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Vol. 1

master plan

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# EVERGLADES



NATIONAL PARK / FLORIDA

ON MICROFILM

**Color Scans**

5/20/2004



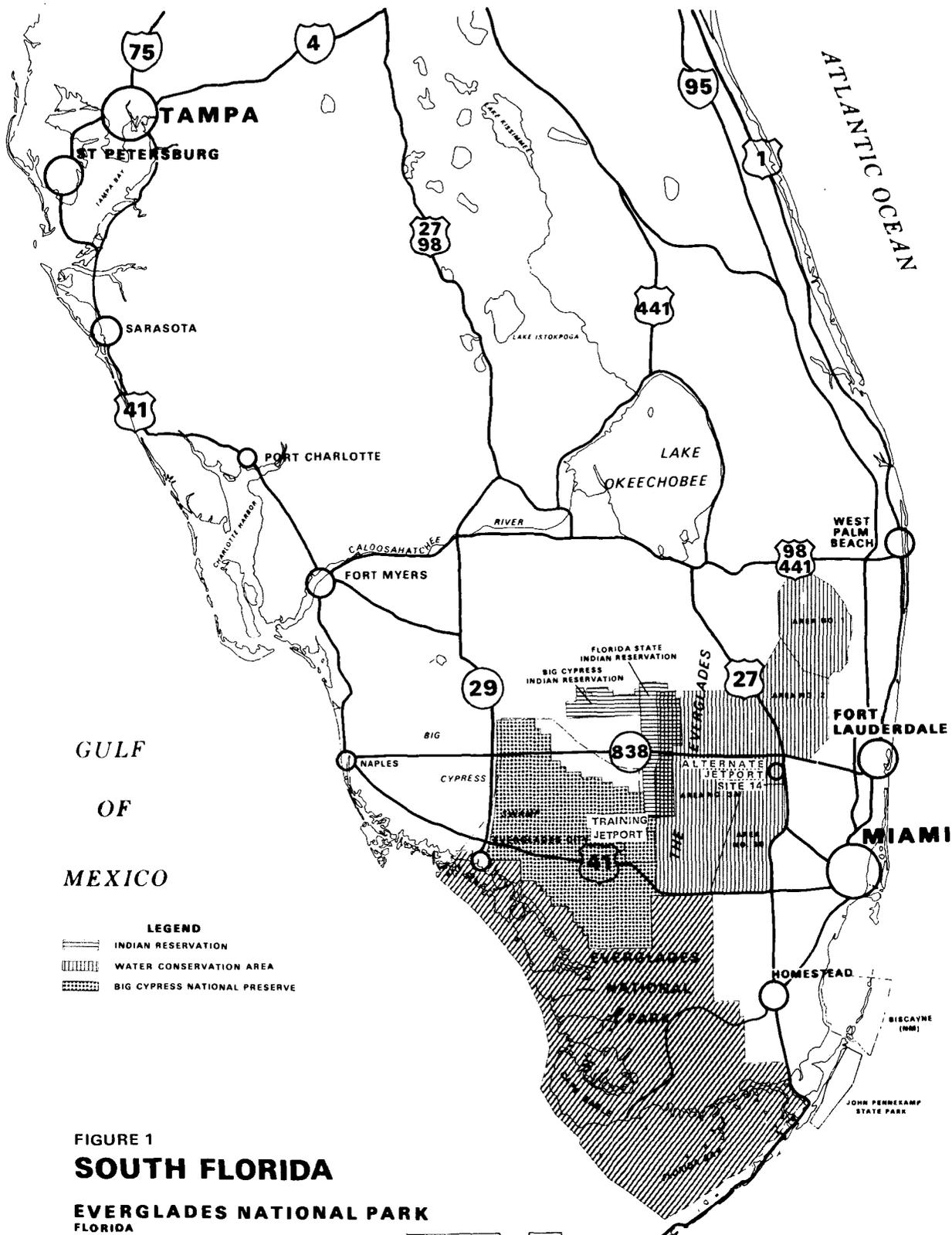
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# EVERGLADES

National Park / Master Plan



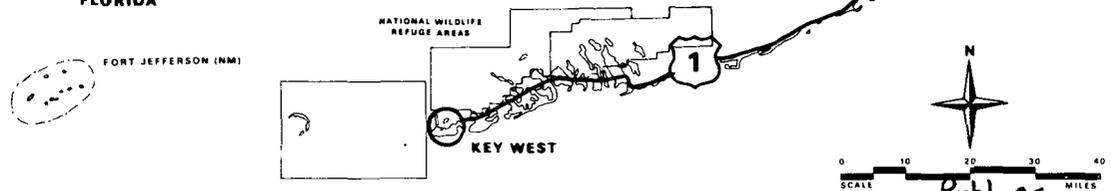




GULF  
OF  
MEXICO

- LEGEND**
-  INDIAN RESERVATION
  -  WATER CONSERVATION AREA
  -  BIG CYPRESS NATIONAL PRESERVE

**FIGURE 1**  
**SOUTH FLORIDA**  
**EVERGLADES NATIONAL PARK**  
FLORIDA



UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

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## SUMMARY



The third largest of the national parks, Everglades is one of the most unusual wilderness areas on the continent. The park preserves about 7 percent of the immense sweep of the Florida Everglades landscape, which is unique to, and forms the largest expanse of open space in, the South Florida region. But the park is not all part of the Florida Everglades. Two-thirds of the area is part of the marine/estuarine system of the South Florida coast. The park is greatly influenced and shaped by the sea, and contains one of the largest marine preserves in the National Park System.

The dynamic systems in the park change in response to new influences, both natural and manmade. Continuing development and population growth in South Florida have unquestionably accelerated changes in the natural environment; and the components of Everglades National Park — as parts of this environment — are profoundly influenced by the changing regional structure. What happens in the surrounding South Florida region tomorrow, and further into the future, will largely determine whether the park survives.

Although Everglades was not established and dedicated as a national park until 1947, it was authorized by Congress as a project in 1934. The act of 10 May 1934 clearly sets the tone for future management of the park as a natural area:

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.

As a result of this and subsequent legislation, 1,400,533 acres in Dade, Monroe, and Collier Counties, including 32 acres in Everglades City and 14 acres in Key Largo, were finally brought within the park's boundaries. Large private inholdings, which existed for many years inside the park, have now been acquired, and virtually all lands are in Federal ownership.

Decisions about development and use of this marine/terrestrial park complex must give highest priority to the preservation of the variety of wilderness habitats and their multifarious wildlife species. And the vulnerability of these natural systems that results from their ties with the rest of the South Florida region renders inadequate any decisions that are not regional in scope. No matter how well the park is planned and managed internally, it cannot survive alone. It will become increasingly important in the years ahead that a sophisticated and innovative park management continue to actively pursue a regional partnership with other interests in South Florida.

Coping with external stresses and increasing numbers of visitors, past planners and managers have sought to achieve a suitable balance between visitor facilities in the park and the capabilities of the park's resources to support them. This effort, with few exceptions, has been successful. Wilderness conditions still remain intact, and in 1978 most of the park was declared legislative wilderness under the Wilderness Act. It is necessary to continue studies and controls to strengthen the protection of wilderness and marine resources, and to determine the park's optimum carrying capacity.

There is no valid reason to change the basic concept of development and use for the entire park. Visitor opportunities in the future will depend on improvements to upgrade and effectively complement what already exists. In this way, the park's interpretive, educational, and recreational potentials can be expanded within the present limits on circulation and use.



## THE SOUTH FLORIDA REGION

Everglades National Park is inescapably tied to the resources, agriculture, and urban dynamics of the South Florida region, which extends over the southern third of the State from Lake Okeechobee to Key West. Most of the interior of this region contains the vast expanse of the Florida Everglades. The park lies at its southern tip, while along much of the east and west coasts there are urban areas and expanding residential and tourist developments.

South Florida is primarily a recreation region. It was so designed years ago because its natural resources and superb setting fit this purpose admirably. But in recent years inevitable conflicts have developed, and the mix of land and water uses has dipped precariously to an imbalance that could be disastrous to the natural environment. The lack of land- and water-use controls backed by legislation, and people's apparent reluctance to understand and accept the park's needs have resulted in the piecemeal chipping away of natural environmental amenities and conditions, which has, in turn, promoted crises in and inevitable losses to the overall environment.

Everglades National Park is so closely tied into the ecological matrix of the South Florida region, that what goes on in this region almost always affects the park, either directly or indirectly. For example, water in sufficient quantity and of adequate quality is critical to the park's survival. Obviously, if too much water is diverted away from the park for other uses, the park

will disappear. But water full of pesticides, fertilizers, and other pollutants from the expanding farms, highways, and urban and industrial developments in the region could also spell disaster for park resources.

Historically, most of the water over the interior drained from Lake Okeechobee southward, eventually moving through the park into the Gulf of Mexico. Prior to the 1880's, this massive natural water system was dependent on seasonal rains and occasional spillover from Lake Okeechobee. But over the years, the land has been altered by many canals, and the water regulated to reduce floods and to supply the farms and growing urban areas of the region. This has altered the natural water regime of South Florida and caused resource-management problems in Everglades National Park.

The chain reaction triggered by water and pollution problems is complicated and far reaching. Habitats are threatened, species fail to reproduce, exotic plants take over, rare plants and animals become fewer, saltwater intrusions occur more frequently, marine fishery declines, and the list grows. When does it stop, or can it? The park's dependency on the South Florida Water Management District system for water is now a fact of life. Clearly, the problem will become even more complicated as the South Florida population continues to grow, and water needs become more critical.

Florida's rate of population growth during the first half of this century was 2½ times the national average; between 1950 and 1960 that rate increased fourfold. Immigration represented 75 percent of the increase, totaling about 150,000 new residents per year. Between 1960 and 1970 the population increased about 4.7 percent per year, from 4,800,000 to 6,850,000, and since that time the rate has fallen only slightly to about 4.1 percent per year with a total estimated population of 8,550,000 in 1976. This rate of growth is expected to decline by 1990 to a stabilized level of 15 percent per decade. However, as the general resident population increased 23 percent during the 1960's, the over-65 population increased 40 percent, and there is no indication that the influx of retirement-age residents to the South Florida region will level off. The persistent desirability of Florida to retirees, who are now younger, with better educations and increased retirement benefits, will continue to increase as a force to be accommodated in any plans for the region's parks.

Most new residents have settled in urban areas, which now contain 74 percent of the State's total population. Broward, Dade, and Palm Beach Counties form the principal population center with 2,500,000 people, or nearly 40 percent of the State's population. The area from Palm Beach to

Miami, known as the Gold Coast Strip, is impacted with intense urban and resort development. In the metropolitan area of Dade County, within 50 miles of Everglades National Park headquarters, there are 1,500,000 residents, and each year more than 2,000,000 visitors traveling in private automobiles.

The counties on the west coast from Key West to Tampa Bay had a population in 1970 of approximately 1,500,000. This area, although generally zoned for agriculture, is following the east coast in developing canals and urban use patterns, which results in a pincer-like impact on Everglades National Park.

More and more Floridians, and concerned citizens nationwide, are coming to appreciate the sensory and biologic importance of conditions in the park as visible symptoms of the health of the South Florida environment and its \$3.5 billion tourist, fishery, and citrus industries.

Another crucial problem concerning the survival of the park's unique environment relates to the increasing visitation and how it can be accommodated. In 1966, the park joined the list of national parks attracting a million visitors a year. Visitation increased to a peak of 1¾ million in 1972, but in 1978 was approximately 1.15 million.

Everglades visitors fit the typical park-visitor profile in that they are generally urban, with above average educations and incomes. But the typical age and interests of visitors differ between summer and winter. Winter visitors are generally older, retired, and attracted to passive spectator activities and comfortable surroundings. Their expenditures and length of stay are approximately twice those of summer visitors. Summer visitors are younger, active, participation oriented, and cost conscious. They are usually members of young families with children; three times as many children under 16 visit the park in summer as in winter. Although summer visitors stay a shorter time, they are more mobile and seek a greater variety of experiences.

Tourists with trailers usually visit the park in winter, many of them following a fall-to-spring itinerary of southward stops. Travelers with trailers account for about 10 percent of all Florida visitors annually.

Local residents who visit the park also fit the typical park-visitor profile. Many of them have moved to the South Florida region for the pleasant mild climate. About 66 percent of the residents were born in other States, 13

percent are Florida born, and 18 percent are foreign born. They are water and boat oriented, and pursue outdoor recreation more than most people. Participation in outdoor activities in Florida is increasing almost 65 percent faster than the State's population.

Approximately 10 percent of Florida's annual visitors are foreign travelers. This percentage is higher, and will continue to be, in metro Dade. Miami is the major sea-, rail-, and air-passenger terminus for the lower east coast of Florida, and it is an important connection point for North, Central, and South American air-traffic. In 1978, approximately 30 percent of Dade County's 1,528,000 population was Spanish-speaking, with an even higher proportion in Miami itself.

The South Florida region has a wealth of public recreation areas and tourist accommodations. Everglades National Park is but one attraction in this diverse region where many types of areas can absorb the varying tastes of visitors and residents alike. Everglades alone, as a wilderness park and nature sanctuary, cannot absorb the multitude, nor can it provide a massive and diverse recreation program satisfactory to all who come here.

As the development of South Florida continues, efforts are being made by the State, counties, and private associations to place outdoor resources in public trust. Within a 100-mile radius of Everglades National Park, there are approximately 25 public and private campgrounds totaling some 3,000 tent and trailer sites. Of these campgrounds, half provide combined swimming, fishing, and boating facilities. In the Big Cypress area, the Corkscrew Swamp Preserve has been established by the Audubon Society. On 11 October 1974, President Ford signed Public Law 93-440, authorizing establishment of the Big Cypress National Preserve, which is to be preserved and administered by the National Park Service. The State has recently acquired portions of the Fakahatchee Strand and the Ten Thousand Islands. Other recreational attractions distributed within 175 miles of Everglades National Park include some 44 State parks and preserves, 2 national monuments, 6 national wildlife refuges, 3 Indian reservations, and an excellent system of local parks in Dade County.

Road and highway networks crisscross and divide the region into innumerable parts, providing mobility and access. In 1970, more than 20 million vehicles entered Florida over one of the 16 Federal or 2 interstate highways. Six million of them carried tourists, and 1,750,000 of these were destined for the seven counties within a 100-mile radius of Everglades National Park.

In addition to the existing expressway systems in metro Dade, other Federal, State, and metro transportation systems are being studied. As now envisioned, these new systems will provide limited-access and major arterial roads by 1985 for south Dade County and the city of Homestead, just 12 miles from the park headquarters. This general vicinity adjacent to the park boundary has been zoned "environmental sensitivity" by the Metropolitan Dade County Planning Department. Plans have also been prepared for expanding U.S. 1 to four lanes from Homestead to Key Largo. On the west coast, south of Fort Myers, U.S. 41 (the Tamiami Trail) is being widened, and a section of Interstate 75 is being completed.

Unless great care is exercised, factors associated with human encroachment could irreversibly alter park ecosystems, leaving only fragmented systems or small populations of many wildlife species. There are, however, some encouraging signs to indicate that the region may yet cope effectively with its growing problems. A South Florida Regional Planning Council was organized in 1969, and it is attempting to initiate comprehensive planning. A greater awareness of ecological problems has also brought about growing concerns for conserving the marine fishery resource, for preserving additional natural areas such as the Big Cypress Swamp, and for placing limitations on the development of the Florida Keys. Recent legislation allows the State to designate areas of critical environmental concern. After these areas are recognized, local governments will be given an opportunity to initiate controls. If the local levels do not produce any results, the State will then take over control and responsibility. This legislation, known as the 1972 Land and Water Management Act, authorizes the State to designate critical environment areas (not to exceed 5 percent of the State) and regionally important developments, and designates a State agency to propose and adopt a comprehensive land-use plan. Also available, through the Land Conservation Act of 1972 and a public referendum, are \$240 million in bonds for State acquisition of environmentally endangered coastal lands and inland recreational lands.

