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IUCN REVIEW

World Heritage Nomination

1. NAME: Everglades National Park
2. LOCATION: Southern Florida, USA
3. NOMINATED BY: Mr. David Hales  
Deputy Assistant Secretary for Fish and Wildlife, and  
Parks, USDI
4. DOCUMENTATION:
  - i) Nomination form received 2 March 1979
  - ii) Statement for management, Everglades National Park,  
5 May, 1977
  - iii) Applicable legislation (contained in management plan)
  - iv) Topographic map 1:250,000 showing park boundaries
5. BACKGROUND:
  - i) Everglades National Park was authorized by Congress in 1934. It was established on December 6, 1947 by President H.S. Truman. It is the third largest national park in the United States, containing 567,017 ha. approximately 2,000 square miles.
  - ii) Established as a Biosphere Reserve, June 1976.
6. SUMMARY DESCRIPTION

For more than 5,000 years, nature had been building one of the most sensitively engineered ecosystems on earth. A huge wet prairie called the Everglades - through the eastern side of this wild-land flowed an almost imperceptible river, only inches deep and 50 miles wide, following a gently curving swathe more than 100 miles long. Along the western side - the Everglades slope of only two inches a mile led the water gently southward.

Fred Ward

National Geographic Vol. 141, No. 8  
January 1972

"The Everglades are unique: they have no counterpart anywhere on earth. Although the region is almost perfectly flat, few landscapes anywhere have a more intricate interplay of physical and biological factors."

Archie Carr  
The Everglades  
Time Life Books  
1973

JUSTIFICATION:

The area has been evaluated against the operational guidelines for the implementation of the World Heritage Convention, as amended at its 2nd Meeting.

Outstanding universal value

Criteria No. 10 (i) The major stages of the earth's evolutionary history

"The plain is old sea bottom, or, more accurately new sea bottom, since the whole sawgrass region was exposed only a few thousand years ago, by the last retreat of the sea during an ice-age buildup. No folding or warping of the sea bottom was involved. The water simply drained off as the ice at the North and South Poles built up, and the limestone came out as flat as a table top".

Archie Carr  
The Everglades, 1973

Criteria No. 10 (ii) Outstanding sample - biological evolution

"The Everglades provide a habitat for a mixture of animals found nowhere else in the United States and yet contains elements that come from everywhere".

Wm. M. Partington, The Everglades  
Animal Kingdom, December 1967

"Everglades National Park is America's finest, most extensive exhibit of aquatic based biology - it supports the most complex biological community in the country".

Michael Story  
Sierra Club Bulletin  
June 1968

Criteria No. 10 (iv) Habitats where populations of rare or endangered plants and animals still survive

"Everglades is a haven for over 36 rare or endangered animals. The most notable include the Florida panther (Felis concolor corgi)

the manatee (Trichechus manatus latirostris) - the American crocodile (Crocodylus acutus)." .

Nomination form (p.4)

"Perhaps the most seriously threatened of all the Everglades birds is the Everglades kite or snail kite. It qualifies as endangered by any definition."

Archie Carr  
The Everglades  
1973

INTEGRITY:

In order to assess the question of integrity a brief history of the area is outlined:

Example 1 - 1905: "The murder of an Audubon warden, Guy Bradley, by poachers of flamingo focused the indignant attention of the world on the bird plume industry".

1973: "Few people are aware that inspite of the environmental disruptions of the past few decades, you can now see more herons and egrets in a day's drive through southern Florida than you could have seen in a whole year back in 1905".

Archie Carr  
The Everglades  
1973

Example 2 - 1938: In fifty years, the Everglades National Park is capable of becoming an outstanding place".

Daniel B. Beard  
Everglades National Park Project  
1938

1969: "Everglades National Park has the dubious distinction of having the most serious preservation problems facing the National Park Service today".

Russell Train  
Sierra Club Bulletin  
July 1969

1972: "A threat to its beauty - and ecology - was thwarted last year when citizens halted the building of a huge jet-port".

