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Original: ENGLISH

Proposed areas for inclusion in the SPAW list
ANNOTATED FORMAT FOR PRESENTATION REPORT FOR:

**Everglade National Park
USA**

Date when making the proposal : *August 29th, 2012*

CRITERIA SATISFIED :

Ecological criteria

Representativeness
Conservation value
Rarity
Naturalness
Critical habitats
Diversity
Connectivity/coherence
Resilience

Cultural and socio-economic criteria

Productivity
Cultural and traditional use
Socio-economic benefits

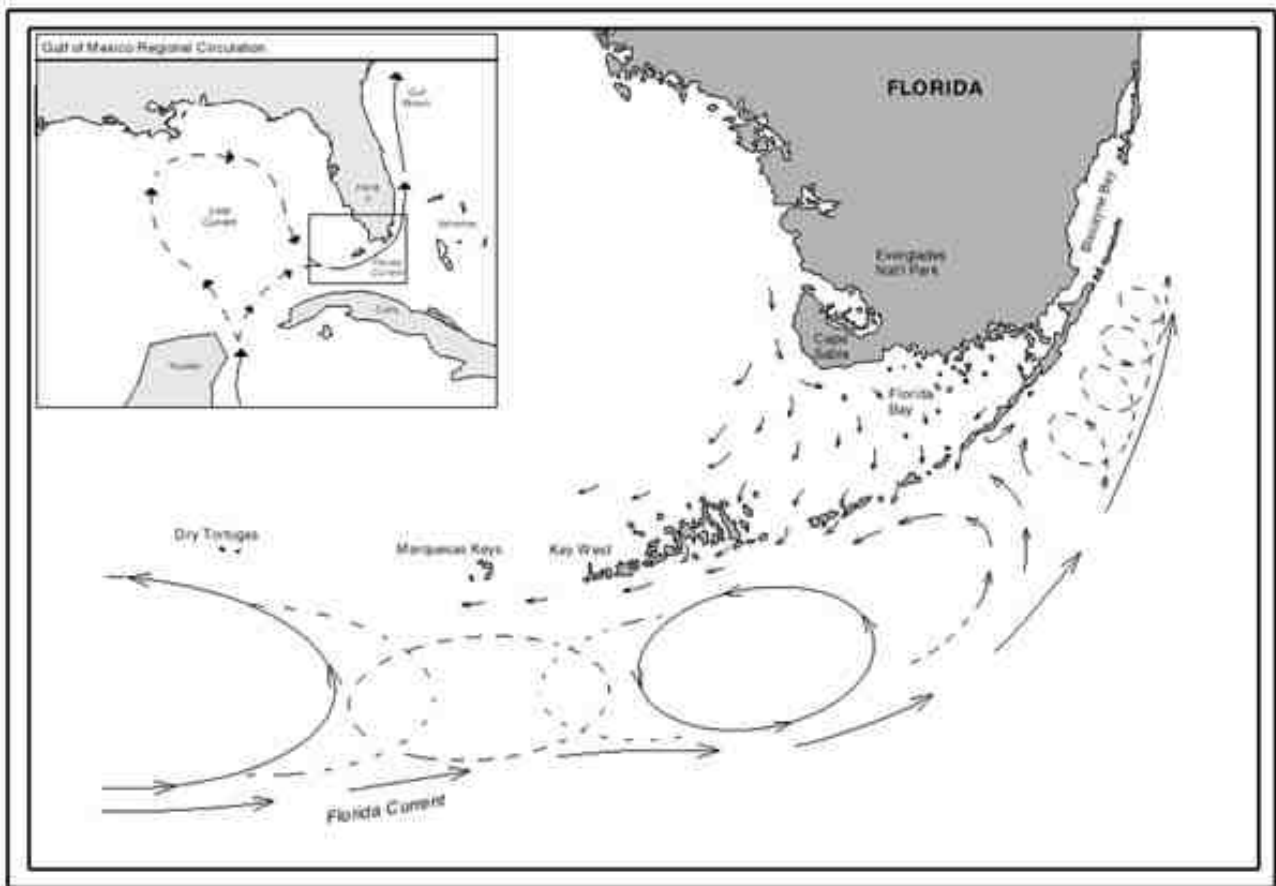
Area name: Everglade National Park

Country: USA

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SUMMARY

Chapter 1 - IDENTIFICATION

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Chapter 8 - STAKEHOLDERS

Chapter 9 - IMPLEMENTATION MECHANISM

Chapter 10 - OTHER RELEVANT INFORMATION

ANNEXED DOCUMENTS

EVERGLADES All Categories Certified Species List

Everglades list of indicators

EVERGLADES FIKeys Current

EVERGLADES NP Ecosystem Metrics Map

Chapter 1. IDENTIFICATION

a - Country:

USA

b - Name of the area:

Everglade National Park

c - Administrative region:

Southeast Region of the U.S. National Park Service

d - Date of establishment:

12/6/47

e - If different, date of legal declaration:

not specified

f - Geographic location

Longitude X: -80.90332

Latitude Y: 25.289405

g - Size:

6110 sq. km

h - Contacts

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i - Marine ecoregion

70. Floridian

Comment, optional

none

Chapter 2. EXECUTIVE SUMMARY

Present briefly the proposed area and its principal characteristics, and specify the objectives that motivated its creation :

not specified

Explain why the proposed area should be proposed for inclusion in the SPAW list

Everglades National Park is one of the world's unique ecosystems. The park is located at the interface between temperate and tropical America; between land and sea; between fresh, brackish, and marine waters; between terrestrially influenced shallow embayments and deeper coastal waters of the Gulf of Mexico; and between the urban sprawl and development of greater Broward, Collier, and Miami-Dade counties (2011 population of ~ 4.1 million) and quiet wilderness. Everglades National Park protects the southern 20 percent of the original Florida Everglades. In the United States, it is the largest subtropical wilderness, the largest wilderness of any kind east of the Mississippi River, and is visited on average by one million people each year. It is the third-largest national park in the lower 48 states after Death Valley and Yellowstone.

Although most U.S. national parks preserve unique geographic features, Everglades National Park was the first created to protect a fragile ecosystem. The Everglades are a network of wetlands and forests fed by a river flowing 0.25 miles (0.40 km) per day out of Lake Okeechobee, southwest into Florida Bay. From the Bay the water moves through the island passes into the Florida Keys National Marine Sanctuary (designated a SPAW in 2010). The park is the most significant breeding ground for tropical wading birds in North America, contains the largest mangrove ecosystem in the western hemisphere, is home to 36 threatened or protected species including the Florida panther (*Puma concolor coryi* or *Puma concolor cougar*, current taxonomic status unresolved), the American crocodile (*Crocodylus acutus*), and the West Indian manatee (*Trichechus manatus*), and supports 350 species of birds, 300 species of fresh and saltwater fish, 40 species of mammals, and 50 species of reptiles. The majority of South Florida's fresh water, which is stored in the Biscayne Aquifer, is recharged in the park.

