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EVERGLADES-BIG CYPRESS NATIONAL RECREATION AREA

GOVERNMENT

CUMENTS

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HEARING

BEFORE THE

SUBCOMMITTEE ON PARKS AND RECREATION

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS UNITED STATES SENATE

NINETY-SECOND CONGRESS

FIRST SESSION

ON

S. 2465

A BILL TO ESTABLISH THE EVERGLADES-BIG CYPRESS
NATIONAL RECREATION AREA IN THE STATE OF FLORIDA,
AND FOR OTHER PURPOSES

NOVEMBER 30, 1971

MIAMI, FLA.



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EVERGLADES-BIG CYPRESS NATIONAL RECREATION AREA

TUESDAY, NOVEMBER 30, 1971

U.S. SENATE,
SUBCOMMITTEE ON PARKS AND RECREATION
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Miami, Fla.

The subcommittee met, pursuant to notice, at 2 p.m., in the auditorium, Dade Junior College South, South Miami, Fla., Hon. Henry M. Jackson (chairman of the full committee) presiding.

Present: Senators Jackson (presiding), and Chiles.

Also present: Jerry Verkler, staff director; Steve Quarles, special counsel; and Tom Nelson, assistant minority counsel.

The CHAIRMAN. The committee will come to order.

We are here today to take testimony on S. 2465, a bill to establish a 585,000-acre Everglades-Big Cypress National Recreation Area in southwest Florida. Senator Chiles introduced this measure, and I take pride in having joined with him as a cosponsor.

The Senate Interior and Insular Affairs Committee has long been active in the struggle to preserve south Florida's unique environment. In 1934, Congress authorized the establishment of the Everglades National Park. Recently, this committee reported and the Congress passed legislation sponsored by that great friend of the Everglades, the late Senator Holland, which increased appropriations and authorized acquisition of additional land for the park. Again, in 1968, the committee approved legislation to create the Biscayne National Monument. In 1969, I chaired the first congressional hearings on the environmental impact of the Florida jet port. These hearings helped generate the national pressure which led to a halt in the jet port's construction and to a guarantee of a proper flow of water to the Everglades National Park from the conservation area.

The guiding concept in the committee's work has been that the unique environment of south Florida should be saved—but saved for, not from, the people.

This same concept is embodied in the bill which we consider today. A Big Cypress National Recreation Area would indeed protect the region's physical environment, but it would also serve to meet the requirements of south Florida's economic and social environments.

As one of the two principal watersheds for the Florida Everglades, Big Cypress provides 56 percent of the surface water which supports the life systems of the national park.

This water is of crucial importance, as well, to the Florida economy. Among the life systems protected by Big Cypress' water are the shrimp, shellfish, and other sea life so essential to the region's sport and commercial fishery enterprises. In turn, these enterprises are important to the retail, service, and tourist industries of southwest Florida and the Florida Keys.

Furthermore, in its natural state, Big Cypress could be the key to effective water management for the growing southwest coastal communities. As was so thoroughly documented at the recent Governor's conference on south Florida's water problems, Big Cypress serves as a natural water conservation area. Further development in the watershed may endanger the region's future water supply and foreclose the much greater opportunities for development along the coast.

The environment of the Big Cypress watershed is truly unique. Sheltered and supported among the great stands of cypress, wet prairies, and islands of pine is a fascinating diversity of plant and animal life, including 17 endangered wildlife species and numerous rare and endangered species of flora.

Of even greater importance, this same environment provides unmatched recreational opportunities within a few hours' drive of most population centers of south and central Florida. Big Cypress attracts hunters and fishermen, hikers and photographers, birdwatchers and botanists, and those who wish merely to experience the solitude of the area. Such an environment will become an even more valuable resource as Florida's population continues to grow.

Finally, Big Cypress is the ancestral home of the American Indians who have inhabited the region for thousands of years. Yet, today, many Miccosukee and Seminoles who live along the Tamiami Trail are without land of their own. The establishment of a recreation area would preserve an environment which plays an integral and vital part in the lives and culture of these citizens.

Last week, the administration finally indicated that it, too, shares our concern about Big Cypress and is prepared to take action to preserve it. I was particularly pleased that the President has now expressed support for the acquisition approach advocated in the bill which Senator Chiles and I introduced early this August. We look forward to taking testimony from the administration in a subsequent hearing in Washington.

In the last 8 years, as chairman of the committee, I have supported legislation which set aside over 13 million acres of land and water for the use and enjoyment of all Americans. These were national land use policy decisions. They were made in the belief that the dedication of a part of America's land base for recreational, scenic, historic, cultural and wilderness purposes is a high priority national goal.

These decisions are never easy to make. To be considered are the concerns of local citizens and landowners who may fear a reduction in tax revenue or the loss of their property to a larger national purpose. For this reason, on major proposals such as the one we are considering today, the committee's standard practice is to hold field hearings to consider the views of the citizens who would be most directly affected were the proposal to be enacted.

I regret that the press of legislative business has forced us to limit this hearing to a half-day. As our time is limited, we have asked many of our witnesses who share similar viewpoints to sit in panels. Although the number and length of oral statements must be limited, we invite anyone who wishes to submit statements for publication in the record to do so. We also would welcome additional testimony in the future hearing.

I wish, particularly, to welcome our first witness today, Senator Lawton Chiles. To my colleague, the junior Senator from Florida, must go much of the credit for bringing Big Cypress to the Nation's attention. The bill we are considering today is his bill and he deserves great credit for his courageous leadership in introducing it. Due to his leadership, this bill enjoys the support of a growing number of co-sponsors. He and his staff have also assisted us in the preparations for this hearing. In fact, we are meeting here today at the request of Senator Chiles so that the people of Florida will have an opportunity to let this committee know how they feel regarding the pending measure.

And, finally, special thanks must go to the administration, faculty and students of the Miami Dade Junior College South who have helped us organize this hearing. They deserve a lot of credit and we hope that the students in particular will have an opportunity to see how a committee functions at its best or worst or something in between. We are delighted to have students and faculty in attendance here.

I direct that the text of S. 2465 appear at this point.

(The text of the bill follows:)

92D CONGRESS
1ST SESSION

S. 2465

IN THE SENATE OF THE UNITED STATES

AUGUST 6, 1971

MR. CHILES (for himself and Mr. JACKSON) introduced the following bill;
which was read twice and referred to the Committee on Interior and Insular
Affairs

A BILL

To establish the Everglades-Big Cypress National Recreation
Area in the State of Florida, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That in order to protect for the benefit, education, and rec-
4 reational use of present and future generations the unique
5 environment found in the Big Cypress Swamp area of south-
6 western Florida, in order to preserve Everglades National
7 Park, which is dependent for more than half its surface water
8 supply on water flowing from the Big Cypress Swamp, in
9 order to preserve the fresh water supply and estuarine de-
10 pendent fisheries of south Florida, and in order to assure

1 the economic well-being and cultural integrity of the Mic-
2 cosukee Tribe of Indians of Florida and Seminole Tribe of
3 Florida, there is hereby established the Everglades-Big
4 Cypress National Recreation Area (hereinafter referred to
5 as the "recreation area"). The boundaries of the recreation
6 area shall be as generally depicted on the map entitled
7 "Everglades-Big Cypress National Recreation Area," num-
8 bered NRA-BC-91,000, and dated March 1971, which
9 shall be on file and available for public inspection in the
10 offices of the National Park Service, Department of the In-
11 terior. The Secretary of the Interior (hereinafter referred to
12 as the "Secretary") may make minor adjustments in the
13 boundary from time to time by publication of a revised map
14 or other description in the Federal Register, but the total
15 area within the recreation area shall not exceed 585,000
16 acres.

17 SEC. 2. (a) Within the boundaries of the recreation
18 area the Secretary is authorized to acquire lands, waters,
19 and interests therein by donation, purchase with donated or
20 appropriated funds, exchange, or transfer from any other
21 Federal agency, except that property owned by the State
22 of Florida or any political subdivision thereof may be ac-
23 quired only with the consent of the owner. Federal property
24 within the boundaries of the recreation area may, with the
25 concurrence of the head of the agency having jurisdiction

1 thereof, be transferred without reimbursement to the admin-
2 istrative jurisdiction of the Secretary for the purposes of
3 this Act.

4 (b) Effective on the date of enactment of this Act,
5 there is hereby vested in the United States all right, title,
6 and interest in, and the right to immediate possession of,
7 all real property, except real property owned by the State
8 of Florida or any political subdivision thereof and except
9 improved property as defined in this Act, within that part
10 of the recreation area described as follows:

11 Beginning, from the section corner common to sec-
12 tions 11, 12, 13, and 14, township 53 south, range
13 30 east, first principal meridian, northerly along the
14 section lines approximately 10 miles to the section corner
15 common to sections 23, 24, 25, and 26, township 51
16 south, range 30 east;

17 thence west along the section lines approximately
18 3 miles to the section corner common to sections 20,
19 21, 28, and 29, township 51 south, range 30 east;

20 thence north along the section lines approximately
21 7 miles to the section corner common to sections 16,
22 17, 20, and 21, township 50 south, range 30 east;

23 thence east along the section lines approximately
24 3 miles to the section corner common to sections 13,
25 14, 23, and 24, township 50 south, range 30 east;

1 thence north along the section lines approximately
2 3 miles to the intersection of the south right-of-way
3 line of Alligator Alley, State Highway numbered 84
4 which point is near the corner common to sections 35
5 and 36, township 49 south, range 30 east, and sections
6 1 and 2, township 50 south, range 30 east;

7 thence generally east along said south right-of-way
8 line of State Highway numbered 84 approximately 8
9 miles to a point near the corner common to sections 31
10 and 32, township 49 south, range 32 east, and sections
11 5 and 6, township 50 south, range 32 east;

12 thence south along the section lines approximately
13 1 mile to the corner common to sections 5, 6, 7, and 8,
14 township 50 south, range 32 east;

15 thence east along section lines approximately 2
16 miles to the corner common to sections 3, 4, 9, and 10,
17 township 50 south, range 32 east;

18 thence south approximately 1 mile along section
19 lines to the corner common to sections 9, 10, 15, and
20 16, township 50 south, range 32 east;

21 thence east approximately 1 mile along section lines
22 to the corner common to sections 10, 11, 14, and 15,
23 township 50 south, range 32 east;

24 thence south approximately 1 mile along section

1 lines to section corner common to sections 14, 15, 22,
2 and 23, township 50 south, range 32 east;

3 thence east along section lines approximately 3
4 miles to the corner common to sections 17, 18, 19, and
5 20, township 50 south, range 33 east;

6 thence south along section lines approximately 1
7 mile to the corner common to sections 19, 20, 29, and
8 30, township 50 south, range 33 east;

9 thence east along section lines approximately 4
10 miles to the section corner common to sections 23, 24,
11 25, and 26, township 50 south, range 33 east;

12 thence south along section lines approximately one
13 mile to the corner common to sections 25, 26, 35, and
14 36, township 50 south, range 33 east;

15 thence east along section lines approximately 2
16 miles to the corner common to sections 29, 30, 31,
17 and 32, township 50 south, range 34 east;

18 thence south along section lines approximately 1
19 mile to the corner common to sections 31 and 32, town-
20 ship 50 north, range 34 east, and sections 5 and 6,
21 township 51 south, range 34 east;

22 thence east along section lines approximately 3
23 miles to the corner common to sections 34 and 35,
24 township 50 south, range 34 east, and sections 2 and
25 3, township 51 south, range 34 east;

1 thence south approximately 1 mile to the corner
2 common to sections 2, 3, 10, and 11, township 51
3 south, range 34 east;

4 thence east along section lines approximately 2
5 miles to the section corner common to sections 1 and
6 12, township 51 south, range 34 east, and sections 6
7 and 7, township 51 south, range 35 east;

8 thence south along section lines approximately 5
9 miles to the corner common to section 36, township
10 51 south, range 34 east, section 1, township 52 south,
11 range 34 east, section 31, township 51 south, range 35
12 east, and section 6, township 52 south, range 35 east;

13 thence east approximately 3 miles to the west right-
14 of-way line of levee of C28 Central and Southern Flood
15 Control Project, thence generally south along said right-
16 of-way line approximately 14 miles to the intersection
17 north of the right-of-way line of the Tamiami Trail;

18 thence south to the south right-of-way line which
19 point is near the section corner common to sections 5,
20 6, 7 and 8, township 54 south, range 35 east;

21 thence generally southeasterly along said right-of-
22 way approximately 3 miles to the intersection with the
23 north boundary of Everglades National Park near the
24 location of a point known as Forty Mile Bend on the
25 Tamiami Trail;

1 thence along the North Boundary of Everglades
2 National Park to the point of beginning, consisting of
3 505,600 acres more or less, which will include an area
4 of legislative taking consisting of 262,700 acres more
5 or less.

6 LEGISLATIVE TAKING

7 Beginning at the section corner common to sec-
8 tions 12 and 13, township 53 south, range 30 east, first
9 principal meridian, and sections 7 and 18, township 53
10 south, range 31 east;

11 thence, north along section lines approximately 2
12 miles to a point that intersects with the east right-of-
13 way of State Highway numbered 840, said point being
14 near the corner common to sections 36, township 52
15 south, township 30 east, section 1, township 53 south,
16 range 30 east, section 6, township 53 south, range 31
17 east, and section 31, township 52 south, range 31 east;

18 thence, northerly along said right-of-way line ap-
19 proximately 3 miles to a point on said right-of-way line
20 near the corner common to sections 13 and 24, town-
21 ship 52 south, range 30 east, and sections 18 and 19,
22 township 52 south, range 31 east;

23 thence, east along section lines approximately 26
24 miles to the west right-of-way line of levee of C-28,

1 of the Central and Southern Florida Flood Control
2 Project;

3 thence, southerly along said right-of-way approxi-
4 mately 11 miles to the intersection north of the right-
5 of-way line of the Tamiami Trail, State Highway num-
6 bered 41;

7 thence, due south across the Tamiami Trail, to the
8 south right-of-way line which point is near the corner
9 common to sections 5, 6, 7, and 8, township 54 south,
10 range 35 east;

11 thence, southeasterly along said right-of-way ap-
12 proximately 3 miles to the intersection with the north
13 boundary of Everglades National Park near the location
14 of a point known as Forty Mile Bend on the Tamiami
15 Trail;

16 thence, along the north boundary of Everglades Na-
17 tional Park to the point of beginning, consisting of
18 262,700 acres more or less.

19 (c) The United States will pay just compensation to
20 the owner of any real property taken by subsection (b) of
21 this section. Such compensation shall be paid either: (1) by
22 the Secretary of the Treasury from money appropriated from
23 the Land and Water Conservation Fund, including money
24 appropriated to the fund pursuant to section 2 (c) of the
25 Land and Water Conservation Fund Act of 1965, as

1 amended, upon certification to him by the Secretary of the
2 agreed negotiated value of such property, or the valuation
3 of the property awarded by judgment, including interest at
4 the rate of 6 per centum per annum from the date of taking
5 the property to the date of payment thereof; or (2) by the
6 Secretary, if the owner of the land concurs, with any feder-
7 ally owned property available to him or acquired by him for
8 purposes of exchange pursuant to the provisions of section 4
9 of this Act; or (3) by the Secretary using any combination
10 of such money or federally owned property. Any action
11 against the United States for the recovery of just compensa-
12 tion for the land and interests therein taken by the United
13 States by subsection (b) of this section shall be brought not
14 later than two years from the effective date of this Act in
15 the Court of Claims as provided in title 28, United States
16 Code, section 1491.

17 (d) With respect to any property taken pursuant to
18 subsection (b) which in the Secretary's judgment is not
19 essential for the protection, or administration of the recrea-
20 tion area in accordance with the purposes of this Act, the
21 Secretary may take appropriate action to revest title to such
22 property in the former owner.

23 SEC. 3. (a) The owner of improved property on the date
24 of its acquisition by the Secretary may, as a condition of such
25 acquisition, retain for himself and his heirs and assigns a right

1 of use and occupancy of the improved property for noncom-
2 mercial residential purposes for a definite term of not more
3 than twenty-five years or, in lieu thereof, for a term ending
4 at the death of the owner or the death of his spouse, which-
5 ever is later. The owner shall elect the term to be reserved.
6 Unless this property is wholly or partially donated to the
7 United States, the Secretary shall pay the owner the fair
8 market value of the property on the date of acquisition less
9 the fair market value on that date of the right retained by the
10 owner. A right retained pursuant to this section shall be sub-
11 ject to termination by the Secretary upon his determination
12 that it is being exercised in a manner inconsistent with the
13 purposes of this Act, and it shall terminate by operation of
14 law upon the Secretary's notifying the holder of the right of
15 such determination and tendering to him an amount equal
16 to the fair market value of that portion of the right which
17 remains unexpired.

18 (b) As used in this Act the term "improved property"
19 means a detached, one-family dwelling, construction of which
20 was begun before January 1, 1971, which is used for non-
21 commercial residential purposes, together with not to exceed
22 three acres of the land on which the dwelling is situated,
23 such land being in the same ownership as the dwelling, to-
24 gether with any structures accessory to the dwelling which
25 are situated on such land.

1 SEC. 4. Notwithstanding any other provision of law, the
2 Secretary may acquire, by any of the methods set forth in
3 section 2 (a) of this Act, lands, waters, and interests therein
4 outside the boundaries of the recreation area but within the
5 State of Florida and exchange such property for property of
6 approximately equal value within the boundaries.

7 SEC. 5. (a) The Secretary shall administer the recrea-
8 tion area in accordance with the provisions of the Act of
9 August 25, 1916 (39 Stat. 535; 16 U.S.C. 1, 2-4), as
10 amended and supplemented, and in accordance with such
11 other statutory authorities available to the Secretary for
12 the conservation and management of natural resources to
13 the extent that he finds such authorities will further the pur-
14 poses of this Act. In administering the recreation area the
15 Secretary shall make appropriate use of the authority in
16 section 5 (a) of the Act of July 15, 1968 (82 Stat. 354,
17 356), to convey property acquired for the purposes of this
18 Act to former owners thereof.

19 (b) No additional access roads or canals shall be con-
20 structed within or leading to the recreation area, and no
21 facilities for the care and accommodation of visitors shall
22 be constructed or permitted other than on lands which, on
23 the effective date of this Act, have been filled, dredged,
24 built up, or otherwise permanently altered for construction
25 purposes, it being the intention of this subsection that estab-

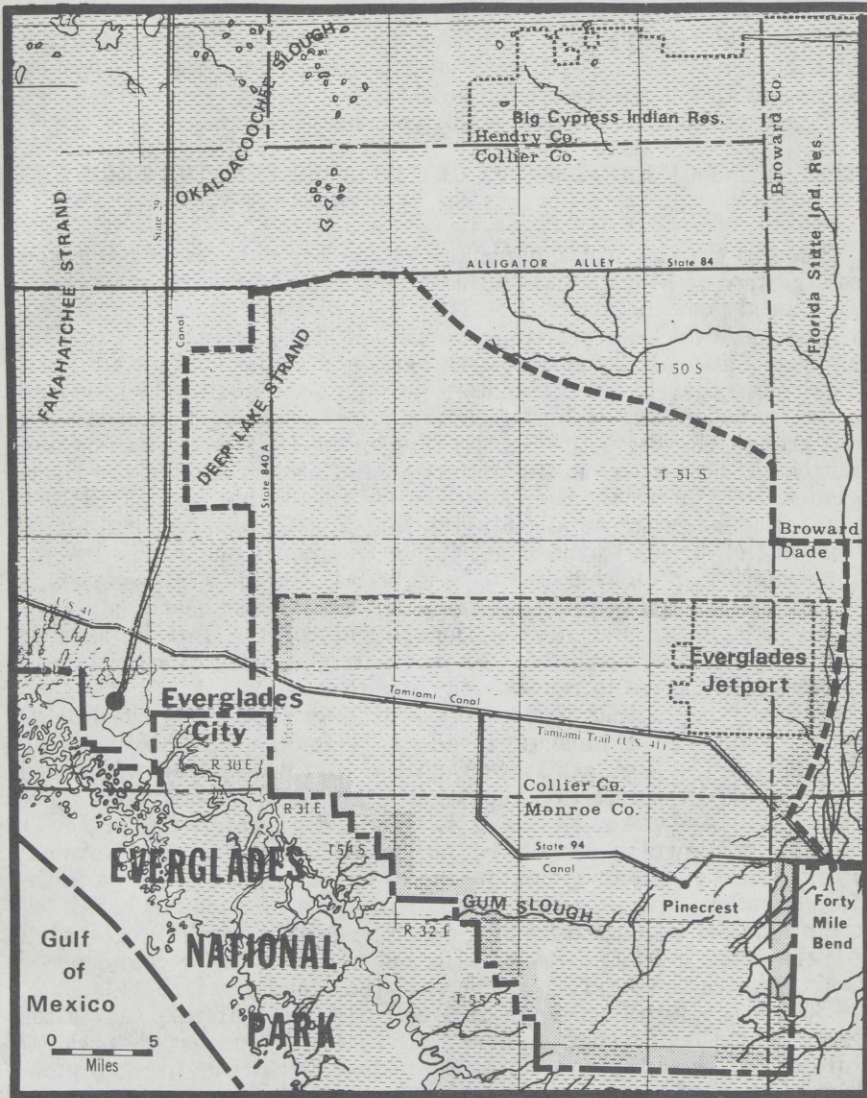
1 lishment of the recreation area shall in no way further
2 adversely alter the natural ecology of the area.

3 SEC. 6. The Secretary shall permit hunting, fishing, and
4 trapping on lands and waters under his jurisdiction within
5 the recreation area in accordance with applicable laws of
6 the State of Florida and of the United States, except that
7 he may designate zones where and establish periods when
8 no hunting, fishing, or trapping may be permitted for reasons
9 of public safety, administration, fish or wildlife management,
10 or public use and enjoyment. Except in emergencies, any
11 regulations of the Secretary to carry out the purposes of this
12 section shall be issued only after consultation with the
13 Florida Department of Natural Resources. Notwithstanding
14 this section or any other provision of this Act, members of
15 the Miccosukee Tribe of Indians of Florida and members of
16 the Seminole Tribe of Florida may continue their usual and
17 customary use and occupancy of lands and waters within the
18 recreation area, including hunting, fishing, and trapping on
19 a subsistence basis and traditional tribal ceremonials.

20 SEC. 7. Notwithstanding any other provision of law, the
21 Secretary may enter into cooperative agreements with the
22 recognized tribal governing bodies of the Miccosukee Tribe
23 of Indians of Florida and the Seminole Tribe of Florida, for
24 the construction and operation by such recognized Indian
25 tribes, or their assigns, of revenue-producing facilities and

1 services for visitors to the recreation area. Such agreements
2 may provide that all or an appropriate portion of the net
3 receipts may be retained by such Indian tribes or their
4 assigns shall be subject to such standards, terms, and con-
5 ditions as the Secretary may establish and may be conducted
6 only at locations designated by the Secretary. Before enter-
7 ing into any other contract for the provision of revenue-
8 producing visitor services of facilities for the recreation area,
9 the Secretary shall give the governing bodies of such Indian
10 tribes recognized by the United States ninety days in which
11 to enter into a cooperative agreement pursuant to this sec-
12 tion for the provision of such visitor services or facilities.

13 SEC. 8. There are hereby authorized to be appropri-
14 ated such sums as may be necessary to carry out the provi-
15 sions of this Act, not to exceed, however, \$—————
16 (February 1971 prices) for development of the recreation
17 area, plus or minus such amounts, if any, as may be justified
18 by reason of ordinary fluctuations in construction costs as
19 indicated by engineering cost indices applicable to the types
20 of construction involved herein.



Everglades-Big Cypress National Recreation Area

- National Recreation Area Boundary
- Limit of Legislative Taking

NRA BC 91,000

4/71

The CHAIRMAN. We will start our hearing by first calling on my colleague, Senator Lawton Chiles, for his statement, and then we will proceed with the other witnesses. The Senator will serve as a part of the committee and will take over as chairman after it becomes necessary for me to leave around 4 o'clock.

Senator Chiles, we are honored by your presence here.

STATEMENT OF HON. LAWTON CHILES, A U.S. SENATOR FROM THE STATE OF FLORIDA

Senator CHILES. Mr. Chairman, let me begin by welcoming you to my State of Florida and by thanking the committee for its concern and speedy consideration of S. 2465, the bill I introduced along with you, Senator Jackson, which proposes to establish the Everglades-Big Cypress National Recreation Area here in Florida. I might add, Mr. Chairman, that 12 other Senators have joined Senator Jackson and myself as cosponsors of this legislation.

Through the years the Senate Interior and Insular Affairs Committee has been active in the protection and preservation of the Everglades. Mr. Chairman, I am sure you will recall that in June of 1969 you called a hearing in Washington that first focused national attention on the threats to the Big Cypress watershed by proposed plans for construction of what was to have been the world's largest airport with its associated drainage and development. Those hearings played a key role in stimulating the Departments of the Interior and of Transportation to work together and with the State of Florida and Dade County agree to relocate the jetport.

Before I begin that part of my testimony concerning the bill itself, I want, Mr. Chairman, to add a personal note. There was no Member of the U.S. Senate nor citizen of this country who loved and defended the area that these field hearings are about today more than my predecessor, Spessard L. Holland. Senator Holland was rightfully known as one of the fathers of the Everglades National Park, and throughout his public career he was one of the most faithful defenders of the park system. His years of work in behalf of the park stem not just from love which he and his wife, Mary, shared for the Everglades and its wildlife, but also from his recognition of the vital role the Everglades plays in the economy of Florida.

Before the introduction of S. 2465 in August of this year after several months of studying various alternatives to protect this beautiful area of Florida, I came to the conclusion that the direct acquisition of this land is the most straightforward and fair approach and the most complete way of protecting a key link to the survival of the Everglades National Park.

I was delighted last week, Mr. Chairman, when the President announced his support of the concept of acquisition as the best way to preserve and protect the Big Cypress Watershed. It now appears that everyone is in agreement with the fact that the Big Cypress is a vital and critical key to the survival of the Everglades National Park. Although the Big Cypress is a treasure worth protecting in itself, its role in supplying over one-half of the flow of ground water into western portions of the park makes the Big Cypress an absolute link in the park's future.

Mr. Chairman, I notice this morning's New York Times has an

editorial, "Environment is Good Politics," and I would like to ask this be included in the record of this hearing at this time.

The CHAIRMAN. The editorial will be included at the end of your statement.

Senator CHILES. It seems to me that not only is direct acquisition the best way but that it is the only right way to protect the rights of property owners in the area. I would like to suggest that the committee in determining the final shape of an acquisition bill also consider protecting the rights of sportsmen—hunters and fishermen. This has long been a great area for hunters and fishermen, and is an area that should be protected and utilized for that purpose.

In addition, while this legislation before you was drafted within the framework of traditional methods of acquisition and management, I would hope that the committee would be as flexible as possible in considering innovations such as the possibility of working with the State of Florida to allow the State to make its contribution to the protection of the area through possible future management of the acquired lands.

The Big Cypress watershed can remain a viable natural resource or it can be carelessly exploited for the immediate gain of a few—and which will result in an enduring disaster to many.

Maintained as a protected ecosystem, Big Cypress will provide major benefits which can be grouped in several broad areas.

As an entity in itself, considered apart from its surroundings, Big Cypress watershed is a distinctive community of highly diverse plant and animal life, including a number of endangered species such as the Florida panther, the Everglades mink, southern bald eagle, and roseate spoonbill. It serves as a habitat for the continuing evolution of plant and animal species whose potential in an evolving world is as yet unexplored, and furnishes opportunities for hunting, fishing, airboating and other kinds of recreation in a natural setting for a contact with nature of a kind that is increasingly scarce and hard to find.

As a source of fresh water and essential nutrient supply to the estuaries of Everglades National Park and the Ten Thousand Islands, Big Cypress watershed is the key to survival of the far-reaching recreational and commercial shrimping and fishing enterprises that depend upon those estuaries.

The entire food chain relationship that supports a major segment of Everglades National Park's plant and animal communities depends on maintaining the continuing flow of Big Cypress water. The quality and quantity of the water and the timing of its delivery into the park must remain much the same as it is at present if the Everglades ecosystem and its wildlife are to survive.

The Big Cypress watershed serves as a natural "water conservation area", recharging the aquifer from which rapidly growing neighboring communities will draw much of their fresh water. Deprived of this recharge, the aquifer would be vulnerable to damaging salt water intrusion.

The natural cycles of Big Cypress' waterflow and the life cycles of the living things dependent on that flow are integral and vital parts of the lives of the Miccosukee and Seminole Indians residing on and near the watershed.

The Big Cypress is threatened today. Already the water in the canals east of Naples contains iron, lead, and aluminum at levels greater than are found in natural waters from undrained areas nearby. Given suf-

ficiently increased concentrations, these contaminants can detrimentally affect the quality of the water supplies in the aquifer. Further contamination by nutrients and organisms that affect public health can be expected as a result of the use of septic tanks in the area and in the event of further agricultural development in the Big Cypress. At the same time, irrigation needs will mount, putting additional demands on the waters of the Big Cypress.

The report, "Environmental Problems in South Florida", made by the National Academy of Sciences and National Academy of Engineers in March of 1970, stated:

It is clear that preservation of the Big Swamp as a natural water-conservation area would be most desirable relative to the Everglades National Park, and, as indicated in the section on water management, probably most desirable to orderly development of the South Florida region as a whole.

I feel that if the Big Cypress is permitted to remain in its state as a natural watershed, it can remain the key to effective water preservation in neighboring areas throughout southwest Florida.

The Big Cypress is jeopardized by the pressure for progress based on sometimes well-intended, but too often ill-planned, development. Inevitably the destiny of the Big Cypress is closely interwoven with the enormous and widespread array of living and inanimate things. Within its boundaries, its natural assets can provide an unending procession of rewarding human experiences and great scientific benefit. The Big Cypress is a mosaic of marsh and lowland forests—a wilderness of sloughs, tree islands or hammocks and bay and cypress heads. Cypress dominates and gives the area its name.

Mr. Chairman, the fate of the broad, flat, very gently sloping watershed in southwest Florida hangs in precarious balance. In the unusual diversity and wealth of its natural resources, in the far-reaching effects of the uses to which it is put by man, and in its profound vulnerability to unwise uses, the Big Cypress has the potential for becoming the textbook or classic example of ecological ruin.

We cannot allow this area to become an ecological ruin and this legislation will again put this Congress on record as dedicated to preservation of our environment. Time and time again we must echo this dedication by action in the positive—and the purchase of this natural wilderness before man has inflicted permanent damage, will be the mark of a Congress so dedicated.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Chiles. [Applause.]

(The editorial referred to follows:)

[From the New York Times, Nov. 30, 1971]

ENVIRONMENT IS GOOD POLITICS

When political rivals compete to perform a sound service, a grateful public can afford to give ample credit all around. The country finds itself in this position with respect to the simultaneous efforts of the Nixon Administration and a group of Democratic Senators to save Florida's Big Cypress Swamp "from private development that would destroy it," as the President said. Destruction of the swamp, as it happens, would also mean destruction of the Everglades National Park, which depends on the Big Cypress watershed, not to mention the loss of much of South Florida's water supply.

What the Administration proposes is to buy the 547,000 acres of the swamp from the 21,000 individuals, real estate companies and businesses that now own it. For some \$156 million the Federal Government would acquire this entire area, designating it as the Big Cypress National Fresh Water Reserve but leaving

its management to the State of Florida. Technically a recreation area, it would be open to hunters, fishermen and campers—as some of it is now—but would be permanently closed to any kind of construction, which has been the major threat.

The Senate Interior Committee, headed by Senator Jackson of Washington, is considering a bill introduced by Senator Chiles of Florida which is substantially the same as the Administration's proposal. Such is political life that both the White House and the Senators supporting Mr. Chiles are angling for the major share of kudos in the matter—and the claims of both sides are valid.

Senator Jackson's interest grows out of hearings he held in 1969 concerning the jetport that was to have been built in the Big Cypress area. The Administration's goes back to Walter Hickel's visit to the Everglades as one of the first acts of his tenure as Secretary of the Interior as well as to Mr. Nixon's ultimate action in forcing abandonment of the jetport.

More important than this little tug-of-war itself is the fact that environmental progress has so clearly become a political asset. The White House fortunately realizes that even in this year of financial stringency a long-term investment in the environment can be at once a national need, a wise economy and a popular move.

The CHAIRMAN. The Chair should have announced that the procedure of the committee prohibits the showing of feeling one way or the other in connection with a statement or testimony of witnesses. To that extent we try to be a little judicial and we appreciate your feelings. The witnesses will have an opportunity, of course, to express their views about this matter, both for and against, this the chairman wants to make clear. We are here to get the facts.

The Chair wishes to state that unfortunately the senior Senator from Florida, Senator Gurney, is unable to appear today, due to the press of business at the close of this session of Congress. He has, however, rushed to us a copy of his prepared statement and he does have a representative here at the hearing this afternoon. I am happy to add that Senator Gurney, too, vigorously supports the protection of Big Cypress and we look forward to working with Senator Gurney in the months ahead in connection with this matter. Also Representative Claude Pepper has asked that his statement of support for protection of the Big Cypress Swamp be entered in the record at this time.

Senator CHILES. Mr. Chairman, at this time I would like to have included in the record a statement of Congressman Dante B. Fascell in support of this bill and the acquisition of the park and also a statement by the Honorable Richard Stone, the secretary of state of the State of Florida.

The CHAIRMAN. The statements will follow the statement I just made with respect to Senator Gurney and Congressman Pepper.

(The documents referred to follow:)

STATEMENT OF HON. EDWARD J. GURNEY, A U.S. SENATOR FROM THE STATE OF FLORIDA

Mr. Chairman, I am pleased and honored to be here today to testify on the future management and development of Big Cypress Swamp. This subject is of great interest to all the citizens of Florida. I am especially pleased, therefore, that you have chosen to hold field hearings so that the people of Florida may have a better opportunity to express their views on this important matter.

Big Cypress Swamp and the Everglades have remained relatively untouched by the effects of man for many years. It was not until early in this century when rapid development of Florida began that imminent danger, particularly the disturbance of water flows through the swamp lands, occurred. Recognizing the fantastic wildland resource that this entire region constitutes and the threat to its preservation, Congress in 1934 authorized establishment of the Everglades National Park. In 1947, sufficient land was purchased to enable the opening of the Park. However, this was done without the incorporation of portions of the

Big Cypress Watershed that were originally included in the proposed Park boundary.

As Florida grows and demands more water, the sustained natural existence of the Everglades is at stake the preservation of Big Cypress is essential to insure that the quality of water flowing across it to the park remains unimpaired.

S. 2465 calling for the establishment of an Everglades-Big Cypress National Recreation Area to be created by Federal land purchase is similar to one of the alternatives proposed by the Jetport Advisory Board which was created in January of 1970 following the suspension of construction of the Jetport. A companion bill has been introduced in the House.

Last week, President Nixon expressed his keen interest in preserving the Big Cypress Watershed area. Administration sponsored legislation having this goal will be introduced shortly. The interest in such legislation expressed by the President clearly reflects the National significance of Big Cypress.

I would like to turn now to some of the benefits of this important natural resource.

A good starting point for such a discussion is contained in the Everglades Jetport Advisory Board report. I would like, Mr. Chairman, to read a few paragraphs from that report:

"Aside from its manifold benefits as one of the vital underpinning of the ecosystem which provides critically important esthetic and economic benefits for much of the southern Florida Gulf Coast, Big Cypress is a highly significant resource in itself. The larger ecosystem of which it is a part is the Nation's only significant subtropical marsh community complex.

"The Big Cypress is an intricate mosaic of marsh and lowland forest types—a wilderness of sloughs, tree islands (or hammocks), and bay and cypress heads. Cypress dominates, and gives the area its name. Nowhere outside the tropics are epiphytes, or "air-plants," which include orchids, some ferns, and bromeliads, found in such abundance and variety as they are in Big Cypress. Seven species of orchids found nowhere else in the world grow in the Fakahatchee Strand, and because of depredation by orchid hunters can be classed as endangered flora.

"Large portions of Big Cypress have so far experienced little man-made disturbance. The scars left by the early loggers have nearly healed. Nearly all the wildlife species native to semitropical Florida are contained within the watershed. Animal life is diverse and abundant. Large, showy, long-legged wading birds are a major natural attraction. Big Cypress provides important feeding, nesting and wintering areas, as well as a resting place for birds migrating to and from Central and South America.

"Seventeen animal species found in the area have been designated as rare or endangered. Major concentrations of several of these species are highly dependent on the watershed for all or a portion of their life cycles. Included are the American alligator, Florida panther, Everglades mink, mangrove fox squirrel, wood stork, and roseate spoonbill.

"The Big Cypress Watershed, in effect, is a natural water conservation area. As such, it could continue to insure an adequate water supply source for the coastal communities, the marine resources of the dependent estuaries, and Everglades National Park, and would, if properly coordinated, contribute significantly to a comprehensive water management program for all of south Florida."

This unique natural heritage should be preserved as part of our national park and recreation system. To some, swamps and marshlands may seem to be useless wastelands that are of value only if they can be drained, filled and put to commercial use. This is an extremely shortsighted view. Big Cypress is in fact a tremendously valuable resource in and of itself. Tropical wildlands are genuinely scarce in this country and provide a fantastic natural resource. Moreover, because of its important role in the movement of water in Southern Florida, the preservation of Big Cypress Swamp is of great importance to other regions. One of these as mentioned at the outset is Everglades National Park. Over 50% of the water coming into Everglades National Parks, other than rain in the Park itself, comes from the Big Cypress Watershed. Because of the extremely gradual slope in the region, modification of the landscape in Big Cypress could very sharply affect the Everglades water supply.

The coastal mangrove forests and the rich life in the estuaries along the coast are also very closely tied to the Big Cypress Watershed.

Important commercial and sport fishing takes place in these waters or in Gulf waters where the fish either use the estuaries (as juveniles) or derive their food from them. This includes an \$8 million shrimp fishery which could be severely and adversely affected by a deterioration in the Big Cypress Watershed, much as building of the Aswan Dam destroyed a very valuable fishery at the mouth of the Nile in the Mediterranean.

Then, too, Seminole and Miccosukee Indians inhabit areas in the northeast portion of the Big Cypress Watershed. They have been there more than 150 years and their life style is very closely tied to the natural conditions of the region. Our country and its progress have continuously been harmful to its Indian peoples and we should be wary of doing so yet again.

Finally, the interrelatedness of southwest Florida water resources must be reckoned with. Big Cypress, as do many other swamps or marshlands, recharges a shallow underlying aquifer. The area around Naples is dependent upon that aquifer for water supply. If development were permitted to expand into the Swamp it could conceivably do so to the point of disturbing the aquifer recharge by the Swamp and thereby destroy that water supply.

Mr. Chairman, in past years, through our general lack of knowledge and because of an unbounded optimism—a feeling that our physical frontiers could expand forever—all of us tended to treat rather cavalierly the question of how our actions affect the world in which we live.

Lately there has come crashing down upon us the realization that we cannot isolate what happens to us as individuals from what happens to our physical environment. We must be extremely careful as to how we treat the environment in the future. Further, we must take steps immediately to prevent future environmental imbalances such as those created through past abuses and neglect.

I and my staff have studied with care the need to protect this area as proposed by the National Park Service. I have concluded that the preservation of Big Cypress is of the highest priority. The dollar cost of such action will be high. But the Everglades and Big Cypress are worth that cost. South Florida needs a large contiguous area with relatively easy access for recreation, hunting and fishing. The park has its purposes, and its fragile ecosystem and water environment preclude direct access to the land except for the roads. Not only is it important to protect the magnificent wildlife resource that is Big Cypress, we also can protect a unique part of primordial Florida that provides a haven for dwindling numbers of birds and other wildlife that are rare and in danger. Florida's west coast development will one day require diversified recreation opportunities that can no longer be met by seashore development alone. Last, we should not overlook the importance of protecting the water supply that will be necessary for South Florida's development without creating burdens on already overtaxed water projects.

Mr. Chairman, as a Floridian I personally appreciate the concern of the committee and yourself in this matter. I know that you will study both the pending proposals and administration backed proposals with care. The Federal Government must act to protect Big Cypress. I am confident that it will.

STATEMENT OF HON. CLAUDE PEPPER, A U.S. REPRESENTATIVE IN CONGRESS FROM
THE STATE OF FLORIDA

Mr. Chairman, I am very pleased that your distinguished subcommittee is conducting field hearings in my State on the proposal to acquire the Big Cypress Swamp which lies to the north of Everglades National Park.

I wholeheartedly support the initiative of my able colleague, Senator Chiles, which elaborates in more detail the proposal I made in my H.R. 10410.

Although my bill differs in detail from that of the junior Senator from Florida, I have nonetheless endorsed his approach. The central issue is to protect a major source of water for Everglades National Park.

I am extremely heartened that the Executive branch has responded to the initiative of the Congress, and has joined us in support of the effort to acquire the Big Cypress Swamp. It was a great pleasure to share with another President, Harry S. Truman, in the dedication of Everglades National Park on December 6, 1947. Creation of the Park at that time was looked upon as a major conservation victory, as, indeed, it was.

Twenty years later, in celebrating the anniversary of Everglades establishment, our attention was drawn to the remaining problems facing that great and unique national park by Stanley Cain, then Assistant Secretary of the Interior.

Dr. Cain noted:

This continued popularity of the park is dependent on its receiving sufficient fresh water to maintain the wildlife, scenery and pleasing environment which attract people. We would be deceiving ourselves if we assumed for a moment that rainfall alone will solve the park's water problems. The park needs overland fresh water as well as rainfall. It needs the river part of the "river of grass" which it had known for thousands of years.

Of the 33 national parks, only one faces an uncertain future. Only one

is a cause of grave concern. Only one is the victim of forces from beyond the park boundaries which are impossible to control by park management alone. All of our parks require fresh water for their existence, but only one of them has suffered greatly for lack of it because of the actions of man.

Little was done, however, to make certain that the life-sustaining, fresh water supply continued to flow to the Park. Since then, the Park has experienced drought, fire and the more dangerous threat of development along the park boundaries.

These threats have been met, at least temporarily. The legislation which the Congress is now considering will provide a strong safeguard to the integrity of the Park and its water supply.

By next year, the silver anniversary year of Everglades National Park, we can provide a silver lining to the cloud which now hangs over the only subtropical unit of our National Park System. The Big Cypress Swamp is truly that silver lining.

I urge you to recommend favorably the legislation necessary to preserve this unique ecological treasure.

STATEMENT OF HON. DANTE B. FASCELL, A U.S. REPRESENTATIVE IN CONGRESS
FROM THE STATE OF FLORIDA

Mr. Chairman, I am pleased to have the opportunity to submit my statement today in support of federal acquisition of the Big Cypress Swamp, and thank Senator Lawton Chiles, sponsor of the proposal pending before your subcommittee, for submitting this in my behalf. The Senator has taken a strong lead in representing Florida, and I congratulate him on the initiative he has taken with respect to the Big Cypress.

This subcommittee has throughout the years demonstrated its clear awareness of the vital importance of preserving our natural environment and maintaining it in its unharmed state. The subcommittee's support of legislation authorizing the establishment of the Everglades National Park, fixing the Park's boundaries and ensuring sufficient authorization to acquire all park lands within that boundary is indicative of its longstanding commitment to preserve that unique, subtropical area. The proposal under consideration today would ensure that the wise action of the Congress and the government is protected.

The Big Cypress Swamp is a broad, flat, very gently sloping watershed north of the Everglades National Park, and key to the survival of the natural and economic resources of all of South Florida. The watershed must be maintained as a protected ecosystem for a number of vital reasons.

First, the Big Cypress is a unique entity in itself. Animal life is diverse and abundant, and nearly all wildlife species native to semi-tropical Florida are contained within the watershed. There are 17 animal species in the area that have been designated as rare or endangered. Several of these, most notably the American alligator, are highly dependent on the watershed for all or a portion of their life cycles. In addition, epiphytes, which include orchids, are found in abundance unlike anywhere outside the tropics.

The area also provides recreation opportunities including hunting, fishing, and camping which are increasingly in demand, and which provide an important impetus for visitors to Florida.

Second, the watershed is a source of fresh water and essential nutrient supply to the estuaries of Everglades National Park and the Ten Thousand Islands, and the key to survival of the recreational and commercial fishing enterprises that depend upon those estuaries. The richness of the estuarine system is dependent to a great extent on the red mangrove and brackish water conditions of the Big Cypress. One study showed that although the mangroves occupied only about 65% of the studied area, they produced 85% of the dead plant material. The plant debris becomes rich in protein as it degrades, and the degradation process is stimulated in a brackish water environment. The nutrient bearing debris drains, principally during the November through February months, into the adjacent bays and coastal areas, enabling marine species to prosper in areas where they are otherwise unable to do so.

This food supply for the aquatic life is particularly important to the economy of South Florida, and the now prosperous fishing and shrimp industry. Disruption of the coastal estuarine areas would severely deplete the \$8 million Tortugas and Sanibel shrimp fisheries.

Third, the Big Cypress watershed accounts for about 56% of all outside water entering Everglades National Park. The slow drainage from the Big Cypress into the Everglades extends the "wet months" in the Park well beyond the

period of actual rainfall. The entire ecosystem is dependent upon this time factor. Disruption of the water supply, and a reduction of the delivery period could have a distinct and damaging effect on the reproductive systems of many of the animals that depend on the aquatic organisms supported by the water.

Fourth, the Big Cypress acts as a "natural water conservation area." It provides the water which recharges the shallow fresh water aquifer from which much of west and south Florida draws its water supply. Deprived of this recharge, the aquifer would be vulnerable to damaging salt water intrusion.

If development in the watershed were allowed to proceed, southwest Florida would destroy its own watershed, while increasing the demand for water. The water supply outlook for all of south Florida would clearly be endangered.

Finally, the Big Cypress Watershed is an integral part of the Miccosukee and Seminole Indian cultures. Disruption of the watershed would most certainly lead to the disruption of a unique way of life, dependent upon the Big Cypress.

The important role played by the Big Cypress in each of these areas cannot be overestimated.

The project under consideration, acquisition of the nearly 575,000 acres, is certainly major in scope. It has been estimated, however, that it would cost the American taxpayers more to let speculators develop the Big Cypress than it would to buy the entire area and preserve it. Nearly \$200 million has been spent on the half-completed drainage and flood control system that serves central and southeast Florida. If the Big Cypress is not purchased and preserved, hundreds of millions of tax dollars will have to be spent on similar land reclamation projects in southwest Florida.

In addition, failure to preserve the Big Cypress and thus the water supply into the Everglades National Park would clearly lead to the destruction of the Everglades National Park, destroying not only the unique and delicate ecological environment we have worked so hard to preserve, but severely affecting the economy of south Florida. More than one million people annually visit the Everglades. The State, largely dependent economically on its visitors, would feel the economic effects quickly and dramatically if this attraction should be eliminated.

Mr. Chairman, I was certainly encouraged by the administration's announcement last week of its support for full acquisition. It is important, however, that this committee and the Congress receive a clear commitment from the White House, the Department of the Interior, and the Office of Management and Budget, of the intent with respect to budgeting and actual acquisition. The administration must make clear the project's relative priority with respect to the Land and Water Conservation Fund acquisition program. It is vitally important to the property owners and to the government that a definite time period for acquisition be established and adhered to. This is not only in the interest of fairness to property owners, but clearly important to the government from an economic standpoint.

I would urge, too, that whatever the final form of legislation approved by the committee, and by the Congress, it is important that hunting and other recreation uses of the Big Cypress be preserved. More than the pleasure of the hunters and campers is at stake. The economic value of recreation in the Big Cypress will be of increasing importance to all south Florida.

Mr. Chairman, may I again commend you and your subcommittee for the leadership role you have so conscientiously taken throughout the years in efforts to ensure preservation of unique natural areas for future generations. In line with your outstanding record of the past, I urge you again to exercise your good judgment and foresight, and act quickly and favorably on legislation to authorize the acquisition of the Big Cypress Swamp and the protection of the water supply for South Florida and the Everglades National Park. Thank you.

STATE OF FLORIDA.
OFFICE OF THE SECRETARY OF STATE,
Tallahassee, Fla., November 19, 1971.

Hon. LAWTON CHILES,
Hon. HENRY M. JACKSON,
U.S. Senators.
Old Senate Office Building, Washington, D.C.

DEAR SENATORS CHILES AND JACKSON: I strongly support your bill by which the Big Cypress Water Shed area of Florida would be acquired for permanent preservation for the benefit of the public.

This is a wise and farseeing legislative action on your part, and I know I am typical of Floridians in congratulating you for it.

Cordially,

RICHARD (DICK) STONE.

The CHAIRMAN. Governor Askew regrets that he cannot be with us today. He feels he must stay close to the Capitol and the special session of the legislature which got underway, I believe, yesterday. We are indeed sorry that the Governor could not be with us, because, as you know, he has evinced strong leadership on environmental matters in general and on Big Cypress in particular.

We do have with us today, however, representing the State administration, two people who have fine environmental credentials, Mr. Jay Landers, the Governor's aide, who will appear for the Governor, and Mr. Robert L. Shevin, the attorney general of the State of Florida.

We will call on Mr. Landers as the first witness.

Mr. Landers, you have a prepared statement and you can either give it in full or we will put the whole in the record if you care to abbreviate it.

STATEMENT OF HON. REUBIN O'D. ASKEW, GOVERNOR OF THE STATE OF FLORIDA, READ BY JAY LANDERS, ASSISTANT TO THE GOVERNOR

Mr. LANDERS. I am Jay Landers, an assistant to Governor Askew. He has asked me to represent him at this hearing and deliver his statement for the record.

Governor Askew deeply regrets that he cannot be here today. He is in Tallahassee where the State legislature is meeting in special session on tax and judicial reform. The Governor called this session before knowing the date of this hearing. Because tax reform was the major issue in his campaign for Governor and Floridians voted earlier this month by a 70-percent majority to repeal a constitutional prohibition against taxing corporate profits, he must direct his full attention to the session in Tallahassee. Now I would like to read the Governor's statement:

Mr. Chairman, members of the committee: Thank you for coming to Florida to hold this hearing. I know your responsibilities are heavy and the demands on your time are great, but I also know the people of Florida genuinely appreciate this opportunity to be heard on legislation which is so important to our State, and, indeed, the entire country.

Last July, Secretary of the Interior Rogers Morton asked me to review the Big Cypress Watershed study report, compiled by the Everglades Jet Port Advisory Board, and give him my recommendation as to the best method of protecting this area. My response was to recommend alternative I in the report—fee acquisition. In my letter to Secretary Morton, dated July 20, 1971, I stated "Acquisition is the only sure method to protect the heart of this natural ecosystem and at the same time treat the landowners fairly." I reemphasize that statement today and strongly urge this committee to support legislation to acquire the Big Cypress Watershed.

Alternative I consists of a portion of the area designated in the study report by the U.S. Geological Survey as subdrainage "C", and that is the area—547,000 acres—that I urge be considered for acquisition.

