



# **EVERGLADES NATIONAL PARK**

**SUPERINTENDENT'S ANNUAL NARRATIVE REPORT**

**FISCAL YEAR 2004**

## **Message from the Acting Superintendent**

I am extremely pleased to submit this annual report of activities, issues, and accomplishments for Everglades National Park for the period October 1, 2003 to September 30, 2004. Much of the latter half of this year will be remembered by Floridians for its extremely active hurricane season. Our staff joined with our neighbors in preparing and waiting out each of four major storms. Damage to Everglades was slight, but some of our staff living further north withstood significant personal property damage and loss. We pause to remember our fellow Floridians throughout the State, who suffered greatly from these storms and, in many cases, are still recovering.

Everglades National Park is one of our nation's treasured lands; its significance matched only, and unfortunately, by its fragility. To generations of Americans, the Park has been a symbol of primitive America and an irreplaceable part of our national heritage to be protected and preserved. A place of legend and subtlety, Everglades continues to attract visitors from across the country and around the world.

The Park also remains in the center of public attention and concern. Extraordinary efforts have been launched to understand its functioning and needs, to address the many threats to its integrity, and to assure its future. A challenge for Park management has been, and remains, the balancing of its operation with the demands of its role as a member of the South Florida community. The park was fortunate to receive an increase in its operating base budget of \$250,000 for the fiscal year. In addition, authorization was received for the re-programming of more than \$10.6 million to the park to support priority needs in the greater Everglades ecosystem restoration effort.

The high level of public interest in and support for the park continue to be decisive in charting its future. An equally dedicated and committed staff work tirelessly to meet the stewardship responsibilities given by the American people for the protection and presentation of this internationally significant resource.

February 22, 2005  
Dan B. Kimball  
Acting Superintendent

## **PARK PURPOSE**

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.

***The southern Florida wilderness scenery is a study in halftones, not bright, bold strokes of a full brush as is the case of most of our other national parks. There are no knife-edged mountains protruding up into the sky. There are no valleys of any kind. No glaciers exist, no gaudy canyons, no geysers, no mighty trees unless we except the few royal palms, not even a rockbound coast with the spray of ocean waves -- none of the things we are used to seeing in our parks. Instead, there are lonely distances, intricate and monotonous waterways, birds, sky, and water. To put it crudely, there is nothing (and we include the bird rookeries) in the Everglades that will make Mr. Jonnie Q. Public suck in his breath. This is not an indictment against the Everglades as a national park, because "breath sucking" is still not the thing we are striving for in preserving wilderness areas.***

***Daniel B. Beard***

***Wildlife Reconnaissance: Everglades National Park Project, 1938***

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

***Everglades National Park Enabling Legislation, 1934***

***The purposes of this Act are to —***

***increase the level of protection of the outstanding natural values of Everglades National Park and to enhance the ecological values, natural hydrologic conditions, and public enjoyment of such area by adding the area commonly known as the Northeast Shark River Slough and the East Everglades to Everglades National Park; and assure that the park is managed in order to maintain the natural abundance, diversity, and ecological integrity of native plants and animals, as well as the behavior of native animals, as a part of their ecosystem.***

**Everglades National Park Protection and Expansion Act of 1989**

**PARK SIGNIFICANCE**

Everglades National Park is the:

- \* Largest continuous stand of sawgrass prairie in North America.
- \* Predominant water recharge area for all of South Florida through the Biscayne aquifer.
- \* A World Heritage Site, a Biosphere Reserve, a Wetland of International Importance, and an Outstanding Florida Water.
- \* Home of 14 Federally listed endangered species.
- \* Largest mangrove ecosystem in the western hemisphere.
- \* Largest designated wilderness in the southeastern U.S.
- \* Site of invaluable breeding grounds for tropical wading birds in North America.
- \* Site of significant ethnographic resources.
- \* Site of a nationally significant estuarine complex in Florida Bay.
- \* The largest remaining subtropical reserve in the United States.
- \* Major "edge" area of the northern and southern limits for many species creating a unique mingling of diverse temperate and subtropical species.

***There are no other Everglades in the world.***

***They are, they have always been, one of the unique regions of the earth, remote, never wholly known. Nothing anywhere else is like them; their vast glittering openness, wider than the enormous visible round of the horizon, the racing free saltiness and sweetness of their massive winds, under the dazzling blue heights of space. They are unique also in the simplicity, the diversity, the related harmony of the forms of life they enclose. The miracle of the light pours over the green and brown expanse of saw grass and of water, shining and slow-moving below, the grass and water that is the meaning and the central fact of the Everglades of Florida. It is a river of grass.***

***Marjory Stoneman Douglas  
The Everglades-River of Grass  
1947***

## **SIGNIFICANT DATES**

***Not often in these demanding days are we able to lay aside the problems of the time, and turn to a project whose great value lies in the enrichment of the human spirit. Today we make the achievement of another great conservation victory. We have permanently safeguarded an irreplaceable primitive area. We have assembled to dedicate to the use of all people for all time, the Everglades National Park.***

***President Harry S Truman  
Address at the Dedication of Everglades National Park  
December 6, 1947***

Authorized: May 10, 1934

Established: December 6, 1947

Dedication by President Harry S Truman at Everglades City

Designated Biosphere Reserve: October 26, 1976

Wilderness Designation: November 10, 1978

World Heritage Site Designation: October 26, 1979

National Trails Designation: March 20, 1981

Hell's Bay Canoe Trail - 8 miles

Wilderness Waterway - 99 miles

Designation as a Wetland of International Importance: June 4, 1987

Everglades Expansion Act (added East Everglades [109,500 acres/44,315 hectares to park): December 13, 1989