According to you, to which Criteria it conforms (Guidelines and Criteria B Paragraph 2)

Representativeness
Conservation value
Rarity
Naturalness
Critical habitats
Diversity
Connectivity/coherence
Resilience

Cultural and socio-economic criteria

Productivity
Cultural and traditional use
Socio-economic benefits

Chapter 3. SITE DESCRIPTION

a - General features of the site

Terrestrial surface under sovereignty, excluding wetlands:

3824 sq. km

Wetland surface:

341 ha

Marine surface:

2416 sq. km

b - Physical features

Brief description of the main physical characteristics in the area:

Everglades National Park is part of a large, interconnected freshwater system called the Kissimmee-Lake Okeechobee-Everglades Watershed. This watershed covers almost 11,000 square miles in south-central Florida. Hydrology in the watershed is dominated by a dry season from December to May and a wet season from June to November when 75% of the annual precipitation falls. Rain falls across roughly 22,400 km² in central and south Florida, which is nearly flat (there is about an inch per mile elevation change from Lake Okeechobee to Florida Bay). Historically, the Everglades system was fed by sheet flow from lakes and wetlands in the northern reaches of the watershed during seasonal rainy periods.

This surface flow moved slowly south into the extensive wetlands that define the Everglades, through the “river of grass,” and on to Florida Bay or the Ten Thousand Islands. This flow was as much as 50 miles wide and ranged from 6 inches to 3 feet in depth, moving about 100 feet per day (33m) from May to October. During the wet season, the landscape was nearly covered with water. Much of the water flows through the unique ridge-and-slough habitat of south Florida. This landscape is characterized by elongated ridges and troughs of limestone and peat. Average water depth is about 1 foot (0.3m) but can be as deep as 3 feet (1m) during the rainy season. In other areas, wet season flows inundate marl prairie habitat and encroach upon pinelands, hardwood hammocks, and other tree islands. As winter approaches, water slows and then ceases form the annual dry season.

Although most habitats dry completely during winter, the ridge-and slough landscape usually retains some of its water, sometimes in shallow pools and sometimes as deep pools, both of which provide valuable aquatic habitat into which many animals retreat until the next rainy season. The watershed has been highly engineered and managed for agriculture, flood control, and supplying water for a growing population. The region is now characterized by large urban centers and highly productive agricultural areas, which have been made possible by the dramatic alterations of the natural hydrology. Beginning in the 1880s, development was assisted by the large-scale drainage of wetlands, construction of channels to carry water to the population centers of the east, and flood control structures.

These efforts would eventually create an extensive system of levees, canals, and water control structures. Direct effects on the park’s hydrology include disruption or elimination of overland sheet flows, changes in the location and timing of flows, and permanent flooding in some areas and permanent drainage of others. Portions of the park now flood more deeply during the rainy season and are drier during the winter. Indirect effects include land subsidence, abnormal fire patterns, and

widespread changes in vegetative and animal communities. Canals can also serve as habitats and movement corridors for invasive exotic plants such as hydrilla (*Hydrilla verticillata*) and water hyacinth (*Eichhornia crassipes*) and animals like cyclids (*Cichlidae*) and sailfin catfish (*Pterygoplichthys multiradiatus*) that impact Everglades' ecosystems.

c - Biological features

Habitats

Brief description of dominant and particular habitats (marine and terrestrial)*: List here the habitats and ecosystems that are representative and/or of importance for the WCR (i.e. mangroves, coral reefs, etc):

Florida Bay in Everglades National Park has been identified as a habitat area of particular Concern (HAPC). Mangrove-covered islands and submerged aquatic vegetation in the bay provide important habitat for many of the fisheries, such as pink shrimp, red drum, and spiny lobster. Essential fish habitat in Everglades National Park is composed of estuarine waters and substrates (mud, sand, shell, rock, and associated biological communities) and includes submerged vegetation (seagrasses and algae), marshes and mangroves, and oyster shell reefs or banks.

Some of the dominant and "essential" marine habitats in the park include:

- submerged aquatic vegetation (seagrasses)
- intertidal vegetation (marshes and mangrove)
- benthic algae
- coral reefs
- sand/shell bottoms
- soft bottoms
- pelagic communities, oyster reefs, and shell banks
- hard bottoms

These habitats provide forage, nursing, and spawning areas for species such as shrimp, snappers, spiny lobster (*Panularis argus*), reef fish, and mackerels.

Seagrass meadows provide substrates and environmental conditions that are essential to the feeding, spawning, and growth of several managed species. Juvenile and adult invertebrates and fishes, as well as their food sources, use seagrass beds extensively. *Mangroves and marshes* provide essential habitat for many managed species, serving as nursery grounds for larvae, juveniles, and adults. Mangrove habitats (particularly riverine, overwash, and fringe forests) provide shelter for larvae, juvenile, and adult fish and invertebrates.

In addition, mangroves and marshes provide dissolved and particulate organic detritus to estuarine food webs. Because of this dual role as habitat and as food resource, mangroves are important exporters of material to coastal systems. Mangroves also export materials to terrestrial systems by providing shelter, foraging grounds, and nursery/rookery areas for terrestrial organisms. The root system binds sediments, thereby contributing to sedimentation and sediment stabilization. *Corals and coral reefs* support a wide array of corals, finfish, invertebrates, plants, and microorganisms. *Hard bottoms and hard banks* often have high species diversity but may lack reefbuilding (hermatypic) corals, the supporting coralline structure, or some of the associated biota. Hard bottoms are usually of low relief and on the continental shelf; many are associated with relic reefs, where the coral veneer is supported by dead corals. In deeper waters, large, elongated mounds (called deep-water banks) that are hundreds of yards in length often support a rich fauna compared with adjacent areas. *Benthic algae* occur in both estuarine and marine environments and are used as habitat by managed species, such as the queen conch and early stages of the spiny lobster. Threatened sea turtles use some benthic algae species as food. Invertebrate species, including mollusks and

crustaceans, inhabit this area and are eaten by various fishes. *Sandshell and soft bottom habitats* are common throughout Florida and the Caribbean. These habitats are characterized as being extremely dynamic. However, buffering by reefs and seagrasses allows some salt-tolerant plants to colonize the beach periphery. Birds, sea turtles, crabs, clams, worms, and urchins use the intertidal areas. The sand/mud subsystem includes all non-live bottom habitats or those with a low percent of cover (less than 10%). Sandy and mud bottom habitats are widely distributed and are found in coastal and shelf areas. These areas include inshore, sandy areas separating living reefs from turtle grass beds and shorelines, rocky bottoms near rocky shorelines, and mud substrates along mangrove shorelines. Sand/shell habitat is used for foraging by many fishes, such as mojarras, and as substrate for solitary corals. The *pelagic* subsystem includes the habitat of pelagic fishes. Pelagic habitat is associated with open waters beyond the direct influence of coastal systems.