The 1972 Water Resources Act authorizes a comprehensive State plan for the conservation of Florida waters in management districts. Agreement also has been reached with the Corps of Engineers regarding the minimum water requirements for Everglades National Park.

Hopefully, all of these recent legislative commitments may be the beginning of a recognition that the park, and indeed all regional resources, and regional developments must attain a viable compatibility in order to survive in the critically interdependent South Florida environment.



## THE RESOURCE



For the visitor, the park is a visual experience. It is not easy for him to sort out the components until his awareness deepens and he learns what to look for. Probably for most, the memorable aspects are the endless flatness, the immense expanse of grass and sea, and the profusion of birds and alligators. There is, of course, much more hidden and blended into the fabric of the park's subtle and complicated ecosystems, which will be discussed later.

Water is the basic dominant resource, and is the key to the park's character and survival. More than half of the park is permanently under water. Two-thirds of the park is part of the sea and coastal estuarine environments, while the inland third is dominated by the freshwater terrestrial environment of the Florida Everglades.

The park has no spectacular geological formations to provide a scenic backdrop. The sky dominates the flatness of the scene, compressing the environment into a seemingly endless and awesome land-and-seascape. A third of the park is a broad plain that lies nearly at sea level – with a maximum elevation of about 5 feet, along the northern boundary. The center of the plain contains a wide depression known as the Shark Valley Slough, through which the waters of Lake Okeechobee in former years slowly migrated to the sea. Water from conservation areas in the Florida Everglades sawgrass plain to the north now contributes almost exclusively to this flow, which usually ceases during the winter and early spring dry season.

In addition to the flatness of the land, two other topographic features are distinctive. One of these is the numerous outcrops of the surficial limestone

bedrock, Miami oolite, which provide relatively dry land for forest development. The other feature is the "pinnacle rock" formations, which are erosion remnants of the limestone substrate that form inches-high projections of knobs and crags and render travel by foot all but impossible.

This habitat is on the one hand hostile to human occupation and on the other hand hospitable to a remarkable diversity of wildlife.

The park's animals and plants are a varied assemblage of West Indian and North American forms, many near their northern or southern range limits. The flora of the park includes about 1,000 different kinds of seed-bearing plants and many 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 found in the hammocks in the northwestern part of the park include several oaks and ashes, and red maple, a true dogwood, and hackberry. Willow, elderberry, cypress, bay, wax myrtle, holly, and magnolia grow in and around tree islands in the glades area. By the time the coastal area of Flamingo is reached, almost all northern representatives have been left behind, and botanically, one has arrived in the West Indies.

Eight major vegetation associations are found in the park: sawgrass everglades, mangrove forest, salt marsh, cypress forest, pine forest, mixed West Indian hardwood hammock forest, bay head, and Cape Sable saw palmetto salt prairie.

Sawgrass everglades and mangrove forests occur on lands that are normally overflowed during at least part of the year. Together, they cover most of the park area. The everglades, occurring on slightly higher lands than the cypress or mangrove associations, take up the interior freshwater sections of the park, providing wide vistas of sawgrass prairies dotted with scattered island hammocks and bay heads. This land of marl or muck soils is under water during the rainy season, but dry and frequently swept by fire in late winter and spring. The glades have a distinct and characteristic flora. The dominant species are sedges and grasses, but many marsh plants, representing a number of families, are also typical.

The mangrove belt occupies a crescent-shaped area of salty-to-brackish waters all around the coast. It extends inland beyond Whitewater Bay, where

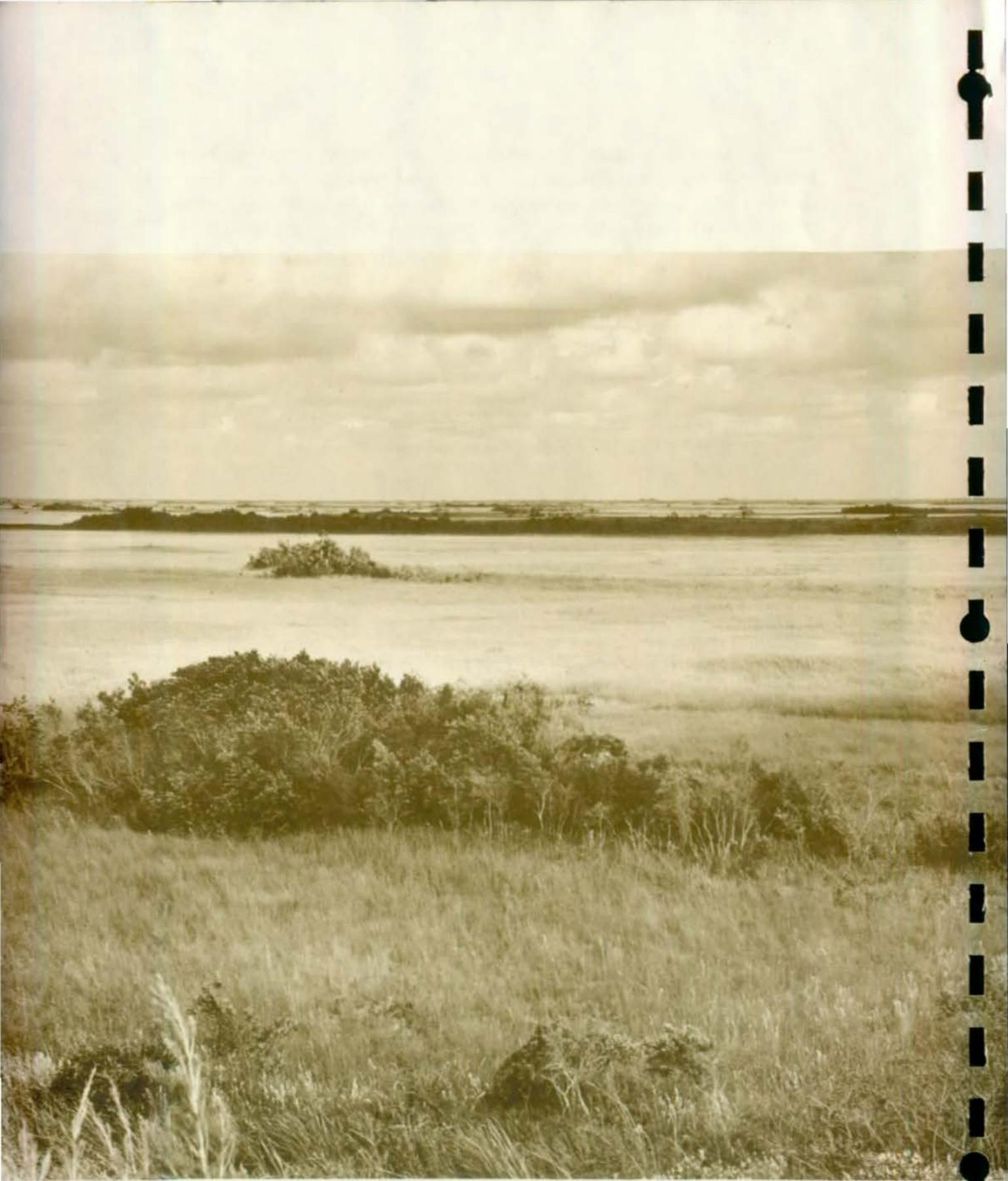
it reaches a maximum width of 15 miles, and it comprises about half the land area of the park. Three species of mangrove — red, black, and white — make up this forest. Distributed throughout the mangrove forest are salt marsh associations consisting principally of several species of cord grass, frequently mixed with rushes. These associations form extensive stands on the Cape Sable peninsula and on the flats between the larger estuaries to the north.

Farther inland, dwarf or giant bald cypress dominate an extensive area of swampy lowlands, called domes, sloughs, or strands. This usually sparse forest type is found chiefly in the central part of the park. In the southeastern portion along the Flamingo highway, because of very little humus accumulation, the cypress are dwarfed, though perhaps just as old as the giant trees in Collier County, outside the park. The cypress stands are rich in air plants and orchids.

Pine forests, hammock forests, and bay heads occupy the higher sites around and within the Florida Everglades basin. Pines, including slash and Caribbean pine, are found only on elevated areas of bare limestone in the central area of the park, where Miami oolite outcrops form broad low ridges, perhaps only a few inches above the surrounding glades. These ridges are occasionally flooded, about once every 5 to 10 years, and are subject to burning once every 4 to 7 years. Without such periodic burns, the perpetuation of the pine forests as a forest type might be in jeopardy.

In contrast with the pine forests, the hammock forests 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, and along parts of the coast, wherever the site is high enough to prevent saltwater intrusion and frequent flooding, and has enjoyed some natural protection from fire. Humus, marl, or rock may constitute these raised areas.

Bay heads and cypress heads are types of tree islands that dot the marshy expanses of the Florida Everglades, perhaps marking the locations of small topographic variations of 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, all 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.



The Cape Sable saw palmetto salt prairie is a marl flat that rises slightly along the coast and merges into mangrove forests to the north. It is covered with grass; shrubby vegetation, principally saw palmetto, pricklypear cactus, agave, and seaside lavender; and scattered buttonwood hammocks. Formerly covered by trees, this prairie was cleared by the charcoal operations and agricultural practices of the early settlers.

In addition to these eight major plant associations, another prominent geographic subdivision is formed by the numerous low islands, or "keys," in Florida Bay. Originally bay heads in a freshwater swamp, these 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.

Along the gulf coast one finds another group of keys, which form the Ten Thousand Islands. Part of this island group extends outside the park. These islands, like those in Florida Bay, are composed mostly of mangrove, but they are clustered closer together and are separated by an intricate network of water channels. Formerly part of the mainland beach, this drowned coastal area succumbed to rising sea levels to produce the unique island environment of today.

No discussion of the vegetation of Everglades National Park would be adequate without mention of the palms that grow here. Six of the 14 species of palms native to the United States are found in the park. In addition, the coconut palm, which is probably not native, is well established at Cape Sable (once the site of a commercial coconut plantation) and elsewhere near beaches; and 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 the Royal Palm developed area on Paradise Key, and on several other hammocks in that vicinity, and at a few places along the gulf coast. The present distribution may indicate that the fruit of this palm was a food of 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 that occurs throughout the park. Saw palmetto is abundant in the rocky pinelands, usually as a low-growing plant. Silver palm also occurs in the pine forests, and on the Florida Bay Keys. A species of thatch palm is found along the north shore of Florida Bay and even more commonly on the keys. Paurotis palm occurs on hammocks in a narrow belt along the mangrove edge of the southern Florida Everglades, and it may be viewed from the Flamingo road.

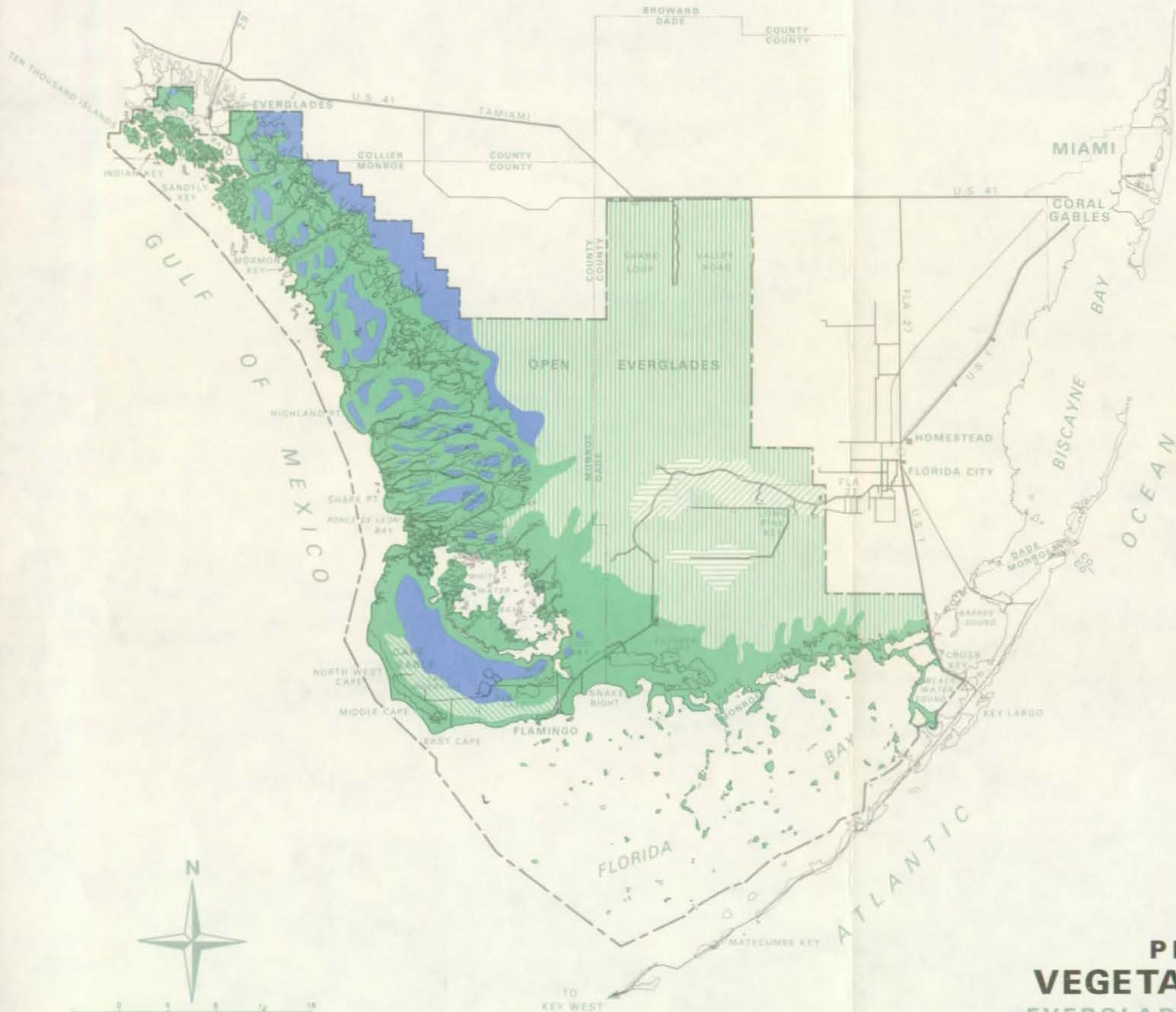
Lying near mean sea level, the marl and shell mudbanks of Florida Bay — often several miles across — support communities of turtle grass, horned pondweed, sea grass, and manatee grass. Along with several species of algae, these communities bind the shells, foraminifera, and calcareous plant remains that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

The animal life of Everglades is particularly significant and interesting to visitors. In no other national park do so many diverse forms of wildlife exist in such large numbers, and nowhere else do so many rare and endangered forms find refuge.

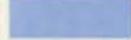
The Florida Everglades are home to about 25 species of terrestrial and two species of aquatic mammals, including the Florida variety of white-tailed deer, black bear, panther, opossum, raccoon, wildcat, otter, porpoise, and manatee. With the exception of one or two species of bats, all of the terrestrial mammals are of North American origin.

About 300 species of birds have been identified in the park, and new ones are added to the list nearly every year. South Florida's location makes it a crossroads of migratory flight for West Indian and Central and South American birds; and the majority of the North American species of wading birds, shorebirds, and waterfowl are found here at one season or another. Many of the North American species are nesting residents, including some that seldom range farther north and others that have disappeared from other areas where they once occurred. One of the main reasons for the establishment of the park was to protect the nesting areas and feeding grounds of herons and ibis, including: roseate spoonbill; great white heron; reddish, great, and snowy egrets; Louisiana and little blue herons; wood stork (wood "ibis"); and white and glossy ibis. Other birds dependent on the park for permanent or seasonal refuge are sandhill crane, limpkin, anhinga, cormorant, brown and white pelicans, and frigate-bird (man-o-war bird).