Chekika State Park donated by the State of Florida: October 1, 1991

## **AREA STATISTICS**

- \* Total acreage (land and water): 1,509,000 acres  
(610,684 hectares/2,358 sq. miles)—Miami-Dade, Monroe, and Collier Counties
- \* Designated Wilderness 1,296,500 acres; Potential Wilderness 81,900 acres for a total of 86% of the total park area.
- \* Elevation: 0 to 8 feet (average 6 feet)
- \* Average rainfall: 60 inches/year; Rainy season: May through September (Mosquito season coincides with rainy season)
- \* Hurricane season - June 1 through November 30
- \* Average temperature: Winter - High 77/Low 53; Summer - High 87/Low 67

***Everglades National Park is at once a limited and a vast sampling of a region full of contrast.... This Park, which is chiefly of biological interest, requires a different perspective on the part of the visitor.***

***Charlton W. Tebeau  
Man in the Everglades  
1968***

## **PARK FACILITIES\***

***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.***  
**Master Plan for Everglades National Park**  
**1979**

\*Developed areas remain basically unchanged from the 1960's, occupying fewer than 1,200 acres or less than 0.1% of the 1.4 million acres contained within the original park boundary

- 82 miles of surfaced roads
- 156 miles of trails (including canoe trails)
- 5 miles of surfaced trails
- 1 mile of elevated boardwalk trails: Anhinga Trail, Pa-hay-okee Overlook, Eco Pond, West Lake, and Shark Valley
- 2 campgrounds: Long Pine Key, 108 sites  
Flamingo, 235 drive-in and 60 walk-in tent sites
- 48 designated backcountry campsites (accessible by boat)
- 301 buildings: 5 Visitor centers  
Headquarters  
Maintenance and utility buildings  
Research facilities  
2 Environmental Education camps  
2 fee collection stations: Main Entrance and Shark Valley
- 3 concessioners:
  - Flamingo Lodge, Marina, and Outpost Resort (at Flamingo--the southern tip of the park at the end of the main park road): motel and housekeeping cottages; restaurant; gift shop; marina; store; rental boats, houseboats, and canoes; sightseeing boat, and tram tours.
  - Shark Valley Tram Tours (northern portion of park off Highway 41): sightseeing tram tours, rental bicycles, and snacks.
  - Everglades National Park Boat Tours (Everglades City): sightseeing boat tours, rental canoes, gift shop, and snacks.

\* In addition, park staff work off site at the Krome Center (950 N. Krome Avenue) and at the Loxahatchee National Wildlife Refuge.

## **PARK RESOURCES**

***Practically without exception, areas that have been turned over to the Service as national parks have been of superlative value with existing features so outstanding that if the Service were able to merely retain the status quo, the job was a success. This will not be true of the Everglades National Park. The reasons for even considering the lower tip of Florida as a national park are 90 percent biological ones, and hence highly perishable. Primitive conditions have been changed by the hand of man, abundant wildlife resources exploited, woodland and prairie burned and reburned, water levels altered, and all the attendant, less obvious ecological conditions disturbed.***

***Daniel B. Beard***

***Wildlife Reconnaissance: Everglades National Park Project, 1938***

Everglades National Park has:

- \* 137 miles of coastline
- \* 484,200 acres in Florida Bay and Gulf of Mexico
- \* 572,200 acres of sawgrass/freshwater marsh
- \* 230,100 acres of mangrove forest
- \* 220,000 acres of coastal areas (Cape Sable, river headwaters, etc.)
- \* Numerous pre-historic and historic cultural sites
- \* Birds - more than 400 species identified
- \* Mammals - 25 species
- \* Amphibians and reptiles - 60 species
- \* Fish - 125 species from 45 families
- \* Trees - more than 120 species
- \* Seed-bearing plants - more than 1,000 species
- \* Numerous epiphytic plant species, including over 24 orchids
- \* Endangered wild animal species -

American crocodile  
Atlantic Ridley turtle

Hawksbill turtle  
Snail (Everglades) kite

Florida panther  
Key largo cotton  
mouse

Cape Sable seaside sparrow  
Key Largo wood rat  
West Indian manatee

Green turtle  
Peregrine falcon

Leatherback turtle  
Wood stork

**ANNUAL PARK VISITATION\***

YEAR	TOTAL VISITS	YEAR	TOTAL VISITS	YEAR	TOTAL VISITS
1948	7,482	1968	1,251,453	1988	1,071,372
1949	94,927	1969	1,187,235	1989	979,261
1950	123,405	1970	1,273,466	1990	1,002,109
1951	142,971	1971	1,293,236	1991	1,340,988
1952	168,621	1972	1,773,302	1992	1,064,357
1953	206,722	1973	1,316,835	1993	1,061,643
1954	218,044	1974	1,000,046	1994	981,944
1955	247,092	1975	1,017,393	1995	909,363
1956	266,960	1976	1,032,667	1996	984,825
1957	344,723	1977	1,067,767	1997	1,087,790
1958	433,255	1978	1,136,177	1998	1,177,477
1959	500,093	1979	839,334	1999	1,141,443
1960	579,215	1980	794,946	2000	1,060,628
1961	566,771	1981	617,753	2001	1,108,390
1962	626,106	1982	620,343	2002	1,037,881
1963	699,232	1983	579,944	2003	1,100,592
1964	792,631	1984	631,891	2004	1,239,350
1965	977,461	1985	700,686		
1966	1,017,067	1986	763,720		
1967	1,098,287	1987	822,027		

\*Visitation totals include both recreational and non-recreational visits and are totaled on a Calendar Year basis.