In general, primary productivity in this zone is low and patchily distributed, being higher in nearshore areas as opposed to offshore areas. The pelagic system is inhabited by the eggs and larval stages of many reef fishes, highly migratory fishes, and invertebrates, some of which, like the spiny lobster, are commercially important. *Oyster and shell* essential fish habitat is defined as the natural structures found between (intertidal) and beneath (subtidal) tide lines. These structures are composed of oyster shell, live oysters, and other organisms that are discrete. Oysters have often been described as the “keystone” species in an estuary, and they provide substantial surface area as habitat. Oyster communities are critical to a healthy ecosystem, because oyster reefs remove, via filter feeding, large amounts of particulate material from the water column and release large quantities of inorganic and organic nutrients. The oyster reef as a structure provides food and protection and contributes to critical fisheries habitat. Whereas essential fish habitat must be described and identified for each species and life, habitat areas of particular concern are identified on the basis of the condition of the habitat.

Detail for each habitat/ecosystem the area it covers:

<i>Marine / coastal ecosystem categories</i> Detail for each habitat / ecosystem the area covers	Size (estimate)		Description and comments
	unit	Area covered	
<i>Mangroves</i>			
Mangroves	ha	92600	The Gulf of Mexico Fisheries Management Council identified six areas in Everglades National Park — Florida Bay; Lake Ingraham; Whitewater Bay; Cape Sable to Lostman’s River; Lostman’s River to Mormon Key; and Mormon Key, up to and beyond the park boundary, to Caxambas Pass — that contain essential fish habitat dominated by mangrove islands and mangrove forests that include marsh areas and areas of submerged aquatic vegetation (seagrass). The complex of six areas is referred to as the Florida Bay and Ten Thousand Islands area. Mangroves in these areas cover approximately 926 km ² , and marsh areas cover about 664 km ² . Cape Sable contains about 66% of the tidal marsh and greater than 60% of the mangroves in these areas. Submerged vegetation in the area totals nearly 661 km ² , mostly within Florida Bay. The approximate sizes and percentages of each habitat type can be found in the attached map of Everglades’ ecosystems included as an Annex.
Terrestrial	Size (estimate)		

ecosystems	unit	Area covered	
<i>Wetlands</i>			
Marsh	sq.km	664	
Submerged vegetation	sq.km	661	

Flora

Brief description of the main plant assemblages significant or particular in the area:

Sawrass and broad-leafed marsh plants dominate the freshwater sloughs; benthic algae and other microscopic organisms that form periphyton dominate the freshwater marl prairies as does other grasses, such as muhly grass (*Muhlenbergia filipes*) and broadleafed water plants; Large southern live oaks (*Quercus virginiana*) dominate the tropical hammocks with other trees such wild tamarind (*Lysiloma latisiliquum*) and gumbo-limbo (*Bursera simaruba*) also being present in abundance. Trees often form canopies under which animals thrive amongst scrub bushes of wild coffee (*Psychotria*), white indigoberry (*Randia aculeata*), poisonwood (*Metopium toxiferum*) and saw palmetto (*Serenoa repens*) in this area.

The shallow, dry sandy loam over a limestone substrate is covered almost exclusively by slash pines (*Pinus elliotii* var. *densa*) in the pineland area. Cypress trees and three species of mangrove trees—red (*Rhizophora mangle*), black (*Avicennia germinans*), and white (*Laguncularia racemosa*)—can be found in the Everglades. These trees are ecologically important, providing protective habitat for a variety of species of birds and fish (within their prop roots). Few trees can survive in the conditions of the coastal lowlands, but plants—succulents like saltwort and glasswort—tolerate salt, brackish water, and desert conditions of this area. Submerged aquatic vegetation (seagrasses) such as turtle grass (*Thalassia testudinum*), manatee grass (*Syrigodium filiforme*), shoal grass (*Halodule wrightii*), and wigeongrass (*Ruppia maritima*) thrive in the shallow waters of Florida Bay and are ecologically important as nursery areas for a variety of fish and invertebrates.

List of plant species within the site that are in SPAW Annex I

List of species in SPAW annex I	Estimate of population size	Comments if any
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List of plant species within the site that are in SPAW Annex III

List of species in SPAW annex III	Estimate of population size	Comments if any
Compositae : <i>Laguncularia racemosa</i>	not given	Cypress trees and three species of mangrove trees—white
Cymodoceaceae: <i>Halodule wrightii</i>	not given	Submerged aquatic vegetation (seagrasses) such as shoal grass
Hydrocharitaceae: <i>Thalassia testudinum</i>	not given	Submerged aquatic vegetation (seagrasses) such as turtle grass
Rhizophoraceae: <i>Rhizophora mangle</i>	not given	Cypress trees and three species of mangrove trees—red
Ruppiaceae: <i>Ruppia maritima</i>	not given	Submerged aquatic vegetation (seagrasses) such as wigeongrass
Verbenaceae: <i>Avicennia germinans</i>	not given	Cypress trees and three species of mangrove trees-black

List of plant species within the site that are in the IUCN Red List. UICN red list :
<http://www.iucnredlist.org/apps/redlist/search> You will specify the IUCN Status
 (CR:critically endangered; EN:endangered; VU:vulnerable).

List of species in IUCN red list that are present in your site	IUCN Status	Estimate of population size	Comments if any
Muhlenbergia: filipes	EN - Endangered	not given	Muhly grass
Psychotria: nervosa	EN - Endangered	not given	Wild coffe
Pinus: elliottii	VU - Vulnerable	not given	Slash Pine (Pinus elliottii var. densa)
Rhizophora: mangle	Unknown	not given	Mangrove tree red
Avicennia: germinans	Unknown	not given	Black mangrove
Laguncularia: racemosa	Unknown	not given	Mangrove tree white
Thalassia: testudinum	Unknown	not given	Turtle grass
Halodule: wrightii	Unknown	not given	Shoal grass
Ruppia: maritima	Unknown	not given	Wigeongrass - Beaked Tasselweed

List of plant species within the site that are in the national list of protected species

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any

Fauna

Brief descript^o of the main fauna populations and/or those of particular importance present (resident or migratory) in the area:

Everglades National Park contains a rich biodiversity and is home to

*(a) 36 threatened or protected species including the iconic Florida panther, American crocodile (*Crocodylus acutus*), and West Indian manatee (*Trichechus manatus*);

*(b) 350 species of birds including a variety of colorful waders such as herons, egrets, roseate spoonbills (*Platalea ajaja*), ibises and brown pelicans (*Pelecanus occidentalis*);

*(c) 300 species of ecologically, recreationally, and/or commercially important fresh and saltwater fish such as the yellowtail snapper (*Ocyurus chrysurus*), black grouper (*Mycteroperca bonaci*), and king mackerel (*Scomberomorus caualla*);

*(d) 40 species of mammals including the bottlenose dolphin (*Tursiops truncatus*);

*(e) and 50 species of reptiles including 4 species of sea turtles. A Certified Species List for All Taxonomic Categories in Everglades National Park (Aug. 8, 2012) is attached as an annex for review.

