UNITED STATES DEPARTMENT OF THE INTERIOR

FES-78-7

FINAL

ENVIRONMENTAL STATEMENT

Proposed
WILDERNESS RECOMMENDATION
EVERGLADES NATIONAL PARK
FLORIDA

Prepared By
Denver Service Center
National Park Service
United States Department of the Interior

Director, National Park Service

SUMMARY
( ) DRAFT (X) FINAL ENVIRONMENTAL STATEMENT

Department of the Interior, National Park Service

1. Type of action: ( ) Administrative (X) Legislative
2. Brief description of action: The National Park Service proposes designation of 1,296,500 acres of wilderness in Everglades National Park, Dade and Monroe Counties, Florida. The proposed wilderness includes 92.7 percent of the park.
3. Summary of environmental impacts and adverse effects: Beneficial environmental impacts include preservation of natural ecosystems, preservation of habitats for rare and endangered species, and provision of a large subtropical wilderness environment for the enjoyment of future generations.

   Adverse impacts include impairment of management and research flexibility, and minor restrictions on future development. There would be virtually no adverse impact on commercial and sport fishing.
4. Alternatives considered:
   a. No wilderness designation.
   b. Classify all open waters and navigable waterways as areas to be considered for future wilderness designation.
   c. Additional areas considered for potential wilderness additions.
   d. Legislative provision for motorboat use.
5. Comments have been requested and received from the following: (see next page)
6. Date draft statement made available to EPA and the public:
   Draft statement: April 1, 1974
   Final statement:

5. Comments have been requested and received(*) from the following:

Federal agencies:

*Advisory Council on Historic Preservation
Department of Agriculture
    Agricultural Research Division
    Soil Conservation Service
Department of Commerce
    National Marine Fisheries Service
    Coast and Geodetic Survey
Department of Defense
    U.S. Army, Corps of Engineers
Department of the Interior
    *Bureau of Indian Affairs
    *Bureau of Land Management
    *Bureau of Mines
    *Bureau of Outdoor Recreation
    *Fish and Wildlife Service
    *Geological Survey
Department of Transportation
    *Coast Guard
    *Federal Highway Administration
*Environmental Protection Agency
Federal Power Commission

State Agencies

*Florida Clearinghouse
*Florida Historic Preservation Officer

Other

Dade County Executive Office
Collier County Executive Office
Miccosukee Indian Community Council
Monroe County Executive Office

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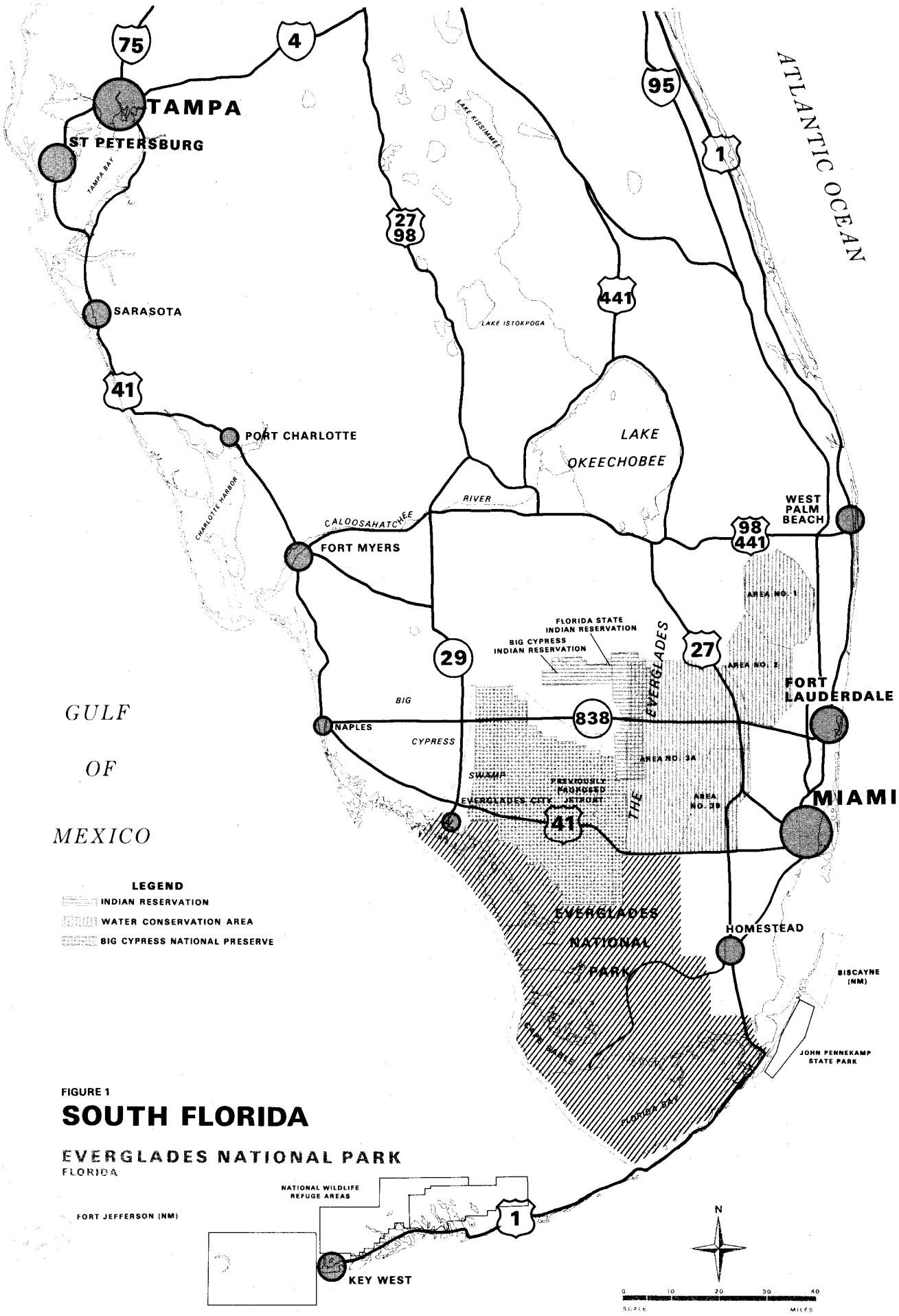

FIGURE 1

SOUTH FLORIDA

EVERGLADES NATIONAL PARK

FLORIDA

UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

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I. Description of the Proposal

Everglades National Park is a vast subtropical mosaic of water, prairie, and forests. Occupying 1,398,800 acres on the southern tip of Florida (figure 1), the park contains habitats for plants and wildlife rarely or never seen elsewhere in the United States. The Secretary of the Interior was authorized to establish Everglades National Park by act of Congress on May 30, 1934, for the purpose of permanently reserving the area "as a wilderness, (where) no development . . . or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna of the essential primitive natural conditions now prevailing in this area." The mandate to preserve wilderness is one of the strongest for a federal park. It therefore requires resolution of conflicts between preservation and use of natural resources in favor of preservation.

Legislative constraints on management that are pertinent to the wilderness recommendation include:

> provisions for right-of-way for the state highway from Everglades City to Chokoloskee Island (74 Stat. 577, figure 2)
>
> permission for "such drainage through the natural waterways of the park and the construction, operation, and maintenance of artificial works for conducting water . . . as required by the State of Florida" to drain certain lands lying along and outside of the eastern boundary of the northwestern extension of the park (figure 2): The Secretary of the Interior shall grant permission for these drainage works only after finding that they are not "seriously detrimental to the preservation and propagation of the flora or fauna of Everglades National Park . . . (and) only after a master plan for the drainage of said lands has been approved by the state of Florida and after finding that the approved plan . . . is so designated as to minimize disruptions of the natural state of the park" (16 U.S.C. 410n).
>
> the retention of mineral rights on certain lands (16 U.S.C. 410, the locations of outstanding mineral rights are identified on figure 2)
>
> for private interests that elected to reserve oil, gas, and mineral rights prior to their

termination in 1958 (16 U.S.C. 410e) or 1967 (16 U.S.C. 410j), the right to customary royalties applying at the time of production on any oil, gas, or other minerals that may be produced from certain lands at any time before January 1, 1985, should production ever be authorized by the federal government or its assigns

Other commitments of, or constraints on, management include:

promises, enforced and limited by provisions in the Code of Federal Regulations, to provide for commercial and sport fishing in the park's open marine waters, including most of Florida Bay, Gulf of Mexico, and the navigable coastal waterways between Chokoloskee Bay and Gopher Key Creek (such fishing is permitted on a "sustained yield basis" in conformity with the laws of the state of Florida)

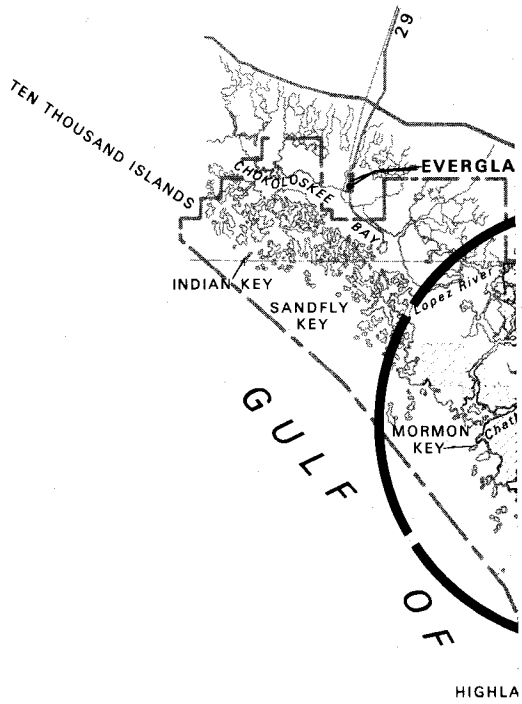
use of 659.10 acres by the U.S. Army for a missile base (special-use permit, due for renewal in 1985)

use of portions of parklands by the Miccosukee Indians for a tribal burial ground (until October 31, 1984) and community development (approximately 305.33 acres until January 14, 2014) under provisions of special-use permits

A. Description of the Proposed Action

The wilderness recommendation for Everglades National Park has been prepared in accordance with the requirements of the Wilderness Act of 1964 (P.L. 88-577). The act directs that "within ten years after (its) effective date (September 3, 1964) . . . the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks . . . and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness."

A preliminary wilderness recommendation for Everglades National Park and a draft environmental statement were reviewed in public hearings held on May 22 and 23, 1974. Following receipt of comments from governmental agencies, interested organizations, and members of the public, the National Park Service reviewed the two documents. The revised wilderness recommendation, which



LEGEND

MINERAL RIGHTS

URE 2

MINERAL RIGHTS

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adds 531,800 acres to the preliminary proposal (see table 1) is described below.

The wilderness recommendation includes 1,296,500 acres, or 92.7 percent of the total park area in four wilderness units. This acreage represents the greatest possible wilderness designation in light of existing development use and wilderness policies. An additional 81,900 acres have been designated as potential wilderness additions, which the Secretary of the Interior will be authorized to add to the wilderness area when incompatible uses or conditions are eliminated. Inclusion of the potential wilderness additions increases total wilderness to 1,378,400 acres, or 98.5 percent of the park.

A detailed description of lands in each category is presented below. The wilderness boundaries are shown in figure 3.

1. Proposed Wilderness (1,296,500 acres)

Unit 1, (148,700 acres) is located south and east of the Flamingo road and includes much of the Taylor Slough drainage and the keys in Florida Bay. Most of the major plant communities of the park are represented in this unit (sawgrass marsh, hardwood hammocks, bay heads, cypress heads, mangrove forests, and upland pine forests). The unit also includes some of the nation's remaining nesting sites for the crocodile, and nesting sites for numerous birds--many of which are extremely rare elsewhere, such as the bald eagle, reddish egret, great white heron, brown pelican, white-crowned pigeon, roseate spoonbill, and wood stork.

A dwarfed mangrove forest occurs along the southern coast. The unit includes several lakes where use will be restricted to motorless boats (Cuthbert, Henry, Little Henry, Long, the Lungs, Middle, Monroe, Seven Palm, and many unnamed smaller lakes). Development will include only a few trails created from old roads east of the Snake Bight Canal, about 13 existing and proposed primitive campsites--which may contain pit toilets, fireplaces, tables, docks, and shelters on raised platforms--four small water gaging stations, and about 6 miles of airboat trails for management use only (figure 3).

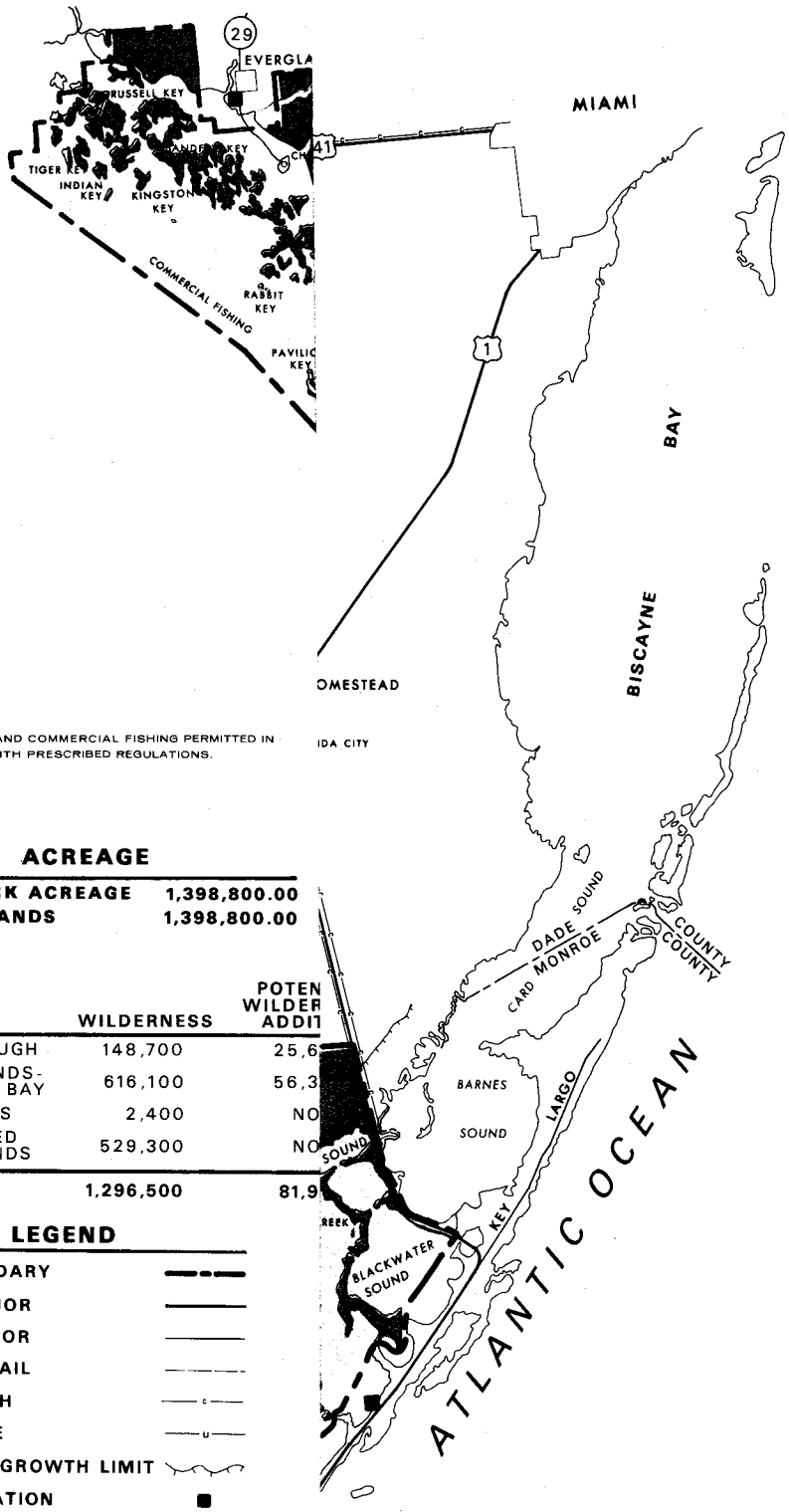
The Ten Thousand Islands Whitewater Bay Unit (Unit 2--616,100 acres) is located west and north of the Flamingo road, primarily in the Shark River Slough drainage. The unit contains keys in the Gulf of Mexico and

Table 1. Acreage Summary for Preliminary and Revised Wilderness Recommendations for Everglades National Park

Unit	Preliminary Recommendation		Changes in Acreage			Revised Recommendation	
	Wilderness	Potential Wilderness	Add to Wilderness	Add to Potential Wilderness	Delete From Potential Wilderness	Wilderness	Potential Wilderness
Taylor Slough (Unit 1)	148,700	28,400	None	6,800[1]	9,600[2]	148,700	25,600
10,000 Islands-Whitewater Bay (Unit 2)	616,000	56,300	100[3]	None	None	616,100	56,300
Pinelands (Unit 3)	--	--	2,400[4]	None	--	2,400	0
Submerged Marine Lands (Unit 4)	--	--	529,300[5]	None	--	529,300	0
TOTALS	764,700	84,700	531,800	6,800	9,600	1,296,500	81,900

Reasons for changes

1. Agricultural lands and undeveloped lands in the Hole-in-the-Donut area considered restorable to natural conditions and potentially suitable for wilderness in the future. Lands not needed for future park development.
2. Joe Bay, Little Madeira Bay, and tidal flats south of Russell Key were recommended as potential wilderness additions, pending the elimination of commercial fishing and motorboats. The water was believed to be major feeding and nesting areas of peripheral population of the American Crocodile and these uses were believed to threaten the population. Since the original wilderness study in 1972, park researchers have determined that nesting and feeding occurs primarily in rivers and streams landward of these waters which are not subject to substantial motorboat use or commercial fishing. During the nesting season, the necessary area can be closed to these uses if prevailing conditions indicate this action is appropriate. Additional restrictions may be imposed, if needed.
3. The existing one and one-half mile road from the Buttonwood Canal westward to Bear Lake will be closed and changed into a trail. This area would be changed to wilderness as this section of road was considered not necessary for park management.
4. This acreage was included to afford additional long-term protection to slash pine forest north of the Hole-in-the-Donut.
5. This acreage was included to afford additional long-term protection to the valuable estuarine resource.



NOTE
MOTORBOATING AND COMMERCIAL FISHING PERMITTED IN ACCORDANCE WITH PRESCRIBED REGULATIONS.

ACREAGE

GROSS PARK ACREAGE	1,398,800.00
FEDERAL LANDS	1,398,800.00

	UNIT	WILDERNESS	POTEN WILDER ADDI1
1	TAYLOR SLOUGH	148,700	25,6
2	10,000 ISLANDS-WHITEWATER BAY	616,100	56,3
3	PINELANDS	2,400	NO
4	SUBMERGED MARINE LANDS	529,300	NO
	TOTAL	1,296,500	81,9

LEGEND

- PARK BOUNDARY
- ROADS MAJOR
- MINOR
- AIRBOAT TRAIL
- CANAL, DITCH
- UTILITY LINE
- MANGROVE GROWTH LIMIT
- RANGER STATION
- WATER GAGE OR GAGING STATION
- MUD BANKS
- GAS, OIL & MINERAL RIGHTS
- PROPOSED WILDERNESS
- SUBMERGED MARINE WILDERNESS
- POTENTIAL WILDERNESS ADDITION

FIGURE 3

EXHIBIT A

WILDERNESS PLAN

EVERGLADES NATIONAL PARK

FLORIDA

REVISIONS TO PRELIMINARY

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the Gulf Coast's Ten Thousand Islands region, a labyrinth of mangrove islands and waterways. Diversity of vegetational communities is similar to Unit 1. However, although some are present in Unit 1, this unit includes large rookeries for the rare wood stork and prime habitats for the rare and endangered Cape Sable sparrow, manatee, and loggerhead turtle. A few inland lakes and bays are included in wilderness (Bear, Fox, Gator, and Mud Lakes), but most larger navigable bodies of water are excluded because of commercial fishing and/or motorboat use.

Development will include 45 existing and proposed primitive campsites, one 6.5-mile-long foot trail to be created from the old Flamingo/Lake Ingraham management road, a 1.5-mile-long foot trail to be created from the Buttonwood Cord/Bear Lake road, approximately 105 miles of airboat trails (management use only), 25 small water-gaging stations, and the tribal burial ground of the Miccosukee Indians (figure 2).

The Pinelands Unit (Unit 3--2,400 acres), located north of the Hole-in-the-Donut, is bordered on the north by the Flamingo road and on the south, east, and west by access and management roads. The unit contains the largest remaining stand of slash pine forest in South Florida. Two primitive roads, totaling about 1 mile, will be obliterated. An existing motor nature road through the northern part of the unit will be converted to a paved hiking/biking trail and excluded from wilderness.

The Submerged Marine Lands Unit (Unit 4-529,300 acres) includes most of the permanently submerged lands and tidal mud flats in the park. These areas illustrate a high diversity of habitats and biota, as well as exceptionally great ecological productivity. They provide important estuarine nurseries and contribute substantially to the support of the productive Gulf coast fishery. Many of the mud flats and grass flats provide valuable feeding grounds for both wading birds as well as pelicans and raptors. All marine bottomlands in Florida Bay and the Gulf of Mexico, as well as most embayments and the seaward portions of watercourses, are included in wilderness. Only 3,720 acres are excluded to provide for piers, boat launching facilities, and dredging of navigational channels. Motorboating and commercial fishing are permitted on the surface waters, which therefore are not suitable for wilderness designation. In lieu of establishing marine waters as wilderness, the National Park Service will restrict use as necessary to protect visitors as well as the park's marine flora and wildlife. Markers will be emplaced to warn boaters to avoid shallow areas

where they might become stranded as the tide goes out. Such management techniques should substantially reduce the damage caused by disturbance of bottom sediments and turtlegrass flats as a result of motorboat propellers.

2. Potential Wilderness Additions

a. Former Inholdings (approximately 81,900 acres). Private inholdings that have been acquired or are in condemnation include approximately 25,600 acres of marsh, pineland, and agricultural land in Unit 1 (the Hole-in-the-Donut area), and 56,300 acres in the mangrove forest zone of the Gulf Coast in Unit 2. Mineral rights are held on 65,200 acres. The Unit 1 addition consists of former croplands in the Hole-in-the-Donut area, as well as all but about 100 acres of the 659-acre U.S. Army missile installation. Originally covered by a mixture of sawgrass and slash pine forests, most of the area was cleared in the 1940s and has been farmed intensively since that time.

Although disturbance of the natural environment has been severe, the National Park Service will attempt to promote revegetation by native plants and restoration of habitats for the wildlife of the pineland and sawgrass glades. The ecological restoration will rely heavily on the results of ongoing studies to determine the most effective management practices. Methods may involve the use of mechanized techniques. If the revegetation and habitat restoration are successful, these former agricultural lands will be designated wilderness. Relatively undisturbed portions of the tract now used by the U.S. Army for a missile base will be restored and added to the wilderness when the base is phased out, presumably following a future determination that it is no longer needed for national defense.

All private lands now being acquired and lands with outstanding mineral rights in Unit 2 are potential wilderness additions that will be included in wilderness after they are acquired.

b. Primitive Roads (acreage negligible). Primitive roads that formerly provided access to private inholdings will be closed and added to the wilderness area.

3. Areas Recommended for Exclusion (551,133 acres)

The following areas support incompatible uses and are therefore excluded from the wilderness recommendation and potential wilderness additions.

a. Open Marine Waters. All surface marine waters in Florida Bay, Gulf of Mexico, adjacent salt-water embayments, and the navigable seaward portion of rivers and streams are excluded from the wilderness recommendation because of the presence of commercial fishing and/or motorboating. These long-established uses will be regulated by park management, as necessary, to maintain the integrity of natural ecosystems.

b. Marine Bottomlands Supporting Existing or Potential Incompatible Use (3,720 acres). The following marine bottomlands are excluded from wilderness because they now support, or may in the future support, uses that are incompatible with wilderness designation:

a 1/8-mile-wide zone along the park's southern boundary in Florida Bay, which may be affected by dredging operations in the intracoastal waterway immediately adjacent to the park boundary

a 1/8-mile-wide zone along a dredged channel leading to the Flamingo marina

a 1/8-mile-wide zone along the dredged Indian Key Pass channel

a 1/8-mile-wide zone along a causeway leading to Chokoloskee Island as well as a dredged channel around the island

the Buttonwood Canal, which is dredged periodically to maintain navigability

waters in and near the Flamingo marina, which may be subject to dredging, boat launching facilities, or pier construction

c. Flamingo Road Interpretive Corridor. This corridor includes the headquarters complex, park housing area, Long Pine Key development, Royal Palm development, Pineland Trail, Pa-hay-okee Overlook, Mahogany Hammock Trail, Paurotis Pond Trail, Nine Mile Pond Trail, West Lake Trail, the Flamingo development, and Lost Man's River Ranger Station.

d. Shark Valley Loop Road Interpretive Corridor. This corridor includes the parking lot, observation tower, loop road and its enclosed land, and associated development.

e. Everglades City Development. The development consists of the marina, visitor center, ranger station, and road corridor between Everglades City and Chokoloskee Island.

f. Utility Rights-of-way. All rights-of-Way except a 2.6-mile-long underground section of a power cable near Sweet Bay Pond will be excluded.

g. Canals Required for Drainage and/or Access (64 miles). Notably the Buttonwood, East Cape, Homestead, L-67 Extension, and Middle Cape Canals will be excluded.

h. Miccosukee Indian Lands. Lands used by the Miccosukee Indians under special-use permits for community development (333 acres) will be excluded.

i. Lands Containing Development and Access Roads to the U.S. Army Missile Site. About 100 acres of this 659-acre tract are intensively developed with buildings, missile silos, access roads, radar installations, and various support structures. Even if the site is no longer needed by the Army for national defense and is relinquished soon, this acreage will be difficult, if not impossible, to restore to wilderness quality in the foreseeable future.

j. A Small Pumping Station on Canal L-31W. Located in Unit 2 near the park headquarters area, this pumping station is scheduled for construction. The station will require less than 1 acre and will be used to deliver additional water into Taylor Slough during low water periods.

k. Boy Scout Camp. The 235.76-acre tract in Hole-in-the-Donut area used for a Boy Scout Camp will be excluded.

B. Problems in Designating Wilderness Areas for Everglades National Park

Everglades National Park's vast aquatic and seasonally submerged terrestrial ecosystems form an ecological mosaic quite unlike any other in the National Park System. The abundance of water and the paramount importance of water in maintaining ecological integrity influence development, use, and management of the park in many ways. Application of the provisions of the Wilderness Act and of departmental and Park Service policies is difficult because all were formulated with reference to terrestrial ecosystems. Specific problems may be summarized as follows.

1. Access and Circulation

Environmental hazards and impassable terrain tend to restrict foot traffic to the park's few developed areas. Most of the park's terrestrial environments are underlain by jagged and pitted pinnacle limestone which rapidly destroys footgear and presents considerable risk of accident. Solution holes are common. Insects, particularly mosquitoes, are abundant and a seasonal menace to enjoyment of a backcountry hiking experience. Poisonous snakes and other potentially dangerous wildlife, which are locally abundant, may jeopardize visitor safety, although not to the degree many people believe. Travel on land therefore usually is restricted to established trails and elevated boardwalks.

Travel on water presents still other problems. Motorboats are the vehicles of choice for most long-distance travel. Excursions by motorless boats are usually restricted to protected locations near highways or developed areas (Flamingo, Everglades City, U.S. Route 1 along the southeast boundary), although backcountry use is increasing. Use of nonmotorized boats in backcountry open-water areas can be perilous. Storms build up rapidly over Florida Bay and can capsize small boats. Boaters can easily become disoriented while navigating the myriad inlets, estuaries, and bays. Without a motorized boat, the risk of serious mishap from such situations increases substantially. Because of the great distances between backcountry facilities, use of motorboats is usually required for access. Backcountry motorboat use takes place primarily on the Buttonwood Canal, and infrequently on other canals and natural waterways.

Widespread disruption of the physical environment from such use has not been quantified, although

erosion of the sides of canals from motorboat washes is locally conspicuous. However, the random use of motorboats can cause locally severe disturbance in bays and estuaries when propellers churn up the bottom sediments and benthic biota of shallow water areas. Most disturbance is unintentional, and many motorboat users inadvertently veer from navigable channels (often poorly marked) or get stranded in shallow water as the tide goes out. An overflight of Florida Bay reveals a mosaic of crisscrossing tracks in bottom sediments--the result of motorboat use in shallow water. Without enforceable zoning plans for major open-water areas, such disturbance will continue to occur.

Airboat use on the open glades during the wet season provides access to the backcountry, but destruction of vegetation and resultant disturbance of wildlife habitat presently precludes this use except for essential research or management purposes.

Without construction of elevated boardwalks and use of motorboats, a wilderness experience in the Everglades will be restricted primarily to areas near highways, established motorboat corridors, and park developments. It could be argued that these and perhaps other devices represent the minimal means to permit safe access and use of the Everglades wilderness. However, motorboats will continue to be regarded as incompatible with wilderness designation, and surface waters where they are permitted will be excluded from the wilderness proposal.

2. Commercial Fishing

Commercial fishing in marine waters is an established use which is permitted by promises from the park to private interests, as defined and limited in the Code of Federal Regulations.

Commercial fishermen took an estimated 172,000 pounds of fish (excluding tarpon) and shellfish from the park's waters in 1971 (U.S. Department of the Interior, National Park Service, 1972). In that year, 214 permits were issued to net fishermen (84), hook-and-line fishermen (56), charter guides (77), and stone crab fishermen (35). Although the adverse effects of commercial fishing have never been documented, these operations probably cause locally significant disturbance to wildlife habitat as well as reductions in fish and shellfish populations. However, the catch records, which commercial fishermen are required to submit to the park, provide the only quantitative information on consumptive use of marine resources. These data should be invaluable in eventual determination of the

carrying capacity of the park's waters for these activities. The Wilderness Act of 1964 precludes commercial operations in wilderness. Therefore, no waters where commercial fishing is allowed can be included in the wilderness proposal.

3. Ecosystem Management

Everglades National Park is a complex ecological system, the existence of which depends on land use and resource management throughout most of South Florida.

Water--its seasonal distribution and amount--exerts primary control on ecological processes. A long history of expanding residential, commercial, and agricultural development in South Florida has entailed diversion of surface water supplies to drain the land and provide for consumptive needs (figure 4). The result of these changes has been substantial alteration of the Everglades ecosystems, which are both vulnerable to, and dependent upon, man's activities outside the park (see section II.C.2). Restoration of pristine conditions is impossible. The park must be managed by whatever means necessary to prevent further decline in ecological productivity and diversity. Future management practices might entail severe disruption of large areas in order to save the Everglades from the devastation of catastrophic fire (Robertson 1952, Tabb 1963) or other as yet undocumented threats. Research that may alter vegetation or disturb wildlife populations may be necessary to acquire information that will facilitate preservation. Such projects could be essential to the perpetuation of the total park and wilderness resource, even though the project might be viewed as altering existing wilderness conditions within the specific research site.

