations.

The environmental consequences would approximate those indicated under Alternative 1. Land use trends would continue to disrupt and degrade resource values, but at a slower rate. This alternative would ultimately result in reduced numbers or possibly extirpation of the Florida panther in the Fakahatchee Stand.

C. Alternative 3: Fee Acquisition by the Fish and Wildlife Service

Under this alternative the FWS would acquire fee title to the surface estate of approximately 88,000 acres. The primary purpose of this acquisition would be to establish a national wildlife refuge for active habitat protection benefiting the Florida panther. The environmental consequences of this action are discussed below.

1. Biological Factors

This alternative would benefit the ecosystem and associated wildlife of the proposed NWR by the high degree of protection afforded by inclusion of the area in the National Wildlife Refuge System. Fee title acquisition would prevent currently encroaching development, which destroys or alters habitat, and provide increased enforcement of Federal and State laws protecting wildlife.

Since this alternative is a preservation measure, acquisition would halt the current trend of land use conversion and would allow existing ecological values to be maintained. The continued existence of many game and non-game species would be ensured. Populations of big game, songbirds, small mammals, reptiles, and amphibians would benefit from protection of their habitats. Most importantly, the project area contains the best remaining habitat for a known Florida panther population not yet in public ownership. The FWS would be provided an opportunity and the flexibility to initiate habitat management directed toward increasing panther numbers in the project area.

2. Physical Factors

The physical factors influencing the terrestrial and aquatic ecosystems are primarily the natural topographic and hydrologic characteristics of the area. Fee title acquisition would provide long-term protection of these important environmental components and would assist in maintaining excellent habitat for the wildlife community.

Current land use trends indicate continued threats to the physical integrity of the area. Past construction of roads, levees, and drainage systems has altered the water regime of the Fakahatchee Strand, influencing local hydroperiods, vegetative communities, groundwater recharge, water supplies, and surface water quality. Public ownership of the area would allow control of any future physical changes of the area and, additionally, will provide the opportunity to instigate corrective measures to rectify existing damages. The specific controls available for use by the FWS are found in Title 50, Code of Federal Regulations.

3. Socioeconomic Factors

a. Public Use

Because of the tremendous influx of both temporary visitors and permanent residents to south Florida, more public use pressure is being placed on remaining unique ecosystems. This situation is further aggravated by many of the remaining areas being relatively inaccessible to visitors. Preservation of the study area by public ownership will provide additional public use opportunities. Management of the area would be directed toward enhancing wildlife values, but public use activities that are compatible with the primary refuge objectives would be permitted. This could include activities such as environmental education, wildlife observation, and photography.

b. Economy

Land acquired in fee title would be exempt from county taxes. The Refuge Revenue Sharing Act, as amended, however, would provide Collier County with annual payments equal to three-fourths of 1 percent of the fair market value of the land, 25 percent of net receipts from the sale of refuge products, or 75 cents per acre, whichever is greater. Receipts are usually less than necessary for full payment to counties. In this case, Congressional approval for appropriated funds is sought to make up the difference. Any increase in public use on the proposed NWR by hunters, fishermen, wildlife photographers, or others would favorably impact the local economy, since most of the needed equipment and supplies would probably be purchased locally.

c. Land Use

Fee title acquisition would preclude residential and most commercial or agricultural development on lands that are presently only marginally suitable for improvement. Fakahatchee Strand would essentially become a preserve allowing only those land uses that could be made compatible with preservation of the area and its associated ecosystem.

d. Cultural Resources

The FWS would comply with provisions of the National Historic Preservation Act of 1966 (P.L. 89-66), as amended by P.L. 96-515 in 1980; Executive Order 11593;

and the Archaeological Resources Protection Act of 1979 (P.L. 96-95). The limited refuge developments needed would not adversely impact archaeological or historic sites that have been or may be identified in the NWR. Management and development plans would be coordinated with State and Federal agencies responsible for archaeological, historical, scientific, and other cultural properties, and all appropriate steps would be taken to assure compliance with the regulations promulgated by the Advisory Council on Historic Preservation (36 CFR 800).