List of animal species within the site that are in SPAW Annex II

List of species in SPAW annex II	Estimate of population size	Comments if any
Reptiles: <i>Crocodylus acutus</i>	not given	American crocodile
Birds: <i>Ammodramus maritimus mirabilis</i>	not given	
Mammals: <i>Tursiops truncatus</i>	not given	Bottlenose dolphin
Mammals: <i>Trichechus manatus</i>	not given	West Indian manatee

List of animal species within the site that are in SPAW Annex III

List of species in SPAW annex III	Estimate of population size	Comments if any
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List of animal species within the site that are in the IUCN Red List. IUCN Red List : <http://www.iucnredlist.org/apps/redlist/search> You will specify the IUCN Status (CR:critically endangered; EN:endangered; VU:vulnerable).

List of species in IUCN red list that are present in your site	IUCN Status	Estimate of population size	Comments if any
Crocodylus: acutus	VU - Vulnerable	not given	American crocodile
Trichechus : manatus	VU - Vulnerable	not given	West Indian manatee
Platalea: ajaja	Unknown	not given	Roseate spoonbills
Pelecanus: occidentalis	Unknown	not given	Braun pelican
Mycteroperca: bonaci	Unknown	not given	Black grouper
Tursiops: truncatus	Unknown	not given	Bottlenose dolphin

List of animal species within the site that are in the national list of protected species

List of species in the national list of protected species that are present in your site	Estimate of population size	Comments if any
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d - Human population and current activities

Inhabitants inside the area or in the zone of potential direct impact on the protected area:

	Inside the area		In the zone of potential direct impact	
	Permanent	Seasonal	Permanent	Seasonal
Inhabitants	not given	not given	4500000	not given

Comments about the previous table:

Everglades National Park is surrounded by Miami-Dade (~ 2.50 million residents), Broward (~ 1.75 million residents), and Collier (~ 0.32 million residents) Counties. The demands of these 4.5 million residents exert a significant impact on the resources of Everglades National Park, presumably mostly on air quality and water quantity and quality.

Description of population, current human uses and development:

The park contains numerous Visitors Centers located at the Main Entrance, Royal Palm, Gulf Coast, Ernest Coe, Flamingo, and Shark Valley that thrive on disseminating information to the visitor (<http://www.everglades.national-park.com/visit.htm#vc>). The South Florida Natural Resources Center (Homestead) and Florida Bay Interagency Science Center (Key Largo) undertake the scientific research and monitoring of the park and assist natural resource managers in making sound decisions based on the best available scientific information.

Activities	Current human uses	Possible development	Description / comments, if any
Tourism	unknown	unknown	
Fishing	unknown	unknown	
Agriculture	unknown	unknown	
Industry	unknown	unknown	
Forestry	unknown	unknown	
Others	unknown	unknown	

e - Other relevant features

f - Impacts and threats affecting the area

Impacts and threats *within* the area

Impact and threats	level	Evolution In the short term	Evolution In the long term	Species affected	Habitats affected	Description / comments
Exploitation of natural resources: Fishing	very important	unknown	unknown			Commercial fishing has not been permitted in the park since 1985 and commercial ventures involving forest products/logging.
Exploitation of natural resources: Agriculture	very important	unknown	unknown			Agriculture is not permitted inside the park.
Exploitation of natural resources: Tourism	very important	unknown	unknown			Not commented
Exploitation of natural resources: Industry	very important	unknown	decrease			Not commented
Exploitation of natural resources: Forest products	very important	increase	unknown			Not commented
Increased population	very important	unknown	unknown			Everglades National Park is surrounded by Miami-Dade (~ 2.50 million residents), Broward (~ 1.75 million residents), and Collier (~ 0.32 million residents) Counties. The demands of these 4.5 million residents exert a significant impact on the resources of Everglades National Park, presumably mostly on air quality and water quantity and

						quality.
Invasive alien species	very important	unknown	unknown			Non-native (exotic) plants are a significant threat to the native plant communities of Everglades National Park. Approximately 1,000 plant species have been recorded in the park. Of these, over 220 species are non-native. Exotic invasive pythons have altered the food web of the Everglades: this species is a top predator, and feeds on a broad variety of native species. Exotic fish species are widespread in freshwater marshes, although we have not determined that the species are negatively affecting native fish populations. Because control methods for exotic freshwater fish in the marsh are scarce or non-existent, these species may remain in the Everglades freshwater fish community for a very long time. The presence of lionfish (<i>Pterois volitans</i>) in Florida Bay is cause for concern: this species is also a top predator, and has been shown in other locations to have negative effects on populations of native fishes.
Pollution	very important	unknown	unknown			Everglades National Park is surrounded by Miami-Dade (~ 2.50 million residents), Broward (~ 1.75 million residents), and Collier (~ 0.32 million residents) Counties. The demands of these 4.5 million residents exert a significant impact on the resources of Everglades National Park, presumably mostly on air quality and water quantity and quality.
Other	very important	unknown	unknown			Not commented

Impacts and threats around the area

Impact and threats	Level	Evolution In the short term	Evolution In the long term	Species affected	Habitats affected	Description / comments
Exploitation of natural resources: Fishing	very important	unknown	unknown			Not commented

Exploitation of natural resources: Agriculture	very important	unknown	unknown			Not commented
Exploitation of natural resources: Tourism	very important	unknown	unknown			Not commented
Exploitation of natural resources: Industry	very important	unknown	unknown			Not commented
Exploitation of natural resources: Forest products	very important	unknown	unknown			Not commented
Increased population	very important	increase	increase			Everglades National Park is surrounded by Miami-Dade (~ 2.50 million residents), Broward (~ 1.75 million residents), and Collier (~ 0.32 million residents) Counties. The demands of these 4.5 million residents exert a significant impact on the resources of Everglades National Park, presumably mostly on air quality and water quantity and quality.
Invasive alien species	very important	unknown	unknown			Not commented
Pollution	very important	unknown	unknown			Not commented
Other	very important	unknown	unknown			Not commented

h - Information and knowledge

Information and knowledge available

The Everglades-Florida Keys ecosystems are some of the most studied and most publicized in the world. There have been a series of Florida Bay and Adjacent Marine Systems Science conferences held throughout the years and are certainly a wealth of scientific information (<http://conference.ifas.ufl.edu/FloridaBay2008/index.html>). Peer reviewed publications on the Everglades' wetlands, wildlife, and Florida Bay likely number in the hundreds over the years.