C. Projects or Agencies Influencing or Influenced by the Proposed Action

1. Other Wilderness Areas

If authorized by Congress and recommended by the President, the proposed 1,296,500-acre wilderness in Everglades National Park will be the largest wilderness area in the state of Florida. Nine smaller wilderness areas have been proposed or designated in Florida, all by the U.S. Fish and Wildlife Service, as follows:

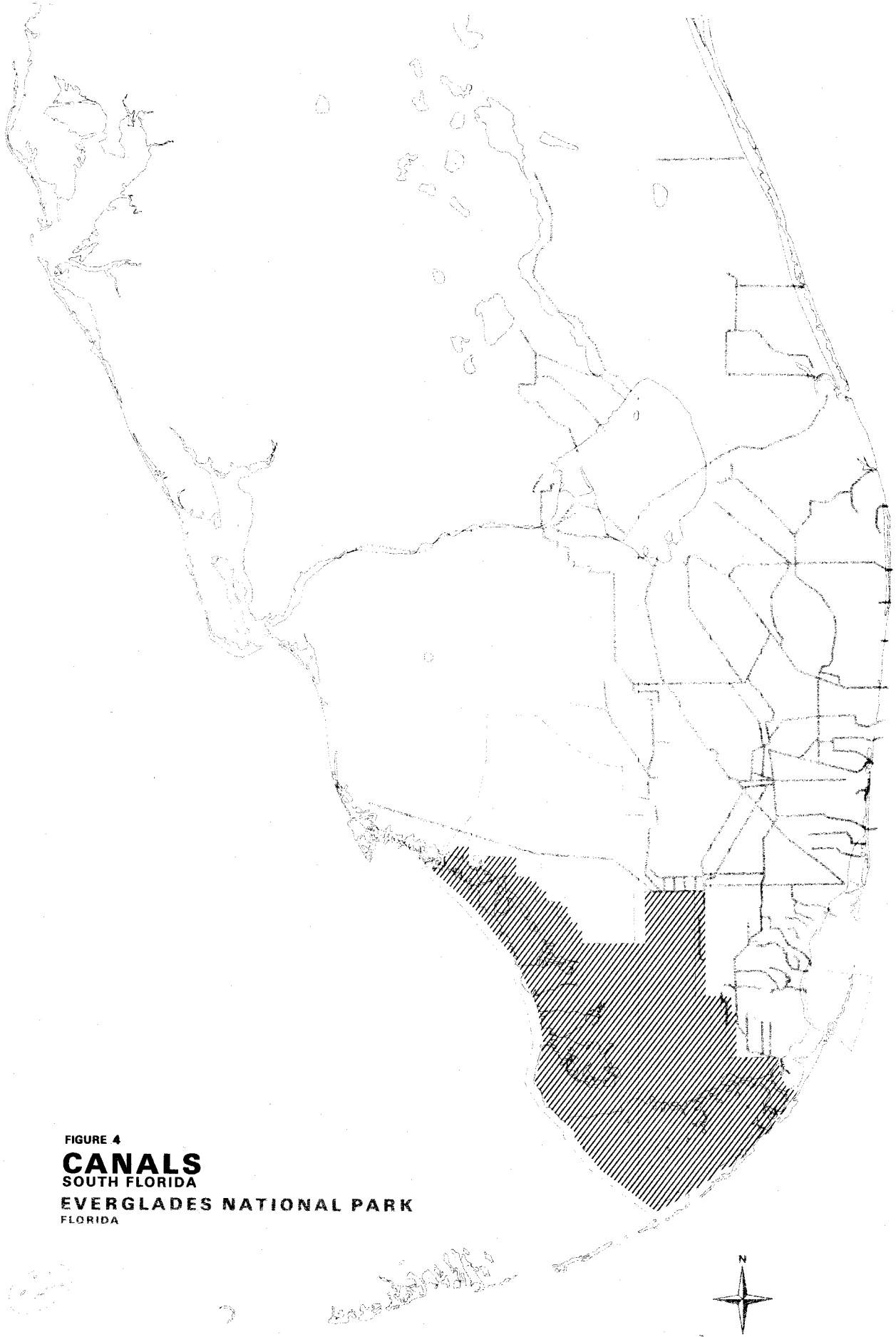

FIGURE 4

CANALS
SOUTH FLORIDA
EVERGLADES NATIONAL PARK
FLORIDA

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Areas Designated

Pelican Island	3 acres
Island Bay	20 acres
Passage Key	20 acres
Cedar Keys	375 acres
Florida Keys	5,290 acres
Key Deer, Great White Heron, Key West Refuge, St. Marks	17,350 acres

Areas Pending in Congress

Chassahowitzka	16,900 acres
J.N. "Ding" Darling	2,735 acres
Lake Woodruff	958 acres

The three wilderness areas in Florida Bay provide additional protection to biota--and some rare and endangered species--that also occur in the park. The other areas are ecologically quite different from the park and are too far removed to provide much ecological continuity.

2. Big Cypress National Preserve

Public Law 93-440 authorizing establishment of a 570,000-acre Big Cypress National Preserve, which adjoins Everglades National Park on its northwestern boundary, was passed by Congress on October 11, 1974. This area will provide a critical ecological buffer, helping to ensure an adequate water supply and providing a good measure of insulation from adverse human influences. The state of Florida has committed $40 million to acquire land within the preserve. Cooperation between the National Park Service and the state will be necessary to ensure coordinated management of the public lands in South Florida, thereby increasing the likelihood that use of the lands will not impair the diversity and productivity of interconnected natural ecosystems.

3. State of Florida Drainage Works Reserve

The construction of drainage works "for conducting water . . . as required by the state of Florida" (16 U.S.C. 410n) to drain certain lands lying along and outside of the eastern boundary of the northwestern extension of the park (figures 2 and 3) may no longer be considered a real possibility. In 1958, the state of Florida retained the right to construct these drainage works as a provision for supplying water to potential future developments outside the park. These lands are now part of

the Big Cypress National Preserve (figure 9). Thus, because the pressure for development of these lands no longer exists--in fact, a strong public drive for conservation is the case today--and because the political climate in Florida is currently taking an extremely cautious and conservative view toward development of any kind (Carter 1973), the need to use "natural waterways of the park" for drainage programs seems nonexistent. To be sure, any attempt to disturb the ecological integrity of the park's ecosystems has consistently met with fierce opposition by numerous citizen groups (McCluney 1971). Moreover, the Secretary of the Interior has determined that such drainage works would be "seriously detrimental to the preservation and propagation of the flora and fauna" of the park (16 U.S.C. 410n). In sum, then, the placement of these areas in wilderness represents no real incompatibility with the intent or letter of congressional wilderness designation.

4. Miccosukee Indians

The park staff provides airboat access for the Miccosukee Indians to a tribal burial ground near the north boundary of the park. The burial ground, which is included within Wilderness Unit 2, is seldom visited. Wilderness designation will have no effect on access to the burial ground, as the park will continue to provide airboats when they are requested. The wilderness designation will preclude future expansion of a 305-acre community development area, which the Miccosukee Indians retain on the northern park boundary under a special-use permit from the National Park Service. Because no expansion of this area has been proposed, the immediate impact of the wilderness proposal on community development should be negligible.

5. Master Plan for Everglades National Park

A Draft Master Plan for Everglades National Park has been prepared and is available for public review (U.S. Department of the Interior, National Park Service, 1977b). The plan provides for limited expansion and upgrading of existing facilities to improve the efficiency of park research and administration as well as the provision of services to park visitors. Proposed new developments are all minor, and include a small information station on Key Largo, a ranger/patrol station in the vicinity of Lower Matecumbe Key in Florida Bay, additional employee housing and maintenance facilities at Everglades City, a ranger station/visitor center complex at the entrance to the Shark Valley loop road, a visitor information station in the Homestead area, and 23 additional backcountry campsites along boating corridors. No new roads are proposed.

Existing uses will be maintained, and levels of specific uses will be increased slowly to meet increasing demand within the limits of environmental resources to sustain these uses without unacceptable damage. Cooperative planning with state and local governments, and other federal agencies, is strongly recommended to minimize threats to the park's ecosystems from development, pollution, hydrological changes, or other disruptive factors, and to optimize regional benefits from the park within the limits of ecologically compatible use. Studies are recommended to determine carrying capacities for various uses, to determine the desirability of closing canals, to implement a mass-transit system along the Flamingo road, to evaluate potential management techniques for restoring the Hole-in-the-Donut lands to natural ecological conditions, and to determine the effects of fire on the park's ecosystems. Plans for interpretation, concession management, and zoning of navigable waters are also proposed.

The plan will have little adverse effect on the proposed wilderness areas, which are already managed as primitive lands. The modest increases in the park's development and recreational use likewise should have little impact on the proposed wilderness. The zoning plan, when developed, could have a beneficial effect on wilderness lands adjacent to navigable waters if use of motorboats were restricted to create buffer zones. These buffers, if established, would soften the abrupt interface between wilderness lands and nonwilderness surface waters by establishing an intensity-of-use gradient, along which the level of use would decline gradually as wilderness areas were approached.

II. Description of the Environment

The following environmental description has been altered only slightly from that prepared for the environmental statement on the park's master plan, which serves as a companion to the environmental statement on the wilderness recommendation. Detailed environmental descriptions of Everglades National Park are available in Craighead (1972), Robertson (1971), Gifford (1971), McCluney (1970), and Tabb (1963).

A. Access and Circulation

On the east coast of Florida, Interstate 95 from Jacksonville serves the Miami area, from which U.S. 1 to Homestead and Florida City provides a connection to Florida Route 27 leading to the park's headquarters and main visitor center (figure 5). On the west coast, U.S. Route 41 out of Tampa (the Tamiami Trail) gives access to another visitor center in Everglades City. The Shark Valley loop road, a major interpretive facility of the park, may also be reached from the east (out of Miami) or from the west (out of Everglades City) via this road. Boats, buses, and private vehicles provide access for most visitors. Airboats are not permitted as a means of access into the park by the public.

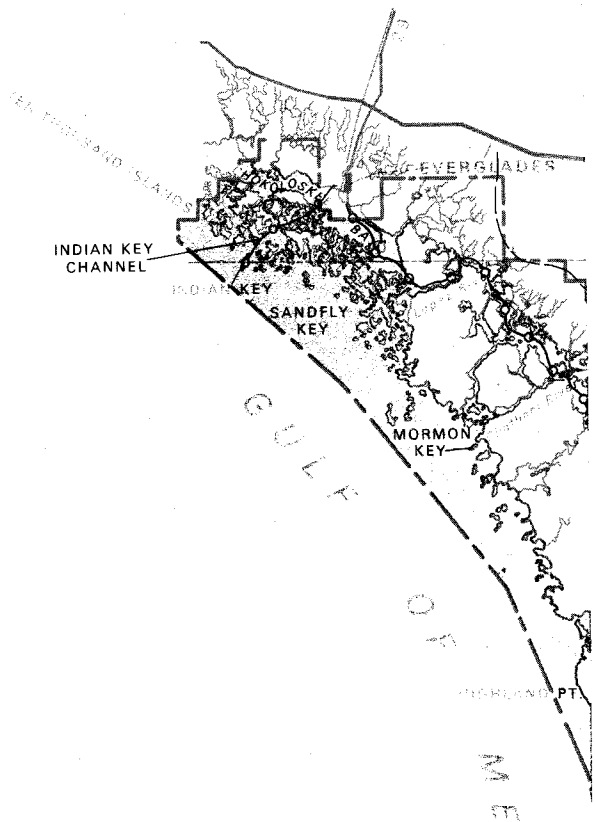
The 38-mile Flamingo road provides the only means of automobile access into the heart of the park and to the visitor center and facilities at Flamingo. By means of interpretive trails at suitable locations, this road exposes the visitor to samples of all the major landscape features of the park. The Tamiami Trail (U.S. 41) provides entrance to peripheral regions of the park at Shark Valley and Everglades City, the latter via Florida 29.

The vast expanse of Florida Bay and the mangrove forests are penetrable only by boat, airboat, seaplane, or helicopter. The latter two methods are not permitted for public access to federal lands, although seaplanes have been used on private inholdings in the Northwest Extension.

B. Existing Development

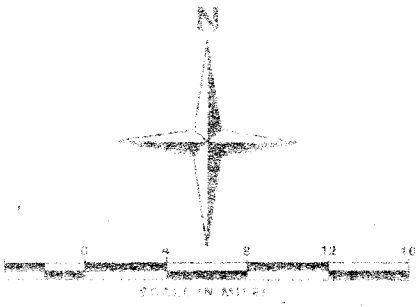
1. Visitor Orientation and Information Facilities

Visitor centers at Parachute Key, Royal Palm, West Lake, Flamingo, and Everglades City provide interpretive and orienting information for park visitors.



LEGEND

- MAJOR ROAD
- MINOR ROAD
- INTERPRETIVE ROAD
- MANAGEMENT ROAD
- AIRBOAT TRAIL (Management Only)
- BOATING WATERS
- MAJOR WATER ROUTE
- CANAL



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2. Developments Pertinent to the Proposed Action (figure 6)

a. Parachute Key. Offices for administrative, research, and management personnel are housed in a one-story building about 60 feet north of the visitor center. Constructed in 1960, the building provides office space for 47 workers, each of whom has an average of 98 square feet of office space. Of these 47, the 12 research personnel have inadequate space for experimental work: office space averages 101 square feet per worker.

b. Flamingo. The Everglades Park Company operates a 60-boat marina, general store, restaurant and cafeteria, sightseeing boats, service station, and a 120-unit motor lodge with 24 additional housekeeping cottages. Completed in 1964, the 200-seat restaurant, 75-seat capacity cafeteria, and sanitary facilities are in need of modernization and sanitization. Eleven obsolete, aging housetrailers owned by Everglades Park Company employees and four permanent company apartments elevated on pilings provide housing for 60 concession employees.

The wastewater treatment system, built in 1958 and composed of three lagoons totaling 2.29 acres can effectively treat 46,000 gallons of influent per day, but does not meet the requirements of the Federal Water Pollution Act (P.L. 91 244, 33 U.S.C. 466). This capacity is exceeded approximately 6 times per year in a total overflow of 600 to 800 gallons. A new tertiary treatment plant, capable of treating 130,000 gallons per day has been completed. Effluent will be discharged to a 10-acre evaporation lagoon to be used by wading and swimming birds. Water from this lagoon will be used for irrigation.

c. Key Largo. A small converted house trailer (1,100 square feet) provides administrative office space. A second house trailer is used as quarters for one of the two rangers stationed here. The second ranger lives in a frame house that was located on the site when it was acquired by the National Park Service. In addition to these structures, a maintenance building (252 square feet) and a wood frame boat shelter (760 square feet), are located on a 14-acre site acquired in 1951. A 1,000-gallon septic tank serves this facility.

d. Everglades City. A two-story structure houses the offices of the concessioner on the lower level, and ranger office and area for interpretive talks on the upper level. Total floorspace is about 3,800

square feet. Three permanent dwellings, constructed in 1961 provide housing for park personnel.

e. Tamiami Trail.

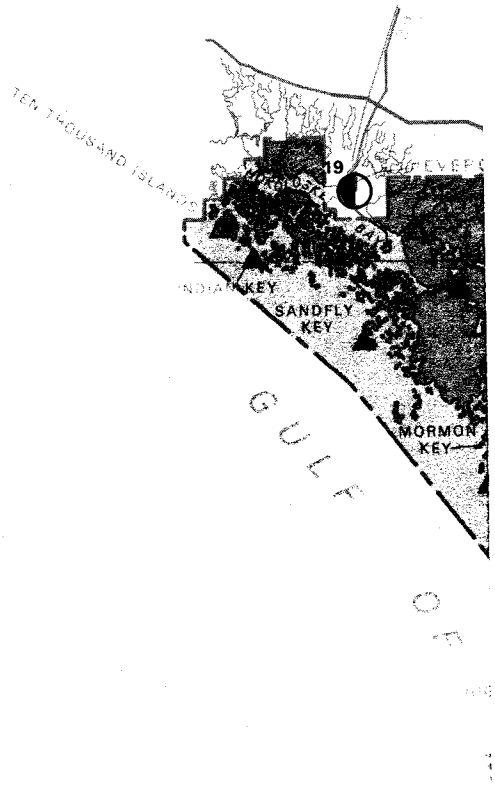
Shark Valley Loop Road--Two house trailers provide living quarters for park personnel assigned to this site. A gravel parking lot (approximately 10,000 square feet), entrance station kiosk, two open-air shelters or "chickees," and two temporary chemical toilets are the only visitor-use facilities at the entrance to the loop road. Free public shuttle vehicles operate on the loop road at regular intervals. Interpretive information on the shuttle vehicles is provided in discrete segments by a recorded message, and by the ranger who operates the shuttle bus to and from the 35-foot high observation tower at the end of the one-way 7-mile road (total length, 14 miles). A ranger is available at the tower site to answer questions. Quarters for the ranger are in an efficiency apartment located in the same structure as the comfort station at the base of the tower.

Forty-Mile-Bend Ranger Patrol Station-- Two house trailers provide residence quarters for the rangers assigned to this station. A third trailer serves as an office for these personnel and as a bunkhouse for work parties.

f. Backcountry Facilities. Forty-five camping areas occur at or are proposed for various locations throughout the park (table 2, figure 7). Twenty-one of these sites lie along boating corridors and are accessible only by boat (except for East Cape, which is accessible by both boat and foot trail from Flamingo).

Primitive campsites are located either on natural high ground, Indian mounds, or platforms elevated on stilts, located in or adjacent to navigable waterways that are usually excluded from the wilderness recommendation. The latter type of primitive campsites are locally termed chickees.

Chickee-type backcountry campsites are used in Everglades National Park to furnish the backcountry visitor with a place to camp where the natural vegetation and landscape would prohibit camping otherwise except aboard an adequate-size boat. Due to the extensive water area in the park's wilderness, the dense growth of mangroves and associated root systems, and the extremely low elevation above sea level, there are literally very few natural areas in which backcountry users can set up a camp. These



KEY

1. PARACHUTE KEY – Administration building, visitor parking, visitor center, proposed Environmental Research Center, proposed public transit terminal.
2. PARK ROAD – Interpretive corridor, proposed public transit system.
3. PINE ISLAND – Maintenance center, employee housing, ranger station.
4. ROYAL PALM – Visitor center, visitor parking, interpretive trails.
5. LONG PINE KEY – Campground, picnic area.
6. "HOLE-IN-THE-DONUT" – Proposed environmental education center and experimental area.
7. PINE LANDS – Interpretive trails and shelter, visitor parking.
8. PINE LANDS – Hike/bike trail and interpretive area.
9. PA-HAY-OKEE – Interpretive trails and shelter, visitor parking.
10. DWARF CYPRESS – Proposed visitor parking, interpretive trail.
11. MAHOGANY HAMMOCK – Interpretive trail and shelter, visitor parking.
12. PAUROTIS POND – Boat launching, visitor parking, picnic area.
13. NINE MILE POND – Wildlife area, visitor parking, picnic area.
14. WEST LAKE – Interpretive trail, interpretive shelter and exhibits, boat dock, visitor parking.
15. ROWDY BEND – Motor nature road, hike/bike trail and interpretive area.
16. COOT BAY POND – Visitor parking, canoeing, picnic area.
17. FLAMINGO – Visitor center, visitor parking, ranger station, employee housing, maintenance center, campground, picnic area, trails, concessioner-operated motel, cottages, marina, food service, store, gas station, boat tours.
18. LOSTMANS RIVER – Ranger patrol station, employee quarters, boat dock.
19. EVERGLADES CITY – Proposed visitor center, visitor parking, ranger station, employee housing, maintenance area, boat basin and docks, concessioner-operated boat tours.
20. TAMIAMI – Proposed visitor center, visitor parking, ranger station, employee housing, maintenance area, public transit terminal and tour along Shark Valley Road.
21. SHARK VALLEY OVERLOOK – Fire and observation tower, interpretive area, trail, ranger quarters.
22. MICCOSUKEE INDIAN DEVELOPMENT – School and housing.
23. FORTY MILE BEND – Ranger patrol station, and employee housing.
24. HOMESTEAD – Proposed visitor parking and visitor information-orientation station.
25. KEY LARGO – Proposed visitor center, visitor parking, ranger station, maintenance area, employee housing, dock for administrative purposes and concessioner-operated boat tour.
26. MATECUMBE KEY – Proposed ranger patrol station.

LEGEND

- EXISTING DEVELOPED AREA
- EXISTING DEVELOPED AREA TO BE IMPROVED OR EXPANDED
- PROPOSED DEVELOPED AREA
- CRITICAL ECOLOGICAL BUFFER ZONE (PROPOSED FOR FUTURE PLANNING)
- MOTOR NATURE ROAD AND OR HIKE/BIKE TRAIL
- PRIMITIVE CAMPSITES
  - EXISTING
  - PROPOSED

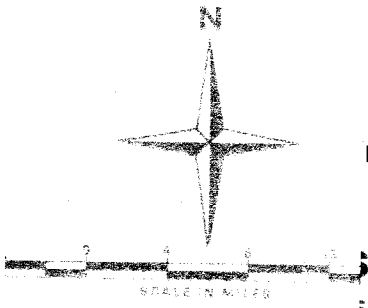


FIGURE 6

ELOPMENT PLAN

NATIONAL PARK

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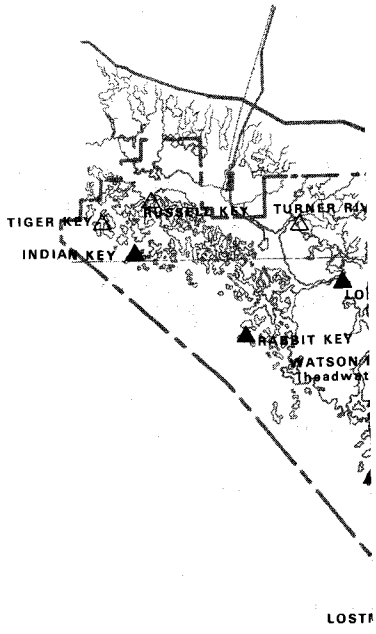

LEGEND

PRIMITIVE CAMPSITES

▲ EXISTING

△ PROPOSED

FIGURE 7

IG AREAS

NATIONAL PARK
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Table 2. Proposed and Existing Backcountry Campsites and Facilities

Campsite	Status*	Facilities: Grill	Table	Toilet	Dock	Other
Tiger Key	P					
Russell Key	P					
Indian Key	E	2	2			
Turner River	P					
Lopez River	E	1	2			
Rabbit Key	E	1	2			
Watson Place (headwaters)	E	2	2		yes	
New Turkey Key	E	1	2			
Darwin Place	P					
Gopher Key	P					
Onion Key	E	2	2	pit	yes	
Hop Key	P					
Lostmans River	E	1	2			
Old Hamilton Place	P					
Willy-Willy Mound	E	1	1		yes	
Camp Lonesome	E	1	1		yes	
Atwell Homestie	P					
Broad River	E	1	1		yes	
Harney River	P					
Little Banana Patch	P					
Graveyard Creek	E	1	2	pit	yes	
Shark River	E	1	1	chem		chickee
Watson River	E	1	1	chem		chickee
North River No. 1	E	1	1	chem		chickee
Cormorant Pass	P					
Little Shark River (outside)	P					
Watson River No. 2	P					
Roberts River No. 1	E	1	1			
Roberts River No. 2	P					
Roberts River No. 3	P					
North River No. 2	P					
Lane Bay	E	1	1	chem		chickee
Hells Bay	E	1	1			
Lard Can	E	1	1			
Joe River No. 1	E	1	1			chickee
Joe River No. 2	P					
Broad River Bay	P					

Campsite	Status*	Grill	Table	Toilet	Dock	Other
Joe River No. 3	P					
Middle Cape Sable	P					
East Cape Sable No. 1	E			chem		
East Cape Sable No. 2	P					
Upper Sandy Key	E	1	1	pit		
Mangrove Creek	P					
McCormick Creek	P					
Upper Nest Key	E	3	4	chem		

*Key: E – Existing sites
P – Proposed sites

elevated platforms above the water permit a dry camping base for sleeping and safe anchorage for the camper's boat.

To prevent a sanitation problem in this region where the digging of latrines is impossible, sealed vault-type chemical toilets, which are pumped out on a regular basis by sewage barges, have been added to the chickee structure.

Since natural stone fire rings are not practical in this environment, and since such an open fire would burn through the wooden chickee platform, elevated charcoal grills are also furnished.

The direct rays of the South Florida sun and the frequent torrential tropical storms present a definite threat to the health and safety of the backcountry visitor. To alleviate this problem and offer some protection, a roof has been placed over these open chickee platforms.

In summary, this roofed, four-posted, wooden, open platform-type chickee furnishes the camper with a comfort station, picnic table, charcoal grill, dry place to camp, and safe anchorage for his boat. These structures are tucked into corners of the mangrove area along existing waterways and are unobtrusive to the eye and sanctuaries from the elements for boaters. Trash containers have been removed from all campsites to encourage a pack-in, pack-out policy. If this does not work, however, it will be necessary to place the garbage cans back on the chickees. Without garbage cans or cooperation, trash would be scattered for miles from each campsite by wind and changing tides.

g. Canals. About 64 miles of drainage canals still lace the park. The old Homestead Canal--now plugged at its junction with the Buttonwood Canal and partially filled from the hurricane damage--makes up most of the length.

Some of these canals (see figure 4) facilitate boat access to inland bodies of water from Florida Bay or the Gulf of Mexico. These canals may contribute to the increase in salinity in inland areas by allowing the ready intrusion of salt water. Erosion may also be accelerated as a result of the removal of depositional materials and increased turbulence. Lake Ingraham and Coot Bay, served by Cape Sable and Buttonwood Canals respectively, are areas where these phenomena are

occurring. Motorboat wakes are a principal cause of erosion on the banks of the Buttonwood Canal.

C. Aspects of the Natural Environment Pertinent to the Proposed Action

1. Major Natural Resources

The unique nature of both the habitat and assemblage of plant and animal life of the park provides context for the wilderness recommendation. The habitat is on the one hand hostile to human occupation and on the other hospitable to a vast number of wildlife species.

a. Climate (adapted or excerpted from Tabb 1963). The subtropical climate of South Florida (from Lake Okeechobee south) is characterized by a relatively long dry season (approximately November through April). The park experiences a recurring water deficit during normal 6-month dry seasons and depends on outside sources for water to offset the scarcity. Frosts strike the region in patterns, whose incidence and intensity are largely dependent upon the quantity of water in a given area. By exchanging heat with the atmosphere, water is able to lessen the incidence and attenuate the intensity of frosts. Small variations in elevation (inches) over localized areas (hundreds of feet), which may contain different quantities of water, result in different heat exchange capacities.

Mean monthly temperatures during January and February are in the low to middle 60s, and in the middle 80s during July and August.

b. Hydrology (figure 8). Everglades National Park lies at the southern end of a broad shallow drainage basin, the Everglades sawgrass plain, bounded on the east by a ridge of sedimentary limestone and on the west by the generally higher land of Collier and Hendry Counties. Robertson (1959) compares this basin with a shallow saucer tilted "almost imperceptibly toward the southwest . . . and with a wide break in the rim at the southwest side along the Gulf of Mexico."

"Contrary to popular belief, the region is not one vast permanent swamp but, in reality, is largely sawgrass upland and coastal flood-plain subject to periodic flushing with fresh water during rainy seasons and intense evaporation during the dry season" (Tabb 1963).

In addition to local rainfall, which in post-drainage years has supplied 80 percent of the park's

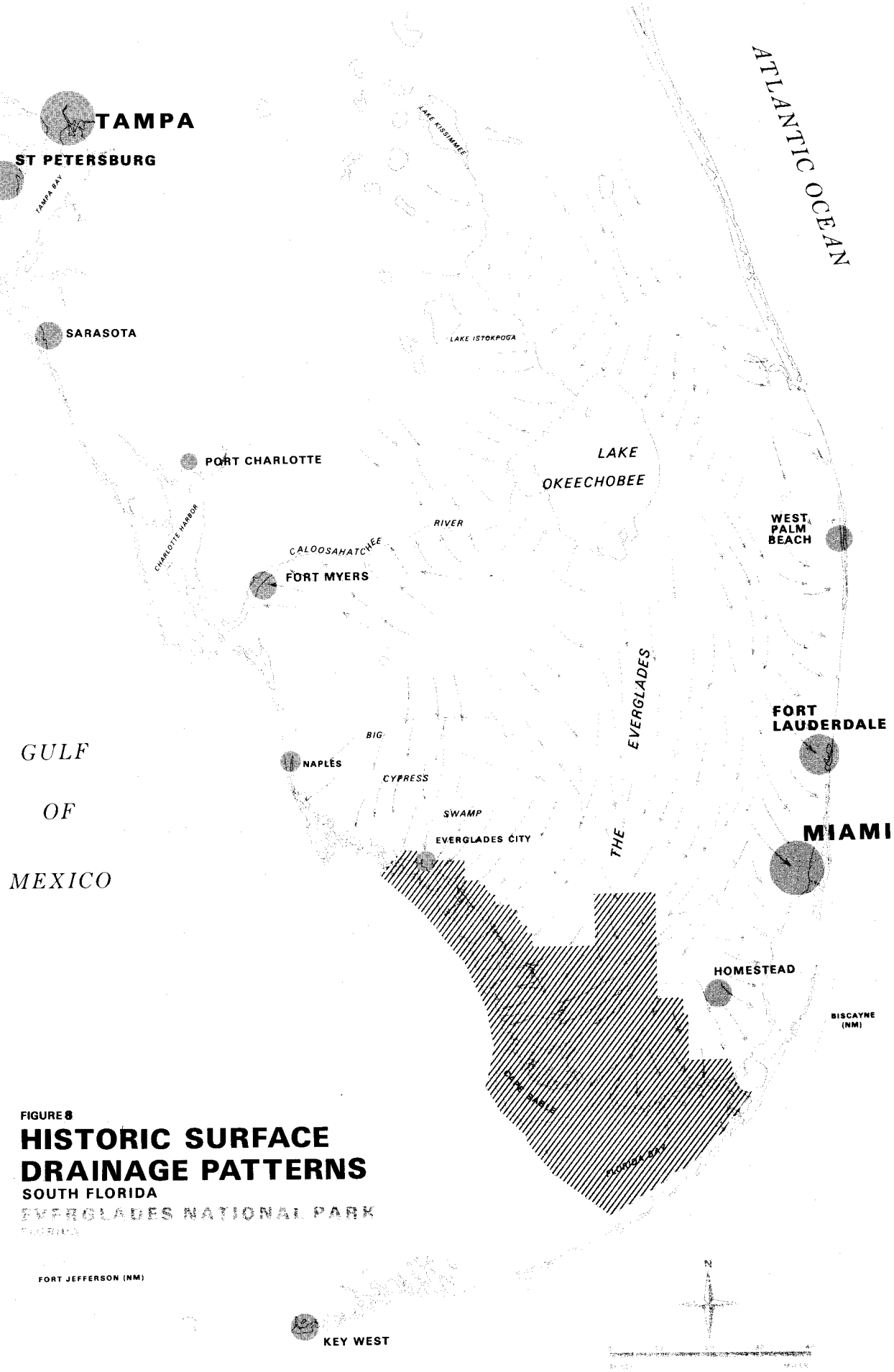

FIGURE 8

HISTORIC SURFACE DRAINAGE PATTERNS

SOUTH FLORIDA

EVERGLADES NATIONAL PARK

FLORIDA

UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

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water input, two watersheds supply a critical 20 percent of the park's water in the form of sheetflow runoff: the vast Everglades sawgrass plain to the north (10 percent) and the Big Cypress Swamp of Collier and Hendry Counties to the northwest (10 percent). The Big Cypress Swamp currently supplies about 50 percent of the input from these two external surface sources. Historically, water for the Everglades sawgrass plain, the park's previous principal watershed, resulted from local rains and seasonal overflow of Lake Okeechobee and its consequent drainage 120 miles south to the Gulf of Mexico. Before man began draining the Everglades in the 1880s, the lake is presumed to have overflowed at least a portion of the summer and fall in most years (Tabb 1963). According to Davis (quoted in Tabb), "There were probably years when the overflow was more than 2.5 million acre-feet and then other years when there was no overflow." Johnson (cited in Tabb) estimated the runoff moving south under the Tamiami Tail at 2.3 million acre-feet in average years, 10.7 million acre-feet in wet years, and negligible levels in dry years. The years 1922 to 1924 were said to be the last years that the Lake Okeechobee drainage contributed to the Everglades.

During the mid-1960s, the National Park Service and the United States Army, Corps of Engineers, conducted major studies of the effects of the Central and Southern Florida Flood Control Projects on the hydrology and ecology of the Everglades National Park. The studies culminated in a 1968 Survey Review Report, which indicated that the project was not supplying sufficient fresh water to the park in order to maintain its ecological integrity. Therefore, in authorizing certain additions to the project in 1968, Congress recognized the park's right to a minimum quantity of water from the project and indicated its intention to fund construction of facilities needed to store and transport water. More specific provisions for water delivery were detailed in a 1970 act (P.L. 91-282). Under this act, the Corps of Engineers provides the park with a delivery of 260,000 acre-feet to the Shark River Slough through the S-12 sluice gate of the extensive water storage system that extends from the park's northern boundary to Lake Okeechobee. In accordance with Public Law 91-282, following completion of the south Dade conveyance structure to deliver 55,000 acre-feet per year to the Taylor Slough and the park's eastern panhandle (not yet under construction), the Corps' Central and South Florida project will provide the park with the lesser of either a minimum of 315,000 acre-feet or 16.5 percent of the total annual deliveries of water to all users in very dry years only. The water will be delivered in specific monthly allotments (table 3). The release schedule may be revised as needed to

Table 3 Minimum Monthly Deliveries of Water

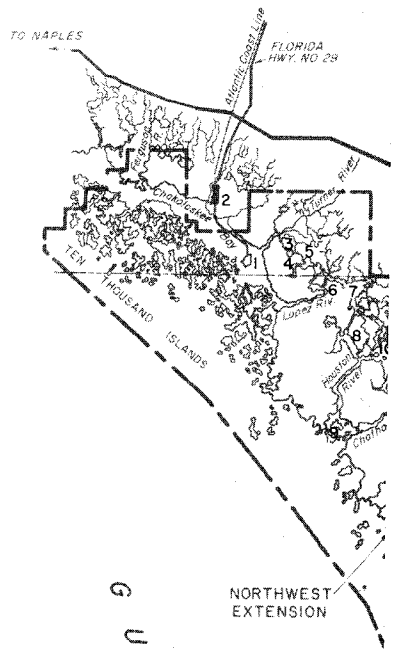
Month	Acre-Feet
January	27,000
February	11,000
March	5,000
April	2,000
May	2,000
June	6,000
July	9,000
August	15,000
September	47,000
October	81,000
November	71,000
December	39,000
Total	**315,000**

promote productivity and diversity of the park's ecosystem complex. Based on figures for flow into the park during the period 1941 to 1957, Tabb (1963) estimated the park's minimum requirement at between 470,000 and 500,000 acre-feet annually in order to maintain the post-drainage conditions. The 315,000 acre-feet from the managed storage plus an approximately equal amount from the Big Cypress drainage results in an annual overland water flow in excess of this minimal maintenance figure.