In the 1940's, the State of Florida deeded 1 million acres to, and contracted with, the Federal Government to establish Everglades National Park. As we call upon the United States to join with us in protecting that investment, a parable comes to mind:

The whole Everglades were burning. What had been a river of grass and sweet water that had given meaning and life and uniqueness to this whole enormous geography through centuries in which man had no place here was made, in one chaotic gesture of greed and ignorance and folly, a river of fire.

Then all the people of the cities who had not paid much attention to the Everglades were startled by another thing. The sweet water the rock had held was gone or had shrunk down far into its strange holes and cleavages. The rim of the rock, which in perfect balance had established the life of the Glades, had also held back the salty unending power of the sea. Now the tides moved easily up through the cuts and breaks men had dynamited the rocky eastern retaining walls. The heavy salt water crept up the rivers and to their headwaters and beyond, up the canals and the least drying water-courses.

So wrote Mrs. Marjory Stoneman Douglas in her beautiful and prophetic book, "The Everglades—River of Grass." She wrote of the 1940's, not of times beyond recall but of less than 30 years past—less than a generation ago.

The people of the United States and the people of Florida have spent over a quarter of a billion dollars since that time in efforts to manage the mutilated Everglades.

Today we have a matchless opportunity to avoid a senseless repetition of that catastrophic decade of the 1940's when the Everglades began to collapse from manmade inroads. We have the opportunity to show that Americans have learned a lesson about the vulnerability of delicate and unique natural systems. We have the opportunity to protect a significant portion of the Big Cypress Watershed.

The importance of the Big Cypress cannot be overemphasized. It serves a vital function as a watershed for the burgeoning communities of southwest Florida, the marine resources of the dependent estuaries of the Ten Thousand Islands, and the Everglades National Park. The Big Cypress has a multitude of recreational uses, ranging from the more active sports of hunting, fishing, boating, hiking, and camping to the more leisurely pursuits of photography, bird watching, and picnicking. The study report pointed out that seven species of orchids found nowhere else in the world grow in the Fakahatchee Strand and 17 animal species found in the Big Cypress have been designated as rare or endangered. There is no question that this marvelous ecological unit, with unique aesthetic and recreational values in itself, must be permanently safeguarded.

I will not dwell on the manifest importance of this area, but rather emphasize to you what we in Florida have been doing to protect our natural treasures in the Big Cypress and the rest of south Florida.

In late September of this year, I called a Governor's conference on water management in south Florida which convened for 3 days at Bal Harbour, Fla. More than 150 persons—scientists, professionals, and knowledgeable laymen—attended and made recommendations in a report which is being distributed with this statement. (The report referred to will be found printed in the appendix.)

The very first sentence of this report, "There is a water crisis in south Florida today," is alarming but the report goes on to outline the problems in terms of water quantity and quality and it recommends positive remedial action. To cope with a possible drought in south Florida again next summer, the report recommended the establishment of an interagency committee to develop an ecologically sound body of guidelines and policy for the resolution of short-term problems of the region. To deal with our long-term water management problems, the report declared the State must have an enforceable

land and water use plan. Speaking more specifically to the south Florida water problems, it recommended that the geographical boundaries of a new south Florida regional land and water management agency include within its boundaries the Big Cypress Watershed.

In response to these recommendations, I have appointed, to cope with the short-term problems, a Governor's environmental coordination council, and, to study our long-term problems, a task force on land and water use planning. Both groups have already met and, as a result of information received from the coordination council, I am seeking through Federal sources \$250,000 for cloud-seeding in south Florida for the months ahead. If this effort is unsuccessful, I will explore the possibility of the State providing this money. I am considering legislation in February which will establish priorities on water uses in periods of shortage. We will also be instituting an educational program to encourage water users to voluntarily curb their use of water. I expect that the work of the task force on land and water use planning will enable me to recommend legislation in time for the February session of the legislature. This should give us, for the first time, the governmental machinery and enforcement capabilities for properly managing our land and water resources.

In addition to these efforts to deal directly with our water problems in south Florida, the State has been working on other areas to preserve its natural environment. The fabled Fakahatchee Strand, mentioned earlier, is of primary concern and it appears we are now in the final stages of negotiating with GAC Properties, Inc., to obtain over 17,000 acres in the strand by acquisition, and another 9,500 acres just south of the strand as a settlement for violations by a predecessor of GAC.

Earlier this year, when the issue of oil drilling in the Big Cypress was raised, the State, unable by existing statute to prohibit such activity, established the most stringent and environmentally protective regulations for oil drilling in the country. To the southwest of the Big Cypress, if a settlement reached by the Marco Island Development Corp. and the State is approved at the Federal level, the State will acquire more than 4,000 acres of coastal land in its undisturbed state south of Marco Island.

In my letter to Secretary Morton, I recommended, in addition to the acquisition of subdrainage C, the acquisition of the Ten Thousand Islands. I would therefore today again urge the inclusion of the Ten Thousand Islands in this proposed legislation. At the same time, however, I will fully explore the possibility of State acquisition. I am asking the Florida Legislature to fund the operating expenses of the internal improvement fund, our State land management agency, from general revenue to reserve the trust fund for the purpose of acquiring ecologically important lands. I can think of no greater first acquisition from these trust funds than the Ten Thousand Islands; I hope to recommend such action to the Florida cabinet sitting as the trustees of the internal improvement trust fund.

In summary, I believe Florida is making solid progress in protecting our precious natural resources. We are firmly committed to conserving the water supply in south Florida, as evidenced by the enthusiastic response and followup on the recent Governors' Conference. Private development companies, displaying their corporate citizenship, are beginning to cooperate with government to preserve lands in their natural state.

The State of Florida, within the limits of its resources and existing laws, is doing everything it can to save this vital area for both its residents and visitors.

Now, we come to you, representatives of the Federal Government, and ask you to do that which is beyond our means but among our most vital needs: purchase this area and hold it in trust for all the people.

I can promise you that, if the Federal Government acquires the Big Cypress Watershed, it will find the State ready to lend every assistance, including the assumption of complete management responsibilities.

Acquisition raises many issues, including the possibility of lease-back provisions when the use is compatible with the natural functions of the area, and compensation to Collier and Monroe Counties for any loss of tax revenue—points I mentioned in my letter to Secretary Morton, which deserve serious consideration in the future.

It is true that fee acquisition is expensive, and it is also true that this amount of money has never been spent for primarily "ecological" purposes before, but anything less than outright purchase would be taking a chance, and we cannot afford to take chances, or to experiment, with this vital area.

At this point I would like to depart from this text and explain to you, Senator, that the Governor felt it was important to demonstrate what the State of Florida has been doing on its own to protect its own natural resources.

We hope to have legislation in the February session of the legislature. We have a Governor's Environmental Coordination Council, which is working on short-term water problems.

I know you are aware we had severe drought last summer, and we are working to do everything we can to head one off next summer.

We have been working with private development companies to acquire and retain land in its natural state; land south of Marco Island, 4,000 acres, will accrue to the State if what we worked out is approved.

We are trying to acquire 17,000 acres of land, as you can see on the map there; in addition, another 9,500 acres south of the strand, as in the Governor's letter to Secretary Morton, several weeks ago, in addition to recommending the alternative I.

He recommended the acquisition of the Ten Thousand Lakes. This is owned by a private company right now, and we don't believe they have had the intention to develop it or doing anything with it. We know they are as concerned about the welfare of this area as we are. This is an estuary that is back in the strand. The Governor would like to reiterate to include this, the purchase of the Ten Thousand Lakes in this legislation.

If this is not possible, he is going to be working in the meantime for this to be done on the State level. He has been asking the State legislature to fund the State Land Management Agency so that the money in the trust fund can be used for purchasing environmentally productive land rather than using the money to operate from.

So we are doing everything we feel that we can do within our resources on the State level, and coming to you, representing the Federal Government, and asking you to make this acquisition of this area which is of such vital importance to the State. This is a part really of the Everglades and it is all one system, and it probably should have been acquired all at the same time, when the Everglades Park was

started many years ago. This is the area that feeds the water into the park as well as the other areas, and it is a watershed for southwest Florida, and we hope that this committee will favorably recommend this legislation.

The CHAIRMAN. Thank you very much, Mr. Landers. I would like for you to express our appreciation to the Governor for the great interest he has taken in this problem and for his outstanding leadership in the environmental and conservation area. He is to be commended.

Senator Chiles.

Senator CHILES. I am delighted with his statement.

Mr. LANDERS. Thank you. I know the Governor appreciates your support, Senator, and also the President's support.

The CHAIRMAN. Has the attorney general arrived? If not, we will go on to the next witness and call the attorney general upon his arrival.

The next witness is the Honorable Harmon Turner, county manager, Collier County.

Mr. Turner, we are delighted to have you here. We are delighted to have your statement.

STATEMENT OF W. H. TURNER, COUNTY MANAGER OF COLLIER COUNTY, FLA.

Mr. TURNER. Mr. Chairman, members of the committee, I want to thank you for the opportunity of appearing before you today to discuss the Big Cypress Watershed. We do wonder sometimes why this was not held in Collier County, rather than Dade County, where most of the property is located.

The CHAIRMAN. The chairman again admonishes the audience. There is not to be a voice of approval or disapproval of any comment here. I am sure you understand the reasons for that.

VOICE FROM THE AUDIENCE. We don't understand.

The CHAIRMAN. Well, we do try to conduct objective hearings, and we really don't try to operate on the basis of "cheering sections" or "opposition sections." That also involves other modes of responses, which include boos which are entirely improper. Let us be fair to all witnesses. The committee is not going to make a decision based on the number of handclaps or the number of boos; it is going to make this decision objectively, and I hope you will all abide by that.

Mr. TURNER. I agree. The so-called Big Cypress is a unique area, but so is all of Collier County. Many people are beginning to find this out.

The people in Collier County know the importance of the Everglades National Park and its possible benefits to Collier County, the State of Florida, and the Nation. They recognized its value long before many of those that are making so much noise about it now. In fact, one of the citizens of Collier County made a grant of over 30,000 acres to the park because its possible benefits to the people were realized. The people here want to do everything practical and reasonable to protect the park.

It is believed that any action taken with the idea of protecting the Everglades National Park should be based on facts and not on fiction. For this reason it was suggested that the study that is now being made of the Big Cypress Watershed, at a cost of \$3 million and requiring 3 years, should be completed to assist in determining the action to

be taken. It looks now that one of the plans suggested in the Big Cypress Watershed study dated April 19, 1971, is to be adopted, before the study is completed. This surely is the reverse of the normal Federal program, which requires a comprehensive plan before money can be granted or loaned for a project.

If one of the programs in the named report is to be adopted surely No. 1, suggesting the purchase of the property involved, is the most equitable to the property owners. This should be done only after the facts of the area are known and it is determined that this is the best land use program for this portion of the Big Cypress Watershed.

The reports by those advocating the purchase of this property and Senator Chiles' bill to establish the Everglades-Big Cypress National Recreation Area in the State of Florida say that "the Everglades National Park is dependent for more than half its surface water supply on water flowing from the Big Cypress Swamp." That sounds real critical to the future of all of the Everglades National Park. I am sure that is what the Senator and the President have been told by those advocating the acquisition of the Big Cypress. However, that is not what the U.S.G.S. says in its report named "Some Hydrologic and Biologic Aspects of the Big Cypress Swamp," dated 1970, and it is obviously not the true fact.

In order for 50 percent of the water for the park to come from all of Collier County, not just area C, every drop of rain that falls on the county would have to be put in the park because the park and the county are approximately the same size. We all know that does not happen and could not happen.

VOICE FROM THE AUDIENCE. Excuse me, aren't the Senators going to listen?

The CHAIRMAN. The Chair will be as fair as possible, and we are here to try to make it possible for the people of this area to be heard. Now, the Chair respects any suggestion to which common ordinary rules of courtesy apply.

VOICE FROM THE AUDIENCE. Listen to them speak.

The CHAIRMAN. The Chair will clear the room shortly if this continues.

Senator CHILES. Mr. Chairman, I am not sure the audience realizes that we have a copy of the statement, that I was discussing with you what he said on page 3 of the statement, and that we are reading as he talks and reading everything he says.

The CHAIRMAN. One or two more outbursts and I will clear the audience. We are going to conduct this hearing fairly. If it can't be conducted fairly, we will see to it that those who are not witnesses will be removed from the room and we will allow the witness to be heard for the benefit of the record that is being made, so that the other members of the committee will have the opportunity to read it. Now, let's be fair.

Please proceed.

Mr. TURNER. On pages 10 and 64 of the mentioned U.S.G.S. report it states that "Subarea C contributes between 55 and 60 percent of the surface inflow received by the park." It also states that "The inflow from subarea C of the Big Cypress supplies about 16 percent of the park, an area of about 350 square miles at the extreme northwest end of the park." Thus, 16 percent of the park area receives between 55 and 60 percent of the total surface inflow. This water flows into the park during the rainy season and a short time thereafter. However,

it is not available during the normal dry season. On page 11 of the U.S.G.S. report it states that there are periods of 8 to 9 months when no water from subarea C flows into the park. That surely doesn't sound like all of the 1,300,000 acres of the park is dependent on subarea C for its existence.

The park receives about the same rainfall that Collier County gets or about 53 inches of rainfall annually, which is about 5.5 million acre-feet as compared to the 541,500 acre-feet annually from subarea C. Assuming the park to be 1,300,000 acres, all of the inflow water to the park from subarea C and conservation area 3 would only be about 10.7 inches over the whole park. If the park received only 50 inches of rainfall that would mean 60.7 inches total water on the park annually. The inflow from subarea C would only be about 5.35 inches over the park as compared to the 60.7 inches it does receive. This means that subarea C contributes only about 9 percent of the total water for the park instead of the 56 percent some would have you believe. Quite a difference.

It is also stated that the water in subarea C recharges the water source for Naples, and an Associated Press report even said the populated area of Naples and Fort Myers. The U.S.G.S. says the water falling on the eastern part of Collier County does not in any way recharge the present source of water for Naples nor even that planned for the long-range future. The present supply comes from the ridge parallel to the gulf shore and about a mile inland. The future source is planned from an area west of S.R. 29.

Fort Myers and Lee County source of water is the Caloosahatchee River which surely cannot be recharged by rainfall in subarea C or any part of Collier County.

It is agreed that if one of the five plans outlined in the Big Cypress watershed report is to be adopted, plan No. 1 is the most equitable to the property owners. The other plans would only leave the property owner with the right to pay taxes which surely the county will continue to need, but I don't believe that is the fair way to get it.

If the property is going to be purchased by the Federal Government, Collier County does have some comments on how this should be done and conditions we, in the county, feel should be met.

There are 30,000 more or less property owners in the area. I cannot be exact because the county has never been given a definite description to go by. The total land involved is 547,000 acres, and I heard a larger figure than that mentioned today, with 460,800 from Collier County. This is one-third of the county area. When this property is taken over by the Interior Department each property owner should be paid then, not 10 to 20 years later as has been the case in the Everglades National Park. People have their money invested in the property and they should be compensated without undue delay.

The legislation approving this purchase should also provide the money needed. This may well be considerably more money than has been suggested. This should be done even if the administration is trying to fight inflation and is economy minded. Appraisers should be put to work immediately and purchase payments begin at once and continue until the total purchase is complete and paid for.

The appraisal of this property should use the normal factors for such appraisals. However, the sale price of property should be that for which the land was selling prior to the announcement of the proposed takeover or Federal control of the area.

There has been considerable speculation regarding oil in the Big Cypress. Since this is an unknown factor, the oil and mineral rights should remain in the present ownership with definite assurance that exploration can be carried out, and if oil is found it can be developed in accordance with proper current guidelines. If this is not done, the appraisal should provide an acceptable value for the oil and mineral rights with a guarantee that no oil prospecting will be done in this property.

Collier County will receive about \$750,000 in ad valorem taxes from the area this year. That is approximately one-thirteenth of the total ad valorem taxes received by the county.

The operation of the county must go on, and the schools must continue to function. For that reason, Collier County does insist that it continue to receive like funds from this area. That means the county should receive one-thirteenth of each year's ad valorem tax money from the purchased area. These funds can be paid from income received from the management of the area, with the appropriate amount going to the county. I know this type of arrangement has been made in some counties by the forestry department. However, for several years, the income from the area involved may not equal the amount of taxes lost. Therefore, it is suggested that the Federal Government pay the county an amount equal to one-third of its ad valorem tax each year in lieu of taxes. This can come from any source, since this area would be set aside for recreational purposes. It would be an unreasonable hardship on the Collier County taxpayers to absorb this loss of tax.

There is every reason to believe there will be development in some of the lands adjacent to or near subarea C. As these properties are developed, there will be a need for water supply. It is known that good water is now available in parts of subarea C. The county would want an agreement with the Federal Government assuring that a water supply system could be developed in subarea C as needed to serve the developments near the purchased area. This should be in a written agreement with the Government so that there can be no doubts in the future.

Collier County has always been willing to cooperate with any governmental agency that is active in the county. In this case, a moratorium prohibiting zoning changes was declared on the eastern part of the county to give the Interior Department an opportunity to decide on a plan. When the moratorium was declared, a request was made for a copy of the plans for the recreational development. It is believed that if definite plans are available, there will not be so much resistance to the planned purchase. Collier County does request a copy of the plans the Interior Department has for improvements in the watershed, with some assurance that any change in plans will be presented to the county for approval before construction begins on the change.

When the Everglades National Park was approved, it was assumed that the large area included the lands necessary for the protection of the park itself. Now, many years later, we find that an additional half million acres are needed to protect the park. This addition is not being designated by a name for that purpose, but is being called the Big Cypress Recreational Area. The people should be given assurance that 20 years from now some group will not come forth with Government sanction asking for another half million acres to protect the recreation area. This assurance should also be with the understanding that the Federal and State Governments will not attempt to control activities outside of the area now being acquired. This

should be left to the county involved—Dade, Monroe, whichever it would be—through zoning or other means available for control.

The county has shown great interest and concern in this matter as is evidenced by copies of correspondence between various county agencies, State and Federal officials. Copies of such correspondence are attached.

Collier County is very much interested in this project, not only because it involves one-third of the area of the county and one-thirteenth of the ad valorem taxes, but also because we, too, are interested in water. We are always ready and willing to cooperate. If you ever have need for information that may be available in the county, please do not hesitate to call on me. I thank you.

The CHAIRMAN. Thank you for your statement, Mr. Turner. We appreciate very much the comments and recommendations you have made. We will also include, I believe, copies of the letters that you have at the end of your statement, and they will appear at the end of your remarks.

Mr. TURNER. Thank you.

Chairman JACKSON. Senator Chiles.

Senator CHILES. Mr. Turner, the comment I was making to the chairman when you were discussing the statement that I had concluded that over half of the surface water supply comes from the area known as the Big Cypress, was that, as I understand it, 80 percent of the water in the park itself is rainfall into the park. Therefore, we were talking about 20 percent that comes approximately 10 percent from the Southern Flood Control District and approximately 10 percent that is surface water. So I think I would agree with your statement that 9 percent of the water is half of the surface water.

Mr. TURNER. There have been some misleading statements by saying surface water, meaning water on the surface or water that hit the surface. Our comments are based on reports by the U.S.G.S. and I believe this shows half of the inflow comes from sub-area C and possibly half from conservation area 3, so our statement is to the effect that the overall park itself only gets about 9 percent from this area.

Senator CHILES. I think we are in agreement on that. It is 50 percent of that surface water or 9 or 10 percent of the water in the park.

Mr. TURNER. Yes.

Chairman JACKSON. Thank you, Mr. Turner, and I will state that if it is at all possible, if we can arrange it, we will have a hearing perhaps in April, so people in Collier County will have an opportunity to be heard. There will be additional hearings in Washington too, as you know. Thank you very much.

Mr. TURNER. Thank you, sir.

(The documents referred to follow:)

OFFICE OF BOARD OF COUNTY COMMISSIONERS, COLLIER COUNTY,

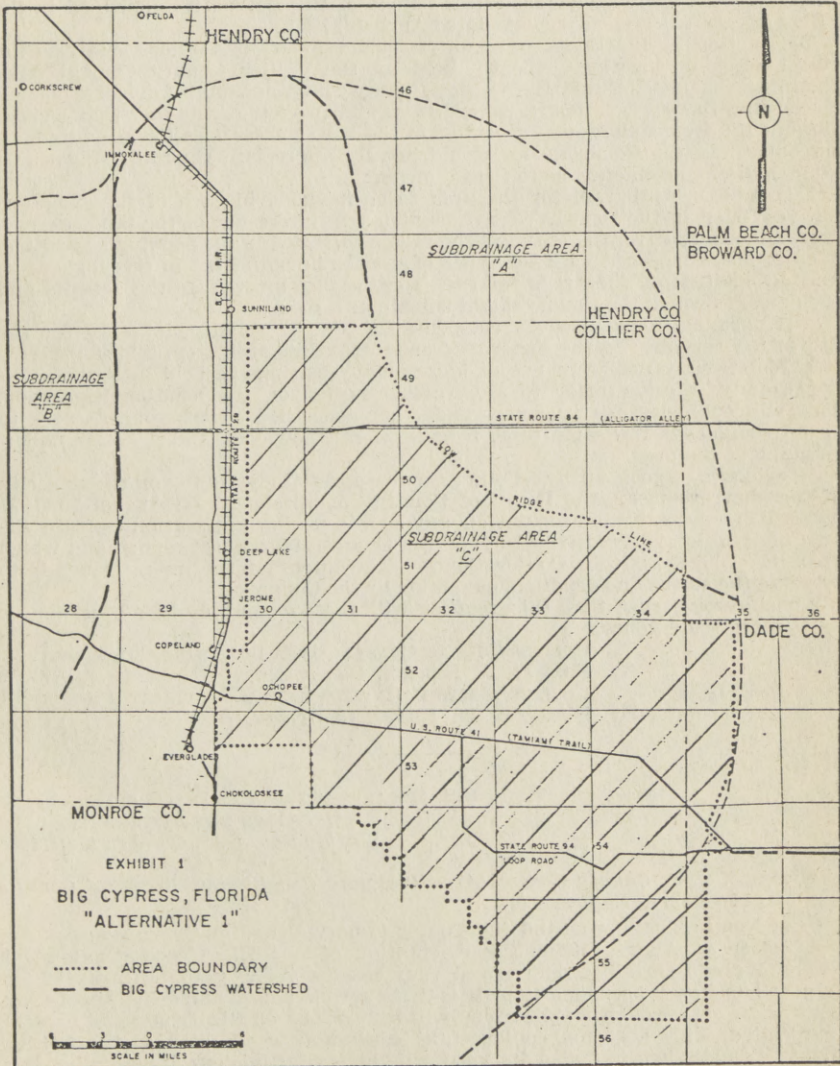
Naples, Fla., July 26, 1971.

BOARD OF COUNTY COMMISSIONERS,
Collier County Government Center
East Naples, Fla.

GENTLEMEN: On July 20, 1971, the Collier County Coastal Area Planning Commission and the Collier County Environmental Advisory Council held a joint meeting to discuss what action, if any, the County should take with respect to the Big Cypress Watershed report which was recently released by the Secretary of the Interior. After considerable discussion, the following recommendation was unanimously approved by all members present of the CCCAPC and the CCEAC:

"That the Secretary of the Interior be requested to advise Collier County

as to the use to which lands included in Alternative No. 1 of the Big Cypress Watershed report will be put and what would be the benefits and the damages which the County might sustain as a result. Upon receipt of this information, the County should then be given sufficient time to hold public hearings in this area prior to the introduction of any proposed legislation in the Congress. Further, as evidence of our good faith and to indicate the sincerity of this request, we recommend that the County re-impose a moratorium on any new rezoning applications within the area affected by Alternative No. 1 of the Big Cypress Watershed report. The lands included in Alternative No. 1, and which lie wholly within Collier County, are outlined in red on the attached map."



We sincerely trust that this action on our part will meet with the approval of your Board and that such request will be forwarded to the Secretary of the Interior at the earliest possible date.

Very truly yours,

COLLIER COUNTY COASTAL AREA PLANNING COMMISSION,
By NORMAN A. HERREN, *Chairman*.
COLLIER COUNTY ENVIRONMENTAL ADVISORY COUNCIL,
By WHEATON KRAFT, *Chairman*.

OFFICE OF BOARD OF COUNTY
COMMISSIONERS, COLLIER COUNTY,
Naples, Fla., August 13, 1971.

Re Big Cypress Watershed Report.

HON. ROGERS MORTON,
Secretary of the Interior,
Washington, D.C.

DEAR SECRETARY MORTON: At its regular meeting on Tuesday, August 10, 1971, the full Board of County Commissioners of Collier County unanimously instructed the two signatory advisory boards to write you directly concerning the effect on Collier County of the implementation of one of the alternatives outlined in the "Big Cypress Watershed" report, dated April 19, 1971.

This action by the Board of County Commissioners of Collier County is the result of joint meetings recently held by the Collier County Coastal Area Planning Commission and the Collier County Environmental Advisory Council concerning the subject report. Accordingly, and in view of the fact that legislation for the fee acquisition of a portion of the Big Cypress area has recently been introduced in the Congress, we would greatly appreciate your advising us, at your earliest convenience, as to the following:

1. A land use program for the area to be included in each of the six alternatives listed in the report. We are particularly interested in the land use program for Alternative #1, as this is the area designated in the pending legislation. We are also concerned with the types of uses to be permitted in this huge area, and designation of the areas for each specific use, as well as the benefits and the damages which the County might sustain as a result.

2. A formula to be used in compensating Collier County annually for the loss of tax revenues by the removal of one-third of its area from its tax rolls.

3. We strongly urge that one or more public hearings be held in Naples, Collier County, Florida prior to any further action on the pending legislation. This will enable property owners and other concerned citizens of this area to be heard and, at the same time, to gain more knowledge and a better understanding of the program.

As evidence of good faith of Collier County and to indicate to you the sincerity of the above requests, the Board of County Commissioners on August 10, 1971 imposed a one-year moratorium on any new rezoning applications within the area affected by Alternative #1 of the Big Cypress Watershed report, and which area lies wholly within Collier County. The intent of this moratorium is to preserve the status quo pending final action by the Congress.

We sincerely trust that this request will receive your early attention.

Very truly yours,

COLLIER COUNTY COASTAL AREA PLANNING COMMISSION,
By NORMAN A. HERREN, *Chairman.*
COLLIER COUNTY ENVIRONMENTAL ADVISORY COUNCIL,
By WHEATON W. KRAFT, *Chairman.*

U.S. DEPARTMENT OF THE INTERIOR.
OFFICE OF THE SECRETARY,
Washington, D.C., October 1, 1971.

Mr. NORMAN A. HERREN,
Chairman, Collier County Coastal Area Planning Commission, Board of County Commissioners, Naples, Fla.

DEAR NORM: Thank you and the Collier County Board of Commissioners for your letter of August 13 on implementation of our Big Cypress watershed report. We can certainly understand your concerns. The good faith of Collier County has never been questioned, and its recent action imposing the 1-year moratorium on rezoning applications within portions of Big Cypress is greatly appreciated. This not only confirms the continuing good faith of the Collier County Commission, but also its good will in supporting our interests in Big Cypress.

We do not have a land use program for any of the alternatives listed in the report, or for any of the other alternatives derived from the many written comments the Department of the Interior has received. Our report sought to provide background information and explore concepts for land use controls. Some ideas in the report, we think you will agree, are innovative. We felt we

could defer the preparation of a detailed land use program until we had settled on one recommendation. In general, though, the program will have to be one in which all uses are compatible with the values to be protected.

With regard to the loss of tax revenue, we must admit this is a very real possibility if fee acquisition becomes this Department's recommendation. Revenue replacement is not mentioned in the bill sponsored by Senators Chiles and Jackson or in Representative Pepper's bill, both calling for fee acquisition. Normally, counties are not compensated for such loss. However, all alternatives are still under consideration, and most of them may not remove substantial land areas from the tax rolls. The Public Land Law Review Commission, in its report to Congress, has recommended that the Federal Government should make payments to compensate State and local governments for the tax immunity of Federal lands.

You also urge public hearings be held in Naples prior to further action on the pending legislation. The pending legislation was not submitted by this Department. Nonetheless, it has been generally the procedure of the congressional committees to hold field hearings in the affected area so that local opinions are heard. We shall be glad to have representatives of this Department hold a meeting to describe and explain this Department's final proposal when it is evolved.

Once again, we express our thanks for the commission's moratorium. We look forward to a successful Big Cypress project through our mutual efforts.

Sincerely yours,

NATHANIEL P. REED,
Assistant Secretary of the Interior.

OFFICE OF BOARD OF COUNTY COMMISSIONERS, COLLIER COUNTY,
Naples, Fla., June 24, 1971.

Subject: Report on "Big Cypress Watershed."

Hon. REUBIN ASKEW,
Florida Capitol Building,
Tallahassee, Fla.

DEAR GOVERNOR ASKEW: Reference is made to your letter requesting the Board of County Commissioners of Collier County to make a recommendation on the programs proposed in the subject report. This report has been available to the Board and others in the County only a relatively short time.

The Commissioners and the citizens of Collier County are vitally interested in the decision that will be made on this subject. Most of the area involved is in Collier County and the program decided on will directly affect over one-third of the County. This property is owned by thousands of people all over the United States and many outside of the Country. Very few of these owners have had access to the report and most of them do not even know that plans are being made for a program that will limit the use of their land. The possible effect of the program finally decided on is of such magnitude that there are strong feelings that a decision of such great importance should not be made on such short notice and with so little information available.

It is indicated in the report that material from several other reports is used to support the suggested programs. However, some of the supporting reports mentioned were made with short dead lines for time and were preliminary in nature. Because of the short time given to complete the supporting reports, very little information from actual field work was available. It would seem that decisions so vital to the future of an area this size should be made only after the most exhausting studies are made.

After the "Big Cypress Watershed" report was received, Mr. Robert F. Gibbs of the U.S. Department of the Interior appeared before the Board of County Commissioners to explain the proposed programs. He did not have any additional facts about the area to support the proposed programs. He did mention new studies that are getting started now. These studies will require three years at a cost of one million dollars each year and are to be of the environment of the South Florida area. These will include water quality, water quantity, rainfall distribution, hydrologic features, delineation of wetlands, aquifers, delineation of potential water supply, biological studies of certain areas and many other phases of the environment of South Florida. This indicates that even the

Department of Interior realizes that there is not adequate information available to make final decisions and plans for the future of the watershed area.

The Collier County Commissioners recognize the benefits of the Everglades National Park and surely have no desire to do anything that may damage it. However, they also recognize the rights of individual property owners and do not wish to be rushed into placing unnecessary restrictions on the use of their property.

The proposed three year study at a cost of three million tax dollars should surely provide more accurate information for making more intelligent decisions on what program should be adopted and developed. The study may even bring forth possible programs that are not mentioned in the "Big Cypress Watershed" report.

At the regular meeting of June 15, 1971, the Board of County Commissioners gave instructions that this letter be written requesting that the final decision on a program for the "Big Cypress Watershed" be made after the completion of the three year study now under way. This would place the decision making after the information is available rather than before.

If the Department of Interior insists that recommendations be made prior to the completion of the three year study, it is requested that more time be granted to review the various programs. The report on the "Big Cypress Watershed" has been available only a very short time. This has been during the County's annual budget planning time leaving very little opportunity to give much attention to this. It would be desirable to have until November 1, 1971 to make a recommendation on either program that is outlined in the report. We believe this decision is too important to the future of Collier County to be made on such short notice with so little factual information available.

Very truly yours,

W. H. TURNER, P. E.,
County Manager.

The CHAIRMAN. The next witness is Miss Jeanne Bellamy, chairman of the environmental quality action committee, the Greater Miami Chamber of Commerce.

Miss Bellamy, we are delighted to have you with us this morning.

STATEMENT OF JEANNE BELLAMY, CHAIRMAN OF THE ENVIRONMENTAL QUALITY ACTION COMMITTEE, THE GREATER MIAMI CHAMBER OF COMMERCE

MISS BELLAMY. Eight months ago, the Greater Miami Chamber of Commerce endorsed the concept of protecting the Big Cypress Swamp through Federal acquisition. Letters were written last March 29 to Senator Chiles and Representatives Fascell, Rogers, and Haley, saying, in part: "The Greater Miami Chamber of Commerce wholeheartedly endorses the proposed acquisition."

That stand is the same today. As chairman of the chamber's environmental quality action committee, I thank you for this opportunity to tell you why we favor such action.

The chamber is vitally concerned with the quality as well as the quantity of life throughout south Florida. This is the only subtropical corner of the U.S. mainland. The ecosystem has always been tied closely to an alternation of wet periods and dry periods. In its original condition, the region consisted mainly of wetlands which served as reservoirs, releasing their waters slowly. As settlers arrived, land was drained to permit uses immediately desired by man. Drainage shrank the size of water retention areas, and has shortened wet periods in critical areas.

South Florida, we think, cannot afford to risk the collapse of nat-

ural systems under excessive stress of incompatible drainage and development. The stake is our supply of fresh water, as vital to all life as the air we breathe.

Only a slight relationship exists between the waters of the Big Cypress and the Biscayne aquifer, the source of Greater Miami's fresh water. However, a population center in the Big Cypress, if one should spring up there, could compete directly for water with the highly urbanized areas of southeast Florida, already home to more than 2 million people.

As a source of fresh water, the Big Cypress is vital to the fast-growing population of Collier County and to the Everglades National Park.

Collier County experienced a population increase of 141.5 percent over the past decade. This makes it the fastest growing county in Florida, and the fifth fastest growing county in the Nation. Collier County's aquifer is quite shallow, so it seems certain that the expanding population will have to look inland, to the Big Cypress, for fresh water.

Other witnesses doubtless will testify in detail about the importance of Big Cypress water to the Everglades National Park, which is one of south Florida's crown jewels.

The Big Cypress has other values to the people of Florida, the United States and the world which also justify its protection through outright Federal purchase or through purchase of development rights.

The Big Cypress is a habitat for many forms of plant and animal life found nowhere else on earth. Therefore, it is an excellent place for preserving this heritage and for teaching about such unique ecosystems.

The recreational worth of the Big Cypress is another reason why it should be protected from destructive inroads. The outdoors—and particularly the outdoors in its pristine condition—is a major reason why Florida today has nearly 7 million inhabitants and many times that number of vacationers annually. Areas like the Big Cypress will gain value for recreation in proportion to national population expansion and the increased leisure time foreseeable for future generations.

Thus, for Florida and the Nation, protection of the Big Cypress for ecological, recreational, and water supply reasons does not mean that it will be economically unproductive. Indeed, this may well be its most profitable use.

In summary, the Greater Miami Chamber of Commerce supports the concept of Federal acquisition of the Big Cypress Swamp for public purposes. The mechanics of the purchase process appear to be well spelled out in Senate bill 2465, sponsored by Senator Jackson and Senator Chiles. If the outright purchase of the entire area is not possible, we suggest that consideration be given to other proposals prepared by the Department of the Interior.

Thank you again for sponsoring this hearing and letting us present our views.

The CHAIRMAN. Thank you, Miss Bellamy for a very fine statement. We are pleased to have you.

We are delighted that the attorney general has arrived, and we are pleased to welcome Robert L. Shevin as a witness this afternoon.

**STATEMENT OF ROBERT L. SHEVIN, ATTORNEY GENERAL OF THE
STATE OF FLORIDA**

Mr. SHEVIN. Mr. Chairman, I greatly appreciate the opportunity given me to make a statement in support of this and any similar legislation proposing to acquire effective public control of that portion of subdrainage area C described in alternative I of the Department of Interior's Big Cypress study.

This is, as Governor Askew has said, the heart of the natural ecosystem essential to provide fresh water sustenance to human habitation and irreplaceable wildlife resources in a large part of south Florida, including rapidly growing communities along the southwest coast, Everglades National Park, and the Ten Thousand Islands.

My primary and most earnest purpose in appearing here today is to plead for a sense of urgency in taking the progressive and protective steps which have been proposed by both the Chiles-Jackson bill and the commendable objectives announced last week by President Nixon and Secretary Morton.

The bipartisan nature of this program is highly encouraging because it will be little comfort to the residents and visitors of south Florida when they come down out of their high-rise apartments to vote for one party or the other in the precinct polling place on the corner if at the same time they have to drive 200 miles to get a drink of fresh water to slake their thirst or have it hauled in by tank truck.

My conviction of urgency springs in part from the benefit of knowledge gained by my office in litigation involving the Big Cypress area.

The State of Florida owns lands adjacent to the Everglades National Park—northwest of the park—in Monroe County. Certain developers to the northwest of the State-owned lands, and therefore also northwest of the Everglades, have commenced the digging of perimeter canals around thousands of acres of land, for the purpose of draining the land for development.

According to the scientists who have volunteered as witnesses, this drainage will cut off the flow of diffused water to the State-owned lands, thereby drying up the State lands, making them useless as wildlife habitats. The scientists also say that the digging of the canals will cut off this flow of fresh water which is essential to form the brackish waters along the Gulf of Mexico in which such commercial sea life as stone crab and pompano breed, thereby endangering the fishing industry. Salt water intrusion of the fresh water aquifer is also threatened.

Now, this lawsuit filed by my office and now pending in the circuit court in behalf of the trustees of the internal improvement trust fund and the people of the State of Florida, is narrow in scope, and is simply a suit to protect State lands and State natural resources from destruction. If we are successful, the developers certainly will be enjoined from cutting off the flow of fresh water.

However, if the area which your committee seeks to protect, including area affected by our lawsuit, were drained and developed, our efforts would be in vain, since the upper watershed would be drained with the inevitable result, as the scientists explain it, of destruction of State lands, the Everglades, and the valuable breeding grounds, the estuaries.

In other words, unless Federal and State governments acquire effective control of the water resources in the Big Cypress area, we could "win the battle" of our current lawsuit but still "lose the war" to protect the vital water resources of a vast area both north of and within the Everglades National Park and the Ten Thousand Islands—an area which has been indisputably described as the most richly productive area on the face of the earth.

Therefore, I appeal most earnestly to you as a committee of the Congress, the national administration and to the Congress to move with the greatest possible dispatch toward the achievement of the water and wildlife protection programs that have been proposed. And, I assure you that I, as one member of the executive department of the State of Florida and as the people's lawyer, will continue to do everything I can to protect the vital water supplies of our State and Nation wherever they are threatened.

The Governor and cabinet, as the executive department of the State of Florida, unanimously adopted a resolution which I introduced on November 23, 1971, establishing as the official State policy, the excellent statements expressed by Gov. Reubin Askew in his letter of July 20, 1971, to the Honorable Rogers Morton, Secretary of the Department of the Interior, with respect to the matters before you today, and I present this resolution herewith, with the request that it be entered in the official record of this hearing.

I would like to refer only to portions of the resolution if I may. It refers to your hearing here today, it refers to Governor Askew's letter of July 20, in declaring acquisition is the only sure method of protecting the heart of this national ecosystem.

The resolution goes on to say:

Now, therefore be it *Resolved*, That the Governor and Cabinet of the State of Florida, sitting as the Board of Trustees of the Internal Improvement Trust Fund which holds title to all state lands, hereby approve and adopt Governor Askew's letter of July 20, 1971, as the official policy of the State of Florida; and be it further

Resolved, That a copy of this resolution and of the Governor's letter be transmitted forthwith to Chairman Jackson and the Senate Committee on Interior and Insular Affairs with the specific request that it be entered into the record of the public hearing.

Thank you very much.

The CHAIRMAN. Mr. Shevin, I want to compliment you on a very fine statement. The fact that the Governor and the entire cabinet has joined in this resolution is impressive indeed. The resolution will be included in full at the conclusion of your statement. I think your statement is particularly helpful from the standpoint of the urgency of a decision here as it pertains to the water problem and other related situations. I want to thank you ever so much for your fine statement.

(The document referred to follows:)

STATE OF FLORIDA,
DEPARTMENT OF LEGAL AFFAIRS,
Tallahassee, Fla., November 23, 1971.

HON. HENRY JACKSON,
Chairman, U.S. Senate Committee on Interior and Insular Affairs, New Senate
Office Building, Washington, D.C.

DEAR SENATOR JACKSON: I was pleased to introduce and join with the Governor and Cabinet of the State of Florida in the unanimous adoption of the attached resolution expressing the official policy of the State with respect to the Big Cypress-Everglades-Ten Thousand Islands ecosystem.

You will note the specific request that this resolution and the attached copy of the letter of Governor Askew to Secretary Morton be entered in the record of the public hearing.

We deeply appreciate your interest and assistance, and that of Secretary Morton and Assistant Secretary Nathaniel Reed, in this matter.

Sincerely,

ROBERT L. SHEVIN, *Attorney General.*

RESOLUTION

Whereas, a public hearing will be held by the U.S. Senate Committee on Interior and Insular Affairs, Senator Henry Jackson presiding, beginning at 2:30 p.m. on November 30, 1971, at Miami-Dade Jr. College South, on legislation introduced by U.S. Senator Lawton Chiles of Florida proposing federal acquisition of key watershed areas in the Big Cypress Swamp; and

Whereas, protection of this watershed area is essential to the safeguarding of vital water supplies, irreplaceable wildlife and the rich estuarine resources of the Big Cypress-Ten Thousand Islands ecosystem; and

Whereas, the Honorable Reubin O'D. Askew, Governor of Florida, in a letter dated July 20, 1971, to the Honorable Rogers Morton, Secretary of the Interior of the United States, declared that "acquisition is the only sure method to protect the heart of this natural ecosystem and at the same time treat the landowners fairly. Therefore, of the alternatives outlined in the report, my recommendation is the acquisition of the portion of subdrainage area 'C' described in alternative I (of the Department's Big Cypress study)".

In addition, the Governor's letter stated that he also joined with the recommendation of the Bureau of Sports Fisheries and Wildlife in urging the acquisition of the Ten Thousand Islands; and

Whereas, Governor Askew properly stated that since this major ecosystem has such an important role in the water resources of southernmost Florida, it is his feeling that "state government should play a major role in its management"—and he suggested consultations between federal and state agencies with respect to the most effective preservation of this vital area: Now, therefore be it

Resolved, That the Governor and Cabinet of the State of Florida, sitting as the Board of Trustees of the Internal Improvement Trust Fund which holds title to all state lands, hereby approve and adopt Governor Askew's letter of July 20, 1971, as the official policy of the State of Florida; and be it further

Resolved, That a copy of this resolution and of the Governor's letter be transmitted forthwith to Chairman Jackson and the Senate Committee on Interior and Insular Affairs with the specific request that it be entered into the record of the public hearing.

In Testimony Whereof, the Trustees for and on behalf of the State of Florida Board of Trustees of the Internal Improvement Trust Fund have hereunto subscribed their names and have caused the official seal of said State of Florida Board of Trustees of the Internal Improvement Trust Fund to be hereunto affixed, in the City of Tallahassee, Florida, on this the 23rd day of November, A.D. 1971.

REUBIN O'D. ASKEW,
Governor.

RICHARD (DICK) STONE,
Secretary of State.

ROBERT L. SHEVIN,
Attorney General.

FRED O. DICKINSON, JR.,
Comptroller.

THOMAS D. O'MALLEY,
Treasurer.

FLOYD T. CHRISTIAN,
Commissioner of Education.

DOYLE CONNER,
Commissioner of Agriculture.

STATE OF FLORIDA,
OFFICE OF GOV. REUBIN O'D. ASKEW,
July 20, 1971.

Hon. ROGERS MORTON,
Secretary of the Interior,
Washington, D.C.

DEAR SECRETARY MORTON: This is in response to your request for our comments on the proposals contained in the Study Report to the Secretary of the Interior dated April 19, 1971 on the *Big Cypress* watershed. Let me first say that the report is very well written and the State of Florida is most appreciative of the efforts that have gone into this study. We are grateful that the Department of the Interior has exhibited such a keen interest in protecting this watershed which, as stated in the report, "is the key to the survival of unique esthetic, cultural and economical resources beyond its boundaries."

Since the protection of the watershed is a matter of such great importance, I have solicited input from several sources to assist me in preparing my official response. I have asked three groups to aid me in this regard; the heads of state departments directly concerned with the natural resources of the watershed; county commissions of the counties within the boundaries of the watershed; and leading conservationists throughout Florida. I am enclosing copies of the response we have received. As you will note from these responses, the vast majority recommended alternative I—fee acquisition.

Acquisition is the only sure method to protect the heart of this natural ecosystem and at the same time treat the landowners fairly. Therefore, of the alternatives outlined in the report, my recommendation is fee acquisition of the portion of subdrainage "C" described in alternative I on page 30 of the Study Report.

The estuarine resources of the Big Cypress ecosystem must also come under public ownership. This is indicated in the directive of November, 1969, which resulted in Big Cypress watershed studies by the U.S.G.S., F.W.Q.A., B.O.R. and the most recent U.S. Parks Service report. In the 1969 directive, the Secretary of the Interior, having ordered the Big Cypress study, stated "It (Big Cypress) is also the source of water which modifies the salinities of the adjacent estuaries in which important fishery and recreational resources are found." Thus, it follows that the Ten Thousand Islands which are nourished and dependent upon the fresh water flowing from subdrainage "C" must be accorded equal protection.

I do, therefore, in addition to recommending acquisition of a portion of subdrainage "C", join with your Bureau of Sport Fisheries and Wildlife and your "Islands of America" report in urging the acquisition of the Ten Thousand Islands.

The State of Florida is presently negotiating with GAC Properties, Inc. the principal landowners in the Fakahatchee Strand, to acquire certain areas in the Strand. We anticipate acquiring significant portions of this area in the near future. It is our hope to continue to add to these holdings and assistance from the Department of the Interior to accomplish this would certainly be welcome.

Acquisitions of this magnitude are bound to have a direct effect upon residents of the affected areas and the local governments. I, therefore, would urge that consideration be given to lease back provisions and to some type of supplement to the counties in lieu of ad valorem taxes.

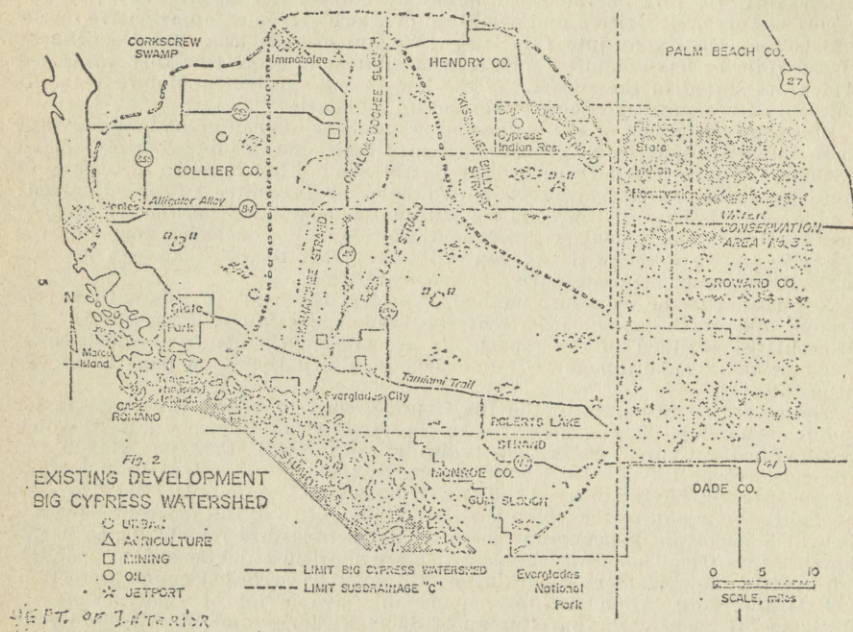
Persons whose lands are purchased should be given the opportunity to lease back said land for uses compatible with the function of the Big Cypress as a vital watershed. In addition, the three-year study being undertaken by the South Florida Environmental Project would, as one of the objectives of the study, should report the feasibility of controlled recreation use of similar lease back arrangements.

With regard to the management of this ecosystem, since it has such an important role as a water resource for southernmost Florida, it is my feeling that state government should play a major role in its management. The best method of accomplishing this could be determined by consultation of state and federal interests after more specific uses for the area are determined.

Again, the State of Florida is grateful to the Department of the Interior for the initiative it has taken in seeking to protect the Big Cypress watershed. We are anxious to insure the protection of the area, and offer our fullest cooperation to this end.

With warm personal regards,
Sincerely,

REUBIN ASKEW, *Governor.*



The CHAIRMAN. Senator Chiles.

Senator CHILES. Thank you very much, I would like to request that the statement of Mr. Randolph Hodges, executive director of the State of Florida Department of Natural Resources be inserted in the record at this point.

(The full statement of Randolph Hodges follows:)

STATEMENT OF RANDOLPH HODGES, EXECUTIVE DIRECTOR, STATE OF FLORIDA
DEPARTMENT OF NATURAL RESOURCES

Mr. Chairman and Members of the Committee on Interior and Insular Affairs, United States Senate. We of the State of Florida Department of Natural Resources are grateful for this opportunity to appear before your committee in support of Senate Bill 2465. Many studies and reports have been written which support the placing of the Big Cypress Watershed into public ownership in order to protect its unique natural resources and vital fresh water supplies. We of the Department of Natural Resources believe that the time of decision is now upon us and timely protective measures must be initiated to ensure the survival of the Big Cypress Watershed natural resources which critically affect unique esthetic, ecological, and economical resources in many areas of the state both inside and outside of the watershed boundaries.

As an entity in itself, the Big Cypress Watershed is a distinctive environmental community consisting of a wide variety of flora and fauna, including some endangered species. Nearly all of the wildlife species native to semi-tropical

Florida are found within the Big Cypress Watershed. The area provides important feeding, nesting and wintering areas as well as serving as a resting stop for many birds migrating to and from Central and South America. Approximately seventeen (17) animal species found in the watershed area have been designated as rare or endangered. Included among these so designated are the American alligator, Florida panther, Everglades mink, mangrove fox squirrel, wood stork and roseate spoonbill.

Visitors enjoy the recreational aspects of the Big Cypress area among which are included nature study, camping, hunting, fishing, photography, boating, picnicking, and the feeling of being in a wilderness. The extensive wilderness landscape, impressive natural vegetation and wildlife coupled with a mild enjoyable climate provide the needed opportunities for many individuals to experience recreation of a kind next to impossible anywhere except in the Big Cypress. Fortunately, the area is accessible to high density urban areas, whose residents have been showing an increasing interest in the leisure activities afforded by its outstanding recreation resources.

The Big Cypress Watershed area is extremely important as a natural water conservation area. If maintained relatively undisturbed, it would go far in ensuring an adequate water supply source for the Everglades National Park, the coastal communities of Southwest Florida, and the rich marine resources of the estuaries adjacent thereto. Additionally, if properly coordinated, the area would significantly contribute to a comprehensive water management program for most of south Florida.

Although the limits of the Big Cypress Watershed are somewhat difficult to define because of changes in water levels and varying flows, our marine biologists feel certain that without the seasonal fresh water runoff from this Watershed, mangrove-dominated estuarine zones along the Gulf Coast, and especially the Ten Thousand Islands estuarine area, would cease to exist as productive feeding grounds and valuable sanctuaries for marine animals of importance to sports and commercial fisherman. Under present unspoiled conditions of the watershed, the coastal area south of the Big Cypress Watershed is an extremely valuable sanctuary for immature animals of economical importance. Although we are not completely certain of exact amounts, the Ten Thousand Islands area furnishes considerable stocks for the Tortugas and Sanibel shrimp fisheries.