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## **PARK VISION ELEMENTS**

### **Everglades National Park works to achieve the following:**

We preserve unimpaired the natural and cultural resources and values of the park for the enjoyment, education, and inspiration of this and future generations

We are an active partner in the South Florida community

We are a respected advocate for natural systems and cultural resources as a part of a sustainable South Florida

Our decisions are based on sound science and research

We understand our customers' needs in order to provide more effective services and to gain their support for our mission

We facilitate life-long learning about our shared natural and cultural heritage

We effectively protect and care for park resources, programs, and facilities

We are a dynamic and effective workforce.

## **INVESTMENTS AND RESULTS**

While the park has received base operating increases and significant funding in support of the Everglades ecosystem effort, a challenge to Park management is to work within a constrained Federal budget to apply financial and human resources to the greatest effect. The establishment of priorities, the forging of partnerships and cooperative ventures, and the reallocation of resources based on evidence of our successes or shortcomings in meeting the Park's goals are all necessary to assure that we're doing the right things to guarantee the integrity of Everglades National Park.

The Government Performance and Results Act provides a mechanism for accomplishing this critical need. Our efforts will be continually evaluated based on their demonstrated effectiveness in meeting Park goals. Where our efforts may fall short, there will be an evaluation to determine if increased efforts are necessary or if different actions might be more effective. The results should assure the wisest and best uses of available resources for the Park's benefit.

**The park has adopted mission goals, long term (five year) goals, as well as annual goals that support and complement mission goals established for the National Park Service.**

**The following are park mission goals:**

-Hydrological conditions within Everglades National Park and the South Florida ecosystem are characteristic of the natural ecosystem prior to Euro-American intervention, including water quality, quantity, distribution, and timing

--Everglades National Park is restored and protected in ways that allow natural processes, functions, cycles, and biota to be reestablished and maintained in perpetuity, and that allow archeological and historical resources to be appropriately preserved

-Visitors to Everglades National Park have the opportunity to experience the park's unique subtropical wilderness values

-The public understands and appreciates Everglades National Park and its role in the South Florida ecosystem and provides support in achieving the park purpose

-Everglades National Park has a diverse, motivated, and professional workforce allowing it to be a responsive, efficient, safe, and accountable organization.

**WHAT FOLLOWS IS A LISTING OF EXAMPLES OF ACTIVITIES AND ACCOMPLISHMENTS THAT ADDRESSED THE PARK'S VISION ELEMENTS AND GOALS DURING FISCAL YEAR 2004**

## GENERAL

As part of its continuing high level visibility in the policy aspects of the Everglades ecosystem restoration effort, Everglades National Park received a variety of special visits during the year. These visits are designed to provide in depth field level orientation to the issues and restoration proposals facing senior members of the Administration, members of Congress and their staff members, and representatives of State and local governments and academic and scientific institutions. In addition, the park provided similar orientation opportunities for foreign conservation officials for lessons they might learn from South Florida's experience.

The park was honored to receive the Assistant Secretary of the Interior for Fish and Wildlife and Parks Judge Craig Manson. He toured the park and was briefed on the wetlands restoration project at Hole in the Donut. He later addressed the 2004 annual meeting of the Everglades Coalition held at Miami Beach.

We also had visits by U.S. Representative Jerry Costello (Ill.) from the Water Resources and Environment Subcommittee, the Commander of the Corps of Engineers Atlantic Division General Randall Castro, NPS Deputy Director Randy Jones, former Everglades Superintendent John Good, the White House Fellows program, and the U.S. Army War College.

Everglades was honored to be included in a schedule of filming for a new Ken Burns documentary on the national park idea. Filming on the program was done in the park in February and again in August.

In April, a special preview was held in Miami of a new park film produced in cooperation with the Discovery Channel and the National Park Foundation. The film is a vital replacement for an aging predecessor and serves a vital need for orientation of arriving visitors to the park. The premiere was linked to a March for Park event that brought local community members to see the park and its new movie.

In October, 2004, veterans who served at the Nike Missile site within the park joined members of the South Florida National Parks Trust and members of the local community in commemorating the 42nd anniversary of the Cuban Missile Crisis in south Florida. The event also highlighted the recent designation of the missile property on the National register of Historic Places. Participants toured the site and made recommendations about its future management. They also provided invaluable oral histories of their times of service that will help us in future interpretive and management decisions.

During the year, the President signed into law Public Law 108-483 that authorizes the exchange of certain lands in Everglades National Park as a crucial

step forward in implementation of the C-111 restoration project on the east side of the park.

During the past year, the Administration sought, and obtained re-programming authority to redirect \$32 million to meet priority needs in the Greater Everglades ecosystem as identified by the Secretary of the Interior.

From this amount, more than \$10.5 million has come to the National Park Service to assist in area management activities, including, among other things, the funding of additional exotic plant eradication projects and studies to evaluate existing commercial airboat tours in Everglades National Park.

This re-programming also provided funding to support needed monitoring and research projects to further the Department of the Interior's Science Plan for South Florida, including an expanded water quality monitoring network in Everglades National Park.

Counts of Cape Sable seaside sparrows, conducted during the 2004 breeding season estimated a total population of 3584 birds, slightly up from 3216 birds in 2003, 2704 birds in 2002, and 3264 birds in 2001. The estimates are based on the numbers of birds heard singing, times a factor based on knowledge of the bird's territory size and the area over which observers can hear the songs.

While overall numbers show some improvement, concerns remain about the endangered sparrow. Special concerns continue for the birds in subpopulation A, which in 2004 decreased to 16 birds. The estimates for 2001 — 2003 were 128, 96, and 128, respectively.

Water management actions during 1993 to 1995 dramatically reduced estimated numbers in this once largest subpopulation, located west of Shark River Slough. It is hoped that continued emergency actions taken over the last several years will influence a significant recovery in the near future.