National Geographic  
January 1972

1973: "The one and one-half million acre "Big Cypress Swamps" is the natural reservoir for more than one half of the surface waters reaching Everglades National Park."

A. Durand Jones  
Living Wilderness  
Winter 1973-74

1979: "Big Cypress National Preserve" is now 60 percent in federal ownership".

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1970: Public Law 91-282 - an Act guaranteeing a minimum waterflow to the Everglades.

1978: Congress approved a Wilderness Proposal placing 97.2 percent of the Park under strict preservationist management.

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SUMMARY re INTEGRITY:

It is evident that the paramount need for the Everglades is a continuing supply of water. The combination of a vigilant public and concerned government recognize this and will act to ensure the integrity of Everglades National Park. Any such action will be enhanced by the placement of the park on the World Heritage List.

RECOMMENDATION:

That the "Everglades National Park" be placed on the World Heritage List.



International Union for Conservation of Nature and Natural Resources

March 1979

**COUNTRY** United States of America - Florida

**NAME** Everglades National Park

**IUCN MANAGEMENT CATEGORY**

II (National Park)

Biosphere Reserve

Ramsar Site

Natural World Heritage Site - Criteria i, ii, iv

**BIOGEOGRAPHICAL PROVINCE** 8.12.04 (Everglades)

**GEOGRAPHICAL LOCATION** Everglades National Park is situated on the southern tip of the Florida Peninsula, 16km from Florida City. The park is bounded by the Gulf of Mexico to the west, the Tamiami Trail and mostly state lands to the north, and the Florida Keys to the south and south-east. It includes most of Florida Bay. The biosphere reserve includes Dry Tortugas National Park, a group of seven coral reefs and surrounding shoals, coral reefs and waters. Dry Tortugas lies 112km west of Key West in the Florida Keys. 24°50'-25°55'N, 80°20'-81°30'W

**DATE AND HISTORY OF ESTABLISHMENT** Declared a national park on 6 December 1947 under the May 1934 Act of Congress. The park was accepted as a biosphere reserve in 1976, inscribed on the World Heritage List in 1979, and was designated a Ramsar site (Wetland of International Significance) in 1987. The total area of the national park was increased in 1989 from its original size of 566,788ha to its current size.

**AREA**

National Park 609,681ha

World Heritage Site 592,920ha

Biosphere Reserve (includes Dry Tortugas National Park) 585,867ha

Ramsar Site 566,788ha

The park is at the centre of a complex of protected areas, including Big Cypress National Preserve (21,198ha), Biscayne National Park (41,967ha), Dry Tortugas

National Park (26,183ha), Key Largo National Marine Sanctuary (32,388ha), 10 National Wildlife Refuges and the Florida Keys National Marine Sanctuary.

**LAND TENURE** United States Government, Department of Interior, Washington DC

**ALTITUDE** Ranges from sea-level to 2m

**PHYSICAL FEATURES** Everglades National Park is a shallow basin tilted to the south-west and underlain by extensive Pleistocene limestones with oolitic and bryozoan facies (the latter largely composed of *Schizoporella floridans*). The substrate limestone is overlain with variable thicknesses of marl and peat, minimising water loss downwards. The park serves as a vital recharge area for the Biscayne Aquifer, a major source of freshwater for Miami and south-east Florida. Florida Bay has an average depth of 1m and a maximum of 3m. It is composed geologically of anastomosing mudbanks and unconsolidated calcareous sediments over limestones. It is one of the most active areas of modern carbonate sedimentation. The park lies at the interface between temperate and subtropical America and between fresh and brackish water, shallow bays and deeper coastal waters, thus creating a complex of habitats supporting a high diversity of flora and fauna. The area of transition from freshwater (glades) to saltwater (mangrove) is a highly productive zone that incubates great numbers of economically valuable crustacea.

**CLIMATE** Temperatures are moderate, rarely freezing in winter, and reaching 23-35°C in summer, with annual precipitation often over 1470mm. Hurricane force storms can occur in summer and early autumn.