The coastal zone within the influence of the Big Cypress Watershed contains approximately one-third of the total mangrove-estuarine complex of the Everglades National Park. Levels of productivity and diversity of species as high as any to be found within the United States are predominant in the coastal zone adjacent to and under the influence of the Big Cypress Watershed.

The Ten Thousand Islands estuaries which depend upon the fresh waters from the Big Cypress Watershed to modify salinities of the various estuaries abound in aquatic life. Toward the top of its highly rich food chains are found the more familiar species which attract some 40,000 plus sport fishermen to the area each year and produce an average annual commercial catch in excess of one million pounds. Tarpon and Snook are the principal game fish that attract sport fishermen, while the commercial fishermen harvest blue fish, channel bass, grouper, king mackerel, mullet, pompano, sea trout, Spanish mackerel, mangrove snapper and stone crabs. The mangrove-estuarine zone of the coastal area along the southern boundary of the big cypress watershed is vital to the continuing existence of the fisheries in the ten thousand islands estuarine areas and adjacent waters. Many of the marine species occupy the brackish estuaries where they derive protection from the predators because of the lower salinities and the grasses and mangrove roots which afford shelter.

Well documented evidence of the importance of the mangrove-estuarine zone off the Big Cypress Watershed can be found in the studies involving the life cycle of the pink shrimp which is the principal product of the commercial fisheries of the Tortugas and Sanibel grounds. The pink shrimp spawn on the fishing grounds and their larvae migrate to the coastal estuarine waters. There the larvae find abundant food and shelter enabling them to develop through the post-juvenile stage and eventually migrate seaward to return to the fishing grounds to renew the cycle. Disruption of south Florida's coastal estuarine areas by unwise development of the Big Cypress Watershed area would interrupt this life cycle, resulting in a depletion of the eight million dollar Tortugas and Sanibel shrimp fisheries. The life cycle of most of the fishery resources of this area is geared to the estuaries which depend on fresh water supplies from the Big Cypress Watershed and provide nursery grounds for a large portion of juvenile fish.

From your hearings and your review of studies involving the Big Cypress Watershed, I feel sure that you are aware of the importance of the Fakahatchee Strand area which lies just west of the area under consideration in Senate Bill 2465. The Strand is a fresh water slough some twenty to thirty miles long, draining the western side of the Big Cypress Watershed into the Ten Thousand Islands estuaries. Because of the richness of its scenic and biological features, as well as its importance in the hydrology of Southwest Florida, efforts have been underway for many years to preserve Fakahatchee Strand as a natural area. Both the state and the federal governments have been active in this regard since about 1964, but prospects for any real success have only recently materialized.

In 1966, most of the property comprising the Fakahatchee Strand was acquired by Gulf American Land Corporation, which proceeded to subdivide and sell off much of the heartland. It appeared that the Strand was lost forever as an integral natural area. However, since acquisition of Gulf American by General Acceptance Corporation, the picture has changed completely. Negotiations with General Acceptance Corporation (GAC) over the past year or so have resulted in a proposal which could place most of the critical Fakahatchee Strand property under state ownership or control and thus permit effective protection and management of the Strand area for public purposes. Although no final agreement has been reached, we are extremely hopeful of concluding a suitable arrangement on the matter which will permit the state to acquire significant portions of the Strand in the near future.

Many studies have been made on the Big Cypress Watershed area by various agencies, both state and federal. Much of what I have said here can be found in considerably greater detail in the various reports made as a result of these studies. Most, if not all, the studies that we have reviewed draw the conclusion that the Big Cypress Watershed is of extreme importance and should be protected and preserved in its natural condition. We of the Department of Natural Resources support this conclusion and believe that immediate action is essential to safeguard the vital natural resources of the Big Cypress Watershed area. Water resources of this area, unpolluted by man and industrial development, are absolutely essential to maintain the ecological balance of the flora and fauna of portions of the Everglades National Park, community water supplies in Southwest Florida and last, but not least, the Ten Thousand Islands mangrove-estuarine areas.

We appreciate the opportunity of appearing before your committee in support of Senate Bill 2465.

RESOLUTION—EXECUTIVE BOARD OF DEPARTMENT OF NATURAL RESOURCES POLICY ON OIL DRILLING EXPLORATION AND PRODUCTION IN BIG CYPRESS WATERSHED

Whereas, the Executive Board of the Department of Natural Resources, recognizing the unique value of the Big Cypress watershed and the fact that it must be protected from deterioration; and

Whereas, many pressures are being exerted which may threaten the existence of this natural ecosystem; and

Whereas, the oil industry desires to continue exploration and production on a scale which apparently is greater than in the past; and

Whereas, the Executive Board of the Department of Natural Resources, desirous of obtaining all pertinent information on oil exploration and production in this area, has held a hearing in Ft. Myers and a conference in Tallahassee; and

Whereas, these sessions, which produced much useful information on oil drilling in the Big Cypress and brought to light several potential problems, did not appear to identify any problems which, with proper precautions, are insurmountable; and

Whereas, these sessions also demonstrated that almost 30 years of oil exploration and production in the Big Cypress area has had no known significant adverse effects on the ecology of the watershed: Now, therefore, be it

Resolved by the Executive Board of the Department of Natural Resources, That the Board does hereby establish the policy of allowing the continued exploration and production of oil in the Big Cypress watershed, and be it further

Resolved, That certain actions as enumerated below are necessary to combat potential threats to maintaining the quality of the Big Cypress ecosystem and, where not already a part of the oil drilling rules and regulations of the Department of Natural Resources, must be included for consideration at public hearing prior to any further exploration in this area:

1. Roads.—

(a) *Existing Roads*.—(1) existing roads must be utilized wherever feasible; and (2) where existing roads are used, additional culverts will be installed if necessary to improve the water flow.

(b) *Access Extensions (New Roads)*.—(1) extensions must follow the route best practically suited to protecting the natural water flow; (2) extensions must be constructed from either trucked-in fill material or that taken from approved shallow borrow pits. There shall be no parallel borrow canals; and (3) extensions will be properly culverted to protect the natural water flow.

(c) *Removal*.—When a well site is abandoned and plugged, access extensions will be removed and restored to natural elevation and replenished with native vegetation at the request of the Executive Director of the Department of Natural Resources.

2. Two full-time Department of Natural Resources inspectors to monitor the oil industries activities for both the Big Cypress and Jay areas are needed. The additional inspectors in the Big Cypress are a prerequisite to continued exploration in the area.

3. A protective levee of sufficient height to prevent any escape of oil shall be constructed around the drilling site and storage tank areas.

4. Slant drilling will be used where it will have a beneficial effect upon maintaining the quality of the environment.

5. If a well becomes a producer, the oil company will provide for removal by pipeline, containing proper automatic shutdown valves, if and when it becomes economically feasible to do so.

6. Develop an emergency plan and standby equipment consistent with the requirements of the particular area where the operations are being conducted.

7. Restrict the establishment of a permanent residence by an employee except where the extreme isolation of his place of work, or some similar necessity compels an exception.

8. Increase the bond for plugging dry wells. Amount to be recommended by the Bureau of Geology of the Department of Natural Resources.

9. Require a blanket bond for environmental clean-up. Amount to be recommended by the Bureau of Geology of the Department of Natural Resources; and be it further

Resolved, That all of the above mentioned requirements, and all matters relating to site preparation and road access are part of the application procedure, and any activity relating to these matters by an applicant prior to seeking a permit will eliminate that permit from consideration; and be it further

Resolved, To insure that all requirements for obtaining a permit are properly complied with, an Advisory Committee, consisting of five persons, shall review each application. The Advisory Committee shall:

1. Be composed of the following:

(a) Chief of the Bureau of Geology of the Department of Natural Resources—Chairman.

(b) Representative from organized conservation groups.

(c) Executive Director of Florida Petroleum Council.

(d) Hydrologist.

(e) Botanist.

The hydrologist and botanist shall be selected by unanimous agreement of the other three committee members.

2. Agree in principle to the policy of this Board of allowing continued oil exploration and production in the Big Cypress; and

3. Be guided by the rules and regulations of the Department of Natural Resources and the recommended additions to those rules and regulations as mentioned in this resolution and if it desires to consider any other factors in making recommendations, it shall seek prior direction from the Board to consider said factors; and

4. Have no final authority on approval or denial of permits but shall make recommendations of same to the Board; and be it further

Resolved, That fixed time period of ten years is established for exploration, including exploratory drilling in the Big Cypress watershed, and thereafter neither new exploration will be permitted nor new wells be drilled; and be it further

Resolved, That although preliminary geophysical activity is specifically excluded from the regulation by Florida Statutes 377.242, the Department of

Natural Resources shall carefully monitor seismic activities, and if warranted, recommend legislative controls over said activity; and be it further

Resolved, That the Executive Board of the Department of Natural Resources, cognizant of the value of the Big Cypress as a water resource area, will request the United States Geological Survey to monitor the water quality, quantity, and rate of flow in the Big Cypress watershed and make periodic reports to the State on its findings; and be it further

Resolved, That permits issued for oil exploration and production in the Big Cypress watershed shall be subject to the following conditions:

1. Any additional rule or regulations established after the issuance of a permit shall be applicable to existing permits at the discretion of the Board.

2. Permits may be revoked by the Executive Board of the Department of Natural Resources if the permittee fails to comply with any of its provisions or if the Board determines, under the existing circumstances, such action is required in the public interest.

3. Any modification, suspension or revocation of permits shall not be the basis for a claim for damages against the State of Florida.

REUBIN O'D. ASKEW,
Governor.

RICHARD (DICK) STONE,
Secretary of State.

ROBERT L. SHEVIN,
Attorney General.

THOMAS D. O'MALLEY,
Treasurer.

DOYLE CONNER,
Commissioner of Agriculture.

FLOYD T. CHRISTIAN,
Commissioner of Education.

Attest: Randolph Hodges, *Executive Director*, July 6, 1971.

The CHAIRMAN. The next witness is Mr. Robert P. Jones, executive director, Southeastern Fisheries Association.

Mr. Jones, we are happy to have you with us.

STATEMENT OF ROBERT P. JONES, EXECUTIVE DIRECTOR OF SOUTHEASTERN FISHERIES ASSOCIATION, TALLAHASSEE, FLA.

Mr. JONES. The Southeastern Fisheries Association and the Florida Shrimp Association, which together represent over 20,000 persons dependent on the commercial fishing industry, wish to go on record in favor of the Federal Government purchasing and preserving as much land as possible in the Big Cypress area.

The scientific community can explain better than I the technical importance of protecting the flow of water through the Big Cypress, down through the park and finally into Florida Bay. If something happens to the water along the way to pollute it or divert it, then the fish and shrimp and people depending on this natural action will be destroyed.

I thought it might be helpful to this committee, Senator Jackson, if they had a rough idea of some of the values associated with saving or preserving the Big Cypress.

First of all, few people realize the size of the commercial fishing industry here in south Florida. In Dade, Monroe, and Collier Counties alone over 36 million pounds of seafood is landed annually at the value of \$14 million at the fishermen level. For a final value you can multiply that four times. Then add the value of 350 shrimp trawlers valued at \$60,000 each and you get another \$21 million. The value of the boats associated with crawfishing comes to another \$10 million

and then you add together the snapper fleet, mackerel fleet, packing-houses, ramps, docks and various other equipment in these three counties you can conservatively add another \$9 million. All of this together comes to around \$96 million, and, let me add, this does not include the value of the five or six large seafood processing plants located here in Dade County. Nor does it include the value of 4,000 to 5,000 jobs for persons in these three counties that depend on the fishing industry for their livelihood.

This is quite a sum, particularly when you realize that the seafood harvested is annually renewed and can be available for future generations if we only have the foresight to take care of the nursery areas on which it depends.

It should also be pointed out that, generally speaking, the sports fishing industry is much larger than the commercial industry, so you could at least double the overall yearly value of fish alone in this area.

We have been told on many occasions by speculators and some developers that fish have tails and can swim away to other areas if their nursery area is filled in or polluted by sewage. This is not so in this area, and all of my members hope that the landowners in and around Big Cypress recognize the importance of this area to the State as a whole. We further hope that the Government will pay them a just and fair price for their land.

Thank you very much.

The CHAIRMAN. Thank you, Mr. Jones, we appreciate having your helpful statement.

We have next the pleasure of hearing from those citizens who would feel most directly the impact of the proposed legislation, the landowners. Their views are essential to the hearings of this committee and we are fortunate today to have before us the vigorous and knowledgeable leaders of two organizations of landowners, the East Collier County Landowners Improvement Committee and the Landowners Conservation Protective Association. They have asked that Gov. Fuller Warren be their spokesman. We are delighted to welcome Governor Warren and those who are participants in the panel please come forward.

STATEMENTS OF THE PANEL OF LANDOWNERS, INCLUDING FULLER WARREN, MODERATOR; JACK WIDDERSHEM, CHAIRMAN OF THE EAST COLLIER COUNTY LANDOWNERS IMPROVEMENT COMMITTEE; ELLIS CHISM, DIRECTOR OF RESEARCH; E. R. BROWNELL, FRED WELLER, AND JAMES G. PACE, PRESIDENT; NOLAN POPPENHAGER, VICE PRESIDENT OF THE LANDOWNERS CONSERVATION AND PROTECTIVE ASSOCIATION

Governor WARREN. Senator Jackson, maybe President Jackson after next election, Senator Chiles, we are honored and privileged to appear before you today, but while they are getting a seat, the persons who are making statements, I would like to say this, that the name Jackson is very honored in Florida, the first Governor of this State, Military Governor, Andrew Jackson, served in Pensacola during the summer of 1821, so the name Jackson is an honored name and we are honored to have you here.

I would like to say by way of identifying myself, Senator, that I am a politician myself, I was mandated out of politics, the last time I ran for public office, and I also want to recognize and express my admiration for Senator Chiles. It was my privilege to vote for him. And in 200 years people have been running for office in Florida and in the Nation, but he walked into office himself, and he did it in a great way. He is a wonderful supporter of any bill and he is a most popular man in Florida and he earned that popularity by great public service.

The CHAIRMAN. I share with you, Governor, that statement you made about Senator Chiles.

Governor WARREN. We are happy to have you here in the warm salubrious climate of Florida, a person could almost strip down to a loin cloth here and be comfortable in this weather.

The CHAIRMAN. We are particularly comfortable, Governor, with the moisture coming from the northwest, we feel at home.

Governor WARREN. This is a nonpolitical occasion, nonpartisan, and I want to express the innermost feelings of my heart when I say we begin to feel like you are a neighbor.

Since I have been asked to act as moderator of this gathering, Senator Jackson, with yours and Senator Chiles' permission I would like to suggest that the first person to be called upon for a statement, a very brief statement, be Mr. Brownell, who will be recalled—I shouldn't recall him, because he was a member of another party. This will be Mr. Brownell.

The CHAIRMAN. Mr. Brownell, we will be delighted to have your comments at this time.

Mr. BROWNELL. Thank you very much, Governor, and I wish to welcome Chairman Jackson and Senator Chiles.

I am not a property owner as this sign leads you to believe. I am very interested in this area and I am interested in having the facts brought before this committee and this is the reason for my appearance here today.

Several things have been brought out that I would like to comment on. A list of endangered species was made some years ago, and it is said these species are numbered 17. I would suggest that a new list be drawn, rather than simply to repeat again and again, that there are 17 on the list of endangered species.

My purpose here is to get the facts and one or another thing that was stated today was that south Florida jetport obstructed the flow of water to the Everglades National Park. I would like to correct that.

It has been said in newspapers and I have read it in magazines, I did hear it here again today, my experience in the area over the past 20 years in the survey and engineering field has led me to realize that this area is astride of a ridge and I would like to go into that a little more in my prepared talk.

The Big Cypress Swamp is a rather ill-defined area that encompasses principally those parts of south Florida where cypress trees are abundant. I will concern myself with the eastern portion of this area.

The name Big Cypress Swamp is somewhat of a misnomer because it is not all swamp. During times of high water approximately 75 percent may be covered by water varying from several inches to several feet deep. Any land area that is not drained will experience some flooding during times of heavy rains. Even cities and places that are

drained sometime experience temporary flooding. The majority of the Big Cypress Swamp is therefore dry during normal times.

Early Government surveyors in the 1870's and 1880's stated that parts of this area should be subdivided.

The elevation varies from about 7 feet to 25 feet up toward the town of Immokalee. This compares favorably with part of the Miami and Coral Gables area, whose elevation is from 5 to 9 feet.

In the past, extensive cattle raising has been done on this land and indeed today, many acres are devoted to cattle raising. Other portions are, and have been, for many years, devoted to farming, the principal crops being various kinds of vegetables. A small area presently grows citrus fruit, mangos, avocados, and other types of fruit indigenous to south Florida.

I have taken elevations and have studied water flow and drainage problems throughout the area. In the course of my work I have prepared reports on existing conditions and drainage possibilities for much of this area.

In the course of my work I have found that there is a high ridge just west of the Dade-Collier County line, running north and south, that divides the Sa-Ha-Leggee watershed from the Everglades area. This line is just like the Continental Divide except that it is only 1 to 2 feet high. Water west of this line flows toward the southwest into the Ten Thousand Islands. Water east of this line flows southeasterly into the Shark River Basin, turns southerly and westerly throughout the Everglades National Park, eventually reaching the Shark River.

You will note on the Collier County map that almost the entire Big Cypress Swamp area lies west of the dividing line. The water therefore flows into only a small portion of the Everglades National Park.

In a publication published by the Water Resources Division of Geological Survey, Department of the Interior, entitled "Some Hydrologic and Biologic Aspects of the Big Cypress Swamp," it is stated that 16 percent of the park area is benefited by water flowing from this area. The 16 percent that is benefited receives 56 percent of its benefit from outside sources according to the report. It would seem, therefore, that the Everglades National Park as it now exists benefits very little from water flow from the Big Cypress Swamp area. It would seem to me that it would be more important to funnel water into a greater area of the park through the Shark River Valley and, therefore, an area-of-taking east of those presently being considered and within the Shark River Valley, may be more important. The Shark River Valley area is now being encroached upon by land development faster than any other area under consideration.

The south Florida Jetport as originally proposed lies astride the Sa-Ha-Leggee watershed divide. It receives only incidental water and does not lie within any principal water flow area.

I could make other observations about the area but it is difficult to be too specific within the time limits allowed.

The CHAIRMAN. Thank you very much, Mr. Brownell.

Governor WARREN. Before I present the next proponent, I would like to say that Senator Chiles, as you know, comes from Polk County, as you know named after one of the great Presidents of the United States; and it has another distinction, it produced the only two top

politicians in Florida who were never defeated, the late beloved Mr. Holland and the late and beloved Arthur Trainor; and I am not trying to throw out improper suggestions to you, Mr. Senator Jackson, if you should receive the nomination, I believe a great aid and magnet for you as Vice President would be Florida's own Senator Chiles. As you know, Florida has the ninth largest population; he has appeal from the Cadeedo River in Florida on the southwest, and Key West on the south. He appeals to all Floridians who come from all parts of the State. I hope you will give him serious consideration.

This is a subcommittee of a U.S. committee; we would like to proceed now with a man who has been in the Everglades almost from the time the Indians came here—by the way, I should say in addition to being a politician, mandated out of politics the last time I ran by an overwhelming vote, I am attorney for the Landowners Protective and Conservation Association, a nonprofit association composed of landowners who don't want to have the land taken away from them. Let me make this point, if I may, I say I have a warm spot in my heart for Senator Chiles because when I was in hot pursuit of votes 23 years ago in his hometown, a 10-year-old boy, might have been a little more than 10, probably 18, was giving out cards in my behalf. I don't like to be opposed to anything he is for, but I am attorney for this organization here, and it is my duty to present the facts. I want to present to you now, a man who has been in the Everglades before the Seminoles, even though he looks young. He knows the Everglades, I believe, with all due credit to these great scientists who are listed here, and we are going to hear from them, and he knows the Everglades like nobody but the Creator of the Everglades knows them, Nolan Poppenhager.

Mr. POPPENHAGER. Senator Jackson, I am about left speechless here with this buildup and also what Mr. Turner of Collier County told you, and Mr. Brownell here. This is part of my speech on the water.

I would like to give you a few insights and discuss this little book, which I think is the basis for the takeover of this park. To begin with, this study was generated by Mr. Hickel, who directed this study. It left no alternative than to find the Big Cypress necessary for the preservation of the park. All through the book, going from point to point, he brings out the Seminoles and their traditional way of life, and portrays the Seminole in a canoe in the Big Cypress. I have been in the Big Cypress for 25 years, and I have never seen a Seminole north of the Big Cypress, and in the last 12 years I have never seen an Indian in a canoe. This has a great bearing on people away from here, which has a large part in deciding this issue.

As far as the wildlife in the Everglades, I probably have covered as much ground over a long period of time, and as wide an area as any man in this audience or involved in this study. This includes everybody in the park, from Lake Ochopee to Flamingo. As far as the wildlife in this area, it does not exist. The only thing fantastic about the wildlife in the Everglades is the lack of it.

If you want to see wildlife, go to the ranches, the areas fenced in, that have improved pastures and waters.

The book also mentions there are 40,000 sports fishermen who use the area on the west coast. How can you balance 40,000 sports fishermen against approximately 35,000 landowners?

It is generous and easy to give away something, the rights, and all that belong to somebody else. Also in this—as long as this hearing was going on, about a month ago, Joe Browder said 2,000 landowners, the paper says 21,000, and Mr. Turner says 31,000 owners.

I think the people should have been advised long ago in this report, there are probably 35,000 owners, and any owner is going to be seriously affected and wiped out with this takeover.

As far as the water, Mr. Turner covered that. The whole basis of this report is water, and I have not met one person that read this book that doesn't think the park contributes 56 percent of this area, 56 percent of the water to the Everglades National Park, it is far from the truth. It makes no mention of the 80 percent rain, it says a large portion of the water. If I owned 15 percent of General Motors, I would own a large portion of General Motors. The actual fact is this area supplies, according to Mr. Turner, 9 percent, and I have used for a long time, one-eighth of the water total for the Everglades Park.

The importance of this is greatly exaggerated. The statement, if this water was cut off, would destroy the Everglades Park. One of our State officials stated on television, if this area was not taken over, the Everglades National Park would be a desert in 5 years. This is absolutely false. You can't have a desert when you have 53 inches of rain a year. I have been in the Everglades when there wasn't one drop of water. That is a natural thing. For all we know, it might change things for the worse. For all we know, it might be better.

I have one more thing to say; in fact, I have a lot of things to say, but there won't be time to say them here this afternoon.

The CHAIRMAN. Governor Warren, we want to say that the witness will have an opportunity to file additional statements.

Mr. POPPENHAGER. Let me go along.

Governor WARREN. Real fast.

Mr. POPPENHAGER. In all of this book we see over and over again how delicate the Everglades is; it is not delicate, it is tough. It goes from 35 inches of rain one year to 80 the next. It turns over. We have hurricanes and it recovers, and in the next year you cannot tell it happened. It is very tough; it cannot be destroyed as easy as they have in this book.

As far as the fishing, the man made up stories on the fishing. If he would check the records for 20 years on shrimp, he will find that the most productive 5 years in the shrimp take in the last 20 years was the 5 dry years in the 20-year period. Thank you.

Governor WARREN. Senators, I would like to supplement this statement. The first man who came to grips with the Everglades in Florida was a third, or one of third greatest Governors that Florida ever had, and it has had 37, his name was Napoleon Bonaparte Brown, he started to do something about it in 1935 and they have been wrestling with it ever since, and the problem has not been solved yet, so far as I know.

I am not an expert, and somebody over where I come from said an expert is somebody a long way from home. To my knowledge, 65 years here in Florida, the Everglades had all kinds of mistreatment from the weather and from man, and is still operating. Florida is tax hungry, revenue hungry. I believe the Nation is revenue hungry.

If you take all of this land—I am not taking a stand here, I am nonpartisan, of course, but I am stating this as a fact, if you take all

of this land off the tax rolls, you have made the tax dilemma more acute, you made it harder for Collier County to handle its budget, you have made it harder for Monroe County to handle its budget, and Dade County is having some trouble with its budget too. I would say that next to the air we breathe, the most essential ingredient of life is revenue. And if you take all of this land off of the tax rolls—I am not taking any sides now, but I am trying to be subjective, my approach to this thing, I know you have a bunch of scientists on here, I believe I will pose as one, there is no expert on this subject, it is a new problem we are grappling with.

Please keep in mind we need taxes. And I read in the paper that if they took all of the land from Collier County they plan to take, they would take about half of the land on the tax rolls up there. I believe I read that, if I didn't read it I take it back, but I think I saw it in there.

I would like to present to you, Senator Jackson, Senator Chiles, and others, Mr. Fred W. Weller. Mr. Weller, make it succinct and telegraphic, will you, no filibustering.

Mr. WELLER. There has been a great deal of misrepresentation about our land quality and it is backed by many people, some with no authority, and have been misinformed, others we feel have been prejudiced against the landowners. This land is not swampland as many people have been led to believe. It varies in elevation from about 5 feet at places around the Loop Road, up to about 15 feet south of Alligator Alley. This is more elevation than where we sit here in this auditorium at this moment. So how can you characterize—

Governor WARREN. Would you say there is more elevation in some part of Coral Gables too, Mr. Weller?

Mr. WELLER. Yes.

Governor WARREN. Pardon me, Senator Jackson, I wanted to bring out facts.

Mr. WELLER. So how can you characterize it as a swamp, any more than the land under this auditorium is a swamp?

This land is all below the frost belt, where such crops as mangos and avocados can only be grown. The soil texture consists mainly of brown sand, muck, marl, and rock. The high pine Palmetto land is mainly brown sand with black loam and a rock base. The scrub cypress growth is mainly on a ridge sand with a rock base. The prairies are mainly marl. The need for good farmland in south Florida is great due to the diminishing farm acreage in the homestead area and the continued increase of agricultural products in Florida. I have personally seen such crops, squash, tomatoes, okra, wheat, potatoes, watermelons, mangoes raised on the land. I personally owned about 500 mango trees, nearly 5 years old, growing and producing 12 miles north of Monroe Station. This is excellent citrus land. It is below the frost belt.

There is also cattle raising north of Tamiami Trail and south of Alligator Alley.

Governor WARREN. Are you making the point this is not a swamp out here?

Mr. WELLER. Yes. There is a great deal of fine timber on some of this land north of Tamiami Trail and south of Alligator Alley, and pine trees do not grow on wet or swampland. These few factors mentioned and many others make this some of the most valuable land in the United States.

This is why the landowners are so strong against this land grant. They feel it was not right to take and still owe for land put into the park 13 years ago. If necessary, the landowners will protest this land grab all of the way to Washington. There are over 30,000 owners involved and affected, including a minority faction of Seminole Indians, many black citizens—

Governor WARREN. Do you think this might cause the Indians to have an uprising?

Mr. WELLER. And many Cuban citizens. The government, State and Federal authorities are going to receive a flood of mail protesting this land grab.

(The full statement of Fred W. Weller follows:)

STATEMENT OF FRED W. WELLER, ASSISTANT SECRETARY, LANDOWNERS CONSERVATION & PROTECTIVE ASSOCIATION INC., MIAMI, FLA.

LAND QUALITY AND VALUE

Honorable members of the committee: There has been a great deal of misrepresentation about our land quality and its value by many people. Some were not authorities and have been misinformed. Others we feel, have been prejudiced against the Landowners. (Example—moving of Shark River Slough on the map and Shevin's report on the desert.)

1. This land is not swamp land as many people have been led to believe. It varies in elevation from about six feet at places around the Loop Road up to about 15 feet south of Alligator Alley. That is more elevation than where we sit here in this auditorium at this moment. So how can you characterize it as a swamp any more than the land right here under this auditorium is a swamp?

2. This land is all below the frost belt where such crops as mangoes and avocados can only be grown.

3. The soil texture consists mainly of brown sand, loam, muck, marl and rock. The high pine palmetto land is mainly brown sand with black loam and a rock base. The scrub cypress growth is mainly on a rich sand with a rock base. The prairies are mainly marl.

4. The need for good farm land in South Florida is great, due to the diminishing farm acreage in the Homestead area and the continued increase of agricultural production in Florida.

5. I have personally seen such crops as squash, tomatoes, okra, sweet potatoes, watermelons, citrus and mangoes raised on this land. I personally own about 500 mango trees nearly five years old growing and producing just twelve miles north of Monroe Station. This is excellent citrus land because for another reason it is below the frost belt. There is also cattle raising north of Tamiami Trail and south of Alligator Alley. There is a great deal of pine timber on some of this land north of the Trail and south of Alligator Alley and pine trees do not grow on wet or swampy land.

CONCLUSION

These few factors mentioned and many other, makes this some of the most valuable land in the United States. This is why the landowners are so strong against this land grab. They feel the Government does not need it and feel it was not right to take and still owe for land the government put into the park thirteen and one-half years ago. If necessary, the landowners will protect this land grab all the way to Washington. There are over 30,000 owners involved and affected, including a minority faction of Seminole Indians, many black citizens, and many Cuban citizens. The Government—State and Federal are going to receive a flood of mail protesting this land grab.

Governor WARREN. Senator Jackson, we will rush along. I would like to tell you and Senator Chiles, on September 29, I traveled out in the Everglades Park, in what is known as a hole in the doughnut, with two representatives of the Federal Government, and they told us we might bring along hip boots and various other methods of swimming and taking care of high water. It was high and dry ground. It

looks to me like you could farm better than in the county I escaped from 40 years ago. That experience tells me just what I was in the Everglades, that they are not just a bunch of boggy, mired swamps.

I would like you to hear, Senator, now—I believe you have short rebuttals in the Senate. I believe we will have a short rebuttal from Nolan Poppenhager.

The CHAIRMAN. Governor, it will be necessary for me to leave in a moment. We will follow the record very carefully, and Senator Chiles will continue the hearing. As I indicated earlier, we will endeavor to hold another hearing in the State, and, of course, we will have additional hearings in Washington.

I want to express my appreciation and—

Governor WARREN. Senator, we would like to thank you for coming down here and sitting in on this hearing, and showing your concern for the public interest and the people of Florida. I don't want to be flippant about it, but it shows why you are like two other Polk Countians who have never been defeated in running for office. Your career, Senator, is so different from mine, it seems like we come from two different planets. I have run for office 11 times, have been defeated five times and elected six times.

We are happy to have you here and are grateful for the way you conducted this meeting and maintained order and good humor at the same time. If you want to leave at any time, of course, we won't take it as any offense at all, but Jim Pace, an immigrant from Kentucky is here, and this is the first time you will ever hear me say anything favorable about Kentucky. The original Jim was born in Kentucky, but he had the sense to move to Florida.

Mr. PACE. I am James Pace. This association was formed for the purpose of protecting the natural resources of the State of Florida, and also protecting the rights of our members and the landowners. The purpose of our organization is to be a pipeline to those people who have constructive suggestions to make for our government and for both our National, State, and local governments. We also want to be just as vociferous and to prevent any of this legislation that we think is harmful to the State as a whole and to the country as a whole and to our community. This is what we think about your park.

Governor WARREN. Will the gentleman yield for a question? Do you think it will be harmful to this area to take this land away from these people and make a park out of it?

Mr. PACE. I believe the committee is misinformed on that matter. It has been brought to your attention here, that the elevation—

The CHAIRMAN. Do you have any alternative proposals, or do you feel the entire area is not needed?

Mr. PACE. We believe the Fakahatchee Swamp is the only real swamp in the State of Florida, and I believe if you impound the area in which it now falls, before it gets to your national park, and put it behind the 68,000 acres of land that you have already in the park, set apart for a conservation area. This area has ditches from 12 to 18 feet high and will hold a lot of water. As you spread water out, if you pour a glass of water in the washtub and set it out in the sun it evaporates in an hour or two but if you set it out in a container it will set there for a week or so.

(The full statement of James G. Pace follows:)

STATEMENT OF JAMES G. PACE, PRESIDENT, LANDOWNERS CONSERVATION & PROTECTIVE ASSOCIATION INC., MIAMI, FLA.

Honorable members of the committee: I am James G. Pace, President of the Landowners Conservation & Protective Association Inc., a non-profit corporation, organized under the laws of the State of Florida. The purposes and aims of our organization are: 1.*—To conserve the natural resources of the State of Florida, and to protect the interests of our members and their property rights. 2.*—To oppose a confiscation of the property rights of our members by governmental agencies; or any other sources. 3.*—To work together with planning groups, conservation groups, legislative committees and governmental agencies—presenting facts and constructive suggestions in the interest of desirable and necessary legislation;—in like manner to oppose ill-conceived and thoughtless legislation that will be harmful to the Citizens of our community, the State and the Nation. 4.*—To offer our organization as a source through which legitimate complaints and constructive ideas may be transmitted to those persons, officials and legislators who should hear and listen to said complaints and constructive ideas.

As a new organization with more than twelve hundred hard working, sweating, productive, experienced members, we stand before you today for the purpose of presenting facts about this land of ours which your proposed senate bill 2465 would take from us. A bill that was, no doubt, hurriedly conceived in the frenzy of scare stories carried by a new breed of ecological experts, experienced and trained by their own desire to accomplish some outstanding feat of public service. Many of them are well-meaning and, perhaps, qualified, if one can become a qualified expert in a new profession in a very short time; but many others are listening to the new music and riding a fast moving bandwagon; these who have not ventured farther into the Everglades than a couple of miles and who wouldn't know a swamp from a low place in the ground; those who do not know that there is very little swamp in the 540,000 acres that your bill proposes to grab from its present owners; those who have not stopped to check the water flow and determine that most of the water from this area flows out into the Gulf before it can possibly reach the present National Park; those who have not checked a geodetic contour map to determine that the elevation of the major part of the land lying north of the Tamiami Trail is from eight feet to fifteen feet above sea level; that the majority of the land below the Trail is five and six feet in elevation; that the land in Miami Beach is between four and six feet; and that most of the land in Hialeah and Miami Springs, our second largest city, is six feet or less; that the land around West Miami and as far west as Florida International University is between six and seven feet.

Yet you will have testimony presented before your committee that the area of the proposed National Park is an area of useless swamp that must be preserved to hold our drinking water. The only way you can hold this water is to keep it from running down hill by building a dike or dam around the entire parcel. You already have 865,000 acres diked off and preserved for this purpose in Conservation Areas 1, 2 and 3. This area of impounded water from tip to tip is more than 55 miles long. Attached to this, we have Lake Okeechobee, the largest intra-state lake in the United States. Under all of this and under all of the balance of South Florida, we have a standing water table of at least 30 feet in depth which responsible hydrologists advise us is enough water to last the State of Florida for over twenty-five years without being replenished or recharged. It therefore seems that our community, our state and our nation would be better served by taking 10% of the cost of the project and devoting this fund to impounding the water that now runs off into the Gulf of Mexico and to the Atlantic, in the conservation areas that we now have (probably the largest area in the United States). If you take away all of the productive land, the people may find that they have plenty of water, but no bread or vegetables.

Now they will say to you and to us that the government is not going to grab our land, that they are going to pay for it; but they don't remember that when you take 545,000 acres of land off the market in a land-hungry area such as South Florida, and at one time, that the law of supply and demand works overtime and you can no longer buy land at a price you can afford and certainly not for the price you will get from the government. Let us tell you that the government is mighty slow to pay in this department. In 1957 or 1958 this branch of the government extended the boundaries of the Everglades National Park in Dade and Monroe Counties, but did not buy the land contained within these

boundaries. Let us tell you that there are still more than 3,000 owners of land that have not been paid one thin dime as of this very day; that these people have been paying taxes and other expenses of ownership on this land for about fourteen years, without one thin dime from the government that gobbled up their land fourteen years ago. The owners of this land worked hard and sweated long to accumulate this nest egg and we say to this committee that before you consider legislation to grab our land for a very questionable purpose that you first create positive legislation to pay for this land and not drag, kick and starve the present owners from ten to fifteen years to avoid paying them the value of the land which you propose to take. We know of no reason why the owners of this land should be required to contribute more towards a so-called national project than every other citizen of this State and of the United States.

We have a suggestion to make to your committee. The same suggestion that we will make to the Court if this bill should become law. "You don't need this land for the purposes for which you propose to acquire it". If you don't show a need for it the Courts won't permit you to take it even if you do pass this bill. We request that you back off and take a good, long, hard look at what you are about to do. The other side of the coin may be just as shiny and, certainly, more genuine.

Governor WARREN. Pardon me, I believe it is time for the Senator to go.

The CHAIRMAN. You go ahead.

Governor WARREN. We have Mr. Chism, Mr. Senator.

Mr. CHISM. Senator Jackson, you have heard all of the opponents—

The CHAIRMAN. I won't have time to hear the proponents. I will read the record.

Mr. CHISM. This represents 3,500 families, practically 100,000 people, you are about to take our land, and, Senator, if you know all of the facts, notice this map, this is the most dynamic thing in our evidence; this shows what is growing on the land; these are available from the county manager of Collier County, Mr. Turner. The dark area is cypress, the other areas are pine, and the way you see the Cypress Strand run, that is like a river valley, and used to be rivers before Lake Okeechobee was diked, and it brings the water in and you can see the direction it is running. Over toward your side is westward toward Everglades City. And this water is racing into the bays. The land above the Tamiami Trail is from 7 to 31 feet above sea level and many of us have worked out there for years, like myself. I only have 105 acres, but the thing that hurts me so deep down in my heart, and I want you to hear it, is to think this is not democracy that is happening here, and we are under a democracy and this is not according to our constitution.

The CHAIRMAN. Let me ask a question. Do you know of any other committee in the Federal Government that goes out and holds hearings on legislative bills? We are trying to bring democracy to the people. In fairness now.

VOICE. No; you are not.

The CHAIRMAN. I just want to say we are bringing a Senate committee right to the people, and in all fairness, I think the Governor will vouch for what I am saying.

Governor WARREN. Senator, this is the first time I have seen it done in 40-odd years.

Mr. CHISM. This issue is so important to all of the people of our Nation, and there are approximately 10,000 landowners from Latin countries who own this land and about 5,000 from Cuba, that sought

refuge from Castro, that bought this land. These people that left Castro felt they could get some kind of protection under democracy. When they come here and find a man who is trying to make a big political show for himself by taking our land away from him, our hard-earned land, taking away from us, after we worked for years now, out there. The land is sold now for \$20,000 an acre. Residential is sold for \$17,000 an acre. And Alligator Alley, it sells one-tenth of an acre for \$10,000. And here you think you are going to buy our land for nothing.

Governor WARREN. Senator Jackson said he had to leave at 4. Will you be kind enough to terminate—

Mr. CHISM. I am sorry. I have a message to take to him. We are going to take this all of the way to the U.S. Supreme Court. Actually, what he has done is worth millions of dollars' worth of publicity. We are going to insist that news agencies and Senators come out and see what they are taking away from us. It is not a swamp; it is some of the most beautiful land in the world. This is not democracy, and when you were a boy growing up and, Senator Chiles, when you were growing up, and all of us were growing up, we didn't have any idea that a thing like this would ever happen in our Nation.

Governor WARREN. Mr. Chism, with all affection for you, it has not happened yet, they are just holding hearings.

Senator, thank you for coming down.

The CHAIRMAN. Thank you.

Governor WARREN. Senator, I believe that concludes this panel, unless Mr. Widdersheim is here.

Mr. CHISM. Governor, I have something else all of the people should know.

VOICE FROM THE AUDIENCE. Let the man talk.

Mr. CHISM. I highly regard you, Senator Chiles. Senator Holland was the greatest man that ever came out of Florida. I know you want the facts; I invite you from the bottom of my heart to learn the facts. I invite you and your friend to come out and I will show you the area. Spend 5 or 6 days there. It will be one of the most delightful and exciting experiences of your lifetime. You will be surprised, you will travel for days over some of the finest pine and cypress land, and around Lake Okeechobee. I know you want the truth. I know you are a good, honest, hard-working man. We honor all of our great Senators from Florida. But when a Senator comes from Washington State and tries to run our business down here, that is not democracy. [Applause.]

Senator CHILES (presiding). Order.

Governor WARREN. This is the chairman of the subcommittee that is holding this hearing. I hope you won't make any uncomplimentary language.

Mr. CHISM. If he wants to use this as a sideshow to be President, I want the truth about it.

Senator CHILES. Mr. Chism, we are building a record here, and the record is going to be reviewed by the other members of the committee, and I think you should give us only facts.

Mr. CHISM. You are getting nothing but facts; the people across our Nation are losing respect for our Government, and it is going to pieces. What we need is something to build confidence in Washington.

Senator CHILES. Let me say in reply to your request that we will be happy to visit the site. I will be out to see it.

Mr. CHISM. I think, Senator Chiles, I think every Senator and every Congressman should not be permitted to vote to take our land unless he has spent at least 5 or 6 days getting the real facts right out here on this land. I believe that with all of my heart.

(The full statement of Ellis Chism follows:)

STATEMENT OF ELLIS CHISM, DIRECTOR OF RESEARCH, EAST COLLIER COUNTY, LAND-OWNERS IMPROVEMENT COMMITTEE, HIALEAH, FLA.

I, Ellis Chism, Director of Research for the East Collier County Landowners Improvement Committee, and a panel member, chosen by our Chairman, Dr. Jack M. Widdersheim, to represent the best interest of about 35,000 families who own land north of the Everglades National Park. This area is known as the Big Cypress.

I present to this Senate Panel, President Nixon, and all members of Congress, facts I gathered over a period of about 10 years from experts and natives of this area. I have spent much of this time actually traveling over this vast area of several hundred square miles.

This controversial national issue is so important I plead for each of the members of Congress to explore to their delight a trip you will never forget. You would then be qualified to make a better decision. About six days and nights would be needed to travel these several hundred square miles over the trails and logging roads in big-tired buggies which we can provide at exact cost and no profit to us.

Instead of traveling through swamps as you expected you will travel high elevated pine, palmetto and prairie land with a great portion of the time seeing some of the most fertile and desirable land of this state. You can travel for many hours without seeing a real low cypress strand, which is actually a river bed filled in before Lake Okeechobee was diked by the flowing flood waters. These low strands are 1 to 3 feet deeper than the adjoining higher lands.

Collier County forestry maps show a small percent of this area is cypress, and shows that the water flows southwest into the Gulf of Mexico before it reaches the main part of the Park. Water control could channel this water directly to where and when it is needed in the Park. These maps are available from Harmon Turner, County Manager of Collier County, Court House, Naples, Florida, send check to him in the amount of \$2.50 for each map. Most of this land is considered high elevated north of the Tamiami Trail, 7 to 31 feet above sea level, which is higher than most of the land on the Gold Coast of South Florida. This improved land at Ochopee by the Tamiami Trail recently sold to the builders of the Golden Lion Motel for \$20,000 per acre. Other land near here is selling for \$17,000 per acre for residential lots. Alligator Alley frontage is selling for \$10,000 for 1¼ acres. This land has the same potential value as the Gold Coast of Florida. An oil company recently paid almost \$300,000 for an acre near Disney World.

If this choice high elevated land is taken from these 35,000 families of which about 5,000 are Cubans who have sought refuge from Castro, property owners of our nation will never have any security. Let's protect the future for our children. These Cubans have been made to believe that Democracy will protect their God given rights.

This land developed with water control can give water to the thousands of ponds in the park where hundreds of millions of fish die every dry year. It is 37½ miles between two canals on the east and western edges of the park. The park officials will not let one canal enter the park as they do not want to be bothered with boats or people.

Only about 3% of the 2,188 square miles of the Park is being used and about 4,500 families own 78 square miles (50,000 acres) of this Park which has not been paid for even though this land was added to the Park over 13 years ago. Some of this land with 100-foot frontage on the Bay cost owners \$3,000 per acre.

Enough water is being wasted by flowing into the ocean to supply millions more of people for many years. If paid conservation leaders can continue to mislead and profit for themselves they will continue to spread hysteria. They seem to not be interested or concerned by the pollution and tragic crimes caused by our overcrowded cities.

Millions of families living in these overcrowded cities should be encouraged and helped by every state to own and develop acreage in thousands of new communities. I am from a small town in Alabama and many of my people were farmers. This background makes my life rich in great experience and happy memories.

Many thousands of our cities and towns of our nation are affected by the water flow and pollution of the higher elevated cities and communities. No authority would dare suggest that we close these higher elevated sections making them useless. But this is exactly what is happening in South Florida. Intelligent leaders are giving in to hysterical people.

Crime is a threat to our very existence. What greater crime can be against people than to take this land where they planned and dreamed to live the balance of their lives in this choice climate and location of our nation?

The good rock fill of this vast area will gross \$40,000 or more per acre yielding a profit of \$15,000 or more per acre. Many oil wells in this big cypress area are richly producing. Actually this area could become the most desirable of our nation for millions of wonderful people to retire in. These great citizens of our nation deserve the best that God and man can provide for them.

Senator JACKSON, if you will seek only the true facts and let the nation know you are not going to be swayed by hysterical groups, you can prove that you are the man to lead our people. An honest, God fearing, God loving man will change his mind if he finds out he has been misled.

May God bless you and guide you.

Senator CHILES. Governor, is this the conclusion of the panel?

Governor WARREN. I believe that concludes the panel. Thank you very much for hearing us.

The CHAIRMAN. We will go forward now with the panel of conservationists. If they will come forward at this time, we will hear from them.

Senator CHILES. Mr. Scott, are you going to act as moderator?

**STATEMENT OF THE PANEL OF CONSERVATIONISTS, INCLUDING
HAL SCOTT, EXECUTIVE DIRECTOR, FLORIDA AUDUBON SOCIETY;
ED T. LaROE, TED MORRELL, RANDY JONES, SOUTHEAST REPRESENTATIVE, FLORIDA CHAPTER, SIERRA CLUB; JOE BROWDER,
FRIENDS OF THE EARTH, AND THE NATIONAL EVERGLADES
COALITION; MRS. LEONARD KIRBY, JUPITER ISLAND GARDEN
CLUB**

Mr. SCOTT. Senator Chiles, thank you very much for the opportunity to testify with respect to this bill. The people we have here are Mrs. Leonard Kirby, Jupiter Island Garden Club; Mr. Ted Morrell, Randy Jones from Tampa, and Mr. Joe Browder with whom you are well acquainted, and he is speaking for members of the Everglades Coalition.

I would like to first read a very short letter that was received from Frank Ridley, the president of the Collier County Audubon Society. His letter says:

My board, representing a membership of more than 2,200 people, has directed me to write you adding our enthusiastic endorsement and support for your bill to purchase in the name of the people of this country the area known as the Big Cypress Watershed. Beyond the great contribution of saving for the present and future generations the beauty and natural productivity of a unique area of the world, your plan could be paramount in the solution of one of Southwest Florida's most critical problems of the present and future, and that is an adequate supply of fresh water.

As the executive director of the Florida Audubon Society, and for the National Audubon Society, I would like to present the following statement.

The Florida Audubon Society and its 25,000 members support Senate bill S. 2465, and urge its prompt enactment. It deals with an area of great importance to the people of Florida and to all citizens of these United States.

The Big Cypress watershed is the vital underpinning of an ecosystem which provides critically important esthetic and economic benefits to the south Florida gulf coast. It provides approximately 56 percent of all outside water to the Everglades National Park; it serves as a source of fresh water and nutrient supply to the estuaries of the park and the Ten Thousand Islands; and it functions as a natural water conservation area to recharge the shallow aquifer from which the rapidly growing communities of southwest Florida draw their fresh water.

In an area already experiencing explosive growth, in a State in which the existing parks and forests are being subjected to ever-increasing pressures, the Big Cypress watershed offers important recreational opportunities. Here one can find a wilderness landscape whose flora and fauna are beautiful and unique. The area's mild climate provides recreational opportunities almost impossible to find elsewhere.

The "Leopold Report"—Environmental Impact of the Big Cypress Swamp Jetport, U.S. Department of the Interior, September 1969—indicates that nearly every wildlife species native to semitropical Florida can be found in the swamp, including 17 classified as "rare" or "endangered" by the U.S. Fish and Wildlife Service.

The need to provide healthy, exciting, and meaningful activities for our citizens and for tourists can be admirably met by wise use of the Big Cypress Swamp. To attempt at a later date and at far greater cost to provide far less adequate recreational areas would be economically and esthetically shortsighted.

If we are to protect this unique resource, it is important to recognize the potential hazard presented by oil exploration and drilling in the Big Cypress.

If oil production is to be allowed, I urge you to control such activities to no less an extent than is provided for in the July 6, 1971, resolution of the Executive Board of the Department of Natural Resources of the State of Florida.

Local support of the bill to establish the Everglades-Big Cypress National Recreation Area has been evidenced in resolutions passed by the eight chapters of the Florida Audubon Society representing the more than 7,000 members who live nearest the area under consideration.

The Tropical Audubon Society of Miami, with 2,267 members, and the Collier Audubon Society's 2,249 members have already communicated their enthusiastic support of the bill to the subcommittee.

Enactment of S. 2465 will preserve an area of great importance to the well-being of south Florida. Of far greater importance, however, it will serve notice to all who care that the United States—the first nation to establish a national park—has no intention of being the first nation to destroy one.

I would like at this time to ask Mrs. Kirby to present her statement.
 MRS. KIRBY. I have a statement that I would like incorporated in the record.

Senator CHILES. We would be delighted to incorporate it in the record.

Mrs. KIRBY. The Jupiter Island Garden Club of Hobe Sound, Fla., a member club of the Garden Club of America, wishes to go on record in support of the Jackson-Chiles Senate bill 2465. The importance of supporting this bill is known to all here; that is, to save the Everglades, to protect the water supply for Florida's west coast and to protect the spawning grounds for many, many species of fish and shellfish.

Thank you.

(The full statement of the Jupiter Island Garden Club follows:)

STATEMENT OF MRS. LEONARD KIRBY, CONSERVATION CHAIRMAN,
 JUPITER ISLAND GARDEN CLUB, HOBE SOUND, FLA.

The Jupiter Island Garden Club of Hobe Sound, Florida (a member club of the Garden Club of America which has clubs from Coast to Coast as well as the State of Hawaii) appreciates the opportunity to make the following statement in support of the Jackson Chiles Bill S 2465.

Florida's hammocks, swamps, rivers, lakes, estuaries and Everglades have been ravished for hundreds of years by shell collectors, feather fanciers, alligator poachers, land drainers and real estate promoters.

Now, at last, we have a chance in this Bill S 2465 to save the Big Cypress watershed by Federal purchase.

What this means and its great importance has been presented by many witnesses at this hearing. And to re-emphasize the importance of this Federal acquisition I quote from the Bill itself.

"It's the most complete way of protecting the key link to the survival of the Everglades Natural Park", of saving the Big Cypress watershed, protecting the fresh water source for the Ten Thousand Islands, maintaining a natural "water conservation area" and also protecting the spawning grounds for many, many species of fish and shell fish.

I have travelled in this area by boat as well as by car many weeks each year for over 25 years and know much of its beauty, mystery and wildlife.