Wading birds' nesting populations in south Florida generally soared by 61% in 2004 over 2003 estimates. It was an especially good year for white Ibises, whose nesting numbers are estimated to have more than doubled. However, it was another disappointing year for endangered wood storks and Roseate spoon bills.

In general, nesting was less evident in the park than in sampled areas of the northern Everglades. Throughout the region, an estimated 54,187 nests were counted. Last year's spring-summer rains did not begin until late June, more than one month later than expected. These weather conditions provided more time for nesting and a second nesting cycle in some cases.

**The park remained active in supporting partnership initiatives in furtherance of park and NPS missions and goals.**

International attention and concern for the park is also a strong and constant factor. Everglades National Park is the only property in the United States to have been formally recognized, under the three major designations, as having international significance. It is a World Heritage Site, a Wetland of International Importance, and a Biosphere Reserve. The Park continues to be managed according to U.S. law and jurisdiction. However, the United States has undertaken voluntary pledges to the world community to protect the site in perpetuity.

The park is recognized by the 120 member nation World Heritage Convention in 1979 as a unique site of "outstanding universal value to mankind." In 1993, the park was also placed on the List of World Heritage in Danger in recognition of specific and long term threats to the integrity of its globally significant resources. It remains on the "endangered list." The park is required to prepare and submit an annual monitoring report on the status of its efforts for recovery. The international community remains aware of the continuing nature of the threats facing the park and agrees that failure to restore park resources would diminish the shared heritage of all people. A concept paper was prepared and submitted on the park's long term prospects and status on the "endangered list."

During the year, park staff devoted considerable time and attention to continuing work on its periodical report to the World Heritage Committee. The report provides a comprehensive look at park resource condition, integrity, management issues, funding and staff, and restoration projects from the time of its original inscription on the World Heritage List (1979) to anticipated report completion in 2004. It will join similar reports for all World Heritage Sites in the U.S. and Canada as North America's periodic update reports on heritage condition.

These designations are a tremendous source of pride, as well as increased economic benefits from international tourism. The international community has agreed the Everglades are unique and superlative. And that their loss would not only be a loss for all Americans, in whose care they are entrusted, but for all people who recognize that they are irreplaceable. Marjory Stoneman Douglas recognized the same truth in 1947 when she wrote "There are no other Everglades in the world."

More than 280 foreign professional park and conservation visits, including in depth reviews of restoration and park management goals and issues, were accomplished in FY 2004.

The park did numerous off site programs that brought its presence closer to the attention of its neighbors.

Significant media contacts continued throughout the year, with emphasis on park positions on various issues of current interest, resource oriented pieces, and travel and recreation coverage. More than 60 filming projects were done at the park; primary emphasis was on nature documentaries.

In September, 2004, Deputy Superintendent John Benjamin was named Acting Superintendent at Carlsbad Caverns National Park in New Mexico. Members of the Park Management Team began a schedule of rotation to serve as Acting Deputy Superintendent for six week segments during this period.

### ***FLORIDA NATIONAL PARKS AND MONUMENTS ASSOCIATION***

The Association is a National Park Service Cooperating Association working in cooperation with the four South Florida National Park Service areas to assist visitors and increase public understanding of the natural and historical values of the parks. Established at Everglades in 1951 as the Everglades Natural History Association, its scope of work expanded in 1985 to include Biscayne National Park, Dry Tortugas National Park and Big Cypress National Preserve. At park visitor centers, the Association sells high quality publications and educational materials to the public. Net proceeds from sales are returned to the parks to support scientific, educational, historical and visitor service programs of the National Park Service. The Association is a private, non-profit organization incorporated in the State of Florida.

During 2004, the charter name of the Association was returned and the "Everglades Association" now serves to advance and assist the scientific and educational purposes of the South Florida parks.

During FY 2004, the Association provided \$124,886 to the support of the parks divided between information assistance at sales areas and funds donated to support park educational projects. In the latter category, \$53,000 was made available as donations to support educational efforts of the four south Florida parks during the year.

The Association funded a variety of publications and "site bulletins" and supported the translation of park brochures into several languages. The Association paid for the first of a new series of Florida Bay newsletter as outreach on the Bay and its research and resource management issues. The Association provided staff training and supported housing costs for staff and volunteers. The Association also continued its long history of supporting teacher workshops, parent and teacher information materials, props and library items for park curriculum based environmental education programs.

Special equipment purchases allowed staff to enhance the quality of their interpretive materials. Support was also provided for community outreach

meetings. Living history items and research books were provided to the various parks and districts. And the Association sponsored activities to support the December meeting in Miami of the Secretary's National Park System Advisory Board.

### ***SOUTH FLORIDA NATIONAL PARKS TRUST***

During the year, Everglades and Biscayne staff continued to provide advice and technical information to the new Trust for the South Florida National Parks (Everglades, Biscayne, and Dry Tortugas). The group is chartered through the National Park Foundation. A Board of Directors is actively pursuing initial steps to gain wider recognition of the Trust and its work in the local and national communities. The purposes of the Trust relate to advancing, through private and non-profit sectors, the interests and missions of the parks and in securing financial and other resources to support an enhancement of the parks' efforts.

### **EMPLOYEE SAFETY**

**GOAL: By September 30, 2004, the employee lost time injury rate will decrease 50% from the park's 1996 level.**

All employee injuries were recorded and reported to Park Managers at the weekly squad meetings.

All monthly park supervisors' safety meetings were recorded and reported.

HAZCOM training was provided for Headquarters, Flamingo, and Pine Island.

Informal safety audits were completed in all districts with results discussed with park supervisors.

Safety Officer completed the NPS HAZCOM Train-the-Trainer course in Atlanta.