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 species failed to penetrate as far south as South Florida, which has fewer representatives of these groups than do many other places in the southeastern United States. The known fauna of the park includes three or four species of salamanders, six species of lizards,



**LEGEND**

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

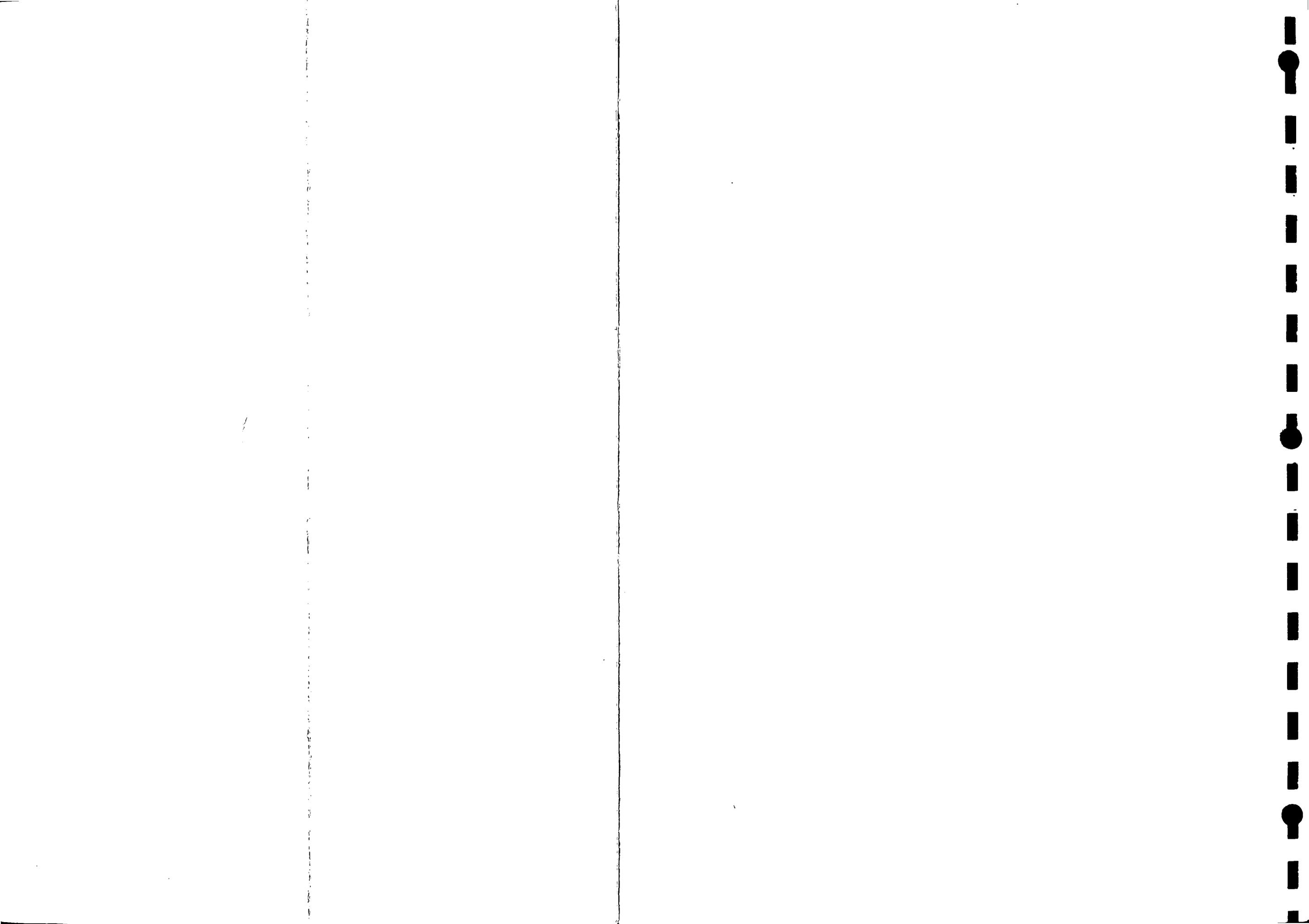


UNITED STATES DEPARTMENT OF THE INTERIOR — NATIONAL PARK SERVICE

FIGURE 10  
**PRINCIPAL VEGETATION TYPES**  
 EVERGLADES NATIONAL PARK  
 FLORIDA

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**ON MICROFILM**



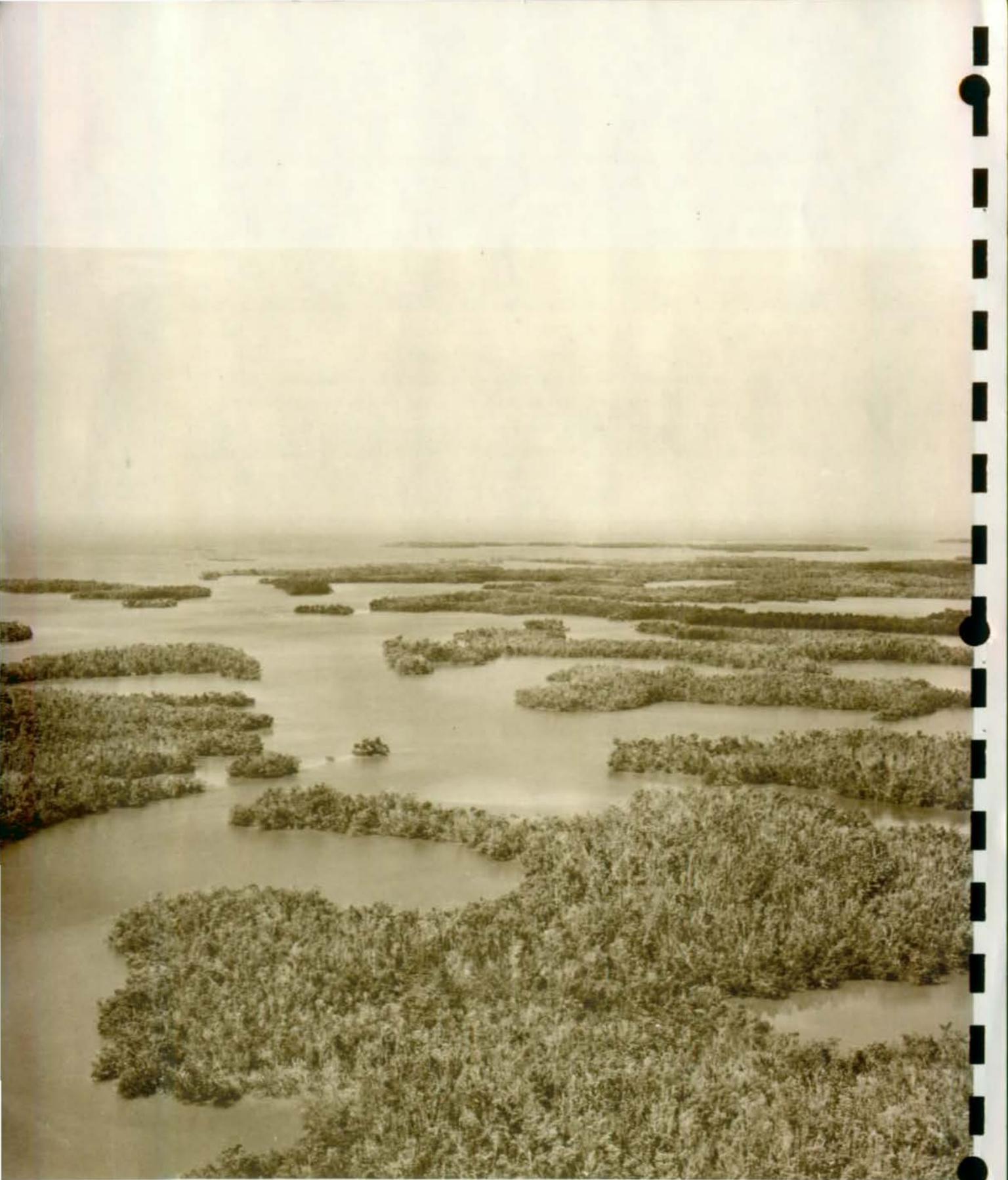
ten species of land and freshwater turtles and several kinds of sea turtles, 12 species of frogs, and 23 species of snakes. Worthy of mention are the loggerhead, hawksbill, and green sea turtles; pigmy and diamondback rattlesnakes; cottonmouth, indigo, red rat, and yellow rat snakes; alligators; and crocodiles.

The waters of the park support an enormous variety of fish in both freshwater and saltwater habitats. Fish provide a major part of the diets of most of the other animal inhabitants. Gar fish 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.

The fish of the park's salty and brackish waters are mainly species that are widely distributed in similar habitats throughout the Caribbean region. Two main groups make up the fish life of the freshwater areas. The first group, including bass, gar, bowfin, golden shiner, and several kinds of sunfish, have found their way down from the north, but this group is of rather limited variety because past pathways for migration have not allowed freshwater fish easy access to southern peninsular Florida. The other group, including most of the small minnows seen in freshwater habitats, is made up of fish that can live in both saltwater and freshwater and have moved into interior areas from the coast.

The variety of marine invertebrate life in the park is limited by the narrow range of available habitat conditions. Only forms characteristic of shallow water and mud or shell bottoms occur, while the more varied life of the coral reefs and rocky shores of other parts of South Florida is largely absent. The mollusk and crustacean groups supply the most evident of the marine invertebrates. The beaches in the park are composed almost entirely of broken fragments of shells heaped up by the waves. Oyster bars are frequent, and seem to develop particularly well in the mouths of the gulf coast rivers, such as Lostmans River and Turner River.

Of the crustaceans, blue crabs and stone crabs are fairly common, and a few of the big Florida lobsters can be found in Florida Bay. Fiddler crabs are abundant in all the muddy tidal areas, where they are fed upon by raccoons and some birds. The coastal bays of the park provide an important nursery area for young shrimp.



Invertebrate land animals in South Florida, particularly the land snails and insects, include a large number that are identical with West Indian species or closely related to forms found in Cuba and other islands to the south. The park's insect fauna includes thousands of species, many of bizarre appearance and beautiful coloration, many with complex and remarkable life histories, and many that are still poorly known.

As much a part of this fantastic wild environment as the landforms, plants, and animals are the climatic processes. They not only bring water to sustain the living things, but also long ago shaped the vegetative composition of the park and have maintained a unique wilderness environment that posed a formidable barrier to settlement. Tropical hurricanes come and go, often causing a fair measure of destruction, yet reshaping the coastal land and adding tropical species to the ecosystems. The high billowing clouds, approaching storms, and brilliant sunsets add a colorful and exciting visual dimension to the flat and horizontal land-and-seascape of the park.

The subtropical climate of South Florida, from Lake Okeechobee south, is characterized by a relatively long dry season from November through April. Not enough rain falls during the rainy season to compensate for water lost each year through evaporation. Annual precipitation is about 50 inches. The region experiences a recurring water deficit during normal 6-month dry seasons, and it depends on sources from outside the area for water to offset the scarcity. Light frosts often strike the region, in patterns of incidence and intensity that are largely dependent upon the quantity of water in a given area. Mean monthly temperatures range in the low-to-middle 60's during January and February, and in the middle 80's during July and August.

In addition to local rainfall, two watersheds supply a critical 25 percent of the park's water – the vast Florida Everglades sawgrass plain to the north, and the Big Cypress Swamp of Collier and Hendry Counties to the northwest. The Big Cypress Swamp currently supplies about 55 percent of the input from these two external sources, but historically, the Florida Everglades sawgrass plain was the park's principal watershed. Then, surface water in the everglades resulted from local rains and the seasonal overflow of Lake Okeechobee, whose contemporary drainage extended 120 miles south to the Gulf of Mexico. In pre-drainage times, before the installation of South Florida's extensive flood-control system, the lake is presumed to have overflowed at least a portion of the summer and fall in each year of normal rainfall. It has been estimated that runoff moving south under the Tamiami Trail amounted to 2.3 million acre-feet in average years and as much as 10.7 million acre-feet in an extremely wet year. The years 1922 to 1924 were said

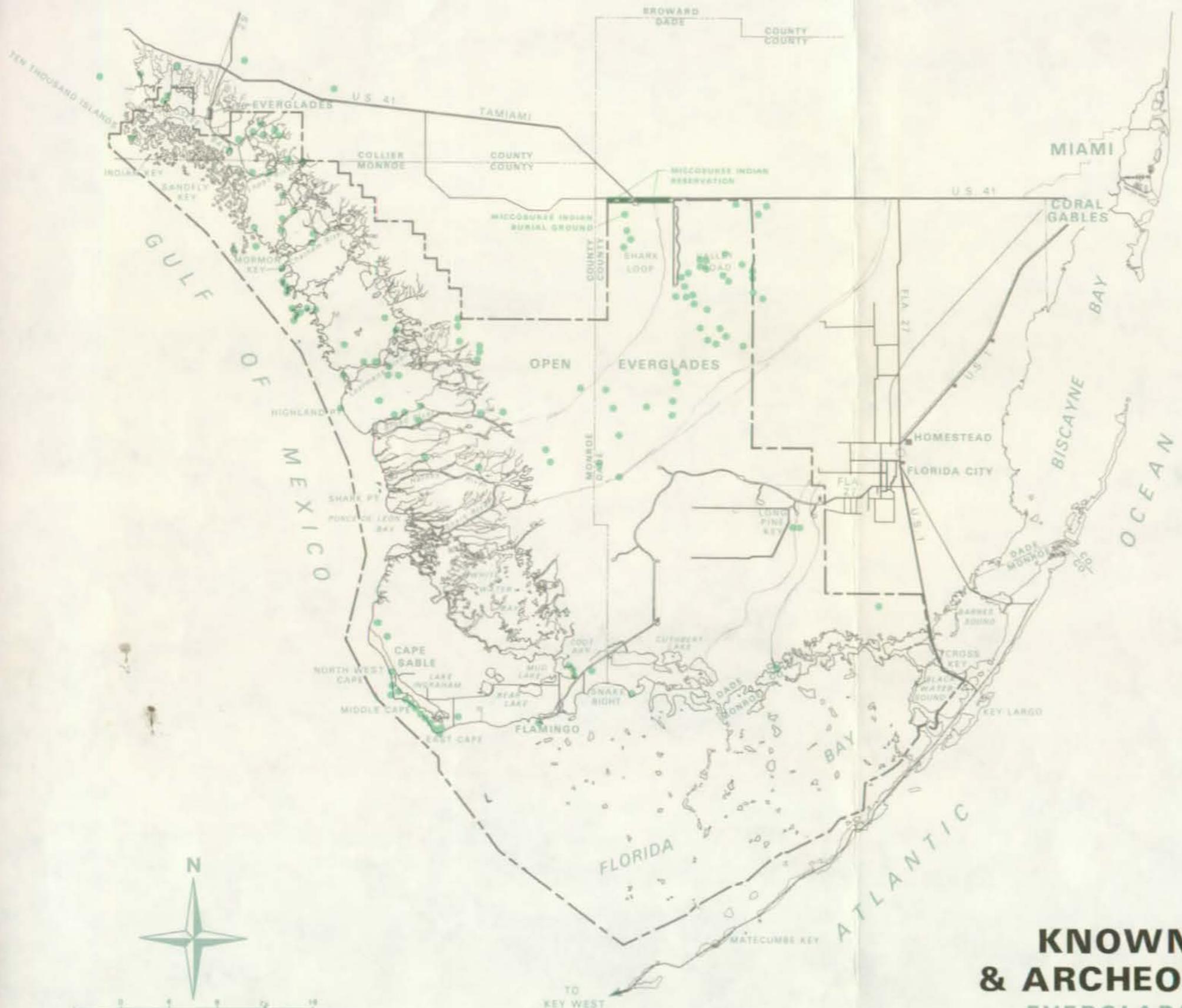
to be the last years that the Lake Okeechobee drainage contributed to the Florida Everglades. Because natural drainage has been disrupted, the Corps of Engineers has agreed to supply the park with the lesser of either 315,000 acre-feet or 16.5 percent of total annual deliveries of water from Water Conservation Area No. 3 to the north. Local rainfall, which amounts to about 4 million acre-feet per year, and flow from the Big Cypress, are the other major sources of the park's water.