**VEGETATION** The vegetation and flora of south Florida have fascinated scientists and naturalists since their discovery, and were a primary reason for the establishment of the park. One cause of this fascination is the presence of a high percentage of West Indian species. Of approximately 1,600 species of vascular plants in Dade, Monroe and Colliers counties, 60-70% have tropical affinities. A noteworthy feature of the south Florida fauna is the rather high degree of local endemism. Approximately 65 taxa are south Florida endemics; of these about 25 are confined to the small area of slash pine forest in south-eastern Florida. A total of about 950 vascular plant species has been recorded in the park, including about half of the species endemic to southern Florida and numerous other rare plant species. Southern Florida vegetation is unique in the United States, but similar communities occur throughout the Caribbean and parts of tropical America. These taxonomic affinities indicate that these species migrated into the area from tropical regions and are, therefore, more closely allied to tropical ecotypes rather than temperate ones. The sawgrass marshes of the Everglades are probably the largest in the world, and the extent of mangrove vegetation is surpassed in only a few parts of the world outside the Australasian region. The vegetation of southern Florida can be divided into several structural community-types. Hammocks or tree islands are dominated by hardwood species of both tropical and temperate affinities. Mangrove forests contain red mangrove *Rhizophora mangle*, black mangrove *Avicennia nitida*, and white mangrove *Laguncularia racemosa*. Pinelands are dominated by slash pine *Pinus elliotti* var. *densa* and contain a large number of the endemics among the shrub and herbaceous species in the understorey. Bayheads contain isolated stands of willow *Salix caroliniana* on slight elevations or cypress *Taxodium distichum* in depressions filled with organic matter. Prairies can be dominated by sawgrass *Cladium jamaicensis*, muhley grass *Muhlenbergia filipes*, or cordgrass *Spartina* spp. in coastal areas.

**FAUNA** The Everglades protect 800 species of land and water vertebrates including over 14 threatened species (National Park Service, pers. comm., 1995; Cook, 1996). Twenty-five native mammals occur including round-tailed muskrat *Neofiber alleni struix*, Everglades mink *Mustela vison evergladensis*, Florida panther *Felis concolor coryi* (E), manatee *Trichechus manatus latirostris* (V), mangrove fox squirrel *Sciurus niger avicennia* and Florida black bear *Ursus americanus floridanus*. Over 400 bird species, many of limited distribution in the USA, have been recorded, notably snail kite *Rostrahamus sociabilis* (R), short-tailed hawk *Buteo brachyurus*, bald eagle *Haliaeetus leucocephalus*, peregrine falcon *Falco peregrinus*, great white heron *Ardea occidentalis*, red-cockaded woodpecker *Dendrocopos borealis*, Cape Sable seaside sparrow *Ammospiza maritima mirabilis*, Cuban snowy plover *Charadrius alexandrinus tenuirostris*, ivory-billed woodpecker *Campephilus principalis*, Florida grasshopper sparrow *Ammodramus savannarum floridanus*, Rothschild's magnificent frigatebird *Fregata magnificens rothschildi*, osprey *Pandion haliaetus*, crested caracara *Polyborus plancus*, Florida sandhill crane *Grus canadensis pratensis*, American oystercatcher *Haematopus palliatus*, roseate tern *Sterna dougallii*, least tern *Sterna albifrons*, white-crowned pigeon *Columba leucocephala*, Florida scrub jay *Aphelocoma coerulescens* and many species typical of the Caribbean region. There are 60 known species of reptiles and amphibians, including American alligator *Alligator mississippiensis*, American crocodile *Crocodylus acutus* (E), hawksbill turtle *Eretmochelys imbricata* (E), green turtle *Chelonia mydas* (V) and loggerhead turtle *Caretta caretta* (E). Over 20 species of snake have been recorded, including the threatened indigo snake *Drymarchon corais souperi*. More than 275 species of fishes are known from the Everglades, most inhabiting the marine and estuarine waters. Several species are important game species that attract thousands of anglers to the park. Smaller species both inland and in estuaries are prey for the many species of wading birds. Bahama swallowtail butterfly *Papilio ardraemon bonhottei* and Schaus swallowtail butterfly *P. aristodemus ponceanus* are threatened insects. Seabirds nesting at Dry Tortugas National Park include sooty terns *Sterna fuscata*, noddy tern *Anous stolidus*, roseate tern *Sterna dongallii* and frigate birds *Fregata magnificens*. During autumn a continuous procession of songbirds and other migrants fly over or rests on these islands.