List of the main publications

Title	Author	Year	Editor / review
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Briefly indicate in the chart if any regular monitoring is performed and for what groups/species

Species / group monitored (give the scientific name)	Frequency of monitoring (annual / biannual / etc...)	Comments (In particular, you can describe here the monitoring methods that are used)
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Chapter 4. ECOLOGICAL CRITERIA

(Guidelines and Criteria Section B/ Ecological Criteria) Nominated areas must conform to at least one of the eight ecological criteria. Describe how the nominated site satisfies one or more of the following criteria. (Attach in Annex any relevant supporting documents.)

Representativeness:

As seen in the attached certified species list, the park includes many species and habitats representative of those found elsewhere in the Wider Caribbean. These include, but are not limited to, seagrass (turtle grass (*Thalassia testudinum*), manatee grass (*Syringodium filiforme*), shoal grass (*Halodule wrightii*), and wigeongrass (*Ruppia maritima*)), mangroves (red (*Rhizophora mangle*), black (*Avicennia germinans*), and white (*Laguncularia racemosa*)), marine reptiles (4 species of sea turtles), marine mammals (bottlenose dolphin (*Tursiops truncatus*)), and tropical reef fish (yellowtail snapper (*Ocyurus chrysurus*), stoplight parrotfish (*Sparisoma viride*) and great barracuda (*Sphyraena barracuda*)).

Conservation value:

As a national park of the USA, this area exists to conserve the wetland/estuarine/marine ecosystems and the populations of flora and fauna present in them. Hunting is illegal in Everglades National Park and Federal law (36 CFR 7.45) gives the Park Superintendent the authority to regulate and/or prohibit human activities such as boating, fishing, and access to sensitive areas that would harm or interfere with ecological communities.

Rarity:

Everglades National Park and the greater Everglades ecosystem are the only places in the world where the alligator (*Alligator mississippiensis*) and crocodile (*Crocodylus acutus*) exist side by side. The Florida panther (*Puma concolor coryi* or *Puma concolor cougar*) is an endangered subspecies of cougar (*Puma concolor*) that lives in forests and swamps of southern Florida, including Everglades National Park. This population, the only unequivocal cougar representative in the eastern United States, currently occupies 5% of its historic range.

Naturalness:

Under the Wilderness Act of 1964, the United States Congress designated the majority of the park as a formal wilderness area in 1978. This designation affords roughly 86% of the park the highest level of legal protection possible. The Wilderness Act clearly articulates the intended purpose of designated wilderness and bestows a legal responsibility on managers to maintain the wild, primeval nature of such areas. The act identifies a suite of uses that are generally incompatible with the purposes of wilderness. Prohibited uses include :

-a) the landing of aircraft;

- b) the use of motorized equipment or motorboats;
- c) the construction or installation of structures or equipment;
- d) the use of motor vehicles;
- e) the use of mechanized transport (bicycles, wheelbarrows); and
- f) permanent or temporary roads. Scientific researchers working in wilderness areas are required to use only the minimum activity necessary. For example, the term “minimum activity” signifies the least intrusive tool, equipment, device, force, regulation, or practice that will achieve the project objective. When determining the minimum activity necessary, the potential disruption of wilderness resources and character is given substantially more weight than economic efficiency and convenience.

Critical habitats:

The prop roots of the mangroves along the park’s shoreline provide substrate for encrusting organisms and protection for juvenile marine species. The abundant seagrass meadows of Florida Bay provide food and shelter for a vast number of mollusks, crustaceans, fish, and the West Indian manatee (*Trichechus manatus*). Manatees are herbivores that feed opportunistically on a wide variety of marine, estuarine, and freshwater plants, including submerged, floating, and emergent vegetation. Common forage plants include but are not limited to: cord grass, alga, turtle grass, shoal grass, manatee grass, all common throughout the park. Crustacean larvae of the Caribbean/ Florida spiny lobster (*Panularis argus*) settle in shallow nearshore areas among seagrass and algae beds of Florida Bay. Pink shrimp (*Farfantepenaeus duorarum*) spawn offshore of the Dry Tortugas to the south and the larvae migrate into Florida Bay, where they settle as juveniles before returning to offshore coral reefs later in their life cycle.

Diversity:

As cited earlier, Everglades National Park has significant species richness and is home to 36 threatened or protected species, 350 species of birds, 300 species of fresh and saltwater fish, 40 species of mammals, and 50 species of reptiles

Connectivity/coherence:

Nowhere is connectivity more important and studied than in the south Florida ecosystem. As has been highlighted throughout, freshwater from Lake Okeechobee and rivers slowly flow southward through the wetlands of the Florida Everglades. This freshwater flows through the mangroves along the Everglades shoreline, forming the estuarine areas of the park’s Gulf of Mexico and Florida Bay. The water of Florida Bay flows through the passes in the Florida Keys, entering the Florida Keys National Marine Sanctuary (a 2010 SPAW site) and presumably north in the Gulf Stream or westward to the Wider Caribbean. The quantity, quality, timing, and distribution are critical to the ecological processes of all of these areas. It is also thought that larvae originating elsewhere in the Caribbean (e.g., spiny lobster (*Panularis argus*) are brought to the Florida Keys and Florida Bay by currents where they begin a critical stage of their lives. Much of the restoration of the Greater Everglades is focusing on connectivity – both hydrologic flow and ecological function.

Resilience:

Due to the park’s geographic location and climate, the threat of fires caused by lightning strikes and disturbance due to hurricanes is commonplace. The river of grass is perpetuated by fire. For thousands of years, lightning strikes ignited fires in the sawgrass prairies. Sawgrass fires actually

improve the passage of water through the slough or shallow river basin, by burning back grass that would otherwise impede the vital flow of water through the Everglades. Fire not only improves habitat for wildlife by creating a mosaic pattern of vegetation, but also helps reduce large accumulation of fuels near hammocks or tree islands, which harbor a wide variety of birds and subtropical plants that are less tolerant of fire. Outlining the west coast of the Everglades are miles of mangrove forests. Interwoven within the mangrove forests are salt marshes and coastal prairies. Fires are mostly started in coastal prairies by lightning and burn hundreds of acres at a time. Because of the inaccessibility to this area, coastal prairie fires do not pose a threat to any human life or property and are permitted to burn under close monitoring. Allowing the fires to burn prevents the encroachment of mangroves and exotic plant species into the fresh water prairies, and thus maintains a diverse natural ecosystem.