In addition to the quantity of water available, its distribution over the year is also crucial to the present ecological integrity of the park. Robertson notes that "production of aquatic life in the Everglades is roughly in direct proportion to the extent and duration of a continuous sheet of surface water; and the length of time available for recovery of aquatic populations since the last drought refugia" (quoted in Gunter 1967). The seasonality of flow affects the duration of the period of brackish conditions, influencing spawning and nursery activities of numerous crustaceans (Tabb 1963), and the rate of degradation of mangrove detritus, regulating the functioning of the detrital food chain and in turn governing the numbers and species of aquatic organisms (Odum-Heald thesis, summarized in Everglades Jetport Advisory Board 1971).

The local distribution and activities of terrestrial and semiterrestrial wildlife also depend greatly upon the seasonality in the flow of water. During the wet periods, this fauna is generally widely dispersed in response to similarly distributed food sources. During the dry period, food supplies are disjunctly distributed in and around the ponds, alligator holes, and wetter habitats, forcing a clumping in the distribution of animals that rely upon these environments for food.

c. Topography. The park is essentially a vast plain lying very nearly at sea level with the land along both coasts slightly more elevated. Excluding localized outcrops of bedrock, maximum elevation is 7 to 8 feet (along the northern boundary). The center of the plain forms a slight depression approximately 60 miles wide, known as the Shark River Slough (figure 9), down which the waters of Lake Okeechobee in former years slowly flowed to the sea. Water from the Everglades sawgrass plain, the Lake Okeechobee agricultural area, and water conservation areas now contribute almost exclusively to this flow, which usually stops during the winter and early spring dry season, allowing the land to emerge for a 2- to 4-month period.



GULF OF MEXICO

OCEAN

LEGEND

1 - CHOKOLOSKEE ISLAND
2 - EVERGLADES CITY
3 - HURDDLES CREEK
4 - SHOAL MUD BAY
5 - CROSS BAY
6 - CROOKED CREEK
7 - SUNDAY BAY
8 - HOUSE HAMMOCK BAY
9 - STORTER BAY
10 - HUSTON BAY
11 - LAST HUSTON BAY
12 - CHEVELIER BAY
13 - CANNON BAY
14 - TARPON BAY
15 - ALLIGATOR CREEK
16 - ALLIGATOR BAY
17 - DADS BAY
18 - PLATE CREEK BAY
19 - LOSTMANS FIVE BAY
20 - LOSTMANS FIVE
21 - TWO ISLAND BAY
22 - MULLET BAY
23 - ONION KEY BAY
24 - THIRD BAY
25 - BIG LOSTMANS BAY
26 - ROGERS RIVER BAY
27 - SECOND BAY
28 - TOMS CREEK
29 - BROAD RIVER BAY
30 - SHARK RIVER
31 - HENRY LAKE
32 - THE LUNGS
33 - MIDDLE LAKE
34 - MONROE LAKE
35 - CROCODILE POINT

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GURE 9

FEATURES

NATIONAL PARK

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In addition to the flatness of the land, two other topographic features contribute to its distinctiveness. One of these is the outcropping of the surficial limestone bedrock, Miami oolite, providing relatively dry land for forest development (discussed below). The other feature is the "pinnacle rock" formations, erosion remmants of the limestone substrate forming inches-high projections of knobs and crags, rendering travel by foot all but impossible.

d. Biogeography (adapted or excerpted from Robertson 1959). South Florida, besides providing climatic conditions suitable for many West Indian plants and animals, has in recent geological history (during the late Tertiary and Quaternary periods) never enjoyed a land connection with any area in the West Indies, but has frequently been attached to the continental mainland, as it is today. It has been a place where West Indian forms could thrive, provided they could get there, and an area that continental forms were easily able to reach, provided they could live successfully in the near-tropical climate.

As a consequence of this rather unusual state of affairs, the present natural life of South Florida is a mixed assortment of tropical West Indian species and northern continental species. Excluding the introduction of exotics by man in recent historic times, the composition of the mixture indicates transport of the propagules of many plant species and the migration of many animals across large bodies of salt water. Thus, the park's animals and plants are a varied assemblage of West Indian and North American forms, many near their range limits, either northern or southern.

e. Flora and Vegetation (adapted or excerpted from Robertson 1959 and Craighead 1963, except where otherwise noted).

(1) Emergent and Terrestrial Forms. The flora of the park includes about 1,000 different kinds of seed-bearing plants and many others representing the ferns, mosses, and lichens. Plants derived from the West Indian tropics predominate southward and near the coasts, while temperate zone species from continental North America become more prominent northward and at interior localities.

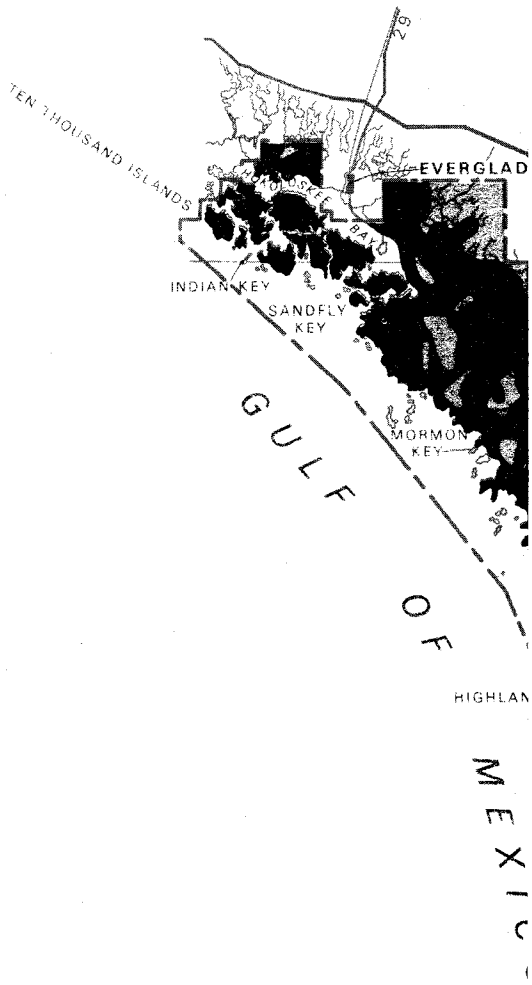
Continental North American species include several oaks, ash, red maple, a true dogwood, hackberry, and others which can be found in hammocks in the northwest portion of the park. In and around tree island in the glades areas are willow,

elderberry, cypress, bay, wax myrtle, holly, and magnolia. At Paradise Key some northern trees persist in forest flora. Hackberry, red mulberry, sumac, and persimmon are uncommon and submerged in the profusion of tropical growth. By the time the coastal area of Flamingo is reached, almost all northern representatives have been left behind. Botanically, one has arrived in the West Indies.

Critically dependent on the subtle interplay of minuscule changes in elevation (on the order of inches), salinity, and humus accumulation, eight different vegetation associations (figure 10) may be described for the purposes of this report: sawgrass Everglades, mangrove swamp, salt marsh, cypress forest, pine woods, mixed West Indian hardwood hammock forest, bay head, and Cape Sable saw palmetto salt pairie.

Mangrove swamps and the sawgrass occur on land which is normally overflowed during at least part of the year. The sawgrass prairies of the Everglades, occurring on slightly higher land than the mangrove associations, take up the interior freshwater sections of the park, providing wide vistas with scattered island hammocks and bay heads. This is a land of marl or muck soils which are under water during the rainy season, but dry and frequently swept by fire in late winter or spring. The glades have a distinct and characteristic flora (Loveless 1959). The dominant species are sedges and grasses, but many marsh plants, representing a number of families, are typical. Near the coasts, the sawgrass is replaced by mangrove swamps. Together, sawgrass and mangrove cover most of the park area. Wherever some other kind of vegetation is found, a difference in elevation is to be suspected.

The mangrove belt occupies a crescent-shaped area of salty-to-brackish waters all around the coast. It extends inland beyond Whitewater Bay, where it reaches a maximum 15 miles across and comprises about one-half the land area of the park. Three species of mangrove--red, black, and white--make up this forest. The red mangrove lines the coasts and perimeters of the keys. It faces the ocean, catching debris from the tides and storms, and advances the shoreline outward to make new land. Black mangrove, which frequently fringes the coast, is usually mixed with white and grows in low inland areas where the salt content of the soil is often much greater than that of the sea. White mangrove occurs in pure stands that develop following floods, which float the numerous seeds onto a suitable substrate.



LEGEND

- SAWGRASS EVERGLADES
- MANGROVE FOREST
- SALT MARSH
- CYPRESS FOREST
- PINE FOREST
- SALT PRAIRIE

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Distributed throughout the mangrove forest is the salt marsh association, consisting principally of several species of cord grass (Spartina spp.), frequently mixed with rushes (Juncus spp.). The association forms extensive stands on the Cape Sable peninsula and on the flats between the larger estuaries to the north.

Farther inland the cypress belt, dominated by dwarf or giant bald cypress, occupies an extensive area of swampy lowland called domes, sloughs, or strands. This usually sparse forest extends diagonally across the park from southeast to northwest and across Collier County, but not in the Shark River Slough. In the southeastern portion along the Flamingo road, because of very little humus accumulation, the cypress is dwarfed, though perhaps just as old as the giant trees in Collier County. The entire belt is rich in air plants and orchids.

Pine woods, hammock forests, and bay heads occupy the higher sites around the edges of the glades and within the Everglades basin. The slash pines are found only on elevated areas of bare limestone where the Miami oolite outcrops to form broad, low ridges, perhaps only a few inches above the surrounding glades. These ridges are occasionally burned (once every 5 to 10 years). Without such burns, the perpetuation of the pine forests on them is in jeopardy. The pine land is spotted with islands or hammocks of denser growth formed by tropical hardwoods mixed with a few northern species.

The hammocks contain a great variety of broadleaved trees and shrubs, most of which are of West Indian origin. They are found as islands of dense forest growth in the open pine woods, in the Everglades, and along parts of the coast, wherever the site is high enough to prevent both saltwater intrusion and frequent flooding, and has enjoyed some natural protection from fire. West Indian hardwoods are also abundant in the understory of the pine forests but are suppressed by fire. Humus, marl, or rock may compose these raised areas.

Bay heads and cypress heads, types of tree islands, dot the marshy expanses of the Everglades, perhaps marking the location of small topographic variations (a few inches to 2 or 3 feet) on the general level of the sawgrass plain. Bay heads are usually found on slight elevations of peat soil; cypress heads usually occupy shallow ponds. In contrast to the hammocks, bay heads have only a few kinds of trees, principally species of red bay, magnolia, myrtle, willow, and holly

common in swamp forests throughout the southern United States. The peat soil of the heads burns readily when dry, and glades fires in very dry years may completely remove heads from the landscape, perhaps leaving a circle of dead trees in an open pond to mark the former site.

The Cape Sable salt prairie is a marl flat rising slightly along the coast and merging into mangroves to the north. It is covered with grass and shrubby vegetation (principally cabbage palm, prickly pear cactus, agave, and seaside lavender) and scattered buttonwood hammocks, extending from the East Cape Canal to Snake Bight Canal. Presumably covered by trees, this prairie reportedly was cleared by the charcoal operations and cultivation of the early settlers (Craighead 1971) and frequently by natural fires.

In addition to these plant associations, at least one geographic subdivision is notable for present purposes. This subdivision is composed of the Florida Bay and Gulf coast keys, the former being the numerous low islands of Florida Bay located between the Florida Keys and the mainland and the latter--the Ten Thousand Islands--located along the Gulf coast from Chokoloskee Pass north coast to Gullivan Bay. Originally bay heads in a freshwater swamp, the Florida Bay keys have been building up with the rising sea for the past 5,000 years. They are composed of marl and fringed with a belt of mangroves or occasionally with shell beaches supporting hammock growth typical of the mainland. Various shrubs, sedges, and grasses also occur here. The Ten Thousand Islands are a drowned coastline composed mostly of mangrove clustered closely together and separated only by an intricate network of water channels.

No discussion of the vegetation of Everglades National Park would be adequate without mention of the palms that grow there. Six of the 14 species of palms native to the United States are found in the park. In addition, the coconut palm is well established at Cape Sable (once the site of a commercial coconut plantation) and elsewhere near beaches, but it is probably not native to the area. Planted date palms grow around the locations of some former homesteads. Of the native species, the handsome royal palm, reaching a height of more than 100 feet, may be found at Paradise Key and one other hammock in that vicinity, and at a few places along the Gulf coast. It is possible that the present distribution may indicate that the fruit was utilized as a food item by the early Indians, because several of the locations where royal palms now grow are Indian mounds. The cabbage palm is the common large

palm tree which occurs throughout the park. Saw palmetto is abundant in the rocky pineland, usually as a low-growing plant. Silver palm occurs in the pine woods of the park. A species of thatch palm is found commonly on the keys. Paurotis palm occurs in hammocks in a narrow belt along the mangrove edge of the southern Everglades, and may be viewed from the Flamingo road.

(2) Submerged Forms--Florida Bay. Lying near mean sea level, the marl and shell mud banks of Florida Bay support communities of turtle grass, horned pondweed, sea grass, and manatee grass. Along with several species of algae these communities bind the marine shells, foraminifera, and calcareous plant remains that are suspended in the very finely divided marl-like mud of the mud flats, often several miles across. Many square miles of these flats are exposed at low tide, providing a rich feeding ground for many birds.

f. Fauna (adapted or excerpted from Robertson 1959).

(1) Mammals. The Everglades is home to about 25 species of terrestrial mammals, and 2 species of aquatic mammals. With the exception of one or two species of bats, all of the terrestrial mammals are of North American origin. Deserving of mention are the Florida variety of the white-tailed deer, panther (endangered, see table 4), opossum, raccoon, wildcat, otter, porpoise, and manatee (endangered, see table 4), and mink (status undetermined, see table 4), all of which utilized the park as a suitable habitat and refuge.

(2) Birds. The avian fauna of the Everglades is a rich one. About 325 species have been identified in the park and new ones are added to the list nearly every year. Southern Florida's location makes it a crossroads of migratory flight for West Indian and Central and South American birds; numerous North American species are residents. The majority of this continent's species of wading birds, shorebirds, and waterfowl are found here at one season or another. Many of them are nesting residents, including some which seldom range farther north and others which have disappeared from other areas where they once occurred. One of the key reasons for the establishment of the park was to protect the nesting areas and feeding grounds of herons and ibis, including the roseate spoonbill, great white heron, reddish (common or American) and snowy egrets, Louisiana and little blue herons, wood stork (wood "ibis"), white and glossy ibis, bald eagle, and the Everglades kite.

Table 4 Endangered (E) or Threatened (T)[1] Fish and Wildlife of Everglades National Park as of 1975[2]

Common Name	Scientific Name	Occurrence[3]	Status
MAMMALS			
Florida panther	*Felis concolor coryi*		E
Manatee	*Trichechus manatus latirostris*		E
Mink	*Mustela vison evergladensis*		SU
BIRDS			
Florida great white heron	*Ardea occidentalis occidentalis*	c — p	R
Short-tailed hawk	*Buteo brachyurus*	r - sum; unc — w	R
Florida sandhill crane	*Grus canadensis pratensis*	unc — p	R
Florida Everglades kite	*Rostrhamus sociabilis plumbeus*	r — sum	E
Southern bald eagle	*Haliaeetus leucocephalus leucocephalus*	c — p	E
Bachman's warbler	*Vermivora bachmanii*	vr — t	E
Cape Sable sparrow	*Ammospiza mirabilis*	r — p	E
Eastern reddish egret	*Dichromanassa rufescens rufescens*	fc — sum; unc — w	P
Wood ibis	*Mycteria americana*	r — sum; c — w	P
Roseate spoonbill	*Ajaia ajaja*	fc — sum; c — w	P
Atlantic sooty tern	*Sterna fuscata fuscata*	vr — sum	P
Atlantic noddy tern	*Anous stolidus stolidus*	vr — sum	P
Florida mangrove cuckoo	*Coccyzus minor maynardi*	r — p	P
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*	vr — t	SU
REPTILES, AMPHIBIANS			
American alligator	*Alligator mississippiensis*		E
American crocodile	*Crocodylus acutus*		E
Green turtle	*Chelonia mydas mydas*		R
Atlantic ridley turtle	*Lepidochelys kempii*		E
Loggerhead turtle	*Caretta caretta*		R
Hawksbill turtle	*Eretmochelys imbicata*		E
Leatherback turtle	*Dermochelys coriacea*		E
FISHES			
Tidewater silversides	*Menidia beryllina*		SU

[1]Definition of terms:

ENDANGERED — species or subspecies whose prospects of survival and reproduction are in immediate jeopardy

THREATENED — species or subspecies which are likely to become endangered in the foreseeable future throughout all or a significant protion of range

RARE — species or subspecies occurring in such small numbers throughout its range that it may be endangered if its environment deteriorates.

PERIPHERAL — species or subspecies whose occurrence in in the United States is at the edge of its natural range and which is rare within the U.S. although not in its range as a whole

STATUS UNDETERMINED — species or subspecies that has been suggested as possibly threatened or endangered but about which there is not enough information to determine its status.

[2]U.S. Department of the Interior, Fish and Wildlife Service, "Endangered and Threatened Wildlife and Plants," *Federal Register*, Vol. 40, No. 188, September 26, 1975. Other species not officially listed as endangered or threatened, but which are considered by competent experts as rare (R), peripheral (P), or status undetermined (SU) are also given.

[3]Key to abbreviations: c — common fc — fairly common unc — uncommon r — rare vr — very rare p — permanent sum — summer w — winter t — transient.

Other birds dependent on the park for permanent or seasonal refuge are the sandhill crane, limpkin, anhinga, cormorant, brown and white pelicans, and the frigate-bird, or man-o'-war bird.

Table 4 lists the rare and endangered avian species of the park.

(3) Reptiles and Amphibians. Except for the crocodile and a few kinds of small frogs and lizards from the West Indies, the reptiles and amphibians reached the region by coming south from the continental mainland. Many failed to penetrate as far south as South Florida, which has fewer species of these groups than do many other places in the southeastern United States. The known fauna of the park includes 3 or 4 species of salamanders, 6 species of lizards, 10 species of land and freshwater turtles and several kinds of sea turtles, 12 species of frogs, and 23 species of snakes. Worthy of mention here are the rare loggerhead and green sea turtles, and the endangered Atlantic ridley, hawksbill, and leatherback sea turtles (table 4); pigmy and diamondback diamondback rattlesnakes; cottonmouth, indigo, red rat, and yellow rat snakes; alligators (endangered, see table 4); and crocodiles (status peripheral, see table 4). By maintaining open water areas in the limestone substrate during dry seasons, the alligators provide "apparently essential water for aquatic vertebrates, invertebrates, and microorganisms important in certain food chains and other predator-prey relationships. These areas likewise provide a water requirement for a variety of mammalian species" (Loveless 1959).

(4) Fish. The waters of the park support an enormous variety of fish in both freshwater and saltwater habitats. Fish provide a major part of the diet of most of the other animal inhabitants. Garfish are the alligator's staple food, while dense populations of sunfish and various smaller minnows are essential to the success of the large heron rookeries. Mullet and saltwater catfish keep the Florida Bay ospreys from hunger, and these and other species support the brown pelicans, cormorants, and great white herons. Killifish, which inhabit the extremely salty interior ponds on the Florida Bay keys, serve to raise young roseate spoonbills.

From the standpoint of their place of origin, the fish of the park's salt and brackish waters are mainly species widely distributed in similar habitats throughout the Caribbean region. Two main groups make up the fish life of the freshwater areas. Some forms, such as the bass, gar, bowfin, golden shiner, and several

the park just south of the Forty-Mile-Bend field. This area would probably be investigated today if the parkland were open to exploratory activity.

Privately held mineral rights exist on about 65,200 acres, or about 4.7 percent of the total park acreage. About 10,800 acres are held in the Hole-in-the-Donut and another 54,400 acres in the Northwest Extension. Some are on federal property, or land under condemnation. All other mineral rights have been acquired by the federal government. Outstanding mineral rights are being acquired as part of an ongoing land acquisition program in these two areas which is nearing completion. Wilderness cannot be designated on these lands until these mineral rights have been acquired.

Many private mineral rights were terminated in 1958 in accordance with section (2) of the October 10, 1949, act (63 Stat. 733). On lands acquired by the federal government, private interests retained the right to explore, produce, store, and remove gas, oil, and minerals from parklands on which they retained valid rights. If commercial production was initiated on these lands prior to October 9, 1958, production would be allowed to continue until no longer economically feasible. Little exploration was done in the park before 1958 on these lands because the park's fields were believed to be deeper, and therefore more difficult to exploit economically, than fields elsewhere. The price of crude was low and it was not economically feasible to conduct much exploration when probable rewards were much more substantial in other areas. The mineral rights therefore were terminated before a good knowledge of the park's mineral resources was acquired through exploration.

In addition to mineral rights, private interests also hold rights to royalties. The status of these production royalty rights is still being determined, as the interests holding them are often difficult to locate. Existing information suggests that about 20 percent of the park is subject to these royalty rights, which are held on federal lands. In accordance with section (2) of the 1949 act, these interests will be able to collect royalties until January 1, 1985, should the federal government or its assigns authorize production on these lands. Because exploration and production is in violation of National Park Service administrative policies for natural areas of the National Park System and is apparently contradictory to section 4 of the enabling act (48 Stat. 816), there is essentially no likelihood that the federal government will authorize production on federal lands before the production

(royalty) rights terminate in 1985. Wilderness therefore can be designated in areas where production royalty rights exist because wilderness designation will have no effect on the rights holders.

The park's mineral potential, particularly for oil and gas, has never been evaluated comprehensively, and it is possible that important reserves may exist beneath its lands and waters. However, the extensive exploration required to determine whether production might be economically feasible is considered incompatible with the legislative objective of "preservation intact of the unique flora and fauna and the essential primitive conditions now prevailing in this area" (16 U.S.C. Sec. 410c).

2. Ecological Considerations

a. Water Quantity. Water is the lifeblood of the park. The preservation of the park depends "upon a sheet of fresh water draining slowly out of the Everglades" (Gunter 1967). This supply of water determines:

- the integrity and growth of organic soils and their corollary effect on topography, vegetation, and the retention and release of water (mediated by shrinkage, compaction, and oxidation by fire or aerobic decay)

- the incidence of frost damage (mediated by heat exchange capacity of water)

- the nature and distribution of vegetation and animal life, both terrestrial and aquatic (mediated by susceptibility to fire, tolerance to various moisture regimes from occasional droughtiness to permanent inundation, and sensitivity to differing levels of salinity)

Threats to the park's water quantity include:

- urbanization and its demands for more fresh water

- canal building and its draining of the land (figure 4)

- possible revival of the plan to build the Big Cypress Swamp jetport

potential development in the Big Cypress watershed

additional roadway construction across the Everglades basin

Regarding the possible revival of the plan to build the Big Cypress Swamp jetport, "development of the proposed jetport and its attendant facilities will lead to land drainage and development for agriculture, industry, housing, transportation, and other services in the Big Cypress Swamp which will inexorably destroy the South Florida ecosystem and thus the Everglades National Park. So long as the training airport is in use, pressures and plans for its expansion will continue and will inexorably . . . lead to ecosystem destruction" (U.S. Department of the Interior 1969).

The Big Cypress watershed, a vital "source of fresh water and essential nutrient supply to the estuaries of Everglades National Park and the Ten Thousand Islands . . . is the key to survival of the far-reaching recreational and commercial fishing enterprises that depend upon those estuaries" (Everglades-Jetport Advisory Board 1971). Moreover, "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" (Everglades-Jetport Advisory Board 1971).

Additional roadway construction across the Everglades basin, particularly through the wetlands areas, may entail "serious ecological disruption" (I-75 Study Panel 1971) from drainage of related developed areas and the blockage of drainage associated with the road itself. However, I-75 can be designed to minimize the disruption caused by the old Tamiami Trail due to blockage of seasonal water flow from the north.

b. Water Quality: The exclusive future use of degradable herbicides and pesticides should forestall any "long-range problem for the Everglades" (Gunter 1967). For the present, residues of chlorinated hydrocarbon pesticides, having been "detected in several environmental and faunal compartments" adjacent to the park (South Florida Environmental Project 1972), continue to pose a threat to certain components of the park's fauna. Compared to adults, the greater sensitivity of juvenile organisms to pesticides

renders the nursery functions of estuaries most easily affected by a pesticide's presence (Everglades-Jetport Advisory Board 1971). "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" (ibid.).

Park waters currently do not contain concentrations of nitrogen, phosphorus, or potassium high enough to pose a large-scale threat to its biota from eutrophication (Gunter 1967). The potential exists, however, that future increases in input of these elements from domestic sewage and fertilizer residues will produce this threat. Furthermore, the potential delivery of water to the park via canal precludes the self-purification process that occurs during natural drainage (Everglades-Jetport Advisory Board 1971). This may aggravate the intensity of any future threat. Recent evidence suggests that degradation of water quality is already occurring along the Tamiami Trail in the northern part of the park.

The threat of increased siltation in park waters derives from potential construction activities in park-watershed areas. Such activities would "adversely affect benthic . . . 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" (ibid.).

c. Fire (adapted or excerpted from Loveless 1959). The importance of fire and its influence on the vegetation of the biota of the Everglades can hardly be overemphasized. There is little doubt that fire has been an extremely significant factor in determining the extent and composition of the various plant communities in the area. Robertson (1953), in referring to fire in southern Everglades, writes that evidence strongly suggests that "natural fire has been a constant factor affecting the local distribution of vegetation types through the ages, and that the arrangement of plant cover types has probably always been similar to that seen today."

The relative fire tolerance of present-day vegetation of the Everglades marsh indicates that natural fires--lightning-caused--have occurred from the earliest times. With the advent of the Indians, and then white settlement accompanied by large-scale and ill-advised drainage programs, fires became progressively more frequent

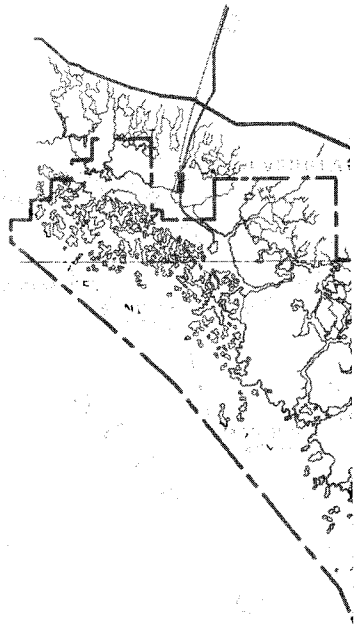
insight into the character and longevity of boat propeller ruts.

Erosion of the banks of frequently traveled canals is pronounced in many places in the park. Craighead (1972) discusses the effects of motorboating on mangrove-covered oyster shell islands: "Mangrove islands often develop on mud flats, and soon the prop roots serve as attachments for coon oysters. One to 3 feet of dead shell may build up beneath the roots, forming firm islands on top of marl or sand substrate. At some places, erosion from the wash of boats at low tide tears out the mud binder among the shells and loosens prop roots. Many mangrove islands are now disappearing along the much travelled canals and the Intracoastal Waterway, leaving shell islands."

Most motorized boats produce considerable noise. While the long-term effects of vehicular noise on wildlife populations have not been quantified, avoidance behavior with respect to short-term increases in noise has been documented experimentally. However, in natural environments it is often difficult to distinguish behavioral perturbations due to noise from those that are due to intrusion of a moving object into the habitat, even though it is obvious that a canoe is less disruptive ecologically than a motorboat, even one at slow speed. Motorboats that penetrate bird rookeries and other wildlife breeding habitats may cause severe disruption and impair reproductive success of affected species.

Air pollution from exhaust emissions and water pollution from gasoline, lubricating oil and grease, and sewage from holding tanks are potentially adverse effects of using motorboats. Of the above, only sewage contamination has possible regional importance. Adequate tertiary treatment of holding tank effluents and strict prohibition of effluent release into the natural environment are the only means for eliminating environmental degradation.

The ecological effects of the annual harvest of fish and shellfish from the park's estuaries (figure 11) are unknown. Commercial fishing operations are relatively small scale. In 1971, an estimated 172,000 pounds of fish and shellfish were removed from the park's waters--about 0.5 pound per acre (U.S. Department of the Interior, National Park Service 1972). This commercial catch is small when compared with other Gulf Coast estuaries where the annual take is usually many times this amount. However, sport fishing and shellfishing, which are unrestricted in the park, reportedly remove about 6.5 pounds



LEGEND

PRESENT LEGAL NET FISHING LIMIT. NET FISHING PROHIBITED INLAND OF THIS LINE.

PRESENT LEGAL CRAB LIMIT. CRAB TRAPS PROHIBITED NORTH AND EAST OF THIS LINE.

GURE 11

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ELLFISHING

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per acre. The total catch--about 7 pounds per acre--compares favorably with commercial catches outside the park. Because park estuaries must be managed to preserve ecological diversity and stability, exploitation of certain species populations which would be permitted in commercial estuaries may not be desirable in the park, even on a small scale, due to potential adverse ecological effects. Distribution of aquatic animals and commercial fishing pressure upon them is not uniform throughout the bay----both are concentrated in the most productive habitats. Therefore, although the annual catch per acre is low, adverse effects of commercial fishing on local animal populations and the communities of which they are a part may be significant. Ancillary effects, such as disturbance of habitat or food supply for rare and endangered species, are always possible, particularly when intensive commercial fishing is carried out in spatially restricted areas.

Clearly, the ecological effects of motorboat use and commercial fishing must be small when compared with the known adverse effects of the progressive development of South Florida as a major agricultural and population center. Motorboating and commercial/sport fishing represent long-term, relatively low-level disruptions of the park's natural ecosystems, which may or may not have associated significant long-term adverse ecological effects. Elimination of these uses is warranted in areas where ecological damage is evident or even strongly suspected.

D. Aspects of the Socioeconomic Environment Pertinent to the Proposed Action

1. Regional Socioeconomic Data

a. Population Growth, Tourism, Income, and Age Structure. Increasing visitor use of the park derives from four sources: (1) regional population growth (South Florida), (2) increasing tourism, (3) increasing percentage of families in higher income brackets, and (4) increasing numbers of people in the 62-and-over age group.

Population data for the nine-county South Florida region are summarized in table 5. The large increases between 1960 and 1970 in the heavily urbanized east coast counties of Broward, Dade, and especially Palm Beach, are to be noted. Dade County alone "absorbed over 18 percent of the total growth of the state of Florida, which showed a 37 percent increase during this decade (1960 to 1970). Among the 30 largest metropolitan areas, Miami in 1970 ranked 25th in total population, 14th in terms of

Table 5. Population Data (1970) for the Nine-County South Florida Region

County	Number	Density (persons per sq. mile)	Percent change 1960 to 1970
Broward	620,100	508.7	85.7
Charlotte	27,559	39.2	118.8
Collier	38,040	19.0	141.5
Dade	1,267,792	620.9	35.6
Glades*	3,669	4.9	24.4
Hendry	11,859	10.0	46.1
Lee	105,216	134.0	92.9
Monroe	52,586	50.9	9.7
Palm Beach*	348,753	172.4	52.9
Total	2,475,574		

*Parts of Glades and Palm Beach Counties transferred to Hendry County

Table 6. Registration at Florida Welcome Stations
1967 – 1974

Year	Number of Registrants
1967	1,169,521
1968	1,274,414
1969	1,411,362
1970	1,507,824
1971	1,778,169
1972	2,088,767
1973	1,925,921
1974	1,591,068

Source: Florida Department of Commerce

absolute change, and 8th by rate of change. By any standard, Miami has to be considered one of the fastest growing urban areas in the country" (Metropolitan Dade County Planning Department 1972). Also of significance are the population increases in the west coast counties of Lee and, to a lesser extent, Collier. These increases are expected to continue through at least the next 2 decades (Florida State Department of Natural Resources 1971). Pressures on the park from population growth originate in increased visitation to, and development outside of, the park. Increased visitation and development result directly, and indirectly, from more people.