In addition to the quantity of water available, its distribution over the year is also crucial to the present ecological integrity of the park. The local distribution and activities of terrestrial and semiterrestrial wildlife depend greatly upon the seasonality of the flow of water. During wet periods, this fauna is generally widely dispersed in response to similarly distributed food sources. During dry periods, food supplies are disjunctly distributed in and around scattered locations of wetter habitats, forcing a clumping of animals reliant upon these environments for food.

Although the Florida Everglades are noted for natural resources of vegetation, wildlife, and water, they also have a fascinating human history that is often overlooked. It begins with prehistoric groups of hunter/gatherers as early as 1450 B.C. Later, Spanish exploration, the migration of the Seminoles, the coming of the white settlers, and attempts to farm and fish along the gulf coast penetrated the mystery of the everglades. During the Seminole Wars, there were a number of army expeditions through the glades and along the mangrove waterways. Soon after, plume hunters, early resort developers, preservationists, and scientists followed them into the area that was later to become Everglades National Park. Today, the military forts established at Flamingo are no longer there, and few traces of any past activity have survived. Yet along the west coast of the park, the numerous shell mounds and artifacts of the early Indian occupation still remain.

Since the establishment of Everglades National Park, the development of visitor facilities has progressed according to a concept of preserving the park's wilderness qualities and keeping developmental encroachments to a minimum. This concept has consistently been reflected in the park's legislation, planning, and management.

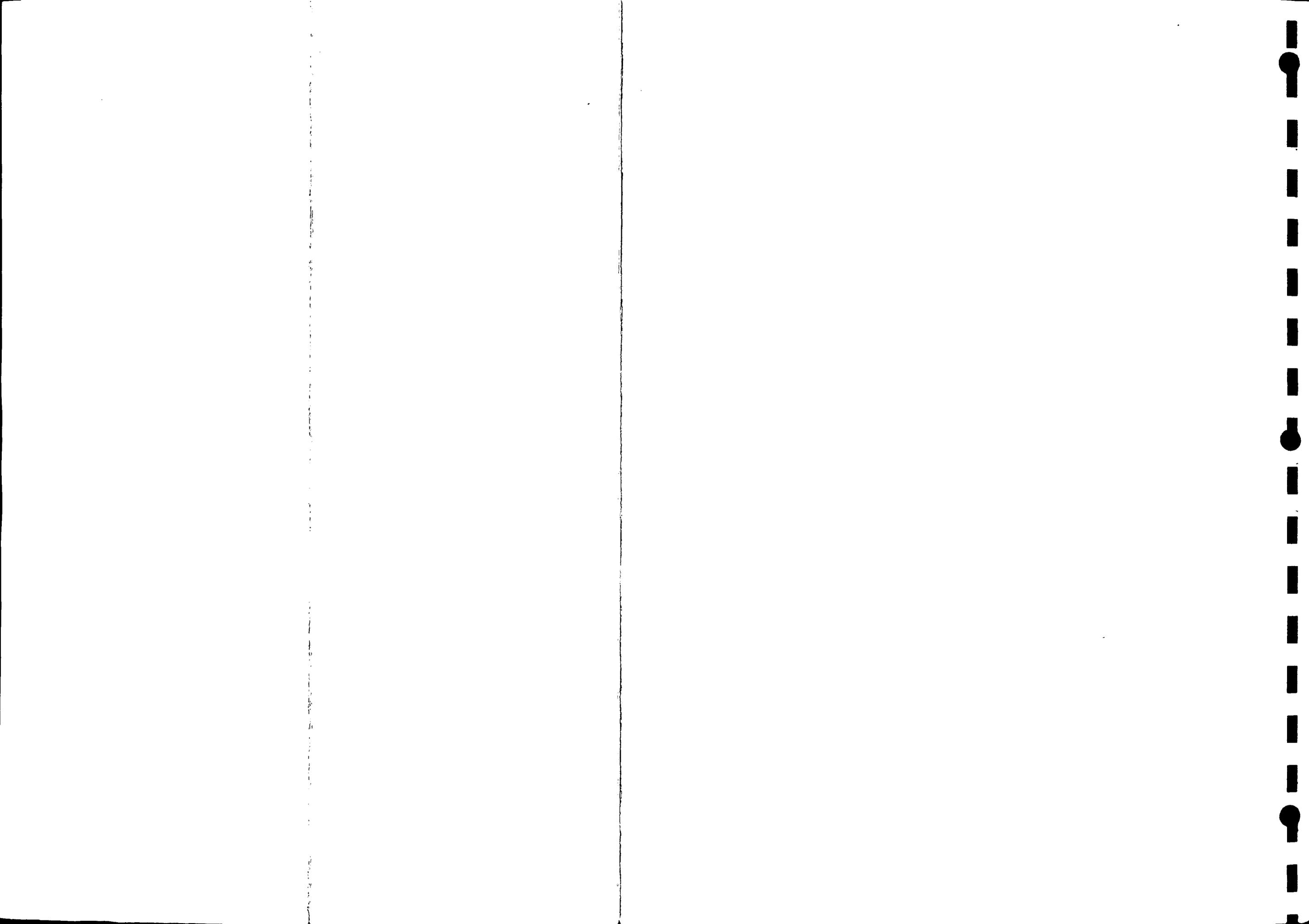
In fact, the nature of the park's resources impose their own limitations on use and development. Harsh conditions, such as subtropical heat, storms, insects, impassible terrain, and rough marine waters render many traditional recreational activities uncomfortable, if not impossible.



UNITED STATES DEPARTMENT OF THE INTERIOR — NATIONAL PARK SERVICE

FIGURE 15  
**KNOWN HISTORICAL  
 & ARCHEOLOGICAL SITES**  
 EVERGLADES NATIONAL PARK  
 FLORIDA  
 ON MICROFILM

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Probably more so than in any other national park, recreation activities here are oriented to natural-history interpretation, environmental education programs, and limited wilderness exploration. Observing the scenery and wildlife is the major preoccupation of most visitors. Boating and fishing dominate in the coastal areas. Camping, picnicking, hiking, and bicycling occur primarily in the limited developed areas of the park.

Because of the character of the park and the concept for its use, a peripheral circulation and visitor-contact system has evolved here. The one exception to the peripheral system is the road through the park to Flamingo. This road, which existed in part before the park was established, has been rerouted to provide a better interpretive experience for visitors, and most of the park developments lie along this corridor.

The wild interior of the park — principally, the sawgrass everglades and the coastal mangrove forests — is largely impenetrable, and it will remain roadless. The natural composition of the interior severely limits circulation through the park to the natural waterways along the coast. The Flamingo road provides the only cross-park link between these waterways and the peripheral highway routes.

Alternative development sites are limited by the inaccessibility of most of the park. Five visitor-service centers were originally planned — for the park headquarters area, Flamingo, Everglades City, Tamiami, and Key Largo. Although the latter three are still not completed, all five areas now serve as information centers. All of the developed areas in the park together occupy less than 1,200 acres.

More than half of the approximately 1,100,000 visitors a year live in the region, and most of the boating and fishing is by local residents. Except for campers, wilderness explorers, and those staying in the concessioner-operated motel, the majority of visitors stay in the park about 8 hours.

Although the park is open throughout the year, the greatest visitation occurs during the winter, when the influx of tourists to Florida increases. During the summer months, when rain, hot weather, and insects prevail, the visitation declines. At this time of the year, the bird and animal populations are more dispersed, and there is less chance to observe concentrations of wildlife.

Visitation is now increasing at less than 5 percent annually and at that rate would exceed 1.5 million by 1986. However, further restrictions on energy consumption could reduce future visitor travel and park visitation.





- LEGEND**
- MAJOR ROAD
  - MINOR ROAD
  - ..... INTERPRETIVE ROAD
  - MANAGEMENT ROAD
  - AIRBOAT TRAIL (Management Only)
  - BOATING WATERS
  - MAJOR WATER ROUTE
  - +— CANAL



UNITED STATES DEPARTMENT OF THE INTERIOR — NATIONAL PARK SERVICE

**EXISTING CIRCULATION**

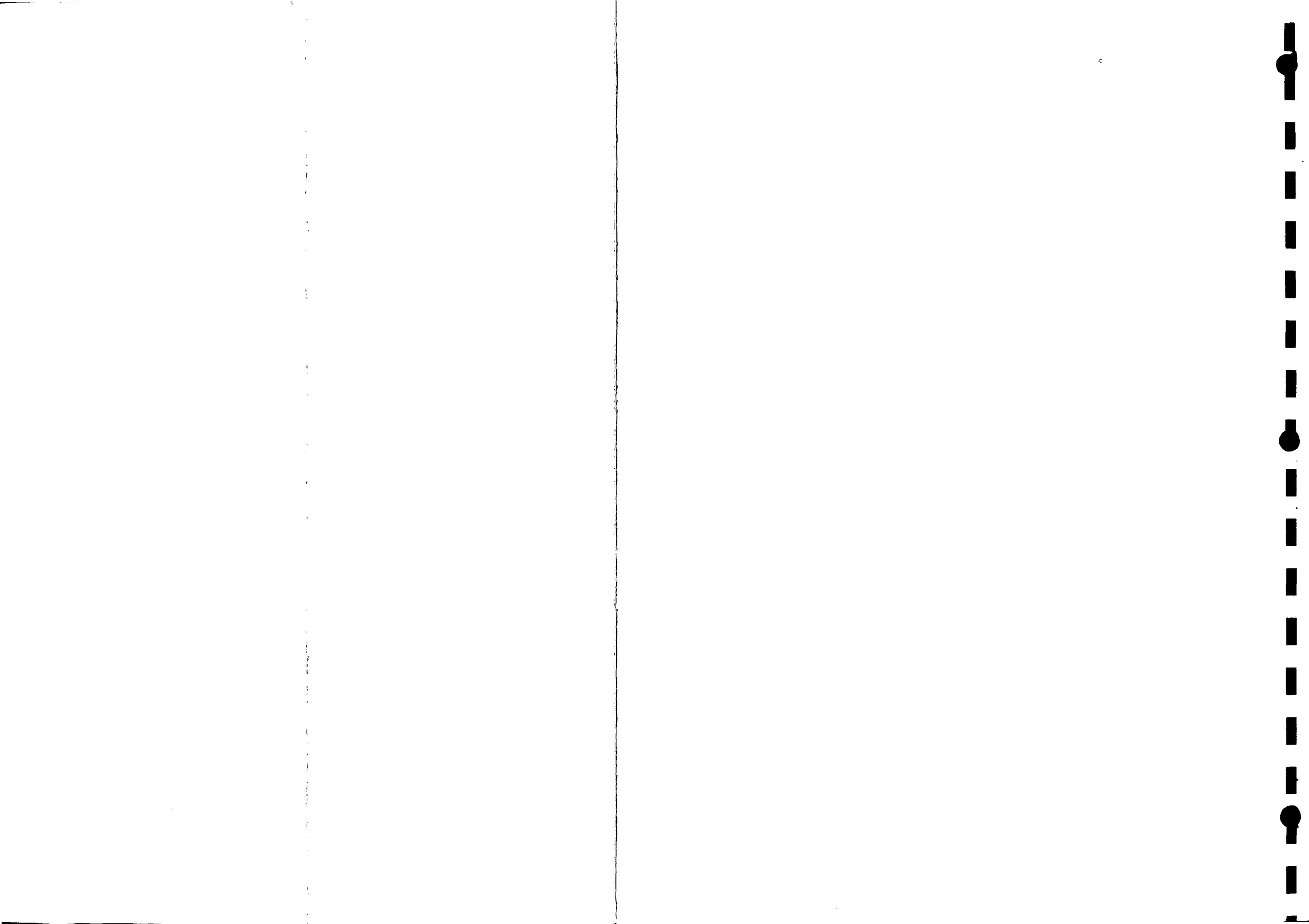
EVERGLADES NATIONAL PARK

FLORIDA

ON MICROFILM

FIGURE 5

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# THE PROPOSALS

## RESOURCE MANAGEMENT

### Background

The act establishing Everglades National Park states specifically the extent to which the park is to be preserved, used, and developed: it is to be "permanently reserved as a wilderness." The varied and abundant bird life was given special emphasis as a primary value justifying the establishment of the park. The testimony and reports preceding the establishment of Everglades further clarify the intent of the act. The park road that crosses the everglades from Pine Island to "the vicinity of Cape Sable," and the Tamiami Trail were recognized as satisfying the development requirements for public access and use. It seems evident that the greater portions of the park, beyond the immediate influence of these roads and their appurtenant public-service developments, were intended to be preserved as primitive, natural areas — ecologically complete, unique in floral and faunal composition, and complex in the natural mechanisms of evolution and maintenance.

The distinctive subenvironments of the park — the pine forests, the hammocks, the bay heads, the sawgrass everglades, the cypress swamps, the mangrove forests, the salt prairies, the shallow Florida Bay and its keys, and the gulf coast — are bound together by a common abundance of, and dependence on, water. Thus, the productivity of the lands and waters — the maintenance of each link of the food chain that supports the spectacular populations of birds and other wildlife and contributes to the success of fishermen in the middle of Florida Bay — is influenced by the quantity and quality of water in the upper reaches of the park, and its seasonal and geographic distributions.

At the same time, other environmental forces have and will continue to play their part. Fire has been a major influence. Elevation, even though the range above and below sea level is but a few feet, is also a critical factor. Flood and drought, hurricanes, occasional freezing weather, invasion of continental

plant and animal forms and their intermingling with Caribbean species, and the influence of man are all significant factors that contribute to the difficult task of managing Everglades National Park.

Today, we are less concerned with man's past abuse of the Florida Everglades than with his future use of them. Man's past depredations of egrets, alligators, orchids, and royal palms ceased with the establishment of the park, and now continual protective vigilance will be maintained. Because of the mandatory restraint on development and public use within the boundaries of the national park, the most critical and far-reaching influences that man will have on the park's environment now and in the future will not come from the management of the park itself, but rather from man's activities outside the park. In broad terms, these activities include the diversion of water that formerly flowed through the everglades, and the expansion of agricultural, urban, and industrial land uses up to the very boundaries of the park. The direct and more obscure influences of these activities pose the greatest danger to the maintenance of the entire Florida Everglades system.

### **Regional Issues**

The time has come for the local, State, and Federal governments to bring about orderly use and development of South Florida that conforms with a regional master plan for land and water use. Park Service involvement within the park's entire sphere of influence is essential to the park's preservation. To know what is going on without, to discuss issues, to participate with other public agencies, and to monitor and help solve problems of mutual concern are among the most important jobs of the park administration.

There are four broad zones of influence that affect the park and with which the park administration and the regional population must be concerned. These are the broad central area north of the park, the population and transportation corridors along the east and west coasts, the keys, and the coastal waters. Expansion in the population and transportation corridors is exerting pressures on the Florida Everglades, Big Cypress Swamp, and conservation areas north of the park, as well as on the keys to the south. The growing importance of the coastal zone, extending to Key West, and new emphasis on oceanic programs at the national and State levels, make the region one of the most environmentally critical areas of the United States. Because the regional population is still growing and expanding its sphere of influence, there is every likelihood that unplanned encroachment will continue to endanger not only Everglades National Park but all of the great natural attributes of the region.

Some of the more critical issues that have a long-lasting bearing on both the park and the region are listed below.

Water from the northern everglades must be provided if the park is to continue to exist.

The quality of incoming water must be kept at a high standard to ensure preservation of the park's traditional high biological diversity and ecological health.

Encroaching peripheral developments to support residential, commercial, industrial, and agricultural activities must be carefully planned.

Tourist services must be adequately planned and situated to serve the increasing numbers of visitors to South Florida in a way that will enhance both the park and communities outside.

Boating of all types must be adequately controlled along the coastal fringe, to minimize possible pollution from oil, noise, and wastes, and to minimize disturbance to marine resources.

Commercial and sport fishing must be done in such a way as to avoid depletion of the resource.

Environmental education and research must be encouraged and instituted cooperatively with local school and conservation groups.