Hurricanes are a natural disaster that historically plays an important role in controlling evasive species and overgrowth. The most dramatic effect of the hurricanes passing through wetlands is normally major structural damage to trees caused by the strong winds. However, it has been observed that surviving trees and shrubs sprout new growth rather quickly (within a month). Historically, hurricanes appear to have little effect on wildlife in the Everglades.

In the marine environment, the major effects of the hurricane are normally changes in nearshore water quality, patches of intense bottom scouring, and beach overwash. Changes in water quality in the form of increased nutrients, sedimentation, and phytoplankton blooms lead to increased turbidity and, combined with low dissolved oxygen concentrations, can have severe effects on fish and invertebrate populations. These changes are usually short-term and populations have historically rebounded back to their baseline levels.

Chapter 5. CULTURAL AND SOCIO-ECONOMIC CRITERIA

(Guidelines and Criteria Section B / Cultural and Socio-Economic Criteria) Nominated Areas must conform, where applicable, to at least one of the three Cultural and Socio-Economic Criteria. If applicable, describe how the nominated site satisfies one or more of the following three Criteria (Attach in Annex any specific and relevant documents in support of these criteria).

Productivity:

Everglades National Park is set aside as a permanent wilderness, and its mission is to **preserve essential primitive conditions** including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna. It is the first national park in the United States dedicated for its biologic diversity. With little direct anthropogenic stress from humans, the park contributes to maintaining and enhancing sustainable fish and wildlife of the area.

Cultural and traditional use:

On January 11, 1962, the U.S. Secretary of the Interior approved the Miccosukee Constitution and the Tribe was officially recognized as the Miccosukee Tribe of Indians of Florida. This legally established the Miccosukees' tribal existence and their sovereign, domestic dependent nation status with the United States Government. The Miccosukee Tribe of Indians is a federally recognized Indian Tribe that resides in the historic Florida Everglades. In their own Miccosukee language, the Tribe uses the word "Kahayatlé" to refer to the shimmering waters of the Everglades. The Miccosukee Tribe once occupied a reservation of approximately 100,000 acres of land within what is now Everglades National Park. The Tamiami Trail Reservation Area, which consists of four

parcels of land, is located 64 km. west of Miami and is presently the site of most Tribal operations. The Tamiami Trail Reservation is also the center of the Miccosukee Indian population. The first parcel is 33.3 acres and is under a 50-year use permit from the National Park Service, which expires on January 24, 2014. The Tribe is allowed to use this land for the purpose of hunting, fishing, frogging, and subsistence agriculture to carry on the traditional Miccosukee way of life.

Socio-economic benefits:

The Everglades wetlands and downstream estuarine Florida Bay contributes significantly to the outdoor recreational lifestyle of south Florida and the Florida Keys. Ecotourism in the form of boating, wildlife viewing, and recreational fishing are extremely important to the economic engine of this area. Fishermen traveling to the Everglades to fish contribute to the Florida economy by hiring independent guides and purchasing lodging, meals, equipment, supplies, transportation, and other items in the retail sector. The Everglades Foundation/Bonefish and Tarpon Trust surveyed many anglers in the area and found that generally expenditures attributable to freshwater fishing in the Everglades Region were \$205.9 million USD. This was about 14% of all freshwater fishing expenditures made in the State of Florida. Trip expenditures made by Everglades saltwater anglers were nearly three times greater than those made by freshwater anglers. Saltwater trip-related expenditures exceeded \$312 million USD. Details of the economic impact of this area can be found at http://everglades.3cdn.net/704e4f6cc378aa765d_2ym6bi7f6.pdf.

Chapter 6. MANAGEMENT

a - Legal and policy framework (attach in Annex a copy of original texts, and indicate, if possible, the IUCN status)

National status of your protected area:

National Park

IUCN status (please tick the appropriate column if you know the IUCN category of your PA):

unknown

b - Management structure, authority

The Organic Act of 1916 (<http://www.nps.gov/protect/>) not only established the National Park Service, but also described the basic objectives of the Service in managing individual park units. The preservation objectives were interpreted to mean that humans should not interfere with these land areas.

c - Functional management body (with the authority and means to implement the framework)

Description of the management authority

There are many legal instruments that have been passed over the years to protect and restore the Everglades ecosystem. Over the last 20 years or so, these include but are not limited to

* (1) the Florida legislature passed the *Surface Water Improvement and Management (SWIM) Act*, creating the first cleanup plan for the Everglades;

* (2) President Bush signed into law the *Everglades National Park Protection and Expansion Act of 1989 (Public Law 101-229)*, authorizing the addition of 107,000 acres of the east Everglades to the park. The Act also directed the Corps "to construct modifications to the Central and Southern Florida Project to improve water deliveries into the park and shall, to the extent practicable, take steps to restore the natural hydrological conditions within the park";

* (3) *The Florida Preservation 2000 Act* established a coordinated land acquisition program to protect the integrity of ecological systems and to provide multiple benefits, including the preservation of fish and wildlife habitat, recreation space, and water recharge areas;

* (4) The Florida Legislature passed the *Everglades Forever Act*, calling for the restoration and protection of the Everglades. Part of the law mandated construction of Stormwater Treatment Areas (STAs) to improve water quality in the Everglades;

* (5) President Clinton authorized the *Water Resource Development Act of 2000*; committing a multibillion dollar budget to comprehensive Everglades restoration;

* (6) Florida's Governor Jeb Bush signs the *Everglades Investment Act*, committing the state to 50% of Everglades restoration costs;

* (7) The U. S. Congress passed *Restoring the Everglades, an American Legacy (REAL) Act (S. 2797)*, authorizing and initiating funding for the \$7.8 billion Comprehensive Everglades Restoration Plan (CERP) developed by the U.S. Army Corps of Engineers; and

* (8) President George Bush and Florida Governor Jeb Bush signed an agreement providing for Everglades restoration at a cost of \$7.8 billion USD. The cost will be shared by the federal and state government.

Means to implement the framework

The Superintendent of Everglades National Park and the U.S. National Park Service have used these authorities cited above and means to implement a variety of projects with the aim of restoring the Everglades ecosystem and protecting its flora and fauna.

d - Objectives (clarify whether prioritized or of equal importance)

Objective	Top priority	Comment
Benefit of the people	Yes	The purpose of the park as interpreted from the enabling legislation is that Everglades National Park is a public Park for the benefit of the people. It is set aside as a permanent wilderness, preserving essential primitive conditions including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna.

e - Brief description of management plan (attach in Annex a copy of the plan)

The Everglades National Park General Management Plan (GMP) was completed in 1979. (<http://www.nps.gov/ever/parkmgmt/upload/1979%20EVER%20Master%20Plan.PDF>). The park is currently engaged in a planning process to update the GMP that will guide park management for the next 20 years. The park anticipates release of the Draft GMP for public review and comment in 2013. The Final GMP is expected to be completed in 2014 (www.nps.gov/ever/parkmgmt/ever-general-management-plan.htm).