Since 1967, the number of southbound out-of-state automobile travelers registering at Florida Welcome Stations has increased (see table 6). Although these data exclude an unknown number of visitors who did not stop at the stations, they probably indicate a similar increase for all tourism in the state. Other data reflect the attractiveness of the region for tourists from temperate zones of the United States (table 7). The number of registrants specifying South Florida counties as their destination is given in table 8.

The increasing percentage of families in higher income brackets--$10,000 per year and above--(table 9) means that more families will have available money to spend on recreational activities, such as visiting the park.

The increasing popularity of South Florida as a retirement site has resulted in ever greater numbers of senior citizens settling in the nine-county area (table 10). Countywide increases in the 62-and-over age group ranged between 170 and 410 percent during the period of 1960 to 1970. These people utilize the park primarily for wildlife viewing, the most important aspect of which is bird-watching.

b. Construction Activities. Table 11 shows the growth of capital investment for construction in the nine-county region during the period 1960 to 1971. The current magnitude of this investment (some 1.8 billion dollars) and the positive prognosis for its future growth indicate an intensification of pressures from threats to the park's ecological integrity.

2. Regional Recreational Opportunities

The nine-county South Florida region provides numerous recreational opportunities either

Table 7. 1974 Air Travelers, Destination by Origin, Florida Vacation Areas

Origin Zip Code		NW	NE	C	SW	SE*	Total
00000	(%)	11.9	14.1	20.8	16.8	15.5	16.7
	(Total)	5,623	99,934	268,164	290,304	461,396	1,125,421
10000		16.7	23.8	26.1	24.7	19.6	22.5
		7,891	168,682	336,494	426,816	583,443	1,523,326
20000		11.9	14.2	10.7	7.8	12.6	11.2
		5,623	100,642	137,950	134,784	375,071	754,070
30000		22.6	20.1	9.3	14.0	14.6	14.1
		10,678	142,459	119,900	241,920	434,606	949,563
40000		7.1	5.5	13.9	17.1	17.9	15.5
		3,355	38,981	179,206	295,488	532,838	1,049,868
50000		6.0	2.7	2.3	1.7	3.2	2.6
		2,835	19,136	29,653	29,376	95,256	176,256
60000		3.6	6.1	5.9	8.2	7.5	7.2
		1,701	43,234	76,066	141,696	223,256	485,953
70000		8.3	5.0	4.1	3.7	5.6	4.8
		3,921	35,438	52,859	63,936	166,698	322,852
80000/ 90000		11.9	8.5	6.9	6.0	3.5	5.4
		5,623	60,244	88,958	103,680	104,186	362,691

Zip Code Area	00000	10000	20000	30000	40000	50000	60000	70000	80000	90000
States	ME CT VT RI NH NJ MA	PA NY DE	DC WV MD NC VA SC	GA TN FL MS AL	KY IN OH MI	IA MT WI SD MN ND	IL KS MO NB	LA OK AR TN	CO AZ WY MN ID NV UT	AK CA HI OR WA

This table reads as follows: Of all those who went to the Northwest vacation area 11.9% or 5,623 persons came from zip code area 00000.

*Including Monroe, Dade, Martin, Palm Beach, St. Lucie and Broward Counties

Source: Florida Department of Commerce, *Executive Summary, 1974 Tourtist Study*

Table 8. 1974 Auto Travelers, Destination by Origin, Florida Vacation Areas

Origin Zip Code		NW	NE	C	SW	SE*	Tour	Total
00000	(%)	1.8	9.7	12.9	12.3	15.5	12.6	10.9
	(Total)	55,890	120,474	536,285	462,541	438,495	271,688	1,885,373
10000		3.1	12.9	15.0	16.1	19.6	16.2	13.9
		96,255	160,218	623,588	605,441	554,484	349,312	2,389,298
20000		4.0	19.6	18.0	12.0	12.6	15.0	13.0
		124,200	243,432	748,305	451,260	356,454	323,438	2,247,089
30000		61.3	27.2	17.5	11.8	14.6	12.5	23.7
		1,903,365	337,824	727,519	443,739	413,034	269,531	4,095,012
40000		7.6	13.5	19.3	29.2	17.9	20.4	18.8
		235,980	167,670	802,349	1,098,066	506,391	439,875	3,250,331
50000		2.0	3.3	2.8	4.0	3.2	4.1	3.2
		62,100	40,986	116,403	150,420	90,528	88,406	548,843
60000		3.1	5.5	6.9	8.0	7.5	8.9	6.8
		96,255	68,310	286,850	300,840	212,175	191,906	1,156,336
70000		14.6	4.8	5.1	3.7	5.6	6.0	6.7
		453,330	59,616	212,020	139,139	158,424	129,375	1,151,904
80000/ 90000		2.5	3.5	2.5	2.9	3.5	4.3	3.0
		77,625	43,470	103,931	109,054	99,015	92,719	525,814

Zip Code Area	00000	10000	20000	30000	40000	50000	60000	70000	80000	90000
States	ME CT VT RI NH NJ MA	PA NY DE	DC WV MD NC VA SC	GA TN FL MS AL	KY IN OH MI	IA MT WI SD MN ND	IL KS MO NB	LA OK AR TN	CO AZ WY MN ID NV UT	AK CA HI OR WA

This table reads as follows: Of all those who went to the Northwest vacation area, 1.8% or 55,890 visitors came from zip code area 00000.

*Including Monore, Dade, Martin, Palm Beach, St. Lucie and Broward Counties

Source: Florida Department of Commerce, *Executive Summary, 1974 Tourist Study.*

Table 9. Income Status of South Florida Families

County	Less than $10,000					$10,000 to $14,999					Greater than or equal to $15,000				
	1969	(Percent of total)	1959	(Percent of total)	Percent change 1959-69	1969	(Percent of total)	1959	(Percent of total)	Percent change 1959-69	1969	(Percent of total)	1959	(Percent of total)	Percent change 1959-69
Broward	94,411	(53.0)	81,538	(87.2)	15.8	44,540	(25.0)	7,074	(7.6)	529.6	39,240	(22.1)	4,875	(5.2)	704.9
Charlotte	6,958	(74.3)	3,597	(92.4)	93.4	1,406	(15.0)	211	(5.4)	566.4	996	(10.6)	85	(2.2)	1,071.8
Collier	5,888	(54.7)	3,503	(86.2)	67.9	2,169	(20.2)	297	(7.3)	630.3	2,706	(25.2)	264	(6.5)	925.0
Dade	180,106	(54.6)	214,235	(86.0)	−15.9	78,785	(23.9)	21,807	(8.8)	261.3	70,804	(21.5)	13,050	(5.2)	442.6
Glades	673	(77.1)	633	(94.5)	6.3	129	(14.8)	27	(4.0)	377.8	71	(8.1)	10	(1.5)	610.0
Hendry	2,026	(67.9)	1,866	(93.1)	8.6	591	(19.1)	106	(5.3)	457.5	365	(12.2)	32	(1.6)	1,040.5
Lee	19,553	(63.8)	13,443	(90.1)	45.5	6,488	(21.2)	953	(6.4)	580.8	4,587	(15.0)	522	(3.5)	778.7
Monroe	9,241	(68.1)	10,451	(91.7)	−11.6	2,646	(19.5)	680	(6.0)	289.1	1,678	(12.4)	266	(2.3)	530.8
Palm Beach	52,747	(55.3)	53,690	(87.9)	− 1.8	21,689	(22.7)	4,569	(7.5)	374.7	20,937	(22.0)	2,792	(4.6)	649.9
Total	**371,598**	**(55.3)**	**382,956**	**(86.9)**	**− 3.0**	**158,443**	**(23.6)**	**35,724**	**(8.1)**	**343.5**	**141,384**	**(21.1)**	**21,896**	**(5.0)**	**545.7**

Table 10. Number of People Aged 62 and Over, South Florida

County	Total	62 and over (1970)	Percent of total	62 and over (1960)	Percent change 1960-1970
Broward	620,100	136,728	22.1	49,317	177.2
Charlotte	27,559	11,926	43.3	3,305	260.8
Collier	38,040	7,038	18.5	1,718	309.7
Dade	1,267,792	210,823	16.6	120,103	75.5
Glades	3,669	429	11.7	232	84.9
Hendry	11,859	1,144	9.6	608	88.2
Lee	105,216	24,960	23.7	8,761	184.9
Monroe	52,586	5,989	11.4	3,521	70.1
Palm Beach	348,753	73,426	21.1	36,045	103.7
Total	**2,475,574**	**472,463**	**19.1**	**223,610**	**111.4**

Table 11. Construction Investment in South Florida, 1960-1971
(in thousands of dollars)

County	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
Broward	155,768	135,800	146,545	164,879	211,636	218,499	217,805	255,146	464,841	573,811	484,621	593,993
Charlotte	1,379	1,264	7,909	7,587	5,928	6,077	5,005	8,056	11,637	18,763	18,234	30,439
Collier	6,968	10,890	11,364	12,289	15,998	23,379	20,072	26,543	40,387	59,363	53,456	59,086
Dade	223,346	295,160	208,007	184,652	218,137	282,932	259,510	311,662	432,440	644,029	586,607	752,313
Glades	40	110	81	19	0	9	0	4	831	44	137	30
Hendry	835	705	600	1,441	1,201	942	1,543	944	1,709	1,004	2,170	1,751
Lee	26,300	24,554	23,072	28,044	33,411	20,478	32,644	30,709	43,674	58,927	56,884	83,030
Monroe	1,944	2,633	1,740	2,965	2,583	4,677	5,287	3,071	6,549	15,101	19,249	8,657
Palm Beach	75,302	93,237	99,283	105,000	112,543	111,011	113,019	109,370	202,852	313,124	223,992	307,129
Total	**491,882**	**474,353**	**498,601**	**506,877**	**601,439**	**676,995**	**654,884**	**748,505**	**1,204,323**	**1,684,166**	**1,609,455**	**1,836,428**

Source: Bureau of Economic and Business Research and Computing Laboratory, 1972

complementary or supplementary to those of Everglades National Park (table 12, figure 12).

3. Regional Land-Use Patterns

Table 13 indicates the growing urbanization of the nine-county South Florida region, particularly in the west coast counties of Collier and Lee. Projections of urban land use (table 14) depict the continuation of this trend through 1980.

Agricultural land use (table 15) in South Florida is expected to show only "marginal" increases in the coming decade (Nicholas 1971).

4. Visitation

Figure 13 portrays the growth in park visitation for the period 1948 to 1975 These data are gathered from traffic counters placed over the entrance roads to the park at Parachute Key and Everglades City. A multiplier of 3.5 generates numbers of visitors from numbers of vehicles. Occasional checks on this procedure have indicated an accuracy within 20 percent. Distribution of visitation by month for the period 1949 to 1975 is shown in table 16. About 5 percent of these arrive at and tour the park by bus. During 1971, visitor stays averaged 8.5 hours and ranged between monthly averages of 4.7 and 12.1 hours (figure 14). Overnight stays for 1971 totaled some 131,400.

E. Archeological and Historical Resources

1. Summary of the Prehistory of the Everglades

Man has occupied the Everglades for at least 4,000 years, and possibly since 8000 B.C. (Griffin 1974). Burial mounds and temple mounds are found in South Florida, but by far the most common archeological sites in the Everglades are middens of shell or black earth, or farther inland on higher ground, hammock middens.

Seafood was the primary food source, with plants and land animals augmenting the high-protein diet. Mounds of discarded shells accumulated where shellfish were processed and eaten year after year. Flanking the shell heaps and sometimes adjacent to them are dark earth middens which may have been built to enlarge campsites and raise them higher above water level. Animal remains are predominant in the earth middens and ceramics are less frequently found. Apparently these sites were places where

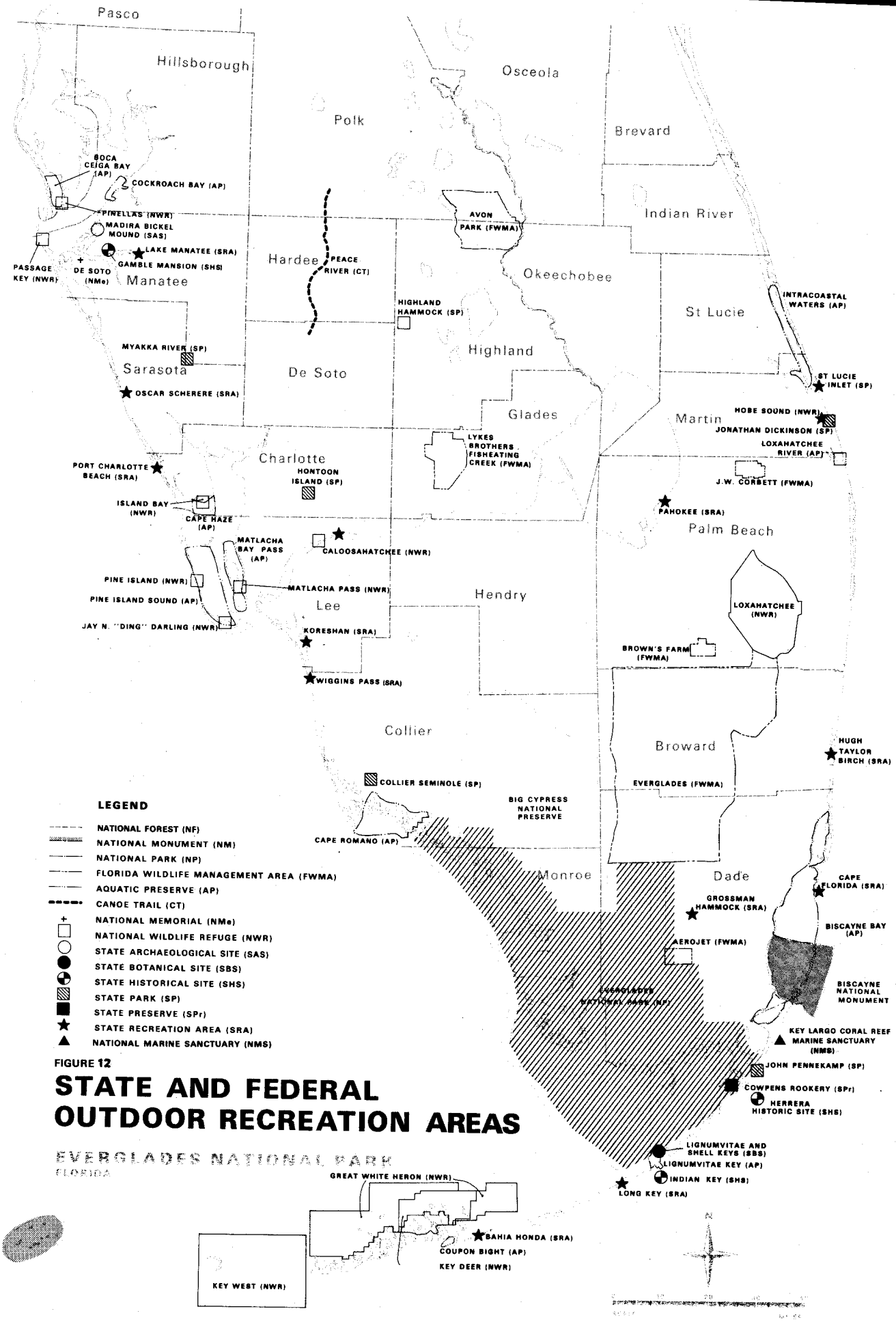

FIGURE 12

STATE AND FEDERAL OUTDOOR RECREATION AREAS

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Table 12. Recreational Resources and Facilities Available in the Nine-County South Florida Area (including Everglades National Park)

Activity Resource Facility	Unit of Measure	Quantity
Beach activities		
Beach shoreline	Miles	26.36
Beach area	Acres	496.63
Bicycling		
Bike trails	Miles	3.00
Bikeways	Miles	66.05
Boating — Freshwater		
Freshwater area	Acres	1,040,531.00
Improved ramps	No.	98.00
Marinas	No.	31.00
Boat lifts	No.	6.00
Boating — salt water		
Salt water area	Acres	2,121,969.00
Improved ramps	No.	166.00
Marinas	No.	157.00
Boat lifts	No.	92.00
Camping — designated site		
Land area	Acres	1,315.90
Campsites	No.	5,746.00
Tent Sites	No.	3,991.00
Trailer sites	No.	4,631.00
Camping — primitive		
Land area	Acres	187,704.05
Camping — cabins		
Land area	Acres	186.50
Cabins	No.	268.00
Fishing — freshwater		
Freshwater shoreline	Miles	126.19
Freshwater area	Acres	1,040,531.00
Improved ramps	No.	98.00
Piers	No.	20.00
Piers	Length in miles	1.52
Catwalks	No.	3.00
Catwalks	Length in miles	0.08
Marinas	No.	31.00
Boat lifts	No.	8.00

Activity Resource Facility	Unit of Measure	Quantity
Fishing — salt water		
Salt water shoreline	Miles	1,356.15
Salt water area	Acres	2,121,969.00
Improved ramps	No.	166.00
Piers	No.	29.00
Piers	Length in miles	3.60
Catwalks	No.	56.00
Catwalks	Length in miles	6.83
Marinas	No.	157.00
Boat lifts	No.	93.00
Hiking		
Land area	Acres	254,785.43
Foot trails	Miles	514.81
Horseback riding		
Land area	Acres	227,927.91
Horse trails	Miles	495.90
Hunting		
Habitat area	Acres	1,022,422.00
Nature study		
Habitat area	Acres	2,693,844.33
Nature trails	Miles	57.48
Natural scenery appreciation		
Viewing area	Acres	2,694,313.84
Viewing trails	Miles	514.81
Picnicking		
Land area	Acres	1,845.18
Picnic tables	No.	6,303.00
Surfing		
Beach shoreline	Miles	6.92
Water area	Acres	754.88
Swimming — freshwater		
Freshwater shoreline	Miles	2.42
Freshwater area	Acres	66.00
Swimming — salt water		
Beach shoreline	Miles	26.36
Beach area	Acres	496.63
Visiting historical/archeological sites		
Area	Acres	485.90
Sites	No.	14.00
Water skiing		
Water area	Acres	112,685.00
Improved ramps	No.	362.00

Source: Department of Natural Resources, 1971

Table 13. People Living in Urban Areas* of South Florida (expressed as a percent of the total population)

County	1970	1960	Percent change 1960–1970
Broward	99.0	96.6	90.3
Charlotte	59.8	58.7	122.9
Collier	66.1	50.0	219.3
Dade	98.3	95.6	39.4
Glades	0.0	0.0	0.0
Hendry	32.9	38.4	25.1
Lee	70.3	49.3	174.9
Monroe	71.6	70.9	10.8
Palm Beach	91.2	82.8	68.3

*As defined by the U.S. Bureau of the Census.

Table 14. Urban Land Use in South Florida*

County	Year			
	1970	1980		
		Projection I	Projection II	Projection III
		(areas indicated in square miles)		
Broward	131	159	166	195
Charlotte	6	8	11	
Collier	9	11	21	
Dade	218	229	260	281
Glades	1	1	1	
Hendry	3	3	4	
Lee	24	29	30	
Palm Beach	81	93	110	120
Total	**473**	**533**	**603**	

*Excluding Monroe County, made up entirely of Everglades National Park and the Florida Keys. "The future use in both of these areas is impossible to predict" (Nicholas 1971).

Table 15. Land in Farms, South Florida

	Acreage 1969	Percent of total	Percent change 1964-1969	Acreage 1964	Percent of total
Broward	60,761	7.8	-30.2	87,052	11.1
Charlotte	218,007	48.5	-20.2	273,035	60.5
Collier	309,914	24.1	5.5	293,669	22.5
Dade	79,056	6.0	-32.3	116,765	8.8
Glades	457,207	94.9	182.0	162,155	33.9
Hendry	657,490	86.5	-3.3	679,945	89.5
Lee	141,959	28.3	-12.1	161,475	32.0
Monroe			– NO DATA –		
Palm Beach	527,210	40.7	17.6	448,275	35.4
Total	**2,451,604**	**42.1**	**10.3**	**2,222,371**	**35.3**
	= 3,831 sq. mi.			**= 3,472 sq. mi.**	

Table 16. Monthly Visitation Ranked From Highest (1) to Lowest (12), 1949-1975

Month	Year and rank order of month																											Sum of Ranks	Rank of Sums
	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75		
JAN	3	4	3	2	2	2	1	1	4	6	3	3	3	3	4	4	4	4	4	5	4	1	3	6	3	5	1	97	3
FEB	1	1	2	1	1	1	3	3	5	3	2	2	1	2	2	2	2	2	3	2	2	4	2	4	2	7	3	66	2
MAR	2	2	1	3	3	3	2	2	1	4	1	1	2	1	1	1	1	1	1	1	1	2	1	2	1	1	2	44	1
APR	4	5	4	5	4	4	4	4	2	1	5	4	5	4	5	5	3	2	2	3	3	3	4	3	4	2	5	99	4
MAY	6	7	6	6	11	6	5	9	7	5	7	6	10	8	8	8	7	6	8	9	6	6	6	7	7	11	11	199	6
JUN	10	9	8	7	9	10	9	10	6	10	10	9	8	9	10	10	8	9	10	10	8	10	10	12	8	12	9	243	10
JUL	8	8	9	8	6	7	8	6	8	8	9	7	6	6	6	7	6	8	7	8	9	7	8	9	9	8	8	213	8
AUG	11	10	10	12	7	9	7	7	9	9	8	8	9	7	9	9	10	10	9	6	12	8	9	8	10	6	7	236	9
SEPT	7	12	12	11	10	12	12	12	11	12	12	12	11	11	12	12	12	11	11	12	10	12	12	10	12	10	12	309	12
OCT	12	11	11	10	12	11	11	8	10	11	11	11	12	12	11	11	11	12	12	11	11	11	11	11	11	9	10	295	11
NOV	9	6	7	9	8	8	10	11	12	7	6	10	7	10	7	6	9	7	6	7	7	9	7	5	6	4	6	202	7
DEC	5	3	5	4	5	5	6	5	3	2	4	5	4	5	3	3	5	5	5	4	5	5	5	1	5	3	4	114	5

Figure 13
Everglades National Park
Park Visitation by Year 1948 - 1975

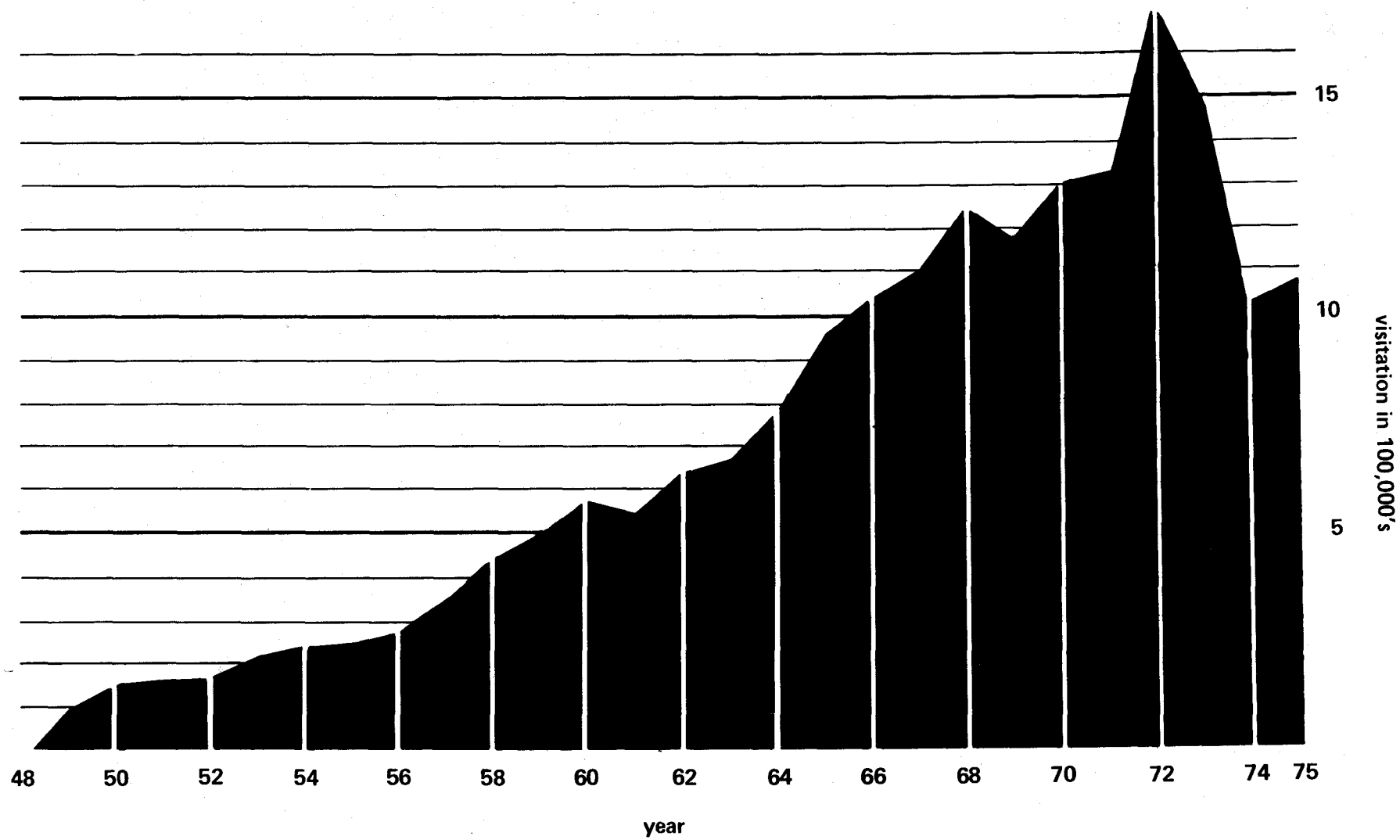
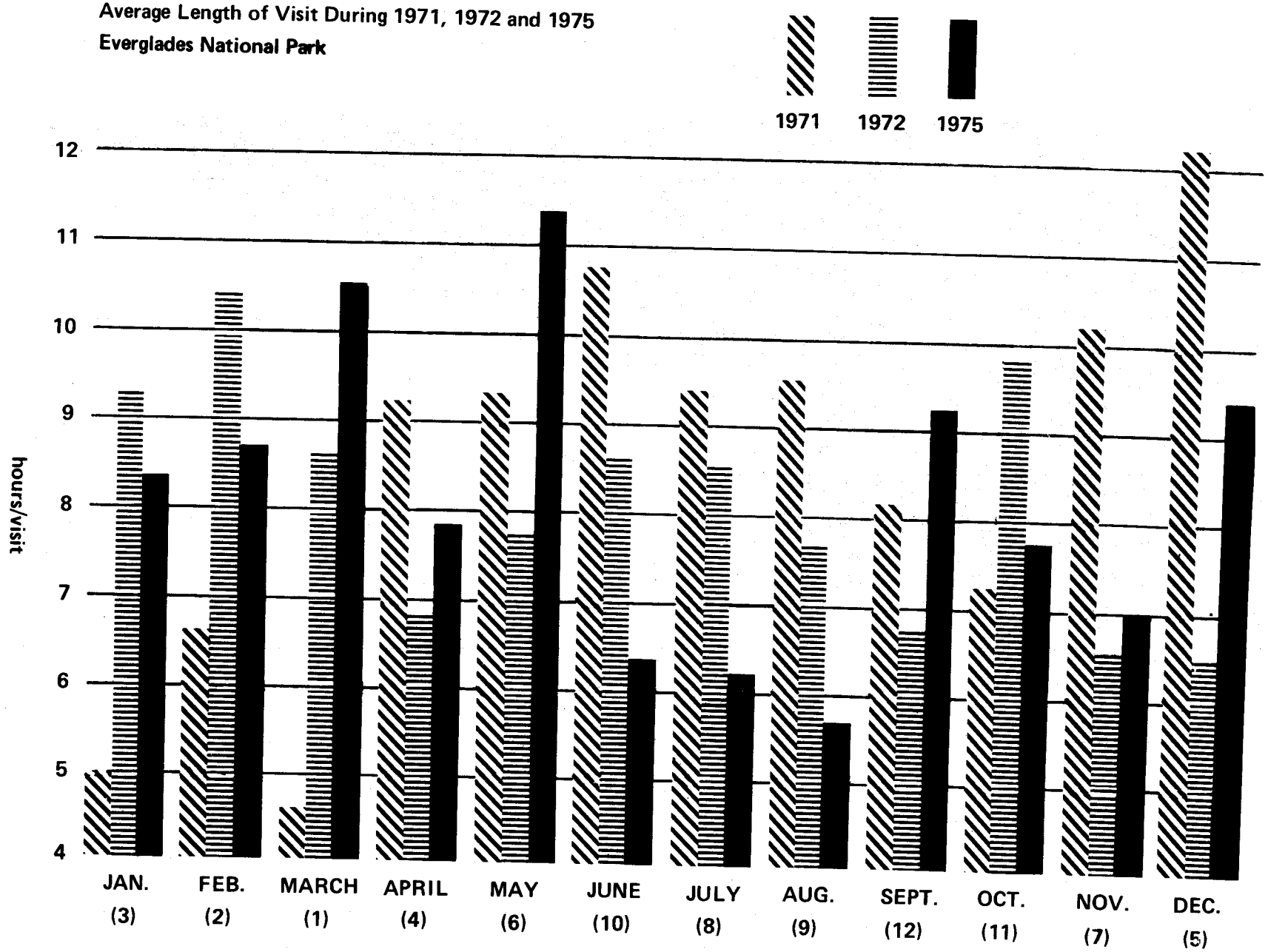


Figure 14
Average Length of Visit During 1971, 1972 and 1975
Everglades National Park



Numbers in parentheses refer to overall rank of that month in terms of total visitation —see Table 17.

the Indians gathered to exploit food resources during times of plenty in the Everglades' seasonal cycle (Griffin 1973).

The hammock middens are located farther inland on knolls or high places in the sawgrass. These sites, now covered with a scattering of trees, are smaller and shallower than the shell and earth middens on the coast. This indicates brief occupation and less frequent use, the sites probably representing inland penetrations of the glades in quest of seasonally available foods (Griffin 1973).

The Indians modified the landscape in other ways as well. They made canals or improved natural waterways and built shell causeways and ramps to provide easier access to various parts of the area (Robertson 1969). They may have fired the grass from time to time to keep it at a reasonable height for easier foot travel (Griffin 1973).

Information on the prehistoric inhabitants of the area is spotty because, of the entire spectrum of material culture, relatively few remains survive. It is known they ate shellfish, fish, and deer, and that they made tools and ornaments of bone, shell, sharks' teeth, and stone. They had acquired pottery by about A.D. 300, in spite of the fact that no major clay sources exist in the glades area. Perhaps the clay or even the pottery itself was acquired through trade, or during travel outside the glades. Masks, effigies, and model canoes recovered from Key Marco demonstrate some ways they used wood. Less durable items have rotted away, however, and very little is known about most aspects of their culture.

Pottery styles and the existence of some burial and temple mounds indicate that the Everglades occupants were influenced by highly developed cultures in other parts of the Southeast. The cultural traditions in southern Florida apparently did not become as complex as did those of other groups, possibly because the food supply was limited seasonally, and food could not be easily preserved and stored (Griffin 1973). This appears to have discouraged large, elaborate permanent settlements.

In the past it was thought that the Everglades might have been used only seasonally by Indians whose permanent settlements were outside the glades themselves. This would have explained the rarity of more complex types of remains and large village sites. Present evidence indicates, however, that the aboriginal inhabitants used the area the year around in a transitory hunting and

gathering pattern of culture. Agriculture was practiced only minimally, even after it was common among other Indians of North America, perhaps because wild foods were so plentiful or perhaps because agriculture simply was not feasible in the Everglades (Griffin 1973).

The time scale for prehistoric occupation of the Everglades is not known in detail because, until relatively recently, accurate dating methods were not applied to the remains that had been recovered. Early scholars defined time periods based on sequential changes in incised decorations on pottery. These periods were, according to Goggin, 1950:

Glades I	2000 to 1000 B.C.	- A.D. 0
Glades IIa	A.D. 0	- A.D. 400
IIb	A.D. 400	- A.D. 850
IIc	A.D. 850	- A.D. 1150
Glades IIIa	A.D. 1150	- A.D. 1425
IIIb	A.D. 1425	- A.D. 1550
IIIc	A.D. 1550	- A.D. 1800

The dates for these periods were estimates and could not be extended backward to the time before pottery appeared. However, radiocarbon determinations of skeletal material from Warm Mineral Springs and comparative studies of artifacts indicate that Paleo-Indians were in Florida more than 10,000 years ago. It is highly probable that these people, and their successors of pre-ceramic Archaic times, occupied the South Florida area as well. Radiocarbon dates from pottery in sites within the Everglades show that the area was definitely occupied by 1450 B.C. (Griffin 1974).