Safety Officer completed the NPS OSHA 500 Train-the-Trainer course in Tampa. Most maintenance staff in the park received the 10-hour construction safety course.

Flamingo and Shark Valley Concession were audited for OSHA safety violations at the request of the EVER Concessions Manager.

SPCC plans for both Everglades and Dry Tortugas National Parks were completed and distributed..

The Safety Officer completed NPS Environmental Audit Program Training and remained an active member of the SE Regional Environmental Audit Team.

The Safety Officer provided newly hired YCC employees' safety training.

Safety Management Information System reports are 100% updated and the Safety Officer insures all supervisors promptly report/review employee injuries.

Each employee was provided a wallet card, detailing what he or she (supervisor/employee) should do in case of injury, on one side and the guiding principles of the park's safety policy on the reverse side.

#### Lost Time Incident Rate (LTIR)

	GOAL	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04
EVER LTIR	4.25	4.02	4.66	6.36	5.41	8.03	5.641
DRTO LTIR	5.00	0.00	0.00	20.15	30.99	30.42	44.0

\*Figures include both Dry Tortugas and Everglades National Parks

## Planning and Compliance Branch

### *Park Planning Program*

In FY 2004 the park achieved several important milestones, including 13 focus group meetings as part of the public involvement strategy for the Park's General Management Plan (GMP). These meetings added important details and strengthened partnerships between the park and key stakeholder groups that were initially involved during GMP scoping meetings in 2003.

Two areas have emerged as the most challenging to address in the GMP. First, the marine areas (Florida Bay and Ten-thousand Islands) where boating and fishing interest is ever-increasing. Second, the East Everglades, an area that has only recently been under nearly-full federal ownership, that to date has not been managed in a manner consistent with all NPS and park laws and policies, and determine how to best re-open the now-closed former Chekika State Park. The results are being incorporated into the GMP alternatives in 2005. Important progress was also made in defining the GMP zoning options in order to better protect resources and enhance visitor experiences as the GMP is implemented.

Significant progress was made in helping garner community support for efforts to better integrate park and community goals. The most visible of these efforts was a proposal endorsed by the superintendents of Everglades and Biscayne National Parks and dozens of community leaders and organizations for a greenway that links the two national parks and the cities/communities in

between. The superintendents' initiative to identify this opportunity and help gain community buy-in has the potential to create open space resources that enhance the quality of life for one of the fastest growing residential areas in all of South Florida. At the same time, this project will provide much better opportunities for residents and visitors to experience the national parks, the broader Everglades ecosystem, and the rich recreational, historic and agricultural traditions of south Miami-Dade County without relying on private automobiles.

In July 2004, a nearly two-year effort culminated with Nike Missile Base HM-69 being added to the National Register of Historic Places. This designation ensures that significant Cold War cultural resources within the park will be protected and maintained for future generations to understand and appreciate. The GMP is outlining a range of options for how best to protect and interpret this national register district with its 23 contributing resources.

The park took some important steps in 2004 to bring the 109,600-acre East Everglades Expansion Area under more effective management, highlighted by the initiation of an environmental assessment (EA) and related support studies to manage commercial airboat uses in the area. Funds were secured for the EA, including an airboat trail inventory/analysis and the East Everglades archeological investigation study, to start in concert in 2004. All these projects are underway and serving to identify critical resources requiring protection and management issues that need to be addressed in order to enhance stewardship of the Northeast Shark River Slough and other expansion area resources.

### ***Museum Management Program***

During FY 04, the program was managed by one permanent position (Museum Curator). One additional position (term Museum Technician) was funded in FY 2004 by the South Florida/Caribbean Inventory and Monitoring Network to accession and catalog collections generated by I&M projects.

Progress was made in FY 2004 utilizing funding from several sources. Ten projects were funded through the PMIS process for the four south Florida parks, totaling \$126,000. These projects were: Prepare a south Florida parks Collections Management Plan; Prepare a Collection Storage Plan; Conduct a Botany Collection Condition Survey; Conduct Backlog Cataloging for EVER; Prepare a Museum Emergency Operations Plan for the south Florida parks; Prepare Scope of Collections Statements for EVER, BISC and BICY; and Conduct Archives Surveys for BISC and BICY.

In addition to the PMIS projects, the South Florida National Parks Trust provided \$4,020 to fund the first Cannon Collection Condition Survey at DRTO. This survey, conducted in April, 2004, provided conservation assessments of the 10 original cannon remaining at Fort Jefferson, established treatment priorities, provided treatment direction and cost estimates necessary in order to begin the treatment of the cannon in FY 2005.

The development of the Collection Management Plan enabled considerable progress to be made regarding the formal re-establishment of the multi-park repository for BICY, BISC, DRTO and EVER, located at Everglades National Park. As a result of this process, the South Florida Collections Management Center (SFCMC) has entered a new phase of its development, with broad multi-park support. A charter for the SFCMC, based on the South Florida/Caribbean I&M Network model, was developed and established roles and responsibilities between the SFCMC and the four parks. A Board of Directors, consisting of the parks' Superintendents and the Regional Curator, was established to support the SFCMC, approve annual work plans, and ensure that multi-park resources are utilized in the most efficient and responsive manner possible. During a meeting in July 2004, a multi-park team created vision and mission statements, as well as goals and objectives, for the SFCMC. The draft South Florida Parks Collection Management Plan incorporates these concepts, as well as addressing other museum collection issues and needs. The CMP will be finalized in FY05.

The museum collections for the four south Florida parks continue to grow at a rapid rate. Over 1 million items were added to the collections in FY 2004. The archives are the fastest growing component of the collections for all four parks. Another key source of growth is science permits, which continue to generate natural history collections and associated records for the collections. A large percentage of the increase is attributable to NPS projects associated with the Comprehensive Everglades Restoration Plan (CERP) and the Cooperative Ecosystem Studies Initiative (CESI). The archival issues associated with these projects represent a serious challenge for the museum management program for the future.