We respectfully urge the Federal acquisition of this Big Cypress watershed not only to protect its ecosystem but also for its recreational and water supply resources.

Senator CHILES. Thank you.

Mr. SCOTT. Now, Dr. Ed LaRoe.

Mr. LAROE. I have been contacted by some hunters, sportsmen, conservationists, and just plain concerned citizens, and we all enthusiastically support your bill.

We are concerned about the benefits, not just for wildlife but the benefits to man himself. The Big Cypress has many values. The foremost of these is the water resource.

I would like to speak of the problem of land and tax loss mentioned earlier. The statement was made earlier, you must speak to the facts, and I intend to do so.

An earlier speaker talked about the tax loss of 547,000 acres, of which 467,000 acres was in Collier County. I would like to point out your bill represents the purchase of 202,000 acres, and only about 350,000 acres are in Collier County, not 460,000.

It is my feeling, based on examination of the county tax record—I emphasize I have not added the entire area, and I have made spot checks of the tax records—the county tax loss is being exaggerated by

two or three times. The tax that the county collects are for services the county provides, roads, police protection, schools and so forth. At budget hearings this fall, the county sheriff complained about the time and expense of patrolling this area. If this bill is passed, they would no longer have the need for the tax money.

Recent studies have repeatedly shown that in a growing community the revenue collected from taxes never equals the expenditures for the expanding public services.

In conclusion, I would like to say that too frequently we have viewed land as a resource, the sole value of which lies in its potential for development. I would like to see the land used for other values, and we can use it for a long-term rather than short-term.

Mr. SCOTT. I would like to present Mr. Randy Jones.

Mr. JONES. My name is Randy Jones. I am the southern representative of the Sierra Club. I would like to thank the committee for its kind invitation to appear here today.

Florida's most important natural resource, water, is at the heart of the environmental problems facing south Florida today, and this proposed legislation.

We are experiencing today, the results of years of mismanagement of water in south Florida. While the Everglades have been dying of thirst, many land developers have had plans of massive developments that would choke the flow and degrade the quality of water that flows to the south, the essence of life to Everglades National Park.

The importance of Big Cypress, not only to the Everglades, but to the whole environmental and economic structure of south Florida, has been well documented.

I would like to leave my statement here and commend Secretary of the Interior Morton and Assistant Secretary Reed for helping to prepare the Department of the Interior report.

(The complete statement of Mr. Durand Jones follows:)

STATEMENT OF A. DURAND JONES, SOUTHERN REPRESENTATIVE OF THE SIERRA CLUB

My name is Randy Jones, I am the Southern Representative of the Sierra Club. I would like to thank the committee for its kind invitation to appear here today.

Florida's most important natural resource, water, is at the heart of the environmental problems facing south Florida today, and this proposed legislation. We are experiencing today, the results of years of mismanagement of water in south Florida. While the Everglades have been dying of thirst, many land developers have had plans of massive developments that would choke the flow and degrade the quality of water that flows to the south, the essence of life to Everglades National Park. The importance of Big Cypress not only to the Everglades, but to the whole environmental and economic structure of south Florida, has been well documented. The need for the protection of the area has been established, and only federal acquisition can provide and fulfill the level of protection this critical area needs.

Federal acquisition, in itself, is not a panacea for protection of the area. It must be administered, no matter what its classification, in a way that will insure protection of the area's most important values. Big Cypress will be most beneficial to all of us, and Florida, if it remains wild and natural. The values of the watershed would be greatly reduced if any additional roads or structures were built in the area. The exploration for, and development of oil could seriously threaten these values. Congress should act, to permanently insure the protection of this unique watershed, by banning the exploration and development of oil within its boundaries. This ban should be incorporated into this legislation.

We are turning the corner in Florida, in the fight for the environment; the acquisition of Big Cypress would be a major step toward fulfilling the environ-

mental needs of south Florida. The committee has before it, in S. 2465, an excellent bill, and the Sierra Club strongly endorses it, and thanks Senators Chiles and Jackson for taking the leadership in Congress toward protection of Big Cypress.

Mr. JONES. The need for the protection of the area has been established, and only Federal acquisition can provide and fulfill the level of protection this critical area needs.

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Congress should act to permanently insure the protection of this unique watershed by banning the exploration and development of oil legislation.

We are turning the corner in Florida. In the fight for the environment, the acquisition of Big Cypress would be a major step toward fulfilling the environmental needs of south Florida.

The committee has before it in S. 2465 an excellent bill, and the Sierra Club strongly endorses it, and thanks Senators Chiles and Jackson for taking the leadership in Congress toward protection of Big Cypress.

We would like to sincerely thank the administration for coming out last week in favor of acquisition of the Big Cypress.

I would like to thank you, in closing, Senator Chiles, for your outstanding work in the field of environment and conservation.

Senator CHILES. Thank you, sir.

Mr. SCOTT. Senator Chiles, Mr. Joe Browder, whose efforts on behalf of Florida and south Florida in particular are well known to you, will now speak as conservation director of Friends of the Earth.

Mr. BROWDER. Thank you, Mr. Chairman.

I am Joe Browder, conservation director of Friends of the Earth, and special representative of the Everglades Coalition.

This statement is made in behalf of all those organizations that have worked together in defense of the Everglades and the Big Cypress since the beginning of the controversy over the Everglades jetport. That includes two national conservation organizations.

Florida is my home, and I have been close enough to the Everglades and its problems for the last 10 years to recognize the contribution that you and the committee have made to the preservation of the Everglades.

It would be unfair to characterize these hearings as political in nature. I think that the committee's record and Senator Jackson's record as having a longstanding sincere interest in the park is pretty well established.

We are grateful for your continued interest, and for the committee's patience in dealing with this difficult and complex issue. It was hearings by this committee, called by Senator Jackson in 1969, that focused national attention on the Big Cypress. Your inquiries helped expose the dangers to the Everglades from the proposed Big Cypress jetport, and the water management policies of the Corps of Engineers.

Congressional support of President Nixon's order halting construction of the jetport, and successful resolution of the water conflict between the corps and the national park, can both be attributed in large part to the work of this committee.

It is understandable that the committee might begin to wonder how many times, and at what expense, the Congress is going to be called on to save the Everglades. The park has been a source of conflict and controversy since its authorization almost 40 years ago.

Most, if not all, of the troubles can be associated with early decisions to try and preserve the lower Everglades without protecting the upper portion of the natural drainage system. Painful as the process of correcting that mistake may be, the evidence introduced today should demonstrate without question that maintaining the integrity of the Big Cypress and the Everglades is essential to the environmental, economic, and social well-being of south Florida. And to the degree that the Everglades is a natural resource of value to the Nation and the world, we cannot afford to write off our considerable existing investment in the National Park.

But in case anyone should respond that, considering today's grave economic problems, we also cannot afford to tap the public treasury for more millions for the Everglades, I hope this committee will be able to document the true economics of the only alternative to acquisition.

For, if the Big Cypress is not acquired, traditional economic and political pressures will lead to its drainage and development. It would be naive to believe that these pressures would fail to follow the typical pattern of so-called public works water management improvements in Florida.

In a hopefully premature anticipation of such developments, the Corps of Engineers concluded several years ago that the Big Cypress could be opened up for commercial use—if much of the land we are now considering for preservation were to be purchased and impounded, and if more canals were built to drain the upper Big Cypress.

So, the choice before us is simple. Either the country will decide now to make an investment in order to protect all that we know a natural Big Cypress represents, or we will sit back and allow inevitable pressures generate a narrow economic constituency that will successfully demand an even more costly investment in destruction.

The Everglades Coalition support the Federal acquisition of the Big Cypress. We are glad to see that the bill introduced by you and Senator Jackson provides for the rights of the Miccosukee and Seminole Indians and encourages hunting and other recreational uses. These compatible activities by man in the Big Cypress are just as much a part of the Everglades system as any other natural functions, and are just as deserving of protection.

I think it is particularly important that the committee pay attention to that. It is regrettable that the government has a history of forgetting the commitments to existing users. And it is important that this committee, in whatever form the legislation finally takes, considers the rights of the hunters and the Indian tribes.

We also commend to you the diligence of Secretary of the Interior Rogers Morton and Assistant Secretary Nathaniel Reed in carrying out the studies that so adequately demonstrate the need to protect the Big Cypress.

President Nixon deserves high praise for recognizing that acquisition is the way to accomplish such protection. The Everglades Coalition has not yet had the opportunity to give as much serious consideration as is due the President's suggestion that the Big Cypress should be managed by the State of Florida. But speaking for Friends of the Earth, I believe the State, and particularly Governor Askew and Attorney General Shevin, should be thanked by all of us for making an extra effort to see that the State of Florida meets more than its share of the responsibility for protecting the Big Cypress.

We urge the committee to give its most serious attention to the bill introduced by Senators Chiles and Jackson, and to the proposal forthcoming from President Nixon, and move quickly to report out legislation that will, with the leadership of your counterparts on the House committee, assure the survival of the Big Cypress, the Everglades, and a prosperous south Florida.

Thank you.

Mr. SCOTT. Thank you.

I think to be perfectly clear, to them and all of us, in a democracy, we are all frequently asked to voluntarily commit many constraints in the interest of a common good. We have to understand that the common good sometimes requires that land be utilized in the way individuals perhaps may not desire it to be used. We are no longer a nation of 25 million, we are a nation of 205 million, and we must act in this fashion.

I think Governor Askew and the attorney general have demonstrated clearly how the people of Florida feel about this matter.

I want to thank you and Senator Jackson for providing the leadership. Thank you very much.

Senator CHILES. I would like to say at this point that the letters of many other conservation groups supporting this measure will be printed in the appendix. The next witness will be Mr. Buffalo Tiger, of the Miccosukee Tribe of Florida.

STATEMENT OF BUFFALO TIGER, CHAIRMAN, MICCOSUKEE TRIBE OF INDIANS OF FLORIDA

Chairman BUFFALO TIGER. Thank you, Senator Chiles.

Really, I have witnessed what has been going on here today, and realized how valuable the land is. I shouldn't say this, but I would like to make you realize how we feel about taking land away from the people. Indian people usually make jokes on situations and sometimes laugh about it, so I am glad I was invited today, with my friend here.

We have a statement here to make. We would like the statement in the record—it is a short one—but I want the statement to be clear, so I ask him to read it and read it fast, because we have got to get away from here pretty quick.

Mr. REHBEIN. The Miccosukee Tribe, which has lived in the Everglades area for two centuries, and today is still there, has a deep interest in the preservation of this unique land. I am therefore grateful for the opportunity to express to you the views of my people on the proposal to preserve the Big Cypress area for the benefit of future generations.

Our position includes the following: There are presently seven Indian campsites in Collier County. The number of Miccosukee camps will probably increase but the tribe intends to regulate the campsites to preserve scenic and cultural values. These camps are used not only as homes, but also for tourist business purposes. Families have lived on these sites for a long time, and some even hold deeds to the land. (Many non-Indian landowners are also in this area.) There are two or three green corn dance grounds—sites—in Collier County.

We ask for changes to be made in the bill—

1. In section 6 our rights to use the Big Cypress area for hunting, fishing, and trapping and for religious purposes are preserved. We are very grateful for this provision. However, we wish to point out that Miccosukee Indians have lived for many years in residential campsites inside the proposed recreation area. The rights of these Miccosukees to continue to occupy their traditional campsites just as they have in the past could easily be protected by adding the phrase "and residential campsites" at the end of section 6.

2. Miccosukees should be given the first opportunity to develop recreational plans, without a time limitation.

3. Continuation of privileges without necessity of licenses.

4. Miccosukee people have always used natural materials in chickee building and craftmaking. We would like to continue this privilege.

CONSERVATION AREA NO. 3

April 5, 1960, brought assurance by the board of commissioners of State institutions, to all Florida Indians for conservation of native religion, customs, traditions and economy in their native habitat. Areas of land for commitment are within Dade County Conservation Area No. 3. Year-round privileges for hunting and fishing are upheld for Florida Indians, as well as the right to take frogs for food consumption or sale, use of hammocks for campsites and use of air-boats for tourist rides. In addition to use of hammocks for campsites and farming, we would also like to use them for educational purposes. (Our Indian youth, as well as non-Indians, need the knowledge of nature).

The State of Florida has dedicated three sites in perpetuity to the Miccosukee Tribe for enterprise development. Currently a service station, grocery store, and restaurant are in operation. Future plans include a motel and trailer park/campgrounds.

As you know, we have 25 homes and a day school adjacent to Everglades National Park on the south side of U.S. 41. This area is 500 feet wide and $5\frac{1}{2}$ miles long. Future plans call for additional homes in this area. Necessary buildings for tribal needs are also yet to be constructed, as soon as possible.

Within Conservation Area No. 3 we have nine camps occupied—other camps for farming. Future plans will provide additional camps.

THE MICCOSUKEE TRIBE WOULD LIKE TO SUGGEST TO THE U.S. GOVERNMENT
THE PURCHASE OF CONSERVATION AREA NO. 3

Our reasons have previously been mentioned within testimony for preservation of the Big Cypress area. We feel Conservation Area

No. 3 is in need of heavier protection. The status of this area should be set up the same as the Big Cypress Swamp area.

Every effort should be made to protect Everglades Big Cypress and Conservation Area No. 3—water, wildlife, and nature. You know the Miccosukees have been living in this part of the country for centuries. Today, Miccosukees are still here.

Senator CHILES. Mr. Tiger, I appreciate your coming before this committee today and representing your tribe, and we appreciate your remarks.

Next we will hear from a panel of sportsmen's groups, chaired by Mr. John C. Jones, Florida Wildlife Federation.

STATEMENT OF THE PANEL OF SPORTSMEN'S GROUPS, JOHN C. JONES, PRESIDENT, FLORIDA WILDLIFE FEDERATION; F. H. FARRAR, SOUTHEASTERN FIELD REPRESENTATIVE, NATIONAL WILDLIFE FEDERATION; O. E. FRYE, FLORIDA GAME AND FRESH WATER FISH COMMISSION; C. R. STONE, VICE PRESIDENT, FLORIDA WILDLIFE FEDERATION, REGION 4, EVERGLADES AREA; AND MR. PRATT, SPORTSMEN'S INFORMATION SERVICE OF FLORIDA

Mr. JONES. Senator Chiles, I would like to thank you on behalf of the Florida Wildlife Federation for allowing us to come and testify.

The Florida Wildlife Federation has 30 sportsmen's clubs in the Everglades region. However, most of our people could not come today. Most of them have sent in testimony to be entered into the record. Some of them have not got the testimony in yet. Can we send it in after?

Senator CHILES. Yes, these hearings will remain open.

The chairman indicated that an additional hearing will be held in Washington, probably in April.

Mr. JONES. Thank you.

I have asked Dr. Frye to come with me, the director of the game commission here. Then I have Mr. Stone, Everglades Conservation Club, Mr. Pratt of the Sportsman's Information Service of Florida.

At this time I would like to read to you a brief statement which, I think, sums up the feelings of our affiliates in Florida. I would ask each one of these people to give you a brief statement.

The Florida Wildlife Federation supports S. 2465, and the purchase of the Big Cypress Swamp. The lifeblood of south Florida is water, and the preservation of this area as a watershed is necessary to the survival of south Florida as we know it. Everglades National Park will perish without it, the fishing resource will suffer without it, but most of all, man will suffer without it.

Hunters, fishermen, campers, birdwatchers and others have long been fascinated with the Big Cypress area. They were aware of its value as a haven for wildlife, as well as a haven for man.

Long before developers began to think in terms of subdividing or land speculation or jetport sites the hunters and fishermen had come to love the Big Cypress. They loved it because of its unique beauty, its teeming wildlife, for the hunting and fishing opportunities, but perhaps most of all for the solitude it offered.

Here was a last frontier, for in spite of its beauty the Big Cypress was a place where man still had to pit his ability to survive against the elements. Arduous trips of 4 to 5 hours through mud, sand, mosquitoes, and over rough country brought you to camp. That was under good conditions. If you got stuck or broke down, the 4 or 5 hours stretched to 10 or 12.

Some campers like to "flour sack" it. That meant a little flour, some oil, and living off the land for days at a time. These people experienced these hardships because of an intense love of this area. To them it is a way of life.

South Florida is the fastest growing area in the Nation. The Big Cypress is of primary importance from a purely recreational standpoint. With Florida growing at a rate of 2,000 families per week, and with an ever-increasing number of tourists, we must provide recreational opportunities. The more urbanized we become, the more we need the solitude and refreshment found in the quiet of the woods.

The Big Cypress flora and fauna must be protected and we urge the Florida Game and Fresh Water Fish Commission be charged with its management.

We would insist on the public's right to use rubber-tired vehicles, for without a guaranteed right to transportation man could not enjoy this area.

The Florida Wildlife Federation has a list of recommended additions.

Senator, you have a long list of these, but I have cut it down to briefly tell you what it is about.

Senator CHILES. We will enter the total list in the record, but I would be glad to have your statement.

Mr. JONES. One, people who own land may keep as much as 40 acres for themselves and their heirs, so long as it is open to the public and it is undeveloped in any manner, and it may be used for camping. If a landowner wishes to sell it, it must be sold to the Federal Government at 1971 fair market prices.

Two, guaranteed right to rubber-tired vehicles. We have strong feelings about that, Senator.

Three, public be guaranteed the right to hunt game species, fish, and camp under the rules and regulations of the Florida Game and Fresh Water Fish Commission, and that this agency in cooperation with other appropriate agencies be responsible for the management of all fish and wildlife.

That is the end of my statement, and at this time I would like to ask that Dr. Frye, the director of the commission, make a brief statement.

(The recommendations referred to follow:)

(Comments and Recommendations of the Florida Wildlife Federation)

EVERGLADES-BIG CYPRESS NATIONAL RECREATIONAL AREA

Comments related to certain sections and provisions of the Bill No. 2465 introduced on August 6, 1971 by Senator Chiles and Senator Jackson to permit the United States Government to purchase the Big Cypress watershed in Collier County, Florida.

SEC. 3a—Change Section 3a to read: "The owner of improved property may retain for himself and his heirs and assigns a right of use and occupancy of the improved property for noncommercial residential purpose in perpetuity."

SEC. 3b—Change Section 3b to read: "As used in this Act the term "Improved property" means a detached, one-family dwelling, including hunting camps and vacation residences, construction of which was begun prior to enactment of this bill, which is used for non-commercial residential purposes, together with not to exceed forty (40) acres of the land on which the dwelling is situated, such land being in the same ownership as the dwelling, together with any structures accessory to the dwelling which are situated on such land."

SEC. 5b—Add to Section 5b: "Owners of improved property within the subject area shall be allowed access and egress to their property by wheeled rubber tired vehicles or other approved equipment for transportation."

SEC. 6—Change Section 6 to read: "The Secretary shall permit hunting, fishing, and trapping on lands and waters under his jurisdiction within the recreation area in accordance with applicable laws of the State of Florida and of the United States, except that he may designate zones where and establish periods when no hunting, fishing, or trapping may be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment. Except in emergencies, any regulations of the Secretary to carry out the purposes of this section shall be issued only after consultation with the Florida Game and Fresh Water Fish Commission. Notwithstanding this section or any other provision of this Act, members of the Miccosukee Tribe of Indians of Florida and members of the Seminole Tribe of Florida may continue their usual and customary use and occupancy of lands and waters within the recreation area, including hunting, fishing, and trapping on a subsistence basis and traditional tribal ceremonials."

SEC. 7—Change Section 7 to read: "Notwithstanding any other provision of law, the Secretary may enter into cooperative agreements with the recognized tribal governing bodies of the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida, for the construction and operation by such recognized Indian tribes, or their assigns, of revenue-producing facilities and services for visitors to the recreation area. Such agreements may provide that all or an appropriate portion of the net receipts may be retained by such Indian tribes or their assigns shall be subject to such standards, terms, and conditions as the Secretary may establish and may be conducted only at locations designated by the Secretary. Commercial establishments inside the recreation area which have existed a minimum of five (5) years prior to enactment of this bill will be allowed to continue operation so long as they comply with the intent of this bill. Before entering into any other contract for the provision of revenue-producing visitor services of facilities for the recreation area, the Secretary shall give the governing bodies of such Indian tribes recognized by the United States ninety days in which to enter into a cooperative agreement pursuant to this section for the provision of such visitor services or facilities."

Senator CHILES. Dr. Frye.

Dr. FRYE. I have submitted a written statement. I would like to make a few comments.

I think the value of the area as a wildlife and recreational area has been fairly documented today. I don't see the point in my enlarging upon this, except to say we completely endorse the acquisition of this area.

We think it is the most important step of the business of managing the natural resources of this State.

We have worked in Big Cypress a great deal, we are quite familiar with it. In any way we can help, our agency can help, we offer you our assistance. We are with you.

I have been quite concerned today about some statements made. Apparently, there is this feeling still prevalent in Florida that it is possible to develop every square inch of the State. We thoroughly disagree with this. The resources are not here, the water resources are not here.

I would like to make one comment about something that has not been pointed out. The most important single State function facing us is somehow to bring about rural zoning. We have accepted urban

zoning for many years. Somehow we must properly plan for our rural areas, see that property areas will be set aside for residential, areas for wildlife and agriculture. I think this is most important.

I want to make one final comment, and this is that we urge that every possible step be expedited. I believe that every day that goes by, we are losing a little more impetus.

I think that about covers it, Senator. Thank you for the opportunity of being with you.

Senator CHILES. Thank you, sir.

(The full statement of Mr. Frye follows:)

STATEMENT OF O. E. FRYE, FLORIDA GAME AND FRESH WATER FISH COMMISSION

The Florida Game & Fresh Water Fish Commission heartily endorses the concept of the acquisition of the Big Cypress Swamp in Collier County by the Department of the Interior. This is in recognition of the importance of this area as a wilderness area with its unique flora and fauna. This area is an important outdoor recreation area for the megalopolis of south Florida. These recreational opportunities include many forms such as bird watching, camping, hiking, fishing and hunting. These recreational uses need to be controlled by proper regulations and enforcement, preferably by appropriate agencies of the State of Florida. The Game and Fresh Water Fish Commission has personnel and experience in this area and this type of operation.

We urge the agencies involved and Congress to use all speed possible in the acquisition of this area since it is now being developed at an alarming rate. The sooner this can be acquired the more of the natural habitat can be saved from destruction.

We recognize from training and personal experience the uniqueness of this area from having camped, hunted, hiked, surveyed, and flown over it during all seasons. The people of this country cannot afford to miss this last opportunity to acquire the Big Cypress Swamp.

Mr. JONES. I would like to introduce at this time Pete Farrar, National Wildlife Federation.

Mr. FARRAR. Senator, I have filed copies of my statement. I would like to read just a portion of it.

Everyone is aware of the "people" problems of south Florida with its space and water problems that the increased population brings.

For many years the sportsman has seen areas in which he could hunt and fish being taken up by other uses. The area which is now Everglades National Park once afforded hunters and fishermen an abundant source of recreation. When the park was established this forced the users to seek recreation elsewhere. In recent years, encroachment of open areas by extensive farming operations and housing developments have seriously curtailed outdoor recreation.

The Big Cypress watershed, together with the conservation areas, is the last undeveloped area where hunters, fishermen, and campers can still enjoy a quality outdoor experience, and not seriously affect the valuable water storage abilities of this unique area.

The Governmental ownership in the form of a national recreational area would guarantee water for the park, preserve stands of virgin cypress for future generations, and under proper management by the Florida Game and Fresh Water Fish Commission, in cooperation with other resource agencies, provide needed recreation for all outdoor enthusiasts.

Mr. Chairman, for these reasons we heartily support S. 2465, and thank you very much for the opportunity to be here.

(The full statement of Mr. Farrar follows:)

STATEMENT OF F. H. FARRAR, SOUTHEASTERN FIELD REPRESENTATIVE OF THE
NATIONAL WILDLIFE FEDERATION

Mr. Chairman, I'm F. H. Farrar, southeastern field representative of the National Wildlife Federation. We appreciate this invitation to make a few comments at this field hearing on S-2465, a bill to establish the Everglades Big Cypress national recreation area in south Florida. Also, we would like to commend this subcommittee on parks and recreation, Senate committee on Interior and Insular Affairs in its decision to hold this field hearing, and its consideration of the views of sportsmen in this area.

Everyone is aware of the "people" problems of south Florida with its space and water problems that the increased population brings.

For many years the sportsman has seen areas in which he could hunt and fish being taken up by other uses. The area which is now Everglades National Park once afforded hunters and fishermen an abundant source of recreation. When the park was established this forced the users to seek recreation elsewhere. In recent years encroachment of open areas by extensive farming operations and housing developments have seriously curtailed outdoor recreation.

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Mr. JONES. At this time I would like to introduce Mr. C. R. Stone. His area covers everything in the Everglades region.

Mr. STONE. Senator Chiles, it is nice to be here. I am not going to try to cover all of the stuff. You have the papers in on my comments and recommendations on your bill.

I would like to say this, to give you a history, I have been in the Everglades for 37 years. I am a landowner out there. I have a small piece of land that I own and I have a large piece of land that I lease.

Now, I was appointed by the Federation of Wildlife recently, several years ago, as the chairman of the committee to try to see what we could do towards saving it, and I went into it—not being a naturalist or anything, I am in the electrical business. I don't profess to be a naturalist or anything.

So, I went into it to get information from Mr. Art Marshall and other people of his caliber—I went into it deeply. It is hard for a landowner to come up and say, well, I can make me a lot of money on this land and turn it down. But that is just what I did. After talking to people that—it has been folks in here, and everyone agrees, that have made a study of it. We have only one choice. We have to save that water. We do have this choice. We have to save the wildlife and we are going to have to sacrifice ourselves for it.

We are affecting all of south Florida, the people for future generations. It won't happen tomorrow or next year, it would happen over a couple of years. It is going to happen sooner than we think. I base this on the studies I have made and the information I have gotten from people who know.

So, I say to you, Senator, that this one thing that we don't want, we don't want a park as such like we had before, because we can't use a park. This land needs to be used by people, but it needs to be used in the right way, so we preserve the Everglades, the Big Cypress, which we only have one of, and preserve the water.

We cannot have development, we cannot have it, as bad as some people would like. You have all of my papers and little things, which I know you are studying, and I would appreciate it if you study them again.

I would like to go on record as chairman of this committee, vice president of the Federation of Region Four, that I support your bill in its entirety with the exception of the small amendments which I have written to you heretofore.

Thank you.

Senator CHILES. Thank you.

(Material submitted by Mr. Stone follows:)

FLORIDA WILDLIFE FEDERATION,
West Palm Beach, Fla., October 22, 1971.

NATHANIEL REED,
Assistant Secretary, U.S. Department of Interior,
Washington, D.C.

DEAR NAT: Attached hereto is a copy of Senator Chiles' and Senator Jackson's Bill # S. 2465 together with my comments.

The basic idea is sound and of high purpose. I have spent hours studying this bill and have no quarrel with its concept. As we Conservationists all know we must save the Big Cypress watershed at any cost for ourselves and for future generations. The watershed must be protected against developers, speculators, and any other form of devastation if South Florida is to survive.

I have made a personal survey of the landowners in the watershed and found that the vast majority of those contacted would agree to the concept of this bill. However, it is the general consensus that there are many details of this bill which could be broadened without changing the concept and intent of it and would better serve the citizens of this area.

Will you please study my suggestions and if you agree please exert your influence to bring a proper and workable bill into committee.

Sincerely yours,

CAL STONE,
Florida Wildlife Federation.

[From the Congressional Record, Aug. 6, 1971]

EVERGLADES-BIG CYPRESS NATIONAL RECREATION AREA

Mr. CHILES. Mr. President, I am today introducing legislation along with Senator JACKSON to permit the U.S. Government to purchase the Big Cypress watershed. During the past months I have studied the various alternatives available to protect this beautiful area of Florida and I have come to the conclusion that the direct acquisition of this land is a straightforward and fair approach and the most complete way of protecting a key link to the survival of the Everglades National Park.

The Big Cypress watershed can remain a viable resource complex from which its human residents and neighbors will gain enormous and lasting benefits; or it can be carelessly exploited for the immediate gain of a few—and an enduring disaster to many.

Maintained as a protected ecosystem, Big Cypress will provide major benefits which can be grouped in five broad categories:

As an entity in itself, considered apart from its surroundings, Big Cypress watershed is a distinctive community of highly diverse flora and fauna, including a number of endangered species, serving as a habitat for the continuing evolution of plant and animal species whose potential in an evolving world is as yet unexplored, and furnishing opportunities for hunting, fishing, and the appreciative forms of recreation in a natural setting of a kind that is increasingly scarce and elusive.

As a source of fresh water and essential nutrient supply to the estuaries of Everglades National Park and the Ten Thousand Islands, Big Cypress watershed is the key to survival of the far-reaching recreational and commercial fishing enterprises that depend upon those estuaries.

The entire food chain relationship that supports a major segment of Everglades National Park's plant and animal communities is dependent on maintenance of the continuing flow of Big Cypress water. The quality and quantity of the water, and the timing of its delivery into the park, must remain much the same as it is at present if the Everglades ecosystem and its wildlife are to survive.

The Big Cypress watershed serves as a natural "water conservation area," recharging the aquifer from which rapidly growing neighboring communities will draw much of their fresh water. Deprived of such recharge, the aquifer would be vulnerable to damaging salt water intrusion.

The natural cycles of Big Cypress' water flow, and the life cycles of the living things dependent on that flow, are integral and vital parts of the lives of the Miccosukee and Seminole Indians residing on and near the watershed.

The Big Cypress is threatened today. Already the water in the canals east of Naples contains iron, lead, and aluminum at levels greater than are found in natural waters from undrained areas nearby. Given sufficiently increased concentrations, these contaminants can detrimentally affect the quality of the water supplies in the aquifer. Further contamination by nutrients and organisms that affect public health can be expected as a result of the use of septic tanks in the area, and in the event of further agricultural development in the Big Cypress. At the same time, irrigation needs will mount, putting additional demands on the waters of the Big Cypress.

The report, "Environmental Problems in South Florida," made by the National Academy of Sciences/National Academy of Engineers in March of 1970, stated:

"It is clear that preservation of the Big Swamp as a natural water-conservation area would be most desirable relative to the Everglades National Park, and, as indicated in the section on water management, probably most desirable to orderly development of the South Florida region as a whole."

The Big Cypress is jeopardized by the pressure for progress based on sometimes well-intended, but too often ill-planned, development. Inevitably, the destiny of the Big Cypress is intricately interwoven with that of an enormous and widespread array of living and inanimate things. Within its boundaries, its natural components can provide an unending procession of rewarding human experiences, and great scientific benefit. The Big Cypress is an intricate mosaic of marsh and lowland forest types—a wilderness of sloughs, tree islands or hammock, and bay and cypress heads. Cypress dominates and gives the area its name.

Mr. President, the fate of the broad, flat, very gently sloping watershed in southwest Florida hangs in precarious balance. In the extraordinary diversity and wealth of its natural resources, in the far-reaching effects of the uses to which it is put by man, and in its profound vulnerability to unwise uses, the Big Cypress has the potential for becoming the textbook or classical example of ecological ruin.

We cannot allow this area to become an ecological ruin, and this legislation will again put this Congress on record as dedicated to preservation of our environment. Time and time again we must echo this dedication by action in the positive—and the purchase of this natural wilderness before man has inflicted permanent damage, will be the mark of a Congress so dedicated.

I ask unanimous consent that a copy of this bill be printed at this point in the Record.

There being no objection, the bill was ordered to be printed in the Record.

EVERGLADES-BIG CYPRESS NATIONAL RECREATIONAL AREA

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Sec. 7—Change Section 7 to read: "Notwithstanding any other provision of law, the Secretary may enter into cooperative agreements with the recognized tribal governing bodies of the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida, for the construction and operation by such recognized Indian tribes, or their assigns, of revenue-producing facilities and services for visitors to the recreation area. Such agreements may provide that all or an appropriate portion of the net receipts may be retained by such Indian tribes or their assigns shall be subject to such standards, terms, and conditions as the Secretary may establish and may be conducted only at locations designated by the Secretary. Commercial establishments inside the recreation area which have existed a minimum of five (5) years prior to enactment of this bill be allowed to continue operation so long as they comply with the intent of this bill. Before entering into any other contract for the provision of revenue-producing visitor services of facilities for the recreation area, the Secretary shall give the governing bodies of such Indian tribes recognized by the United States ninety days in which to enter into a cooperative agreement pursuant to this section for the provision of such visitor services or facilities."

Mr. JONES. At this time I introduce Mr. Pratt.

Mr. PRATT. Senator Chiles, I am secretary of the Sportsman's Information Service. We are a small group of individuals who got together to contact individuals who are not members of the large organizations, who don't receive information that they need to know about.

In the past 6 or 7 months that we have been extremely active we have talked to hunters, the guy you run across out there in the woods, and asked him his opinion on these things, and they all agree we don't need to lose the Everglades.

We have got to do everything possible, short of wholesale genocide or murder, to save the Everglades because of the esthetic and natural resources it supplies us out here in Florida.

I would like to agree with Mr. Chism, I would like to see all of the Senators visit the Everglades, and then all of the Senators would know why we want that area preserved in its natural state for all of us, not just a small few.

We also realize out there water is a problem. We have less water this year than we had last year. We fought the development of this area out there, east or west, in Collier County, in the Big Cypress or anywhere, which is going to mean less water. And, for myself, being a native Floridian, I don't want to go down to the local corner with my 5-gallon can to get my water each day.

If we don't do something to keep it in a natural order, south Florida is going to be another Key West.

Speaking first as a hunter, I have a 19-month-old son, and I would like to see him hunting there.

MR. JONES. Senator Chiles, I would like to commend you for sponsoring this bill. There is another man I would like to commend who has worked hard toward trying to save the Big Cypress, and that is Mr. Joe Browder, and I think if this land is saved, it will be because of his efforts on behalf of the Everglades and Big Cypress.

Senator CHILES. We will now have the panel of scientists.

VOICE. Sir?

Senator CHILES. Yes, sir?

VOICE. With your permission, can you allow some of these people to talk in the audience? I think we should have an opportunity to talk.

Senator CHILES. When we finish this panel, we will keep the hearings open to 5:30, so we will hear from some of you.

STATEMENTS OF THE PANEL OF SCIENTISTS, INCLUDING DR. ARTHUR MARSHALL, ECOLOGIST, CENTER FOR URBAN STUDIES, UNIVERSITY OF MIAMI; DR. JAMES HARTWELL, HYDROLOGIST, UNIVERSITY OF MIAMI; DR. FRANCIS C. CRAIGHEAD, SR., ECOLOGIST, SCIENTIFIC COLLABORATOR WITH THE NATIONAL PARK SERVICE; DR. WILLIAM ROBERTSON, ORNITHOLOGIST, NATIONAL PARK SERVICE; AND DR. BERNARD J. YOKEL, MARINE SCIENTIST, INSTITUTE OF MARINE SCIENCE, UNIVERSITY OF MIAMI

Dr. MARSHALL. I am Arthur Marshall, ecologist. I am accompanied by Dr. William B. Robertson, animal ecologist, Mr. James Hartwell, hydrologist, and Mr. Bernard J. Yokel, an ecologist.

The statement which I will read was contributed to by Dr. Frank Craighead, Sr., ecologist, who has not been able to attend.

This group has produced books, articles, documents, and scientific publications on the Everglades region, its geology and water, its vegetation soils and wildlife, numbering a hundred or more. Perhaps the most direct method of defining their credentials for appearing before your committee as a scientific panel is to recount the fact that jointly they have spent a total of 84 years studying the many intricacies of the Everglades ecosystem.

We express our thanks to Senator Jackson, for holding this hearing in south Florida, and to you, Senator Chiles, and to Senator Jackson for sponsoring pertinent legislation relative to the protection of the Big Cypress watershed. We consider this action necessary for south Floridians and for all the people of the United States—who are the owners of Everglades National Park.

The central issue in this matter is water—water for the park, for plantlife, wildlife, marine resources, recreation, and for people.

Other than in the Big Cypress watershed, south Florida's water resource has been much abused, both as to quantity and quality, so that most of the region is facing a water crisis. South Florida learned this last spring when the long-debated water management problems of the wilderness Everglades trudged into the coastal towns. Restrictions on use of water became necessary, private and public water wells from

Palm Beach south through Dade County became too salty for human use, farmers in south Dade County either sank their irrigation wells deeper or lost plantings, one road in Dade County cracked because of lowering of ground water, fires burned for weeks throughout the Everglades region filling downwind cities with smoke.

For all the years cited, the members of this panel have observed and documented the stresses generated by mistreatment of the water resource in the interior portions of the south Florida basin. As life-long students of the interdependencies in nature and of the ultimate dependence of all life on natural systems, including water, we are not surprised that the stresses have moved to town. We have, at this time, ample reason to anticipate that these problems will recur—and perhaps—worsen, in the coming winter and spring.

The issues here are, as Senator Jackson has described them, both in the Senate and elsewhere, in regard to his National Environmental Policy Act of 1969 and more recently in regard to his national land use policy bill of 1970—that the operating agencies of the Federal Government did not have, prior to passage of the National Environmental Policy Act of 1969, a legislative mandate to give substantive attention to environmental values and have often pursued conflicting goals; that State governments often have been ambivalent; that land-use management decisions which involve regional, statewide, or national values are matters of broad public concern.

The view of this panel in regard to the problems of south Florida's basin clearly identifies with Senator Jackson's and your views. As scientists, we refer to them as problems of stresses in ecosystems, the particular ecosystem being the wetlands basin of the Everglades, of which the Big Cypress watershed is a major component, and the only major component outside of the park which has not been massively altered.

Hydrology—The watershed of the Big Cypress is a broad, nearly flat area interspersed with pinelands, grass prairies, and shallow cypress ponds and sloughs. With the land sloping gently south and southwest, water accumulated from the summer rains flows overland about 70 percent of the year to and through the western panhandle of the Everglades National Park into the Gulf of Mexico.

About 55 percent of the average annual flow into Everglades National Park since 1940 has been from the Big Cypress watershed. Flow in the watershed, quite unlike a normal mainstem river, is in the form of a broad shallow sheet which covers much of the area in the summer and fall high-water period. When the rains abate, beginning in November, water levels in the Big Cypress recede slowly from heights a foot or two above ground to perhaps 3 feet below ground in the dry months of the year.

The flora and fauna of the watershed, including that of its downstream estuaries, are attuned in their reproductive and breeding cycles to this cycle of summer flooding followed by recession. In the warm waters of the summer, many aquatic species such as fresh water shrimp, crayfish, mosquito fish, and killifishes reproduce themselves in great numbers, foraging over the flooded lands. As the winter recession occurs, these organisms are sufficiently concentrated to supply tremendous quantities of protein food to active bird rookeries and to some species of marine fishes which invade the brackish areas and

lower marshes. Thus continued production of many animal species depends on the cycle of summer flood and subsequent recession. When wetlands are drained for development, both the flooding and the recession are so drastically altered that reproductive failures commonly occur—which is a major reason that 17 Everglades species are now considered rare and endangered.

The Big Cypress also serves as a recharge area for ground water supplies. As the urban areas of the lower west coast expand, those municipalities will have to utilize waters farther to the east to meet their water demands. This is a very similar picture, a reversed, mirror image, if you will—of the water demand-supply situation of the east coast cities, which must reach continually further to the west for potable supplies.

No one can say with certainty when the growing demand will encounter the limits of supply for the west coast cities, for no such analyses have been made farther into the future than 20 years. We can say with considerable certainty, however, that the progression of events on the west coast will mirror-image those of the populous east coast, in that salt intrusions along the shore will become increasingly severe, that intermittent water rationing will become necessary, that recycling of sewage wastes for reuse will become as necessary on the west coast as it is now urgent on the east. Development of the Big Cypress Watershed, by decreasing supply and increasing demand, would accelerate the day of water crises markedly.

VEGETATION

The Big Cypress comprises the western portion of the great wetlands of Florida south of Lake Okeechobee. It is a woody swamp dominated by trees, whereas the eastern portion of the Everglades is characterized by a marsh of herbaceous plants, sedges, sawgrass, and so forth. A low divide separates these two portions. These wetlands catch and hold the rainfall on the area which is vital not only to the wetland resources but also for the well-being of coastal towns.

Together with the flatness of the Big Cypress, its vegetation retards the flow of surface water and permits part of it to sink into the underlying soils and bedrock aquifers. The vegetation is also responsible for the formation of the extensive peat beds of the area.

As a brief description of the vegetation of the Big Cypress, one must first think of it as a forested area—some of the earlier persons were quite correct in this—spotted with many grassy prairies and rocky outcrops which stand above the general water surface for several months of the year. Under all of this lies a rather permeable limestone transversed by numerous sloughs and marked by isolated solution holes. Much of this bedrock is now covered by sandy deposits left by former seas, or by marl or peats each bearing a distinctive type of vegetation.

The rocky outcrops are covered with thin soil and pine forests which cannot stand continuous flooding.

The prairies are dominated by a mixture of grasses, sedges, and a few shrub species. All of these can tolerate a long period of flooding during the rainy season and light fires in the winter.

The deeper sloughs—4 to 6 feet deep—support stands of cypress on their thick peaty soils. The isolated potholes also support cypress in characteristic domes called cypress heads. In either situation, the deeper the peaty soil the taller the trees. Many native epiphytes—orchids and bromeliads or air plants—are abundant in the Big Cypress. The orchid flora is one of the richest known anywhere outside of the tropics.

The numerous ponds of the area are picturesque. Usually rimmed by cypress or pop ash, they formerly were the habitat of many more alligators than now. The activities of these reptiles prevented the closing of these ponds with vegetation.

This mixture of vegetation, developed over many ages, greatly controls the purpose and usefulness of the Big Cypress. It provides great natural resources for our benefit: A water resource, recreation, hunting, fishing, and nongame animals.

WILDLIFE

For most of the conservationists and scientists, the wildlife of south Florida and the Big Cypress is an essential unit of the regional ecosystem. Seventeen species that are officially listed as rare and endangered—four mammals, 12 birds, and the alligator—inhabit the Big Cypress and its downstream estuaries during at least part of the annual cycle.

These include some of the most characteristic wildlife of south Florida, such as the roseate spoonbill, and species such as the brown pelican and bald eagle which have been extirpated from much of their former range in the United States. A number of these including the Florida panther and wood ibis, are virtually certain to disappear from Florida if the Big Cypress habitat is diminished and destroyed by drainage and development.

Besides these species in the rare and endangered category, the Big Cypress supports the full spectrum of the resident and native wildlife. Of particular importance is the seasonal and alternative feeding habitat that the Big Cypress provides to wading bird populations which breed in the Everglades National Park.

Without access to the resources of the Big Cypress, a long term of decline of populations of large water birds of the park is predictable. The preservation of the Big Cypress offers the only long-range hope of maintaining huntable populations of larger game animals such as white-tailed deer and wild turkeys in southern Florida.

THE COASTAL ZONE

As water moves from the upland marshes, it finally enters the coastal zone. At the inner edge of the coastal zone, fresh water marshland gives way to a broad mangrove-dominated estuarine zone. The area is characterized by mangrove-fringed creeks, ponds, and bays which receive water from both the upland marshes and the sea. The tidal mixing which occurs in these bays and estuaries produces brackish conditions favorable to the growth of estuarine-dependent animals such as shrimp, blue crabs, mullet, oysters, and many gamefish.

Utilizing special processes involving tidal mixing and physiochemical phenomena, the brackish estuaries tend to conserve the nutrients

which, under natural conditions, are contributed by the upland fresh water and the open ocean. These nutrients tend to be retained in the estuary and cycled continuously in the food chain. The bays and estuaries are manifold more productive than the marshes above or the sea beyond.

The very high natural productivity found in the estuaries, which supports important national fishery resources, derives many benefits from the upland marshes. The extensive marsh system serves as a reservoir and control system which absorbs the heavy summer rains and slowly releases this water into the estuaries. This mechanism serves two important purposes. The marsh filters the water in transit, removing sediments and utilizing some of the nutrient and releases the fresh water into the estuary at a reasonably uniform rate across a broad front. Hence, the water coming from the marshes is normally clean and arrives in quantities which usually permit optimal salinity ranges in the estuaries. Under normal conditions, heavy rainfall in the interior may require 10 to 90 days, dependent on distance, to appear in the estuaries because of the low gradient of the region and frictional effects imposed by marsh vegetation.

Manmade drainage systems, on the other hand, are designed to accelerate the runoff of fresh water through canals. During periods of heavy rainfall, canalized runoff from the uplands moves quickly in large volume into the receiving estuaries bearing massive deposits of organics, silt, and sand. Freshlets of this type cause abrupt salinity changes which frequently kill plants and animals, especially attached forms such as oysters. Oxygen demand caused by abnormal quantities of organic material place further stress on the large bay areas, already laboring under the burden of abrupt salinity changes.

The high productivity of our coastal systems is intimately linked to the upland marshes and especially to the brackish areas. To safeguard this unique unit, the entire marsh sheet flow system must be protected to insure that the coastal zone receives high quality water in sufficient quantity and in the right seasons.

In conclusion, we urgently suggest, Senator, that any bill you may propose state that the primary purpose of the legislation is to protect the watershed as to quantity, seasonality and quality of its water, and that only such other uses be allowed which are consonant with that primary purpose.

There are infinite more details to the Big Cypress story, so impossible to present here that we have chosen to present a composite view of the resources and their values and problems as we see them. We have appended a list of the most significant publications which provide such details, and we would be pleased to provide any more that you require. Because there have been so many stresses on the wildlife, plant life and water resources of the Everglades basin I always feel the gloominess of an accounting of this sort. I would like to emphasize that what you are considering here would constitute a giant step in dispelling that gloom.

(The material referred to is in the appendix.)

Further, actions taken by the people and the State of Florida this year have begun a process to relieve those stresses on this region. The ambivalence of the State of Florida is cracking.

The speaker of the Florida House has a special task force working toward recommendations in the next session for protecting the water resources of Florida.

The Florida cabinet is now negotiating to acquire the central portion of Fakahatchee Strand—about 25,000 acres—and about 9,500 acres of mangrove lands in the Ten Thousand Islands area.

In midsummer, the Florida cabinet stopped the construction of three new drainage canals in south Dade County, two of which had already been commenced.

The attorney general of Florida has instituted legal proceedings to stop the construction of canals in the watershed south of Tamiami Trail.

In September, Governor Askew convened more than 100 persons to advise him on means to protect south Florida's water resources and all the values that entails. I am providing your staff with that historic report to the Governor, which he is now moving to implement. (See appendix.) The recommendations run the gamut from renunciation of further drainage of wetlands, restoration of water quality, developing land and water use plans to protect vital resources and to limit populations, protection of the Big Cypress and reorganizing State government so as to provide a water management agency for the entire south Florida ecosystem. All of this conforms well to Senator Jackson's national land use policy bill, and would most certainly abet and be abetted by Federal protection of the Big Cypress watershed as you, Senator Chiles and Senator Jackson have proposed.

I am optimistic enough to say that Florida is developing a new environmental ethic which is pertinent over all the land. Your decision in behalf of the Big Cypress will be a tremendous spur to us to develop that ethic; at the same time you will protect the many resources of the watershed, the western extension of Everglades National Park and the water supply for the people of southwest Florida.

We commend your effort and thank you.

I would like to make one more comment, if I may, Senator, in response to an earlier suggestion by a participant on another panel, to the effect that no action should be taken in respect to acquisition of the Big Cypress watershed until the 3-year-long Department of the Interior studies are completed.

I would like to say in regard to that, that we already know there are 17 species that we stand to lose in that span of time, and that the estuarine areas of the western park also depend on that flow, and that there is no choice for the future water supply of Collier County, except this water resource in the Big Cypress.

It is important also to say that the Big Cypress is included in the study area, but the study area of the Interior Department studies involve all of the basin.

Finally, I should point out that in the committee report, leading to the congressional appropriations for the south Florida ecological study, there was a note to the effect that none of the money could be spent to prepare land use recommendations for the Big Cypress watershed, which I think precluded that concept.

Senator CHILES. Thank you for your testimony. For the sake of time, I think we will have to forego questions. I do want to have some of the people present testify. It looks like we have about 10 or 11

people here. Time is such that the staff has to return to Washington, so I think we have approximately 30 minutes that we can spare. I don't know how you all can divide that up.

I will be happy to divide that time between you, to hear from you on that basis. There are 11 people, if we can take about 3 minutes apiece, and any time we have left, that somebody doesn't use, we will be happy to use. I am sure we will get to you.

Give me your name.

STATEMENT OF MURRAY A. LEVINE, LANDOWNER

Mr. LEVINE. My name is Murray A. Levine, an interested citizen, and also a landowner in east Collier County, and also in north Monroe County, within the property boundaries of the Big Cypress Swamp.

One of the most important facts that everybody seems to be escaping, and our fine scientists have not mentioned a few moments ago, that we would like to control the population. The statement came out in the national press recently that in the last 50 years the population of the world has grown by 1 billion people, and in the next 30 years another 1 billion, and in the following 10 years, another 1 billion.

It is conceivable that in the next 90 years, we will have 3 billion additional people on this earth. There is without any question, regardless of how many famines, wars, earthquakes, floods, tidal waves we have, we have a population problem.

As long as we have it, it seems to me as the years went by, as a professor who tried to explain the population problem said, there is someone giving birth every couple of seconds somewhere in the United States, and somebody said, how are you going to solve the problem, and somebody in the back of the room said, find the lady and ask her to stop. We haven't found her yet.

We have the technology to take human waste and make building bricks out of it, and we have the technology to make fresh water. It seems to me as well as every other intelligent scientist in this world today, if we stopped a little bit, and started yelling fire inside an auditorium, and everybody yelled out to see if there was instead of running out, look to see if there was a fire.

We are going to have certain extinct alligators here in the United States, and there is nothing we can do about it. Nobody has been able to stop man from populating this land. Until we do, we have to start providing for man; he is an animal, too.

We have property down here, and we all sit within our property, and would like to develop our own property or facilities.

The interesting thing we have to look forward to is how we can best provide for man as well as the animals. If we have the technology and resources, let's do a little research—take conservation No. 3, and take—I think if you find many other aspects of the national park and also the Big Cypress Swamp, what Mr. Harmon mentioned, you will find that the scientific evidence is not provided that will support water from the Big Cypress Swamp, supporting the park itself.

I would like to bring out one final point—

Senator CHILES. I am going to have to ask you to curtail, in being fair to the other people.

Mr. LEVINE. Something that wasn't brought out before, we had a fire this summer, over 40,000 acres were burned. I was in that fire and I spent 3 days fighting that fire. I saw it first hand, and many other homeowners out there fought that fire as well.

If you go out with Mr. Chism and into that particular property and area, you will see in some of the areas completely inundated by the fire right now are full of green and the trees are back together. There has been some damage, but we have had fires there since the 1800's and since man has gone into that wilderness we have had fires there.

Senator CHILES. Thank you.

STATEMENT OF DON BURNS, LANDOWNER, LACOOCHEE, FLA.

Mr. BURNS. I am Don Burns.