Recent research, including the accumulation of more radiocarbon dates from within the Everglades, has left the associations and time relations among the periods Goggin defined virtually unchanged. His sequence remains a useful framework for determining the ages of sites containing ceramics.

Unfortunately changes in pottery styles tell us very little about the overall **life-style** of the Everglades Indians. The specialized subsistence pattern that took maximum advantage of the unique glades environment apparently remained essentially the same throughout prehistoric times. Other details of prehistoric Everglades life are speculative and based upon the clues provided by spotty excavated evidence compared with observations of historic groups with similar adaptations. Because of fluctuations in sea level associated with glacial periods,

many of the sites which could provide more information on aboriginal occupation of the area are probably sealed under layers of shell and sand, or lie beneath the sea. As more of these sites are found and studied, more of the total picture of prehistoric Everglades life will be filled in. This knowledge will help provide an understanding of how man in the past was able to survive in an area which, to modern man, is hostile and dangerous.

New diseases arrived in the 17th century with European entry into the New World, and the Indian population of the Everglades was almost completely eliminated. The glades have not been used to such a great extent by man since then.

2. Summary of the History of the Everglades

The following information is extracted from Man in the Everglades by Charlton W. Tebeau, University of Miami Press, 1968.

The Everglades offered no immediately apparent advantage to European explorers and settlers in Florida. The dense hordes of biting insects and difficult travel rendered the area so inhospitable that it was largely ignored for over 200 years. Fishermen and wreck salvagers operated along the coast of southern Florida, and pirates were active in nearby seas during the late 18th and early 19th centuries. There is no record of exploitation of the interior, and the Everglades remained a large blank space on maps well into the 19th century.

Transfer of possession from the Spanish to the English (1763), back to the Spanish (1783), and then to the United States (1819) seems to have had little effect on the southern tip of Florida. There was a proposal to build roads in the area in 1823, but this was soon abandonded as impractical. Portions of the lower peninsula were surveyed in 1833 for potential development, but no economic activity resulted from these expeditions.

Before 1700, Seminole Indians began to move into northern Florida to occupy the area vacated by earlier Indian inhabitants. The migration increased after 1700, partly in response to the natural attractions of the region, and partly as a result of the pressure of English settlement in Carolina and Georgia. These people were primarily Creek, Oconee, and Miccosukee, known collectively as Seminole.

Another extensive migration occurred at the end of the Creek War of 1812-1814, and the Indian population

of Florida grew to some 5,000. The new emigrants settled primarily in the northern part of the state, but villages were soon established as far south as Tampa, and hunters apparently found their way to the extreme southern region.

In the 1830s the Everglades began to receive the first official attention of the United States government, as attempts were made to remove the Seminoles to western reservations. An earlier attempt to subdue the Florida Indians was undertaken in 1818 by Andrew Jackson. This raid, sometimes called the First Seminole War, was against Indians who menaced white settlers on the border between the United States and Florida. During the Seminole Wars of 1835-1842 and 1855-1858, a more concentrated and organized effort was exerted to rid Florida of the inconvenience of Indian occupation.

As conflict between Caucasians and Indians grew, exploration of the Everglades become more desirable. Indians on the southwest coast were believed to be buying guns and powder from the Cuban fishermen. Fort Dallas was established on the Miami River in 1837 to protect white settlers and to serve as a base for expeditions against the Indians. Fort Poinsett was established on East Cape Sable in 1838 in order to cut off intercourse between the Indians and Spanish fishermen. The 1840 massacre of white settlers at Indian Key, an important trading post and port of entry between Key West and Biscayne Bay, underscored the importance of locating the Everglades hiding places of the Seminoles.

Lieutenant Colonel William S. Harney, seeking to avenge this and several other Indian attacks, set out from Fort Dallas on December 4, 1840, with 90 men and 16 canoes. Over several days, they located and destroyed the island **hideaway** of the Seminole Chief Chekika, and several other abandoned Indian camps. Harney and his men emerged from the Everglades by an easier but longer route southwest into the Gulf of Mexico. Aiming for the Shark River, they missed it and discovered another route, naming it the Harney River.

One of the members of the expedition sent an account of the journey to the St. Augustine News. It appeared on January 8, 1841, the first known published account of a trip across the southern Everglades. The region was described as "one boundless expanse of sawgrass and water, occasionally interspersed with little islands, all of which are overflowed, but the trees are in a green and flourishing state. No country that I have ever heard of bears any resemblance to it; it seems like a vast sea filled

with grass and green trees, and expressly intended as a retreat for the rascally Indian."

More Indians withdrew into the less hospitable southern regions as pressure on them increased from the north. In 1845, the year Florida was admitted to statehood, attention was concentrated almost entirely on the lower peninsula, where the last of the undefeated and unremoved Seminoles had retreated. Fort Poinsett was reactivated for the Third Seminole War, Fort Cross was established at Middle Cape Sable, and temporary bases were established on Chokoloskee Island and Pavilion Key. Traces of these wood and sand fortifications have long since been destroyed by tides and tropical storms.

Numerous forays originated from these posts to scout for Indians and destroy any of their settlements that were found. In 1857, Captain John Parkhill led 75 men from Chokoloskee Island up what is now Turner River. This expedition, for all practical purposes, ended the last Seminole War. In the Big Cypress country, northwest of the present park boundaries, they discovered the last hiding places of the Seminoles. The Indians realized that further resistance was futile and, in early 1858, Chief Billy Bowlegs negotiated the terms of removal. He, along with 170 other captured Indians, sailed for relocation in the west in May 1858.

The few Seminoles remaining were not pursued further, and they lived in almost undisturbed isolation until about 1930. Their social organization had broken into smaller bands which relied heavily on hunting for food and for hides, furs, and feathers to sell. The opening of the Tamiami Trail in 1928 contributed significantly to ending the Indians' old way of life. White men entered the region to hunt for sport, and they pressured for termination of Indian hunting rights in the Everglades. The Seminoles of necessity began to rely almost exclusively on a cash economy. They removed to federal reservations, operated souvenir stands, and became wage earners. However, as late as 1958, both language and social organization were still strong survivals of their old way of life.

After the intense interest generated by the Seminole Wars, the Everglades attracted very little attention for some years. The activities of the War Between the States scarcely touched the region at all. Suggestions were made to drain the swamps for agricultural purposes. Military officers recommended that for national security reasons, the Florida Keys be fortified and the lower peninsula more densely populated. In the 1870s

possibilities for railway and telegraph lines began to be examined. Actual exploration and settlement, however, were confined almost entirely to the coastal areas; interest in the interior was primarily among hunters, naturalists, and bird-plume collectors.

Gradually, however, knowledge of the southern peninsula increased. By the beginning of the 20th century, the area could no longer be considered unexplored. Reports concerning the region began to have wide circulation, and by 1909, hundreds of sport and market hunters were exploiting the southern Everglades. The road to Paradise Key, built in 1915, and its extension to Flamingo in 1922 opened the area to more extensive exploration and exploitation of its natural wealth. Completion of the Tamiami Trail in 1928 also facilitated penetration. Hunters and trappers began to complain about the comparative scarcity of game of all kinds.

Permanent occupants of the area were relatively rare. They often lived perched precariously on patches of land scarcely above normal high tides, frequently Indian middens. The isolation compelled them to be self-sufficient, and the Florida frontier attracted and bred a particularly hardy type of men and women. Their only contact with each other and the outside world was by boat, and they lived at the mercy of storms and high water.

The settlers lived on the bounty of nature, which in the Everglades was as generous in some ways as it was harsh in others. What soil existed was fertile, and the settlers farmed to some extent both for food and for market. Commercial fishing was the mainstay of the economy, but hunting animals and birds for their skins and feathers was at times more important. Wood-cutting and charcoal-making added a small but sure means of livelihood. Some people operated small boats that carried away the products of the region and brought back supplies.

Every frontier has its lawless elements, and legends about the early days of this area have become more lurid over the years. While it had its share of refugees from law and order, the population of the southern peninsula was by no means primarily made up of outlaws and murderers.

Few commercial enterprises above the individual or family level were attempted, and most remains of them have been swept away by storms. Fish camps dotted the coast. A factory was established on the Shark River in 1908 to produce tannic acid and lumber from mangrove trees.

The cost of extracting the acid from the bark proved to be high, and no way could be devised to prevent the lumber from cracking when it dried. Production continued intermittently until 1923, when it ceased permanently. Cattle raising and coconut cultivation were attempted on Cape Sable, but were commercially unsuccessful. Canals were built in the southeastern tip of the peninsula. They provided fill and drainage for roads paralleling them, and it was hoped they would drain the prairies and provide fresh water. Their only success was in improving boat accessibility to isolated areas.

The most spectacular commercial enterprise in the Everglades was an enormous land promotion which took place in 1925. The Tropical Development Company plotted a subdivision named Poinciana. It covered three sections of land astride the mouth of Lostmans Creek. The land was never actually surveyed, and all sales and development were merely on paper. Docks and portable buildings were erected on Onion Key, to serve as headquarters for the subdivision and receive the few prospective buyers who actually came to look at their lots. An advertising campaign resulted in the sale of thousands of lots, many under water. Over 2,000 of these were still privately owned in 1960. The headquarters complex, a shabby affair, was destroyed in 1926 by a hurricane, and the land boom vanished with the storm.

National attention again focused on the Everglades when the possibility of creating a national park began to be actively discussed. Its value as a natural area had long been known, and conservationists urged its preservation. The long process toward establishing the park began in the twenties and, interrupted by World War II, resulted in the dedication in 1947.

3. Sites on the National Register of Historic Places

At the present time, Everglades National Park has no archeological sites listed on the National Register of Historic Places. A single historic site does appear on the National Register: the Ted Smallwood store on Chokoloskee Island on Florida 29 in the northwest corner of the park. In compliance with Executive Order 11593 and Section 106 of the National Historic Preservation Act of 1966 (80 Stat. 913), research is under way to compile a list of such sites, some of which may be suitable for designation on the register. To date, this list includes 115 sites along the southwest coast of the park (figure 15). A surface examination of each has been conducted and a few

have had test pits dug by archeologists under contract with the National Park Service.

Known sites have been classified as follows (number of sites in parentheses):

Beach sites (22)--Usually of shell and sand, highly eroded; on outlying islands or along the coast

Shell middens (44)--Unplanned deposits of vast accumulations of shell and other debris

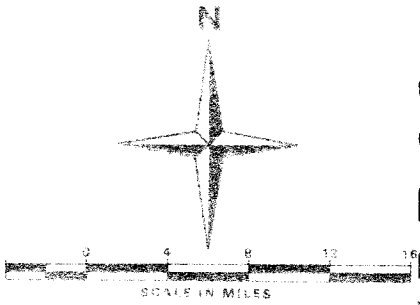
Shell works (18)--Apparently planned deposits of shell works for the construction of causeways, ramps, or mounds

Earth and shell middens (13)--Shell content may be 40 to 70 percent of total bulk

Black dirt middens (47)--Black soil deposits with less than 25 percent shell material

Canals (2)--Man-made or altered natural water passageways

Burial mounds (8)--Burial mounds or burial sites, eroding from the lower levels upward



URE 15

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III. Environmental Impacts of the Proposed Action

The environmental impacts of the proposed wilderness designation are small because the park's terrestrial and semiterrestrial ecosystems create a self-perpetuating wilderness condition into which man intrudes only at considerable risk. Existing restrictions on public access and use of undeveloped lands reinforce the wilderness state. There is very little wilderness use now, except at established backcountry sites, and the proposal would merely protect the status quo. Management objectives for the park emphasize preservation of its wilderness quality, and there is little likelihood that these objectives will change appreciably in the near future. Compared to current management status, wilderness designation provides greater assurance of long-term protection to parklands from future public pressures for alternative uses and from the tendencies of park managers and elected officials to accommodate these pressures.

Because wilderness designation often entails elimination of incompatible uses, the potential wilderness additions have significant environmental impacts. However, such impacts are generally local and of relatively minor significance.

Following is a discussion of the known probable environmental impacts of the proposal on various components of the environment.

A. Impacts on Park Management Activities

The short-term impacts of wilderness designation on park management should be minimal. All proposed wilderness units are now managed as primitive areas and will continue to be so managed following wilderness designation. Terrestrial motor vehicles and motorized equipment are not normally used in the management of these areas; preclusion of such uses therefore is not likely to have much immediate effect upon their management. In a few places, short backcountry roads will be closed (i.e., the Flamingo-Lake Ingraham road, and several roads east of Snake Bight Canal), but these unimproved roads are seldom used for park management; the short-term impacts of their closure should be negligible.

Administrative use of airboats will be permitted only where such use is necessary for emergency rescue, law enforcement operations (particularly for control of poaching), access to water gaging stations and other research sites, and essential resource management operations

for which no alternative mode of transportation is possible. At present, airboats are the only feasible mode of access into the interior glades during the rainy season and are regarded as the "minimal" transportation method to facilitate the aforementioned essential park management operations. Since public use of airboats is already precluded, wilderness designation would have no effect on this use. Administrative use of airboats on the 105 miles of airboat trails will be subject to consideration of whether such use represents the minimal method of implementing a particular management objective. Wilderness designation will necessitate constraint on the administrative use of airboats; this constraint will probably result in fewer airboat runs and reduction in the total disturbance caused by these vehicles. Impairment of management operations is likely to be negligible.

The administrative use of helicopters and airplanes over wilderness areas for essential research and management purposes will not be curtailed. Bird census work and other animal surveys, which are essential to our understanding of the Everglades ecosystem, require the use of aircraft as the only feasible means of procuring the needed information. Certain patrols, photographic missions, and research studies require that aircraft be used. Such projects will not be restricted as a result of wilderness designation.

B. Impacts on Park Research Activities

Impairment of research by restrictions on the most efficient motorized methods of transport or access to research sites, by prohibition of construction of permanent and semipermanent research facilities, and by limitations on research methods that may be employed in wilderness areas may make certain research more difficult and more expensive, thereby helping to perpetuate existing informational voids. These limitations could be particularly significant in impeding the conduct of a comprehensive inventory of historical and archeolcgical resources as required by Executive Order 11593 ("Protection and Enhancement of the Cultural Environment"). Failure to complete such an inventory in the near future could result in deterioration of hitherto undocumented resources, thereby diminishing their scientific and interpretive value.

C. Impacts on Public Access and Circulation

Implementation of the wilderness proposal will impose very minor restrictions on access and circulation by motorized vehicles. Motor vehicles will no longer be used

on several miles of primitive roads (e.g., Flamingo-Lake Ingraham road and several small roads east of the Snake Bight Canal). Agricultural roads in the Hole-in-the-Donut that are included in potential wilderness additions will no longer be open to motor vehicles after these lands are added to the wilderness area. Although these road closures will impede vehicular access to limited areas, they will have negligible impacts on visitor activities and park management operations because the roads are very seldom used for such purposes.

Public use of airboats for access to the interior of the sawgrass glades is now prohibited and will continue to be prohibited after wilderness areas are established.

Prohibiting motorboat use on several lakes within the area proposed for immediate wilderness designation will not influence this activity appreciably because most of these waters are inaccessible or nearly so.

Motorboat use on surface waters of Florida Bay, the Gulf of Mexico, and the seaward portions of marine and estuarine waterways will be unaffected by the proposed recommendation.

D. Impacts on Coastal Navigation

No major waterways that are essential for coastal navigation have been recommended for wilderness or potential wilderness additions. The proposal therefore will have no impact on the major navigable channels and open waters of Florida Bay and the Gulf of Mexico that are located within the park boundary.

E. Impacts on Air Traffic

The wilderness proposal will have no immediate effect on air traffic patterns over the park. However, it may someday be desirable to restrict the use of private and commercial aircraft over the wilderness areas in order to preserve a high quality experience for the wilderness user. The park is substantially south of major flyways to Miami; hence, the impacts of inconvenience and added operational expense associated with avoidance of the park's air space will remain unimportant in the foreseeable future.

F. Impacts on the Natural Environment

1. Impacts on Water Resources

Wilderness designation will favor long-term perpetuation of the park's internal hydrological regime, but will have no impact on the amount and quality of water delivered to the park from the water conservation districts to the north. Water development projects for navigation, irrigation, water supply, or flood control will not be allowed in the wilderness area. Such projects are not permitted in the park under present administrative policies; wilderness designation will add a greater element of permanence to the restrictions.

Marshes are known to absorb large quantities of pollutants from surface waters, thereby improving the chemical quality of water passing through the ecosystem. The wilderness recommendation will ensure that the value of the vast sawgrass glades as a pollution filter will be preserved. The beneficial effects of the pollutant removal process on the ecological productivity of the South Florida estuaries likewise will be perpetuated.

Increased use of the backcountry following legislative designation of wilderness could result in local sanitation problems and possible water pollution in the event the limited backcountry facilities (i.e., only 22 campsites in the park) could not meet the demand. The direct impact of this potential trend would be a degradation to the quality of the environment in certain local areas, leading to a possibly undesirable perturbation in the species composition of these areas. However, restrictions on access and use of backcountry areas would reduce the adverse impacts of such pollution to negligible levels.

2. Impacts on Vegetation

Wilderness designation will provide the long-term protection of wilderness status to representative portions of all major wetland and upland plant communities in the park. Wilderness Unit 1 contains good examples of pine woodland, sawgrass everglades, mangrove, and--in the sawgrass matrix and in Florida Bay--various types of tree islands populated by tropical West Indian hardwoods and temperate zone species. Unit 2 contains numerous examples of hammock forests and bay heads, salt marshes, sawgrass everglades, cypress islands, and cypress swamps, as well as an unusual salt prairie community between Cape Sable and the Snake Bight Canal, and the most extensive mangrove swamps in the United States. Unit 3 contains the most extensive

undisturbed stand of slash pine remaining in South Florida. Unit 4 includes the vast turtlegrass flats of Florida Bay, as well as other benthic plant communities, which collectively provide diverse habitats for the perpetuation of marine, estuarine, and terrestrial wildlife that depend directly or indirectly on these primary producers.

Following legislative authorization of wilderness, these terrestrial and marine plant communities will be permanently protected from disturbance or destruction due to construction of roads, park developments, public use of motorized vehicles, and intensive recreational use. In the short term, wilderness designation will not result in a greater level of resource protection because there are no plans for development and use which would entail damage to vegetation in the proposed wilderness areas. However, in the long term, wilderness designation will provide a much greater degree of insurance that plant communities are not disturbed as a result of changes in National Park Service administrative policies or public pressure to provide for additional park development or more intensive recreational use.

3. Impacts on Wildlife

The wilderness recommendation would result in long-term preservation of suitable habitats for the perpetuation of at least 18 threatened, endangered, or peripheral species (see table 4), as well as numerous other species abundant in the Everglades but relatively uncommon elsewhere. Three species known to occur in the proposed wilderness (Everglades mink, Florida grasshopper sparrow, and the tidewater silversides) are possibly threatened or endangered, but sufficient information is not yet available to determine their status.

Wilderness Unit 1 contains major nesting and roosting sites of the wood stork, great white heron, roseate spoonbill, reddish egret, brown pelican, white ibis, Louisiana heron, bald eagle, osprey, and white-crowned pigeon. Many of these species are rare or endangered. Several of the prime avian habitats are located on keys in Florida Bay, all of which are included within the proposed wilderness.

Preservation of known and potentially suitable habitat for the American crocodile will be a major beneficial impact of the wilderness proposal. Widespread in various areas of the West Indies, this species is at the northern limit of its range in this part of Florida Bay. The park's prime nesting sites of the American crocodile

near Joe Bay, Little Madeira Bay, and Russell Key, as well as the principal feeding grounds in nearby rivers flowing into Florida Bay (i.e., Taylor River, Davis Creek, Mud Creek, McCormick Creek, etc.) are all included in wilderness. Even these areas are already managed as primitive lands and are not subject to ecologically disruptive uses. A significant beneficial long-term effect of the wilderness proposal is preclusion of future development, motorboating, or other uses incompatible with wildlife protection.

Wilderness Unit 2 contains major rookeries for the rare wood stork (eastern part of Lane Bay/Hells Bay area near Whitewater Bay, and Rookery Branch at extreme headwaters of the Shark River), nesting habitat for the rare and endangered Cape Sable sparrow in a small cordgrass area near Cape Sable, and nesting habitats at Cape Sable and Highland Point for the now rare loggerhead turtle.

Restoration and perpetuation of natural ecological conditions on inholdings that now support development and/or ecologically incompatible uses will result in improved habitat for the park's wildlife after these lands are acquired and accorded wilderness status. In the park's Northwest Extension, private inholdings now may serve as bases for poaching of alligators and other wildlife. Acquisition of these inholdings, removal of development, and application of wilderness designation should reduce poaching by an unknown amount.

Wilderness Unit 3 will preserve an extensive stand of slash pine and the wildlife utilizing this habitat. Restoration of the agricultural lands in the Hole-in-the-Donut may increase the acreage of pineland in the park. Subsequent wilderness designation for these lands would provide an extra measure of long-term protection for the increased populations of pinelands wildlife.

Wilderness Unit 4 includes large turtle-grass flats and tidal mud flats that provide valuable feeding habitat for wading birds. Wilderness status may require additional surveillance by park managers to ensure that damage to these wilderness bottomlands from motorboats and commercial fishing operations is held to a minimum.

Adverse impacts of wilderness designation on wildlife could result from increasing wilderness use. The publicity associated with formal wilderness designation will almost certainly increase the attractiveness of the area to backcountry users. Increasing backcountry use could entail considerable disruption of wildlife habitat in areas

now undisturbed by man. Bird rookeries are particularly sensitive to disturbance. Adverse impacts on other forms of wildlife would probably be less widespread, but could be locally significant, especially near backcountry campsites.

4. Impacts on Aquatic Biota

Implementation of the wilderness proposal will have a substantial long-term beneficial impact on aquatic biota. Inclusion of almost all the park's marine bottomlands in wilderness will help ensure that the high ecological productivity of these habitats is maintained. Wilderness designation for most of the park's sawgrass everglades will help maintain estuarine water quality by preserving the marshes as ecological pollution filters. The long-term benefits to estuarine and marine life should be substantial.

Inclusion of several land-locked lakes in Unit 1 will preclude use of these waters for motorboating, commercial fishing, and intensive recreation. The probability of impairing the long-term productivity of these brackish water habitats from in-park activities will therefore be reduced.

The labyrinth of mangrove-lined waterways along the Gulf coast contains grazing and breeding habitat for the endangered Florida manatee, or sea cow. This large herbivorous mammal, which is harmless to man, is often injured or killed as a result of encounters with motorboat propellers and poachers (the animal has no commercial value, but is extremely vulnerable because of its large size and relatively sluggish movements). Manatees are often seen in the labyrinth of mangrove waterways between the Shark River and Whitewater Bay. Inclusion of the marine bottomlands of this area in wilderness will provide an extra measure of protection to part of the habitat of this animal, but will not prevent damage to the animals from motorboat use, which will still be allowed on the nonwilderness surface waters. Increased management surveillance will be needed to detect violators and ensure adequate protection of the park's manatee population.

If backcountry use increases following formal designation of wilderness, pollution from solid and sanitary wastes could degrade water quality, which could result in adverse changes in species composition and reduced species diversity of aquatic communities. Impacts would be local and confined largely to the vicinity of backcountry campsites. Increased use of motorboats to provide access to wilderness areas could increase erosion of the banks of

canals and waterways, causing siltation, increased turbidity, and a decline in ecological productivity. Motorboat users attempting to get to primitive campsites on the keys in Florida Bay may cause physical damage to marshes, mud flats, and turtlegrass beds.

G. Impacts on Aesthetic Quality

The long-term protection of the natural environment will have a beneficial impact on aesthetic quality. Major portions of the park's landscape will be more firmly protected against development and environmental manipulations that would adversely impact the visual environment. However, essential management actions that may entail an adverse visual impact on the landscape, such as controlled burns, will still be allowed following wilderness designation. Increased use of the backcountry may result in small deposits of trash, damage to vegetation, and local water pollution, which could have a locally adverse impact on the quality of the visual environment. Routine management procedures should be adequate to reduce these adverse visual effects to negligible levels.

H. Impacts on Visitors

Visitors will remain confined to existing use zones and corridors; the remaining lands and the experiences they could potentially provide will be inaccessible, as at present, to all but a few backpackers who have the motivation and physical stamina to venture out into the insect-infested and potentially perilous glades.

The wilderness proposal will have almost no effect on the use of motorboats on the park waterways, many of which are flanked by wilderness islands and banks.

The sole significant source of backcountry air pollution will therefore not be eliminated. The wilderness users will be subjected to the smell of exhaust and oil. The disruptive effects of motorboat noise on the atmosphere of wilderness solitude likewise will still be present to degrade the visitor experience. The severity of these effects will depend on the sensitivity of the individual visitor.

Proposed Wilderness Units 1, 2, and 3 will permanently restrict use of most of the park's terrestrial and semiterrestrial environments. If use of the park increased substantially, crowding--particularly during the peak winter-use season--could contribute to progressive degradation of the visitor's experience. More people and

vehicles in the existing use areas would tend to deter use of these areas by wildlife, thereby removing from the visitor's perception the very subject he may have come to see.

I. Impacts on Park Development and Recreational Use

The wilderness recommendation for Everglades National Park precludes future development in much of the park before the ultimate need for additional development or the park's ecological carrying capacity has been determined. The recommendation includes lands of variable ecological value, some of which might be used to accommodate future increased visitation with minimal adverse ecological impact. The wilderness recommendation precludes development of such lands.

Dispersion of future visitors to additional locations, particularly near the park's periphery, might be difficult if not impossible to accomplish. Everglades National Park contains very little development and is located adjacent to the nation's eighth fastest-growing metropolitan area. The designation of a large wilderness area within the park will limit the amount of land potentially available for development to serve increasing demand for recreational use. Developable land is already very limited due to intrinsic environmental characteristics. Regulation of the number of visitors using park facilities, by a permit system or other means, might eventually be required if adequate land outside the wilderness area is not available for recreational use and development. Similarly, restriction of public use in the wilderness area itself may become necessary if the number of people desiring to use the Everglades backcountry continues to increase. Such use restrictions, if implemented, would limit the opportunities for enjoyment of park resources during times of the year when demand is greatest (late autumn and winter) while, at the same time, preserving the quality of the experiences that remain available. The adverse effect of restrictions on visitors prevented from enjoying certain recreational activities would be unavoidable. Similarly, use restrictions would also have an undetermined depressing effect on the South Florida tourist economy, in which the park plays an important role.

Redevelopment of interpretive facilities in suitable new locations may be impossible if existing facilities and their related natural communities are destroyed by fire, hurricane, or other causes, and if other potential sites are included in wilderness.

The proposal recommends most of the Hole-in-the-Donut as a potential wilderness addition before initiation of any studies to evaluate the optimal use(s) of these lands. Future development in these areas would violate the expressed intent to classify them as wilderness, pending elimination of incompatible uses.

Existing recreational use of the park's backcountry, particularly by wilderness clubs and societies, may increase as a result of wilderness designation. The publicity associated with the wilderness proposal will increase public awareness of the unique experiences the Everglades wilderness provides. In anticipation of future increases in backcountry use, the park's master plan proposes an increase in the number of primitive campsites from 22 to 45 (see table 2). The twofold increase in the capacity of the backcountry to provide for overnight camping will allow for a similar increase in existing recreational activities: canoeing, fishing, sightseeing, and nature photography. Additional boat rentals of both motorized and nonmotorized craft will probably have to be provided to accommodate increased public demand for access to the backcountry. The overall impact of the wilderness proposal and the additional backcountry development proposed in the master plan should be beneficial. More visitors will be able to experience the unique Everglades wilderness in an environment permanently protected from the adverse influences of motor vehicles and other evidences of man's technology.

The use of motorboats on nonwilderness surface waters to gain access to the wilderness backcountry may increase following formal wilderness designation.

I. Impacts on Commercial and Sport Fishing

The proposed wilderness recommendation will have almost no effect on commercial and sport fishing in the park's marine waters, as these areas are excluded from wilderness. Most of the lakes included in Wilderness Unit 1 are landlocked and not accessible to motorboats; waterways in the wilderness are typically too shallow and too narrow to facilitate motorboat use. Existing regulations pertaining to both commercial and sport fishing will be unaffected by the proposal.

The long-term effect of wilderness on these activities is difficult to predict. If an adequate surveillance system was developed, individual activities that have damaged or may damage the wilderness bottomlands would be detected more readily, and increased prosecution of

violators would tend to reduce violations and improve the long-term stability of the benthic wilderness. Activities that result in documented damage to, or reduced productivity of, the benthic habitats would be restricted administratively. It might even become necessary to restrict use of surface waters in order to protect the bottomlands. If commercial fishing was restricted at some time in the future, economic losses would depend on the percent of the total catch foregone. Current estimates place the annual commercial take at as much as a pound of fish per acre, although 0.5 pound of fish per acre is considered an average annual catch. If sport fishing was restricted, the principal impact would be inconvenience to individual fishermen who might be prevented from using their preferred fishing grounds.

K. Impacts on Local Economic Development and Tourism

The wilderness proposal will entail negligible short-term impacts on local economic development and tourism. Most of the proposed wilderness area and potential wilderness additions are either permanently or seasonally inundated and are therefore unsuitable for most types of recreational development. About 25,000 acres in the Hole-in-the-Donut, mostly former agricultural lands, have been designated as potential wilderness Unit 1 additions, to be added after determination by the Secretary of the Interior that they qualify for wilderness status. Wilderness designation would preclude development of this area and reduce economic benefits to the local economy associated with increasing the value of the park as a major regional recreation center.

The publicity associated with wilderness designation may result in substantially increased backcountry use, but the actual increase in the number of tourists to the region should be negligible. Backcountry users of the park will always comprise a small percentage of the total visitation because of the harshness and inaccessibility of the wilderness. The impacts of small numbers of backcountry users on the natural environment may be significant, but their impact on the local economy is small.

Proposals for establishment of a major commercial jetport near the park have been advanced, although none is currently considered active. The construction and operation of a large jetport in the Everglades north of the park would result in substantial degradation of the wilderness environment from sonic booms

and air pollution, as well as interference with natural drainage patterns and impairment of water quality as a result of the development which the facility would promote. The substantial risk of degrading a major wilderness area would probably increase the level of public opposition to construction of a jetport near the park should such a proposal be revived. The impacts of such opposition on the economy of the region are impossible to predict.

L. Impacts on Military Operations

The establishment of the proposed wilderness will have no impact on the operations of the United States Army, which operates a missile base in the Hole-in-the-Donut under a special-use permit from the National Park Service.

M. Impacts on Mineral Development

The wilderness proposal will have no significant immediate effect on the development of mineral resources that may be present in the park because exploration and production are prohibited by existing administrative policies for natural areas of the National Park System and legislatively derived policies for the park. About 65,000 acres of privately held mineral rights remain to be acquired before the proposed wilderness areas in the park's Northwest Extension and the Hole-in-the-Donut can be established. However, administrative prohibition of exploration and production will be enforced after the rights are acquired, regardless of whether wilderness is designated. Wilderness designation itself therefore has no immediate impact on the exploitability of the park's mineral resources, mineral rights, and royalty production rights.

Wilderness designation, however, entails an essentially permanent prohibition on exploration and production, which in this case is redundant in view of the purpose of the park (i.e., to preserve ecosystems in a primitive state) and National Park Service administrative policies. Knowledge of the park's mineral resources, particularly potential oil and gas reserves, will remain inadequate. Exploration to determine whether the commercially exploitable resources exist will never be undertaken, unless by some sophisticated and as yet undeveloped remote sensing technique.

N. Impacts on Historic and Archeological Resources

Pursuant to Executive Order 11593 and the Historic Preservation Act of 1966, the criteria for effect for sites listed on the National Register of Historic Places or eligible for addition as described in the Federal Register of February 28, 1973, have been applied. It has been determined that the wilderness proposal will have no adverse impact on these sites. The proposal will not result in the transfer, sale, destruction, or alteration of any potential National Register property in the park. The Florida historic preservation officer has been consulted and concurs in this evaluation. (Comments included in appendix.)