D. Alternative 4: Acquisition of Conservation Easements by the Fish and Wildlife Service

Under this alternative, the FWS would acquire conservation easements to preserve the present environmental qualities of the project area. The purpose of a conservation easement is to set permanent limits on the development of privately held land. The limits that should be imposed are discussed in Section II, Alternatives.

Easement acquisition would probably only partially fulfill the project objectives. Subunits 1 and 2 could feasibly be protected by conservation easements. Land ownership in these areas is concentrated in the hands of a few individuals who, because of economic land uses they would retain after sale of an easement, may be receptive to this acquisition technique. Subunit 3, however, contains the GGE subdivision with literally thousands of individual owners scattered throughout the world.

A conservation easement would probably not be acceptable to a majority of GGE owners because: (1) the right to develop this property is the principal economic value of ownership. The cost to acquire this right, therefore, would approach the cost of fee title acquisition while leaving the landowner with severely limited property rights on land with no personal use; and (2) the sheer number of landowners with whom the FWS would need to negotiate would impose unrealistic and uneconomic overhead costs to the actual cost of the easement.

In light of the above discussion, conservation easements would only partially protect the project area from detrimental land use changes. They could, however, be used efficiently in certain appropriate situations. Conservation easements, therefore, should not be summarily dismissed as unviable, but should be discussed during negotiations with individual landowners in subunits 1 and 2 to determine their propriety in relation to the benefits of fee title acquisition.

E. Alternative 5: Acquisition/Management by Others

Under this alternative, the FWS would rely on other conservation agencies or organizations to acquire and manage lands within the project area.

At the present time, it appears unlikely that Florida will approve any more land acquisition other than the areas currently approved for the FSSP. Therefore, reliance on this alternative would likely result in no action being taken to conserve the natural resource values on approximately 88,000 acres. The environmental consequences would be as described under Alternative 1.

F. Alternative 6: Combination of Federal/State Acquisition and Management (Proposed Action)

The effectiveness of this alternative is based upon the assumption that the State of Florida and the NPS will actively participate in preservation of the project area as outlined under Alternative 6 in Section II.

Preservation of the project area by this alternative would result in acquisition of subunits 1, 2, and 3 by the FWS and other conservation agencies for resource management. The environmental consequences would be parallel to those described under Alternative 3. Project objectives would be fully achieved in a practical, cost-effective fashion by sharing acquisition responsibilities.

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VIII.

GLOSSARY

BCNP	-	Big Cypress National Preserve
CARL	-	Conservation and Recreation Lands Trust Fund
COE	-	Army Corps of Engineers
DNR	-	Florida Department of Natural Resources
EPA	-	Environmental Protection Agency
FGFWFC	-	Florida Game and Fresh Water Fish Commission
FSSP	-	Fakahatchee Strand State Preserve
FWS	-	U.S. Fish and Wildlife Service
GGE	-	Golden Gate Estates
LWCF	-	Land and Water Conservation Fund Act
NPS	-	National Park Service
NWR	-	National Wildlife Refuge
NWRS	-	National Wildlife Refuge System
ORV	-	Off-Road Vehicle
SFWMD	-	South Florida Water Management District
TNC	-	The Nature Conservancy
TPL	-	Trust for Public Land

APPENDIX

Section 7 Consultation

SECTION 7 EVALUATION

REGION: 4

LOCATION (ATTACH MAP): Located in the Fakahatchee Strand of Collier County in southern Florida about 20 miles east of Naples.

LISTED SPECIES OR CRITICAL HABITAT CONSIDERED:

Florida panther (endangered)	Eastern indigo snake (threatened)
American alligator (threatened)	brown pelican (endangered)
bald eagle (endangered)	wood stork (proposed endangered)

NAME AND DESCRIPTION OF ACTION:

Land acquisition of approximately 30,000 acres by the Fish and Wildlife Service.

OBJECTIVES OF THE ACTION:

Habitat preservation

EXPLANATION OF IMPACT OF ACTION ON LISTED SPECIES OR CRITICAL HABITAT:

Will preserve habitat of the above mentioned species, especially the Florida panther.

RECOMMENDATION TO AVOID ANY IMPACTS:

No adverse impacts.