The park continues to improve the number of museum standards met on the Museum Collection Protection and Preservation Program (MCPPP) Checklist. At the end of FY 2004, 52% of standards were met for EVER and 39% for DRTO. While considerable work remains to be done, these numbers reflect a substantial increase since FY 2002 when the Museum Curator was hired. At that time, EVER met 21% and DRTO met 22% of MCPPP Standards. Additional improvements will be made in FY 2005.

## **ADMINISTRATION**

### ***BUDGET***

Budget and Fiscal branch staff supported Everglades and Dry Tortugas National Parks and the South Florida Ecosystem Restoration Task Force, Critical Ecosystem Studies Initiative (CESI) and Comprehensive Ecosystem Restoration Program (CERP) with budget tracking, reporting and travel (temporary and relocation). The FY 2004 closeout was completed.

Accomplishments

Budget and Fiscal

Processed all utility bill, including electric, telephones and cellular phones, ensuring accurate charges, on-time payment, and investigation/correction of irregularities or misuse of government provided services

Used Federal Financial System (FFS) to input and tract accounting data, including obligations, expenditures, transfers, bill for collection and deposits.

Processed 743 travel vouchers

Processed 12 change of stations

Processed 40 Bills for Collection

Processed 4,044 Utility Bills

Processed 86 deposits

Processed 1335 Third Party Drafts

\*Figures include both EVER and DRTO

## ***HUMAN RESOURCES***

### **Recruitment and Placement:**

-- 37 vacancy announcements were issued through Delegated Examining Unit (DEU) authority.

-- 27 merit promotion vacancy announcements were issued.

### **Hires:**

Permanent – 36 (18 or 50% were female/minority)

Temporary/Term – 31 (18 or 58% were female/minority)

Seasonal – 25 (14 or 56% were female/minority)

Total – 92 (50 or 54% were female/minority)

### **Classification:**

--16 position descriptions were classified

### **Training:**

--Processed 27 employee SF-182's (Request, Authorization, Agreement and Certification of Training).

--Sponsored 15 training classes – Annual Firefighter Refresher, S-133, MOCC, Basic ICS 1-200, Racal 25 portable digital radios, Wildfire Power Saws S-212, Law Enforcement Refresher, Intermediate ICS 1-300, Wildlife First Responder, Photovoltaic Systems, Personal, financial Planning, Time/Life Management, Microsoft, and Contracting Officer's Technical Representative (COTR).

- TEL Broadcast – participated in 30 broadcasts totaling 140 participants.
- Free computer training offered from Southcom – 21 employees participated.

**Awards:**

- 26 employees received On-the-Spot awards to total \$13,925
- 21 employees received STAR awards to total \$29,232.
- 1 employee received a Quality Step Increase (QSI).
- 22 employees received time-off awards to total 258 hours.
- 58 employees received Excellence in Service gift awards

***Contracting and Property Management:\****

Awarded 6 New Contracts (\$100,000.00 – unlimited) totaling \$656,358.90.

Awarded 22 Contract Modifications(any dollar amount) totaling \$962,072.11.

Awarded 14 New Assistance Agreements (any dollar amount) totaling \$746,053.44.

Awarded 27 Assistance Agreement Modifications (any dollar amount) totaling \$1,492,123.89.

Awarded 132 Small Purchases (\$2,500.01 - \$100,000.00) totaling \$2,403,207.10.

Awarded 42 Small Purchase Modifications (\$2,500.01 - \$100,000.00) totaling \$747,997.40.

Awarded 131 Micropurchases via Credit Card(\$0.01 - \$2,500.00) totaling \$238,352.43.

Awarded 146 Micropurchases via Third Party Draft Checks (\$0.01 - \$2,500.00) totaling \$93,615.56.

Completed the Annual Property Inventory on September 28, 2004.

The below figures also include Capitalized Equipment & Weapons:

88 items of obsolete computer equipment were donated to Miami-Dade School system.

139 certificates of unserviceable property were processed.

258 acquisition documents were processed, 134 transfer documents were processed and 139 deletion documents were processed.

A total of 22 obsolete government items were auctioned off via the GSA Website, for a total of \$63,829.00 in sales.

The Annual Property Inventory was completed satisfactorily on September 28, 2004.

\*Reflects figures for both EVER and DRTO

## **VISITOR SERVICES AND INTERPRETATION**

The Division of Visitor Services and Interpretation is given the primary mission of designing, writing, producing, and/or presenting information materials and programs on the park and its resources to a variety of visitors, special community outreach groups, school children, local and national media, and participants in various special events. During FY 2004, there was a dramatic park-wide increase in volunteer support with 407 volunteers donating a total of 36,722 hours assisting the park. Housing costs for interpretive volunteers were once again supported by the park's cooperating association, the Florida National Parks and Monuments Association.

GPRA goal IIa1, relating to visitor satisfaction, was to achieve a rate of 95% in 2004; results based on the visitor survey were 95%. GPRA goal IIb1, relating to visitor understanding and appreciation, was to achieve a rate of 55% in 2004; the goal was exceeded based on the survey; with 97% satisfaction achieved.

Parkwide, more than 487,000 visitors were contacted through visitor centers and contact stations. Combined with formal programs, including environmental education, 555,210 individuals were reached with information about the park and its resources. There were 3,277 local community and other off site outreach programs completed.

## **VISITOR AND RESOURCE PROTECTION**

The Division is responsible for the protection of the park's visitors and resources. These responsibilities are accomplished through education and information, law enforcement, emergency medical response, emergency search and rescue operations, regulation of aircraft operations and flight following over the park, and fire management.