O. Impacts of Outside Influences on Wilderness Values

The progressive urbanization of South Florida and the associated manipulation of the natural environment pose potential threats to the ecological integrity of the park. Progressively intensifying agriculture in central and southern Florida, implementing drainage works to facilitate development, and increasing in the amount of water used to support agriculture and development all entail potentially serious adverse impacts on the supply of life-giving water to the park. The changes in regional land-use patterns and their implications for the park are discussed in sections II.C.2. and II.D.3. of this statement.

As the level of development in South Florida continues to increase, the park will become more valuable as a regional recreational resource. Use of the wilderness will increase at a currently undeterminable rate. In view of the limited capacity of the wilderness to support recreational use (particularly overnight camping), restrictions may eventually have to be implemented in order to limit environmental degradation and maintain a high quality wilderness experience for backcountry users. Such restrictions will inconvenience some visitors. Increasing recreational use of lands and waters adjacent to designated wilderness areas will be more difficult to control. The sound, sight, and smell of motorboats may become progressively more perceptible to wilderness users.

Deterioration of air quality as a result of urbanization would degrade the wilderness experience. Noise associated with the increased use of private and commercial aircraft would also impair the atmosphere of wilderness solitude unless agreements to limit such use over the wilderness areas could be negotiated.

VI. Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Addition of the Everglades wilderness to the National Wilderness Preservation System will provide maximal protection to a unique tropical ecosystem complex. Long-term ecological productivity will be enhanced, provided the restrictions of wilderness designation do not impede the efficient conduct of research or necessary management actions.

As South Florida becomes more urbanized, the value of wilderness and the spiritual enrichment it provides will increase, although perhaps not as much as in other national parks. The Everglades wilderness will remain foreboding. The heat, humidity, difficult terrain, insects, and various other natural hazards will continue to limit use and may, in the opinion of certain individuals, seem to impair the value of the wilderness experience. Because these hazards are part of the natural scene, however, they are a real part of the wilderness experience, though they may seem unpleasant.

The proposed wilderness should have little effect on regional economic growth. The proposed level of wilderness development will not accommodate many visitors and it is unlikely that the expenditures of wilderness users will stimulate the regional tourist industry appreciably. In fact, recreation-oriented expenditures per unit of time would probably be greater in most other recreational areas of South Florida. Indeed, preclusion of future park development--particularly in peripheral areas--may result in substantial loss of potential stimulation of the regional economy.

VII. Irreversible and Irretrievable Commitment of Resources

Wilderness designation precludes utilization of nonrenewable resources, hence there are no irreversible resource commitments.

Alternative uses of the land, and the economic and social benefits derived therefrom, will be irretrievably lost for as long as the proposal is in effect.

VIII. Alternatives to the Proposed Action

A. No Action

Description: Under this alternative, no wilderness would be designated.

Impacts: Failure to designate wilderness areas would have little immediate effect on the management of Everglades National Park. Backcountry use would continue to be restricted by using the existing permit system to regulate use of facilities. Needed research would still be conducted with limited restrictions on research methods to reduce adverse environmental impacts. About 15 miles of roads in the proposed wilderness would still be used occasionaly by park management personnel. In accordance with provisions of the master plan, no substantial new park development would be constructed in the foreseeable future.

Failure to authorize wilderness designation as recommended would eliminate the costs and negate the benefits of the proposal, as outlined in section III of this report. Several benefits of no action can be recognized. Additional restrictions that wilderness designation places on management and researchers would be eliminated. In the latter case, the efficient conduct of research would not be impeded by limitations on research methods and the construction of necessary facilities. Future development to accommodate increased visitation could be constructed in ecologically compatible locations, particularly near the park's periphery. Increased use of the Everglades wilderness, which the formal wilderness designation might promote, would be eliminated, along with the previously defined environmental costs of such use. However, the protection of natural resources that wilderness designation provides would be foregone--a significant environmental cost. Road construction, development of other permanent facilities, and mineral extraction (such as oil drilling), which might occur in the proposed wilderness area, could threaten ecological stability and impair its wilderness value.

Without wilderness legislation that directs park managers and public officials to maintain a large part of Everglades National Park free from development and ecological disruption, the long-term future land use of the proposed wilderness areas would remain uncertain.

B. Classify All Open Waters and Navigable Waterways as Areas to be Considered for Future Wilderness Designation

Description: This proposal was considered as a means of including in wilderness portions of the park's navigable marine waters now excluded from this category. These waters are not now suitable for wilderness designation because the potentially incompatible uses of motorboating and commercial fishing cannot be rigidly restricted within them. They may be suitable for designation as wilderness pending development of an enforceable zoning plan, as recommended in the master plan. Unfortunately, much information on the ecological compatibility of various uses in marine waters must be developed before specific use zones can be defined. Therefore, it is impossible to determine where to prohibit these uses.

Impacts: The alternative would legislatively commit the National Park Service to conduct necessary studies of the park's open marine waters to determine the ecological compatibility of various potential uses. The results of these studies would form the basis of the zoning plan. At this time, additional legislation would be sought to expand the existing wilderness area to include the new areas.

The alternative would entail no direct impacts, as only studies of the effects of various potentially incompatible uses would be required. In the event the studies determined that certain activities were having adverse ecological effects on aquatic biota, use restrictions would be implemented and wilderness designated where appropriate.

Restriction or elimination of documented incompatible uses from important habitats would improve the stability of these habitats. Subsequent wilderness designation would simply add an extra measure of long-term protection. Wherever existing activities are restricted, inconvenience and, in the case of commercial operations, economic cost to affected interests would result. The magnitude and significance of these impacts would be impossible to determine before a zoning plan was developed.

C. Additional Areas Considered for Potential Wilderness Additions

1. All Marine Surface Waters Except for Recreational Corridors and Essential Access Waterways

Description: Designation of all navigable marine waters, except for major recreational corridors and essential access waterways, as potential wilderness additions (all navigable waterways on the Gulf coast, Big Lostmans Bay, Rogers River Bay, Houston Bay, Chevelier Bay, Alligator Bay, Second Bay, Snake Bight, Rankin Bight, Santini Bight, Oyster Bay, Whitewater Bay, Madeira Bay, Blackwater Sound, and all other waters not specifically excluded for recreational motorboat use) was considered to provide maximal protection to the park's marine ecosystems (figure 2). All incompatible uses would be prohibited. Commercial fishing would be eliminated from the park and motorboating restricted to designated use-corridors outside the wilderness area.

Impacts: This alternative would eliminate consumptive use of marine biotic resources. The productivity of marine and estuarine ecosystems presumably would increase upon removal of the disturbance. A long-term research effort to monitor changes in natural ecosystems after elimination of these uses and to evaluate other natural and cultural factors that influence ecological productivity could be initiated.

Prohibition of all commercial fishing would entail significant economic costs to fishermen, shellfishermen, and interests that operate charter sport fishing boats. Actual economic losses would depend on the success of efforts to relocate these activities.

Restriction of motorboat use to recreational use corridors (near Everglades City, Flamingo, Key Largo, and in cross-bay channels) would inconvenience many motorboat users. Many good fishing areas and most prime wildlife habitats would be off-limits to motorboats and the diversity of potential recreational experiences would be reduced. Crowding in established corridors might occur eventually and force implementation of a permit system, with its attendant social costs. Restrictions on motorboat use, if severe, could result in undetermined economic loss due to declines in boat rentals, boat sales, and sales of recreational equipment.

The opposition of motorboat clubs and private boat owners to such restrictions would be strong, and violations (both intentional and inadvertent) of regulations would be difficult to detect using park personnel and equipment. Helicopter patrols, satellite surveillance, or other remote sensing techniques might some day be available for enforcement of use restrictions, but would not now be feasible methods.

It was determined that large-scale prohibition or restriction of commercial fishing and motorboat use at this time would be premature in view of the need for additional data on the effects of these activities. The motorboat is necessary for safe access to the park's wilderness and prohibition of its use now in certain places might preclude later development of ecologically compatible motorboat access corridors to wilderness areas. Commercial fishing may have negligible adverse effects in certain waters and its prohibition therefore would be unwarranted.

2. Mangrove-lined Waterways North of the Broad River

Description: The labyrinth of inland mangrove-lined waterways north of the Broad River in the park's Northwest Extension provide prime feeding for many shorebirds and marine life. Some of these waterways would be suitable for wilderness designation if motorboating and commercial fishing were eliminated as has been recommended in certain waters south of the Broad River. The acquisition of 18,000 acres of small private inholdings and subsequent elimination of incompatible uses thereon has enhanced the suitability of this area for wilderness designation (including Broad River, Broad River Bay east to Camp Lonesome, Rogers River Bay, Big Lostmans Bay, First Bay, Lostmans River, Second Bay, Toms Creek, Third Bay, Onion Bay, Gopher Creek, Mullet Bay, Two Island Bay, Lostmans Five, Lostmans Five Bay, Plate Creek Bay, Dads Bay, Alligator Creek, Tarpon Bay, Cannon Bay, Chevelier Bay, Chatham River, Storter Bay, Huston River, House Hammock Bay, Last Huston Bay, Huston Bay, Oyster Bay, Sunday Bay, Crooked Creek, Lopez River, Cross Bay, Shoal Mud Bay, Hurddles Creek, Turner River, Ferguson River, and the recreational corridor in Chokoloskee Bay south of Everglades City).

Gopher Creek currently defines an approximate boundary between two different use zones (figure 3). South of the waterway, commercial fishing is prohibited, known violations are infrequent, and use of the area for all purposes is relatively light as far south as the Harney River. However, commercial fishing is allowed

north of the creek. Use is well-established, but light. Poaching of wildlife, particularly alligators, occurs primarily in this zone.

The region north of Broad River is served by four permanent rangers, who have principal responsibility for enforcing park regulations.

Impacts: If wilderness designation was applied to this area, motorboating and commercial fishing (north of Gopher Creek) would be prohibited. Inconvenience and, in the case of commercial operations, economic cost to official contacts would occur. The magnitude of impact would be low, but has not been quantified. Because both uses are long-standing in this area, violations of restrictions might be frequent and patrol difficult.

3. Whitewater Bay and Oyster Bay

Description: Restriction of motorboat use would permit wilderness designation for all or most of the Whitewater Bay and Oyster Bay. This alternative might require the establishment of a backcountry ranger station in Whitewater Bay. The station would facilitate use of this otherwise inaccessible area by providing information to backcountry boaters and possibly boat and sailboat renters. Most of the bay system would be included in wilderness in the event the ranger station was authorized. A mobile house-boat type ranger station has also been considered to provide for essential backcountry patrols. A motorboat-use corridor between the ranger station and Flamingo would be excluded from wilderness. Canoes and other nonmotorized craft launched at the ranger station would be used to explore the backcountry. Without the ranger station facility, access to the bays is so difficult that a reasonable level of wilderness use would be precluded.

Whitewater Bay and Oyster Bay provide excellent opportunities for sailing and backcountry canoeing, as well as habitats for birds and marine life. Some species--like the manatee which inhabits waterways surrounding the bays--are quite rare. No commercial fishing is authorized.

Impacts: This action would preserve the ecological integrity of the park's largest inland bay system, but would limit enjoyment of the wilderness environment by restricting motorboat use to a small access corridor between a backcountry ranger station and Flamingo. Although more protected than Florida Bay, Whitewater Bay can be hazardous during sudden squalls. This fact, along with

the impracticality of long backcountry trips without a motorboat, would tend to confine backcountry boating to the immediate vicinity of the ranger station. Most of the rest of the bay would be unavailable to most visitors.

4. Surface Waters and Turtlegrass Flats in Florida Bay

Description: Extensive mud banks and sea grass flats in Florida Bay are the prime feeding habitats for most of the park's shorebirds and are proposed for wilderness designation. Most of these areas are remote and are visited rarely by park visitors (although use by commercial fishermen is locally significant). The mucky substrates have traditionally restricted travel. However, these environments are flooded at high tide and are becoming progressively more accessible as boats with shallow-draft hulls and special motor design for shallow waters become increasingly popular. Lack of present restrictions on motorboating and commercial fishing precludes the immediate designation of these surface waters as wilderness. Because navigability is often marginal and boaters usually attempt to avoid very shallow areas, preclusion of ecologically incompatible uses would not inconvenience these individuals appreciably and would not entail significant economic losses. The waters could therefore be included in wilderness without appreciable risk of environmental degradation due to intentional or unintentional violation of wilderness use restrictions. If violations became frequent, appropriate patrol and enforcement procedures would have to be initiated. Such enforcement would be difficult in view of the remoteness of many areas, the absence of suitable access for patrol craft, and the limited number of park staff available to perform this function. These areas were considered suitable for possible designation as potental wilderness additions, to be added if and when commercial fishing and motorboating were eliminated.

Impacts: Elimination of commercial fishing from these waters would entail an undeterminable economic loss to commercial fishing and shellfishing interests. Elimination of motorboating would inconvenience those who use these waters for fishing, shellfishing, and access to isolated islands. Because the ecological effects of these uses remain speculative and have never been quantified, their elimination at this time would not be supported by adequate guidance from scientific studies.

Preservation of shallow waters above these estuarine flats as wilderness would have obvious beneficial effects on wildlife due to reduced habitat disruption. Bird

rookeries on the Florida Bay keys and important feeding areas for shorebirds would receive less disturbance. Increased population size of these and other animals should result. Wilderness designation for these areas would effectively zone portions of the bay where natural conditions contribute substantially to enforcement of the use restrictions.

D. Legislative Provision for Motorboat Use

Description: Motorboats are essential for visitor safety in backcountry aquatic areas and are the only feasible means of access to many locations. A provision in the legislation for this use was suggested to increase the diversity of potential visitor experiences and to facilitate inclusion of additional waters in wilderness. If motorboat use was permitted, most waters where commercial fishing is prohibited would be suitable for wilderness designation. Whitewater Bay, Oyster Bay, Coot Bay, Lake Ingraham, West Lake, Snake Bight, Rankin Bight, Santini Bight, Madeira Bay, Little Madeira Bay, Joe Bay, and backcountry access canals could be included in the wilderness recommendation.

Impacts: The above areas, and such additional waters as qualify, would be given the protection of wilderness status without precluding their use by most park visitors. However, use of motorboats in the backcountry would entail increased disruption of natural environments due to noise, erosion, siltation, and disturbance of bottom sediments and benthic biota. The acceptable levels of these sources of environmental pollution have not been determined for the specific waters that might be designated wilderness. The alternative therefore could entail potential ecological disruption in areas where the effects of motorboat use are still poorly known.

IX. Consultation and Coordination With Others

A. Consultation and Coordination in the Development of the Proposal and in the Preparation of the Draft and Final Environmental Statements

1. Consultation and Coordination in Preparing the Draft Document

The draft environmental statement was prepared between October 1972 and January 1973 and revised as a final environmental statement in July 1974 by the Office of Research and Consulting, Denver Service Center, National Park Service.

The following were consulted during preparation of the wilderness recommendation and draft environmental statement.

Dr. Taylor R. Alexander, Professor of Biology, University of Miami, Miami, Florida

Mr. Wayne Cloward, Wilderness Coordinator, U.S. Department of Agriculture, Forest Service (Atlanta)

Dr. Frank C. Craighead, Ecologist, Naples, Florida

Mr. Noland L. Durre, Agricultural Extension Agent, Dade County Agricultural and Home Economics Department, Homestead, Florida

Mr. John Eddie, Wilderness Coordinator, U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife (Atlanta)

Mr. Robert Gibbs, Project Coordinator, South Florida Environmental Project

Dr. Ronald Hofstetter, University of Miami, Miami, Florida

Mr. Woody Oglesby, Geologist, Bureau of Geology, Florida State Department of Natural Resources, Tallahassee, Florida

Dr. Durbin C. Tabb, Marine Sciences Institute, University of Miami, Miami, Florida

Mr. Steven Windhan, Geologist, Bureau of Geology, Florida State Department of Natural Resources, Tallahassee, Florida

2. Consultation and Coordination in Preparing the Final Document

Public hearings on a proposal to establish two wilderness units in Everglades National Park and its associated statement were held at Homestead and Naples, Florida, on May 22 and 23, 1974, respectively. The Homestead meeting, held in the Dade County Agricultural Center, had 140 people attending; 34 oral statements were presented. The Naples hearing, held at Poinciana Elementary School, had 60 people present; 19 oral statements were made.

Most conservation organizations and conservation-oriented individuals supported the National Park Service proposal, although several recommended more wilderness. The following areas were specifically recommended for inclusion in wilderness: (1) submerged marine lands including the mud banks in Florida Bay, (2) pinelands north of Hole-in-the-Donut, (3) private inholdings, (4) U.S. Army missile site, (5) Buttonwood Canal/Bear Lake road, (6) crocodile water habitat, (7) Lake Ingraham, and (8) the Lostmans River ranger station. The final wilderness proposal includes as wilderness or potential wilderness additions most of all of the lands in categories (1) through (6). Items (7) and (8) were not included because of incompatible uses and development, respectively. Some interests recommended narrowing nonwilderness road corridors in order to increase the wilderness area slightly and preclude development of minor facilities. Under provisions of the existing proposal, development could be constructed within about 300 feet of the centerline of major roads and about 150 feet of the centerline of other roads, except where topographic features provide a more logical wilderness boundary or where more nonwilderness space is needed. These comments were considered, but the nonwilderness road corridors were not narrowed. The recommended nonwilderness corridors are sufficiently narrow to exclude development of parking lots, pulloffs, public-use structures, and management facilities. They represent zones where the adverse influence of the roads themselves (noise, pollution, visual intrusion) are of sufficient magnitude to preclude their designation as wilderness.

Several local interests opposed any wilderness in Everglades National Park. Most of these were associated with commercial fishing and motorboating. The wilderness proposal was revised to exclude all open marine waters from wilderness (9,600 acres near Russell Key in northern Florida Bay, described as a potential wilderness

addition), thereby eliminating the minor adverse effect the draft proposal would have had on these interests. The proposed wilderness recommendation provides an extra measure of permanence to existing management restrictions on motorboating and commercial fishing, but does not itself impose any new restrictions. The impact of the wilderness proposal--particularly the designation of most marine bottomlands as wilderness--on the future regulation of these activities is impossible to predict at this time.

The official record, including letters received by the hearing officer, the park, the Southeast Regional Office (National Park Service), and the Washington Office (National Park Service), has been assembled and is available for review in the Washington Office of the National Park Service.

Table 17 provides a summary of all written and oral responses received on the preliminary wilderness recommendation.

B. Coordination in the Review of the Draft Environmental Statement

1. Copies of the Draft Environmental Statement Were Sent to the Following for Review and Comment:

Federal agencies

Advisory Council on Historic Preservation
Department of Agriculture
- Agricultural Research Service
- Soil Conservation Service

Department of Commerce
- National Marine Fisheries Service
- Coast and Geodetic Survey

Department of Defense
- U.S. Army, Corps of Engineers

Department of the Interior
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Mines
- Bureau of Outdoor Recreation
- Fish and Wildlife Service
- Geological Survey

Department of Transportation
- Coast Guard
- Federal Hghway Administration

Environmental Protection Agency
Federal Power Commission

Table 17. Summary of Written and Oral Responses Received on the Preliminary Wilderness Recommendation for Everglades National Park

Recommendation	Number of Responses			
	Public Agencies	Private Organizations	Individuals	Total
Support NPS proposal	6	22	626	654
Less wilderness	1	2	567	570
More wilderness	3	33	415	451
No wilderness	0	1	16	17
Wilderness, no specific recommendation	1	1	111	113
No specific comment (acknowledgment received)	4	1	47	52
TOTAL	15	60	1,782	1,857

State Agencies

Florida Clearinghouse
Florida Historic Preservation Officer

Other

Collier County Executive Office
Dade County Executive Office
Miccosukee Indian Community Council
Monroe County Executive Office

2. Informational Copies of the Draft Environmental Statement Were Sent to the Following:

Organizations

Audubon Society
Collier Nature Conservancy
Everglades Jetport Advisory Board
Everglades Natural History Association
Everglades Park Company
Friends of the Earth
Friends of the Everglades
Izaak Walton League, Mangrove Chapter
National Parks Association
National Wildlife Federation
Sierra Club
World Wildlife Fund

Private Individuals

Dr. Taylor R. Alexander,
Department of Biology,
Uiversity of Miami,
Miami, Florida
Dr. Frank C. Craighead,
Naples, Florida
Dr. Gordon Gunter, Director,
Gulf Coast Research Laboratory,
Ocean Springs, Mississippi
Dr. Ronald Hofstetter,
Department of Biology,
University of Miami,
Miami, Florida
Dr. Milton C. Kolipinski,
Aquatic Research Biologist,
Western Office,
National Park Service,
San Francisco, California

Dr. Durbin C. Tabb,
Marine Sciences Institute,
University of Miami,
Miami, Florida

3. Comments on the Draft Environmental Statement Were Received From the Following (a copy of the review comments from each of the following is included in appendix A):

Federal agencies

Advisory Council On Historic Preservation
Department of Defense
- U.S. Army, Corps of Engineers

Department of Interior
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Mines
- Bureau of Outdoor Recreation
- Fish and Wildlife Service
- Geological Survey

Department of Transportation
- Federal Highway Administration
- Coast Guard

Environmental Protection Agency
Federal Power Commission

State agencies

Board of Trustees of the Internal Improvement Trust Fund
Florida Department of Administration
- Division of State Planning

Florida Department of Natural Resources
Florida Department of Pollution Control
Florida Department of State
- Historic Preservation Officer

Florida Department of Transportation
Florida Game and Fresh Water Fish Commission

Other

No other written review comments were received on the draft environmental statement.

4. National Park Service Responses to Substantive Review Comments on the Draft Environmental Statement

a. Federal Agencies

Advisory Council on Historic Preservation

Comment:
In compliance with Executive Order 11593, a statement should be made indicating whether or not the proposal will affect potential National Register properties under federal control or jurisdiction.

Response:
The proposal will not result in transfer, sale, destruction, or alteration of any National Register property or potential National Register property. A statement to this effect has been included in the final environmental statement in section III.N.

Comment:
The opinion of the state historic preservation office regarding impacts of the proposal on National Register properties or potential National Register properties should be included in the final environmental statement.

Response:
The determination of the Florida historic preservation officer concurring with the National Park Service's evaluation is referenced in section III.N. of the final environmental statement and his comments included in the appendix.

Department of Defense, U.S. Army, Corps of Engineers

Comment:
The Table of Contents should include a list of tables and figures. Figure numbers should be provided on the figures themselves and the figures located as close as possible to the text reference.

Response:
These changes have been made in the final environmental statement.

exploration because National Park Service policy does not permit it.

Response:
The subject remarks have been revised to indicate National Park Service policy. Because this subject is basically description of the environment, it was placed in section II.C.1.g. of the final statement.

Comment:
The Forty-Mile-Bend field was not closed because of its depletion, but because in 1954 and 1955, it was not economical to operate. If the discovery had been made this year, the field would probably be economical to work. Other wells in the vicinity have demonstrated a porous stratum which is below the water-oil contact; commercial deposits may be exploitable if a porous stratum above the water-oil contact could be found. Certainly this area would be explored more thoroughly now if it were open for exploration.

Response:
The additional information on the Forty-Mile-Bend field has been incorporated into section II.C.1.g. of the final statement. The impact of precluding the exploration of areas in the park which were not economically exploitable 20 years ago but which might be economically exploitable today has been indicated in section III.M. of the final environmental statement.

Comment:
The reason there are no proven fields in the area is because potential fields were believed to be deeper than potential fields elsewhere. Prior to 1958, when exploration in the park ceased, the price of crude was not sufficiently high to warrant exploration in the park when less expensive exploratory operations could be conducted elsewhere. The present price of crude has greatly stimulated domestic exploration and "it is reasonable to assume that there would be exploratory activity in the park if it were permitted."

Response:
The stated reasons for not exploring the area more comprehensively before 1958 have been incorporated into section II.C.1.g. of the final statement. The impact of permanently precluding exploration in an area that might contain economically exploitable oil resources under today's market conditions is recognized in section III.M. of the final statement.

Comment:
There is potential for mineral development in the park and oil-bearing stratum has produced oil commercially from the Forty-Mile-Bend area north of the park.

Response:
The concern is reflected in the revised section II.C.1.g. of the final statement.

Comment:
"The legislation that established Everglades National Park apparently did not consider mineral exploration 'inimical' to the purposes of the park. It extends the rights of mineral owners to explore and produce until 1985 providing that if production was accomplished it could continue as long as it was economic. It was a quirk in the priorities of oil exploration in 1958 that better targets in terms of production potential lowered the priorities for exploration in this area. Congress also apparently held out as an incentive to the former owners the possibility that the Government itself might lease this land for exploration and development after 1958 by allowing the former owners to retain production royalities until 1985 should the Government lease the mineral rights."

Response:
The enabling act for Everglades National Park (48 Stat.816, May 30, 1934) indicates that the primary purpose of the park is to preserve the wilderness values of this outstanding ecological resource. Section 4 of the act reads as follows:

> The said area or areas shall be permanently reserved as a wilderness, and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive conditions now prevailing in this area (16 U.S.C. sec. 410c.).

Subsequent congressional directives have allowed for exploration and production by interests holding mineral rights and production royalties. Operations have been subject to regulation by the Secretary of the Interior in order to protect and preserve the park's fragile ecosystem complex. Although some of the early land acquisitions were purchased without acquiring mineral rights, production royalties, and other interests in land, these rights and interests are being purchased for all lands acquired in recent years. The above comments imply that exploration and mining were considered as compatible uses in a park

The effect of wilderness on recreational use should be analyzed in quantitative terms.

Response:
The long-range effect of wilderness designation on the level of visitation and visitor enjoyment of the park depend on public demand for recreation, the expectations of park visitors, and various other sociological and economic factors that cannot be quantified at this time. The proposed wilderness area is presently being managed as primitive backcountry and will continue to be managed in this way. Short-term effects on recreational use will be negligible. The impact analysis in section III.H. has been expanded to reflect possible long-term effects on public use. Additional information may be found in the section III.G.

Department of the Interior, Bureau of Outdoor Recreation

Comment:
If wilderness designation is not possible for the park's open marine waters because of the presence of motorboating and commercial fishing, alternative designations should be considered to emphasize the need to protect them. For certain waters bordering the wilderness area, consideration should be given to limiting the use of motorized craft as appropriate.

Response:
The environmental statement references a proposal in the park's master plan recommending the preparation of a comprehensive zoning plan for the park's open marine waters (see sections III.F.4., VIII.B.). This zoning plan will define appropriate uses and levels of use based on our current knowledge of the carrying capacity of the environment to support those uses. If implemented, this zoning plan would place restrictions on uses that impair the quality of the visitor experience or the diversity and productivity of ecological systems. In many areas, waters adjacent to wilderness areas presumably would serve as buffer areas where the number of motorized craft, the horsepower of motors, and the kinds of motorboat-oriented activities would be restricted.

Open marine waters providing important wildlife habitat (such as waters used by the American crocodile off Russell Key and the prime manatee habitats east of Whitewater Bay) will be subject to more intensive surveillance by park management than other less vulnerable areas. Restrictions on use will be imposed, as necessary, to protect these valuable ecological resources. It has already been

determined that boats with motors larger than 5 horsepower will not be permitted in the Hells Bay/Lane Bay area in order to reduce the likelihood of injury to the manatee, which is locally prevalent in these waters.

Department of the Interior, Fish and Wildlife Service

The Fish and Wildlife Service provided more specific acreage and status information on wilderness areas in Florida within its jurisdiction. This information has been incorporated into Section I.C.1. of the final statement. The second comment referred to the need for updating various references to endangered species to the most recent official listings. These corrections have been made in table 4 and elsewhere to reflect the listing in the Federal Register, Vol. 40, No. 188, September 1975.

Department of the Interior, Geological Survey

Comments in Letter of May 8, 1974

Comment:
The discussion of mineral resources on page 81 of the draft environmental statement needs to be expanded to include the date when the park was closed to extraction and exploration activities.

Response:
Section II.C.1.g. ("Minerals and Minerals Extraction") of the final environmental statement was expanded to include more information on the history of mineral exploration in the park.

Comments in Letter of June 6, 1974

Comment:
Existing hydrologic data stations should be maintained and new stations constructed, if needed. The mode of transportation to these sites should be indicated.

Response:
Hydrologic data stations are essential for managing the park resource. The 29 existing stations will be maintained and new stations emplaced, if needed. Access to the stations for maintenance and data acquisition will be unaffected by the proposed wilderness. If essential for park management, the use of airboats, helicopters, or other appropriate motorized vehicle will be permitted for access to the gaging stations.

Comment:
The statement should indicate that the release schedule for surface waters from the Central and Southern Florida Project to the park will be modified as required to maintain the integrity of the park's ecosystems.

Response:
Section II.C.1.b. has been revised to include this recommendation.

Comment:
It is not clear whether the proposal would foreclose stabilization of the banks of the Buttonwood Canal to prevent future erosion.

Response:
The Buttonwood Canal north of Flamingo is excluded from the wilderness area. Wilderness designation would have no effect on future proposals for bank stabilization to reduce erosion.

Comment:
The aquifer supplying water to the Flamingo development is susceptible to saltwater intrusion. In order to reduce the likelihood of contamination of the Flamingo water supply, a new well and pump station may have to be constructed east or northeast of the development at some future date. It is not clear whether the proposed wilderness would preclude the construction of this facility in the wilderness area at some future time.

Response:
This problem was considered in the development of the wilderness proposal. If necessary, nonwilderness lands along the Flamingo road corridor could be used to construct a supplemental well and pumping station. There is adequate available land so that the facility could be sited with a minimum of esthetic and ecological disruption. If necessary, water could be pumped from the headquarters area; this alternative would require construction of a pipeline along the alignment of the Flamingo road. A legislative provision to allow for construction of a well and pipeline in the wilderness area or amendment of the proposal to exclude specific lands for this purpose was not considered necessary to ensure a dependable water supply to Flamingo.

Comment:
The Canals map (figure 4) shows canals that do not exist, notably on the west boundary of the park and in the southwest Dade County area.

Response:
The figure has been revised to eliminate these errors.

Department of Transportation, Federal Highway Administration

Comment:
Numbering the figures referred to in the text would improve the statement.

Response:
The figures have been numbered in the final environmental statement.

Comment:
Provision should be made to ensure that the proposed wilderness would not limit opportunities for realignment of U.S. Highway 1 if the road was damaged or destroyed by storms.

Response:
U.S. Highway 1, connecting the Florida Keys with the mainland, fringes the park on the southeast. North of the Florida Keys, the wilderness boundary lies 1 to 3 miles north of the highway. The wilderness proposal would have no conceivable effect on future realignment of the highway on the keys themselves, regardless of the degree of storm-induced reconfiguration of the landscape. Potential problems in realigning the highway do exist on the narrow isthmus of land west of Barnes Sound between Key Largo and the mainland. The proposed Wilderness Unit 1 begins 1/8-mile (660 feet) west of the right-of-way of the highway on the isthmus. If reconstruction of the highway in this area became necessary as a result of storm damage or other cause, use of mechanized vehicles and construction equipment might be impaired by the presence of the adjacent wilderness area. Use of parkland for realignment of the highway would be impossible without a legislative mandate allowing use of such lands and advocating wilderness status for affected lands. The probability of a disturbance sufficiently large to require use of mechanized equipment or realignment of the highway more than 660 feet west of the existing alignment is low, but the potential adverse impacts of the proposed wilderness on opportunities for realigning the highway could be significant if such a disturbance occurred.

Department of Transportation, Coast Guard

The United States Coast Guard reviewed the draft environmental statement and had no comments on the statement or objections to the proposal.

Environmental Protection Agency

Comment:
The statement contains insufficient data on water quality, particularly with respect to the effect of the park's ecosystems in purifying sheetflow received from outside the park. Comparison of the quality of waters entering the park from the Big Cypress drainage, the Okeechobee agricultural area, and the conservation areas with waters flowing from the park into the Gulf of Mexico and Florida Bay should be made.

Response:
The ability of marsh ecosystems to serve as filters for the removal of nutrients, pesticides, and other pollutants from surface waters is well known (see Steward, K., and W. Ornes, 1975a and 1975b). There is no question that the park's terrestrial ecosystem complex removes substantial quantities of pollutants from sheetflow. However, a simplistic comparison of inflow and outflow data on water quality parameters would not provide much information on the uptake and adsorption of pollutants by the marshes. Recent evidence from studies by Bradley Waller of the U.S. Geological Survey in Miami (USDI, Geological Survey, 1973) indicate that atmospheric input of nutrients and various pollutants in rainfall and dustfall substantially exceeds the input in sheetflow. Excrement from the park's large populations of waterfowl and other birdlife is believed to cause significant elevations of nutrient levels in short flow, but the actual significance of this factor has not been quantified. Input of nutrients and other pollutants into estuaries from commercial fishing operations, pleasure boats, and development should also be considered. An analysis of the relative importance of these and other inputs into the park's budget for various pollutants has not been made. Without conducting this analysis, conclusions on the purifying effect of the park's ecosystem complex based on inflow and outflow data alone would be premature. Certain data required in this analysis are available (e.g., chemical analysis of rainwater both inside and outside the park, data on nutrient uptake by various ecological communities, water quality data from the Big Cypress drainage and the conservation areas north of the park, and water quality data from the Ten Thousand Islands area in the extreme northwest corner of the park). However, adequate information on water quality parameters is not available for Florida Bay, Whitewater Bay and their associated sloughs and waterways. This deficiency precludes an accurate evaluation of the effect of the glades on the quality of sheetflow entering these two major estuaries, which together receive most of the sheetflow that passes through the park for a

substantial distance. However, until a comprehensive data base is available for these waters, quantification of the pollutant-removal effect will remain a difficult task.