A1

REVISED: 4/83

SECTION 7 EVALUATION

Wendell Metzger

PROJECT LEADER Wendell Metzger

DATE 1/16/84

COMMENTS: Recommend Fish and Wildlife Service acquisition of about 30,000 ac as described in an Environmental Assessment available for review in the Atlanta Regional office. Proposed action will provide protect Florida panther habitat which should make a significant contributi to the survival of the panther population inhabiting the Fakahatche

WILL NOT AFFECT: _____ MAY AFFECT: - Beneficial

David Wesley

ENDANGERED SPECIES SUPERVISOR: David J. Wesley DATE 1/16/84

COMMENTS: I concur that acquisition of this habitat will be beneficial to the Florida Panther.

WILL NOT AFFECT: _____ MAY AFFECT: Beneficial

Crayton J. Lockford

ARD- AWR Crayton J. Lockford DATE 01/20/84

COMMENTS: I have reviewed the evaluation and comments and agree with the "may affect - beneficial" conclusion.

WILL NOT AFFECT: _____ MAY AFFECT: Beneficial

John D. ...

ARD-FA John D. ... DATE 1/26/84

COMMENTS: This action will be beneficial to all the endangered species in the project area, particularly the Florida Panther.

WILL NOT AFFECT: _____ MAY AFFECT: _____

REGIONAL DIRECTOR _____ DATE _____

COMMENTS: I have reviewed the information and have provided a Biological Opinion.

WILL NOT AFFECT: _____ BIOLOGICAL OPINION: _____



United States Department of the Interior

FISH AND WILDLIFE SERVICE

75 SPRING STREET, S.W.
ATLANTA, GEORGIA 30303

February 7, 1984

MEMORANDUM

TO: Assistant Regional Director - Wildlife Resources, FWS, Atlanta, Georgia (RE)

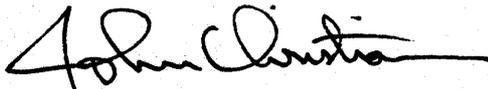
FROM: Acting Regional Director, FWS, Atlanta, Georgia (AFA/SE)

SUBJECT: Intra-Service Section 7 Consultation - Fakahatchee Strand Prairie Land Acquisition

This responds to your January 16, 1984, request for Section 7 consultation concerning the potential purchase of the Fakahatchee Strand Prairie, Florida, and its impact on the Florida panther, American alligator, bald eagle, eastern indigo snake, brown pelican, and wood stork.

On February 2, 1984, we conducted an examination of the Environmental Assessment and data provided. Based on that examination and discussion with Fish and Wildlife Service personnel, it is my biological opinion that the purchase of the Fakahatchee Strand Prairie is not likely to jeopardize the continued existence of any of the endangered or threatened species listed above. In fact, the acquisition of the Fakahatchee Strand Prairie will make a significant beneficial contribution to the survival and conservation of the Florida panther.

Should this action, as now planned, be significantly modified or altered, or should new species be listed that may be affected, you must reinitiate consultation.