We have hunted for 2 years, there are several families in our neighborhood that agreed with me that we hunted and searched and we found the area we wanted to retire in, built our home, spent all our money on it—personally, I have over 1,000 trees, just becoming bearing age, most all kinds of tropical fruit. We built it ourselves and now they don't ask us, just tell us they are coming in and wiping us out. I don't think that is fair.

What are we going to do? We can't go to the city and live in an apartment, because we were born and raised in the country. We haven't hurt the ecology or nothing.

Thank you.

Senator CHILES. Thank you, sir.

STATEMENT OF E. C. GUISE, LANDOWNER, HOLLYWOOD, FLA.

Mr. GUISE. My name is E. C. Guise. I live in Hollywood.

I despise having the Government take over my grounds. I will tell you something. Don't you think I am right? This is the most fraudulent and disgraceful and deceitful thing that has ever been put on the American people to make them believe they are right when they are wrong, in order to get into public office.

This is a monster shame and disgrace and rock crusher they are trying to deceive us with, and a bunch of lies they are telling us. It is like showing you candy in one hand and a club in the other. They are going to kill you and get you out of the way for once and forever. There is no law left in the United States of America for the benefit of all of the people.

The cities will die, or the people, for the lack of water, unless the Government digs lakes, and now, on their own property. You won't have enough drinking water, you will die from smoke, it is terrific. Every year it is worse, and this western area should be fixed up this way, areas 1, 2, and 3 of the park on the north end here.

The joke is the clouds and the smoke that burn your eyes, and we don't need any more government that will lay back and can't go in during the fires every summer, and they won't build lakes to stop the fires.

Let the people live in their houses by the side of the road or hotel, and help each other and the Government help to our betterment, instead of trying to ruin us for all time and forever.

Now, if Mr. Nixon succeeds in this, he will divide the United States of America, and give the Eastern half to Russia and the Western half to Red China; I am telling you what is coming with a rock crusher for once and for all, forever and forever. Don't you think I am right?

Now, are we going to get the Government to help all of the people all of the time, or be torn apart by this monster machine called the U.S. Government, and rock crusher.

This is like a lot of people standing in the woods dying from thirst and burning up. They are being promised water and health when they are going to let them all rest and burn out. They won't put out the fire, nor store up any water, because it takes lakes to store up water. They ain't helping anyone, and not millions of people looking for help.

Senator CHILES. I wonder if you might close now, and we will put the rest of your statement in the record if you have any more.

Mr. GUSE. I have more. I am not against you at all, but I believe the Government has got to help the people instead of destroying the United States and that is what we are coming to and fast.

Is there any possibility this takeover of land may hurt millions? Are you aware of the hunters and fishermen and tourists this land takeover may hurt, or don't you care?

Are you familiar with the Government's policies of putting up signs, "no trespassing," subject to arrest?

Are you familiar with the Government policy of doing nothing with the land and letting it grow to brush and forget all the American people?

Is there any possibility in your mind that the whole area of the United States of America may be taken over and the American people given to Russia and China?

Do you claim it is the birds, animals, and fish and water control you are interested in, or oil under the ground is above all the American people and their desire of pleasure and happiness?

Why doesn't the Government make use of the land they now have without taking more?

Are you aware that the birds and fish and animals could be better protected without taking the land?

Are you aware that north of the trail, east of Forty Mile Bend could be dug out and made into a mammoth lake for storage of water in areas Nos. 1, 2, and 3. The rock would be given away or the Government could be paid, without taking any more land.

Are you aware that the Everglades National Park could be made a pleasure for the people with roads and water pumped in without taking more land?

Now, what is happening is that the Government is trying to smash or crush all the people and yet make the people believe they are doing something for them.

Don't you think this whole United States of America is slowly being shut or closed down so Russia and China can take over without firing a shot or missile?

Don't you think that the most of this talk about pollution, of air and water, shortage of water and killing birds and fish and taking our animals' land and shutting down everything is for Russia and China to take over?

Don't you think, this monster crushing like a bulldozer of our people and land, it is about time it stopped?

Don't you think our Government has some of the same techniques as Russia and China?

Now, anyone that approves of this Government order of taking our land, I would like them to come to Forty Mile Bend and Tamiami Trail and State Road No. 94, or Loop Road, and look at the brush and Government signs: "Stay out, Everglades National Park. Subject to arrest if you go in." Then I want you to say yes or no if you want any more land taken by the Federal Government.

Also, why does the Government try to rob the people and not pay what the land is worth, and also take their time even if they never pay for the land? Is this Russia or China?

Aren't we a government for the people, by the people?

The whole United States of America can be taken over if the Government don't have to pay any, or robs the people like this. Not any more will the Government listen. They are telling us what they will do. Do you approve of these tactics? The Communists get to the point of taking and telling you nothing and never paying for anything. Do you approve of these tactics? An individual that robs like this in Russia would be shot on the spot. Do you approve?

Senator CHILES. Thank you, sir.

STATEMENT OF GEORGE M. EDWARDS, MEMBER, EVERGLADES CONSERVATION AND SPORTSMEN CLUB, MIAMI SPRINGS, FLA.

Mr. EDWARDS. My name is George Edwards. I am both a property owner, very small property owner in the area, and also a conservationist. I am a member of the Everglades Conservation and Sportsmen club. However, I am not here representing them.

I would like to read my statement.

If the only purpose of this bill is to protect the Big Cypress and the park, there should be no objection to changing section 2(d).

With respect to property taken pursuant to subsection (b) which in the Secretary's judgment is not essential for the protection or administration of the recreation area in accordance with the purposes of this act, the Secretary may take appropriate action to re-vest title to such property in the former owners.

Change this to:

With respect to property taken pursuant to subsection (b) which the former owner by binding contract agrees to conditions essential for the protection or administration of the recreation area in accordance with the purposes of this Act, the Secretary "must" take appropriate action to re-vest title to such property in the former owner.

If there are hidden reasons for this bill, such as letting oil companies have a Government contract to drill for a low price, there definitely will be objections to this change. Drilling may cause drastic damage.

Remember, the taxpayer will save a great deal of money with this change, because this will enable him not to have to pay for land which the owner is willing to agree to certain limitations.

Other owners who are not willing may go ahead and sell.

Senator CHILES. Thank you, sir.

STATEMENT OF NEAL CROWLEY, OCHOPEE, FLA.

Mr. CROWLEY. My name is Neal Crowley. I am a small guy, I have only 10 acres out there. I live there. My wife and I live there. My 23-year-old son comes out on weekends.

You walked a lot, didn't you, getting into office? I was in the infantry in World War II—I was in Africa, Sicily, and Italy. They finally got me in Anzio. I spent a year and 4 days in the hospital. They have me on compensation today.

We have our small 10 acres out there. Is that the way for the Government to treat us?

Senator CHILES. Let me say that the bill requires that if the Government takes this land, compensation will have to be paid for it.

Originally, when the studies first came out, one of the methods was they would take an easement. I didn't think that was proper. I thought if you were going to take the land you ought to pay the person compensation, have a right to a jury trial to determine what your damage will be. That is the way we have done things in this country since we started.

The roads upon which we drove today, the hospitals in which you put your children, or the colleges or anything else, much of that property was condemned from someone who owned it, because of what was felt was the overriding public interest.

We have taken all of our land, the power lines, the railroads, everything has been done from condemnation. I have had land of mine condemned. I didn't like it a bit. I would have liked to have kept it. There are times we feel it is in the public domain. You take land for the public good. But you have to be compensated for the land if the bill does pass.

Mr. CROWLEY. I realize this. I worked construction all of my life, ever since I got out of the service. I was glad to get through high school, see. Everything I got is out there. That is one point.

These guys got up here today, the birdwatchers, they are telling us—I like to watch birds out there, too. Nobody bothers them. But they are taking our land away because of the birds. Come on. The birds are just as free out there with their watching them. We don't kill the birds, alligators, and snakes. We live with them.

You have other guys come out here and say they are hunting clubs. You know when they are out there, Senator, they are there on weekends, vacations, and hunting season. The rest of the year we don't see them. We are there 365 days a year.

I am representing a few people here. There were Indians up there, Seminole Indians. Didn't you see them? They can't get up here to speak because they can't speak English. They are against this. They are sitting out in the car because they can't speak English. You should have a hearing in Naples, in Collier County.

STATEMENT OF NORMA B. PATTON, LANDOWNER

Mrs. PATTON. Mr. Chiles, I'm Norma B. Patton.

They mentioned 17 species in danger. I think there is one more, 18, 35,000 people.

My husband is retired now, and he has two boys, one 14 and one 16. Most of the time you don't have children that young when you retire.

We couldn't move out of Miami because we have had land down here for years, just a little, and now with the boys, I live maybe more comfortable. It is a long way for a loaf of bread. Those boys, 14 and 16, they can walk out of the back door and they can live. If you had boys 14 and 16, this is a wonderful place.

We had a pool home in town. It was not much of a pool. We have the boys there, and that is why we are there.

There is one of these other gentlemen, a sportsman and landowner. I am as good a sport as anybody. One thing about him, he said he had some land, a little. I don't know how much land it is. He says he has given a lot of land up, but we can't afford to do that. That is what I wanted to say.

We voted for you last time, sir. I hope we have the privilege this time.

Senator CHILES. Thank you. I understand very much your feeling. If I had a piece of property out there, I am sure I would feel very much the same way you do.

One of the problems is, of course, you can't stop anything. If you say we won't change the characteristic of the land, maybe we can protect the park. People are starting to subdivide, dig drainage channels, put in houses without restriction. They are changing the characteristic of the area.

There are two features in my bill that I want to point out to you. They both provide within the Secretary's discretion that the Secretary of the Interior—if the owner of the land concurs and if the Secretary finds that the property available to him or acquired by him for the purpose of exchange, the Secretary using any combination of money and exchange can make a trade.

It also provides that where the Secretary finds that the land in the use does not endanger the prime purpose of the bill, he can enter into an agreement to deed that land back to the owner, so it is possible.

Mrs. PATTON. There were some alternatives proposed.

Senator CHILES. Yes; there were, but that amounted to a complete taking of your land without compensating you. You would have to go to the Court of Claims.

Mrs. PATTON. I think you are under a misapprehension. We just moved out because we retired. My son is out there 17 years. How long will this thing go on? When will we know we will be paid for it?

Do you realize the situation this puts everybody in? You don't sleep well nights. Everybody can go out there and hunt without worrying that much about it. They mentioned another place farther up that was a true swamp. This is not swamp out there.

Senator CHILES. Thank you, ma'am.

STATEMENT OF JOSEPH RISEL, MIAMI SPRINGS, FLA.

Mr. RISEL. Mr. Chiles, I am Mr. Risel, from Miami Springs.

What you are talking about is water. As far as water on that land, there has been a foot and a half of water, and it is all resided now, down to bare dirt now.

Now, the Government has made these channels, the drain of these properties. They haven't shut off the canals yet. They are keeping our

water to be on that land or stay on that land. Within a month there has been a foot and a half of water getting off that property.

Now, you want to preserve something, you want us to help you preserve it, but you are not giving us the chance to preserve our life. What you have done, you had these engineers, or whatever they are, put canals out to the ocean, let fresh water out, billions of gallons a day, and you want to preserve water. What kind of nonsense are you preserving water with, am I right or wrong?

Senator CHILES. I think I would have to tell you you are right. Much of the work done in earlier days, and that is part of the harvest we are now reaping, because we have canalized many of our rivers and streams, and we don't hold our water back.

Mr. RISEL. Anybody building a house out there is not hurting the water preserves. It goes around the property. It goes southwest. I look at my land, I can tell you which way it is flowing.

I bought property out there to get away from the rat race in Miami, Dade County. I went out in the sticks and I expect to live there, but I don't expect the Government to take it away from me. I worked goddamn hard for the Government to get it, and I am going to keep it. I worked for that money for the Government and I am going to keep it.

Senator CHILES. Thank you.

STATEMENT OF EUGENE WOODARD, COPELAND, FLA.

Mr. WOODARD. I am Eugene Woodard, from Copeland, Fla.

I am digging a lake on my land. I have not dug no canals, I have not drained any part of my property. I have put more water on my property than has been drained off by digging a lake. I have gone 20 feet deep. You show me a canal out there that somebody else is digging. It is all canals dug there by the State of Florida. I didn't dig no canal, I don't know a man around here that dug their own canal. We are not draining anything off. I got my kids in school. I know many, many more people that have come out there on State Road 87 and sold their homes, and come out in what you call a swamp and put every bit of work we could put in with our bare land.

My wife, my kids, John's kids, we all know one another out there. When you come to my land and are going to take it, I have \$26,000 involved in it, and either it is going to come \$26,000 or it don't get sold, or you will have to carry me off feet first.

Senator CHILES. One of the great privileges we have under the Florida Constitution, which this bill will follow, you will get a trial by jury of your peers and they will be the ones to determine—

Mr. WOODARD. I know they will condemn my land. I have no rights. They talked about the coloreds having rights. They know they don't have the rights and we don't have any more than the colored people have. They say you can buy this piece of property, you can put what you want on it, live on it. This was a year and a half ago I bought mine. They come back and the Government says here, we want it back.

From what I have read so far, \$53 an acre is what they propose to give us. I paid \$24,095.

STATEMENT OF JOHNNIE JOE PEREZ, LANDOWNER

Mr. PEREZ. My name is Johnnie Joe Perez. I want to talk for the people that were here that didn't have a chance to talk. You had the big guys talking, but the little man didn't get a chance. I want to talk for these people. They want to keep their property as well as I do mine.

I moved out of Miami because of the dictatorship they have there, or the metro. These people here, they call us swamp people or glade people, but we are not bums. We work. You put a rock in the middle of that floor, and you run water around it, the water will go around that rock.

If we get to sell our property the way they want it, with the Federal Government, they won't buy it. They won't give us a choice. They may lease it to us, but how about our young ones? I have young ones, too. I have eight. I moved out of here because of the crime that goes on, because of the laws they make up there, and because you can live free in the glades.

The people say that the people go up there hunting, they want to preserve it, but yet the hunters, they come and kill the wildlife, not the people in the Glades. I am talking about the man who has the business. Watsons, the Savages, the Carrolls, and everyone that lives in that Glade. The people that have the stores, they provide us with the food.

People want to know if they are going to get the property sold out from under them, where are they going to go from there. We don't want to work out of there on charity, on the welfare. We want to work with our hands and keep what we have got. If not, give us a fair price, if there is to be a fair price.

These people don't know this, but they are all sitting right there. They couldn't wait. They had to leave this place because they have work. The small people didn't speak, some of them are sitting there, some left and all of them were right here.

Senator CHILES. As the chairman did announce, he will schedule another hearing.

Mr. PEREZ. Will the small people have a panel?

Senator CHILES. To see that these people are represented, will some of you get together and get their names and you can write to the Senate Interior Committee a list of their names.

Mr. PEREZ. This came by so far—the people here only came from three little areas. They didn't get the letter.

Senator CHILES. If we hold another hearing, this information should go out. You should try to get a list of the people who want to testify, so they can set up an agenda so you can hear from them.

STATEMENT OF JACK SHEALY, OCHOPEE, FLA.

Mr. SHEALY. My name is Jack Shealy, and I own property in Ochopee. I was working on the property for 20 years, and now the Government says they are going to take our land. They say they are going to take it for a watershed. It does not stand to reason. They didn't have water last year, and they don't have water this year. There is no water on it now.

What do they want it for? They haven't said they are going to dig a dike or anything. Anything south of the trail, you fill that with water, it is going to the gulf. Any scientist knows the sea level, there is no question about that. They haven't said we are going to build this or do that. They said they want to take that land. They never said what for, other than a watershed.

Senator CHILES. The life cycle, in the rainy season, it stops for a while and flows awhile, and that is what sets up the environment, and it works that way. If you continue to go the way it is going, they find, you change that cycle by the more canals you dig and the people you put in, and you change that cycle.

Mr. SHEALY. The only drainage done there in the last 20 years, the government has done.

Senator CHILES. I can't argue with you on that.

Mr. SHEALY. There are canals 6 feet below swamp level right now. They want to come down and close us down. The national park, you take that park, they have the park, who can go in there? Nobody goes in the park, and if they take the rest of it, they are eventually going to close it to everybody. It is not going to be for hunting and fishing.

Senator CHILES. Next, please.

STATEMENT OF RAYMOND R. WOOTEN, OCHOPEE, FLA.

Mr. WOOTEN. My name is Raymond R. Wooten, from Ochopee.

As I said, it is a pleasure to be here and be allowed to talk. To start with, I am a sportsman, landowner, and last but not least, I am a taxpayer, and I have been for better than 18 years in Collier County.

I have heard all of this stuff going on, the talk of watersheds. I am wondering if this isn't to cover something a little more radical than water.

No. 1, I think if you check your records, that you will find the Federal Government controls quite a lot of oil and natural gas for the Nation and the States. It is a known fact to me, and I am qualified, I can tell you a little bit about oil, and I know it is compatible with our environment.

You can't have an oil well, and wildlife and birdlife and oil in the same area; that is a bunch of hogwash. I worked from the time I got out of the service in 1945 for an exploration and oil drilling company. I worked on the big rigs. I have struck wells in the Fort Myers area. I helped put the water wheels down for Sun Island. There again, those wells are on a rock ridge.

The well that you have read about recently, they said there was a dry hole, they capped it up for good reason. It should have been capped up. Those wells that are in Sun Island are right on the edge of this rock ridge, and they are a half a million years drain wells. They don't produce, but they make money.

You go right on down from Immokalee and you head out toward Fort Myers, you see those wells pumping and pumping, and they are not harming the environment one bit. In fact, it beautifies that area, in my opinion.

I don't think it has hurt anything. Those are still on the fringes of the national—and as you go on toward Downwater, toward La Belle, 6 miles out of this side of La Belle, one of these days you will see the darndest oilfield you have ever seen.

I know this. This is common knowledge to me, and that extends right on through around Lake Okeechobee, and I am wondering if the water is the whole thing, or is the Federal Government taking over another pool of oil and natural gas, which is estimated to take care of our entire Nation for 2 years, and I am doubting that seriously that it would be probably more like 4 years than 2 years.

They don't have to set oil wells up with building highways and byways to support these things. They have helicopters nowadays that can set up an oil well in nothing flat. They can have their environment, reap the harvest of these Glades, and everything. We can use it and still have it.

I can't sit by without getting my point across. I think it is oil they want. I think the watershed is in the background somewhere. I am not doubting they don't want it. I believe the oil comes No. 1, and the watershed comes No. 2, and the land takeover for recreational use, if we are allowed to use it when that time comes, is No. 3.

This is my opinion, and my own opinion, and no one else has influenced me to say this, but this is my opinion and I am entitled to it, and I just had to get up here and say that. And I hope nobody—the fishery gentleman said they had \$96 million invested in seafood. I will tell you, that is not much compared to what you can reap from oil wells. If we had a national disaster, say we needed to open this county to oil, it wouldn't take 90 days for them to set this thing up all of the way.

The Texas supply is not going to last; the Alaskan supply is not going to last. I hope that the people who paid the tax on this land and carries this county and paid for our schoolchildren going to school will reap the doggone harvest of all of this oil and gas, rather than the Federal Government.

Senator CHILES. The hearings will now be recessed until further notice. As the chairman indicated, additional hearings will take place in Washington.

(Whereupon, at 5:50 p.m., the hearing was recessed, to reconvene subject to the call of the Chair.)

APPENDIX

(Under authority previously granted, the following statements and communications were ordered printed:)

U.S. DEPARTMENT OF THE INTERIOR,
Washington, D.C., December 2, 1971.

Mr. JERRY T. VERKLER,
Staff Director, Committee on Interior and Insular Affairs, U.S. Senate, Washington, D.C.

DEAR MR. VERKLER: Per your recent request for information regarding taking of property without compensation at Everglades National Park, I furnish the following:

The creation of Everglades National Park, Florida, was a joint conservation undertaking of the State and Federal Governments. It was first authorized on May 30, 1934. Boundary changes were made on February 22, 1950, March 12, 1954, July 2, 1958, September 14, 1959, and September 2, 1960. The most significant of these was the major boundary definition of July 2, 1958 (72 Stat. 280). This act also authorized the appropriation of \$2 million of Federal funds for nearly 100,000 acres (98,039 acres to be exact).

Some of the landowners whose land was included in the park, either intentionally or because they did not realize otherwise, construed the inclusion of their property within the boundaries of the park as a taking of their property, despite being told they had complete rights to, and use of, their property until such time as these lands were acquired and they were fully compensated.

The situation was greatly complicated by the fact that, despite budget requests by the Service in each of fiscal years 1961 and 1962 for amounts of \$450,000 for acquisition, no funds were appropriated by the Congress. The acquisition budget requests for fiscal years 1963 and 1964 were for \$500,000 each year and were also unsuccessful.

Finally, in fiscal year 1965 an amount of \$451,597 was appropriated for purchase of the Iori brothers' land from the Farmers Home Administration as authorized by the Act of September 12, 1964 (78 Stat. 933).

The acquisition budget request for 1966 in the amount of \$1,125,000 was also disallowed. In fiscal year 1967, the amount of \$500,000 was appropriated and used for acquisition of certain high priority tracts, which, except for one, were all located in the Hole-in-the-Donut area of the park.

In fiscal year 1968, the amount of \$600,000 was appropriated and used for the acquisition of tracts located in the Northwest Extension area of the park; and later that same fiscal year, the Service was given authority to reprogram the balance of the \$2 million for acquisition of the Flagler Tract, Inc., Parcel A, which is located in the Hole-in-the-Donut area of the park. A total of 23,401 acres was purchased with the funds authorized by the 1958 act.

With the appropriations that were made available in fiscal year 1968, we tried to acquire as many as we could of the properties of owners who had expressed a desire to sell. When funds were exhausted, we had no alternative but to advise the owners of this fact. From this I think you can readily understand that, when the landowners who inquired were told that when these funds were exhausted there were none available because the Congress had not made funds available, this explanation became more and more nonsensical to them, and their conviction that there had been a taking in 1958 without compensation was reinforced considerably. At least to those who wanted to sell and could not, our explanation became less and less convincing. At the same time, there were those who went full speed ahead with their mail-order subdivisions, preying on those who wanted to sell, realizing full well that payment would be forthcoming eventually.

Subsequently, as you are aware, there was passed the Act of October 17, 1969, authorizing the appropriation of \$700,200 through amendment of the Act of July 2, 1958, for acquisition of 6,640 acres known as Parcel B of the Flagler

Tract. This was immediately appropriated and paid. Then, on September 26, 1970, there was authorized another amendment to the Act of July 2, 1958, to again increase the statutory ceiling by \$20 million to acquire the remaining 66,998 acres of private land which, by this time, had grown to more than 3,500 ownerships through subdivision activity. Of course, the Congress appropriated for the current fiscal year the amount of \$10 million, and our acquisition program is underway and should be completed within 2 fiscal years. With the current funding level of the Land and Water Conservation Fund there is, of course, no problem of funding. Uniquely, the balance is now in the other direction, and there is fast nearing a lack of authorization for appropriations.

There are those who are still complaining; but our land acquisition staff has some \$8,900,000 in appraisals available on which negotiations will begin shortly after the first of January, so any outcry ought to be completely silenced within a year or so.

Sincerely yours,

IRA E. WHITLOCK,
Chief, Division of Legislative Services.

A STATEMENT TO
REUBIN O'D. ASKEW
GOVERNOR
STATE OF FLORIDA

FROM THE
GOVERNOR'S CONFERENCE ON WATER
MANAGEMENT IN SOUTH FLORIDA

MIAMI BEACH, FLORIDA

SEPTEMBER 1971

There is a water crisis in South Florida today. This crisis has long-range and short-range aspects. Every major water area in the South Florida basin, Everglades National Park, the conservation areas, Lake Okeechobee and the Kissimmee Valley is steadily deteriorating in quality from a variety of polluting sources that are detailed below. The quantity of water, though potentially adequate for today's demand, cannot now be managed effectively over wet/dry cycles to assure a minimum adequate water supply in extended drought periods.

WATER SUPPLY – QUANTITY

To initiate an action program to solve problems in the area of water quantity, a careful assessment must be made of water demands linked to projected growth. For an adequate long-range water supply, the State must have an enforceable comprehensive land and water use plan. This plan must be developed immediately. It must be designed to limit increases in population and machines, with their attendant demands on the water supply, to a level that will insure a quality environment. Such a management plan would include, as its first objective, a complete inventory and assessment of long-range water resources. The controlling factor in this water resource assessment should be the water supply that can be anticipated in times of shortest supply. A result of this planning effort would be a water budget system based on available resources. This system would serve as a limitation on allowable population increases.

WATER SUPPLY – QUALITY

Water quality is a far graver problem in the long run than is water quantity. The quality of the water in the South Florida water basin is deteriorating. This deterioration stems from the introduction into the basin of pesticides, herbicides, animal and industrial wastes, heavy metals, salt water, sewage and heated waters. Channelization has contributed substantially to the process of deterioration. Water quality in the basin may be restored and maintained by:

1. Zoning or acquiring the flood plains in the basin.
2. Reflooding the Kissimmee marshes.
3. Initiating a comprehensive treatment program to treat pollutants at the source before they enter the water system. (This would necessitate initiation of treatment procedures in agricultural areas and up-grading existing procedures in urban areas.)
4. Phasing out back pumping into Lake Okeechobee or requiring effective treatment at the source before back pumping.

5. Research and funding which should begin immediately to study what to do about recycling water and sewage effluents and solid waste disposal.

LAND RECLAMATION

There should be no further draining of wetlands¹ for any purpose. As an initial step in controlling the drainage of wetlands, it is recommended that Chapter 298 of the Florida Statutes (Soil drainage district law - 1913) be repealed. Wetlands are the most biologically productive of all lands. The need to preserve them stems from their value for recreation, water storage, aquatic productivity, nutrient removal and for aquifer recharge. A program should be initiated to reflood the marshes of the Kissimmee Valley. Agricultural lands and marshes not presently in production below Lake Okeechobee should also be reflooded. The initial efforts should be pilot projects that can provide a clearer assessment of the benefits and techniques of reflooding. It is crucial to reverse the process of the steady loss of organic soils². Reflooding is the primary method for accomplishing this objective. This program should include the acquisition and consolidation of lands by the State in selected areas north of Conservation Area Three and/or near Conservation Area Two as a major pilot program. Its purpose shall be to determine the effect of controlling water levels, filtering pollutants and recycling wastes to build up organic soils. Muck conservation programs should be coordinated and pursued immediately by the Central and Southern Florida Flood Control District and Trustees of the Internal Improvement Trust Fund. Even if mucklands are not used for agriculture, their preservation and restoration are necessary to maintain the ecological balance of the South Florida basin. Reestablishment of sawgrass may be the best solution to replenishment of the mucklands. However, other approaches should be considered on an experimental basis, including the use of organic material such as sewage sludge.

(A minority position held that limited drainage of wetlands to serve a clear public interest, under strict controls, may be justified.)

POPULATION

There is a limit to the number of people which the South Florida basin can support and

¹Wetlands, swamps, marshes, bogs, etc.

²Organic soils in the South Florida-Everglades area are commonly referred to as muck or muckland.

at the same time maintain a quality environment. The State and appropriate regional agencies must develop a comprehensive land and water use plan with enforcement machinery to limit population. This is especially crucial in the South Florida region. The population level must be one that can be supported by the available natural resources, especially water, in order to sustain a quality environment. A State comprehensive land and water use plan would include an assessment of the quality and quantity of these resources. Moreover, it would set density controls on further development by regions and sub-regions.

GROUND WATER

Localized ground water problems are common in South Florida, but they are especially severe in South Dade County and in portions of Collier and Lee Counties. Ground water contaminations and depletion problems include salt water intrusion, uncontrolled drilling of wells, drainage well pollution, inefficient waste water disposal systems, septic tanks and sanitary land fill. Solutions to ground water problems include:

1. A State Drilling Code requiring licensing of all wells and well drillers.
2. Purchase or zoning of lands to protect recharge areas.
3. Plugging of abandoned artesian wells.
4. Installation of secondary controls in major canals to hold higher heads of water.
5. Construction of additional salt water intrusion control facilities, except on natural rivers, according to a salinity control line established along the entire South Florida coast.
6. Elimination of the disposal of improperly treated waste waters.
7. Consideration of all artificial recharge methods which do not impair the quality of the ground water.
8. Consideration, after study, of filling in certain canals in the South Dade County area to improve ground water quality.
9. Prohibition of deep cuts made into the aquifer at the salt water line which cannot be adequately controlled by salinity barriers to prevent salt water intrusion.

Water quality, quantity and development controls described elsewhere in this report will also improve ground water conditions in the basin.

GEOGRAPHIC CONSIDERATIONS

The South Florida water resources can only be understood by considering the entire area. The area begins with the Kissimmee Valley chain of lakes in the north, extends southward through Lake Okeechobee, the Everglades (including the Big Cypress) and encompasses

all coastal and estuarine areas. Any significant change in water quality or quantity in one part of the total area must be considered in light of its effects on the rest of the system.

(A) The Kissimmee Valley

Pollutants entering the Kissimmee Valley have cumulative adverse effects on water quality in the Kissimmee chain of lakes and in Lake Okeechobee. The Kissimmee lakes and marshes should be restored to their historic conditions and levels to the greatest extent possible in order to improve the quality of the water entering Lake Okeechobee. Action should be taken to restore fish resources and wildlife habitats. Contamination by pastured livestock must be reduced. Techniques should be investigated to increase restoration of selective areas to their natural condition by use of advanced waste disposal and composting materials.

(B) Lake Okeechobee

Recognizing that Lake Okeechobee is the hub of water quantity and quality in South Florida, the most important and overriding consideration should be not only to maintain the present quality of the lake but also to improve it. Specific consideration should be given to assure that all water inputs into Lake Okeechobee are of high quality. Two primary inputs which could improve the quality of water are (1) reflooding of the Kissimmee Valley flood plain and (2) assuring that only high quality water is back pumped into the lake. We should consider the following ways, in addition, to assure high quality lake water:

1. An appropriate monitoring and enforcement program.
2. Allowing a maximum high water level mark of seventeen and one-half feet. Higher controlled elevations will not be considered unless it can be clearly shown that such elevation would have no adverse effect on the environment of Lake Okeechobee, its water quality or the ecosystem of South Florida.
3. Allowing no cattle or agricultural activities inside the diked area of the lake and immediate cancellation of all agricultural and mineral leases inside the diked area
4. Ways should be sought to replace chemical control of aquatic weeds with alternate methods which are not harmful to the Lake Okeechobee ecosystem.
5. Nutrient removal by periodic commercial harvesting of the lake's extensive fish population.
6. Nutrient removal by harvesting of aquatic weeds.

(C) Everglades Outside the Park

Everything possible should be done to retain and enhance those areas in their natural

condition. There is a need for continuous monitoring and control of these water resources since they provide the supplies to total South Florida area, including urban areas. A specific objective should be to maintain and restore the sawgrass. Present intrusion of non-public interests should be removed from Conservation Areas 1, 2 and 3 and all privately owned lands in said areas be purchased. It is important that the Big Cypress area be purchased to the greatest extent possible and that land use controls be established immediately in the Big Cypress to control development and to preserve this area for the public benefit. Other potentially valuable areas that need protection are the Shark River Slough, its head water areas and the general area near Canal C-111.

(D) Everglades National Park

We should attempt to maintain the water quality and quantity of the Park adequate for the purpose for which the Park was created. Where it is deemed advisable, exotic plants and animals should be controlled in the Park and throughout the Everglades area.

SHORT TERM PROBLEMS

An inter-agency committee should be established immediately to consider short term water management problems. The purpose of this committee shall be to develop an ecologically sound body of guidelines and policy to be followed in the resolution of short term problems of the region. There should be an educational program to alert the public to the possibilities and consequences of water shortage.

(A) Fire Prevention and Control

Through programmed burning maintain an approximation of the original fire regime of the area. There should be controlled burning to protect the natural plant and animal systems and to prevent undesirable build-up of plant materials. Man should be excluded from critical areas in times of drought. Fire laws should be strictly enforced.

(B) Intrusion of Salt Water

To prevent the intrusion of salt water within the coastal areas, the fresh water head should be maintained as high as feasible. When a water shortage is anticipated, restriction of water use will be necessary in order to maintain this head of fresh water during the drought. Temporary dams should be built on canals, when necessary, with an established emergency system of permitting to allow construction of such dams. During droughts, navigation service should be restricted in order to reduce loss of fresh water. Canals should not be constructed which would allow salt water intrusion inland of the salt water line. Appropriate local laws should be established and enforced.

(C) Establishment of Water Priorities

Since there is competition for water by agriculture, urban areas, conservation areas, estuaries and the Everglades National Park it is recommended that the total water supply be considered a common resource. Survival of the entire South Florida ecosystem, without sacrificing any segment, should be the prime consideration. Maintaining the head of fresh water should be given first priority. The inter-agency committee should propose priorities in its over-all plan.

(D) Regulation of Water Use

A model water use priority ordinance should be developed for use by all affected areas, establishing a series of consumptive controls based on the degree of water shortage.

(E) Desirability of Cloud Seeding

Cloud seeding is not considered a short term solution. There was a division of opinions on the desirability of cloud seeding primarily due to a lack of knowledge, especially as to the possible adverse environmental effects. An opinion is that cloud seeding may be more effective in producing a water supply during the wet season to mitigate low water supplies during the dry season. However, further research is recommended.

(F) Schedules of Water Levels in Lake Okeechobee and the Conservation Areas

The inter-agency committee should develop and maintain close coordination between the U. S. Army Corps of Engineers, the Central and Southern Florida Flood Control District, the Florida Game and Fresh Water Fish Commission, the U. S. Department of the Interior and where appropriate, the Florida Department of Natural Resources. The purpose should be to establish water levels in Lake Okeechobee and the Conservation Areas as well as to establish flexible regulation and delivery schedules for all water needs in South Florida.

MANAGING AGENCY FOR THE SOUTH FLORIDA REGION

Water management should be coordinated at the federal, state and regional levels, with the leadership role clearly being taken by the State of Florida. At the state level there must be an agency or board that has all power necessary to develop and ensure implementation of a comprehensive land and water use plan for the State. The agency or board, whichever it may be, should report to the Governor.

A regional board for South Florida shall be established. The regional board shall be composed of nine (9) members appointed by the Governor. Three year staggered terms shall be used. The board shall represent the diverse interests in the region. It should hold periodic

public hearings in its region for the purpose of receiving input from the public. It shall develop and implement a regional comprehensive land and water use plan in accordance with the State plan. The development of this regional plan should commence at once with the proper funding and legislative authority, even in the absence of an adequate statewide plan. In the development of these long range plans, procedures should be adopted which allow and encourage full public participation and input.

The geographical boundary of the South Florida regional land and water management agency shall be the Kissimmee River Basin, the Okeechobee Basin, the Everglades and the Big Cypress Watershed, including all adjacent coastal and extuarine areas. The regional land and water management agency shall be responsible for managing water quality and quantity for the long term benefit of the environment of the region and the State. The agency shall be responsible for establishing policy and guidelines for such activities as drainage, water use, well drilling, land use, estuary protection, watershed management, flood control and soil conservation.

The regional agency shall have all powers necessary to develop and implement the regional land and water use plan including, but not limited to, taxing powers, eminent domain, police powers such as intervention to protect the environment, permits for drainage districts and canals, subpoena and investigative powers and research properly coordinated with other agencies. A law providing for public condemnation of lands for environmental protection is essential to the implementation of the objectives herein presented.

The regional agency shall be required by the State to relate to and coordinate with duly constituted State and regional organizations operating in other functional areas.

Finally, the conference recognizes that present funding for environmental protection must be greatly enlarged to accomplish the common goal of protecting the economic and environmental values of this State.

The citizens who have participated in this Governor's Conference on Water Management in South Florida in plenary session assembled acknowledge and applaud the foresight and courage demonstrated by Governor Ruebin O'D. Askew in convening this meeting and offer their continuing support in accomplishing the objectives set forth in this statement.

Approved in Plenary Session

September 24, 1971

[Excerpts from a Department of Interior study]

A SYNOPTIC SURVEY OF LIMNOLOGICAL CHARACTERISTICS
OF THE BIG CYPRESS SWAMP, FLORIDA

John A. Little
Robert F. Schneider
Bobby J. Carroll

UNITED STATES DEPARTMENT OF THE INTERIOR
Federal Water Quality Administration
Southeast Region
Southeast Water Laboratory
Technical Services Program

MAY 1970

INTRODUCTION

BACKGROUND

The year 1969 marked a significant event in the history of the development pattern of south Florida. The long term trend of drain, fill, clear, and build in this subtropical area came in for critical review, at least in one area. Approximately 36 miles west of Miami, the Dade/Collier Jetport training facility was nearing completion. The training facility was being constructed on 39 square miles of a wholly undeveloped portion of the Big Cypress Swamp. Eventually, a full-scale commercial airport surrounded by urban development was envisioned. Upwards of 1.5 million people were expected to live in the vicinity. When the full plans for the jetport area became realized, many private, State, and Federal agencies and many individuals interested in protecting the environment made known their opposition. This opposition was directed primarily toward the damage expected to be wrought by the jetport development on the delicate ecology of the Big Cypress Swamp - Everglades system. Many foresaw the end of this ecosystem as we now know it.

The Department of the Interior established a task group in June 1969 to review the situation and make recommendations. The task group report⁽¹⁾ (known popularly as the Leopold Report) was completed in September 1969 under the title "Environmental Impact of the Big Cypress Swamp Jetport." In the report, the unique watershed relationship between the Big Cypress Swamp and the Everglades was described. Details were given of a sensitive ecosystem like no other in the United States or perhaps in the world. Three alternatives for future action at the jetport site were presented. One of these alternatives proposed that a substitute site be found and that the training facilities be transferred to this new location. On January 16, 1970, the Secretaries of

the U. S. Departments of Transportation and Interior, the Governor of Florida, the Dade County Port Authority and Collier County entered into a formal agreement to effect transfer of the training facilities. Thus, one of the most significant decisions made to date for protection of a small plot of unique natural habitat was completed.

Unfortunately, the Dade/Collier Jetport isn't the only threat to the Big Cypress Swamp and indirectly to the Everglades. Much of the Swamp is owned by private landholders, from a few acres to the thousands of acres in the hands of the GAC Corporation, Miami, Florida. At present, there is insufficient jurisdictional control on development of these private landholdings. Recognition of the need to effect greater control resulted in a directive from the Secretary of the Interior to certain Interior bureaus on November 19, 1969. This directive recognized the hydrobiologically interdependent relationship between the Big Cypress Swamp and the Everglades National Park. A study, with recommendations by June 1, 1970, was requested to define those portions of the Swamp "which merit special protection."

The Secretary noted that environmental alterations within the Swamp "can seriously affect quality . . . of water." Evaluation of the effect of existing environmental alterations on water quality became one of the reasons for the investigation reported here.

OBJECTIVE

The objectives of the Federal Water Quality Administration's Big Cypress Swamp Study were:

- To determine water quality in respective portions of the Big Cypress Swamp;
- To evaluate effects of urban, agricultural, and industrial developments on water quality; and

To evaluate the need for maintaining special protection measures in the Big Cypress Swamp and the Everglades National Park.

It was recognized in the establishment of this study that a completely definitive picture of water quality in the Swamp could not be obtained by June 1, 1970. The hydroperiod which is so important to the ecological balance being maintained in the Swamp is subject not only to seasonal variation but also to year-to-year change. Wet cycles occur at approximately ten-year intervals, and it appears that such a wet period is occurring at this time. Water quality extremes in the Swamp vary with the hydroperiod, and thus a completely thorough portrayal of the natural quality variation would require an extended period of study. As this report will show, this does not mean that vital background information on water quality could not be obtained in time for the June 1 deadline.

It was thought that the impact of existing developments could be shown in terms of changes in water quality. This was found to be true. From an analysis of changes in water quality already affected by urban, agricultural and other development, predictions can be made on the effects of additional development.

SCOPE

Within the allotted time frame, it was determined that a one-month field investigation of the Big Cypress Swamp could be conducted. Emphasis would be placed on obtaining the best water quality picture possible for the Swamp and its immediate periphery. This would mean little or no attention given to water quality in the Everglades National Park.

The month of March 1970 was chosen for the field study because historically it has been a dry period of the year. Water quality during a dry period should reflect the maximum values of natural dissolved constituents (e.g. nutrients, metals,

and sulfates) present in the Swamp waters. Any increase over the maximum levels observed could be interpreted as man's contaminative influence, an influence which might be reflected in accelerated eutrophication of the waters of the Big Cypress Swamp and Everglades National Park. Man's addition of toxic contaminants can also change the biotic character of the Swamp.

Field studies were conducted in March as scheduled. Sampling stations were located throughout the Swamp, and day-to-day variations in physical, biological, (including bacterial), and chemical character of the waters flowing into, through, and discharging from the study area were recorded.

AUTHORITY

The Federal Water Quality Administration (FWQA) study of the Big Cypress Swamp in southern Florida was performed at the request of the Commissioner, Federal Water Quality Administration (February 6, 1970). Authority for performing water quality investigations of the kind and extent reported here may be found in Section 5 (a) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.).

ACKNOWLEDGMENTS

Throughout the conduct of field studies headquartered at Naples, Florida, numerous agencies and individuals provided valuable assistance. The courtesies, information, services, and other forms of assistance provided are gratefully acknowledged and thanks extended to the following:

City of Naples Public Works Department (Mr. W. F. Savidge, Director) - for providing fixed laboratory space and parking space for mobile laboratories, for assisting in utility installation, for providing telephone communication, and for various other services



Tamiami Trail and Canal



Dense periphyton growth in Tamiami Canal

Collier County Engineering Department (Mr. Harmon Turner, County Engineer)
- for maps and detailed topographical information on the Big Cypress Swamp
(special thanks to Mr. Herb Fries).

Collier County Agent (Mr. Donald W. Lander) - for soil maps and information on agricultural areas and practices.

National Audubon Society, Corkscrew Marsh Sanctuary (Mr. Phillip Owens, Superintendent; Mr. Frank Ligas, Staff Biologist; and Dr. Alexander Sprunt, Jr.) - for valuable information on fish, wildlife, and aquatic biota typical of the various habitats found in the Swamp and the Everglades.

Geological Survey, U. S. Department of the Interior, Miami Office (Mr. Thomas Buchanan, Subdistrict Chief) - for genuine cooperation with a sister agency.

National Field Investigations Center, Federal Water Quality Administration, Cincinnati, Ohio (Mr. A. D. Sidio, Director) - for providing a second mobile laboratory, field personnel, and certain analytical services at Cincinnati.

Analytical Quality Control Laboratory, Federal Water Quality Administration, Cincinnati, Ohio (Mr. Dwight Ballinger, Chief) - for providing spectrographic analyses on composite samples.

Kenneth M. Mackenthun, Chief, Technical Studies Branch, Division of Technical Support, Federal Water Quality Administration, Washington, D. C. - for providing helpful suggestions and detailed review of the study report.

SUMMARY

A one-month synoptic study of the limnological characteristics of the Big Cypress Swamp, Florida, was conducted in March 1970. This study was undertaken by the Federal Water Quality Administration to insure that as much information as possible would be available on water quality to serve as background for this agency's participation in a larger effort by U. S. Department of Interior agencies to develop recommendations on the need to maintain special protection areas in the Swamp.

Thirty-four sampling stations were established throughout the Big Cypress. These stations were chosen to be representative of the many different aquatic habitats in the Swamp. The waters were examined for physical, chemical, and biological characteristics. Special attention was directed to evaluation of the water quality impact of typical urban, agricultural, and other development in the study area.

A large amount of limnological information was collected during the study, especially on the biological character of the Big Cypress Swamp. For a general discussion of the findings, the reader is referred to the section WATER QUALITY IN THE BIG CYPRESS SWAMP. Conclusions and recommendations resulting from this study follow.

CONCLUSIONS

The Big Cypress Swamp is a complex aquatic environment that supports a subtropical biota unique to the United States. Unless immediate protective steps are taken, man's alteration through drainage and/or clearing of selected areas will destroy this ecosystem and detrimentally affect the Everglades National Park. Piecemeal development -- residential, agricultural, industrial, and commercial -- has already resulted in unbalanced biological development deleterious to the present Swamp ecology, deteriorated water quality, a decrease in the water environment essential to many animal species, increased water temperature, and increased concentrations of certain elements potentially toxic to aquatic life.

1. A shift is taking place in the aquatic habitat from the natural ecosystem of wet prairies, marshes, and sloughs to a canal ecosystem. Many of the canals are subtly showing an unbalanced biological development of massive water lettuce and water hyacinth beds and rough fish dominance.
2. Drainage of portions of the Big Cypress Swamp will reduce or eliminate the hydroperiod in wet prairies and marshes. This will reduce the feeding and spawning grounds for fauna. Many native animals are already among the rare and endangered species of reptiles, birds, and mammals. Ultimately, the result of drainage is migration or extinction of those animal, and plant, species dependent on an established hydroperiod. Urban development along canals will likewise reduce or eliminate certain dependent wildlife.
3. Drainage of marshes and wet prairies leave these areas susceptible to disastrous peat fires. Even without fires, compaction and oxidation of the limited peat and other organic soil deposits is a consequence of drainage.

4. The GAC Corporation canals and those alongside Florida Highways 29 and 840A divert water away from the Swamp and directly to the sea. This drastically alters the historical sheet flow pattern entering the Everglades National Park and changes the water quality that formerly entered estuarine areas. Saltwater encroachment along most of the Ten Thousand Islands area will increase as the freshwater overland flow is reduced in volume.
5. Drainage canals are being used intentionally and unintentionally to transport wastes away from residential, commercial, industrial, and agricultural areas. With increased development in the Big Cypress, the quality of water in the canals will deteriorate.
6. Many canal systems are developed coincidentally by highway construction. Runoff from the highways enters the canals. Road accesses to these water transport systems permit clandestine disposal of solid wastes. Poor water quality can be extended many miles downstream from canal areas where runoff enters or waste is dumped.
7. Most canals in the Swamp are subjected to weed control and/or sediment removal. Resulting introduction of herbicides, dead organic matter, and suspended sediments causes water quality damage.
8. The canal from the GAC Corporation development which discharges into Fahka Union Bay brings iron, lead, and aluminum into these estuarine waters in concentrations and amounts greater than existed under natural undrained conditions. Also, the iron and lead levels found would be damaging to water supply use should such use be made of these canal waters.
9. Light penetration and turbidity data show that the canals in the newly developing GAC Corporation area transported pollutional levels of sediment into coastal areas not previously subjected to such water quality problems.

10. Water temperatures were 2°C cooler in March 1970, in the shaded cypress strand areas, (e.g. Fakahatchee Strand), than in the canals more exposed to sunlight. The increased water temperatures and sunlight exposure resulting from clearing and drainage operations will change the aquatic ecology and stimulate growths of undesirable plant species such as blue-green algae.
11. Total phosphorus levels, which averaged less than 0.1 mg/l at all stations, were one indication of relatively low nutrient enrichment in the waters of the Big Cypress during March. The highest individual total P concentration (0.38 mg/l) was observed in the vicinity of a heavy bird population at Station 29. Total organic nitrogen and total organic carbon analyses revealed no significant information on man's influence on the Big Cypress. Low nutrient levels in the Swamp waters were the result of either assimilation of nutrients by the profuse biota or accumulation in the sediments.
12. The hourly observations of changes in dissolved oxygen, CO₂, pH, and temperature at stations in the GAC canal system, along Alligator Alley, along Tamiami Trail, and in the Fakahatchee Strand show that photosynthetic and bacterial activity was highest in the two latter areas. This would be expected for older canal areas and for sloughs where the aquatic biota were more abundant.
13. Hardness, alkalinity and sulfate data reveal a significant difference in quality between water in the GAC canal system and the remainder of the Swamp. Seepage of groundwater into the canals (which represents diminishment of an important water resource) accounts for the higher concentrations of hardness, alkalinity, and sulfate in the GAC system.
14. Although no oil contamination was evident in March and the oil field operation was a clean one, a potential oil pollution hazard exists near Sunniland,

Florida. The limestone mining operation near Sunniland causes localized pollution from dust spreading over nearby water areas (Okaloacoochee Slough) and from stormwater runoff over exposed spoil disposal areas.

15. A comparison of phytoplankton and periphyton populations indicated that the latter is the major source of aquatic primary production.
16. Presently, there are no bacterial problems of significance in the study area. If development continues, bacterial and viral problems could result from increased urban runoff, improperly treated domestic wastes (e.g. septic tanks), and runoff from lands with increased cattle populations.

RECOMMENDATIONS

If the limnological character of the Big Cypress Swamp and the hydro-biologically dependent Everglades National Park ecosystem is to be preserved, then the following recommendations should be met:

1. The construction of canal(s) in the Fakahatchee Strand should be halted immediately. Those canal(s) which now intercept and divert water from the Strand should be blocked or filled to prevent further artificial drainage of this important slough.
2. Additional drainage of the Big Cypress Swamp, including that associated with road construction and commercial, residential, agricultural, and industrial development, should be prevented.
3. The feasibility of reintroducing water into the Big Cypress from the Highway 29 (Barron River) and 840A (Turner River) canals should be investigated. Some restoration of sheet flow patterns and natural hydroperiod could be effected in this manner.
4. The existing spoil areas and exposed banks alongside recently constructed canals should be sprigged or seeded in order to reduce erosion problems.
5. Although defining the limits for all areas which merit special protection was considered beyond the scope of this study, the Fakahatchee Strand must be included as a protected area because it is the major slough in the western section of the Big Cypress Swamp. Unimpeded flow from the Strand is vital to continued existence of portions of the Everglades National Park.
6. Special attention must be given to future waste treatment facilities in the developed and developing urban areas. Advanced levels of waste treatment, including nutrient removal and effluent chlorination, must be achieved

for all domestic wastes entering the Big Cypress-Everglades system.

In order to protect both ground and surface waters, the use of septic tanks for waste treatment in these areas must not be permitted. Treatment comparable to that for domestic wastes should be instituted for all other point source wastes.

7. The operating oil wells and exposed pipe areas in the Sunniland oil field (Humble Oil Company) should be diked or walled off in order to contain any accidental spillage.
8. The method and extent of the limestone mining operations near Sunniland should be regulated. Dust and erosion control measures must be adopted in order to prevent damage to water quality in the adjacent Swamp waters (including Okaloacoochee Slough).
9. A limnological monitoring program should be initiated in the developed and developing areas, e.g. GAC Corporation lands and in the vicinity of Immokalee. A separate study should also be made in the Ten Thousand Islands area (especially Fahka Union Bay) to evaluate the effect of altered flow patterns brought on by canal construction. Any damages detected by either the monitoring program or the special study should be remedied.