The Division also supports field level resource management projects, including control and removal of invasive exotic species. Activities also include cooperation with other law enforcement and fire management jurisdictions, local community liaison at the District level, and support of the park's role in special events and visits.

Commissioned park rangers have been called on successive occasions for temporary duty at other locations important for homeland security reasons following 9/11.

***A summary of accomplishments for FY 2004 follows.***

There were a total of 28 search and rescue incidents in the park during the year. Of these, two involved fatalities.

Park staff handled 38 emergency medical services incidents, including 33 trauma incidents.

There were 4 citations/arrests for illegal drug activity.

There were a total of 21 citations/arrests for Part One crimes. These were distributed among burglary, larceny-theft, and aggravated assault.

Among Part Two crimes, there were a total of 269 citations/arrests; the majority for weapons violations.

During Fiscal Year 2004, there were no incidents of documented violations of the Archeological Resources Protection Act, the Antiquities Act, or other statutes protecting archeological/paleontological resources. Enforcement costs are not divided to identify separate ARPA protection. Costs are included in the park's overall law enforcement and resource protection. Staff conducted 54 search and rescue missions during the year.

There were 1,724 boating, 3 aircraft, and 1,543 traffic related LE incidents.

During the year, Rangers Mike Michener and Ken Clark received the Exemplary Act Award for their actions in responding to an in-progress suicide at East Everglades. Their actions and willingness to intervene to save a human life were recognized as exhibiting the highest traditions of the National Park Service.

The fiscal year continued an authorized level of 33 commissioned park rangers assigned to the Division. Due to a combination of standard turnover rates and significant parkwide budget constraints, the year saw on average 27 permanent commissioned staff.

## **FACILITY DESIGN, OPERATIONS AND MAINTENANCE**

The Division of Facility Design, Operations and Maintenance is responsible for the condition of the built environment of the park. These include:

82 miles of surfaced roads, 156 miles of trails (including canoe trails), 5 miles of surface trails, and 1 mile 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); 301 buildings (5 Visitor centers, Park Headquarters, maintenance and utility buildings, research facilities, and 2 Environmental Education camps).

Also included are fee collection stations and 3 concessioners (at Flamingo, Shark Valley and Everglades City):

In addition, the Division provides grounds and equipment maintenance and architectural and engineering design services for new projects and rehabilitation work. A significant role is also to provide liaison with cooperators and contractors in developing specifications and providing technical review of progress and of completed work products.

Selected examples of the Division's significant accomplishments during FY 2004 include the following:

### ***Construction/Rehabilitation***

Commenced construction of the Pine Island and Flamingo wastewater treatment plants, pkg.'s 191C and A. Continued replacement of the water treatment equipment in the Flamingo water treatment plant, pkg. 191RO.

General renovations of Flamingo campground restrooms (T-Loop and Walk-in), roof replacements at Key Largo, housing renovations at DRTO/EVER, Hurricane Charlie repair projects at Dry Tortugas, replacement and upgrade of wastewater treatment facilities at Key largo, replacement of hurricane shutters parkwide, rehabilitation of six water treatment system facilities and security fencing, demolition of the East Everglades ranger station, and replacement of park signs and boundary markers.

Completed contract documents for Dry Tortugas finger piers, modular housing, Fort Jefferson stabilization mock-up study, Flamingo visitor center roof repair, backcountry chickee replacements, rehabilitation of Flamingo Lodge visitor accommodations, Gulf Coast canoe launch, Royal Palm visitor contact and sales office, raising Shark valley Tower Trail and widening the tram parking, pavement striping the main park road, and repair of Shark Valley parking area side walks.

Procured \$1 million in narrowband radio frequency equipment and \$100,000 in HVAC equipment. Installation of both projects is ongoing.

Repaired several backcountry chickees

Constructed new Flamingo walk-in campground restroom

### ***Organizational Improvements and Planning***

Completed FY2004 FMSS implementation milestones.

Completed narrow-band frequency /equipment conversion plan for EVER and DRTO

Completed an organizational restructuring to better align supervision and program responsibilities for DRTO/EVER and district maintenance staff.

Received staff training to begin development of the Environmental Management System for EVER/DRTO

## **SOUTH FLORIDA NATURAL RESOURCES CENTER**

The South Florida Natural Resources Center was established in the 1970's as a high priority of the Department of the Interior. Its purpose was to provide scientific support to Everglades, Biscayne, and Dry Tortugas National Parks (the latter then Ft. Jefferson National Monument), and the newly created Big Cypress National Preserve. The Center was established based on recommendations of the National Academy of Sciences' review of NPS science efforts in South Florida. In the relative absence of ecosystem-wide science at the Federal or State levels at that time, the Center was envisioned to fill the demand for scientific information to define the ecological needs of the greater Everglades. The Center was originally established as an independent unit (a four-park scientific support office). Management and administrative matters for the Center were provided by Everglades National Park.

As a result of various factors, the Center's role changed fundamentally over the 1980's and 90's. Its emphasis has shifted to applied resources management issues, primarily those connected with Everglades and Dry Tortugas National Parks. Biscayne and Big Cypress each developed their own internal Resources Management Divisions. During the 1990's, with the transfer of many science positions from NPS and FWS to the Biological Survey (now USGS/BRD), the Center was renamed the South Florida Natural Resources Center and its mission further redefined to reflect park specific management issues, internally and externally. It has since been given significant responsibilities in the areas of water quality and the implementation of the Modified Water Deliveries and C-111

Projects, which solidified the Center's role in project assessments and natural resources management. Additional responsibilities have more recently been given for the Center's work on behalf of all south Florida parks in support of Comprehensive Everglades Restoration Plan (CERP) implementation.