Regional planning and environmental monitoring in the South Florida region must become firmly established and include not only the land areas but also the waters in the coastal zone.

Of immediate concern is the urban expansion in the Miami-Homestead corridor, which conceivably could eventually extend from Biscayne Bay to the park boundary, and from the Tamiami Trail to Key Largo. Master planning in Dade County has recognized the critical role that zoning can play in providing protection to the park, and has zoned the area along the east boundary as restrictive "environmental sensitivity" lands, reversing an earlier trend toward industrial zoning. Additional lands are zoned to remain in agricultural production, which, though posing special problems of pesticide residues in run-off, does not usually involve the severely altered drainage associated with industrial or residential development. However, land use

changes of any sort which result in a decreased capacity of the land to store, deliver or purify water destined for the park, pose long range threats. It is urgent that all concerned agencies continue to plan for the future use of these buffer lands, with particular attention to perpetuating a suitable water-conservation zone along the park's eastern boundary. If zoning boundaries and guidelines under county auspices do not provide the land use control necessary to protect of the park's water supply from this eastern boundary area, the National Park Service would seek to establish the necessary zoning and ensure compliance under federal authority.

The Big Cypress National Preserve, which adjoins the northwest boundary of Everglades National Park, provides a critical ecological buffer for the park and will help to ensure an adequate water supply and protection from adverse influences of potential regional development in this area.

### **Special Considerations**

In order to achieve a basic goal of maintaining the whole ecological system of the park, certain special considerations must be made to accommodate the past and anticipated influences of man. These include allowing and helping certain wildlife species to recover their more natural levels of population; maintaining marine resources so that they are not depleted by fishing or pollution; and ensuring that the subenvironments that are especially vulnerable to the impacts of man – such as the pine forests, the bay heads, and the hammocks – are perpetuated.

### **Research**

A research plan for the park was prepared in 1966 and research funding and facilities have recently improved. This continuing program of studies has contributed substantially to resource-management techniques and has provided a firm basis for interpretive and educational programs. These studies should continue, not only because the park provides an unexcelled outdoor laboratory, but also because man must understand the fragile park ecosystems and their vulnerability to natural and man-induced disturbances if he is to ensure that he does not destroy them.

The research program should be flexible enough to facilitate rapid initiation of appropriate studies in response to specific problems, conditions, and needs. Cooperative research with local universities, other governmental agencies, and private research and conservation interests should continue to be encouraged in order to improve knowledge about the everglades ecosystem complex, and thereby promote improved management and mitigate damaging effects on the environment. Additional research projects

will be required to supplement existing efforts and to optimize possible benefits of the various master plan proposals, as the following suggested projects imply.

Relatively little is known about the park's vast marine resources and the effects of motorized boats and commercial fishing on their ecological integrity. Appropriate resource inventories and analyses should precede development of regulations to control use of marine areas, and should provide adequate information to permit assessment of ecological constraints on use. The long-assumed value of the park's estuaries and bays as spawning grounds and nurseries for Atlantic and gulf fish and shellfish should be quantified both ecologically and economically to permit evaluation of the effects of incompatible use.

The effects of canals on estuarine ecology should be studied. Where adverse effects are demonstrated, and if feasible means of closure are known, such canals shall be closed.

The conspicuous, rare, and interesting bird life of the park is one of the features of greatest interest to visitors and perhaps the most important single reason for preservation of the park. Although some work has been accomplished in certain phases of ornithological study, other much needed investigations have tended to lag or have been neglected. One of the major gaps is the lack of adequate knowledge about the population trends and reasons for the decline in population of the park's wading birds, which are the major end consumers of everglades marsh and estuarine food chains. This project should receive high priority in the park's research program.

Long-term monitoring of fixed study plots in major vegetation types throughout the park should be initiated to define normal succession and changes in plant communities, determine those environmental influences that facilitate development of each type, and detect in community structure any factors that might reflect beneficial or adverse changes in environmental conditions. Such knowledge of the park's vegetation and the factors controlling change therein could increase the effectiveness of cooperative planning and facilitate regional environmental management to ensure perpetuation of ecological communities.

With the acquisition of the "Hole-in-the-Donut" inholdings, considerable research is required to evaluate successional changes on severely disturbed agricultural lands and to develop an ecologically sound management program for this area. The necessary conditions for re-establishment of slash pine and

tropical hardwoods should be determined. Similarly, experiments should be coordinated to evaluate conditions that retard or prevent the invasion of Brazilian pepperbush (*Schinus terebentifolius*) and other exotic species into old fields and adjacent pinelands. This research should provide information about ecologically sound methods of restoring most of the park to "natural conditions" with optimal biotic diversity.

The effects of the introduction of exotic plant species (such as Australian pine, cajuput tree, and Brazilian pepperbush) into the everglades ecosystem should be studied. Data from such studies are needed to evaluate the ecological role of these species in the park, to describe the extent of their invasion, and perhaps to indicate a method for their control.

Research should be initiated to evaluate the relationships between the park and its visitors. Sociological and cultural characteristics of park visitors should be inventoried, along with visitor expectations and the degree to which the park fulfills them. Without such information, visitors are reduced to impersonal entities, and planning and management cannot accommodate their specific desires and needs.

The physical, ecological, and psychological carrying capacity of the park is unknown and needs to be determined. This study should have a high priority because this information could influence future use and development of the park.

#### **Historic Sites Preservation**

Although Everglades National Park is primarily a natural area, there are culturally significant sites in the park which are preserved as Class VI areas (historical and cultural sites) under the Land Classification System. These sites will require additional study to more fully determine specific needs for protection, restoration, and interpretive treatment.

At present, no historical or archeological sites in the park are listed on the National Register of Historic Places. In compliance with Executive Order 11593, research is in progress to complete a list of sites, some of which may be recommended for inclusion in the national register.

#### **LAND CLASSIFICATION**

The evaluation and classification of lands within the park is a mandatory prerequisite to planning visitor uses and physical developments. Land





classification provides proper recognition of the inherent potentials and limitations of park resources to support various visitor uses, and designates the kinds of uses that are compatible with the resources. Such classification is also a prerequisite to the designation of wilderness and related recommendations required under the Wilderness Act.

As shown on the accompanying land-classification plan, the park is divided into five classes. There are no high density recreation areas (Class I) in the park now, nor are any recommended. All the major developments and the major access roads to these developments are designated as general outdoor recreation areas (Class II). Natural environment areas (Class III) include buffer lands around the major developments, the waters along the gulf coast and Florida Bay, and inland water routes that permit motorboats. Outstanding natural areas (Class IV) include the habitats and rookeries of endangered species, such as crocodile, sea turtle, wood stork, and others; the mud- and grassbanks of Florida Bay; part of the Ten Thousand Islands; and the Shark River Slough. The remaining undeveloped and roadless lands, including nearly all submerged lands, that are not classified as outstanding natural areas are classified as primitive areas (Class V). Lands representative of all the major ecosystems found in the park are included in this class. Significant historic sites, Indian shell mounds, an Indian cemetery, and lands along the northern park boundary reserved for the use of the Miccosukee Indians are classified as historical and cultural areas (Class VI).

## **WILDERNESS**

In November 1978, the Everglades Wilderness was formally designated under provisions of the 1964 Wilderness Act (see wilderness plan map). This designation gave legislative wilderness protection immediately to 1,296,500 acres (93 percent) of the park in Class IV, V, and VI lands, and provides for addition of 81,900 acres potential wilderness when outstanding oil and gas leases have been purchased, and certain former agricultural lands have been managed back to a near-natural condition. Not included in either wilderness or potential wilderness are certain lands along the northern park boundary reserved for Indian use, a corridor along the road to Flamingo, existing developed areas, and narrow dredge or boundary exclusions in Florida Bay. The marine water surfaces have also been excluded from wilderness, although the submerged lands themselves are in wilderness.

Establishment of wilderness is a broad legislative designation which can have effects on management of various land classifications. Therefore, wilderness



does not eliminate Class IV, V, and VI lands in the park, but rather superimposes wilderness constraints while retaining the emphasis of the particular class.

## INTERPRETATION AND EDUCATION

The visitor to Everglades is primarily an observer – a role that can be disappointing unless he knows what to look for, unless, as he looks at the vastness and flatness of this unusual area, he can see the great beauty and the unexpected contrasts and delights. The visitor can discover the essence of the park only as he moves along the sloughs and ponds, into the rookeries and hammocks, and through the forests of mangroves, pines, and cypresses. Here are the profusion of colorful birds and other animals, and of palms and other unusual plants; and here is where the plain meets the sea. The visitor first expects, and then knows, that he is in a place that is different from other places he has been. He can walk and ride, sometimes great distances, through this park, with his vision limited only by his own interests and the effectiveness of the park's interpretive program in directing his gaze.

Many interpretive programs have already been established that effectively guide visitors through the various habitats of the park. They include guided tours, exhibits, self-guiding trails, and talks by the resident staff. Existing programs are being improved, and new ones are being developed. Much still needs to be done, and an approved interpretive prospectus is required to outline the details of a complete interpretive plan for the park. Although it is not the purpose of the master plan to develop these details, the master plan does formulate the broad concepts of interpretation. These concepts include the following:

Orientation and information about the variety of sights and activities available in the park, so that arriving visitors can wisely allocate their available time.

The importance of maintaining healthy ecosystems as environmental baselines with which deteriorating ecosystems can be compared. The development of this concept should contribute to an awareness that will foster public support when parklands are in danger from environmental threats.

The interdependencies between the welfare of one organism – maybe man – and the welfare of others.

The contrast between how pre-Columbian man lived in harmony with the South Florida environment for thousands of years and how modern man has created havoc in the same environment in only 50 years. The development of this concept should create a concern for the future.

The occasional need for active resource management techniques – like prescribed burning and exotic species control – which may be necessary because the park is no longer totally natural.

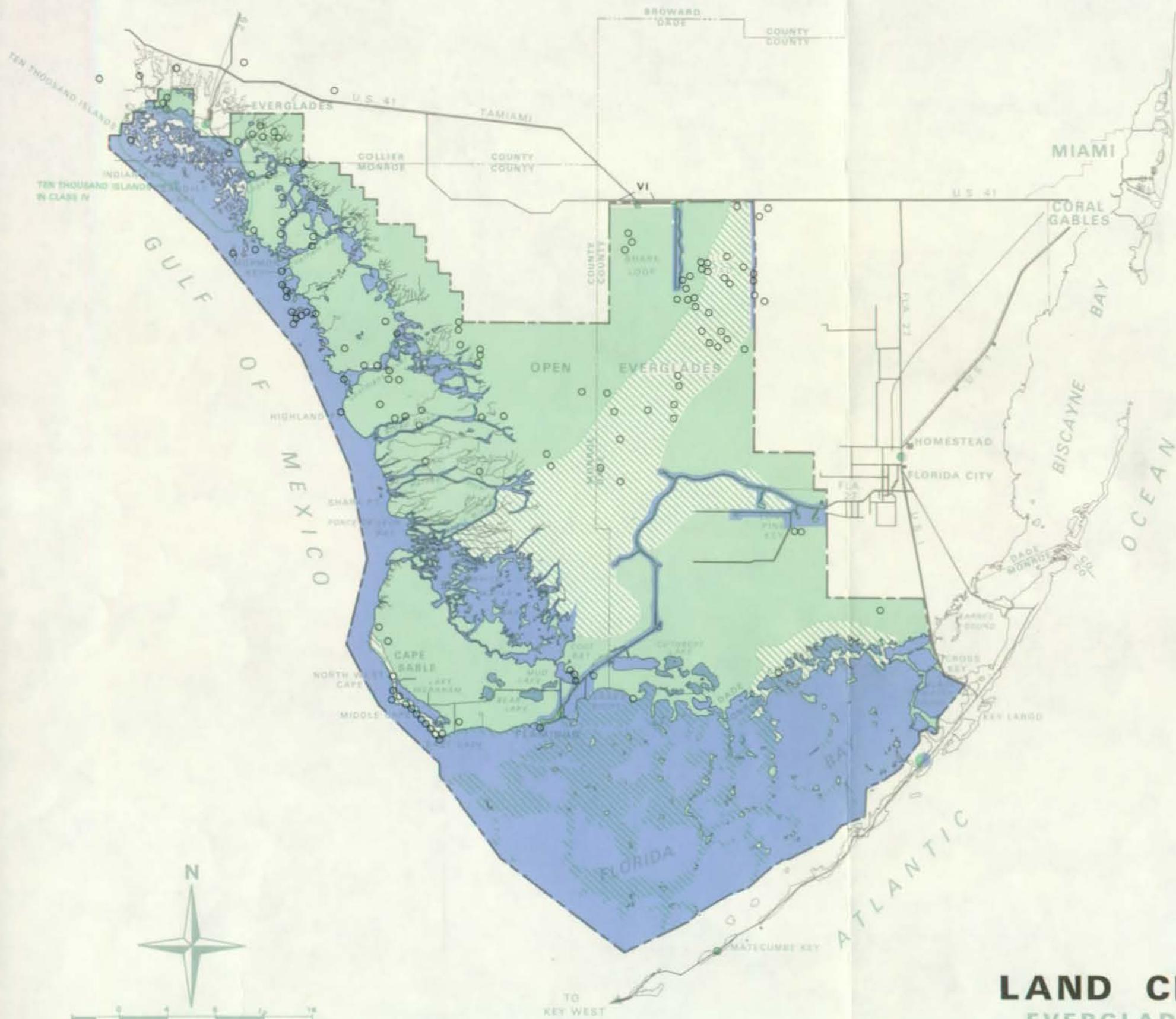
The responsibility of all citizens to protect the several species of indigenous fauna – alligators, crocodiles, spoonbills, wood storks, pelicans, and others – that are barely holding their own even within the protection of the park. This story must stress that park boundaries alone cannot preserve these rapidly vanishing species and that their preservation is dependent upon the involvement and concern of citizens.

The importance of the marine environment as one of the largest coastal reserves in the country, with significant habitats that require special protective measures. The values of this environment to society, why it should be preserved, and how it can provide outstanding recreational opportunities and wilderness experiences should be stressed.

The relationship between the park and the regional history of South Florida: how man has attempted to conquer and subdue as well as to save and enjoy this wilderness. This story can provide an important conservation message about the effects upon the park from expanding developments outside.

The park's environmental education program is designed to significantly improve students' recognition and understanding of environmental problems. Unless future generations continue to be adequately informed about such problems, maintaining a viable environment will not be possible. By assisting local school boards, administrators, and educators to teach about ecology and conservation of natural resources, the park can promote a greater awareness of environmental problems.

The park will continue to provide teaching materials and publications, seminars for teachers, and conservation work-projects in the park, and to work closely with local television, radio, and other news media. Environmental study areas will continue to be maintained in the park so that students can learn first-hand about the natural systems and problems of the park environment.