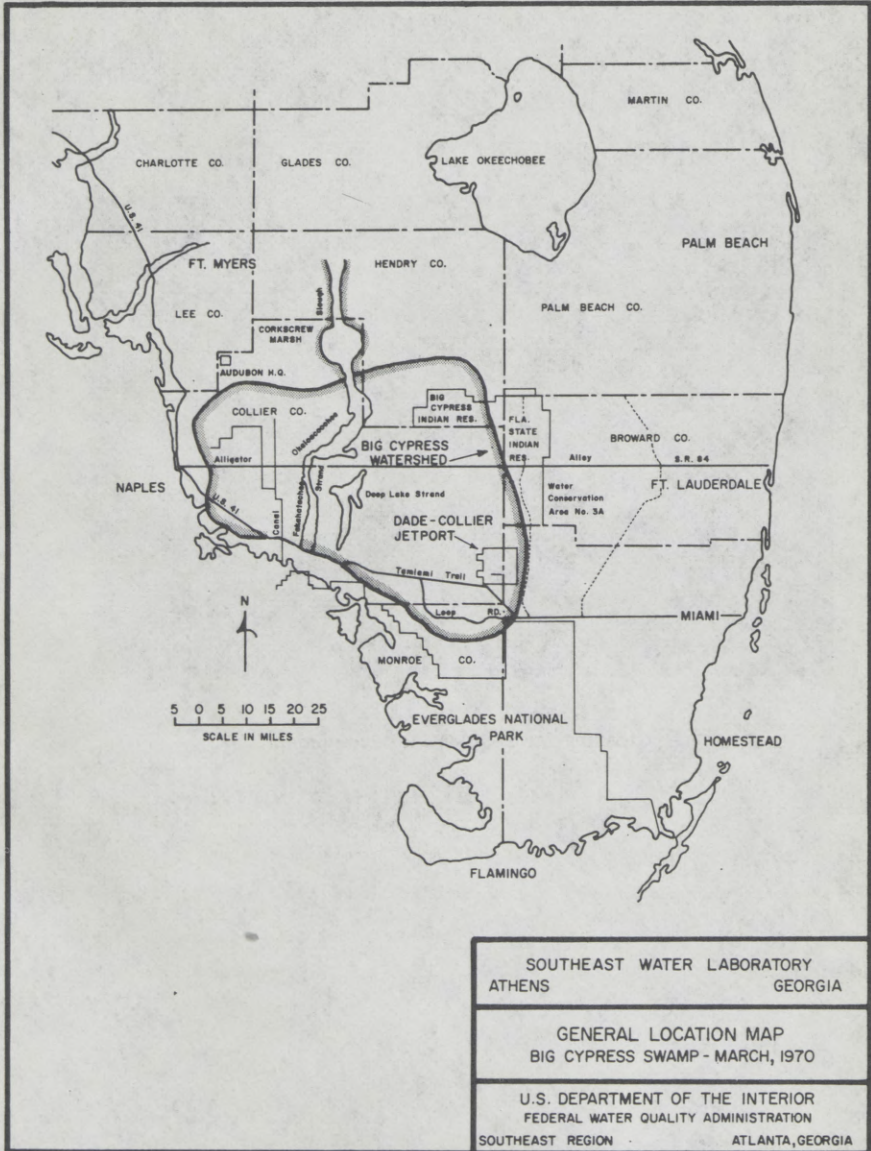
STUDY AREA

PRINCIPAL FEATURES

The area chosen for water quality investigation was generally that considered historically as the Big Cypress Swamp watershed. This general area is shown in relation to other south Florida topographic features in Figure 1. The Swamp includes over 1200 square miles of the coastal lowlands of southern peninsular Florida. The vast majority of Swamp acreage is located within Collier County. In fact, most of Collier County is or once was a part of the Big Cypress Swamp. Encroachment of agricultural interests on the north and large-scale residential development along the western Swamp border have reduced the total coverage of what can be called the Big Cypress Swamp today.

Figure 2 (rear of report) delineates in greater detail the study area as it exists at this time. From the GAC Corporation canal system (over two-thirds complete) westward, much of the wetland area of this part of the Swamp boundary is being drained. Eventually, succession of dry-land vegetative forms will occur. Water quality will change also. The very size, over 100,000 acres, of the GAC land development program in Collier County suggests significant effect on the ecology of a large part of what once was the Big Cypress Swamp. One brochure describing the GAC Golden Gate development states that ponds and glade land scattered through the properties may contain surface water prior to drainage. The 2500-acre section of Golden Gate on which housing has been and is now being constructed was first drained and then cleared of practically all vegetation before construction began. The GAC Corporation properties extend north and south from Corckscrew Marsh to near Collier-Seminole State Park.

FIGURE 1





Clearing for residential development

The principal topographical feature along the southern border of the Swamp is the Tamiami Trail (U. S. 41) and Canal. A new east-west toll road, Florida Highway 84 (also known as Alligator Alley), bisects the Swamp. This highway relieves traffic moving between Florida's lower east and west coasts. A small number of vehicular service areas have been built along the Tamiami Trail, but no development of any type is permitted on Alligator Alley. Along the northern Swamp limits, Florida Highway 846 passes through Collier County in a general east-west direction. State Roads 29 and 840A are the principal north-south highways within the Big Cypress Swamp. Highway 29 connects the municipalities of Immokalee and Everglades City, while 840A is an improved gravel road joining Alligator Alley and the Tamiami Trail. Associated with and resulting from construction of most of these roads is a canal paralleling the roadway. These canals have altered historical sheet flow patterns throughout the Swamp.

There are no municipalities now located entirely within the Swamp boundaries. The municipalities of Naples (county seat), Everglades City, and Immokalee are all situated along the periphery. (A portion of Immokalee is included in the Swamp watershed.) Immokalee is the commercial center of the largest farming area in Collier County. Truck farms, cattle ranches, and some citrus groves are located nearby.

At the community of Sunniland, Florida, along Highway 29, the Humble Oil Company has a small oil well field. Approximately ten derricks are located in the vicinity, and about one-half of the wells are operating. Also nearby is a limestone quarry, which is situated immediately adjacent to the Okaloacoochee Slough, one of the most important drainage systems in the Swamp.

The Seminole Indian (Big Cypress) Reservation is located in the northeast corner of the Swamp and the Dade/Collier jetport in the southeast corner. Only the southern third of the roughly rectangular, 39-square-mile jetport site has been disturbed by construction. In addition to the 10,500-foot training runway, a small control tower, and a limited amount of flight control equipment, the developed part of the jetport shows cleared areas alongside the runway and access roads, five large borrow pits, an extensive taxi strip system, and construction equipment and office areas. The disturbed ecology is apparent.

Most of the eastern boundary of the Swamp is bordered by levees of Water Conservation Area No. 3A. The entire water conservation system was constructed by the Corps of Engineers and is maintained by the Central and Southern Florida Flood Control District. Two interceptor canals for this Conservation Area, L-28 and L-28 tieback, extend into eastern portions of the Swamp and affect the natural surface water runoff and drainage.

The least disturbed sections of the Big Cypress Swamp, and consequently those most amenable to preservation and control, are as follows:

- A. Fakahatchee Strand - natural drainage here is already affected detrimentally by the GAC Corporation canal system.
- B. Okaloacoochee Slough - some cattle land and farming in northern portion.
- C. All parts of Swamp east of Highway 29 and south of Alligator Alley - largest undisturbed section of Swamp, but now contains jetport site.
- D. Section of Swamp north of Alligator Alley, east of Highway 840A, and south of Hendry County Line - wholly undisturbed except for small hunting and fishing camps, and the L-28 interceptor canal.

Large areas of Swamp in southern Hendry County outside the Seminole Reservation have remained relatively unaffected by man. These too could be included as protected areas of the Big Cypress Swamp.

The Corkscrew Marsh adjacent to the northwest corner of the Swamp is considered separate from the Swamp but is hydraulically connected during high water.

In addition to the conservation pool along the eastern border, the physiographic regions which border the Big Cypress Swamp are: Pine Flatland on the north and northwest, Southwest Coast and Ten Thousand Islands on the southwest, and Everglades on the south.⁽²⁾

GEOLOGY AND SOILS

The principal geological feature of the Big Cypress Swamp area is the presence of the Tamiami limestone formation which generally lies a few feet below the soil surface but is exposed in some locations.⁽²⁾ Most of the soils which cover the limestone have a relatively low natural fertility and are basically composed of fine sand. Some marl is also present. Areas of densest rooted vegetation give rise to muck and peat deposits. The thickness of the peat deposits and extent of their coverage, coupled with a different underlying limestone formation, accounts for the basic geological difference between the Big Cypress Swamp and the Everglades.⁽¹⁾ The latter has thicker, more extensive areas of muck and peat deposit overlying Miami Oolite limestone. Phosphatic material has been reported in the marl deposits of the Okaloacoochee Slough.⁽²⁾

Surface water quality is closely related to the geology of the Swamp since the exceptionally long hydroperiod permits equally long exposure to the surface and near-surface soils in the area. Drainage canals which expose

Tamiami limestone also intercept the groundwater which flows through the shallow soil layer. The quality of water in many of these canals reflects the presence of groundwater seepage.

VEGETATIVE FEATURES

The only consistent characteristic of the vegetative cover of the Big Cypress Swamp is its diversity. Thick forests of cypress and mixed hardwoods (strands) in the wet areas where richer soil abounds yield to nearly treeless grass-sedge areas (wet prairies). There are also drier areas of pine, palm, and palmetto in varying mixtures, but the cypress gives the Swamp its name. The abrupt change from cypress predominance to sawgrass marks the boundary between the Big Cypress and the Everglades.

Many of the disturbed areas, especially those adjacent to roads, are characterized by the regrowth association of willow and red maple brush. Most of the trees in the Swamp, and especially the hardwoods, are covered with epiphytes. The many species of these air-plants and of other unusual plants make the Swamp a botanist's dream and provide much of the basic appeal of the area as a refuge from the commonplace.

The unique ecology of the Big Cypress is perhaps best exemplified by the vegetative makeup of the Fakahatchee Strand. A mixed stand of royal palm and bald cypress is probably the only one of its kind in the world.

Wildlife abounds in all wilderness sections of the Swamp. The many migratory or resident waterfowl which frequent the area dominate wildlife forms in the cypress strands and affect water quality throughout the Swamp.

HYDROLOGY AND WATER QUALITY

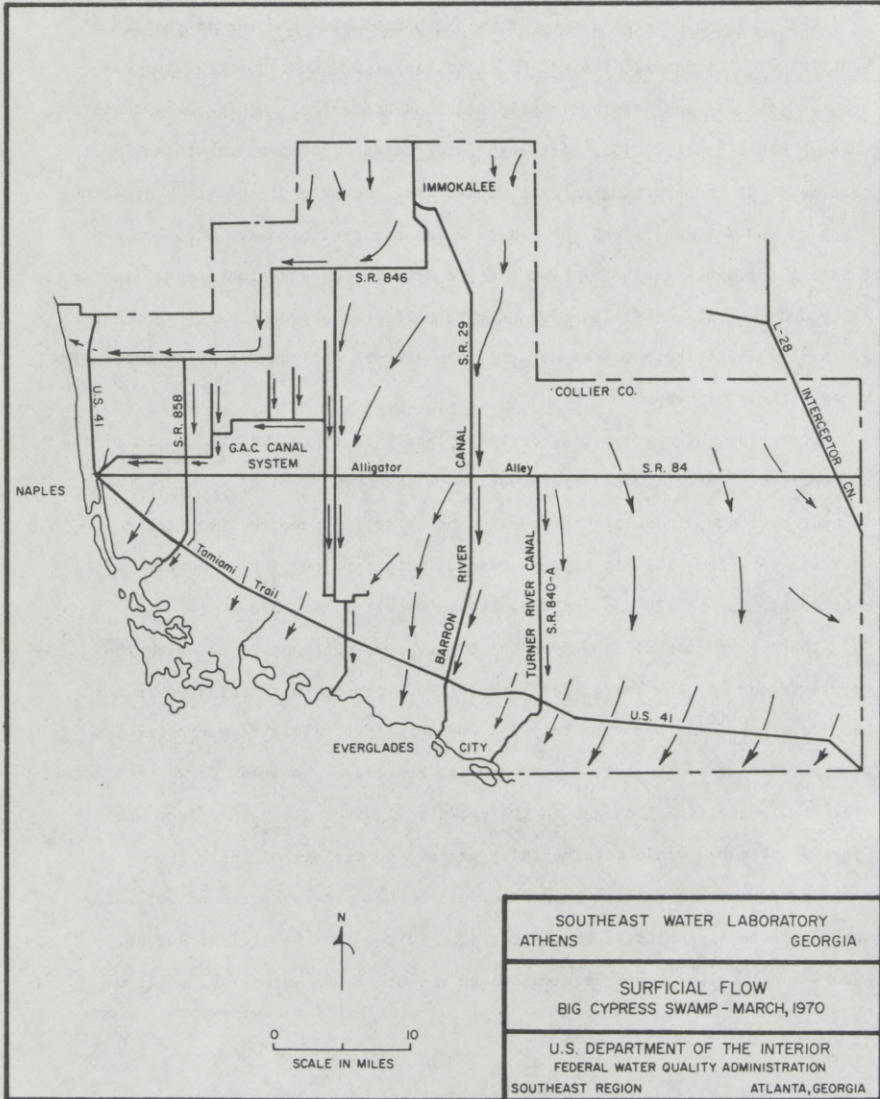
The sluggish, overland sheet flow which dominates the runoff pattern of south Florida is easily diverted by channelization. Consequently, man has both consciously and unintentionally affected historical runoff characteristics through canal construction. Although interconnected sloughs remain an important means of transporting surface waters from one part of the study area to another, the GAC canals and the canals which parallel Highways 846, 29, and 840A all influence surficial flow (Figure 3). The canals alongside Alligator Alley and the Tamiami Trail serve only to collect the predominantly north-to-south flow and distribute the water to the nearest outlets spaced at intervals beneath these highways.

One effect of the existing drainage canals is to reduce the length of the hydroperiod so vital to the preservation of the Swamp ecology. Any reduction in hydroperiod would change the quality of water fed into the Everglades National Park from the Big Cypress Swamp. Interception of groundwater by the construction of canals can and does change water quality also.

The average annual flow from the Big Cypress watershed upon which the very existence of the Everglades National Park depends was estimated in the Leopold Report ⁽¹⁾ as approximately 350,000 acre-feet. This flow constitutes over 50 percent of the total flow entering Everglades National Park. Any deterioration of significant change in the quality of water discharged from the Big Cypress watershed would detrimentally affect the ecology of the Park.

Groundwater in Collier County serves as the primary source of water for municipal and agricultural use. According to the 1962 Geological Survey report ⁽³⁾ on Collier County's groundwater resources, an extensive, shallow

FIGURE 3



aquifer is the chief groundwater source. This aquifer yields 1000 gpm and greater and ranges in depth from the surface to 130 feet. It is recharged by local rainfall, including that falling on the Big Cypress. The Floridan Aquifer which lies at much greater depths has also been tapped but is generally of poorer mineral quality. Considerable leakage from wells bored into the Floridan Aquifer have affected surface water quality in some areas. Over 50 flowing wells were noted in the Geological Survey report but most of these (40 percent near Immokalee) are outside the Big Cypress Swamp watershed.

Water quality in both the shallow and Floridan aquifers varies appreciably throughout the county, but one aquifer can usually be distinguished from the other. Total dissolved solids (TDS) in Floridan Aquifer water ranges between 800 and 6,000 mg/l, while the TDS range for the more heavily used shallow aquifer is a lower 200 to 1,000 mg/l.⁽³⁾ Chlorides may exceed 1,000 mg/l in both aquifers and iron varies considerably (as low as 0.01 and high as 2.3 mg/l). The sulfate content can be used to distinguish one groundwater source from the other; 100 to 500 mg/l for the Floridan Aquifer and usually 0 to 20 mg/l in the shallow aquifer. This discussion of groundwater quality is included here because of the interrelationship between ground and surface water quality in areas of flowing wells and/or canal construction. More on this point may be found in later sections.

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 (about 57 inches annual rainfall) to replenish the areas of standing water during the rainy

season. Most of the annual rainfall occurs between the months of May through October. Normally, rainfall over the Swamp averages about 1.5 inches in January, 1.5 to 2 inches in February, and less than 3 inches in March. Biological activity is stimulated by the year-round warm temperatures and the wet environment. Heavy rainfall which is common can quickly change the quality of water moving from one Swamp area to another.

AGRICULTURE

Runoff from agricultural areas can add nutrients such as nitrogen and phosphorus, suspended organic and inorganic matter, and pesticides to receiving water bodies. Where fertilizers and pesticides are applied from spray planes, watercourses surrounding cultivated land can receive these water contaminants directly. As stated previously, the area surrounding Immokalee, Florida, is the primary agricultural zone in the Big Cypress study area. The permeability and flatness of the land around Immokalee is not conducive to appreciable surface runoff during rainy periods but aerial spraying is significant.

According to the Collier County Agricultural Agent, ⁽⁴⁾ approximately 28,000 acres (not all in the Big Cypress watershed) were cultivated in Collier County in 1968-69 for truck crops such as tomatoes, melons, corn, squash, and cucumbers. Another 6,500 acres of citrus groves existed during the same period. In the Immokalee agricultural area, including the southern portion of Hendry County, approximately 36,000 cattle graze the scattered pasture areas. Many of these grazing areas are located immediately adjacent to the Okaloacoochee Slough.

The lack of natural fertility in the soil coupled with insect and/or weed growth problems requires farmers in Collier County to apply fertilizers, pesticides, and herbicides heavily. The type and amount of each application varies with the season and the type crop. For example, citrus crops may require a postbloom spray in March or April, plus summer spray, fall spray, dormant spray, and sprays between seasons. The Collier County Agent lists⁽⁴⁾ the following proprietary types of sprays for crops in the Big Cypress area:

Pesticides for citrus -	Ferbam
	Kelthane
	Parathion
	Systox
Pesticides for vegetables - (tomatoes and watermelon)	Sevin
	Systox
	Cygon
	Phosdrin
	Thimet
Fungicides -	Maneb
	Copper-base products
	Dithane M-45
	Dyrene

Most of the pesticides, with the exception of Kelthane, are the less persistent phosphorylated types.⁽⁵⁾ Some herbicide application for control of water hyacinths in the canals of Collier County is usually initiated during late March or early April.

During the March 1970 field study period, citrus crops, squash, tomatoes, and certain other vegetables were being harvested.

MUNICIPAL AND INDUSTRIAL WASTE SOURCES

The Big Cypress Swamp is unique in many ways. At least for the present time, it is unique for its limited number of municipal (sanitary) or industrial waste problems. Table I lists and evaluates those waste sources which do affect the Big Cypress.

T H E B I G C Y P R E S S W A T E R S H E D

STUDY REPORT: FOR INFORMATION AND REVIEW ONLY, PENDING DETERMINATION OF OFFICIAL POSITION.

This printing includes all corrections noted on the
errata sheet accompanying the first printing.

A Report
to
The Secretary of the Interior
April 19, 1971

EVERGLADES-JETPORT ADVISORY BOARD

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C O N T E N T S

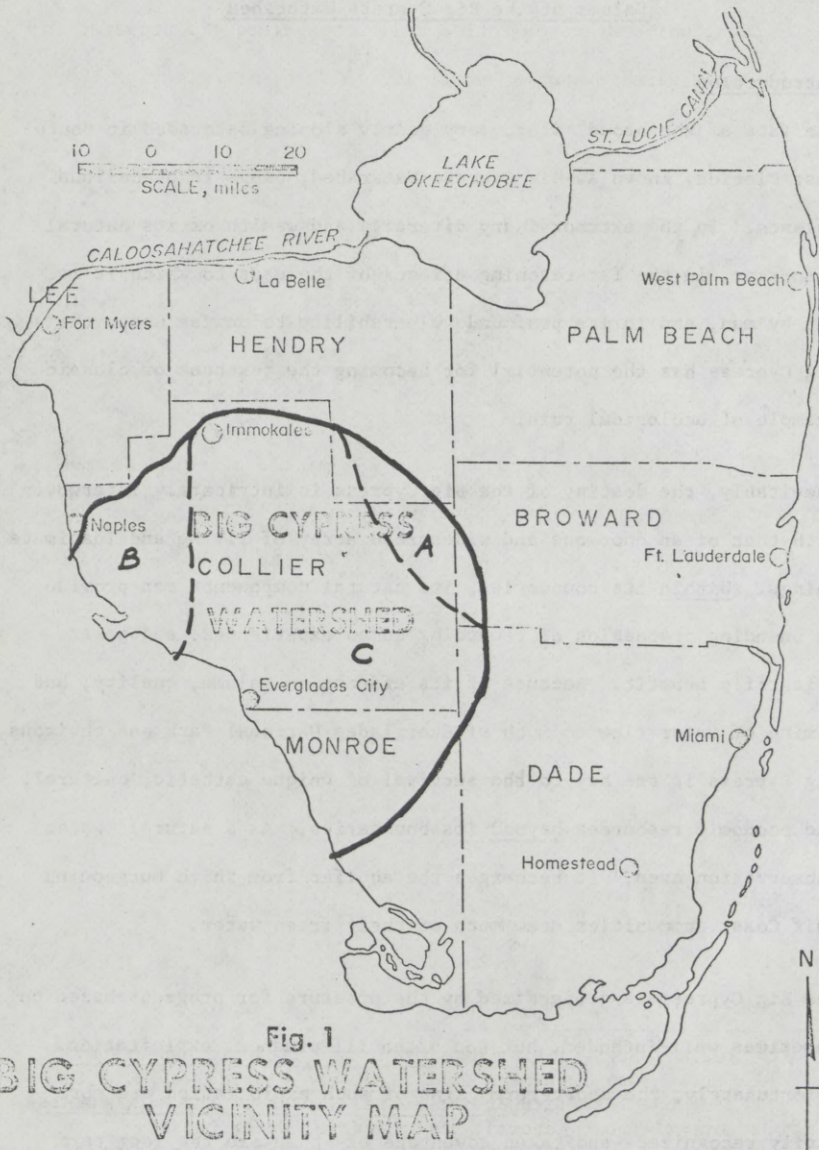
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Values of the Big Cypress WatershedIntroduction

The fate of the broad, flat, very gently sloping watershed in southwest Florida, known as Big Cypress Watershed, hangs in precarious balance. In the extraordinary diversity and wealth of its natural resources, in the far-reaching effects of the uses to which it is put by man, and in its profound vulnerability to unwise uses, the Big Cypress has the potential for becoming the textbook or classic example of ecological ruin.

Inevitably, the destiny of the Big Cypress is intricately interwoven with that of an enormous and widespread array of living and inanimate things. Within its boundaries, its natural components can provide an unending procession of rewarding human experiences, and great scientific benefit. Because of its effects on volume, quality, and timing of water flow to much of Everglades National Park and environs, Big Cypress is the key to the survival of unique esthetic, cultural, and economic resources beyond its boundaries. As a natural "water conservation area," it recharges the aquifer from which burgeoning Gulf Coast communities draw much of their fresh water.

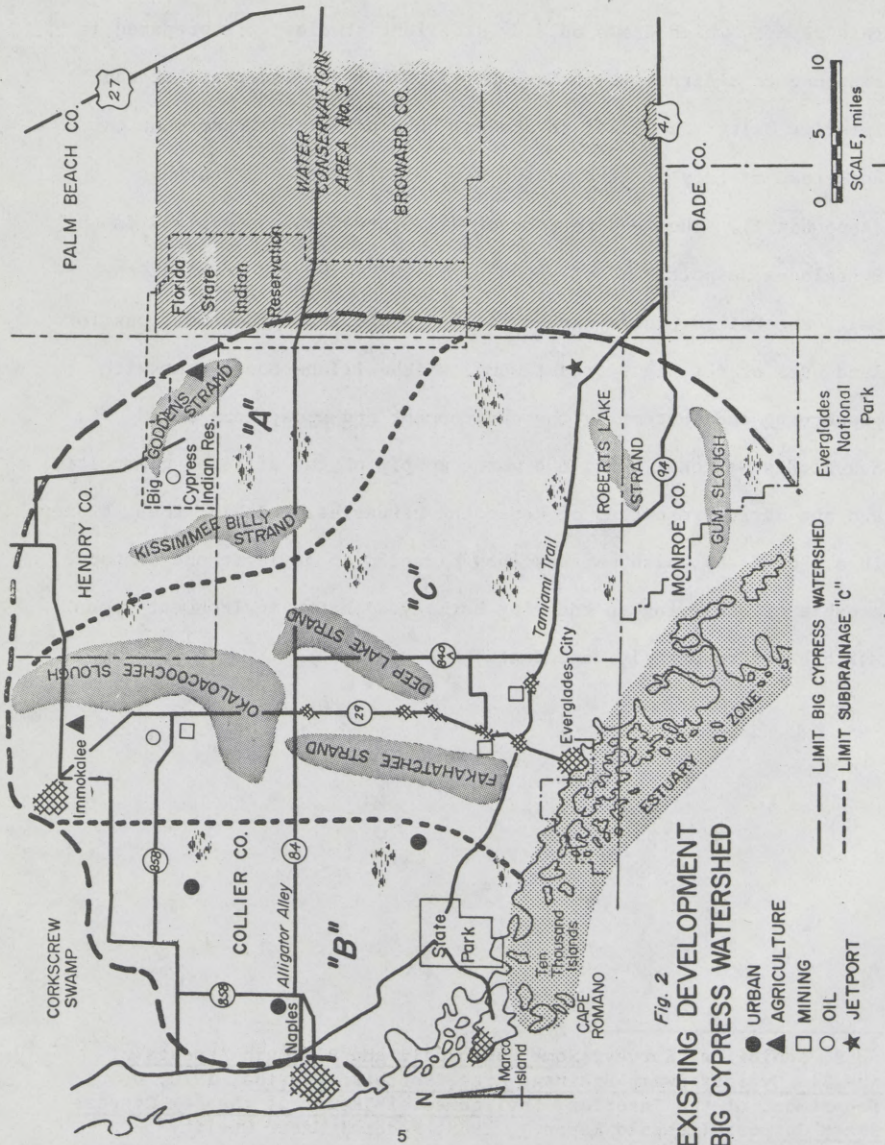
The Big Cypress is jeopardized by the pressure for progress based on sometimes well-intended, but too often ill-planned, exploitation. Unfortunately, the short-term gains of such exploitation are more easily recognized--and taken advantage of--than are the long term benefits of wisely planned use. (Fig. 2, p. 5)



This report, which draws on four excellent studies,¹ is prepared in response to a directive of November 19, 1969, by Secretary of the Interior Walter J. Hickel to several bureaus of the Department to undertake a study of alternative uses of Big Cypress Watershed (Appendix I). The need to protect Big Cypress was recognized in the Everglades Jetport Pact of January 16, 1970. By the terms of the Pact, the United States agreed to " * * provide recommendations for land uses of the Big Cypress Swamp, which will be consistent with preserving and protecting the environment and ecosystems of Everglades National Park, the water supply of the affected communities and the marine resources of dependent estuaries." It is, then, a step in a process by which man may show himself, in at least one instance, capable of achieving an enduring harmony with the environment upon which he is so utterly dependent.

¹U.S. Geological Survey, Some Hydrologic and Biologic Aspects of the Big Cypress Swamp Drainage Area, Southern Florida, 1970; U.S. Department of the Interior, Environmental Impact of the Big Cypress Swamp Jetport (Leopold Report), 1969; Federal Water Quality Administration, A Synoptic Survey of Limnological Characteristics of the Big Cypress Swamp, Florida, 1970.

The fourth report, Everglades-Jetport Advisory Board, Alternative Uses of Big Cypress Swamp, 1970, was not published.



I. Attributes of the Big Cypress as an Entity

Natural Features

Aside from its manifold benefits as one of the vital underpinning of the ecosystem which provides critically important esthetic and economic benefits for much of the southern Florida Gulf Coast, Big Cypress is a highly significant resource in itself. The larger ecosystem of which it is a part is the Nation's only significant subtropical marsh community complex.

The Big Cypress is an intricate mosaic of marsh and lowland forest types--a wilderness of sloughs, tree islands (or hammocks), and bay and cypress heads. Cypress dominates, and gives the area its name.

A vital factor in the Big Cypress-Everglades ecosystem is the almost imperceptible slope of the land. This results in exceedingly slow drainage, which extends the "wet months" well beyond the period of actual rainfall. The unrelieved flatness of the area's topography makes sheet flow the predominant drainage rather than flow in well-defined channels or courses. Thus, a water level change of only a few inches oftentimes affects thousands of acres. In a year of normal rainfall, much of those areas still experiencing natural drainage stands under water for as long as four months after rainfall ceases. During the normal dry season, about one-tenth of the land remains inundated.

The Big Cypress rests on limestone and sand formations, which generally lie a few feet below the soil surface, but are exposed in some

locations. Most of its soils have a relatively low natural fertility and are basically composed of fine sand. Some marl is also present. Areas of dense rooted vegetation, found in low-lying areas, give rise to muck and peat deposits. The thickness of the peat deposits and extent of their coverage, differing underlying limestone formations, and a slightly higher elevation account for the basic geological differences between the Big Cypress and the Everglades. The latter has thicker, more extensive areas of muck and peat deposits overlying limestone.

Several major strands, characterized by extensive stands of cypress, exist in the watershed. Of these, the Fakahatchee is particularly significant. This strand is the major slough draining the southwestern Big Cypress. Its mixture of cypress and royal palm is a rarity in forest types, and is considered among the most unusual and beautiful in the world.

In 1948, a nationally prominent citizens' group identified the Fakahatchee Strand as being worthy of public protection. The area was studied by the National Park Service and found to be unique and of national significance as a natural resource. It is a Registered Natural Landmark, and is now being considered for acquisition as a State Park.

Nowhere outside the tropics are epiphytes, or "air-plants," which include orchids, some ferns, and bromeliads, found in such abundance

and variety as they are in Big Cypress. Seven species of orchids found nowhere else in the world grow in the Fakahatchee Strand, and because of depredation by orchid hunters can be classed as endangered flora.

Large portions of Big Cypress have so far experienced little man-made disturbance. The scars left by the early loggers have nearly healed. Nearly all the wildlife species native to semi-tropical Florida are contained within the watershed. Animal life is diverse and abundant. Large, showy, long-legged wading birds are a major natural attraction. Big Cypress provides important feeding, nesting and wintering areas, as well as a resting place for birds migrating to and from Central and South America.

Seventeen animal species found in the area have been designated as rare or endangered. Major concentrations of several of these species are highly dependent on the watershed for all or a portion of their life cycles. Included are the American alligator, Florida panther, Everglades mink, mangrove fox squirrel, wood stork, and roseate spoonbill.

Recreation

Extensive wilderness landscape, impressive natural vegetation and wildlife domain, and mild climate provide opportunities for recreation experiences of a kind almost impossible to find anywhere but in

Big Cypress. Big Cypress is accessible to high density urban areas, whose residents show increasing interest in the leisure activities afforded by its distinctive resources.

Visitors enjoy hunting, fishing, nature study, photography, camping, boating, picnicking, and the sense of wilderness. Although much of the watershed is remote, the more accessible areas offer some unusual experiences to the moderately adventurous, such as the opportunity to view extraordinary growths of epiphytic plants.

Water Conservation Area

The Big Cypress Watershed, in effect, is a natural water conservation area. As such, it could continue to insure an adequate water supply source for the coastal communities, the marine resources of the dependent estuaries, and Everglades National Park, and would, if properly coordinated, contribute significantly to a comprehensive water management program for all of south Florida. The watershed can fulfill the role of a water conservation area similar to those in the adjacent Central and Southern Florida Flood Control Project, without the construction of retention facilities, and its great recreational and scientific values could be realized fully, consonant with this usage.

There is a clear potential for a variety of other uses such as fish farming and cultivation of various aquatic and/or sub-tropical plants, without damage to the water conservation area.

Several other not-so-benign alternatives loom on the horizon.

Threats to the Watershed EnvironmentResidential

Residential growth is moving eastward from the Naples area and already is threatening Fakahatchee Strand. The proliferation of retirement communities in Florida is expected to accelerate, heightening the seriousness of this most significant threat. Residential development depends, for its success, on alteration of drainages, with concomitant increases in siltation, the degrading influence of pesticides, domestic, commercial and automobile wastes, and fertilizers.

Major residential development is incompatible with the preservation of the Big Cypress ecosystem, a major portion of Everglades National Park, the Ten Thousand Islands, and the marine resources of the related estuaries. In short, such development would work against its own environment and in detriment to environments that depend upon it.

Agricultural

While residential development spreads eastward from Naples, truck farmers and cattlemen are capitalizing on the agricultural potential of the northern portion of the watershed by extensive clearing and draining. These and other agricultural practices place considerable strains on the ecosystem. Increases in such activities would produce

substantial increases in siltation, water turbidity, fertilizers, and pesticides, and departures from the natural flow patterns will destroy the ecosystem as it now exists.

Commercial/Industrial

So far, little commercial or industrial development has occurred in the area other than the comparatively small mineral extraction industry and the single training strip at the Big Cypress Jetport. However, should residential or agricultural development be allowed to continue, wastes from commercial and industrial development could be expected to increase the burden on the ecosystem. One of the limiting factors to date has been the lack of an adequate supply of electric energy; but a major increase in power generation capacity would in all probability stimulate such growth. Florida Power and Light Company is currently constructing two major nuclear power complexes on the east coast to meet some of the power demands of south Florida.

In addition, the threat of pollution from oil drilling has arisen. Seismic testing has already begun and continued drilling will lay a grid of holes on the face of Big Cypress.

Recreational

The area has high value for recreation and preservation, but access is limited most of the year by the water cover, except for the swamp buggy. This cloddish high framed, large-wheeled, homegrown

product of the backyard garage, has a mobility that makes any area open to it. Unrestricted use of swamp buggies and other heavy vehicles has resulted in a chaotic criss-crossing of wheel ruts which have, in many places, altered flow patterns. Because altered flow has its response in altered ecologic patterns, the continuation of such unregulated vehicle use can cause severe damage. But, carefully located and designated routes for swamp buggy use can not only halt further destruction in the watershed, but can facilitate greater use and enjoyment of Big Cypress by more people.

II. Influence on Dependent Estuaries and Their Marine Resources

The limits of Big Cypress Watershed are difficult to define because the boundaries shift with changed water levels and flows even reverse in the northern portion; but one thing is known--without the seasonal fresh water runoff from Big Cypress Watershed, the mangrove-dominated estuarine zone along much of the Gulf Coast would, for all practical present economic and ecologic purposes, cease to exist.

Present Status of the Coastal-Mangrove Zone

The coastal zone within the influence of the Big Cypress Watershed contains about one-third of the total mangrove-estuarine complex of Everglades National Park. Levels of productivity and diversity of species as high as any to be found within the United States characterize the coastal zone. In addition to its very large bird populations, the area produces or maintains hundreds of species of aquatic organisms. The mangrove forest is considered among the finest in the world.

Nature of the Life Support Systems

Recent studies made in Everglades National Park have verified the high degree to which the richness of the estuarine system is dependent on red mangrove and on brackish water conditions.

One of these studies was "to estimate the annual production of dead plant material by the three main producers--red mangrove, sawgrass and blackrush; to investigate the mechanisms by which such material enters the food web and the rate at which this proceeds; to determine, as far as possible, fluctuations in the quantity, nature, and origin of the dead plant nutrient materials of the river; and, to ascertain the potential nutritive value of dead material if consumed at any specific stage of decomposition."

The importance of the mangroves became apparent when the study showed that although they occupied only about 65 percent of the studied area, they produced 85 percent of the dead plant material. About 5 percent of the annual leaf production by mangroves is consumed by grazing land animals. The rest eventually enters the aquatic system as debris and becomes an important energy source for the food chain. Debris of mangrove origin accounts for between 35 and 60 percent of the total suspended material each month.

Plant debris becomes relatively rich in protein as it degrades, probably due to buildup of microbial populations using the debris

as a nutrient source. This protein-building degradation process proceeds more rapidly in a brackish than in a fresh water or a terrestrial environment.

The mangroves as an energy source are important not only within the mangrove zone, but well into adjacent bays and coastal areas. The study showed that materials from these trees are transported principally in the period from November through February, when north-east winds blow coastal waters offshore, inducing drainage of fresh and brackish waters laden with detritus from the marshes. Thus, for four months, marine species which are unable to tolerate estuarine conditions feed on the nutrient largesse that flows out of the estuaries.

The mangrove estuary abounds in aquatic life. Toward the top of its incredibly rich food chains we find the more familiar species which attract 40,000 or more sport fishermen to the area every year and produce an average annual commercial catch in excess of one million pounds. Tarpon and snook are the game fish that serve as the chief draw for sport fishermen. Commercial fishermen harvest bluefish, channel bass, grouper, king mackerel, mullet, pompano, sea trout, Spanish mackerel, mangrove snapper, and stone crabs--which, with the exception of mullet and stone crabs, are also sought by sport fishermen. Some of these, although taken in the offshore waters, are dependent on food organisms produced within the coastal zone.

The mangrove-estuarine zone of the coast is vital to the continuing existence of the fisheries. It provides a protective harbor, especially for juvenile organisms, and rich sources of food that support the abundance and diversity of species present.

Many of the marine species occupy the protective brackish coastal zone as juveniles, and in later stages of maturity move seaward. Within the estuary, they derive protection from predators because of the lower salinities and the grasses and mangrove roots which afford abundant shelter.

Some fresh water species, such as the killifishes and mosquito-fishes, remain within the area throughout their lives. Some normally marine species do the same, among them many forage species and the popular spotted sea trout. The tarpon, snook, mullet, redfish and others are known to move freely to the open Gulf as they mature.

Dramatic evidence of the importance of the mangrove-estuarine zone can be found in the life cycle of the pink shrimp--mainstay of the commercial fisheries of the Sanibel and Tortugas grounds. (Fig. 3). The life pattern of the pink shrimp has been well researched. They spawn on the fishing grounds; their larvae migrate to the coastal estuarine waters, and in that food-rich, sheltering cradle, they develop through the post-juvenile stage, eventually migrating seaward to return to the fishing grounds to renew the cycle. There, they support the valuable commercial fisheries.

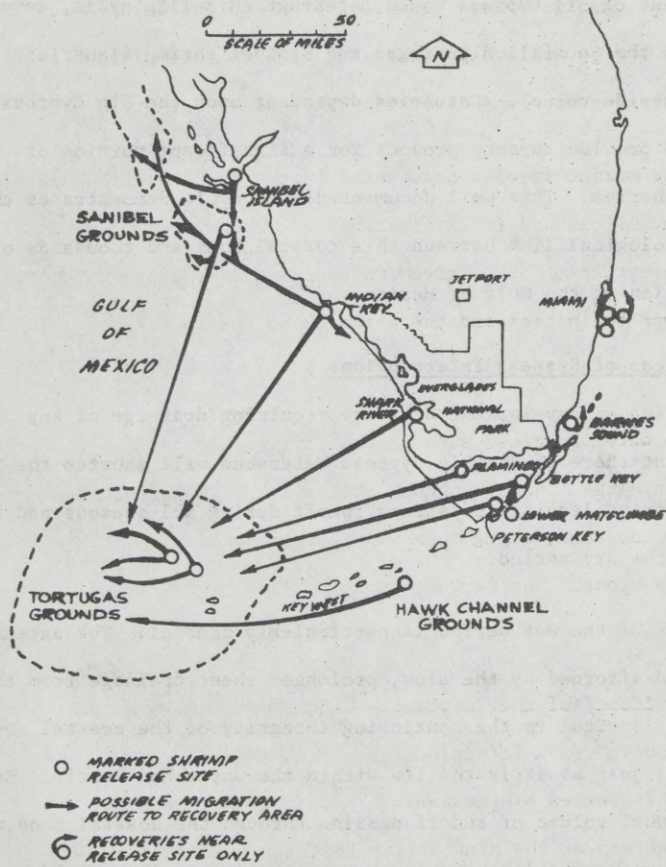


FIGURE 3 - RELEASE-RECOVERY SITES OF MARKED PINK SHRIMP IN THE WATERS OF SOUTH FLORIDA, 1958-63.

Disruption of south Florida's coastal estuarine areas by unwise development of Big Cypress would interrupt this life cycle, severely depleting the \$8 million Tortugas and Sanibel shrimp fisheries (1970 dockside value). Estuaries dependent upon the Big Cypress Watershed provide nursery grounds for a significant portion of these fisheries. This well documented life cycle demonstrates the direct ecological link between this coastal zone and thousands of square miles of the Gulf of Mexico.

Consequences of Systems Interruptions

Construction or development activity requiring drainage of any significant share of the Big Cypress Watershed will shorten the "wet months" period leading to fastern runoff during all seasons and thus lengthen the dry period.

The length of the wet period is particularly crucial. The extended wet period afforded by the slow, prolonged sheet drainage from the watershed is vital to the continuing integrity of the coastal zone ecosystem, just as it is to life within the watershed itself. Even if the annual volume of runoff passing through the coastal zone were to remain unchanged, changes in the seasonality of flow would have drastic consequences.

All coastal zone organisms are adapted to a long period of brackish water conditions, extending well beyond the rainy season. Any interruption of these conditions from construction or other

development activities would shorten the wet period which produces the brackish conditions, throwing it out of phase with the dependent spawning and nursery activities.

In addition, the rapid degradation of mangrove detritus, which occurs under brackish conditions, would be reduced, markedly disrupting the detrital food chain. The result would probably be a dramatic lowering of the high population levels and narrowing of the wide variety of aquatic species. Changes in turbidity, salinity, and temperatures parameters would compound the adverse effects.

Construction activities in Subarea C would increase silt and mud in the estuaries, adversely affecting benthic (ocean floor) forms, vital to the food chain, by covering them, cutting down on the penetration of needed light, and decreasing the amount of hard substrate to which the larvae of some species must be able to attach themselves.

Recent studies show a tendency toward a small increase in pesticides and nutrients in the water flowing into the park. Past experience elsewhere in the Everglades system has shown that such changes are affecting the species composition of the planktonic organisms. The water delivered through natural drainage tends to improve in quality through a process of self-purification as it flows slowly into the park. Water drained out of the watershed and delivered to the park by canal will not show the improved quality shown by water that drains naturally.

The effects of pesticide buildups, associated with residential and agricultural development, are many and profound. Because young organisms tend to be more sensitive to toxins than adults, the estuaries' nursery functions would be severely affected. One of the larger estuarine groups is the crustaceans, which is particularly intolerant of chlorinated hydrocarbons. Aldrin and endrin concentrations as low as 0.6 parts per billion will kill pink shrimp--the most important commercial crustacean in these waters.

Further drainage and development of Big Cypress would be almost certain to increase nutrients in the canals and estuaries, leading to changes in the species composition of the organisms in both the fresh water canals and the brackish estuaries. Speed-up of eutrophication--the death of waterways--also would result.

III. Importance of Big Cypress in Preserving Everglades National Park

The Everglades-Big Cypress "Web"

Everglades National Park, a 2,200-square mile sub-tropical wilderness at the southern tip of Florida, is utterly dependent upon a plentiful supply of high quality water flowing through the region in an over-land sheet pattern for up to 8 or 9 months of the year.

Water has been identified as " * * the basis of being of the Everglades National Park * * *". A major portion of its water supply

comes from rainfall over the park itself. The remainder historically comes from the Lake Okeechobee drainage system and from Big Cypress Watershed, the latter accounting for about 56 percent of all outside water entering the park. Subareas A and C (Fig. 1, p. 3) are critical to the " * * * preservation intact of unique flora and fauna and the essential primitive natural conditions * * *" intended by Congress.

Because of the extremely slight elevation differences in the park's terrain, the effects of dessication and inundation resulting from seasonal changes in water levels are extraordinarily widespread. Only the alligator holes and ponds retain water throughout the natural annual cycle.

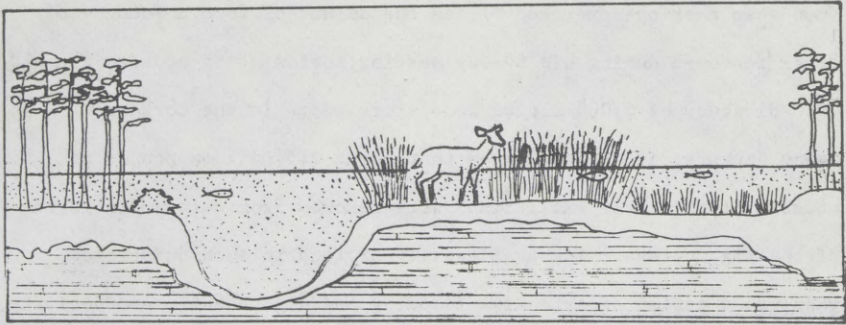
The summer wet period normally inundates extensive areas, allowing expansion of the aquatic populations--phytoplankton, crustaceans and fishes. Subsequently, water levels must sink to concentrate the summer production of food organisms sufficiently to supply the nourishment essential to larger fishes, amphibians, reptiles, mammals, and many species of birds.

This seasonal wet-dry cycle must coincide with the natural reproductive cycles of the many varieties of predatory animals that feed upon the small aquatic organisms supported by the water. If any of the links in this process are broken, the reproduction of the larger animals at the top of the food chains will fail. Either excessively high or low water can cause reproductive failure. So can too short a delivery period.

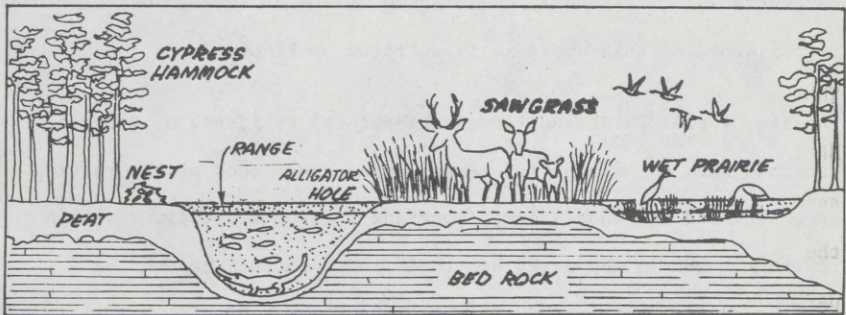
Figure 4 diagrams some effects of high, optimum, and low water levels. Ideal conditions are shown in the center diagram. Too low a water level dries out the peat deposits, some of which have taken thousands of years to accumulate, and makes them liable to destructive oxidation, and deeper burning by wildfire. Access becomes easy and poaching of alligators increases as the reptiles congregate about the remaining water. The area and volume of water becomes too low to sustain the population of small aquatic organisms that form the brood stock for the annual repopulation and their numbers decrease radically. Only the deeper depressions contain enough water to sustain fishes, alligators, and other species. Eventually, the oxygen content of the water in these holes may become so depleted by organic decomposition that fish kills result.

Excessively high water may also have adverse effects. Alligator nests, which never are placed very far above the water, may be flooded and the eggs prevented from hatching. Terrestrial animals such as deer and wild hogs are forced to compete for space and food in the few areas remaining above water.

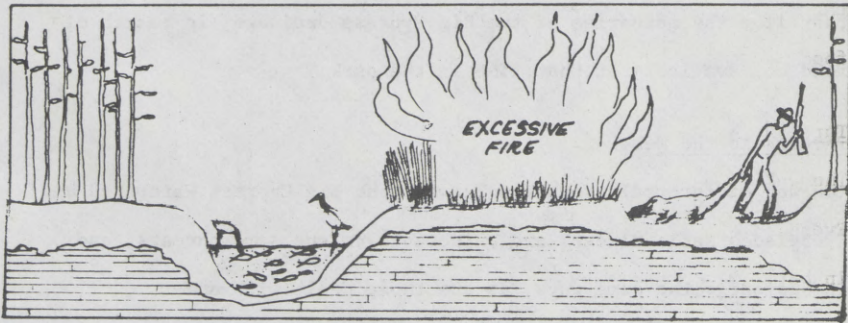
The most thorough case study of the relation between reproduction and the seasonal hydrologic cycle of the Everglades ecosystem is that of the wood stork. This bird feeds by groping, not by sight, and its feeding efficiency depends directly on the number of food items per unit of water volume. It requires large quantities of



FLOOD WATER LEVEL



OPTIMUM WATER LEVEL RANGE



DROUGHT WATER LEVEL

food when nesting--one study fixed the amount of food a young wood stork consumed during his 60-day nesting period at 65 pounds. In a 1960-61 study of 6,000 active wood stork nests in the Corkscrew Swamp Rookery, it was estimated that about 2.5 million pounds of aquatic life (mostly small fish) were removed from surrounding areas of the Big Cypress. The availability of food in such quantities requires a period of extensive flooding and high aquatic productivity, followed by a drying period during which the aquatic organisms are concentrated in a steadily diminishing volume of surface water. The significance of this cycle is illustrated by Figure 5 .

The Big Cypress Watershed serves the natural residents of Everglades National Park in many ways. Large wading birds such as the roseate spoonbill and the wood stork, important visitor attractions within the park, nest in the park, but their range extends beyond the park boundaries and includes Big Cypress Watershed. In non-nesting seasons large numbers of these birds take up residence in the trees that line the estuaries of the Big Cypress drainage, in search of food not available at that time in the park.

Threats to the Web

The web of interrelationships between the Big Cypress Watershed and Everglades National Park are vulnerable to the same threats, and in basically the same ways, as are those dealt with under "Consequences of Systems Interruptions" (P.17), in addition to those suggested by the description of water level effects (P. 21).

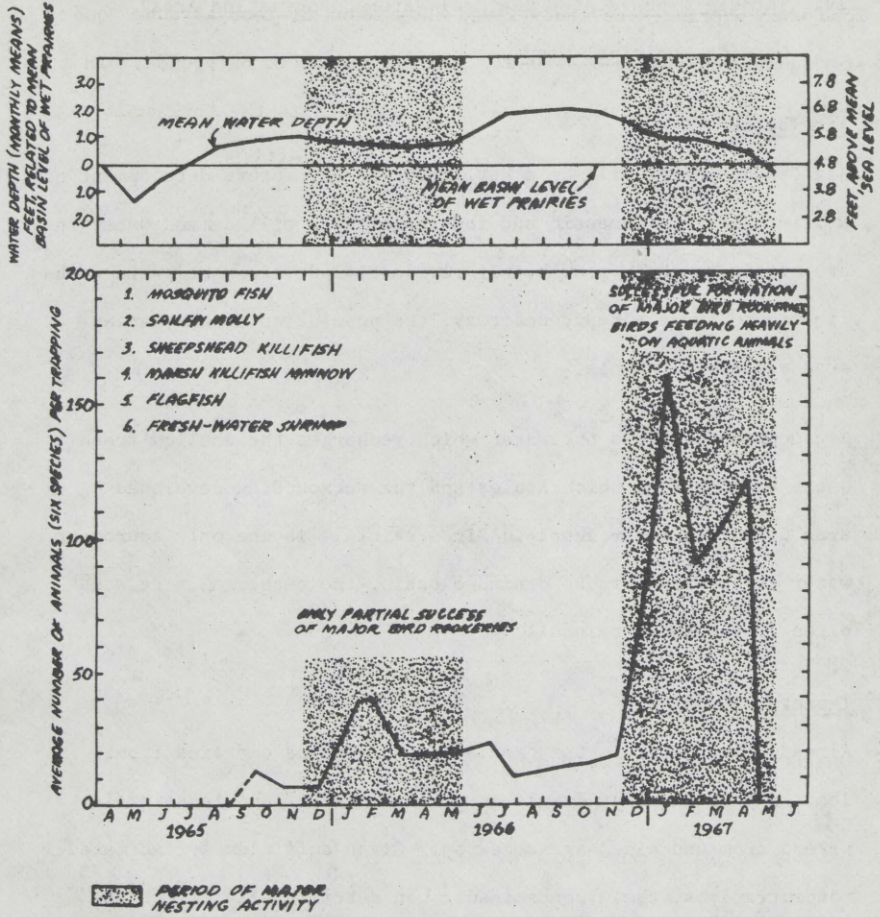


FIGURE 5 - COMPARISON OF SEASONAL VARIATIONS IN POPULATIONS OF AQUATIC ANIMALS AND WADING BIRDS WITH AN INDEX OF WATER DEPTHS IN UPPER SHARK RIVER SLOUGH

IV. The Big Cypress as a "Natural Water Conservation Area"

Serving Municipal Needs

Attributes

Big Cypress water will be a key factor in any future development of Collier County. Domestic and industrial uses will demand water in proportion to their growth. If residential developments were to be limited to those already underway, the population of the Naples area alone will double.