**CULTURAL HERITAGE** Everglades National Park is rich in both prehistoric and historic heritage. The park contains some 200 known archaeological sites, with two archaeological districts presently submitting nominations to the National Register of Historic Places with 62 and 70 sites in each. In addition, five separate sites have been nominated as having individual significance. Historic use of the park has left a rich record from native American use, settlement, farming and fishing activities. A native American group, the Miccosukee Tribe of Florida, has a special use permit area inside the park for tribal headquarters, visitor centre, housing and businesses. Fort Jefferson, in Dry Tortugas National Park, is the largest brick masonry fort in America, built with an estimated 6 million bricks between 1846 and 1876. The fort's 2.5m thick walls stand 15.2m high, divided into three tiers which were designed for 400 guns. The fort was large enough to garrison 1,500 men, but was never involved in battle, although it did secure a post for Union forces during the Civil War and afterwards served as a prison.

**LOCAL HUMAN POPULATION** Most staff members commute from local communities. However, 30-50 park personnel and 50-100 concession personnel live in residential areas in the park. A 50ha site along the park's northern boundary is retained by the Miccosukee Tribe of Indians under a special use permit for community development. The population of the Florida Bay region stands at

approximately six million people (1996), and future projections indicate a doubling of the population over the next 20 years (Cook, 1996).

**VISITORS AND VISITOR FACILITIES** Visitor facilities include five visitor centres, nature trails and boardwalks, four camping areas, one motel, restaurant, marina, small stores, a 24km paved loop road for tram and bicycle tours, canoeing trails, and primitive backcountry camping areas. Use of the Everglades is devoted to natural and cultural resource interpretation, environmental education, recreational fishing, boating and hiking and wilderness exploration. Boat dock camping facilities are available in Dry Tortugas National Park.

**SCIENTIFIC RESEARCH AND FACILITIES** Although there has been extensive research documenting the natural resources of the Everglades, there are still numerous areas of critical resource systems requiring study because of the size, complexity, and impacts on the ecosystem. A research and resource management staff of about 60 scientists, technicians, resource specialists and administrative assistants work on hydrology, wildlife, vegetation, fire ecology, marine ecology, and cultural resources. The Everglades Regional Collection Centre houses some 50,000 biological and cultural museum artifacts and archives, as well as a library with 10,000 volumes. Dry Tortugas National Park offers excellent research possibilities on coral reef ecology, subtropical islands, bird migrations, and fisheries. There was a research Laboratory of the Carnegie Institutes on Loggerhead Key during the first three decades of this century, providing a substantial record of research.

**CONSERVATION VALUE** The Everglades National Park is an area of exceptional conservation value. Resources include: the largest continuous stand of sawgrass prairie in North America; the largest mangrove ecosystem in the Western Hemisphere; the most significant breeding grounds for tropical wading birds in North America; the only subtropical preserve in North America; and the habitat of some 14 endangered species.