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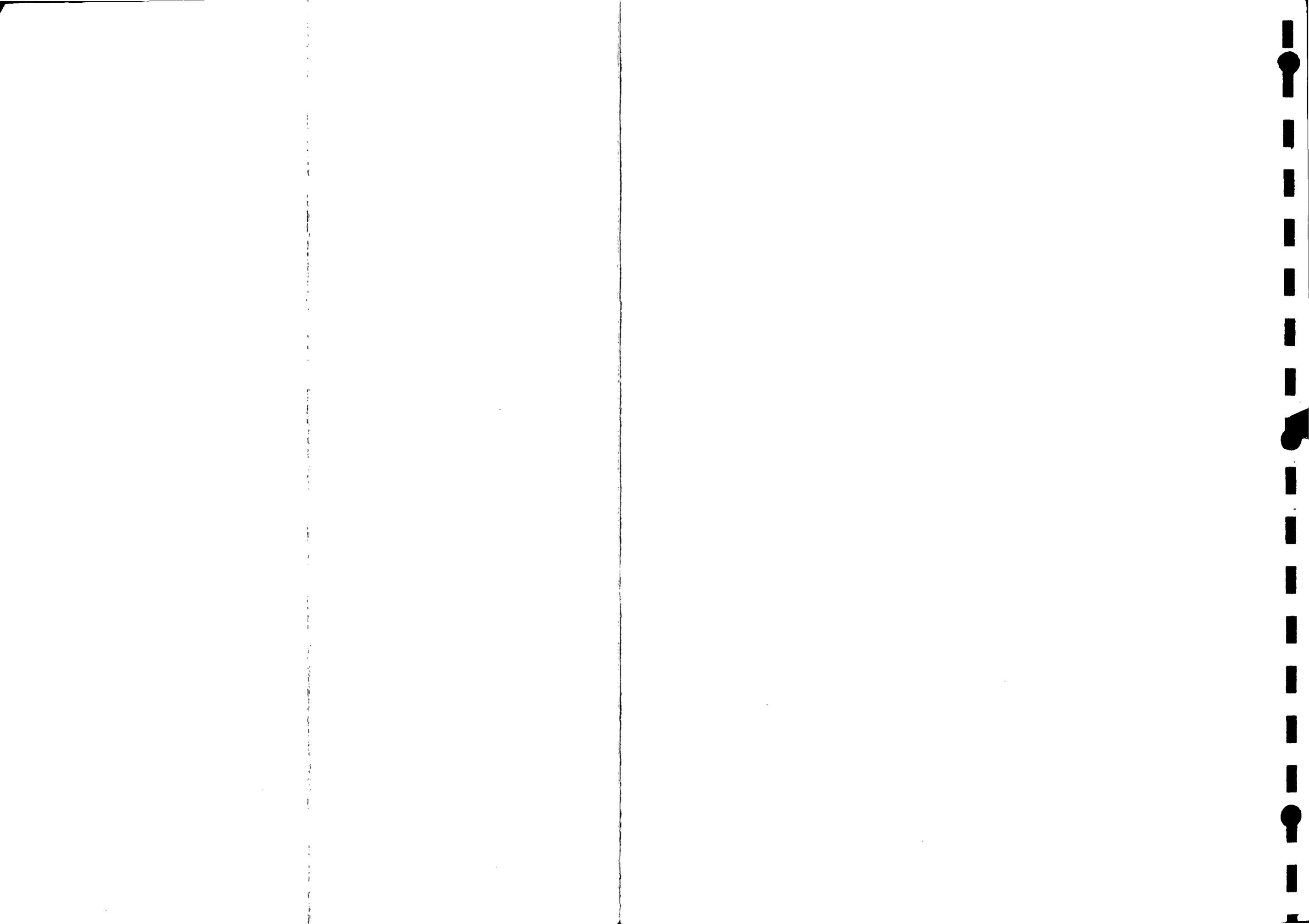
**LEGEND**

- II GENERAL OUTDOOR RECREATION
- III NATURAL ENVIRONMENT
- IV OUTSTANDING NATURAL AREA
- V PRIMITIVE AREA \*
- VI HISTORICAL AND CULTURAL

\* INCLUDES MOST SUBMERGED LANDS IN FLORIDA BAY, THE GULF OF MEXICO, AND INLAND LAKES AND WATERWAYS AS DESCRIBED IN THE WILDERNESS STUDY REPORT.

**LAND CLASSIFICATION**  
**EVERGLADES NATIONAL PARK**  
 FLORIDA  
**ON MICROFILM**

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## USE AND DEVELOPMENT

National parks are for people to enjoy, but can this park continue to expand facilities to accommodate additional visitors each year, and at the same time preserve its wilderness environment? The answer is definitely no. When Congress created Everglades National Park as a permanent wilderness, it directed that no plan for visitor use should interfere with the preservation of the unique flora and fauna or the primitive natural conditions.

Because existing park development is providing adequate visitor services, there is no apparent need to change its overall pattern or to initiate a program of massive expansion. The objective will be to complete and refine developments that have already been proposed — adding what has become essential and deleting undesirable aspects. The three peripheral centers located at Key Largo, Tamiami, and Everglades City will be completed; interpretive facilities within the Flamingo corridor will be improved; concession facilities will be upgraded; and additional employee housing will be provided. There will be no major expansion of camping facilities, except primitive and a few group sites, nor will there be any additional major road construction. All existing developments and those proposed for future completion — including access roads — will be contained within approximately 1,200 acres, which are almost all Class II lands. The minimization of the development area will adequately preserve the major resource complex free of development, in accordance with the legislative mandate. The level and pattern of park use will also continue essentially unchanged.

A concession management plan will refine ways of achieving management objectives concerning concessioner developments and services to the public.

### **Flamingo Corridor**

The Flamingo road corridor — including the developed sites that lie along the road, from the park headquarters area to Flamingo — serves as the primary interpretive area of the park and as the only interior link between the land and water circulation routes around the park's perimeter. The interpretive function will continue as it now exists. A public transit system here is still only a future possibility. The corridor has not yet reached an overload that would justify such a system, but the situation will have to be watched.

Major interpretive improvements will consist of new exhibits and presentation techniques, primarily at the main visitor center at Parachute

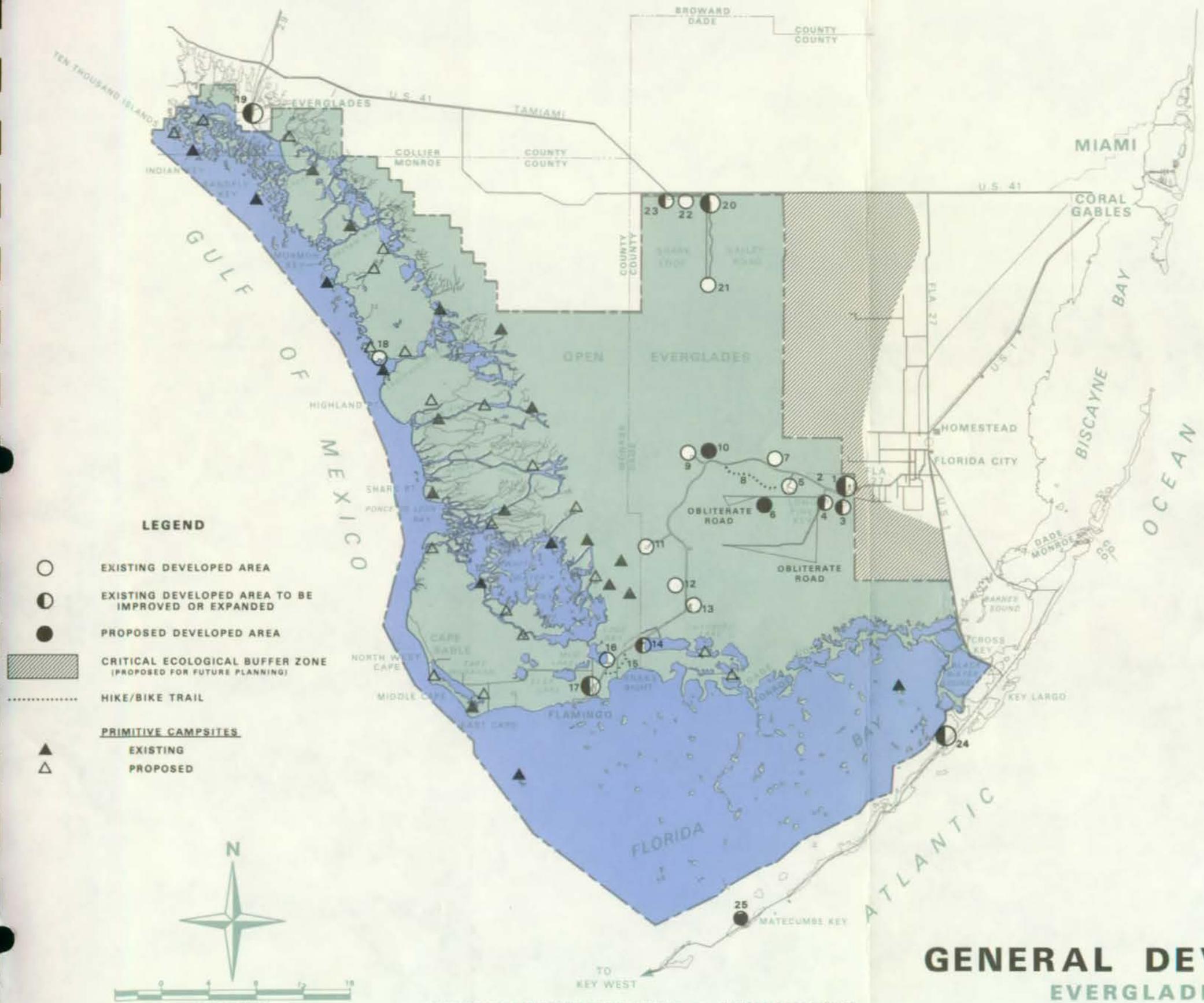
Key, and at the Royal Palm, Dwarf Cypress, West Lake, and Flamingo areas. These improvements will upgrade the quality of information provided to park visitors, and should enhance visitors' appreciation of park values. At the Royal Palm visitor center, comfort stations are being expanded, in addition to improvement of the exhibits. A parking area and boardwalk trail at the dwarf cypress forest will enable onsite interpretation here, where none has previously been possible. Expansion of the visitor center at Flamingo should include space for an assembly room where natural-history talks and audiovisual programs can be presented. Other innovations will include a hiking trail proposed for Pinelands, and a hike/bike trail proposed for Rowdy Bend.

Parachute Key contains the park headquarters and a visitor-orientation center where most visitors receive their first information about the park. The visitor center will be revitalized with new exhibits and other interpretive innovations.

The Pine Island area, near Parachute Key, now serves as the principal maintenance and housing center for the park, and will continue to do so. The maintenance area, which has not yet been as fully developed as was originally intended, must be expanded so that it can adequately handle the additional maintenance services that will be required by the new facilities proposed for the various developed areas of the park.

The Army missile site should eventually be moved out of the Hole-in-the-Donut area in the future, and the existing buildings removed. Sufficient space here in these formerly agricultural lands would also allow for experimental study plots related to the park's research program. Attempts will be made to restore most of it to biotic communities that are more suitable to the natural park environment. The exotic species section of the resource-management plan should detail the most feasible approach to the use and restoration of this area.

At Flamingo, the interpretive corridor ends, and park use shifts into a more active recreation-oriented atmosphere. This is the park's main center for boating, fishing, camping, and wilderness travel. To maintain this excellent recreational complex, and to support the logistics involved in wilderness exploration, it is essential to have concessioner-operated facilities, but existing facilities should be upgraded rather than expanded. Housing for National Park Service and concessioner employees is inadequate, and additional units should be properly developed. Maintenance facilities and services will be expanded within the existing developed area.



**KEY**

1. PARACHUTE KEY - Administration building, visitor parking, visitor center.
2. PARK ROAD - Interpretive corridor.
3. PINE ISLAND - Maintenance cabin, 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" - Research station, 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. FAURTIS POND - 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 - Hike/bike trail and interpretive area.
16. COOT BAY POND - Visitor parking, 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, and rentals.
18. LOSTMAN'S RIVER - Ranger patrol station, employee quarters, boat dock, tall facilities to be removed.
19. EVERGLADES CITY - Visitor contact station, visitor parking, ranger station, employee housing, maintenance area, boat basin and docks, concessioner operated boat tours, canoe rentals.
20. SHARK VALLEY - Proposed visitor contact station, 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. MICCOQUE'S INDIAN DEVELOPMENT - School and housing, services.
23. FORTY MILE BEND - Ranger patrol station, and employee housing.
24. KEY LARGO - Visitor contact station, visitor parking, ranger station, employee housing, MPS dock.
25. 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)
- ⋯ HIKE/BIKE TRAIL
- PRIMITIVE CAMPSITES
- ▲ EXISTING
- △ PROPOSED