Management plan - date of publication

: not specified

Management plan duration

: not specified

Date of Review planned

: not specified

f - Clarify if some species/habitats listed in section III are the subject of more management/recovery/protection measures than others

Habitats

Marine / costal / terrestrial ecosystems	Management measures	Protection measures	Recovery measures	Comments/description of measures
Mangroves	no	no	no	
Coral	no	no	no	
Sea grass beds	no	no	no	
Wetlands	no	no	no	
Forests	no	no	no	
Others	no	no	no	

Flora

Species from SPAW Annex 3 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Compositae : Laguncularia racemosa	no	no	no	
Cymodoceaceae: Halodule wrightii	no	no	no	
Hydrocharitaceae: Thalassia testudinum	no	no	no	
Rhizophoraceae: Rhizophora mangle	no	no	no	

Ruppiaceae: Ruppia maritima	no	no	no	
Verbenaceae: Avicennia germinans	no	no	no	

Fauna

Species from SPAW Annex 2 present in your area	Management measures	Protection measures	Recovery measures	Comments/description of measures
Reptiles: Crocodylus acutus	no	no	yes	American crocodile (<i>Crocodylus acutus</i>) – habitat suitability for this species is incorporated into all appropriate park projects and ecosystem-level restoration projects.
Birds: Ammodramus maritimus mirabilis	no	yes	no	Cape Sable Seaside Sparrow - (<i>Ammodramus maritimus mirabilis</i>) - a Biological Opinion in 1996 affected the hydrology of the park since that time as the management of fire and water delivery is essential to the breeding success of this species.
Mammals: Tursiops truncatus	no	no	no	
Mammals: Trichechus manatus	no	yes	no	West Indian Manatee (<i>Trichechus manatus</i>) – since this species is negatively affected by boating, the park (and State of Florida) have implemented internal regulations that manage boat speeds (e.g., “no wake” zones) in some areas.

g - Describe how the protected area is integrated within the country’s larger planning framework (if applicable)

It is important to note that the park serves as a member of a network for other protected areas; as a stopover for migrating birds, for example, and as a nursery for marine fish and invertebrates during a critical part of their life. Parks within the USA provide the protection that many species need to breed, feed, seek refuge, and rebuild their populations.

h - Zoning, if applicable, and the basic regulations applied to the zones (attach in Annex a copy of the zoning map)

Name	Basic regulation applied to the zone
Boat speed restrictive zones	Boat speed restrictive zones are in place in order to protect the endangered West Indian Manatee (<i>Trichechus manatus</i>) (http://myfwc.com/manatee/data/Collier/collaw-sht8.pdf). Other special regulations or restrictive zones may be put in place at any time in order to fulfill the park’s mission

of protecting the natural processes of the ecosystem. Many cities and towns adjacent to the park have zoning plans in place to be sensitive to reducing and/or eliminating potential impacts to the park's resources.

i - Enforcement measures and policies

The park has a professional law enforcement division who enforces the laws and regulations of the nation, state, and park. Furthermore, law enforcement personnel from adjacent Biscayne National Park and the Florida Keys National Marine sanctuary (a SPAW designated site) contribute to enforcing the laws and policies of the area.

j - International status and dates of designation (e.g. Biosphere Reserve, Ramsar Site, Significant Bird Area, etc.)

International status		Date of designation
Biosphere reserve	yes	1/1/76
Ramsar site	no	
Significant bird area	no	
World heritage site (UNESCO)	yes	1/1/79
Others: World Heritage Site in Danger	yes	1/1/10

Comments

Wetland of International Importance (1987). one of only three locations in the world to appear on all three lists.

k - Site's contribution to local sustainable development measures or related plans

Many of the cities and towns of south Florida and the Florida Keys are sensitive to any adverse impacts, either direct or indirect, to the park's physical and biological resources. These sensitivities can be found in the individual entities growth and zoning plans.

l - Available management resources for the area

Resources		How many/how much	Comments/description
Human resources	Permanent staff	235	The latest figures available show that there are 235 employees of the park, generally broken down into the Superintendent's Office including Park Planning and Compliance, (14), Administration and Budget (19), Science (50), Facility Management and Maintenance (51), Interpretation and Education (39), Law Enforcement (37), and Fire Management and Education (25).
	Volunteers		
	Partners		
Physical resources	Equipments		The Division of Facility Management at Everglades National Park is responsible for the condition and operation of the equipment and infrastructure of the park. These include: approximately 131 km. of surfaced roads, 250 km. of trails (including canoe trails), 8 km. of surface
	Infrastructures		

			trails, and 5 km. of elevated boardwalk trails; responsibilities also include 2 campgrounds (Long Pine Key, 108 sites and Flamingo, 235 drive-in and 60 walk-in tent sites); 48 designated backcountry campsites (accessible by boat); 280 buildings (4 visitor centers, park headquarters, maintenance and utility buildings, research facilities, and two environmental education centers). The Division operates two central wastewater treatment plants, 14 water treatment systems; maintains a four-park radio communications network and over 180 vehicles, boats and
Financial ressources	Present sources of funding	United States Congress	The most current annual budget allocated from the United States Congress for Everglades National Park is approximately \$16.7 million USD.
	Sources expected in the future		
	Annual budget (USD)	1670000	

Conclusion Describe how the management framework outlined above is adequate to achieve the ecological and socio-economic objectives that were established for the site (Guidelines and Criteria Section C/V).

Conclusion

Chapter 7. MONITORING AND EVALUATION

In general, describe how the nominated site addresses monitoring and evaluation

South Florida Natural Resources Center (www.nps.gov/ever/naturescience/sfnrc.htm) and Florida Bay Interagency Science Center (<http://keysnews.com/node/20900>) are the scientific arms of the greater Everglades National Park/Florida Bay ecosystems and are staffed by approximately 50 professional hydrologists, oceanographers, wildlife biologists, marine biologists, and computer specialists. These entities undertake systematic research and monitoring of the physical and biological resources of the Everglades and Florida Bay ecosystems.