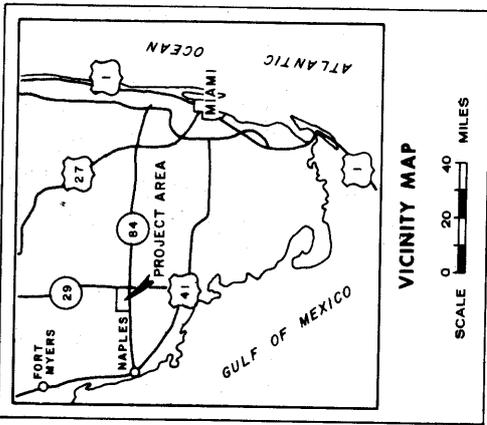
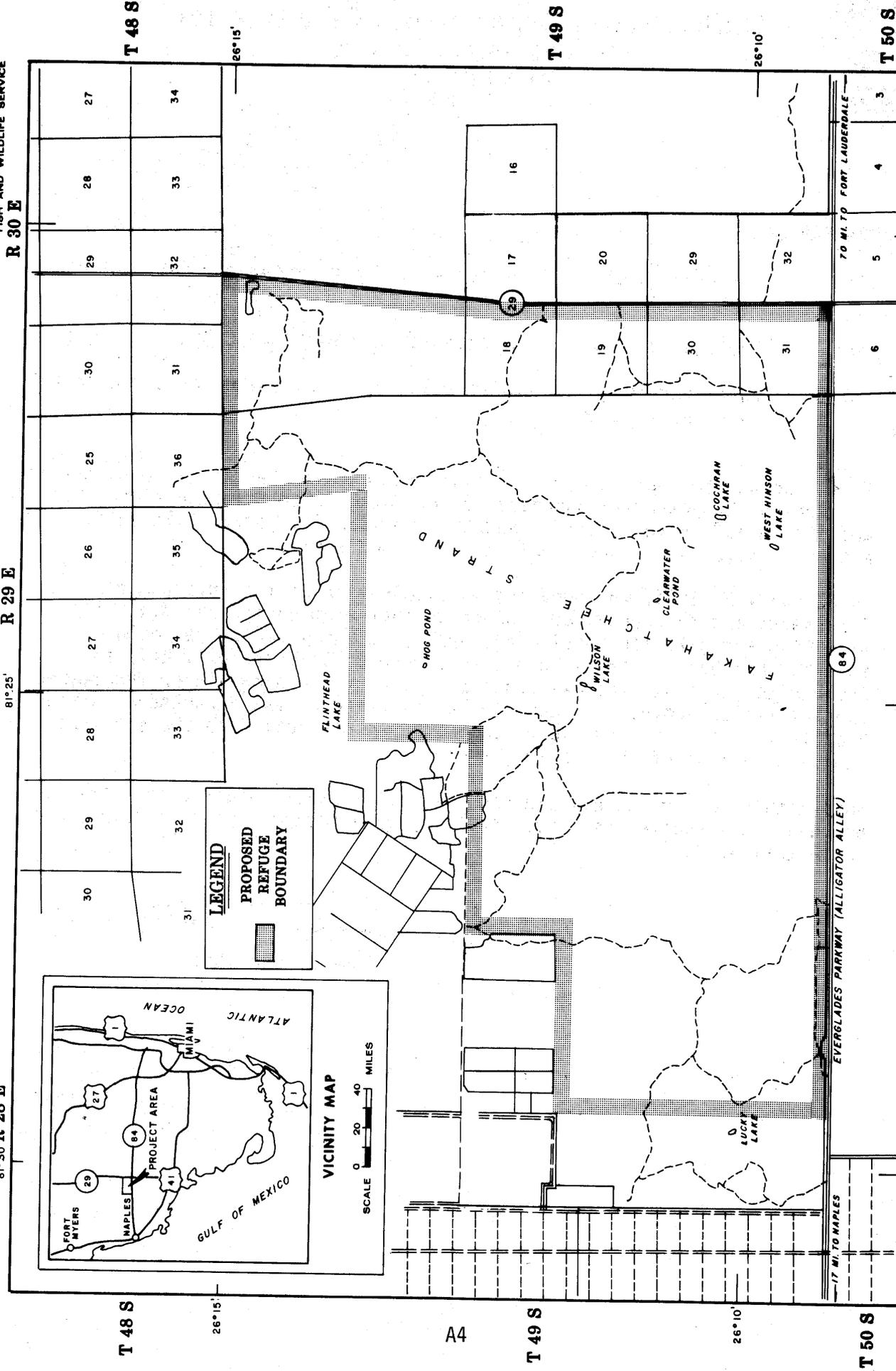
John I. Christian

PROPOSED
FLORIDA PANTHER NATIONAL WILDLIFE REFUGE

COLLIER COUNTY, FLORIDA

UNITED STATES
FISH AND WILDLIFE SERVICE

UNITED STATES
DEPARTMENT OF THE INTERIOR



LEGEND

PROPOSED REFUGE BOUNDARY

70 MI TO FORT LAUDERDALE

17 MI TO NAPLES

R 30 E 3'

R 29 E

R 28 E

T 48 S

T 49 S

T 50 S

T 48 S

T 49 S

T 50 S

A4

26°15' 26°10' 26°15' 26°10'

R 30 E

R 29 E

R 28 E

27 28 29 30 31 32 33 34

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U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
REGION 4
ATLANTA, GEORGIA



As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U. S. administration.