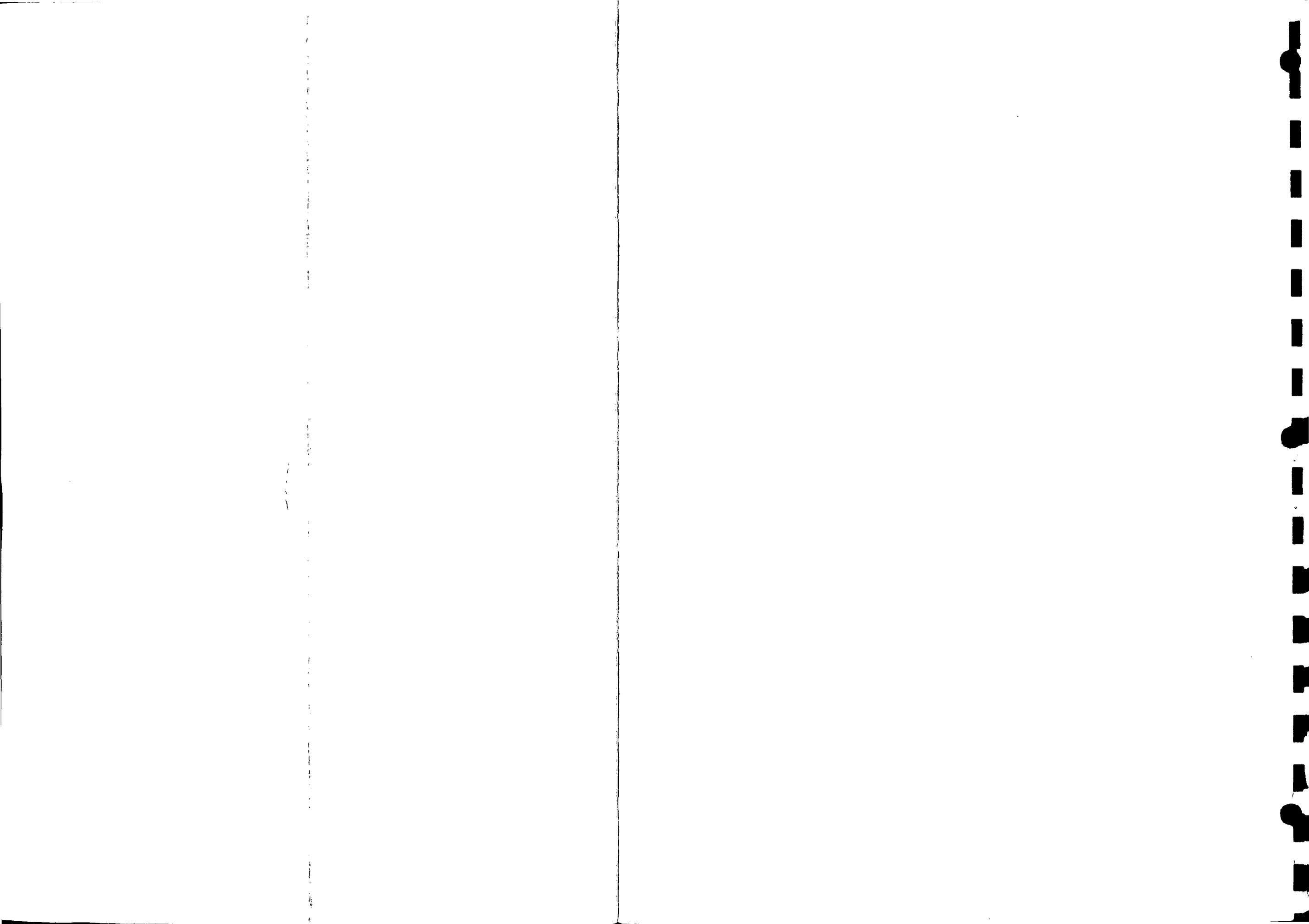


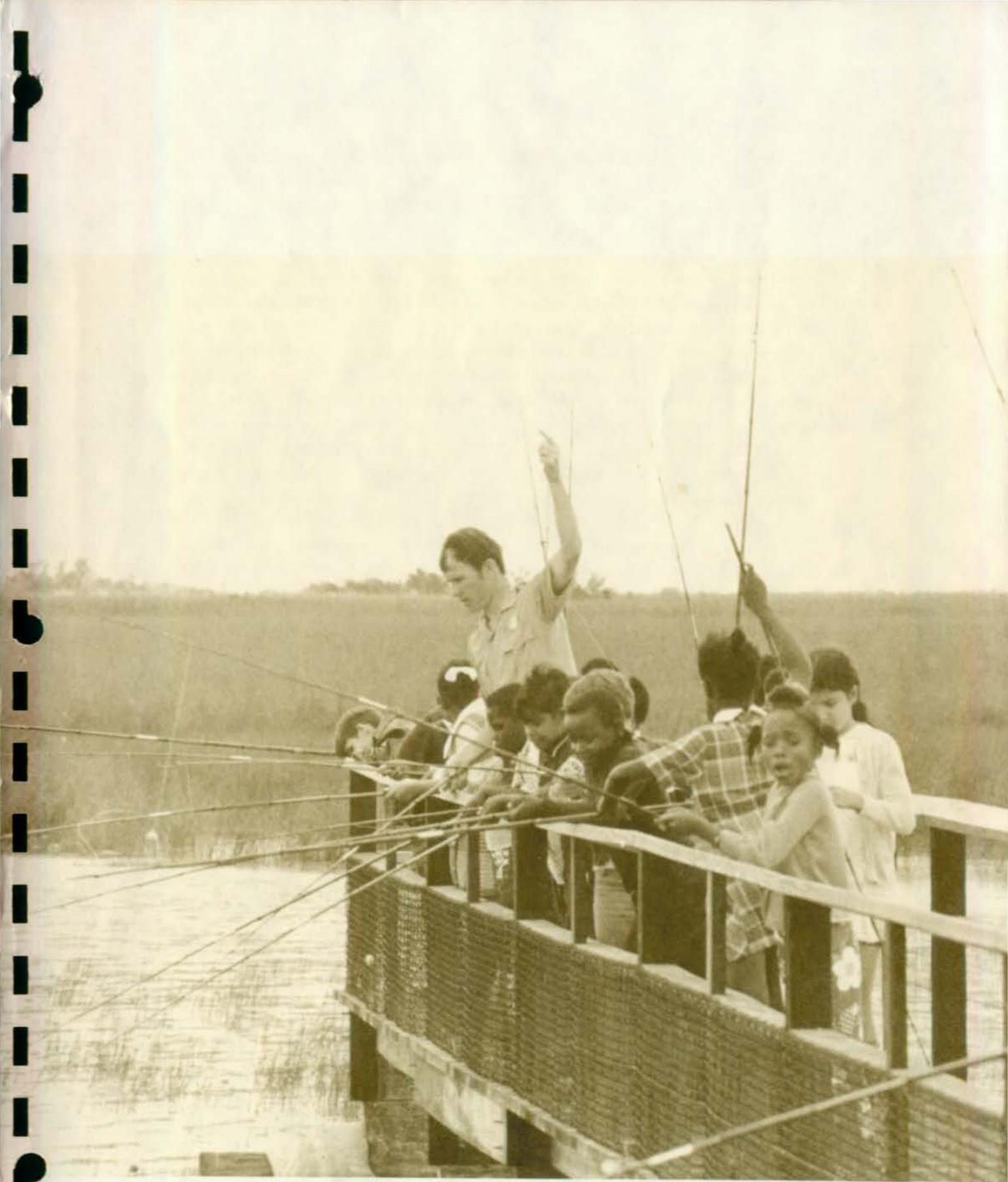
UNITED STATES DEPARTMENT OF THE INTERIOR — NATIONAL PARK SERVICE

**FIGURE 2**  
**GENERAL DEVELOPMENT PLAN**  
**EVERGLADES NATIONAL PARK**  
**FLORIDA**

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**ON MICROFILM**





Ample opportunities for camping have been provided in the corridor, at Long Pine Key and at Flamingo, and no expansion is necessary other than the addition of a few group sites. Landscape improvements are also needed in the trailer campground at Flamingo.

Flamingo serves as a base of operations for three adjoining use areas — Florida Bay, Whitewater Bay, and Cape Sable. All three are oriented to boating and fishing and have increasing use and management problems. Florida Bay will be discussed in a separate section. Cape Sable should remain as an undeveloped wilderness area because it has special resource values that should not be disturbed. In the future, access into the interior of Cape Sable will be only by hiking and canoeing. Consideration should be given to closing all canals in this area that are contributing to erosion and saltwater intrusion, after research studies proposed in the natural science research plan for the park establish the ecological impact of the project.

The earlier decision to plug the Buttonwood Canal at Flamingo (analyzed by a separate planning process) will be implemented. This project will include a gated earthen plug located between the two boat basins on the west bank of the canal with a small capacity boat hoist and construction of an additional boat ramp. No expansion in the capacity of these boat basins is proposed, nor is any major change in the scope of concession services envisioned.

Flamingo offers a special kind of experience, and it should be recognized as both a significant interpretive area and a marine-recreation complex. Its use should be limited to these kinds of activities, and no massive facility expansion or new road construction should be undertaken here.

#### **Florida Bay and Its Keys**

The vast reach of water in Florida Bay, spanning one-quarter of the park, constitutes one of the largest marine preserves in the country. It covers over 300,000 acres, more area than some of the largest national parks. More than 100 small mangrove islands — the keys — dot the bay.

The area has its own special problems, which basically involve critical resource values: the only crocodile habitat in the park is here, as are extensive bird feeding grounds on the mudbanks, many large bird rookeries on the islands, which harbor some rare and endangered species, and spawning areas that support much of Florida's famous fishery resource. This whole bay, which is seldom more than 8 feet deep, is not only a vast wildlife preserve, but also a superb place for boating, fishing, exploring, and island camping.

What needs to be resolved here are the conflicts between recreation use and preservation of the natural resources. Of particular concern are the potential depletion of the fishery resource and disturbance and destruction of habitats and spawning areas that could be caused by boating and fishing activities.

The solution of most of the problems relating to the bay area depends upon several critical decisions. For example, it must be decided where use will be permitted and where it should be excluded. There are certain values here that are recommended for wilderness preservation, including the shallows, the crocodile habitat, and the keys. Obviously, uses that are destructive to resource values should either be eliminated or limited, but it is difficult to patrol the bay to control its use. The question also arises as to where and how problems, values, and restrictions can be communicated to visitors.

A resource complex of this magnitude cannot, as a matter of course, be left on its own, especially in view of the regional demands and stresses placed upon it and the growing importance of the Florida Keys as a tourist/residential area. A new concept of preservation and use must be devised for the bay area that can be tied into the larger concepts concerning land transportation, boating, and interpretation for the entire park.

Access to and use of the park's vast marine and adjacent estuarine resources, both for commercial and sport fishing or backcountry viewing and camping, almost exclusively requires the use of motorized or nonmotorized boats. Some 300,000 boaters visit the park annually, including increasing numbers of canoeists. The potential — and reality — for conflicts between user groups (sport vs. commercial fishermen, motorboats vs. canoes) or between users and the resource itself (overfishing, bottom-scarring, camping impacts) has long been recognized. A variety of approaches will be necessary to deal with these conflicts, some of which are already being implemented:

Broad-scale use zoning — establishment of the Everglades Wilderness has created restrictions on motorboat use in certain inland waters northeast of Florida Bay, and strengthened protection of submerged marine bottomlands by including them in wilderness. This type of categorical exclusion of a certain user group over a broad zone will probably not be further expanded in the park's marine waters under this master plan.

Specific area or seasonal restrictions — closure of rookery areas or seasonal nesting grounds, or restriction of motorboats to a particular channel in a shallow, sensitive region, will continue to be employed, with possible increases (or decreases) in such restrictions as research

results indicate. For example, in creating the Everglades wilderness, Congress did express concern (H.R. Report 95-1165) that continued motorboat access into the western side of the wilderness along non-wilderness waterways might have adverse influence on wildlife. The Park Service is directed to give prompt consideration to the regulation of such use, and to report its findings to the appropriate committees of Congress by November 10, 1979.

More intensive enforcement – in lieu of categorically excluding users, stricter enforcement of existing resource-protection regulations which prohibit bottom scarring or other resource damage will be undertaken.

Backcountry permit procedures – continuation of a permit procedure for overnight backcountry use will provide more reliable statistics on this use and allow the park to more carefully regulate impacts of camping on designated sites.

Monitoring/adjusting fishing regulations – constant monitoring of sport and commercial fishing pressure on stocks of fish and shellfish will be continued; adjustments may be made in such areas as size and catch limits, status of species as game vs. non-game, or geographic closures, all directed toward developing an optimum sustained yield with a minimum of conflicts between user groups.

It is essential that a support complex be provided in the bay area to adequately serve the public and the park staff here. It should be a focal point for information about the park and other points of interest, from which public relations and a program of conservation education can be developed. This function can be provided by some modifications of the existing facilities at Key Largo, where the Park Service owns 14 acres. The area is presently undeveloped, and most of it contains significant vegetation, which should be preserved. However, the limited open space available – about 3 acres – could accommodate a moderately sized parking area, a ranger station, administrative boat facilities, and employee housing, in addition to an improved visitor-contact station. Details of development will be worked out in site-specific planning.

Protective activities should be increased, to assure available assistance to boaters and fishermen and to adequately patrol the area. A ranger-patrol station should be located at Lower Matecumbe Key to facilitate patrol of the southern part of the bay and to provide additional information to visitors in the central section of the Florida Keys.

The great distances involved in this part of the park, the weather conditions, the popularity of the keys, the tremendously interesting resources, and the possibilities of use conflicts and habitat destruction — all are critically important to planning and management. The presence of the Park Service here, with its increasing emphasis on visitor education and services, will complement other Federal, State, and local interests in the Florida Keys, and instill greater interest in and understanding of this prime marine area.

#### **Everglades City**

The important visitor-contact operation at Everglades City, unlike the one at Key Largo, is a going operation. It provides interpretive services for visitors, and boat tours into the park. An expanded visitor contact facility, administrative office space, and maintenance facilities should be implemented, following site-specific planning.

It is foreseeable that private interests in Everglades City will expand their tourist and residential facilities as the South Florida gulf coast becomes more populated. Moreover, with the establishment of the Big Cypress Preserve, and the addition of recreational and interpretive possibilities that this area can offer, there is little doubt that the visitor-service complex here will become considerably more important and active.

It is highly desirable for the Park Service to work closely with Everglades City officials in order to bring about an orderly development that retains the flavor and appeal of this interesting village. Indiscriminate building could destroy the charm of the area, and inadequate waste disposal could bring about a decline of the fishery resource. The city and the park are interrelated, and both need to be attentive to the problems and well-being of the other. Compatible and cooperative planning will become a major concern in the future, as the tempo of boating and residential expansion increases.

#### **Shark Valley/Tamiami Area**

The development situated off the Tamiami Trail (U.S. 41) at the head of the Shark Valley Slough serves as a visitor-contact point on this major highway between the lower east and west coasts of South Florida. The glades environment and its wildlife are interpreted in this area probably better than anywhere else in the park. Development here should remain simple and primitive, in keeping with the "back-to-the-wilds" experience that the area conveys. In the future, a visitor center/ranger station should be developed near the park entrance to provide appropriate information about the area and to introduce visitors to Indian culture here. In addition, a maintenance area should be developed and adequate employee housing should be provided.

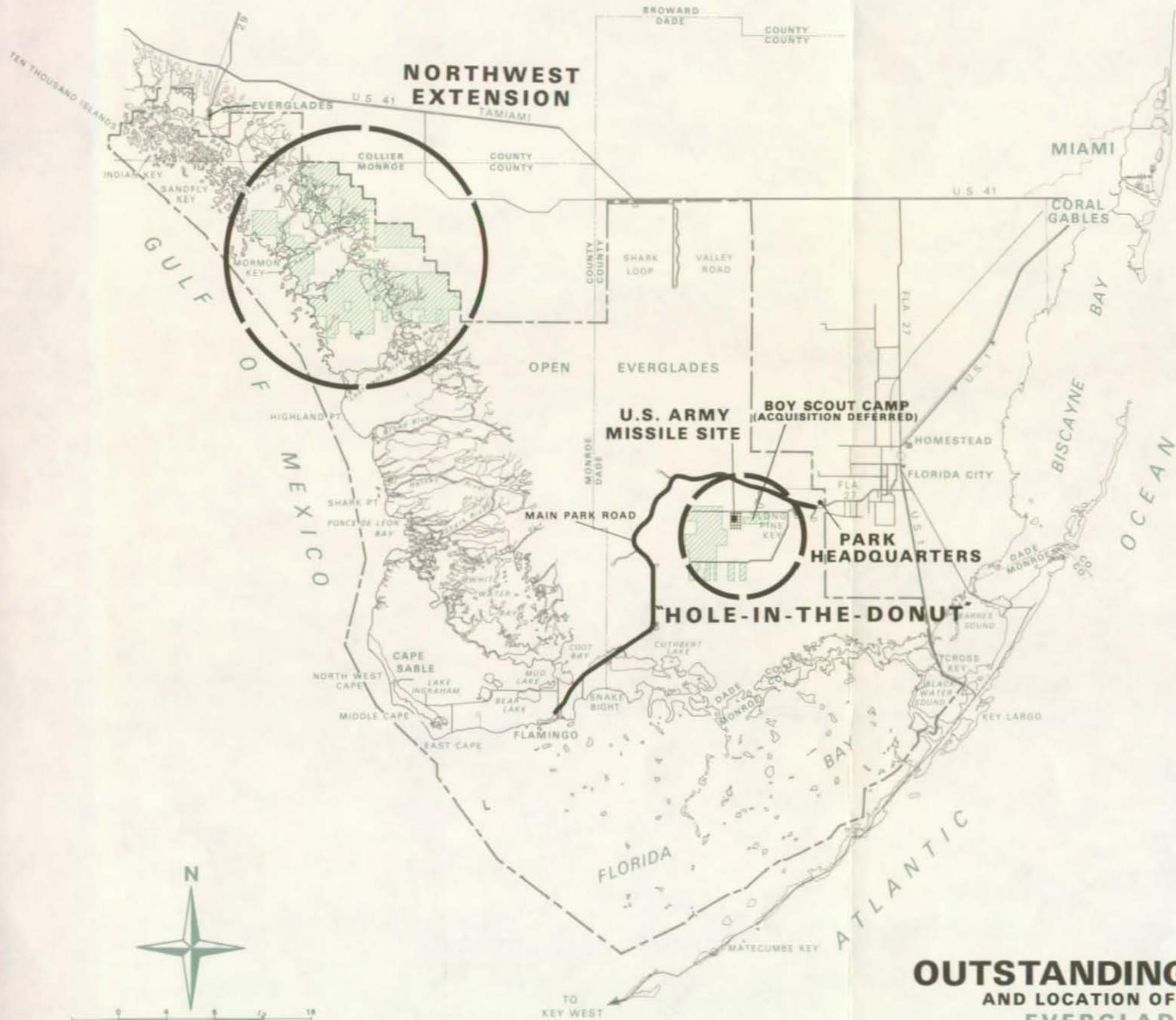
Shuttlebus service along the 14-mile-long Shark Valley Loop Road – which offers visitors an excellent overview of the glades – has eliminated private automobile traffic on the Loop Road, but has created new private auto parking needs at the road head. The roadway will be adequately maintained to support the transit system and use as a hike/bike trail. Bicycles could be rented at the proposed visitor center. Details of this proposed development complex will be analyzed in separate site-specific planning.

## LAND ACQUISITION AND JURISDICTION

Legislation authorizes the acquisition of all inholdings in Everglades National Park. This program is now essentially completed. As of December 31, 1976, all inholdings within the park had either been acquired or were in pending condemnation proceedings with the exception of the 236-acre property owned by the Boy Scouts of America. Acquisition of this particular property will not be pursued until the BSA chooses to sell it, or unless uses are proposed which are incompatible with park objectives. In addition, it is especially important that all outstanding oil, gas, and mineral rights, which now apply to 65,200 acres of Federal lands within the park, be acquired as soon as possible.