The substantial potential beneficial effect of the glades in removing pollutants in surface flow has been mentioned in sections III.F.1 and III.F.4. of the final environmental statement. The National Park Service is working with the U.S. Geological Survey to monitor water quality at selected locations in the sawgrass glades. The Geological Survey is also preparing a report to summarize data from a key station in the Shark River slough where data have been collected for about 25 years on various parameters. The ongoing monitoring and analysis of historical records are providing valuable information on water quality conditions in the park. The complex research needed to determine the flow of nutrients and pollutants through the Everglades ecosystem complex (i.e., nutrient and pollutant budgets) should be accomplished. Although this research is not being conducted, the National Park Service is ready to cooperate with the Environmental Protection Agency, the Geological Survey, and other agencies and private interests in the development of a suitable research program.

Federal Power Commission

The Federal Power Commission reviewed the draft environmental statement and determined that its interests would be unaffected by the proposed action.

b. State Agencies

Florida Board of Trustees of the Internal Improvement Trust Fund

Comment:
The state of Florida has committed $40 million to acquiring lands immediately north of the proposed Big Cypress National Fresh Water Reserve (subsequently designated Big Cypress National Preserve). The need for cooperation between the federal government and the state of Florida in coordinating the management of these lands should be addressed in the final environmental statement.

Response:
The desirability of federal/state cooperation in managing public lands adjacent to the park has been incorporated into section I.C.2. of the final environmental statement.

Florida Department of Administration, Division of State Planning

The Division of State Planning serves as the state clearinghouse for projects relating to planning and development. The division's memorandum of review to the National Park Service contains both the division's comments and a summary of comments from other state agencies. In responding to comments in the Division of State Planning's memorandum, the National Park Service considered those comments that appear to originate with the Division--that is, those that are not obviously paraphrases of the comments from other state agencies. Comments falling into the latter category are addressed with respect to the appropriate agency review memorandum.

Comment:
Instead of including the waters of Hell's Bay in wilderness, alternative management plans should be considered. Designation as a "wilderness reserve," restrictions on horsepower of boat motors, or a combination of wilderness and "wilderness reserve" should be evaluated as possible alternatives.

Response:
The National Park Service reevaluated the desirability of designating wilderness in the park's open marine waters. The principal adverse impacts of such wilderness designations are inconvenience to visitors, who must use motorized craft for access to many remote backcountry areas, and--in some cases--economic cost to commercial fishermen, tourboat operators, and other commercial interests. It was determined that the adverse ecological effects of allowing these uses to continue are not sufficiently well-documented at this time to warrant permanent elimination of these uses from marine waters where they now occur and the associated adverse impacts of this action. However, the mud flats/turtlegrass flats, and other marine bottomlands were placed in wilderness to permanently protect these valuable resources from disturbance and exploitation. Uses of surface waters that are considered to be ecologically incompatible will be restricted by park management, rather than by designating wilderness areas. The park's master plan recommends the development of a zoning plan for marine waters. When completed, this plan would zone marine waters according to our current knowledge of their carrying capacity for specific uses.

The waters of the Hell's Bay area were originally placed in wilderness to provide additional protection to some of the park's best manatee habitat. Under the revised proposal,

the marine bottomlands are in wilderness, but the surface waters would be excluded.

Comment:
Public hearings should be required prior to transferring any Everglades National Park lands from "wilderness reserve" to wilderness status.

Response:
Public hearings on the preliminary wilderness recommendation and its draft environmental statement were held, agency and public comments received, and the documents revised in response to these comments. Unless revised further by the Office of the President, the administration will recommend the present proposal to the Congress, after which congressional hearings will be held. These hearings will provide to interested parties full opportunity to present their views on the subject proposal.

Park managers are responsible for maintaining a continuing dialogue with governmental agencies, organizations, and members of the public that have an interest in the management and use of Everglades National Park. Before a decision is made to designate potential wilderness areas as wilderness, interested parties will be consulted. If designation is determined to be controversial, appropriate opportunities for broader public involvement, such as workshops or public meetings, may be made available.

Comment:
"The State understands that traditional uses including power boating and commercial fishing . . . north of the Broad River will not be affected by the presently conceived wilderness plan."

Response:
The understanding is correct.

Florida Department of Natural Resources

Comments in Letter of May 31, 1974

Comment:
Wilderness designation precludes the use of motorized boats, which are essential in many areas for safe access to backcountry areas. Motorboats provide the only means for most of the public to have access to the vast remote areas of the park. Substantial federal/state cooperation has been directed toward ensuring safe recreational use of motorboats. Wilderness designation of waterways therefore

would foreclose use of most of the park's backcountry to most visitors.

Response:
The National Park Service concurs and has not included navigable marine waters in the revised wilderness proposal.

Comment:
The citizens of Florida, through their elected representatives, have expressed the desire to maintain the saltwater fishery in the interest of all the people on a sustained yield basis "consistent with the preservation and protection of the breeding stock" (Florida Statute 370.02 (a)). Everglades National Park is "progressively precluding commercial fishing" and full consideration of commercial fishing as a valid park use may not have been made. In order to minimize the adverse impacts on commercial fishing and motorboat interests, the National Park Service should consider "confining future wilderness areas in the Everglades National Park to fresh water lakes, streams, terrestrial areas, and marine water bottoms if necessary, but leave the remaining marine water column open for the use of motorboats and fishing activity. All fishing gear used in the marine water column should be regulated as necessary and based on information obtained from biological findings by qualified marine scientists."

Response:
The revised wilderness proposal will have no immediate effect on motorboat users, commercial fishermen, and other commercial interests. No navigable marine waters are proposed as wilderness or potential wilderness additions. Use of these waters will ultimately be governed by provisions of a zoning plan, which will regulate use in accordance with relevant research findings on the carrying capacity of the environment for particular uses. In the meantime, use restrictions will be imposed by park management, as necessary, to ensure perpetuation of ecological diversity and productivity. These restrictions also ensure that the breeding stock for the commercial fishery will not be depleted. The National Park Service has no policy to progressively preclude commercial fishing from the park. The Park Service will continue to honor its long-standing commitment to provide for this use on a sustained yield basis so long as these operations do not impair the productivity and diversity of the natural environment. If, as a result of research studies, this use was found to have widespread or significant adverse effects on the marine ecosystem, this commitment would have to be reevaluated.

Comments of Division of Recreation and Parks in Letter of May 9, 1974.

The Florida Department of Natural Resources, Division of Recreation and Parks, recognized the minor adverse impacts of the preliminary proposal on motorboat users, but strongly supported the proposal. No substantive comments on the environmental statement were provided.

Florida Department of Pollution Control

Comment:
"Unfortunately, along the Gulf Coast all of the large bodies of waters and most of the navigable waters north and south of the Broad River are excluded. Also, some of the very productive submerged grass and mudlands cannot be granted wilderness status because of commercial fishing rights."

Response:
The failure to include these surface water in the preliminary wilderness proposal has been partially mitigated by the inclusion of all marine bottomlands in the revised wilderness proposal. The use of marine waters above the wilderness area will be regulated as necessary to promote optimal ecological diversity and productivity. Preclusion of motorboating and commercial fishing in these waters, which wilderness status would require, is not warranted at this time on the basis of available ecological information.

Florida Department of State (Historic Preservation Officer)

The Florida historic preservation officer reviewed the draft environmental statement and determined that the proposed action would result in increased protection for archeological and historical sites.

Florida Department of Transportation

The Florida Department of Transportation reviewed the draft environmental statement and had no comment.

Florida Game and Fresh Water Fish Commission

The Florida Game and Fresh Water Fish Commission strongly supported the wilderness proposal and had no substantive comments on the draft environmental statement.

APPENDIX A

Comments on the Draft Environmental Statement
Received by the National Park Service

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32201

SOUTHEAST REGION
JUN 3 '74
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SAJWE

24 May 1974

Mr. James L. Bainbridge
Acting Regional Director
Southeast Region National
Park Service
3401 Whipple Ave.
Atlanta, Georgia 30344

Dear Sir:

We have reviewed the copy of the draft environmental statement on the proposed Wilderness Plan, Everglades National Park, Florida, which we received from your office with a cover letter dated 22 April 1974 and bearing the reply code L7617-SER-PE. Our comments on the statement are attached.

The opportunity to review and comment on the statement is appreciated.

Sincerely yours,

George Marsch
for JAMES L. GARLAND
Chief, Engineering Division

1 Incl
As stated

SUBJECT: Draft Environmental Statement, Wilderness Study, Everglades National Park, Florida.

1. General comments.

a. The draft statement generally appears to be well organized, detailed, and documented. However, some deficiencies or inadequacies exist. Primarily these are in format, in discussion of the hydrology of the area, and in assessment of the impact of the proposal or visitation and recreational resources. The following suggestions are offered:

(1) Format. The table of contents should include the title or description of all tables and figures in the statement and their page numbers. Although all illustrations and graphics are referenced by specific number in the text of the statement, only three of the figures are so numbered. It would facilitate reader comprehension to number all of the figures in close conjunction with the title. Inclusion of a map or figure showing physical features and at least general land elevations would be helpful. It is also suggested that a map showing the elements of the C&SF project and their relationship to the ENP be provided.

(2) Hydrology. In view of the importance of water to ENP as noted in the statement, it is felt that insufficient hydrologic data, both historic and current, is offered. Later data than that referenced in the statement which relies heavily on a 1963 study is available and should be consulted. For example, no mention is made of the 1968 Corps of Engineers Survey Review Report on Water Resources of Central and Southern Florida or on other studies under way since 1968 on correlations between the amount and annual distribution of water and the area biology. The relationship of the C&SF Project to the park is insufficiently detailed and the importance of the project to the park is supplying water during critical dry periods is pointed up by the existing situation in which Big Cypress Swamp, considered in the statement as a major source of water, is currently dry while the C&SF Project is providing the Park with the minimum requested amounts. The statement does not mention the overdrainage and diversion of flows that occurred before the C&SF Project and the fact that the project has about doubled flows to the park. When the C&SF Project is fully complete, including the as-yet-unconstructed South Dade conveyance canals, it may at times be capable of providing flows for significant periods which would almost match historic flows.

(3) Visitation. While the statement recognizes the impact the proposal would have on park users it does not provide as thorough an analysis as desirable. It would seem that the Wilderness proposal's primary benefits, in terms of human visitors, would be to backpackers which the statement itself acknowledges comprise a small proportion of recreation seekers. The proposal would apparently largely limit the

park's capacity to expand facilities (parking, picnicking, comfort stations, etc.). In view of the rapidly expanding population nearby it would seem that the demand for the recreational development of the park is likely to escalate. More information and balance should be provided in the statement on projected park use and inconvenience to users, current and potential. If any quantified data is available on sports fishermen who would be restricted under the proposal it should be included in the statement.

2. Specific comments.

a. Page 4, subparagraph (5), line 4 should be changed to read "from the C&SF Project." The source of the water is not limited to the conservation areas.

b. Page 28. The figure showing South Florida Canals is misleading. Some of the canals depicted do not exist.

c. Page 31. Last sentence on page is incorrect at this time. PL90-282 is effective on completion of the conveyance canals which are not yet under construction. Currently the project is providing the park with 260,000 feet through the S-12 structure.

d. Page 58, Table 4. Obvious error in total county population.

e. Page 71, Table 13. Subheading above columns (mi 2) is unclear.

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WASHINGTON, D.C. 20242

IN REPLY REFER TO:
Trust Facilitation
EQ (DES 74/40)

SOUTHEAST REGION
JUN 3 '74
INT. DATE

MAY 30 1974

Memorandum

To: Regional Director, Southeast Region
National Park Service
Atlanta, Georgia

From: Director, Office of Trust Responsibilities

Subject: Draft Environmental Statement for Proposed Wilderness Plan--Everglades National Park, Florida (DES 74/40)

We have reviewed the subject statement as requested by your letter (Reference L7617-SER-PE) dated April 22, 1974.

Our review indicates there will be no adverse impact upon either the Miccosukee Indians or the 305-acre community development area which they retain under a Special Use Permit from the National Park Service, which area has been specifically excluded from the proposed wilderness area. Also, while the tribal burial ground is within the proposed Wilderness Unit 2, that wilderness designation will have no effect on the burial ground or access thereto, and that the National Park Service will continue to provide airboats when they are requested.

Thank you for the opportunity to review and comment on your proposed wilderness plan.

Martin E. Seneca, Jr.

PC

IN REPLY REFER TO:

United States Department of the Interior

6221 (370)

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

Mr. James L. Bainbridge
Acting Regional Director
Southeast Region
3401 Whipple Ave.
Atlanta, Georgia 30344

MAY 30 1974

Dear Mr. Bainbridge,

We have reviewed your Wilderness proposal for the Everglades National Park and have no comments to offer.

Sincerely yours,

Gary D. Lee

Deputy Assistant Director

IN REPLY REFER

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SOUTHEAST REGION

JUN 3 '74

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT

EASTERN STATES OFFICE
7981 Eastern Avenue
Silver Spring, Maryland 20910

DES-74/40

MAY 31 1974

Memorandum

To: Southeast Regional Director
National Park Service

From: Director, Eastern States Office

Subject: Review and Comment on Draft Environmental Statement For the Proposed Wilderness Plan, Everglades National Park, Florida

We have reviewed the subject environmental impact statement and find that it adequately describes and assesses the potential impacts of the proposed action. We, therefore, have no further comments.

OFFICE OF THE DIRECTOR

United States Department of the Interior

BUREAU OF MINES
WASHINGTON, D.C. 20240

July 9, 1974

DES 74-40

Memorandum

To: Acting Regional Director, National Park Service, Southeast Region, Atlanta, Georgia

Through: Assistant Secretary--Energy and Minerals

JUL 16 1974

From: Director, Bureau of Mines

Subject: Draft environmental statement, National Park Service, Everglades Wilderness study, Dade and Monroe Counties, Florida

We have reviewed the draft environmental statement prepared by Park Service on the wilderness study of Everglades National Park, Dade and Monroe Counties, Florida. This statement proposes designation of 764,700 acres as wilderness and 84,700 acres as potential wilderness additions. The initial acreage is all federally owned land. The potential additions are privately owned land that, when acquired and incompatible uses are eliminated, the Secretary of the Interior would be authorized to subsequently designate wilderness.

This statement is not adequate with respect to mineral resources. Further, the organization of materials concerning minerals is poor. It took considerable digging both in the "Minerals and Minerals Extraction" and in the "Impact on Development" to get a sketchy picture of what mineral rights are outstanding in the proposal area. From 16 U.S.C. 410e and 410j, we learned that mineral royalties will be outstanding until 1985 both on lands now federally owned and proposed for later acquisition. The legislation for the establishment and acquisition of lands in the Everglades National Park reserved the retention by owners of lands, interests in lands, interests in oil, gas, and mineral rights, or royalties, the election of retaining until October 9, 1958, the right to lease, explore for, produce, store, and remove oil, gas, and other minerals. If there was no production anywhere within the park by the above date this right would be forfeited, but the former owners would retain the right to customary royalties in any oil, gas, or other minerals which may be produced from such land and any time before January 1, 1985, should production ever be authorized by the Federal Government or its assignees.

Memo. to Acting Regional Director, National Park Service, Southeast Region, Atlanta, Georgia, Subj: Everglades Wilderness study, Florida

We have numbered certain sentences in the portion of the following statement quoted from "Impact on Mineral Development" that we wish to comment upon:

1. "There is currently no minerals extraction or exploratory activity within the park. An 11,789-foot hole was drilled in search of oil in the early 1940's on land that is now in the park near the present Shark Valley Observation Tower. In the 1950's an 11,500-foot dry hole was drilled about 8 miles east and slightly south of the earlier hole in land
2. that is presently outside the park. Two of the ten wells of this same general depth in the Forty-Mile Bend Field just north of the Tamiami Trail produced a total of 35,000 barrels over a short period in the late 1940's. Seismic records indicate a subsurface structure of unknown extent that could be interpreted as oil-containing just south of the Forty-Mile Bend
3. Field, within the park. However, there are no proven fields within the park.

   Of salable minerals extracted in South Florida--quartz sand, limestone, and clay--only limestone, mined widely throughout the area, is present in extensive deposits within the park. There is no current interest for extraction from park lands.

4. In summary there is no known potential for mineral development within park boundaries.

5. The National Park Service has no present intention to develop mineral resources, if they were to be found in exploitable quantities, as such development would be inimical to the purposes of the park's establishment.

6. The present extent of park lands subject to privately held royalty rights, exercisable if development of government held mineral rights were to occur, is not exactly known. It is estimated that about 20% of presently owned park lands are so subject. These privately held rights expire January 1, 1985.

Memo. to Acting Regional Director, National Park Service, Southeast Region, Atlanta, Georgia, Subj: Everglades Wilderness study, Florida

7. The occurrence of a national emergency dire enough to require mineral extraction, if further study were to indicate mineral presence in economically exploitable quantities exist, seems beyond the threshold of "reasonable" possibility and even then such development would be constrained by current legislatively derived policy."

The following comments, offered to the above quoted statement, are similarly referenced by number:

1. The innuendo of the quoted statement is that since there is no exploration activity there must not be any potential. There is no current exploration activity within the park because Park Service does not allow it.

2. The Forty-Mile Bend Field produced 35,000 barrels of oil in 1954 and 1955. The field was not closed because of its depletion but because only 30 barrels of oil per day could be produced from the wells which at a price of $2 per barrel was not then economic. Had this same discovery been made this year, the field would likely be economic. Certainly the existence of the structure just south of the Forty-Mile Bend field would be investigated now if it were available for exploration. Additional wells in the area have found a porous section but to the north of the park this section is below the water-oil contact. In order for this oil to be produced, a section with adequate porosity above the water-oil contact must be found.

3. The reason there are no proved fields in the area is because the quantities of potential targets that were thought to occur in the area prior to 1958 were believed lower than those of other exploration targets at the current price for crude. The present price for oil has subsequently stimulated exploration and it is reasonable to assume that there would be exploratory activity in the park if it were permitted.

4. There is potential for mineral development within the park boundaries. A geologic structure for oil is known and the presence of hydrocarbons within the target section is known from the adjacent Forty-Mile Bend production.

Memo. to Acting Regional Director, National Park Service, Southeast Region, Atlanta, Georgia, Subj: Everglades Wilderness study, Florida

5. The legislation that established Everglades Park apparently did not consider mineral exploration and production "inimical" to the purposes of the park. It extends the rights of mineral owners to explore and produce until 1985 providing that if production was accomplished it could continue as long as it was economic. It was a quirk in the priorities of oil exploration in 1958 that better targets in terms of production potential lowered the priorities for exploration in this area. Congress also apparently held out as an incentive to the former owners the possibility that the Government itself might lease this land for exploration and development after 1958 by allowing the former owners to retain production royalties until 1985 should the Government lease the mineral rights.

6. Proposals should be made with adequate knowledge. We fail to understand how Park Service can make a wilderness proposal and document its impacts as required in an environmental statement without knowing exactly what mineral royalty rights are being subordinated. It seems to us that Congress, in view of the enacting legislation, would be vitally interested in the extent of the remaining outstanding rights. The proposal should show a map and list the mineral royalty holders within the park.

7. It seems reasonable to question a policy that is made, regardless of Congressional intent, in advance of whether or not mineral exploration would be permitted during a state of national emergency.

In summary, we believe that Park Service should recognize that there is mineral potential in the park and document the mineral royalty rights outstanding. Park Service policy regarding mineral exploration and development should be stated in terms of the legislation that established the park. It should be further explained whether or not the original owners, at the time of their selling to the Government, had a reasonable expectation that the Government might lease the mineral rights. If these sellers did not have a reasonable expectation of receiving royalties from Government leasing of minerals, if they existed, then the conclusion can be drawn that wilderness designation will have no impact upon royalty holders. In no case can the conclusion be drawn that this decision will have no impact on mineral resources. While mineral exploration is inimical to park preservation, it was not considered such by Congress during the transition period for acquisition of private rights. Most important, since exploration is not permitted, the extent of the mineral resources will never be known.

Memo. to Acting Regional Director, National Park Service, Southeast Region, Atlanta, Georgia, Subj: Everglades Wilderness study, Florida

Page 7, 1st and 2nd paragraphs: The legislative references 410j and 410e are reversed.

Page 98, 1st paragraph. The statement is made "Impairment of flexibility in resource management and research can be mitigated to some degree by a statement in the wilderness legislation that authorizes utilization of optimal methods (not necessarily "minimal") to protect the natural resources of this artificially-maintained park." If this park is in fact artificially maintained, the statement should analyze its qualification for wilderness. If it is not "artificially maintained" to a large degree, perhaps these words should be deleted. Further, we think Park Service should spell out exactly what types of "optimal methods" will be used to maintain this area in a wilderness condition. A conclusion that might be reached, from reading this statement, is that the park can be used by more people in its present classification with no significant impairment to the ecology, and wilderness designation would drastically reduce the amount of human enjoyment. Perhaps Park Service should justify the proposed change in quantitative terms.

Page 101, 1st paragraph: The statement is made, "wilderness designation precludes utilization of nonrenewable resources, hence no irreversible resource commitments." The subordination of nonrenewable resources is, we believe, an irreversible resource commitment. In line with long-range management goals, it would be more realistic to acknowledge that an unknown quantity of mineral resources would be committed that for all intents and purposes would be in perpetuity. It should also be stated that because Congress will never know what resources are committed, there is consequently little later chance for Congress to be persuaded to open portions of this area to a mineral search.

Thomas V. Falkie

Director

United States Department of the Interior

BUREAU OF OUTDOOR RECREATION
SOUTHEAST REGIONAL OFFICE
148 Cain Street
Atlanta, Georgia 30303

IN REPLY REFER TO:
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SOUTHEAST REGION
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MAY 31 1974

Memorandum

To: Regional Director, Southeast Region, National Park Service, Atlanta, Georgia

From: Regional Director, Southeast Region, Bureau of Outdoor Recreation, Atlanta, Georgia

Subject: Review of Draft Environmental Statement for the Proposed Wilderness Plan, Everglades National Park, Florida

We have reviewed the subject environmental statement as requested in the April 22, 1974, memorandum from Acting Regional Director Bainbridge.

In our review, we have found the statement to be comprehensive and well prepared. The text gives excellent background information on the unique and fragile character of the Everglades, and the maps are of good quality and useful to the reader.

Generally, we agree with the recommendation for the wilderness proposal. Our one concern is with the exclusion from wilderness designation of 95 percent of the open waters and navigable streams in the Everglades Park so that commercial and sport fishermen can use them (pages 92 and 93) (alternatives A and B on pages 102 and 103). If wilderness designation is not possible for these waters, perhaps other designations such as "critical wilderness border area" or "peripheral wilderness area" would emphasize the need to protect them.

In view of the potential adverse effects that motorboats have on the area (pages 52-57), it appears that some restrictions on their use would be desirable even though enforcement may be difficult. For certain wilderness border waters, consideration could be given to limiting the number of boats, limiting the size of motors, establishing speed limits, establishing off-limit areas, etc.

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

Thank you for the opportunity to review and comment on the draft statement. If we can be of further assistance, please feel free to call on us again.

Hugh L. Watson

FOR Robert M. Baker

United States Department of the Interior
FISH AND WILDLIFE SERVICE
17 EXECUTIVE PARK DRIVE, N. E.
ATLANTA, GEORGIA 30329

DEC 5 1975

Memorandum

To : Regional Director, National Park Service, Atlanta, Georgia

From : Regional Director, Fish and Wildlife Service, Atlanta, Georgia

Subject: Review FEIS - Proposed Wilderness Recommendation Everglades National Park, Florida

We have reviewed the subject environmental impact statement in response to your telephone request of November 17, 1975, and offer the following comments.

Page 16, paragraph C (1) Other Wilderness Areas

The statement should be revised to show wilderness areas managed or proposed by the U.S. Fish and Wildlife Service to be as follows:

Areas Designated

1.	Pelican Island	3 acres
2.	Island Bay	20 acres
3.	Passage Key	20 acres
4.	Cedar Keys	375 acres
5.	Florida Keys	5,290 acres
	Key Deer, Great White Heron, Key West Refuge	
6.	St. Marks	17,350 acres

Areas Pending in Congress

1.	Chassahowitzka	16,900 acres
2.	J. N. "Ding" Darling	2,735 acres
3.	Lake Woodruff	958 acres

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Pages 8, paragraph 2; 40, table 4 (status); 41, paragraph 1; 42, paragraph 2; 80, (3) 1 and 2

The above paragraphs need updating with the species designated "endangered" or "threatened" in accordance with the Endangered Species Act of 1973 (P.L. 93-205; 87 Stat. 884) and subsequent Federal Register listings. Enclosed is the United States List of Endangered Fauna dated May 1974.

We hope these comments will be of assistance to you in preparing your final documents.

Kenneth E. Black

Enclosure

United States Department of the Interior

GEOLOGICAL SURVEY
12201 SUNRISE VALLEY DRIVE
RESTON, VIRGINIA 22092

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May 8, 1974

Mr. James L. Bainbridge
Acting Regional Director
Southeast Region
National Park Service
Atlanta, Georgia 30344

Dear Mr. Bainbridge:

Thank you for the brochure and Draft Environmental Statement on the Everglades National Park Wilderness proposal, and for the invitation to attend the public hearings to be held on May 22, 1974, at Homestead, Florida, and on May 23, 1974, at Naples, Florida.

The proposed wilderness areas are in the South Florida Basin, which contains a very thick sequence of sedimentary rocks. Similar rocks produce oil and gas in the Sunniland area a few miles to the north. Some production was also obtained from these rocks southeast of the area, as indicated on p. 81 of the Draft Environmental Statement. We have insufficient data to comment on the petroleum potential, if any, of the proposed wilderness areas.

The statements on pages 80 and 81, of the Draft Environmental Statement needs clarifying. The statement that there is currently no mineral extraction or exploration activity within the park needs to be accompanied by a sentence on when the park was closed to these activities. Exploration is necessary to prove or disprove the presence of oil and gas. The number and location and date of exploration wells within the park should be included in the statement. Has the subsurface structure, indicated by seismic data, been explored by drilling? The date, depth, and extent of exploration of the structure should also be indicated.

The Geological Survey has not made a mineral survey of the area. We will not have a representative attend the hearings.

Sincerely yours,

Melville R. Mudge
Wilderness Coordinator

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

OFFICE OF THE DIRECTOR

DES-74/40

JUN 6 1974

SOUTHEAST REGION
JUN 13 '74

Memorandum

To: Regional Director, Southeast Region, National Park Service, Atlanta, Georgia

Through: Assistant Secretary--Energy and Minerals

From: Director, Geological Survey

Subject: Review of National Park Service's draft environmental statement on a wilderness study, Everglades National Park, Florida

We have reviewed the subject draft environmental statement as you requested and we offer the following comments.

The U. S. Geological Survey and U. S. Bureau of Mines have not conducted a mineral survey of the proposed wilderness. Commercial exploration has not been permitted in the park since 1943 and there is no indication in the environmental statement that exploration has ever been conducted throughout the park. Thus, the statement in regard to oil and gas, that "there are no proven fields anywhere within the park (including Florida Bay)," is misleading (p. 81). The proposed wilderness has not been thoroughly evaluated for its petroleum potential using modern exploration methods and tools.

We wish to bring the following points to your attention, for consideration in the final statement.

(1) There is a need to maintain the present hydrologic data stations and the possible installation of future sites when necessary. The mode of transportation allowed to these sites should be indicated.

(2) There should be some indication in the final statement of the possibility of modification of the present release schedule of water if, at a future date, a relationship develops between the aquatic biologic systems and water releases in the park.

(3) The problem of erosion of the Buttonwood canal should be considered. There have been several plans to build controls to prevent future erosion of the canal. It is not clear if the present plan is to allow the canal banks to erode or if there will be an exception in this case to control any further damage in the canal.

(4) Analyses of ground-water samples from the well that supplies fresh water to Flamingo show that the aquifer there is susceptible to salt-water contamination. The Park administration may be required to supplement this source with an additional well to the east or northeast, away from the contaminating source, in order to insure that the water furnished is within Public Health Service standards. This may mean construction of a new facility, a pump station, at a later date.

(5) On page 28, canals shown on the figure are not accurate--some do not exist. Note the canal on the west boundary of the Park and the canals in the southwest Dade area.

Henry W. Coulter

Acting Director

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

Region Four
P. O. Box 1079
Tallahassee, Florida 32302

IN REPLY REFER TO:

May 21, 1974

Mr. James L. Bainbridge
Acting Regional Director
National Park Service
3401 Whipple Avenue
Atlanta, Georgia 30344

Dear Mr. Bainbridge:

Subject: Florida - Draft Environmental Statement Wilderness Plan, Everglades National Park (L7617-SER-PE)

Reference is made to your letter dated April 26, 1974, transmitting a copy of the draft environmental statement for the proposed Wilderness Plan, Everglades National Park, Florida.

The Federal Highway Administration has reviewed the environmental impact statement and has the following comments to offer:

1. Continuity of the statement could be improved by numbering the figures referred to in the body of the report.

2. Some provision should be included for realignment of U.S. 1 if this highway were damaged or destroyed by storms, etc. It is our understanding that if the land in question is declared a Wilderness Area, existing roads such as U.S. 1 could not be improved

-more-

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-WS/73)
400 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: (202) 426-2262

JUN 7 1974

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Mr. James L. Bainbridge
Acting Regional Director
Southeast Region
National Park Service
Department of the Interior
3401 Whipple Avenue
Atlanta, Georgia 30344

Dear Mr. Bainbridge:

This is in response to your letter of 22 April 1974 addressed to the Coast Guard, Office of Marine Environment and Systems concerning a draft environmental impact statement for the proposed Wilderness Plan, Everglades National Park, Florida.

The Department of Transportation has reviewed the material submitted. We have no comments to offer nor do we have any objection to the project.

The opportunity to review this draft statement is appreciated.

Sincerely,

W. R. Riedel

W. R. RIEDEL
Acting Deputy Chief, Office of Marine
Environment and Systems
By direction of the Commandant

or relocated on any part of the wilderness area, even if they are destroyed by a natural disaster.

Thank you for the opportunity to review your environmental impact statement.

Very truly yours,

P. E. Carpenter

P. E. Carpenter
Division Engineer

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

1421 PEACHTREE ST., N. E.
ATLANTA, GEORGIA 30309

May 24, 1974

Mr. James L. Bainbridge
Acting Regional Director
Southeast Regional Office
National Park Service
U. S. Department of the Interior
3401 Whipple Avenue
Atlanta, Georgia 30344

Dear Mr. Bainbridge:

We have reviewed the Draft Environmental Impact Statement for the proposed Wilderness Plan for Everglades National Park in Florida, and are in agreement with the objectives of the plan. We also find that, while an adequate account is given to items affecting water quality, the Statement fails to give actual data on water quality parameters.

Although the restriction in use of the Park by making 764,700 acres a wilderness area will help safeguard water quality, the greatest influence on water quality within the Park will remain on the outside in the drainage areas which provide water for the Park. We, therefore, suggest that it would be of particular interest for this Statement to show a comparison of water entering from the Big Cypress Swamp drainage area, from waters from the Okeechobee agricultural area, and from the conservation and recharge areas to the west. Waters entering from these areas should also be compared with waters leaving the Park along Florida Bay and the Gulf Coast. Actual parameters should be shown for nitrates, phosphates, pesticides, dissolved oxygen, pH, heavy metals such as lead, cadmium, mercury, and other pertinent parameters.

There should be some reduction in nitrates, phosphates, and pesticides from sheet flow through the Park; therefore, we believe it would improve the Statement if these purification effects of sheet flow could be shown.

Source data on water entering the Park are available from studies made by the U. S. Geological Survey for the Central and Southern Florida Flood Control Project and the Corps of Engineers. Data are also available from a recent study made by the Environmental Protection Agency on the waters in the Big Cypress Swamp.

We would like to have five copies of the Final Environmental Impact Statement when it is available. If we can be of further assistance, please let us know.