Big Cypress provides the water which recharges the shallow fresh water aquifer from which Naples and the surrounding developed area draws its water supply. Since rainfall is the only source of water in the Big Cypress drainage basin, the recharge is related directly to annual rainfall.

Threats

Already, the water in the canals east of Naples contains iron, lead, and aluminum at levels greater than are found in natural waters from undrained areas nearby. Given sufficiently increased concentrations, these contaminants can detrimentally affect the quality of the water supplies in the aquifer. Further contamination, by nutrients and organisms that affect public health, can be expected as a result of the use of septic tanks in the area, and in the event of further agricultural development in the Big

Cypress (Subarea C, Fig. 2 , p. 5). At the same time, irrigation needs will mount, putting additional demands on the waters of the Big Cypress.

Existing data on the subject do not rule out completely the possibility of a moderate amount of well-planned and tightly controlled future development; but it must be done within the limitations imposed by the water supply--which can best be provided by Big Cypress as a natural water conservation area.

The Report, "Environmental Problems in South Florida" (National Academy of Sciences/National Academy of Engineering, March 1970), states "It is clear that preservation of the Big Cypress Swamp as a natural water-conservation area would be most desirable relative to the Park, and, as indicated in the section on water management, probably most desirable to orderly development of the south Florida region as a whole."

V. Big Cypress, Integral to Indian Culture

The Big Cypress Watershed is an integral part of the Miccosukee and Seminole Indian cultures. All of Big Cypress Reservation (Federal) and portions of Florida State Indian Reservation lie within Subarea A (Fig. 2, p. 5). Big Cypress Reservation is considered the Seminole Indians' home; Florida State Reservation was to be the home of the Miccosukee Tribe. In reality, about half

of the Miccosukee live among the Seminoles in Big Cypress Reservation, the remainder preferring to live in scattered settlements along the Tamiami Trail.

The National Park Service has provided the Miccosukee the use of a strip of land 500 feet wide (north-south) by five miles long (east-west) on the northern boundary of the park. This parkland is used only for housing and schools.

Miccosukee and Seminole tenure goes back more than a century and a half, to the period when they were driven, with other Creek tribes, from their traditional native lands in the Carolinas and Georgia.

The present ecosystem supports resources that constitute a major source of food and other materials on which the Indians depend. The ability to fish and hunt following traditional practices may be as important to the spiritual well-being of the Miccosukee and Seminole as it is to their physical nourishment.

Loss of fish and wildlife resources of the Big Cypress would spell yet another "ending" for a cultural group whose life style and habitat, ever since the advent of European man to this continent, have been a dismal procession of unhappy endings.

Careless development of the watershed would effect violent disruption of this distinctive and cherished life style.

Perhaps it is appropriate to note here that the Indian poling his dugout canoe through alligator-populated swamp, among cypress laden with Spanish moss, is the image of the Everglades carried by many a tourist. In truth, this represents a set of circumstances that exists only in portions of Big Cypress Watershed, and can continue to exist, even there, only if care and wisdom are exercised soon enough and in adequate measure.

VI. Summary

The Big Cypress Watershed can remain a viable resource complex from which its human residents and neighbors will gain enormous and lasting benefits; or it can be carelessly exploited for the immediate gain of a few--and an enduring disaster to many.

Maintained as a protected ecosystem, Big Cypress will provide major benefits which can be grouped in five broad categories:

1. As an entity in itself, considered apart from its surroundings, Big Cypress Watershed is a distinctive community of highly diverse flora and fauna, including a number of endangered species, serving as a habitat for the continuing evolution of plant and animal species whose potential in an evolving world is as yet unexplored, and furnishing opportunities for hunting, fishing, and the appreciative forms of recreation in a natural setting of a kind that is increasingly scarce and elusive.

2. As a source of fresh water and essential nutrient supply to the estuaries of Everglades National Park and the Ten Thousand Islands, Big Cypress Watershed is the key to survival of the far-reaching recreational and commercial fishing enterprises that depend upon those estuaries.

3. The entire food chain relationship that supports a major segment of Everglades National Park's plant and animal communities is dependent on maintenance of the continuing flow of Big Cypress water. The quality and quantity of the water, and the timing of its delivery into the park, must remain much the same as it is at present if the Everglades ecosystem and its wildlife are to survive.

4. The Big Cypress Watershed serves as a natural "water conservation area," recharging the aquifer from which rapidly growing neighboring communities will draw much of their fresh water. Deprived of such recharge, the aquifer would be vulnerable to damaging salt water intrusion.

5. The natural cycles of Big Cypress' water flow, and the life cycles of the living things dependent on that flow, are integral and vital parts of the lives of the Miccosukee and Seminole Indians residing on and near the watershed.

ALTERNATIVES OF ACTIONSI. Fee Acquisition

This alternative provides for fee acquisition of those lands in sub-drainage C, lying, generally, between Conservation Area 3 on the east; Everglades National Park on the south; a line parallel to State Road 29 one mile east of the right-of-way thereof; and, on the north by the Hendry County line and a projection thereof to State Road 29 and shown more particularly on the accompanying map (Exhibit 1).

This portion of the sub-drainage contains approximately 547,040 acres, and has an estimated acquisition cost of \$155,607,000.

Discussion

The Geological Survey has determined that the Big Cypress Watershed can be subdivided into three sub-drainages. Only sub-drainages A and C (Figure 2) provide significant amounts of water to Everglades National Park.

Sub-drainage A drains to Conservation Area 3A by natural drainage and by canals of the Central and Southern Florida Flood Control District where this water comingles with other project water and via the Shark River Slough enters Everglades National Park. Acquisition of, or special control over, sub-drainage A is not felt to be necessary as there are at present no feasible means of diverting this water away from Conservation Area 3A. Although a potential exists for degradation of water quality, the slow flow through Conservation Area 3A provides for natural purification.

Sub-drainage C is the heart of the Big Cypress flow to the northwest portion of Everglades National Park. However, the sub-drainage within Hendry County and Collier County north of the western projection of the Hendry County line to State Road 29 is not proposed for fee acquisition because it is now undergoing drainage, oil field exploration and construction. Moreover, much of the higher lands are already in agricultural use principally as pasture lands. While a contribution to the flow is made from this excluded area, the changes which the area is undergoing make it desirable to detach that portion of the sub-drainage from the remaining portion of sub-drainage C proposed for fee acquisition. In the excluded sub-drainage reliance for achieving the objectives of this report would be placed on water quality standards.

The area beginning one mile east of State Route 29 and extending west to the western limit of sub-drainage C is also not proposed for fee acquisition in this alternative. A substantial part of this area will, in fact, be protected by the State in its acquisition of the Fakahatchee Strand. Only a part of this Strand supplies the park and its estuaries and that portion between the proposed State area and the western limit of sub-drainage C supplies no water to the park. State acquisition insures that a substantial part of the water supply for the future benefit of the west coast cities will be protected, as will be much of the Ten Thousand Islands in the coastal estuary.

The land between the State's acquisition in Fakahatchee Strand and the line one mile east of State Route 29, likewise, is not proposed for fee acquisition in this alternative because of the drainage works already constructed there and real estate sub-divisions already underway. In this area, it is proposed to rely on water quality standards and regulatory restrictions.

II. Control by State and County Authority

Alternative II proposes control by State and county authorities throughout the regulated use area of sub-drainage C as depicted on the map identified as Exhibit 2.

Discussion

Although an office of planning exists within the State government, its responsibilities, with regard to land use planning and zoning, are nominal, and are attended with sufficient doubts as to make it necessary for the State to pass legislation to give authority for land use planning, zoning, and enforcement.

Land use planning and zoning responsibilities are vested in the counties but their implementation has been ineffective in achieving the objectives of this report.

Significantly, local zoning is not static. Moreover, the objective of the local governments may change and become different from the Federal objectives. For example, local zoning bodies sometimes

exercise the zoning power in a way that will provide the highest taxable value on property, i.e., by rezoning from rural-residential to higher density residential or commercial development.

III. Joint Local-Federal Control

This alternative involves joint local-federal control through a combination of fee acquisition of Fakahatchee Strand and zoning throughout the regulated use area of sub-drainage C as depicted on the map identified as Exhibit 2.

Discussion

The State is now in the process of acquiring fee title to certain of the lands in sub-drainage C. For the remainder of the sub-drainage, the desired objectives would be achieved through zoning.

Two methods for achieving this purpose are discussed herein. Both methods involve local-federal zoning commissions.

(1) In order to achieve Federal participation in local zoning administration, partial surrender of the county's duties or authority in regard to zoning would be needed. Moreover, to achieve this end, some action of the State would likely be required.

Action by the legislature could authorize the Board of Commissioners of any county having lands within the sub-drainage to enter into an agreement with the Secretary to create an extraordinary zoning or rezoning commission for that area. The commission would include designees of the Secretary, as well as the local governments.

(2) Another possibility exists, namely, the creation by the State legislature of a District to be comprised of those private lands within sub-drainage C. Such an act could set limitations on uses and, again, provide for the establishment of an overseeing commission.

Effectiveness of these alternatives first turns on whether the State will permit the Federal Government to participate in the zoning process. Without State legislation authorizing the creation of a local-federal zoning commission, there could be no meaningful Federal participation.

If appropriate State legislation is enacted, however, certain controls could be assured. Total control by the Federal Government could not be assured because of the procedural and substantive constitutional limitations on the zoning powers of the states. These limitations would be binding on a local-federal zoning body because its authority to zone still is derived from the police power of the State. For example, zoning ordinances would have to be promulgated in accordance with State laws and could not, without constituting an unconstitutional taking of property, deprive a landowner of any reasonable use of his property.

Authorizing legislation for Federal participation would also be required under either of these methods.

IV. Trusteeship

This alternative proposes to establish a South Florida Environmental Trust to include the seven counties of south Florida as identified in Figure 1 of this report. The South Florida Environmental Trust will have a commission composed of members of the three levels of government. It would include a Federal member appointed by the Secretary of the Interior; a member appointed by the Governor; and a member appointed by the governing body of each of the seven counties.

Discussion

The Trust Commission will be responsible for the development of a comprehensive conservation plan that will preserve, develop and utilize the resources of the seven-county area of the Trust. The plan that will be developed shall be used to set policy on all matters regarding land use within the jurisdiction of the Trust. The land use plan should include, but not be limited to, land development, land acquisition, zoning, water flow, water quality, transportation matters and any other pertinent matters regarding the changing, modification or alteration of the land and water resources of this seven-county area of south Florida. This does not preclude private development compatible with the plan. This Trust concept, as proposed, would authorize the Commission to coordinate the activities of all levels of government and the private sector regarding acquisition,

development, and management of those specific areas within the Trust deemed significant for protecting and enhancing the south Florida environment.

V. Federal Control

This alternative involves a combination of fee acquisition and compensable land use restrictions through regulations.

(1) Establish the Tamiami Trail National Parkway between State Route 27 on the east and State Route 29 on the west.

Such a National Parkway could contribute significantly to the preservation of the quality of the environment in this corridor which is of prime importance in protecting the flow, as well as the quality of the water entering the park from the Big Cypress and the Everglades.

Moreover, to acquire as a part of such a Parkway the northernmost part of the Shark River Slough remaining outside of Everglades National Park, would assure the continuing integrity of this water flow into this vital drainage of the park.

The proposed Parkway would involve donation of the existing State right-of-way to the Federal Government and authorization to acquire additional right-of-way, the total not to exceed an average of 160 acres per mile. The proposed Parkway would also include acquisition by the Federal Government of (a) an area of approximately thirty-eight thousand acres (portion of Shark River Slough east of

Everglades National Park) adjoining the Tamiami Trail on the south and (b) the jetport site approximately twenty-five thousand acres to the north of the Tamiami Trail when the jetport is moved to a new site.

The 25,000 acre tract, representing the jetport, is to remain in public ownership under the Jetport Pact when this facility is moved to a new site.

It is estimated that acquisition costs (exclusive of the Jetport site) will be \$25,800,000.

Federal legislation authorizing the parkway would provide for protection of existing residential and commercial uses that conform to standards established by the Secretary. Moreover, it would permit owners of improved properties to reserve life or other lesser estates for a term of years, as is customary in Federal recreation area legislation. These factors will mitigate the estimated costs mentioned above.

(2) For the remainder of sub-drainage C lying between Conservation Area 3 on the east; the eastern boundary of the State acquisition zone of the Fakahatchee Strand on the west; Everglades National Park on the south; and the Hendry County line and a western projection thereof to State Road 29 on the north (see Exhibit 2 for particulars); private land uses would be restricted through the imposition of Compensable Federal Land Use Regulations. (Note: the portion of sub-drainage C in the Fakahatchee Strand and west thereof is proposed for protection through State action now underway.)

In application, the regulations would resemble more the acquisition of an interest or easement in the property rather than a mere regulation of uses characteristic of State and local zoning ordinances.

The proposal for Compensable Federal Land Use Regulations, moreover, meets the requirements of the Fifth Amendment of the Constitution by providing for the payment of just compensation where a taking (i.e., a reduction in value due to the restriction) is shown.

An important feature of the Compensable Federal Land Use Regulations is that such regulations are in no way intended to deprive an owner of an interest in property without just compensation. With this in mind, it is suggested that any underlying Federal legislation should create in the landowner a right of action against the United States, at any time within a prescribed period of time following promulgation of the regulations to demonstrate and recover any loss in value he can prove by virtue of the regulations.

In any case in which damage can be shown, the money judgment in favor of the landowner would operate to convey to the United States an interest in the property restricting its use in the manner described in the regulations at the time of issuance.

The issuance of such Federal land use regulations would contemplate the preparation of a land use plan for the entire area, encompassing both lands to be donated and purchased by the Federal Government and lands to remain in private ownership, subject to reasonable regulation.

Federal legislation is needed to authorize the Secretary to issue compensable Federal land use regulations.

It is estimated that compensation attributable to such regulations would not in any event exceed \$10,000,000.

VI. Extended Federal Control

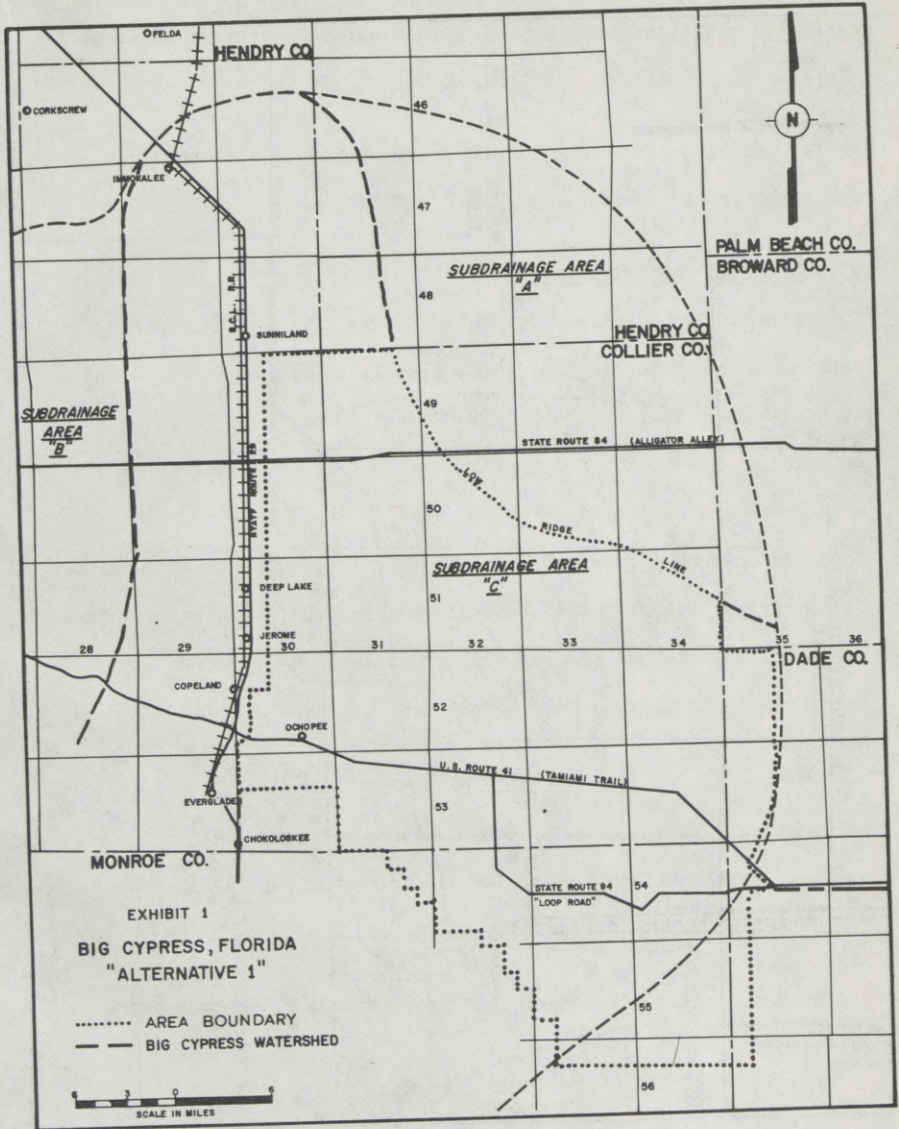
This alternative embraces Alternative V, EXCEPT that the Federal Government would acquire in fee simple all of the remaining lands bounded by the Tamiami Trail on the north; Everglades National Park on the east and south; and on the west, a line parallel to and one mile east of the east right-of-way line of State Road 29, IN LIEU OF imposing Compensable Federal Land Use Regulations on these lands.

It is estimated that the cost of Alternative VI (exclusive of the jetport site) will be \$87,100,000, of which \$5,000,000 is attributable to Compensable Federal Land Use Regulations.

RECOMMENDATION

Alternative V is recommended as the best combination of State-Federal cooperation to achieve the mutual objectives of each in sub-drainage C of the Big Cypress Watershed.

Proposed actions to implement this recommendation is attached as Exhibit 3.



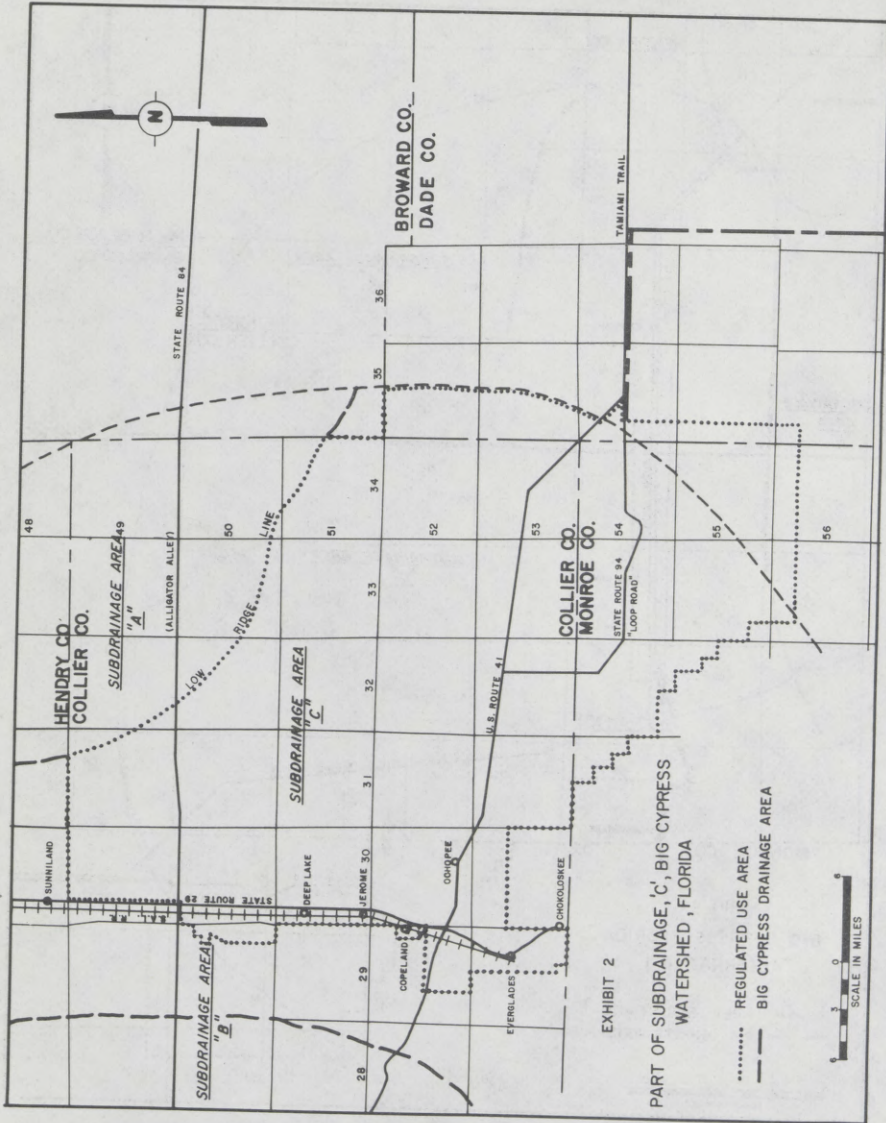


Exhibit 3ACTIONS NEEDED TO IMPLEMENT ALTERNATIVE V

To implement Alternative V, as recommended by the Secretary's Everglades-Jetport Advisory Board, legislation by the Congress would be required, dealing with the subject matter mentioned below:

PART I--TAMIAMI TRAIL NATIONAL PARKWAY

Parkway Right-of-Way--The Secretary would be authorized to designate a right-of-way, generally following existing roadways, together with adjacent or related sites for public recreational use and for interpretation of scenic, scientific, cultural, or historic values, commencing in the vicinity of the intersection of the Tamiami Trail (United States Highway 41) with Florida State Highway 27 and running generally westerly along the Tamiami Trail a distance of approximately sixty miles to the vicinity of its intersection with Florida State Highway 29. The right-of-way would not exceed an average of one hundred sixty acres per mile.

Other Parkway Lands--The parkway would consist of the right-of-way so designated, together with an area of approximately thirty-eight thousand acres adjoining the Tamiami Trail on the south and an area of approximately twenty-five thousand acres to the north of the Tamiami Trail, the boundaries of which areas would be generally depicted on a map on file and available for public inspection in the offices of the National Park Service, Department of the Interior. The Secretary would be

permitted to make minor adjustments in the boundaries of the parkway by publication of a revised map or other boundary description in the "Federal Register," but the total area within the parkway would not exceed seventy-one thousand acres.

Land Acquisition--Within the boundaries of the parkway the Secretary would be authorized to acquire lands, waters, and interests therein by donation, purchase with donated or appropriated funds, transfer from any other Federal agency or exchange, except that property owned by the State of Florida or any political subdivision thereof could be acquired only by donation. Federal property within the boundaries of the parkway could, with the concurrence of the head of the agency having custody thereof, be transferred to the administrative jurisdiction of the Secretary for the purposes of the parkway, without a transfer of funds.

Use Standards to Limit Condemnation of Improved Property--The Secretary would be directed to refrain from exercising his authority to acquire improved property without the consent of the owner so long as the use of such property is consistent with the applicable standard set forth in regulations issued by the Secretary.

As soon as practicable after the effective date of the legislation, the Secretary would issue regulations specifying standards in accordance with which the use of improved property would cause the Secretary to

refrain from acquisition without the consent of the owner. Such standards would contribute to the effect of (1) prohibiting residential, commercial, and industrial use, other than a use permitted by the Secretary, of all improved property within the parkway; (2) promoting the continuation of existing uses which will not interfere with the preservation, development, administration, and public use of the parkway and its environs; and (3) prohibiting any use which will disrupt, alter, accelerate, or retard the flow of water from or in its normal channels or from or in its normal sheet-flow character or lower the quality of the same.

If at any time following the issuance of regulations specifying such standards, property is used in a manner inconsistent therewith, the Secretary would be authorized, at his discretion, to acquire such property without the consent of the owner.

Retained Use and Occupancy of Improved Property--Any owner of improved property which is acquired for the parkway would be permitted, as a condition of such acquisition, to retain for himself, his successors, or assigns, a right of use and occupancy of the property for a period of not to exceed twenty-five years, or, as the owner may elect, for a period ending at the death of the owner and the surviving spouse, if any. The Secretary would pay to the owner the value of the property as of the date of acquisition, less the value as of such date of the right retained by the owner. Such right of use and occupancy could be

exercised for any purpose consistent with applicable standards referred to above, and could be terminated by the Secretary, with payment for the value of the portion of the right remaining, if the property is used in a manner inconsistent with the applicable standard.

Definition of Improved Property--As used in the legislation, the term "improved property" would mean a building, construction of which was begun before April 1, 1971, together with so much of the land on which the building is situated, such land being in the same ownership as the building, as the Secretary designates to be reasonably necessary for the enjoyment of the building for the purpose of residential or commercial use in a manner consistent with the purposes of the parkway.

Establishment and Administration--When the Secretary determines that lands, waters, and interests therein sufficient to constitute an administrable unit for purposes of the parkway have been acquired, he would establish the parkway by publication of notice to that effect in the "Federal Register." Pending such establishment and thereafter the Secretary would develop, protect, and administer the property in accordance with the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented (16 U.S.C. 1 et seq.), except that existing laws now available to the Secretary for the conservation and management of natural resources could be utilized to the extent appropriate.

Hunting, Fishing, and Trapping--The Secretary would be directed to permit hunting, fishing, and trapping on lands and waters under his jurisdiction within the parkway in accordance with applicable laws of the State of Florida and of the United States, except that he would be authorized to designate zones where and establish periods when no hunting, fishing, or trapping may be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment. Except in emergencies, any regulations of the Secretary would be issued only after consultation with the appropriate State agency having jurisdiction over hunting, fishing, and trapping. Notwithstanding this provision, members of the Miccosukee Tribe of Indians of Florida would be permitted to continue their usual and customary use and occupancy of lands and waters within the parkway, including hunting, fishing, and trapping on a subsistence basis and traditional tribal ceremonies.

Indian Operation of Revenue-Producing Facilities--The Secretary would be authorized to enter into cooperative agreements with the recognized tribal governing body of the Miccosukee Tribe of Indians of Florida, for the construction and operation by the Tribe of revenue-producing facilities and services for visitors to the parkway. Such agreements could provide that all or an appropriate portion of the net receipts may be retained by the Tribe. Any facilities and services provided pursuant to any such agreement would be subject to such standards,

terms, and conditions as the Secretary may establish, and would be conducted only at locations designated by the Secretary. Before entering into any contract for visitor services or facilities for the parkway, the Secretary would be required to give the governing body of the Tribe ninety days in which to enter into a cooperative agreement for the provision of such visitor services or facilities.

Appropriation Authorization--The legislation should authorize to be appropriated such sums as may be necessary to carry out its provisions.

PART II--COMPENSABLE LAND USE RESTRICTIONS

New Construction Restrictions--Except as would be authorized by the Secretary pending the adoption of a master plan for authorized uses, the legislation would prohibit any person, persons, firm, partnership, or corporation to erect or construct on any premises within certain zones depicted on a map to be published in the "Federal Register," any works for drainage, dwellings, roads, airports, or other facilities which disrupt, alter, accelerate, or retard flow of water from or in its normal channels or from or in its normal sheetflow character or in any way act so as to increase or decrease the quantity or quality of the water from its normal time of flow, detention, or velocity; nor may the quality of same be lowered by less than the existing quality where such is known or below that of the State water quality standards for Class 1 in the absence of information on existing quality. The Secretary would be directed to prepare a master plan for

authorized uses within such zones, and, following public hearings, to adopt and issue such plan. In the interim, and prior to the issuance of an approved master plan, each and every activity to erect or construct such works on said premises would require the approval of the Secretary.

Alteration of Existing Facilities--Except as would be authorized by the Secretary pending the adoption of standards for permissible modifications and alterations, the legislation would also prohibit any person, persons, firm, partnership, or corporation to alter or modify on any premises within the zones depicted on the map, any works for drainage, dwellings, roads, airports, or other such facilities which will disrupt, alter, accelerate, or retard flow of water from or in its normal channels or from or in its normal sheetflow character or in any way act so as to increase or decrease the quantity or quality of the water from its normal time of flow, detention, or velocity; nor may the quality of same be lowered by such existing works to less than the existing quality where such is known or below that of the State water quality standards for Class 1 in the absence of information on existing quality. The Secretary would be directed to prepare standards for permissible modifications and alterations within one year following the effective date of the legislation, and following public hearings, to adopt and issue such standards not later than 18 months following such effective date. In the interim, and prior to the issuance of approved standards for permissible modifications and alterations, each and every

proposed alteration and modification would require the approval of the Secretary.

Prohibited Uses--The legislation would provide a basis to control and regulate the use of airboats, swamp buggies, wheeled terrestrial vehicles, and aircraft when the latter are on the ground, on any lands within the zones depicted on the map, except on existing roads, trails, or airstrips, or on such roads, trails, or airstrips which from time to time may be authorized for erection, construction, alteration, or modification by the Secretary.

Penalty for Violation--Legislation should also have to provide for some type of enforcement proceeding against landowners who fail to observe the land use restrictions. In addition to enforcement, the legislation would provide a basis for taking civil action to enjoin unauthorized uses within the designated zones.

Compensation--Any person, partnership, or corporation aggrieved by the imposition of the above restrictions could, within two years after the issuance of the master plan referred to above for new construction or the issuance of standards referred to above for alteration of existing facilities, seek redress by bringing an action in the Court of Claims of the United States, and any award of compensation made by such court in satisfaction of any such claim for redress would represent the acquisition of an interest in the land of the claimant by the United States to the full extent of the compensation granted.

Effective Date--This part would take effect and be in force from and after the first day the map referred to above is published in the "Federal Register."

APPENDIX

C O P Y

L54-MW

November 19, 1969

Memorandum

To: Director, National Park Service
Director, Bureau of Outdoor Recreation
Director, Bureau of Sport Fisheries and Wildlife
Director, Geological Survey
Director, Bureau of Commercial Fisheries
Commissioner, Federal Water Pollution Control

From: Secretary of the Interior

Subject: Water Resources Investigation, Big Cypress, Florida

The Leopold Report and other recent studies of the proposed jetport north of Everglades National Park emphasize the importance of the water resources of the Big Cypress Swamp. It is fundamentally clear that environmental alterations within the Big Cypress Swamp can seriously affect the quality and quantity of the water, and, consequently, the ecology of the swamp. The swamp and a substantial part of the park are hydrobiologically interdependent, so that changes in water and environment in the Big Cypress Swamp will seriously affect the wildlife and vegetation of the park. I am, therefore, requesting Under Secretary Train to coordinate a study involving specialists of your respective bureaus, which should result in the definition of those portions of the Big Cypress Swamp which merit special protection. The study should also provide a recommendation for best use of the protected area consistent with the needs of Everglades National Park and the maintenance of the ecology of the protected portions of the swamp.

The study may have collateral benefits which I hope will also be considered and discussed in the report. The Big Cypress Swamp is the recharge area for the aquifer which provides water to the west coast cities of Naples and Fort Myers. It is also the source of water which modifies the salinities of the adjacent estuaries in which important fishery and recreational resources are found. The study should, as appropriate, give consideration to these factors.

I am requesting that Under Secretary Train provide me with a full report of the results of the study and recommendations for the protection of Big Cypress Swamp no later than June 1, 1970. I am asking the Under Secretary to meet with each of you and recommend to me the portion of costs associated with these studies which are to be borne by each of the bureaus.

(SGD) Walter J. Hickel

EVERGLADES WATER
AND ITS
ECOLOGICAL IMPLICATIONS

REPORT
OF THE SPECIAL STUDY TEAM
ON THE FLORIDA EVERGLADES

August 1970

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REPORT
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ON THE FLORIDA EVERGLADES

INTRODUCTION¹

The Florida Everglades is one of the most unique and perhaps most interesting natural ecosystems in the world. For at least the past 20 years ecologists and conservationists have voiced their concern about the future of this vast marsh-swamp complex. Certainly the sometime lonely persons espousing their views through the years have helped to create a new public awareness. This awareness has developed primarily, however, because people are beginning to see evidence that what is happening can have a visible impact on their well-being.

Interest in the area obviously extends beyond the State of Florida. Controversy over the water supply to Everglades National Park, the proposed Big Cypress Swamp jetport construction, and the die-off of deer in the Everglades has brought the environmental problems of southern Florida into sharp focus on a national scale. Primarily because of the deer problem, a study team was appointed by the Florida Chapter of the

¹The views and recommendations in this report are based on the findings, experiences, and professional opinions of the individual study team members, and do not necessarily reflect the views or policies of their employing agencies and institutions.

Wildlife Society in late March 1970 at the request of the Central and Southern Florida Flood Control District and agreed to by the Florida Game and Fresh Water Fish Commission. The mission of the team was to evaluate the current wildlife situation in the Everglades, insofar as possible, and suggest some possible courses of action.

The study team consisted of five members representing a wide range of experience and disciplines, and at least 25 years of intimate association with the Everglades. Nonetheless, we also called upon about 25 of the most knowledgeable people in south Florida for consultation on the overall Everglades problem. In addition, we freely utilized information contained in numerous documents, letters, publications, and special reports made available to us. We have made every effort to deal objectively with the great ecological, economic, and social values of the total Everglades ecosystem and the importance of preserving what remains of this environment in its natural state. We have been keenly aware of the tremendously diverse and complex demands which are constantly made on the natural resource base in the Everglades.

In order to put the problem into better perspective it is essential to briefly describe the Everglades-Okeechobee Basin and other related natural features of Florida.

The most characteristic climatic feature of the Everglades is its great seasonal variation in rainfall. Owing both to the nature of the topography and widely fluctuating rainfall cycles, the area is frequently subjected to extremes of extensive flooding or drought. Mean annual precipitation in the Everglades is 55 to 65 inches but about 75 percent of

this occurs from May through October. During dry periods, however, annual precipitation may be 35 inches or less; in wet years 120 inches or more has been recorded. Slight variations in average rainfall and temperature conditions have a relatively insignificant effect on the indigenous fauna and flora and in themselves do not account for the great differences in vegetation and flood and drought.

The Everglades system begins in the so-called "Chain-of-Lakes" of the upper Kissimmee River Basin in central Florida which has historically drained south via the broad Kissimmee marshes to flow into Lake Okeechobee. During the rainy season, Okeechobee at times overflowed its southern rim into the sawgrass Everglades with the shallow sheet of water slowly moving southwestward to the mangrove swamps at the tip of the state and into Florida Bay and the Gulf of Mexico. In a seasonal cycle of winter and spring dryness and heavy summer rains, the entire basin has been alternately wet and dry. This cycle has undoubtedly always been highly variable but historically it has been a long and slow attenuated process, resulting in the evolution of complexes of animal and plant species whose life cycles are adapted to such environmental regimes. These include the sunfishes of the fresh water portions; numerous mammals, including deer; the colonial nesting and wading birds of the region; the turtles, frogs, snakes, and alligators; a host of invertebrate species; many marine fishes and shellfishes of the coastal waters; and the ubiquitous sawgrass, water lily, spikerush, and willow. Thus, the hydroperiod is the principal factor which has influenced the evolution of the Everglades ecosystem and is the key to its continued existence.

Over the years, man has made dramatic changes in the Everglades, beginning with modest drainage efforts in the 1890's and continuing to the present with the extensive effort which comprises the operations of the U. S. Army Corps of Engineers and the Central and Southern Florida Flood Control District. All of these activities have greatly reduced the extent of the original flood plain of the Everglades Basin and the natural functioning of the ecosystem. By reducing the extent of the original Basin, and utilizing the deeper portions to a greater degree, a condition has been created in which water level changes occur with greater rapidity.

The study team recognizes, however, that benefits to people have resulted. The project works have made vast areas in the Kissimmee Basin and in the area south of Okeechobee available for agricultural uses. Former wetlands have also been opened to urban and industrial development, and the severity and frequency of floods in these areas have been reduced. Yet, along with these benefits many problems have arisen. According to 1969 reports of the U. S. Army Corps of Engineers to the U. S. Congress, south Florida faces critical water shortages by 1976 unless all previously authorized works are complete and a significant start is made on a newly authorized \$78 million addition. This factor alone is cause for considerable apprehension concerning the proposed Big Cypress Swamp jetport construction because such construction would produce more drainage from the same basin while increasing the demand for water, an obvious worsening of the water supply-demand situation.

The study team is aware of the great significance of the Everglades to the welfare of human populations in south Florida. The marsh and

associated habitats function as a major recharge area for the Biscayne aquifer upon which the Gold Coast population centers mainly depend for their water. In addition, the richness of the fauna of Florida Bay as well as other estuarine areas is ultimately dependent upon the Everglades ecosystem.

The great muck deposits south of Lake Okeechobee, the site of a giant agricultural industry, are the product of sawgrass and other aquatic plants living and dying there for more than 5,000 years. The marine fisheries of at least the upper third of the Florida Keys, for example, like the shrimp fishery of the Tortugas, are greatly dependent upon the natural functioning of the Everglades. It follows that the overriding concern should be the preservation of this unique ecosystem, and one of the principal objectives of water management in south Florida should be to restore as closely as possible the original natural hydro-period. So long as the Everglades is a viable, dynamic environment the Gold Coast will also be viable and dynamic.

Everglades National Park is itself a great national resource enjoyed by millions from throughout this nation and abroad. The portion of the system outside the Park also provides outstanding aesthetic and outdoor recreational opportunities for both tourists and residents of the state. The major, and perhaps most typical, part of the true Everglades marsh lies outside the Park, however, chiefly in Conservation Area 3, and is not at present as well protected as that in the Park. Therefore, alternative courses of action, e.g., wild or primitive area status, etc., including jurisdictional legislative authorities, should be fully explored

that would provide needed protection to all or portions of this ecologically unique region of the Everglades.

Although water level manipulation in Conservation Areas 1 and 2 has caused changes to a greater degree than other portions of the marsh, these areas are an integral part of the total Everglades ecosystem and must be included in any overall consideration of the environmental complex. Similarly, the Big Cypress Swamp is an integral portion on which great wildlife, recreation, and water conservation assets depend.

There are no simple answers to the many problems which beset the Everglades. The entire question is extremely complex and will take much study and thought for solution. New, and undoubtedly difficult, decisions must be made on priority and balanced uses of the natural resource base. Irrespective of what these decisions are, they will not be universally acceptable to everyone.

In the long view there is no basic conflict between the needs of man and the needs of the ecosystem. Solutions to water problems in south Florida should strike an optimum balance between these various needs including conditions necessary for maintaining not only a healthy ecosystem, but also the interests of agriculture, recreation, and urban water supplies. It is apparent that this will involve some hard decisions on the part of agency administrators, e.g., setting an upper limit to human population growth in the region and acceptance by the agricultural- and recreation-use sector of losses during years of both drought and high water. The natural ecosystem averages its losses from periodic occurrences of unusually adverse conditions and there is no reason why

this principle should not apply to agriculturalists as well as other interests operating within the environmental system.

Any problem concerning water relationships in the Everglades, whether it involves the whole system or a single part, must be treated from the standpoint of the entire drainage system extending from the headwaters of the Kissimmee River to Florida Bay. Even though this natural basin has been severely compartmentalized by levees and endlessly dissected by canals, drastically altering original flow patterns and rates, the major components are still essentially interconnected. What happens in one part influences what happens elsewhere.

Thus, the area of the study team's concern has been the total Everglades system. Management of individual species populations within a local area, or over the entire region, must be compatible with the primary objective of preserving the integrity of the whole system. Any consideration for individual species, such as deer, must be viewed in the context of the total problem.

WATER QUANTITY AND QUALITY

Based on present project planning, increasingly serious problems of water quality and quantity in the Everglades ecosystem may be expected. Although some similarity to the original wet-dry, hydroperiod cycle under the present water management scheme is still evident, low water conditions and rates of water level changes are more accentuated now than they were under natural conditions in the past. These factors in themselves are having a great ecological impact on the entire Everglades as evidenced by changes in the vegetation and in population numbers of certain species

of vertebrates. Reductions in animal numbers, or shifts in their distribution, are often symptomatic of environmental change or degradation. Previous experience has shown that changes in vertebrate populations are one of the most effective early warning indicators of a deteriorating or changing ecosystem.

Time does not permit, nor is it within the purview of the study team, to undertake a detailed analysis of past water level records in the Everglades. It appears, however, that in recent years water levels have been maintained in the Conservation Areas at higher levels than they were during the early decades of this century.

The entire question of water regulation scheduling for the Conservation Areas should be completely reevaluated to determine applicability in terms of current priorities and objectives. Such reevaluation should be a continuous process. If it is shown that current schedules are not now appropriate, then new ones should be developed in the most intelligent and objective manner possible, using all available data. Once they are established every effort should be made to adhere to them.

It is the understanding of the team that the water level in Conservation Area 3 has been essentially above schedule for many months. Determining whether the schedule in Area 3 is, or has been, above schedule seemingly depends, in part at least, on which gauges are used to compute mean levels. For example, on May 26, 1970 all gauges in Area 3 were read on the same day. The water regulation schedule for May 26 called for 9.54' msl. On May 27, gauges 3-3, 3-4, and 3-28, the gauges used by FCD as a guide to the mean water level for Area 3, averaged 9.71', or

0.17' msl above regulation. However, the so-called deer gauge, 3-2, read 11.40' msl on this same date indicating that at this gauge the water level was 1.86' above regulation. If the 3-2 gauge is included with the 3-3, 3-4, and 3-28 gauges, the mean is 10.14' as contrasted with 9.71' when it is not included. In other words, by using the deer gauge to compute the mean level, it was 0.60' above regulation on May 26 as contrasted with 0.17' above regulation based on the 3-3, 3-4, and the 3-28 gauges alone.

In Conservation Area 1, guidelines to water level regulation is determined by the Corps and the FCD by using gauge 1-8T, a remote sensing gauge located in a slough about 500 to 600 yards west of the boat landing at the Refuge headquarters. The Refuge, however, is using gauge 1-8 located in the L-40 canal at the headquarters landing. On April 30, 1970, gauge 1-8T read 15.4' msl while at the same time a little over 1/4 mile to the east gauge 1-8 in the canal read 13.87' msl. The reason for this difference is that gauge 1-8T is located in the interior marsh where low natural berms, tree islands, and vegetation impede the movement of surface water eastward toward the L-40 canal once the level has dropped below the 15.0' to 15.5' msl mark on gauge 1-8 in the canal. Water can continue to be lowered in the canal while gauge 1-8T levels off to 15.5'. Ground level at gauge 1-8T is listed as 15.2' msl. Thus, it is not possible to reach the 15.0' msl as shown on the schedule.

The Army Corps of Engineers and the FCD, by using gauge 1-8T, get a reading for the interior marsh. Somewhere between 15.0' and 15.5' msl

the water surface is continuous between gauges 1-8T and 1-8 and any further drop in the water level between the two gauges is not continuous.

Gauges in Conservation Area 1 read on May 11, 1970 were as follows: S-5A pump station--14.0, S-6 pump station--15.30, 1-8T--15.35, and 1-8--13.52. All of these gauges with the exception of 1-8T, are located in the peripheral canals. Obviously there are some very striking differences between these readings and the differences suggest that an evaluation of gauge accuracy and location is needed.

An examination of water depths, gauge readings, and averages obtained from readings makes it obvious that the entire system in the Conservation Areas needs a thorough review. The study team recommends that this be done on contract by an independent firm of hydrologic engineers.

It is relevant at this point to comment on the current water regulation schedule for Conservation Area 3. In the opinion of the study team the proposal to lower the schedule in Area 3 by one foot, i.e., from 9.5-10.5' msl to 8.5-9.5' msl, if implemented, could conceivably set up a possible major disaster in south Florida. The present schedule seems to be an appropriate compromise at this time, but it is meaningless unless adhered to.

Rapid extreme fluctuations of water levels are completely at odds with the natural hydroperiod in the Glades. Drastic drawdowns of water levels, or rapid rises, in the Conservation Areas have serious ecological consequences. This was clearly demonstrated in the case of the Everglades kite, one of the endangered North American species, during the latter part of April 1970. Between April 1 and 29 an estimated 46 Everglades

kites were using the Loxahatchee National Wildlife Refuge (Conservation Area 1) and the area adjacent to the L-40 canal on the eastern side of the Refuge. This raptor was nesting on the Refuge for the first time since 1964. A total of 11 active nests was located near the sloughs and along the L-40 canal. Between April 1 and April 29 while the kites were still in the process of nesting, the U. S. Army Corps of Engineers lowered the water level in the L-40 canal from 17.00' msl on April 1 to 13.98' msl on April 29, a difference of 3.02 feet. Personnel of the Loxahatchee National Wildlife Refuge were not consulted prior to the drawdown. The rapid reduction of water levels in the canal dried up most of the sloughs which the kites were using, causing them to leave the Refuge. By April 29 only eight kites were observed on the area and by May 5 only two birds remained. The drawdown also left all known nests over dry ground. Although the drawdown is not known to be directly responsible for the loss of any nests on the Refuge, it seemingly canceled the possibility of further nesting in the Refuge for the remainder of the spring.

When the sloughs go dry the Pomacea snails, which are the sole source of food for the kites, aestivate in the damp mud and are unavailable to the kites. When water again fills the sloughs the snails become active. Rapid dropping of water levels also has deleterious effects on snail reproduction because eggs laid when there is surface water will not survive even if they hatch.

Young kites tend to remain in the vicinity of the nest site from 1 to 3 months after they have fledged. Even if more favorable water levels are restored, the time required for kites to return to the Refuge

in any numbers is unknown. It is the understanding of the study team, however, that population numbers have recently increased in Area 2, and some kites are nesting there.

Seasonal and gradual fluctuating water levels are necessary to perpetuate the integrity of the Everglades ecosystem and have been the usual course of events for a few thousand years. Changes from dry to wet and back to dry again, over short periods of time, however, are completely at odds with the historic hydroperiod and do have very serious and adverse ecological consequences.

In summary, water level regulations for the overall Everglades system must be developed with due consideration for the entire natural resource base. The luxury of unilateral decisions made on the basis of special interest groups can no longer be afforded or tolerated.

It is obvious that there is a need for better communication and coordination between the various agencies involved with the operation of the flood control project and the use and management of the natural resources in the area. The recent rapid drawdown of water levels in the Refuge is an example of this need. Therefore, it is recommended that an interagency coordinating committee be immediately appointed to provide a mechanism for interaction and information exchange between the various agencies and groups involved with the natural resources in the Everglades.

One very perplexing problem in the Everglades is the capability of the flood control project to comply with water regulation schedules during drought and very wet periods. During dry periods, for example, there is an inadequate supply of water for most purposes and during wet years

there is too much. This is not only the case in the Conservation Areas but also applies to the surrounding agricultural lands and Everglades National Park. Thus, during very wet periods the problem is where to put excess water in order to bring levels down to schedule in the Conservation Areas. When there is too much water in the Conservation Areas there is also too much elsewhere in the region. Water removed from Conservation Area 3, for example, must either be discharged through the Park or out the canals to the east coast. The rapid influx of water into the Park can cause problems there and an excess of fresh water in the east coast estuarine environment can have deleterious ecological effects in these locations.

Thus, one of the key factors in the preservation of the Everglades environment is the restoration, insofar as possible, of some semblance of the natural hydroperiod. Shifts in the ecosystem away from its original condition will undoubtedly be in direct proportion to the degree that man attempts to manipulate the water in a manner that significantly departs from natural hydrological conditions.

Not only is the Everglades ecosystem, and the human population residing in the area around the Everglades, dependent upon an adequate amount of water but they are also dependent upon water of good quality. In the upper Kissimmee lakes, for example, a problem of over-enrichment of the water is rapidly developing. This condition results from the input of sewage, chemical fertilizers, and other contaminants coupled with sharp reductions in water level fluctuation as a consequence of flood control activities. In Florida, over-enrichment of the water typically

causes a shift in plants from submerged to emergent species, including increased growth of water hyacinths, growths of great quantities of algae, and shifts in fish species from desirable to undesirable ones.

The broad marshes of the lower Kissimmee River have been greatly reduced by channelization. This has essentially obliterated the capability of the former marsh to absorb nutrients from the water and is speeding the eutrophication of Lake Okeechobee. Sewage, fertilizer, and other waste entering from around the Lake are further compounding the problem.

Whereas the old Kissimmee marshes reduced the flow of water to Okeechobee, the new channel moves it there rapidly, carrying great quantities of mud and pollutants into the Lake. In addition to the mud and nutrient load now carried down the Kissimmee "ditch" into Lake Okeechobee, these waters also contain pesticides and other contaminants which may now be getting into the Conservation Areas and Everglades National Park. Furthermore, oil exploration in the region and the possibility of oil leaks from pipelines which cross Area 3 pose a serious potential threat not only to water quality in the Glades but to the entire ecosystem.

Although it has been alleged that nothing that goes on in the Kissimmee River-Lake Okeechobee part of the system has any influence on the area south of the Lake, there seems to be good reason to question this view. Back pumping from agricultural lands into the Lake, intensive cattle operations on the Taylor Creek drainage, stabilization of levels in the headwater lakes, and channelization of the Kissimmee River are obviously contributing to the buildup of nutrients, pesticides, and other

contaminants in Lake Okeechobee and in the Everglades itself. If one of the reasons for increasing the storage in Lake Okeechobee by raising the levee is to provide more water for commercial uses and the Park via the Conservation Areas, the quality of the Lake water becomes of real concern.

Although it is apparently intended that the main discharge from Okeechobee in times of high water will be to the Atlantic Ocean and the Gulf through the St. Lucie Canal and Caloosahatchee River, there is a strong possibility that eventual water shortages and ecological damage to the estuarine environments in the vicinity of the freshwater outflow may force a decision to divert a greater proportion of the discharge to the south through existing or additional structures. The resultant changes in the quality of water, as well as the amount and timing of water discharged into the Everglades, will probably be reflected in additional plant and animal changes. It is therefore imperative that the quality of the water in the Everglades ecosystem be continually monitored and that steps be taken to maintain high water quality standards.