The 1934 legislation states that the Secretary of the Interior could not accept title to park lands until the State ceded exclusive jurisdiction over the entire park area. This was accomplished in 1947 (Chapter 23910, Lands 1947, Florida Stat. 264.08), and the Secretary accepted title on 1 December 1951. However, on 22 May 1961, the Florida State Senate repealed the cession act (Senate Bill 315), and thereby prevented the Secretary from accepting exclusive jurisdiction on any subsequently acquired lands. At present, this status applies to more than 150,000 acres (acquired under subsequent congressional authorizations) in the Northwest Extension and the "Hole-in-the-Donut" area, over which the National Park Service has only proprietary jurisdiction.

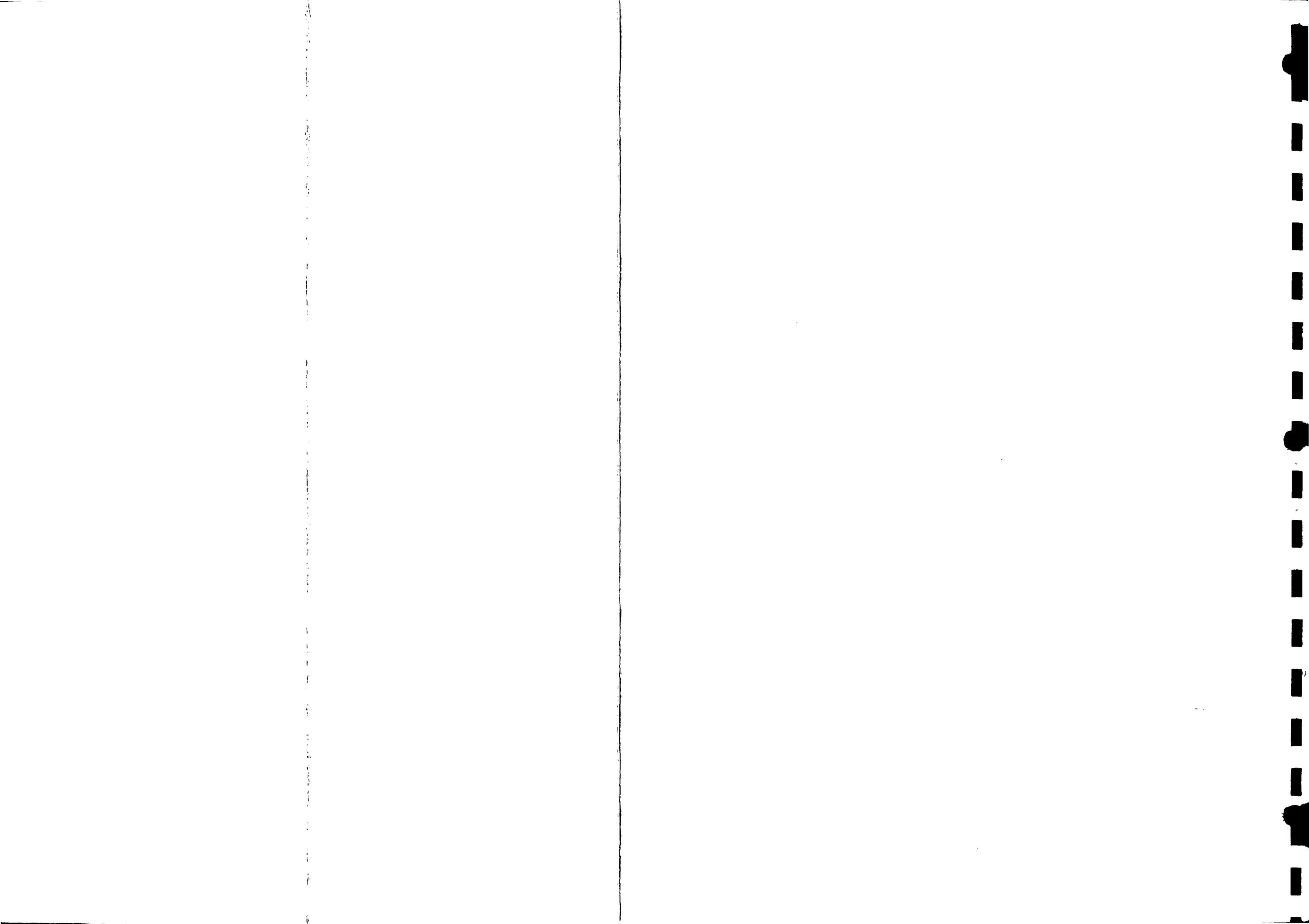
Concurrent (shared federal/state) jurisdiction will be sought for the newly acquired lands within the Park. Concurrent jurisdiction has substantial advantages over proprietary (state) jurisdiction, since under the latter it is difficult for the park to enforce federal regulations if they should differ from the state's; proprietary also requires that individual federal employees be deputized prior to being allowed to enforce state laws, and prosecution must be pursued in Key West (Monroe County Seat), which is extremely inconvenient.



**LEGEND**  
 MINERAL RIGHTS

**FIGURE 2**  
**OUTSTANDING MINERAL RIGHTS**  
**AND LOCATION OF ARMY MISSILE INSTALLATION**  
**EVERGLADES NATIONAL PARK**

FLORIDA  
**ON MICROFILM**  
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## APPENDIXES

- A: Management Objectives
- B: Legislative Highlights
- C: Constraints and Commitments
- D: Summary of Costs
- E: Selected References
- F: Planning Team and Consultants

## **A: MANAGEMENT OBJECTIVES**

The following statement by the superintendent of Everglades National Park reflects park management's needs and goals relative to this master plan.

### **General Management**

Insure that all existing and planned facilities and the uses within the park will have as little adverse effect upon the water flow and the natural environmental quality as possible and to regulate use as necessary to protect park resources and the visitor.

Establish and maintain cooperative efforts with other Federal, State, and local agencies to control outside influences that may adversely affect the preservation of flora, fauna, and other natural resources of the park.

Acquire in fee simple all private lands within the boundaries of the park.

Obtain concurrent jurisdiction with the State of Florida over all lands and waters within the boundaries of the park.

Manage the park as an undeveloped natural area with only minimal facilities (including concessions) required for the health, safety, and edification of park visitors.

Improve public awareness and support through an active program of participation in local community affairs, particularly in the three county area adjacent to the park.

Adjust park operations where possible to conserve fossil fuels and develop future programs that reduce dependence on non-renewable energy sources, yet promote achievement of essential park objectives.

Achieve and maintain the employee disabling injury and chargeable motor vehicle accident frequency rate below 5.0 and to otherwise maintain park safety standards as stated in National Park Service Safety Standards, revised April 18, 1972.

### **Resource Management**

Secure, through research and other means, sufficient information to facilitate the development of informed resource management programs for preservation of the park's native terrestrial and aquatic resources.

Promote and coordinate cooperative regional resource planning, protection, and management with priority given to quantity, quality, distribution, and periodicity of a reasonable water supply.

To the greatest degree possible, perpetuate free from the adverse effects of human disturbance the park's diverse habitats and their associated plant and animal communities.

Control exotic plants and animal species when necessary to prevent disruption to native communities.

Manage commercial and sports fishing so that the fishery is compensated by natural reproduction, the population's traditional age and size structure is maintained, and the aquatic habitat remains unimpaired.

Identify, evaluate, protect, and preserve significant cultural resources consistent with the Service's management policies, legislative and executive mandates, and the preservation of the park's outstanding natural values.

Manage the use of fire and other natural forces in resource management programs to perpetuate a viable and dynamic native ecosystem.

Protect and promote recovery of all officially endangered or threatened animal and plant species within the park. Manage critical habitats to achieve an optimum ecological balance that insures survival of all native species.

#### Visitor Use

Provide, at all park entrances and major developed areas, such as Royal Palm, Flamingo, Gulf Coast, and Shark Valley, information essential for the safe and enjoyable utilization of the park's resources and visitor facilities.

Emphasize, through interpretation, the complex nature of the Everglades/Big Cypress ecosystems, acquainting visitors with their major living and non-living components and interrelationships.

Through appropriate interpretive media, introduce the concepts of nature as a process of dynamic equilibrium, and man as a powerful biological force responsible for the acceleration of change in the natural systems of South Florida.

Develop an understanding that complexity, high numbers of species and individuals, and low entropy are generally indicators of environmental stability and good health, emphasizing the significant contrasts between natural diversity within the park, and the tendency towards *synthetic uniformity* in the agricultural/urban complex beyond its boundaries.

Implement a comprehensive environmental education program designed to develop strong, positive environmental ties in the large student/teacher populations of Dade, Broward, Lee, Monroe, and Collier Counties.

## **B: LEGISLATIVE HIGHLIGHTS**

The idea of establishing a national park in the South Florida Everglades assumed substantial form when Congress passed an act on 1 March 1929 to authorize the Secretary of the Interior to investigate and report on the feasibility of the project. Several years later, on 30 May 1934, an act was passed to authorize a park of 2,164,480 acres; that act further specifies that the land be secured by public or private donation.

Over the next 10 years, very little progress was made toward acquisition, and it became doubtful that the area could be saved. To offset these difficulties, Congress, on 6 December 1944, approved an act to authorize the Secretary of the Interior to establish a Federal wildlife refuge in the area, with the understanding that it would be for a 10-year period unless the park was established within that time.

In 1946, the Governor of Florida re-created the Everglades National Park Commission to assist in expediting the park project. Through the combined efforts of many, spearheaded by the commission, the State legislature provided \$2,000,000 for the purchase of certain private lands in the area. This action cleared the way for the park's establishment, and it was finally dedicated on 6 December 1947 by President Harry S. Truman.

In 1950, the Secretary of the Interior increased the size of the park from 460,000 to 1,228,500 acres, adding the area of the former Federal wildlife refuge. Another increase of 269,850 acres was made on 12 March 1954. The present boundary of the park, containing 1,400,533 acres, was established by an act of Congress on 2 July 1958.

Two recent acts of Congress relate specifically to private inholdings and the provision for water. The act of 26 September 1970 (Public Law 91-428) amends the boundary act of 2 July 1958 (72 Stat. 280), and authorizes additional funds to acquire all the private inholdings in the park. The act of 19 June 1970 (Public Law 91-282) authorizes the Corps of Engineers to effect improvements for the delivery of a minimum of 315,000 acre-feet of water from the central and southern Florida flood control project to the park.

A copy of the initial act authorizing establishment of Everglades National Park follows.

**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.

*Proviso.*

Lands secured only by donation.

Acceptance of title.

*Proviso.*

Restriction, until exclusive jurisdiction over entire area is ceded.

National Park Service to administer, etc.

*Provisos.*

Water Power Act not applicable.

41 Stat. 1063. Rights of Indians.

No Federal expense for first 5 years.

Permanently reserved as a wilderness.

*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.)

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.)

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.)

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.)

## C: CONSTRAINTS AND COMMITMENTS

For years there have been numerous private inholdings in Everglades National Park over which the Park Service has had little or no control. Previous restrictions on purchase of lands have recently been removed by Federal legislation, and funds have been appropriated for the acquisition of these lands, which is now essentially complete. However, according to the Florida Statutes, the United States does not have exclusive jurisdiction over any lands added to the park since 1951.

Commercial and sports fishing is permitted in the park on a sustained-yield basis. Restrictions can be imposed on the amount taken, and where taken. Fishing is widespread, although it is prohibited in certain areas of the park. Commercial fishing, in particular, is in conflict with preservation and wilderness designation. Commercial fishing is not a permissible use in areas designated as wilderness in national parks, unless so authorized by Congress.

In the northwestern area of the park, there are provisions for public utility easements and public rights-of-way along Indian Key channel, as well as a right-of-way for the State highway along the causeway between Everglades City and Chokoloskee Island. The easements and rights-of-way do not now have any apparent detrimental effect on the park.

The total number of overnight units authorized for the park by administrative agreement is set at 344. This applies to the concessioner-operated motel at Flamingo.

Under a special use permit, the Miccosukee Indians can use a small hammock situated in the park (south of the Tamiami Trail and west of the Shark Valley Loop Road) as a tribal burial ground. They can also use for 50 years – for housing, schools, and administrative and maintenance facilities – 305.33 acres of park land that lie along a 500-foot-wide strip bordering the Old Tamiami Trail, beginning 500 feet west of the Shark Valley Loop Road and extending westward to the park boundary.

A more recent agreement, now a public law authorized by Congress, commits the Corps of Engineers to provide a minimum of 315,000 acre-feet of water per year to the park from the water conservation areas to the north. This agreement also provides for specific monthly increments.

The increasing use of motorboats in the park has become the subject of considerable concern. This type of use is of long standing and has become

the traditional way of exploring the extensive system of waterways in the park. There are, nevertheless, serious questions as to where motorboating should be permitted and where it should be restricted, and whether detrimental effects of noise, agitation, and oil pollution have disturbed fishery and other wildlife habitats.

The "Hole-in-the-Donut" area of the park contains private inholdings and other Federal lands which have been used for agricultural and defense purposes. The U.S. Army still maintains a missile base here on 659.10 acres of park land under a special use permit.

The fact that there are outstanding oil, gas, and mineral rights retained on 65,200 acres of Federal and private lands in the park has a bearing on the wilderness proposals for Everglades. Unless these rights are acquired, lands where this condition exists can only be, and have been, recommended as potential wilderness additions. Existing legislation gives private interests the right to customary royalties from the production of oil and gas, or the extraction of other minerals in the park, should production be authorized by the Federal Government.

Also embodied in legislation are provisions that would permit "construction, operation, and maintenance" of State-built drainage works in the northeastern extension of the park, as long as these works were not "seriously detrimental to the preservation and propagation of the flora and fauna." It is extremely unlikely that such permission would ever be granted, because such projects probably would be detrimental to the wilderness conditions the park was authorized to preserve.

D. SUMMARY OF ANTICIPATED COSTS (IN 1979 DOLLARS)  
FOR DEVELOPMENTS PROPOSED IN THIS MASTER PLAN

PROPOSED DEVELOPMENT BY AREA	GROSS COST
<u>Dwarf Cypress</u> : Construct parking area for 10 cars and a 500' elevated boardwalk.	\$ 80,000
<u>Flamingo</u> : Upgrade quality of NPS-owned facilities leased to concessioner (dining area and employee housing); construct NPS employee quarters (2 2-bedroom apartments and 2 1-bedroom apartments); 200' of entrance roads; parking for 5 cars; site developing; utilities. Expand maintenance facilities. Remodel interpretive space in existing building. Landscape 185-site trailer campground.	1,098,000
<u>Buttonwood Canal</u> : Rearrange traffic circulation and construct additional boat ramp after canal plugged.	60,000
<u>Key Largo</u> : Rehabilitate existing 1,450 sq. ft. building for use as ranger and information station. Construct 25-car parking area with access road and walks. Construct covered dock for 4 boats, 200 sq. ft. storage building and landscaping. Connect wastewater disposal to municipal treatment system.	257,000
<u>Lower Matecumbe Key</u> : Provide ranger/patrol station (estimate based on 1,000 sq. ft. new structure).	58,000
<u>Everglades City</u> : Construct or modify 2,500 sq. ft. combination visitor contact station/administration building with parking for 30 cars, connecting road and landscaping. Construct 1,000 sq. ft. maintenance facility with access road, parking for 5 cars, utilities, fencing and landscaping.	578,000

<u>Shark Valley/Tamiami:</u>	Construct 1,000 sq. ft. visitor contact station, with tram visitor parking improvements, restroom, and landscaping. Construct 3 apartment buildings with 4 units each, and 2 dorm units. Provide for parking, utilities and landscaping at residential site. Construct ranger office/maintenance building of 1,200 sq. ft. Eliminate existing facilities at 40-mile bend ranger station.	1,429,000
<u>Backcountry:</u>	Construct 23 primitive campsites.	126,000
<u>Pine Island:</u>	Expansion of maintenance shop and storage capacity by an estimated 3,500 sq. ft. Includes utilities and landscaping.	<u>283,000</u>
	TOTALS	\$3,969,000

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Denver Service Center. NPS 728 A

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.