**CONSERVATION MANAGEMENT** Three separate watershed sources lie outside the park boundaries, but are essential to the integrity of the Everglades system, and are in varying stages of preservation and control: Big Cypress National Preserve on the north-west boundary, (93% Federal property); Shark River Slough watershed in turn is supplied by a large number of water conservation areas managed by the State of Florida and north of these a large agricultural area; and the small Taylor Slough watershed which originates on private lands, passes through the park and supports the exceptional seasonal wildlife displays at the Anhinga Trail, and finally empties into north-east Florida Bay. Strict natural, managed natural, and developed zones have been identified. 93% of the park is federally designated as wilderness. A series of designated preservation zones by Metropolitan Dade County and the State of Florida help protect the park's north and east boundary from encroaching urbanisation. In keeping with the strict tenor of the 1934 Act authorising Everglades National Park, the development of visitor facilities has progressed according to a concept of preserving the park's essential wilderness qualities and keeping developmental encroachments to a minimum. Currently about 0.1% of the park can be considered developed. Visitor facilities are considered adequate, and only upgrading and replacement of ageing facilities is planned. In 1990 an Act of Congress authorised the purchase of 40,500ha of land along the east boundary of the park to increase the protection of Shark Slough. Control of this area and related infrastructure changes in the water management system, will allow the park to restore natural hydro-patterns without flooding private land in the north-eastern area of Shark Slough (National Park Service, pers. comm., 1995). Prescribed burning was pioneered as a National Park Service management tool at Everglades. Fire has been



successfully reintroduced as an essential element in perpetuating a native ecosystem. The Fire Management Plan (1990) and Statement for Management (1989) state current management philosophy and goals.

**MANAGEMENT CONSTRAINTS** The plant communities of southern Florida have proved to be extremely vulnerable to disturbance from human activities. Although the area was settled relatively late, changes occurred very rapidly in the early decades of the 20th century. This deterioration has continued, through agriculture, urbanisation, drainage, deliberate and accidental burning, pollution, and introduction of exotic species. Exotic plants pose one of the greatest threats to the integrity of the Everglades ecosystems. There are at least 221 species of introduced plants in the park. These exotic plants can be divided into different categories based on current distribution, potential to spread and invade native vegetation, and the corresponding management approach for each group of species. The most significant category consists of species that are widespread in the park or southern Florida and that have an established, documented potential to invade undisturbed, native plant communities. Another category contains species that are able to naturalise and spread locally into undisturbed, native vegetation and form dense stands once they have been introduced. The next category consists of species that are widespread in the park or in southern Florida and form dense, monospecific populations, primarily on disturbed sites such as road sides, canal embankments and agricultural lands (Whiteaker and Doren, 1989). Exotic fish species, including walking catfish are competing with native species for habitat.

Water management manipulations are the largest environmental threat to the ecosystem. Water quality, timing of canal releases, amounts, and distribution affect the natural system that, in turn controls wildlife and vegetation populations. The park's legal boundaries encompass the southern end of a 150km drainage system of central Florida. Increased salinity in Florida Bay, due to reduced freshwater delivery, may be one factor in the decline of some fish species and shrimps and the spread of algal blooms. Water deliveries have been quite erratic in the past; during droughts in the early 1960s and late 1980s the lack of sheet run-off from the north into the park significantly reduced breeding wading bird populations. Congressional action ensured a minimum annual supply; however, timing and manner of delivery were not specifically addressed. Research is being undertaken to understand the flow of water and its biological effects on wild plants and animals in order to design, modify, and revise the hydrological management that effects the park. In the Everglades Expansion Act of 1989, Congress determined that there are significant adverse effects to the ecosystem from external sources and that the ecosystem should be restored. In further recognition of its seriously threatened status, Everglades National Park was added to the World Heritage in Danger List in 1993 (Anon, 1994).

**STAFF** Some 230 full time permanent employees (Cook, 1996).

**BUDGET** US\$13,000,000 for administration, protection, resource management, research, interpretation and maintenance in 1996 (Cook, 1996).

#### **LOCAL ADDRESSES**

Superintendent, Everglades National Park, 40001 State Road, Homestead, Florida 33030 (Tel: (305) 242 7700; Fax: (305) 242 7711)

#### **REFERENCES**

Over 200 reference works have been published, but there is no single comprehensive

account of the natural history.

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**DATE** 1982, revised August 1986, July 1987, October 1990, July 1995 and May 1997.