The U. S. Geological Survey is now engaged in a water quality study primarily in Everglades National Park, the Loxahatchee National Wildlife Refuge, and Lake Okeechobee. They have instituted a rather extensive water sampling network and are monitoring levels of chlorinated hydrocarbons, polychlorinated biphenyls, heavy metals, and other contaminants. This is a good beginning, but the survey should be extended to cover the Kissimmee Valley and Conservation Areas 2 and 3, and in all appropriate locations plant and animal indicator species should also be monitored.

VEGETATION

Limitations of time and space have not permitted a detailed evaluation of the vegetative communities in the Everglades or changes in them resulting from water level manipulations and other factors. Although a detailed report will be prepared later by Loveless, a few brief comments are relevant.

The principal vegetational components of the Conservation Areas are the sawgrass, wet prairie, slough aquatic, and tree island communities. Detailed descriptions of these various communities and their respective community types appear in various available publications and reports.

Dramatic changes in the original vegetative matrix have occurred in the Conservation Areas, particularly Areas 1 and 2. Although intense, widespread fire during drought periods has undoubtedly contributed to these changes, the overriding cause has been alteration of the historic hydroperiod.

Such alterations in the hydroperiod have essentially eliminated the tree island communities and the once extensive whitegrass (Rhynchospora spp.) flats in Conservation Area 2. Also, the willow-myrtle "thickets," once widespread in the northern portion of Area 2, now no longer exist. A few other formerly abundant species that are either now uncommon or rare include primrose willow, groundsel bush, wax myrtle, red bay, red maple, and two species of beak rushes. These changes have been accompanied by an increase in the slough aquatic communities and their component species (white waterlily, spike rushes, flag, and submerged aquatics), an apparent increase in the density of sawgrass in some areas, extensive

invasions of cattail in certain locations, and the reversion of areas formerly dominated by emergent vegetation to essentially open water with abundant submerged plants.

Changes of the types described in the foregoing are taking place to some extent in all of the Conservation Areas. They are most apparent in Conservation Areas 1 and 2 and less so in Conservation Area 3. In general, the region north of Alligator Alley in Area 3 and pool 2B in Conservation Area 2 appears to have undergone the least vegetative change of any locations in the Conservation Areas.

DEER SITUATION

Deer, from the earliest times, have been a part of the native fauna of the Everglades. Declines in their numbers during times of high water and buildups in numbers during dry periods have undoubtedly always occurred. Periodic fluctuations of animal population numbers in response to environmental conditions are the usual pattern with most species, and Everglades deer are no exception.

In the past few years there has been a decline in the numbers of white-tailed deer in the Conservation Areas. High water levels maintained over relatively long periods have essentially eliminated deer from Conservation Area 2 and few have been reported since 1966. This area formerly supported a rather sizable population. Also, only a few deer remain in the north end of Conservation Area 1. Conservation Area 3, particularly the area north of Alligator Alley, is the last remaining "stronghold" of a once relatively abundant deer herd in the Conservation Areas.

Physical well-being of Everglades deer usually declines with the advent of high water levels in late summer and fall but improves as depths recede during the dry winter and spring months. This is directly related to the abundance, availability, and nutritive quality of forage, and the density of the herd itself. As water levels in the marsh increase and approach depths exceeding about 2 feet the majority of the deer congregate on elevated sites. Their activities are confined primarily to these restrictive high-ground areas until depths drop below approximately 2 feet. With the decline in water levels the deer begin to use the open marsh more and more in response to the availability of abundant natural food. By the time fawns are dropped in the spring the herd is usually in good physical condition. If water levels of more than about 2 feet persist for extended periods, however, as they did in 1947, 1953, 1957, 1958, 1966, and 1968, conditions can become critical and mortality occurs, particularly among fawns, yearlings, and does. Such mortality is related not only to reduction of available forage and resting sites but also to the density of the herd.

During prolonged high water stages when deer become crowded on elevated sites and severe intraspecific competition for forage ensues, they suffer a subsequent decline in general physical condition and there is increased susceptibility to parasitism and disease. In some instances heavy parasitic infection or disease incidence undoubtedly contributes to mortality or otherwise reduces survival probability, but malnutrition and associated fatigue are the basic causes leading to death.

Fawns in the Everglades are dropped throughout the year, but a definite peak occurs during March and April when about 60 percent of the births occur. During spring, the Everglades is usually dry except for water retained in alligator holes, canals, and the deeper sloughs; and an abundance of forage is available. Also, fawning sites are more than adequate. This contrasts sharply with the condition that exists during unusually wet years when high water persists through the normally dry spring months and suitable forage and fawning areas are limited to the elevated tree island and levee sites. A considerable reduction in fawn survival can occur under such conditions. Thus, population numbers of deer in the Everglades vary from year to year depending largely on the amount of seasonal rainfall and resulting water levels which in turn determine the amount of available nutritious forage and fawning and resting sites. Populations have increased during dry periods and decreased during wet periods since time immemorial and such is the natural course of events. These fluctuations in numbers, however, represent a response that has evolved with "natural" hydroperiods and although some mortality can always be expected during unusually wet periods, the magnitude and extent of the mortality will be largely dependent upon the degree of departure from historic hydroperiods and the density of the population itself.

When water depths in the Glades are in excess of 2 feet and persist for extended periods, mortality and stress to deer occur. These conditions produce adverse effects if they occur during the spring fawning months, as in March 1970. Regardless of the time of year high water

levels occur, however, the herd responds by moving to elevated locations. If high water persists for about 6 weeks or longer, malnutrition becomes evident as available high-ground areas are reduced and nutritious forage is exhausted. For optimum deer management under fluctuating hydroperiods in the Everglades, water depths over important sections of the range should not exceed approximately 2 feet for much longer than about 6 weeks at a time, and during the spring fawning period for not more than about 3 to 4 weeks. By the end of February, most of this range should be reasonably dry, 6 to 8 inches or less, in order that adequate fawning sites will be available. This was not the case in Conservation Area 3 or apparently in the Park during much of March 1970.

It is relevant at this point to briefly review the history of deer population numbers in the Glades over the past 12 to 14 years.

Following the high mortality experienced in 1957 and 1958, deer numbers in the Conservation Areas gradually increased and probably reached a peak sometime in 1964. Heavy rains, beginning in July 1966, resulted in excessive water depths and by August of that year mortality was taking place. During this period the few deer remaining in Conservation Area 2 were essentially eliminated.

In 1967 no unusually high water occurred and in the spring of that year there was apparently good survival of fawns. In 1968, however, high water levels were again experienced beginning about mid-September, and Conservation Area 3 was closed to access. During this period the Florida Game and Fresh Water Fish Commission estimated that approximately 800 deer died in the area, primarily as a consequence of the high water. In

July 1969, another period of high water occurred and there was some mortality of fawns and yearlings. Although this mortality continued to occur through the winter period it was estimated that by November, 70 percent of the 1969 fawn crop had been lost.

During March 1970, approximately 11 inches of rainfall was recorded in the Conservation Areas resulting in high water levels. Personnel of the Florida Game and Fresh Water Fish Commission estimated that such levels resulted in a fawn loss of about 20 percent.

The inspection by the study team of Conservation Area 3 on April 7, primarily north of Alligator Alley, indicated that at the time much of the mortality due to high water had essentially diminished, but it was considered that if high water persisted, or levels increased, additional mortality would occur. It was clear, however, that there had been prior stress to the herd. Browse sign on the vegetation and the seemingly good physical condition of the deer that were observed (about 12 to 15 animals) suggested that the immediate situation was not as severe as during the high waters of 1957-58, 1966, and 1968.

In 1957-58 and 1966, as a consequence of high water causing deer to concentrate on high-ground areas, there was great evidence of heavy browsing on these sites. On most of the tree islands all the vegetation was completely removed and the bark on the trees was eaten up as high as the deer could reach. Soil on the islands was bare, trampled in many instances into mud by both deer and hogs. During 1957-58 and 1966, it was possible to walk up to many deer on the tree islands and actually touch them. It was obvious that they were extremely lethargic and

fatigued and suffering from malnutrition. Such severe conditions were not evident during the visit by the team to Conservation Area 3 north of the Alley in March of 1970. Nonetheless, we believe that the high water in March 1970 did result in some stress to the deer, but the severity of the effects was less than in 1957-58, 1966, and 1968.

At the time of the team's inspection, water conditions in Conservation Area 3 were on the "ragged edge" of being a dire threat to the remaining herd. If water levels persisted or continued to rise it was believed that loss of deer proportionally as great as in 1966 would occur.

In summary, the deer population in the Florida Everglades has decreased markedly over the past few years. Irrespective of the reliability of periodic censuses that have been made and the magnitude of losses that have occurred periodically over the years due to high water, it is apparent to anyone who has had any long-term familiarity with the area that significant declines have occurred. Furthermore, there is little question that these declines have been primarily a consequence of unusually high water levels of prolonged duration. An important secondary factor is the human disturbance of fatigued deer already stressed by high water.

It is unlikely that stress to deer can ever be completely eliminated under all conditions, but it should be recognized that if the frequency and duration of abnormally high water levels are substantially increased beyond those occurring in the historic past, the stage will be set for elimination of deer from the interior of the Everglades marsh.

Various management procedures could be used to alleviate some of the deer problems in the Everglades. For example, the Florida Game and Fresh Water Fish Commission should be more flexible in setting hunting regulations and be more effective in controlling the harvest of deer and the human disturbance factor. When high water conditions and impending stress and mortality to the herd are anticipated, assuming that population numbers are not so critically low that hunting would be irrevocably detrimental, an early opening of the season would have the advantage of utilizing animals destined to die from stress and reduce the herd to levels better adjusted to the limited carrying capacity of the area in flood.

Harvest should be essentially controlled by permit hunts, e.g., a given number of permits issued to attain a desired level of harvest. Because of ease of access to the area and other related problems, it is doubtful if effective control of the harvest can ever be regulated in any other manner.

Permit hunts to obtain desired levels of harvest of big game animals have been quite effective in many parts of the country and they are generally well accepted by sportsmen once the objectives are understood. Such hunts are usually handled somewhat as follows:

Interested sportsmen file an application in late spring or summer prior to the hunting season. The license fee is submitted at the time they file. Game agency personnel recommend what the total desirable harvest should be and sufficient permits are issued to approximate this as nearly as possible. If the number of applicants exceeds the number

of permits to be issued, a random drawing is held. License fees are returned to unsuccessful applicants. A tag and questionnaire should be attached to the license permit, the tag to be placed on the animal immediately after it is killed and the questionnaire to be returned to the game agency by all permittees within 10 days following the close of the season. The questionnaire enables the agency to evaluate the effectiveness of the hunt and provides other valuable management information. Implementation of such hunts costs money, and this cost should be included in the license fee.

The Game Commission should act with boldness and imagination in managing the Everglades deer herd. They should immediately initiate an intensive research investigation, and should insist that those agencies responsible for water level management in the area give due consideration to this valuable resource. A compromise that could be considered is to manage the area north of Alligator Alley with deer as the primary resource.

Other matters related to deer and deer management in the Glades involve use of airboats and halftracks, camps on islands, use of dogs, and habitat manipulation.

Use of halftracks should be prohibited or at least be rigidly controlled and regulated in the Conservation Areas. In the latter case, it would be advisable to restrict their operation to certain authorized trails or locations. There is evidence that these large and rather efficient machines have severely damaged some of the tree island strands by running back and forth through them, and have otherwise altered other

characteristic components of the environment. In any event, strict regulations on their use in the area is imperative.

Airboats in general seem to be somewhat less destructive of the habitat but because of the continuing increase in their numbers in the Everglades, serious consideration should be given to tighter regulations governing their use, particularly for hunting deer. The desirability of restricting their use to authorized trails or locations in the Conservation Areas should also be evaluated.

Use of dogs for hunting deer in the Everglades should be prohibited.

Permanent camp structures located on tree islands in Area 3 occupy space that could otherwise be producing forage and providing undisturbed high-ground areas for deer during high water periods. In addition to the actual physical space occupied by the camp structure, the native vegetation has frequently been replaced by lawn grass planted in the form of sod around many of them. Although deer may on occasion eat this grass, it is questionable that the nutritional quality of such forage is as good as the native vegetation preferred by deer. In addition, the camps in both Areas 2 and 3 constitute a source of pollution, particularly those built over the water, and many have a generally ramshackle appearance which clearly detracts from the aesthetics of the area. Furthermore, the legality of private individuals building permanent structures on public land is highly questionable to say the least.

The study team is not opposed to optimum but compatible recreational use of the Conservation Areas, including temporary tent camping, and in fact urges that such opportunity and privilege be assiduously preserved

and encouraged. However, the maintenance of permanent camp structures in the Conservation Areas, or the proliferation of new ones, is contrary to the precepts of acceptable and proper use of the public domain. The agencies responsible for permitting this situation to persist essentially unchanged over the years have, in the opinion of the study team, neglected their obligations to administer and manage these lands in the best interests of those who own it--all the people.

The Game Commission is responsible for issuing annual permits at no charge for permanent camps in Conservation Areas 2 and 3. To date, 30 permits have been issued for Area 2, and 33 for Area 3. Also, other additional camps are located in the Areas for which no permits have been issued. The entire question of these permanent camps is complex from both a legal and public relations standpoint. The study team believes that they should be ultimately removed from the Conservation Areas but recognizes the difficulties involved in such action. We urge, however, that the proliferation of new permanent camps be strongly resisted, and that the legal status of all current permanent camps, particularly those alleged to be on private lands, be resolved as well as the jurisdictional authority of the State. As a measure to eventually eliminate all permanent camps from the Conservation Areas we recommend that the camps now on public land, where state agencies have jurisdiction, at the very least be allowed to exist only during the lifetime of the adult owner to whom the permit has been issued. Furthermore, we recommend that strict regulations be formulated and enforced relative to the size of clearings surrounding these camps and for the disposal of refuse and other waste products.

Although the team recognizes that artificial islands can be of some benefit to deer, they are by no means the solution to the basic problem of prolonged high water periods in the Everglades. Whether to construct these islands is a decision which must be made by the agencies involved. If the decision is made to construct islands, we recommend that they be limited to the area north of Alligator Alley and to four or five per square mile, that they be one-eighth to one-quarter acre, elliptical in shape, and oriented generally north-south.

If the islands are to serve a useful purpose for deer they should not only provide refuge during high water but also food. We believe that if they are properly constructed with an adequate layer of muck soil on top, native vegetation will invade the sites and provide forage. In our view the money now being used to construct artificial islands would be better spent by placing an 8- to 10-inch muck layer on the spoil banks along the new Miami Canal in Conservation Area 3.

During high water periods there have been efforts to capture deer for removal to other areas, or to "nurse" them back to health. From a humanitarian standpoint there is certainly nothing remiss in picking up an animal in the Glades--providing it is legal to do so--that is obviously in very poor physical condition. However, efforts to capture deer during high water periods by running them down with airboats, or other means, increase the stress on the animals and cause more harm than good.

FROGS

Bullfrogs are an important economic and recreational resource in the Everglades. Also, in the total ecology of the Glades this species is an

important link in many food chains. Based on available information, and as predicted in the Conservation Area 3 report prepared by the Florida Game and Fresh Water Fish Commission in 1960, the overall flood control project has been substantially beneficial to bullfrogs. A research effort should be initiated, however, to continually monitor the status of this resource and manage it effectively.

FISH

Of all the important natural resources in the Conservation Areas, fish furnish the most recreation to the largest number of people and probably make the greatest contribution to the local economy. It is obvious that the overall flood control project has indirectly benefited this resource through the borrow pits that have resulted from construction activities in the Conservation Areas.

Although prolonged high water levels benefit the fish resource, it is only one consideration in the overall water management program for the Conservation Areas. Numerous other important natural resources exist in the Everglades and must necessarily be given due consideration. Continuing research is necessary, however.

ALLIGATORS

Alligators are an integral part of the ecology of the Florida Everglades and during earlier times were very abundant. Man's activities in the area, however, have had a significant adverse impact on population numbers.

When water levels in the marsh recede during dry periods, alligators either retreat to the canals or into so-called 'gator holes. Use of these holes by alligators usually keeps them free of vegetation, but willow, myrtle, holly, and other woody shrubs ordinarily grow around the periphery. A den or cave is generally associated with the hole and extends from the edge 10 to 15 feet beneath the roots of the surrounding trees. During severe drought, alligators remain in the caves as the water recedes because they frequently retain water for many weeks after the surrounding marsh has dried up.

Alligator holes are important as aquatic reservoirs during droughts and furnish not only food for wading birds but provide a nucleus of aquatic organisms that help repopulate the marsh when the water again rises. Willows and other vegetation that form the periphery of these holes are also a source of food and cover for many species of vertebrates, especially breeding birds.

When drought periods are prolonged there is an obvious heavy mortality of young alligators because they concentrate in these holes and are thus exposed to heavy predation. Another source of alligator mortality is due to rapidly rising water levels during late spring and early summer that inundate nests and destroy them. The nests of turtles and certain species of water snakes can also be destroyed by rapidly rising water levels.

Records of inventories of alligator populations and general impressions of people currently familiar with the Everglades suggest that there has been a drastic decline in numbers over the past 15 years. Populations in the Loxahatchee National Wildlife Refuge may be an exception to this.

Evidence of a general decline in alligator numbers in the Everglades is provided by aerial count records from 1954 through 1968. In the early 1950's aerial alligator counts were made along the old Miami Canal in the northern portion of Conservation Area 3. Part of this flight line, 15-1/2 miles, was along the canal north of Conservation Area 3, and another part, 24 miles long, covered the canal in Conservation Area 3. The 24-mile portion of the canal within Conservation Area 3 showed 2.6 alligators per mile on March 22, 1954. The 15-mile section north of Conservation Area 3 showed 6.0 alligators per mile. On April 5, 1965, 11 years later, the 24-mile section of the canal averaged only 0.88 animal per mile. On April 12, 1968, 1.6 alligators per mile were seen. The portion of the canal located inside the Conservation Area is still quite similar to that present when the transects were flown in 1954.

Counts made along the Alligator Alley borrow pits by boat have also shown a decline over the past few years. For example, in April 1967, 174 alligators were counted. Since then there has been a steady decline in numbers counted along this transect as evidenced by counts in June 1968 which showed only 27 alligators. Comparable counts along the L-39 canal showed 149 in May 1967 as contrasted with 74 in June 1968.

Available information also shows that some loss of alligator habitat has occurred. Perhaps the best example is the area north of Conservation Area 3 that as late as 1954 harbored an impressive number of alligators. Habitat for alligators in this area has now been virtually destroyed due to agricultural development and accompanying drainage. Habitat destruction

has also been caused by increased demands for housing in locations adjacent to the Everglades, resulting in drainage of marsh areas.

Drainage projects in south Florida have created literally hundreds of miles of canals. Creation of stable open water in the canals would seemingly benefit alligators, particularly during dry periods. However, benefits which may have occurred from these increased reservoirs of deep stable water probably have been offset by making alligators considerably more vulnerable to poaching. Furthermore, deterioration of water quality in the canals may be reducing alligator food populations.

In the past 15 or 20 years hunting pressure has increased as a result of more people, development of the airboat, and the digging of additional canals. These developments have coincided with an increase in demand for hides which has resulted in tremendous pressure on alligator populations.

In summary, the drainage of areas adjacent to the Conservation Areas has destroyed or altered much alligator habitat. Furthermore, interference with natural water level fluctuations creates an abnormal drought and flood phenomenon. This phenomenon significantly affects the productivity of alligators by increasing mortality to juveniles during severe droughts and loss of nests to flooding during periods of rapidly rising water levels. Thus, evidence suggests that the decline in the numbers of alligators in the Everglades is due principally to excessive illegal hunting and to man's altering or destroying the habitat.

RECREATIONAL USE

There are few places in this country where such a vast natural area as the Everglades is located so close to large urban population centers. Extensive and diversified recreational uses of the area are now taking place and these uses can be expected to increase substantially in the near future.

Outdoor recreational uses of the Conservation Areas should be subject to careful and continued evaluation. This is important now and will continue to be important in the future. As use by people increases it may become necessary, for example, to strongly regulate and control certain types of activities that damage or alter the ecology of the area. Planning must necessarily consider such things as airboats and half-tracks; massive habitat manipulations; permanent camps; major activities such as construction of new canals, causeways, deer islands, or other engineering structures; and must take into account both consumptive and nonconsumptive uses.

A well coordinated, comprehensive outdoor recreational plan does not now exist for the Everglades. Certain plans which have been developed by the various agencies are commendable but in the view of the study team they do not go far enough. There also seems to be some confusion among the agencies involved concerning responsibility for overall recreational planning and development in the area.

Therefore, we recommend that a comprehensive recreational plan be developed. It should consider, insofar as possible, all aspects of the natural resource base existing in the Everglades, including the commercial

uses of water, and should provide for the balanced use of the resources and the development of adequate but compatible public recreational facilities and interpretative programs. Such planning lends itself rather well to a systems approach, and considerable assistance could be obtained through contract with private firms.

CONCLUSIONS

The freshwater marsh that is the Florida Everglades is a dynamic, fluctuating water level ecosystem. Historic fluctuating levels have created the Glades and essentially maintained it in an intermediate successional developmental stage. Man's activity in the area has interrupted the natural process and by so doing produced a simpler and less diversified biological system than was present even a decade ago. There has been a decline in numbers, or a shift in distribution, or both, of turtles, water snakes, and alligators, as well as some species of mammals and colonial nesting and wading birds. There has been an increase, however, in the numbers of fish, and seemingly in the numbers of frogs, limpkins, some species of waterfowl, and probably a few aquatic invertebrates. Associated with these faunal changes has been a sharp reduction in the diversity of plant species which comprise the major communities.

Seasonally fluctuating water levels in the Glades provide a mechanism for rapid nutrient cycling. For example, during dry periods the aerobic decomposition of accumulated organic matter causes release of nutrients (fire that often occurs during droughts also releases large amounts of nutrients) and when water levels rise during the rainy season,

the productivity of the marsh is again renewed. The life cycles of the many indigenous plants and animals in the Glades are intimately and inexorably tied to this periodicity. Thus, alteration of the historic and ancient hydroperiod, particularly if it manifests itself in the form of more or less prolonged stabilized water levels, will have a severe impact on the Everglades ecosystem and essentially destroy it as it has existed in the past. This will occur as surely as if current plans called for complete drainage.

The vast man-made reservoirs in south Florida have solved some problems while creating a host of others. The time has now arrived, however, when the decision must be made as to what we really want the Everglades to be--it obviously cannot be all things to all people because conflicts will inevitably arise. There must be compromise. The issues are not limited to just whether agricultural lands are flooded or not flooded, or to aesthetics, or to full creel and bag limits; it is the existence of a viable, dynamic, and significant natural area. Man now has the capability, through his technology and sheer numbers, to drastically alter or ultimately destroy the Everglades. He also can preserve it, and if this cannot be done on the sole basis that it is a great natural area of unique national significance, then there seems to be little justification for preserving any other large unique natural area in this country.

The Florida Everglades has had tremendous demands placed upon its resources. The greatest pressure for use of these resources has originated with the economic sector of society and as a consequence many

decisions in the past have been made on this basis and on the basis of engineering considerations. Unquestionably, great monetary benefits have resulted and we do not mean to imply that those decisions have all been necessarily wrong. It is imperative, however, that overall objectives for the Everglades be reevaluated. Now is obviously the time to make some new decisions.

We recognize that the agencies responsible for management of the resources in the Everglades must face the hard reality of everyday problems and pressures. Because of their obligations, both legal and moral, they must necessarily respond with hard practical solutions and action programs and often with inadequate knowledge. In so doing, however, it has become increasingly important that they look beyond the expediency of satisfying immediate public demands and gear resource management programs to the total natural resource base. Currently in this country there is widespread public concern for maintenance of environmental quality. Many now recognize that the value base of pure economics and cost-benefit ratios will have a hollow ring if there are, for example, inadequate supplies of good water, good air, or reasonably extensive natural areas of high quality.

While those involved with the Everglades are preoccupied in endless controversy, hurling accusations back and forth, questioning the reliability of information and the integrity of actions, the Everglades ecosystem as we know it is literally going down the drain. Man has played Russian roulette with the Glades for a very long time. One day soon he may pull the trigger on a loaded chamber.

RECOMMENDATIONS--HIGHLIGHTS

A. General

1. An interagency coordinating committee should be immediately established. It should be composed of the heads, or their representatives of the county, state, and federal agencies involved with use, management, or investigation of the resources in the Everglades and initially should include local county groups, the Central and Southern Florida Flood Control District, Florida Game and Fresh Water Fish Commission, Florida Department of Natural Resources, Florida Air and Water Pollution Control Commission, Everglades National Park, U. S. Army Corps of Engineers, U. S. Geological Survey, U. S. Bureau of Sport Fisheries and Wildlife, Bureau of Indian Affairs, the Federal Water Quality Administration, and one citizen-conservationist from south Florida and one independent environmental scientist, both to be appointed by the Governor. The purpose of the committee would be essentially to provide a formal mechanism for interaction and information exchange on both day-to-day and long-term operations and plans. It is absolutely imperative that there be a complete and free exchange of information between the agencies and organizations concerned. If this cannot be accomplished on a "gentlemen's agreement" basis through the mechanism of a coordinating committee, then appropriate legislation should be passed requiring it. The situation in the Everglades is so

critical that the luxury of unilateral decisions made by one agency or group that affect the interests of all others cannot be afforded or tolerated.

2. An interagency cooperative research program should be immediately implemented in the Everglades. Investigations should be undertaken as a coordinated team effort by both state and federal agencies and by qualified private organizations and individuals as appropriate. Such investigations should be far-reaching and comprehensive and include all aspects of the Everglades environment, viz., ecological, sociological, and economic. Foremost should be achievement of the combined goal of preserving the Everglades, insofar as possible, as a unique natural area of national and international significance, and maintenance of potable water supplies, the quality of the environment, and the economic viability of the region. A critical evaluation of the programs and project plans of the U. S. Army Corps of Engineers and the Central and Southern Florida Flood Control District must be included as a major thrust of such investigations.
3. There is a growing consensus that the on-going channelization of the Kissimmee River was an ecological disaster. The study team recommends a cessation of its construction and a bio-engineering study of the feasibility of diverting flood waters pouring down the "ditch" into the broad, lateral river marshes, thereby slowing flow and improving water quality. Efforts to restore the natural hydroperiod of the Everglades must begin in the Kissimmee Valley.

4. Publicity releases and press coverage concerning crisis situations or conditions in the Everglades should be cleared by the agency heads involved and to be most effective must emphasize the basic causes rather than just the symptoms. Reporters, officials, biologists, engineers, and administrators alike must refrain from the "isolated phenomenon" syndrome and emphasize the problem in its total context as related to the entire Everglades problem. Society must be factually informed about the overall problems and their causes.

B. Water Quantity and Quality

1. Water regulation schedules for the Conservation Areas should be completely reevaluated to determine their applicability in terms of current or new priorities and objectives. Such reevaluations should be a continuous process. When schedules are established they should be adhered to as closely as possible.
2. The accuracy and location of the water level gauges in the Conservation Areas should be reevaluated by an independent group of hydrologic engineers. The entire gauging system and how water level records are used as guidelines to regulation schedules need thorough review.
3. One of the principal objectives of water management in south Florida should be to restore and preserve as closely as possible the historic natural hydroperiod, and water level regulation for the overall Everglades system must be developed with due consideration for the entire natural resource base. Seasonal and

gradually fluctuating water levels are necessary to perpetuate the integrity of the Everglades ecosystem but rapid changes in water levels over short periods of time have adverse ecological consequences and should be avoided by the managing agencies if at all possible.

4. Every effort should be made to ensure that Everglades National Park continues to receive an adequate supply of quality water on a proper seasonal basis to maintain the natural integrity of the flora and fauna of this unique and internationally significant area.
5. Water quality in the entire Everglades system should be continually monitored for nitrates and phosphates, chlorinated hydrocarbons, polychlorinated biphenyls, heavy metals, and other contaminants, and the sources of each determined. The sampling network should include the Kissimmee Valley, Lake Okeechobee, Everglades National Park, and the three Conservation Areas. At all appropriate locations plant and animal indicator species should also be sampled and analyzed.

C. Vegetation

1. It is essential that long-range, intensive studies of the vegetation in the Everglades be undertaken on a continuous basis in order to document changes due to water levels or other factors.

D. Wildlife

1. Deer

The Florida Game and Fresh Water Fish Commission should immediately initiate a comprehensive research program on the Everglades deer herd. Such research should emphasize the population dynamics of the herd, deer movements, disease, and nutrition, and the relationships between herd density, water levels, the carrying capacity of the habitat, and man's activities in the area.

The Commission should act with boldness and imagination in managing the Everglades deer herd, and in particular should be more flexible in setting hunting regulations to more effectively control the harvest of deer in relation to carrying capacity, and be more effective in minimizing human disturbance during stress periods. Consideration should be given to managing the area north of Alligator Alley in Conservation Area 3 with deer as the primary resource. Agencies responsible for water level management in the area should give due consideration to the welfare of the deer herd.

2. Frogs, fishes, alligators, waterfowl,
and colonial nesting and wading birds

The status of these valuable resources and their habitats should be continually monitored through extensive long-term research.

E. Recreational Use

1. A comprehensive far-reaching recreational plan should be developed for Conservation Areas 2 and 3. Such a plan should consider, insofar as possible, all aspects of the natural resource base, including the commercial uses of water, and should provide for balanced and compatible use of the resources and development of adequate public facilities and interpretative programs.

F. Other

1. Use of halftracks in the Conservation Areas should be eliminated or at least rigidly controlled and regulated. If permitted, their operation should be restricted to specified trails or locations, or both.
2. Consideration should be given to more rigid regulations governing the use of airboats in the Conservation Areas, particularly during periods of high water and for hunting deer.
3. Use of dogs for hunting deer in the Conservation Areas should be immediately prohibited.
4. All permanent camps located in the Conservation Areas should be eventually eliminated and strict regulations established to minimize any deleterious effects on the environment while they are in existence.
5. If artificial tree islands are constructed in Conservation Area 3, they should be confined to the region north of Alligator Alley, should be 1/8 to 1/4 acre, appropriately spaced and not exceed four or five per square mile, and should be elliptical in shape with

their long axes oriented generally north-south. An 8- to 10-inch muck layer should be placed on the spoil banks along the new Miami Canal in Conservation Area 3 to encourage the invasion and growth of native vegetation.

6. The State of Florida should give serious consideration to acquiring all private lands in the Conservation Areas. This would provide needed jurisdictional authority for better control and management of the resources in the area.
7. Public acquisition of sufficient portions of the Big Cypress Swamp should be pursued to protect its water resources and wildlife.
8. Alternative courses of action, e.g., wild or primitive area status, etc., should be evaluated as a measure to protect the unique flora and fauna of all or portions of Conservation Area 3.

STATEMENT OF DR. CHARLES A. GAULD, ASSOCIATE PROFESSOR, MIAMI-DADE
COMMUNITY COLLEGE

Mr. Chairman, I am Dr. Charles A. Gauld, Associate Professor since 1966 at Miami-Dade Community College, teaching Conservation of U.S. Natural Resources. Two of my degrees are from Stanford University. I obtained my M.A. from the University of Washington in Seattle in 1935 when you got your degree there in law. I speak only for myself, although I share the conservation views of many faculty, citizens and members of student government at this giant college.

Permit me to congratulate you, your colleagues of the committee and Florida's Senators Gurney and Chiles for your support of S. 2465, introduced by Sen. Lawton Chiles, to establish the Everglades—Big Cypress National Recreation Area here in South Florida. Also your backing of S. 582, cosponsored by Sen. Chiles, to assist Florida and other states to develop ecological research in estuaries and marshy islands. We Floridians hope for the Senate's aid in saving large areas of swamp, estuaries and islands threatened by unsound development with destruction. We seek to save Big Cypress Swamp and rejoice that President Nixon agrees. We conservationists hailed his intervention in January 1971 to halt the destructive assaults on the remaining portion of the lovely, wild Oklawaha River of the U.S. Army Corps of Engineers, hell-bent to create an unnecessary and uneconomic Cross-Florida Barge Canal. We hope the U.S. Senate and President Nixon can turn the misguided energies of the Army Engineers to such tasks as constructing sewage treatment plants to reverse the horrible tide of water pollution threatening to engulf the nation. Should you and the Engineers succeed in the battle against pollution and to enlarge recreational areas, American conservationists and future historians will long remember you. As one concerned with the greatest good of the greatest number, I trust that this Committee will listen more to us than to land speculators.

South Florida lies only a few feet above sea level. Map flat, its delicate balance of vegetation, wildlife, fresh water, salt and brackish waters and dangerously increasing human population and poorly-controlled development can collapse into chaotic disaster. The half-million-plus acres of the Everglades-Big Cypress area are urgently needed as a public recreational reserve.

The already overpopulated Gold Coast of Palm Beach, Broward and Dade Counties is now virtually one sprawling, poorly-zoned megalopolis. It needs the protection of the million-acre Everglades National Park plus the additional greenbelt buffer to the west. The Federal Government has a splendid opportunity to conserve this unique, sub-tropical southeastern tip of the nation.

Florida has the longest history of any state, being officially discovered and named in 1513 by Ponce de Leon. His name is associated with America's oldest and most indestructible myth, of the Fountain of Youth. Let us strive to preserve this uniquely lovely but ecologically threatened area for additional centuries of good life amid unspoiled beaches, inland and coastal waters, great springs, and the invaluable Biscayne Aquifer, Greater Miami's water supply. It needs the slow flow of fresh water of the Everglades, that shallow "River of Grass" described in the splendid book of Miami author Marjory Stoneman Douglas. She recently formed a new conservation group here, the Friends of the Everglades, to protect a vast region vital to preserving the quality of life of South Florida, including Big Cypress Swamp.

The Big Cypress should have been added to Everglades National Park, preached the prophet who saved that park—Ernest F. Coe (1869-1951). His great service to Florida and the nation were memorialized by Mrs. Douglas in a fine article in "Audubon" magazine of September 1971. It merits inclusion in these Hearings.

So do various articles in "The Miami Herald" of November 24 on conservationists hailing efforts to save Big Cypress Swamp and that giant newspaper's editorial of November 26 entitled, "Cypress Another Link in a Valuable Green Belt." Two of the articles are by Mike Toner, the Herald's environment writer, and one by its science writer, Richard Pothier.

We here are grateful to the Congress for appropriating \$10,000,000 to start belatedly the purchase of 55,000 acres of privately-owned land in Everglades National Park since before its creation in 1947. A second \$10,000,000 will be necessary to continue the purchases in 1973. The authorization legislation was

sponsored by Miami Congressman Dante Fascell and Florida's greatly respected former Senator Spessard L. Holland, dead this month at 79. When the Everglades you Senators, the Secretary of the Interior, Florida's son Nat Reed who is Assistant Interior Secretary, and Key Biscayne's best-known home owner, President Nixon. We'll have us a bipartisan fish fry for the million annual tourists to Everglades National Park and Big Cypress Swamp.

STATEMENT OF TROPICAL AUDUBON SOCIETY, INC.

Tropical Audubon Society, representing the National Audubon Society in Southeastern Florida and the six Audubon chapters from West Palm Beach through The Keys, is glad to support Senate Bill S-2465 which was co-introduced by the Chairman, Senator Henry M. Jackson, and Senator Lawton Chiles. We strongly support the provision of the bill, which calls for the purchase of 547,000 acres in the Big Cypress Watershed for public management and protection.

On May 20, 1971, the Department of the Interior released a report on the Big Cypress Watershed. At that time the Honorable Rogers C. B. Morton, Secretary of the Interior, invited public comment on the possible alternative methods of protection which were discussed in the report. After reviewing the report, our organizations voted to support Alternative I, fee acquisition by the federal government. A copy of our statement to the Secretary of the Interior is attached hereto.

A special conference on water management in South Florida, called by Governor Askew in September of this year, focused attention upon the serious threat to South Florida's water supply. As a result of this conference, the Florida Cabinet, acting as the trustees of the Internal Improvement Trust Fund, adopted a resolution in support of federal acquisition as described in Alternative I in the Department of the Interior's Big Cypress report. We are enclosing a copy of this resolution.

It is our firm belief that the objectives of the Senate bill are urgent. Pressures for development of the land have markedly increased since the release of the report, and developers, oil companies and speculators have quickly taken action to take advantage of this situation.

We believe that preservation of the Big Cypress Watershed through fee acquisition is vital for the protection of the water supply of the western area of Everglades National Park and as a water resource for the urban populations, particularly those of the West Coast. Without such protection, Everglades National Park would be doomed. We believe that it would be unthinkable for the federal government to create a magnificent, unique park such as Everglades National Park and then abandon it by failing to protect its water supply.

We also believe that this bill would insure the preservation of the Big Cypress Watershed, which is worthy of protection in itself because of its rare flora and fauna, including a number of endangered species, and would furnish a wilderness area for the recreation of South Florida's citizens. Because of the rapid land development of South Florida, such areas are becoming increasingly scarce.

As conservationists, our organization is particularly concerned with the preservation of wildlife and its relationship to man itself. Consequently, we believe that this bill would provide protection which is so vitally needed to furnish fresh water and nutrients to the estuaries of Florida Bay, the breeding grounds for marine life that constitute a link in the production of fish upon which commercial and sports fishermen depend. Both commercial and sports fishing are of tremendous financial importance to the economy and the tourist industry of South Florida.

Governor Askew has wisely said that the welfare of South Florida citizens and our tourist industry is dependent upon the preservation of our South Florida water resources. Some observers have forecast that, unless bold, imaginative programs are enacted, such as the objectives of this bill, the Everglades will become America's first subtropical desert. This must not be permitted to happen. National Park and the Big Cypress Swamp private lands have been purchased, we the people of South Florida will celebrate with a fine fish fry. We'll invite

NATIONAL AUDUBON SOCIETY AND TROPICAL AUDUBON SOCIETY, INC.,
Coral Gables, Fla., July 20, 1971.

HON. ROGERS C. B. MORTON,
Secretary of the Interior,
Interior Building,
Washington, D.C.

DEAR MR. MORTON: Tropical Audubon Society, representing the National Audubon Society in Southeastern Florida and the six Audubon chapters from West Palm Beach through the Keys, is glad to have the opportunity of advising you of our united position in respect to the Big Cypress Watershed. Upon reviewing the Department of Interior's study report on the Watershed, released on May 20, 1971, our Directors have reached the following conclusions:

ALTERNATIVE I—FEE ACQUISITION

This alternative offers the best long range method of insuring the integrity of the Big Cypress Watershed, the only acceptable way of protecting the water supply to the western side of Everglades National Park, the most economical way of insuring the water resources of Southwest Florida. This method of control will provide for a quick freeze on continuing development within the study area. Such action is urgently needed if the values which make the Cypress worthy of federal protection are to be maintained. The watershed, once destroyed, cannot be restored. Fee acquisition historically is the only proven method for protecting a wilderness area. The preservation of this area is too vital a goal for experimentation. Loss of South Florida's water source by ruination of the Big Cypress would leave generations yet unborn a legacy of mass desalination in a land devoid of open space.

ALTERNATIVE II—LOCAL CONTROL

Preservation of Florida's natural resources has been the work of a small group of dedicated conservationists through the years. They have encountered no help and much opposition from local governments more interested in draining and urbanizing a land viewed as a commodity rather than a heritage to be protected. Local control to preserve the Big Cypress would not work.

ALTERNATIVE III—JOINT LOCAL-FEDERAL CONTROL

At present, control of the area is vested in county governments whose interest is to see the land built upon. So long as their aims remain unchanged, joint local-federal control would not work. The present jetport controversy in Dade County provided the scenario.

ALTERNATIVE IV—TRUSTEESHIP

Unless the land is acquired or development rights frozen, this alternative will eventually lead to development of the area and its destruction as a wilderness watershed. The trusteeship concept is an attempt to regulate development. Private development is incompatible with this area.

ALTERNATIVE V—FEDERAL CONTROL

Designation of the Tamiami Trail as a National Parkway may have many advantages. It is not, however, a method of protecting the Big Cypress, and should not be construed as such. The use of compensable land use regulations to protect the character of the wilderness area is a new method which remains essentially untested. The Big Cypress report indicates that the implementation of compensable restrictions would cost not more than \$10,000,000. No explanation was offered to justify this figure. Value for the land in this area is equal to the owner's development right. In its natural state it is worthless for farming, grazing or building. The cost of compensable regulations could thus approach the cost of fee acquisition.

ALTERNATIVE VI—EXTENDED FEDERAL CONTROL

This alternative represents a compromise between Alternative I and Alternative V. We believe that this alternative, which somewhat more acceptable than Alternative V and the other lesser alternatives, may not be capable of insuring the integrity of the Watershed. In the area of subdrainage "C" to be controlled

by compensable regulations north of the Tamiami Trail, all of the problems dealt with in the above discussion of Alternative V will exist. The area to be acquired between the Tamiami Trail and the northern boundary of Everglades National Park would only serve as a buffer zone to the Park. While this objective is unquestionably worthy in itself, this alternative would aid only a small portion of the watershed outside the boundary of the Park, and would do little to protect and enhance Southwest Florida water resources in general.

In conclusion, we feel that Alternative I is by far the most acceptable option available at this time. By preserving the Big Cypress Watershed we build a viable relationship with the self-maintaining life support system capable of supplying urban centers with water. We leave a legacy of wilderness to an uncertain world. We preserve a unique part of America.

We are indeed appreciative of the opportunity to express to your office our views of the alternatives defined in this report.

(MRS.) ALICE C. WAINWRIGHT,
President.
(MRS. WILLIAM H. EVOY),
Conservation Chairman.
CHARLES LEE,
Everglades Coordinator.

LETTER TO SENATOR HENRY. M. JACKSON

DEAR SENATOR JACKSON: My board, representing a membership of more than 2,200 people, has directed me to write you adding our enthusiastic endorsement and support for your bill to purchase in the name of the people of this country the area known as the Big Cypress Watershed. Beyond the great contribution of saving for the present and future generations the beauty and natural productivity of a unique area of the world, your plan could be paramount in the solution of one of Southwest Florida's most critical problems of the present and future, and that is an adequate supply of fresh water.

FRANK RIDLEY, *President,*
Collier County Audubon Society.

IZAACK WALTON LEAGUE OF AMERICA,
Naples, Fla., January 1, 1972.

Senator HENRY M. JACKSON,
Senate Office Building,
Washington, D.C.

DEAR SENATOR JACKSON: Our membership has directed me to write you expressing our full approval and offering our future support of your action in pushing the purchase of the lands in Big Cypress Swamp (S. 2465) for a multipurpose sanctuary and park. Antagonism of a minority may die hard and the purchases may take lots of time, but the acquisition will be a monumental thing for South Florida.

Our Collier County Commissioners seem to be coming up with a rather interesting switch, or offer to trade. Miami Herald Tom Morgan offers this headline—"Collier Commission Wants Jetport Proposal Revived," and this byline within the article—"Commissioner A. C. Hancock said he felt the jetport location is ideal but feared a county supporting stand might be felt to mean it had reversed its opposition to the Big Cypress purchase."

We want Big Cypress without the jetport.

Sincerely yours,

CHARLES G. GARRETT,
Chapter President.

THE SANIBEL-CAPTIVA CONSERVATION FOUNDATION, INC.,
Sanibel, Fla., November 24, 1971.

Senator HENRY M. JACKSON,
U.S. Senate,
Washington, D.C.

DEAR SENATOR JACKSON: We wish to express our strong support for the Chiles-Jackson bill providing for free purchase of Area C—the Big Cypress—in Florida, as one more major step to protect the Everglades for the people of the nation,

and the world. This is a unique planet resource, a national heritage. It must not be destroyed for greed-profit for the few.

Here on our islands, we are fighting to preserve a small part of the island chain along the west coast, but we recognize that our achievements, such as the J. N. "Ding" Darling National Wildlife Refuge, may go for naught if the land mass of South Florida is urbanized.

With more than 30 other environmentally concerned groups, we have formed a Southwest regional liaison organization named ECOSWF (Environmental Confederation of Southwest Florida). It is sponsoring a conference in Fort Myers, January 27, 28 and 29, to press for an environmental for the region, with enforcement teeth, and combined with substantial new, long-range, land acquisition in South Florida and on the islands along the west coast.

Only brutal greed, and sheer insanity, could motivate the repeat in South Florida of the southern California jungle. But that is the direction in which we are still headed, and the road we have traveled too far. Your bill is an encouraging change in course.

Sincerely yours,

ROY E. BAZIRE,
Executive Director.

BOARD OF COUNTY COMMISSIONERS, COLLIER COUNTY,
Naples, Fla., December 13, 1971.

HON. LAWTON CHILES,
U.S. Senate Office, Washington, D.C.

DEAR SENATOR CHILES: The Collier County Commissioners have reviewed the proposals for the purchase of the Big Cypress Watershed by the Federal Government. It appears that most of the half million acres to be purchased are in Collier County. In fact almost one third ($\frac{1}{3}$) of the County is involved.

The advalorem tax on the area to be purchased will be considerable and the loss of that revenue would surely be a real cut in funds that are used to operate the County and the schools. I do not know the exact amount of taxes received from that area. According to a quick check by the tax assessor it would be well over a half million dollars.

As you know one of the main sources of revenue for the County is the advalorem tax. The tax on real property is almost to the breaking point now. In fact, so high one can hardly afford to own land. To ask the tax payers of Collier County to absorb this loss plus the other increases in costs that are piling up on local government would be unfair and it would create an unreasonable hardship.

The Board has instructed me to insist that your bill in Congress to provide for the purchase of the Big Cypress Watershed also include provisions for annual payments to the County in lieu of taxes. These payments should be equal to the percentage of the total advalorem taxes lost each year by this purchase. This may be 8 to 9% the total advalorem tax for the County. I am sure there will be opposition to your bill if some provision for payment to the County is not included. I feel sure there will be some type of management set up for the land with some income realized, and this could be used in payments to the County. However, it would be several years before the income would equal the tax loss. Therefore, I feel that the County should be assured the proper amount of revenue by the Federal Government to come from whatever source may be available.

This request and other suggestions were included in the Statement presented at the public hearing in Miami, on November 30, 1971.

I will appreciate it very much if you will give this your serious consideration and let me have your comments at an early date.

Very truly yours,

LESTER WHITAKER, Sr., *Chairman.*

MIAMI SPRINGS, FLA., November 5, 1971.

DEAR SENATOR CHILES: The Everglades Conservation and Sportsmen's Club (hereafter referred to as the Club), discussed at the October meeting Bill S-2465, to establish the Everglades Big Cypress National Recreation Area (hereafter referred to as the Bill).

I am a very active member of the Club, along with my brother and my father, who is Vice President. However, this is not an official Club letter, but my own personal reply.

Almost all of the membership of the Club are vigorously opposed to the *details* of this Bill. Contrary to the indications of Calvin Stone, many of the members of the Club are opposed, even to its concept. I prefer the Big Cypress to be protected by anti-development legislation *not* purchased. However, I could live with a *new* Bill with the concept of purchase of the Big Cypress, but the Bill S-2465 is unfair and biased and should be scrapped!

I understand the Bill was engineered by Joe Browder and certainly is typical of his unfair and biased attitude. That nationally televised show, in which he was a large part, gave the impression that *all* property owners are so selfish as to want development of the Big Cypress and surrounding areas. Any part of a speech which showed to the contrary, was cut, including my father's. He and I both own property within the area of the Bill.

At a *minimum*, any bill on the purchase of said property should contain the amendments of Calvin Stone, which are to the best of my memory:

1. Forty acres (not 3), retainable as a campsite, or homesite, building having been started before establishment of the Bill.

2. Ability to give or sell such property to another, for the same purpose, to last for eternity.

3. Granting entrance to such above sites by their owners.

Another requirement necessary for the support of many ecology-minded property owners is a definite guideline in the Bill as to price to be paid for property such as tying prices to the average price paid in 1970 for a similar land of *similar size*. It is unfair to buy my ten acres at the price per acre of a section sale as I did not pay on that basis. History shows government underpays for forced purchased land.

The Club President, as well as Calvin Stone, have been given assurances by government officials that the Club's 80 acres will be left to the Club, however, many members are suspicious because of a word of mouth deal with the State of Florida higher-ups that didn't keep their word. I want to see non-profit organizations of a reasonable size membership with property in the area of the Bill allowed to keep 80 acres *written in the Bill*. I believe we are the only such organization. Certainly it would be unfair to limit 150 people to the same area as one.

Concerned,

GEORGE M. EDWARDS.

SLIPPERY ROCK STATE COLLEGE,
Slippery Rock, Pa., November 17, 1971.

Sen. HENRY M. JACKSON,
Chairman, Senate Committee on Interior and Insular Affairs.

DEAR SENATOR JACKSON: The destruction of the natural landscape of southern Florida is proceeding at a most alarming rate. The draining, subdividing, and wanton destruction of wet lands is threatening the whole of southern Florida including Everglades National Park. Fortunately it is not too late to stop shameful and greedy actions. Protection must be afforded to the lands north of Everglades National Park if the Park itself and all its rich and varied life are to be preserved. The establishment of an Everglades—Big Cypress National Recreation Area is a step in the right direction. However, does it go far enough? Will the ecosystem be allowed to develop naturally or will logging, mineral interests, hunters be allowed to duplicate disturbances of past years.

Most sincerely,

DR. KIMBALL S. ERDMAN,
Professor of Biology.

REFERENCES SUBMITTED FOR THE RECORD BY PROFESSOR ARTHUR R. MARSHALL,
UNIVERSITY OF MIAMI

- Craighead, F. C. *The Trees of South Florida*. Vol. 1, University of Miami Press, 1971.
- . *Orchids and Other Air Plants of Everglades National Park*. University of Miami Press, 1963.
- Loveless, C. M., A. R. Marshall, et. al. *Everglades Water and its ecological Implications*, 1970.
- Lugo, E. A. et. al. *Models for Planning and Research for the South Florida Environmental Study*. University of Florida, Gainesville, 1971.
- Parker, C. G. et. al. *Water Resources of Southern Florida with Special Reference to Geology and Ground Water of the Miami Area*, Washington, D.C., U.S. Geological Survey Water Supply Paper 1255, 1955.
- Tabb, D. C. *A Summary of Existing Information on the Freshwater, Brackish Water and Marine Ecology of the Florida Everglades Region in Relation to Freshwater Needs of Everglades National Park*. University of Miami Institute of Marine Sciences, 1963.
- et. al. *The Ecology of Northern Florida Bay and Adjacent Estuaries*. Board of Conservation, Technical Series 39, Tallahassee, Florida, 1962.
- State of Florida. *Report of the Governor's Conference on Water Management in South Florida*. 1971.
- U.S. Department of the Interior. *Environmental Impact of the Big Cypress Swamp Jetport*, 1969.
- . National Park Service. *Appraisal of Water Quality Needs and Criteria for Everglades National Park*. June, 1971.
- . Everglades Jetport Advisory Board. *Big Cypress Watershed, Florida*. 1971.
- . Geological Survey. *Some Hydrologic and Biologic Aspects of the Big Cypress Swamp*. 1970.
- . FWQA. *A Synoptic Survey of Limnological Characteristics of the Big Cypress, Swamp, Florida*. 1970.