What indicators are used to evaluate management effectiveness and conservation success, and the impact of the management plan on the local communities

Indicators by category	Comments
<i>Evaluation of management effectiveness</i>	
Water Volume and Distribution	Indicator 1A: More historic magnitudes and directions of sheetflow within Shark River Slough are established, with a goal of passing 55% of the total inflows into Northeast Shark River Slough (NESRS): Indicator 1B: Average annual flows into Northeast Shark River Slough approach 550,000 acre-feet, and range between 200,000 ac-ft to 900,000 ac-ft in dry and wet years, respectively.
<i>Evaluation of conservation measures on the status of species populations within and around protected area</i>	
Water pattern and water levels	(Timing and Spatial Distribution of Surface Water Depths --Hydro-pattern) Indicator 2A: More natural timing and pattern of water depths and flooding durations throughout the park's ecological communities (sawgrass, ridge and slough, marl prairies) are restored. Indicator 2B: Maximum annual water levels at the upstream inflow to Northeast Shark River Slough average approximately 8.0 feet, and range from 7.5 feet to 8.8 feet in dry and wet years, respectively.
<i>Evaluation of conservation measures on the status of habitats within and around the protected area</i>	
Water quality	Indicator 3: Water quality Reduce nutrient pollution from upstream agricultural areas and achieve compliance with established State and Federal Water Quality Standards: Indicator 3A: For Total Phosphorus entering ENP the concentration will be reduced to approximate the 50th percentile of the 1978-1979 Outstanding Florida Water (OFW) baseline, based on a 12-month flow weighted mean concentration. For the entire Everglades Protection Area Florida law established a 10 ppb Total Phosphorus Threshold Rule to reduce imbalances in native flora and fauna. Indicator 3B: Periphyton mat cover, structure and composition that were characteristic of the spatially distinct hydroperiods (short and long hydroperiods) and low nutrient conditions in the greater Everglades wetland communities is enhanced. Goal is a measurable positive trend.
<i>Evaluation of conservation measures on the status of ecological processes within and around the protected area</i>	
Freshwater Fish and Aquatic Invertebrates	The abundance of native fish and aquatic invertebrates is increased to levels that approximate those of pre-drainage conditions. Goal is a measurable positive trend.
<i>Evaluation of the impact of the management plan on the local communities</i>	
American Alligator	A positive trend in the numbers and distribution of American alligators in freshwater landscapes is demonstrated. Indicator 5A: Annual alligator nesting effort, Indicator 5B: Annual distribution of nests in different basins (Indicator 5C: Annual abundance of alligators)

Chapter 8. STAKEHOLDERS

Describe how the nominated site involves stakeholders and local communities in designation and management, and specify specific coordination measures or mechanisms currently in place

Stakeholders involvement	Involvement	Description of involvement	Specific coordination measures	Comments (if any)
Institutions	no			
Public	yes	The General Management Plan currently being developed that will help drive park management for the next 20 years is advertised to the public via electronic (e.g., internet) and printed media (e.g., newspapers) and open scoping meetings are being held. Comments are welcomed by the public and the park responds to these comments. National Park Foundation, 1201 Eye Street, NW, Suite 550B, Washington, DC 20005 www.nationalparks.org Everglades Foundation, 18001 Old Cutler Road, Suite 625, Palmetto Bay, Florida 33157 info@evergladesfoundation.org		
Decision-makers	no			
Economic-sectors	no			
Local communities	no			
Others	no			

Chapter 9. IMPLEMENTATION MECHANISM

Describe the mechanisms and programmes that are in place in regard to each of the following management tools in the nominated site (fill only the fields that are relevant for your site)

Management tools	Existing	Mechanisms and programmes in place	Comments (if any)
Public awareness, education, and information dissemination programmes	yes	One of the strengths of the National Park System of the USA is the many outreach, education, and interpretive programs offered. Visitors can learn about the history and ecology of the park by attending the many educational programs offered by Interpretative Rangers (http://www.nps.gov/ever/planyourvisit/rangerprograms.htm) and at the park's Visitor Centers (http://upload.wikimedia.org/wikipedia/commons/3/31/Everglades_National_Park_map_2005.11.png).	
Capacity building of staff and management	yes	Park staff is well integrated into national, regional, and local government and nongovernmental organizations and participate in interagency working groups and collaborative programs, both inside and outside of the park.	
Research, data	yes	South Florida Natural Resources Center	

storage, and analysis		(www.nps.gov/ever/naturescience/sfnrc.htm) and Florida Bay Interagency Science Center (http://keysnews.com/node/20900) are the scientific arms of the greater Everglades National Park/Florida Bay ecosystems and are staffed by approximately 50 professional hydrologists, oceanographers, wildlife biologists, marine biologists, and computer specialists.	
Surveillance and enforcement	yes	Everglades National Park currently has 37 professional law enforcement personnel on staff. In addition, nearby Biscayne National Park and the Florida Keys National Marine Sanctuary have professional law enforcement personnel on staff to assist in surveillance and enforcement of the regulations of the entire area.	
Participation of exterior users	yes	The park regularly works with educators, researchers, interagency scientists, universities, non-profit organizations, zoos, museums, and aquariums in articulating the park's critical mission and importance.	
Alternative and sustainable livelihoods	yes	Tour guides and guide fishermen are allowed by permit to commercially conduct several activities inside the park.	
Adaptative management	yes	Park management is a truly adaptive process and these discussions can be found in past and present General Management Plans.	

Chapter 10. OTHER RELEVANT INFORMATION

Contact addresses

	Name	Position	Contact address	Email address
who is submitting the proposal (national focal point)	MORRISON Steve	National Ocean Service, International Programs Office		steve.morrison@noaa.gov
who prepared the report (manager)	WOLFE Bret	Marine Coordinator National Wildlife Refuge System	Office of the Superintendent, Everglades National Park, 40001 State Road 9336, Homestead, Florida 33034-6733 USA	Bret_Wolfe@fws.gov

Date when making the proposal

: 08/29/12

List of annexed documents

Name	Description	Category	
EVERGLADES All	EVERGLADES All Categories Certified Species List.	Others	

Categories Certified Species List	To download it: http://www.car-spawrac.org/IMG/xls/EVERGLADES_All_Categories_Certified_Species_List.xls		
Everglades list of indicators	EVERGLADES_2012 List of Indicators : http://www.car-spawrac.org/IMG/odt/EVERGLADES_2012_List_of_Indicators.odt	Others	
EVERGLADES FIKeys Current	EVERGLADES_FIKeys Currents : http://www.car-spawrac.org/IMG/jpg/EVERGLADES_FIKeys_Currents.jpg	Geographical map	View
EVERGLADES NP Ecosystem Metrics Map	EVERGLADES NP Ecosystem Metrics Map: http://www.car-spawrac.org/IMG/pdf/EVERGLADES_NP_Ecosystem_Metrics_Map.pdf	Geographical map	