Sincerely,

David R. Hopkins
Chief
Environmental Impact Statements Branch

FEDERAL POWER COMMISSION
WASHINGTON, D.C. 20426

IN REPLY REFER TO:

Mr. James L. Bainbridge
Acting Regional Director
National Park Service
Department of the Interior
3401 Whipple Avenue
Atlanta, Georgia 30344

Reference: L48-SER-PC

Dear Mr. Bainbridge:

This is in response to your letter of April 26, 1974, addressed to Chairman Nassikas, furnishing a wilderness study and an associated draft environmental statement for the Everglades National Park, Florida.

As described in the material furnished, the total 1,400,533-acre park includes roadless areas amounting to 1,366,773 acres. Of the latter amount, 764,700 acres are proposed for designation as wilderness and 84,700 acres are proposed as potential wilderness additions.

The staff of the Commission's Bureau of Power has reviewed the material furnished to determine the effects on matters affecting the Commission's responsibilities. Such responsibilities relate to the development of hydroelectric power and assurance of the reliability and adequacy of electric service under the Federal Power Act, and the construction and operation of natural gas pipelines under the Natural Gas Act.

The staff notes that, other than utility lines for local service, there are no existing and no known plans to construct power transmission lines, hydroelectric projects, or steam-electric plants within the park boundaries. Also, there are no jurisdictional natural gas pipelines and no substantial potential natural gas reserves within the park.

In summary, it does not appear that the wilderness proposal for the Everglades National Park would have any adverse effect on matters of concern to the Commission.

Very truly yours,

William J. Balet

William J. Balet
Acting Chief, Bureau of Power

STATE OF FLORIDA
BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND
ELLIOT BUILDING — TALLAHASSEE, FLORIDA 32304

Joel Kuperberg
Executive Director

TELEPHONE 488-8123

May 21, 1974

Mr. E. E. Maroney, Chief
Division of State Planning
660 Apalachee Parkway
Tallahassee, Florida 32304

Dear Mr. Maroney:

Department of the Interior, Draft Environmental Statement, DES. 74-40, Wilderness Study, Everglades National Park, Florida.

The Trustees' staff has reviewed the draft environmental impact statement for the proposed designation of 764,700 acres of the Everglades National Park in Monroe and Dade Counties as part of the National Wilderness Preservation System. The designation is an excellent proposal, and this agency gives full support to further protection of the unique ecosystems found in the Florida Everglades.

The State of Florida has recognized the importance of protecting the Park and its surroundings by committing $40 million of State funds for the acquisition of adjacent lands to the north in the proposed Big Cypress National Fresh Water Reserve. The final impact statement should address the need for coordination of the state and federal management practices of these adjacent lands.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Joel Kuperberg
Executive Director

JK/njp

DIVISION OF STATE PLANNING,
MAY 22 1974
SAI NO.

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

Department of Administration

Division of State Planning

660 Apalachee Parkway - IBM Building

TALLAHASSEE

32304

(904) 488-2371

Reubin O'D. Askew
GOVERNOR

L. K. Ireland, Jr.
SECRETARY OF ADMINISTRATION

rl M. Starnes
TE PLANNING DIRECTOR

TO: Mr. Harmon Shields, Ex. Director
Department of Natural Resources
Larson Bulding
Tallahassee, Florida 32304
Attn: Mr. Jim Smith

DATE: APR 30 1974

DUE DATE: as soon as possible

FROM: Bureau of Intergovernmental Relations

SUBJECT: SAI: 74-1112 E

Please review and comment to us on the above draft environmental impact statement, copy attached. In reviewing the statement, you should consider possible effects that actions contemplated could have on matters of concern to your agency.

If you feel that a conference is needed for discussion of the project or resolution of conflicts, or if you have questions concerning the statement, please call Mr. Estus Whitfield at (904) 488-2401. Please check the appropriate box below, attach any comments on your agency's stationery and return to IGR or telephone "no adverse comments" by the above due date.

On that date, we intend to consider all review comments received and develop a state position on the project. In both telephone and written correspondence please refer to the above SAI number.

Sincerely,

Ed Maroney

Chief
Bureau of Intergovernmental Relations

Enclosure cc: Mr. William Beckham

****

TO: Bureau of Intergovernmental Relations

FROM: Department of Natural Resources

SUBJECT: DEIS Review and Comments

☐ No Comments

☒ Comments Attached 164

Reviewing Agency:

Signature: James G. Smith

Date: 6/3/74

TITLE: Administrative Assistant

STATE OF FLORIDA

Department of Administration

Division of State Planning

660 Apalachee Parkway - IBM Building

TALLAHASSEE

32304

(904) 488-1115

Reubin O'D. Askew
GOVERNOR

L. K. Ireland, Jr.
SECRETARY OF ADMINISTRATION

Earl M. Starnes
STATE PLANNING DIRECTOR

PROFESSIONAL SERVICES

June 5, 1974

Mr. James L. Bambridge
Southeast Regional Office
National Park Service
3401 Whipple Avenue
Atlanta, Georgia 30344

Dear Mr. Bambridge:

Functioning as the state planning and development clearinghouse contemplated in U. S. Office of Management and Budget Circular A-95, we have reviewed the following draft environmental impact statement:

Wilderness Plan, Everglades National Park, Florida.
U. S. Department of the Interior. SAI No. 74-1112E.

During our review we referred the environmental impact statement to the following agencies, which we identified as interested: Department of Agriculture and Consumer Services; Board of Trustees of the Internal Improvement Trust Fund; Game and Fresh Water Fish Commission; Department of Natural Resources; Department of Pollution Control; Department of State - Division of Archives, History and Records Management; Department of Transportation; and the Environmental Information Center. Agencies were requested to review the statement and comment on possible effects that actions contemplated could have on matters of their concern. Letters of comment on the statement are enclosed from the Board of Trustees of the Internal Improvement Trust Fund; Game and Fresh Water Fish Commission; Department of Natural Resources; Department of Pollution Control; Department of State - Division of Archives, History and Records Management; and Department of Transportation.

Formal agency comments, the results of numerous informal discussions between state agencies, and issues raised during a May 29 meeting between Everglades National Park officials and interested state agencies can be summarized as follows:

for bait. Federal and state records show 130,114 pounds of silver mullet were landed in Dade County and 215,742 pounds of silver mullet were landed in Monroe County in 1972, which is the last year for which we have completed records. A large percentage of these were taken from the park waters and contribute much to sport fishing capabilities in south Florida. The catch of black and silver mullet does not compete with sport fishing since they are seldom taken on hook and line.

The people of Florida have also expressed their will through Florida Statute 370.01(12), which stipulates that "foodfish shall include mullet, trout, redfish, sheepshead, pompano, mackerel, bluefish, red snapper, grouper and all other fish generally used for human consumption."

We realize that park rules were constructed from guidelines that were appropriate in the terrestrial parks of other parts of the nation. The Everglades National Park is progressively precluding commercial fishing and we would question whether commercial fishing in the Everglades National Park is being honestly recognized by using the guidelines for parks in other states. Many anglers sell their catch, and since there is no Florida law requiring a license for its residents to sell seafood to a wholesale dealer, it is impossible to establish by using license criteria as to who is commercial and who is not. The intended use of a product cannot be adequately established by looking at the gear used, as many netters and trap owners are not commercial. Also, commercial boat and pleasure boat registration decals mean little as a guideline since, by Florida law, the resident owner of a pleasure boat can sell his catch and a commercially registered boat could be engaged in hire, guide, charter, fishing, or tow boat activities. It would seem that the present determinations are made on the honor system. It would also seem that present action directed against commercial fishing per se would be contrary to honoring the agreement made with former owners and users, and ineffectual since present determining criteria does not truly identify all commercial fishermen. We are told that much of the park land was obtained from individuals who released it with the understanding that the commercial fisheries would not be prohibited.

The Everglades Coastal area is unique and different from that of the rest of the nation and its historical use has been different. It would seem that the criteria for establishing commercial activities and wilderness area might be less rigid than presently anticipated.

It is respectfully suggested that in order to meet its quota of wilderness area the National Park Service consider confining future wilderness areas in the Everglades National Park to fresh

water lakes, streams, terrestrial areas, and marine water bottoms if necessary, but leave the remaining marine water column open for the use of motor boats and fishing activity. All fishing gear used in the marine water column should be regulated as necessary and based on information obtained from biological findings by qualified marine scientists.

APPENDIX B

"Wilderness Preservation and Management," <u>National Park Service Management Policies</u> U.S. Department of the Interior, National Park Service, 1975.

WILDERNESS PRESERVATION AND MANAGEMENT

THE NATIONAL PARK SERVICE WILL PRESERVE AN ENDURING RESOURCE OF WILDERNESS IN THE NATIONAL PARK SYSTEM AS PART OF THE NATIONAL WILDERNESS PRESERVATION SYSTEM, TO BE MANAGED FOR THE USE AND ENJOYMENT OF WILDERNESS VALUES WITHOUT IMPAIRMENT OF THE WILDERNESS RESOURCE.

From the earliest beginnings of the National Park System, the concept of wilderness preservation has been an integral part of park management philosophy. In the ensuing century, the national park movement has been a focal point for an evolving wilderness philosophy within our country.

In 1964 the efforts of the wilderness movement were capped by passage of the Wilderness Act (P.L. 88-577, 78 Stat. 890). The main thrust of the Act was to establish a National Wilderness Preservation System and provide for the study of Federal lands in the National Forests, Wildlife Refuges, and the National Park System for inclusion in the System. Consistent with the Wilderness Act, no park area may be designated as wilderness except by an act of Congress.

The Wilderness Act specifies that designation of a park area as wilderness shall in no manner lower the standards evolved for the use and preservation of such park in accordance with the Act to Establish a National Park Service, August 25, 1916 (39 Stat. 535), and other applicable legislation.

Wilderness areas shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness. Thus, the preservation of wilderness character is the prime administrative responsibility of the Service, and other legal purposes of areas designated as wilderness must be administered so as to preserve the wilderness character. The public purposes for which park wilderness shall be managed relate to recreational, scenic, scientific, educational, conservation, and historical uses.

The National Park Service has conducted wilderness studies in conformity with the Wilderness Act, and the Secretary of the Interior has submitted legislative recommendations to the President and the Congress for designation of park areas as wilderness. The Service will continue wilderness studies on parks authorized since the passage of the Wilderness Act wherever required or desirable.

The policies contained in this chapter relate specifically to park wilderness or to park areas that have been studied and recommended for wilderness designation. Policies of general application to parks are contained in other chapters and are not repeated here. The Service's wilderness policies may vary from those of the Forest Service and the Fish and Wildlife Service, based on the differing missions of the three agencies. All, however, have as their goal the preservation of wilderness character.

The Service has traditionally used the term "backcountry" to refer to primitive, undeveloped portions of parks. This, however, is not a specific land classification as is wilderness, but refers to a general condition of land that may span several of the Service's land classifications that are essentially undeveloped and natural in character. Where the term wilderness is used, it will apply only to congressionally designated wilderness or to areas being studied or proposed for wilderness designation. The park "backcountry" would include the designated or proposed wilderness, but could also include other roadless lands which contain minor developments not appropriate in wilderness and provide for a number of different park purposes and activities.

WILDERNESS REVIEWS

The Service will continue to review areas that qualify for wilderness study, consistent with provisions of the Wilderness Act and subsequent legislation directing that wilderness studies be made. Wilderness studies shall be subject to compliance with the Procedures for the Protection of Historic and Cultural Properties promulgated by the Advisory Council on Historic Preservation.

Nature of Wilderness Land

The Act defines wilderness, in part, as undeveloped Federal land retaining its primeval character and influence which

> " . . . generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable . . . ."

In interpreting this section, the Service considers lands that have been logged, farmed, grazed, or otherwise utilized in ways not involving extensive development or alteration of the landscape as qualifying for consideration of inclusion in wilderness proposals. Where such uses have impaired wilderness qualities, management will be directed toward restoration of wilderness character.

Management Considerations

An area will not be excluded from a wilderness recommendation solely because established or proposed management practices require the use of tools, equipment, or structures if those practices are necessary for the health and safety of wilderness travelers or protection of the wilderness area.

Grazing and Stock Driveways

Lands will not be excluded from a wilderness recommendation solely because of prior rights or privileges, such as grazing and stock driveways, provided these operations do not involve the routine use of motorized or mechanical equipment and do not involve development and structures to such an extent that the human imprint is substantially noticeable. *(See Grazing IV-4.)*

Historic Features

Historic features are not ordinarily included in wilderness. However, archeological ruins and miscellaneous structures of historic significance occur in undeveloped portions of a number of parks. Such features may be included in a recommended wilderness when their use and the requirements for maintenance and rehabilitation can be performed in accordance with wilderness management policies. Maintenance of the landscape so as to retain identity of historic travel routes, fields, etc., may not be undertaken.

Potential Wilderness Additions

When non-qualifying lands are surrounded by or adjacent to an area proposed for wilderness designation and such lands will within a determinable time qualify and be available Federal land, a special provision should be included in the legislative proposal giving the Secretary of the Interior the authority to designate such lands as wilderness at such time he determines it qualifies.

Mining or Prospecting

Any recommendation that lands presently subject to mineral entry be designated wilderness will only be made subject to revocation of the mineral entry provision. *(See Mineral Exploration, Leasing, and Mining IV-5.)*

Utility Lines

Lands containing above-ground utility lines are not included in recommended wilderness. Areas containing underground utility lines may be included if the area otherwise qualifies as wilderness and the maintenance of the utility line does not require mechanized and motorized equipment. *(See Utilities III- 7, Utility and Transportation Corridors and Rights-of-Way VII-12.)*

WILDERNESS USE

Wilderness is recognized in the Wilderness Act as an area

> " . . . where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

The visitor must accept wilderness largely on its own terms. Modern conveniences are not provided for the comfort of the visitor; and the risks of wilderness travel, of possible dangers from accidents, wildlife, and natural phenomena must be accepted as part of the wilderness experience.

For a majority of park visitors, park wilderness will be appreciated primarily from outside wilderness boundaries as part of the park scene, viewed from park roads and developments. To them, as well as to the visitor who hikes into the wilderness, protection of the wilderness character is essential to the quality of the park experience.

Information on Wilderness Use

Information on wilderness and backcountry use will be available in each park having such resources, specifying

- the kinds of clothing and equipment necessary for such use;
- special dangers of wilderness use and precautions to be observed by the user; and
- regulations regarding wilderness and backcountry use.

(See Information VII- 2.)

Limitation of Wilderness Use

If necessary to preserve the wilderness character, the Service will limit or disperse use through a variety of means best suited to the particular wilderness concerned. *(See Limitation of Visitor Use VII- 1.)*

Overnight Use

The Service may designate campsites where the level of overnight use indicates the need. Campsite facilities are to be the minimum necessary for the health and safety of the wilderness traveler and for the protection of the resources. Facilities may include an identifying site marker, pit toilet, tent sites, unobtrusive fire rings, and, if necessary, a hand operated water pump. *(See Overnight Accommodations III- 7, Backcountry Use VII- 8.)*

Day Use

In smaller wilderness areas where the use pattern is essentially day use, provision of campsites may not be necessary, or they may be provided outside of wilderness boundaries.

Commercial Services

Provision of commercial services for guided riding, hiking, mountain climbing, and boat travel; and other similar services designed to aid wilderness enjoyment are permissible under careful control by each park as to their nature, number, and extent. Structures or facilities in support of such commercial services are not permitted within wilderness. *(See Backcountry Commercial Services VII-9 .)*

Caches

The storage of boats or other equipment by the public is not permitted. All equipment brought in must be taken out at the end of each wilderness trip.

Research

The Service, recognizing the scientific value of wilderness areas as natural outdoor laboratories, encourages those kinds of research and data gathering which require such areas for their accomplishment, and which will not adversely modify either the physical or biological resources and processes of the ecosystems, nor intrude upon or otherwise degrade the aesthetic values and recreational enjoyment of wilderness environments. All activities must be in accord with wilderness management policies. *(See Resource Basic Inventory II-1 , Science Program IV-2 , Collecting of Natural Specimens by Permit VII-16.)*

Refuse Disposal

Refuse may not be disposed of within wilderness, except for the burning of combustible materials. The "carry out" concept will be implemented by each park containing wilderness. *(See Backcountry Sanitation VII-9 .)*

Hydrometeorologic Devices

Hydrologic or hydrometeorologic devices are usually permanent or semi-permanent installations used to gather water and climatic data related to the management of resources outside of the wilderness. Such existing devices may be retained in wilderness. New or additional devices should not be placed in wilderness, except upon a finding by the Secretary of the Interior that essential information cannot be obtained from locations outside of wilderness and that the proposed device is the minimum tool to successfully and safely accomplish the objective. The installation, servicing, and monitoring of these devices shall be accomplished by such means as will assure human safety and will result in the minimum permanent and temporary adverse impact upon the wilderness environment.

WILDERNESS MANAGEMENT

In the management of wilderness resources and of wilderness use, the Service will use the minimum tool necessary to successfully, safely and economically accomplish its management objectives. When establishing the minimum tool, economic factors should be considered the least important of the three criteria. The chosen tool or equipment should be the one that least degrades wilderness values temporarily or permanently. Accepted tools, equipment, structures and practices may include but are not limited to: fire towers, patrol cabins, pit toilets, temporary roads, spraying equipment, hand tools, fire-fighting equipment, caches, fencing and controlled burning. The specifics of wilderness management for a given park will be included in the park's resources management plan.

Motorized or Mechanical Equipment

1. As a general rule, use of motorized equipment or mechanical transport by the public is not allowed. Boating with hand propelled craft is an acceptable use of wilderness. Language customarily used in the National Park Service's recommended wilderness legislation would make applicable to the National Park Service a special provision of the Wilderness Act pertaining to the use of aircraft and motorboats. Under this provision, where the use of aircraft and motorboats has already become established, the use may be permitted to continue subject to such restrictions as the Secretary of the Interior deems desirable. This does not mean that previously established motorboat and aircraft uses of an area must be allowed to continue upon the designation of that area as wilderness or that water areas must be excluded from wilderness recommendation where motorboats are involved. Any recommendation to allow established aircraft or motorboat use to continue in wilderness would be based upon a finding that the purpose, character and manner of such use is suitable to the specific wilderness under consideration.

2. Administrative use of motorized equipment or mechanical transport, including motorboats and aircraft, is permitted only as follows:

   a. In emergency cases involving the health and safety of wilderness users or the protection of wilderness values.

   b. As necessary to meet the minimum needs of management to achieve the purpose of the area.

(See Aircraft Operations, VII-11.)

MANAGEMENT FACILITIES

Wilderness is defined, in part, as undeveloped Federal land retaining its primeval character and influence, without permanent improvements. Facilities are permitted only as necessary to meet the minimum requirements for the administration of the wilderness area.

Roads

Permanent roads are not permitted in wilderness. Where wilderness includes abandoned roads, their use by vehicles is not permitted and the road should be restored to a natural condition. Temporary vehicular access is permitted only to meet the minimum requirements of emergency situations.

Trails

Narrow, unpaved foot and horse trails are permissible. *(See Trails and Walks III- 3.)*

Heliports, Helipads, Helispots, and Airstrips

Heliports, helipads, and airstrips are not permissible. Natural openings may be utilized as helispots. No site marking or improvements of any type will be permitted, except in conjunction with specific emergencies, after which the area will be restored. *(See Aircraft Operations VII-11.)*

Communications Facilities

Radio facilities are permitted where necessary for management of the wilderness area.

Fire Lookouts

Fire lookouts for wilderness protection are permitted where there is no adequate alternative method of fire detection. *(See Miscellaneous Management Facilities III-12.)*

Ranger Stations, Patrol Cabins, and Storage Structures

These structures are permitted only to the minimum extent necessary for wilderness management. *(See Management Facilities III-11.)*

Fences and Hitching Racks

Fences and hitching racks are permitted only where essential for protection of the resource.

Chalets and Concessioner Camps

These facilities are not permissible. *(See Overnight Accommodations III-7.)*

Signs and Markers

Signs and markers may be provided only where they are necessary for visitor safety, management, or resource protection. *(See Signs III-13.)*

Tables

Picnic tables are not permissible.

Toilets

Toilet facilities are limited to locations where there are health and sanitation problems or serious resource damage, and where reducing or dispersing visitor use is not practical or realistic. *(See Backcountry Sanitation, VII-9 .)*

PLAQUES, MEMORIALS, AND BURIAL PLOTS

Existing commemorative features and burial plots may be retained. No future additions may be made, unless permitted by existing reservations.

(See Memorials III-13.)

APPENDIX C

"Departmental Guidelines for Wilderness Proposals"
(June 24, 1972)

[copy]

DEPARTMENTAL GUIDELINES FOR WILDERNESS PROPOSALS

United States Department of the Interior

Office of the Secretary
Washington, D.C. 20240

June 24, 1972

Memorandum

To: Director, Bureau of Sport Fisheries and Wildlife

Director, National Park Service

From: Assistant Secretary for Fish and Wildlife and Parks

Subject: Guidelines for Wilderness Proposals — Reference Secretarial Order No. 2920

In the course of developing wilderness proposals we should strive to give the areas under study wilderness designation but not at the expense of losing the essential management prerogatives that are necessary to fulfill the purposes for which the areas were originally intended. Although each area under study must be considered separately, with special attention given to its unique characters, the following criteria should be adhered to when determining the suitability of an area for wilderness designation.

Management

An area should not be excluded from wilderness designation solely because established or proposed management practices require the use of tools, equipment or structures, if these practices are necessary for the health and safety of wilderness travelers, or the protection of the wilderness area. The manager should use the *minimum* tool, equipment or structure necessary to successfully, safely and economically accomplish the objective. When establishing the minimum tool

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and equipment necessary for a management need within wilderness areas economic factors should be considered the least important of the three criteria. The chosen tool or equipment should be the one that least degrades wilderness values temporarily or permanently.

For the purpose of this paragraph, accepted tools, equipment, structures and practices may include but are not limited to: fire towers, patrol cabins, pit toilets, temporary roads, spraying equipment, hand tools, fire-fighting equipment caches, fencing and controlled burning. In special or emergency cases involving the health and safety of wilderness users or the protection of wilderness values aircraft, motorboats and motorized vehicles may be used. Enclaves, buffer zones, etc., should not be established if the desired management practices are permitted under these guidelines.

Visitor Use Structures and Facilities

An area that contains man-made facilities for visitor use can be designated as wilderness if these facilities are the minimum necessary for the health and safety of the wilderness traveler or the protection of wilderness resources. An example of a wilderness campsite that could be included is one having a pit toilet and fire rings made of natural materials and tent sites. A hand-operated water pump may be allowed. This kind of campsite would not be considered a permanent installation and could be removed or relocated as management needs dictate. Facilities that exceed the "minimum necessary" criteria will be removed and the area restored to its natural state. (See section on Exceptions.)

Areas containing campsites that require, for the protection of the adjacent wilderness values, facilities more elaborate than those allowed in a wilderness campsite should be excluded from wilderness designation.

Prior Rights and Privileges and Limited Commercial Services

Lands need not be excluded from wilderness designation solely because of prior rights or privileges such as grazing and stock driveways or certain limited commercial services that are proper for realizing the recreational or other wilderness purposes of the areas.

Road and Utilities — Structures and Installations

Areas that otherwise qualify for wilderness will not be excluded because they contain unimproved roads, created by vehicles repeatedly

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traveling over the same course, structures, installations or utility lines, which can and would be removed upon designation as wilderness.

Research

Areas that otherwise qualify need not be excluded from wilderness designation because the area is being used as a site for research unless that use necessitates permanent structures or facilities in addition to those needed for management purposes.

Future Development

Those areas which presently qualify for wilderness designation but will be needed at some future date for specific purposes consistent with the purpose for which the National Park or National Wildlife Refuge was originally created, and fully described in an approved conceptual plan, should not be proposed for wilderness designation if they are not consistent with the above guidelines.

Exceptions

Certain areas being studied may contain structures such as small boat docks, water guzzlers and primitive shelters that ought to be retained but may not qualify as minimum structures necessary for the health and safety of wilderness users or the protection of the wilderness values of the area. When an area under study for wilderness designation would otherwise qualify as wilderness a specific provision may be included in the proposed legislation for this area, giving the wilderness manager the option of retaining and maintaining these structures. Necessary management practices such as controlled burning shall also be mentioned specifically in the proposed legislation.

Areas being considered for wilderness designation will not be excluded solely because they contain hydrologic devices that are necessary for the monitoring of water resources outside of the wilderness area. When these devices, either mechanical or electronic, are found to be necessary, a specific provision allowing their use will be included in the legislation proposing the wilderness area being considered. For the installation, servicing and monitoring of these devices the minimum tools and equipment necessary to safely and successfully accomplish the job will be used.

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Areas being studied for wilderness designation will not be excluded solely because they contain lakes created by water development projects if these lakes are maintained at a relatively stable level and the shoreline has a natural appearance. Where this occurs and there is no other reason for excluding the area, a specific provision describing the water development project and its operation will be included in the proposed legislation along with the recommendation for including it in the wilderness area. Other minimal development of water resources may be suggested for inclusion in wilderness if specific reference is made to them in the proposed legislation. These provisions will allow present maintenance practices to continue.

Areas that contain underground utilities such as gas pipelines and transmission lines will not be excluded from wilderness designation solely for this reason. Where this occurs the areas may be included by making specific mention of them in the proposed legislation indicating that this use would continue and previously established maintenance practices would be allowed to continue.

When non-qualifying lands are surrounded by or adjacent to an area proposed for wilderness designation and such lands will within a determinable time qualify and be available Federal land, a special provision should be included in the legislative proposal giving the Secretary of the Interior the authority to designate such lands as wilderness at such time he determines it qualifies.

Nathaniel P. Reed

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APPENDIX D

Legislation and Policy

Enabling Legislation for Everglades National Park (48 Stat. 816)

Wilderness Act of 1964 (P.L. 88-577)

Table: Permitted and Prohibited Uses in Wilderness for Natural Areas of the National Park System

An Act To provide for the establishment of the Everglades National Park in the State of Florida and for other purposes, approved May 30, 1934 (48 Stat. 816)

Everglades National Park, Fla. Establishment, when title to lands is vested in United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That when title to all the lands within boundaries to be determined by the Secretary of the Interior within the area of approximately two thousand square miles in the region of the Everglades of Dade, Monroe, and Collier Counties, in the State of Florida, recommended by said Secretary, in his report to Congress of December 3, 1930, pursuant to the Act of March 1, 1929 (45 Stat., pt. 1, p. 1443), shall have been vested in the United States, said lands shall be, and are hereby, established, dedicated, and set apart as a public park for the benefit and enjoyment of the people and shall be known as the Everglades National Park: *Provided,* That the United States shall not purchase by appropriation of public moneys any land within the aforesaid area, but such lands shall be secured by the United States only by public or private donation. (16 U.S.C. sec. 410.)

Proviso.

Lands secured only by donation.

Acceptance of title.

SEC. 2. The Secretary of the Interior is hereby authorized, in his discretion and upon submission of evidence of title satisfactory to him, to accept on behalf of the United States, title to the lands referred to in the previous section hereof as may be deemed by him necessary or desirable for national-park purposes: *Provided,* That no land for said park shall be accepted until exclusive jurisdiction over the entire park area, in form satisfactory to the Secretary of the Interior, shall have been ceded by the State of Florida to the United States. (16 U.S.C. sec. 410a.)

Proviso.

Restriction, until exclusive jurisdiction over entire area is ceded.

National Park Service to administer, etc.

SEC. 3. The administration, protection, and development of the aforesaid park shall be exercised under the direction of the Secretary of the Interior by the National Park Service, subject to the provisions of the Act of August 25, 1916 (39 Stat. 535), entitled "An Act to establish a National Park Service, and for other purposes", as amended: *Provided,* That the provisions of the Act approved June 10, 1920, known as the Federal Water Power Act, shall not apply to this park: *Provided further,* That nothing in this Act shall be construed to lessen any existing rights of the Seminole Indians which are not in conflict with the purposes for which the Everglades National Park is created: *And provided further,* That the United States shall not expend any public moneys for the administration, protection, or development of the aforesaid park within a period of five years from the date of approval of this Act. (16 U.S.C. sec. 410b.)

Provisos.

Water Power Act not applicable.

41 Stat. 1063.

Rights of Indians.

No Federal expense for first 5 years.

Permanently reserved as a wilderness.

SEC. 4. The said area or areas shall be permanently reserved as a wilderness, and no development of the project or plan for the entertainment of visitors shall be undertaken which will interfere with the preservation intact of the unique flora and fauna and the essential primitive natural conditions now prevailing in this area. (16 U.S.C. sec. 410c.)

Wilderness Act

An Act to establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes. (78 Stat. 890)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Wilderness Act".

WILDERNESS SYSTEM ESTABLISHED STATEMENT OF POLICY

SEC. 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possesssions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefit of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereover immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

DEFINITION OF WILDERNESS

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

NATIONAL WILDERNESS PRESERVATION SYSTEM—EXTENT OF SYSTEM

SEC. 3. (a) All areas within the national forests classified at least 30 days before the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness", "wild", or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall—

(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: *Provided, however*, That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

(b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or nonsuitability for preservation as wilder-

ness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit: if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

(c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness. The President shall advise the President of the Senate and the Speaker

of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or otherwise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

(d) (1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness—

(A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

(B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area: *Provided*, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by no later than thirty days following the date of the hearing.

(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

(e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in subsection (d)

of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representative of his recommendations with respect to such modification or adjustment and such remommendations shall become effective only in the same manner as provided for in subsections (b) and (c) of this section.

USE OF WILDERNESS AREAS

SEC. 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and national wildlife refuge systems are established and administered and—

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public Law 733, Eightieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen Act (Public Law 607, Eighty-fourth Congress, June 22, 1956; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with the Act of August 25, 1916, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including, but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 432 et seq.); section 3(2) of the Federal Power Act (16 U.S.C. 796(2)); and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been estab-

lished as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

(3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; sub-

ject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; and hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and benefication of the mineral deposits, if needed timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: *Provided*, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection. Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from dis-

position under all laws pertaining to mineral leasing and all amendments thereto.

(4) Within wilderness areas in the national forests designated by this Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with regulations established by the Secretary of Agriculture in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and portages: *Provided*, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

SEC. 5. (a) In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the

State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture: *Provided, however,* That the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

(c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

GIFTS, BEQUESTS, AND CONTRIBUTIONS

SEC. 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS

SEC. 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect

and other pertinent information, together with any recommendations they may care to make.

Approved September 3, 1964.

Legislative History

House Reports: No. 1538 accompanying H.R. 9070 (Committee on Interior and Insular Affairs) and No. 1829 (Committee of Conference).
Senate Report No. 109 (Committee on Interior and Insular Affairs).
Congressional Record:
Vol. 109 (1963):
Apr. 4, 8, considered in Senate.
Apr. 9, considered and passed Senate.
Vol. 110 (1964):
July 28, considered in House.
July 30, considered and passed House, amended, in lieu of H.R. 9070.
Aug. 20, House and Senate agree to conference report.

TABLE -continued.

Use	Wilderness Act of 1964 Prohibits	Wilderness Act of 1964 Permits	National Park Service Dept. of Interior Policy Prohibits	National Park Service Dept. of Interior Policy Permits
MANAGEMENT TOOLS AND METHODS				
Controlled burning				X[2]
Fencing				X[2,4]
Firefighting equipment caches				X[2]
Handtools				X[2]
Hydrological monitoring devices				X[2]
Spraying equipment				X[2]
Other motorized equipment	X[1]		X[3]	
VEHICLES				
Aircraft (landing and takeoff)	X[1]		X[3]	
Landcraft	X[1]		X[3]	
Watercraft (motorboats)	X[1]		X[3]	

1. Prohibited except "when necessary to meet minimum requirements for administration of the area. . . including measures required in emergencies involving the health and safety of persons within the area" (Section 4c).

2. Only where demonstrated as the "minimum tool, equipment, or structure [or practice] necessary". . .for the health and safety of wilderness travelers, or the protection of the wilderness area." (Memorandum from Assistant Secretary for Fish and Wildlife and Parks, Department of the Interior to Director, Bureau of Sport Fisheries and Wildlife, and Director, National Park Service. "Guidelines for wilderness proposals." June 24, 1972. Reference Secretarial Order No. 2920.

3. Except where ibid. No.2.

4. United States Department of the Interior, National Park Service. 1970. Administrative policies for the national parks and national monuments of scientific significance (natural area category). U.S. Government Printing Office, Washington, D.C. 147p.

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics and editorial staffs of the National Park Service, Denver Service Center. NPS 754-A

United States Department of the Interior / National Park Service

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978—777-094/11