The Center is involved in numerous, continuing efforts to inventory and monitor the resources of Everglades and Dry Tortugas National Parks. These have included special emphasis on endangered species present in the parks, including manatee, panther, and American Crocodile populations. Surveys are regularly done also on eastern whitetail deer and re-introduced native species like turkeys and birdlife formerly characteristic of eastern pineland areas of south Florida.

Efforts are also undertaken to control and, to the extent possible, remove invasive exotic species present in the park. Particular attention has been afforded to removal of Brazilian Pepper. These efforts include one of the largest wetland restoration projects in the country at a park area known as the "Hole in the Donut". Other exotic plant concerns are Melaleuca, Australian pine, and Old World Climbing Fern.

Exotic wildlife is controlled through cooperative efforts with the Visitor and Resource Protection Division. Species of special concern include European wild boar, introduced Burmese and Reticulated pythons, and various aquatic species.

The Center is active as a continuing full participant in various projects to save and restore remnants of the south Florida ecosystem.

**In FY 2004, the Center devoted significant staff and time to the following noteworthy projects affecting the National Park Service's South Florida interests as part of a restored and healthy ecosystem:**

***The Critical Ecosystems Studies Initiative (CESI):***

Since its inception in 1997, CESI has been the primary funding instrument used by the Department of the Interior to provide scientific information for use in ecosystem restoration decision making and to guide the Department's own land management responsibilities in south Florida. The CESI program has distributed over \$60 million in research funds. The initial budget was \$12 million per year. In FY 20002, the CESI budget decreased to \$4 million and has remained at this level. Currently, the CESI funds are divided between research (77%); administration (10%); Comprehensive Everglades Restoration Plan implementation (4%); and planning, coordination, and review (9%).

In FY 2004, the first CESI Programmatic Management Plan (PMP) was written and implemented. The PMP mainly addressed recommendations made by the National Academy of Sciences (NAS). NAS reviewed CESI in response to Congressional concerns that the DOI managers be provided with science-based information in order to make decisions and plan restoration efforts. In order to address NAS concerns regarding the process of soliciting proposals, CESI proposals were obtained through a

Broad Agency Announcement (BAA) process. Approximately 116 proposals were submitted through the FY 2004 BAA.

Decisions regarding which studies were to be funded by CESI were based on the NAS recommendation to focus on modeling, monitoring, and ecological processes. An expert peer review panel was convened to provide technical review of the proposals. An additional review by NPS provided guidance on which proposals met the critical science needs addressed in the DOI Science Plan.

The PMP also addressed areas in the CESI program that required improvement to meet the long-term goals of providing funds to researchers in a timely and efficient manner. Protocols for interactions between the CESI program administration and the NPS contracting offices are now outlined in the PMP. This coordination has greatly improved procurement, budget, and permitting activities of the program. These improvements have positively affected the interactions of the program with other agencies and contributed to the overwhelming success of the program in FY 2004.

#### Land and Water Conservation Fund

Congress authorized the Department of the Interior to reprogram approximately \$10.5 million in FY 2004 Land and Water Conservation Funds to support NPS needs and USFWS requirements. These reprogrammed funds were used to address remaining FY 2004 science needs and complemented CESI funding. As intended, the reprogrammed funds were distributed to specific science needs that were not being addressed by any other funding source.

A major area of focus for the reprogrammed funds is water quality. A 2003 GAO report to Congress indicated that contaminants in the Everglades, other than nutrients and mercury, have not been adequately addressed. Lack of funding support in this critical area has the potential to hinder the availability of adaptive management tools required for restoration of south Florida ecosystems. Information available to assess CERP project designs largely consists of hydrological and ecological data and analyses, not water quality data. For this reason, one third of the projects funded by the reprogrammed dollars address water quality and contaminant issues.

Other research areas supported with reprogrammed funds include the removal of exotic plants in the East Everglades, avian species restoration in the pine rockland areas of Everglades National Park, and determination of the hydrologic requirements of aquatic slough vegetation.

#### ***The Comprehensive Everglades Restoration Plan (CERP):***

The park, through its South Florida Natural Resources Center, supports the National Park Service's involvement in the Comprehensive Everglades Restoration Plan (CERP.) The National Park Service is a major partner in this combined state and federal effort to restore Florida's Everglades, including Everglades National Park, Biscayne National Park, and the Big Cypress National Preserve. The Comprehensive Everglades Restoration Plan proposes large-scale modifications to the water management infrastructure of south Florida, with implementation led by the U.S. Army Corps of Engineers and the South Florida Water Management District. CERP has targeted completion date of 2038, estimated cost

exceeding \$8.6 billion; projects-affected NPS lands and waters are a subcomponent, but spread all along the implementation timetable. Critical factors affecting completion dates are funding streams approved by Congress and the Florida Legislature, land acquisition, project scheduling, and technological uncertainties.

The NPS role in the planning and design of CERP has focused on projects that are essential to restoration of Federal interest lands in south Florida. The State of Florida has recently initiated the "Acceler8" program that will create a \$1.5 billion bonding program to speed up implementation of several projects critical to NPS lands and waters; the Corps of Engineers is also proposing to move several projects directly affecting NPS lands and waters forward in their construction schedule. The National Park Service is aligning its efforts to support these priorities by actively participating in the associated CERP project development teams. Additionally, the NPS, in cooperation with other Federal, State, and local partners, is implementing a Monitoring and Assessment Plan for CERP, which will provide the information to determine the ecological effects and overall restoration success of CERP projects. Finally, the NPS participates in RECOVER (REstoration COordination and VERification), an inter-agency scientific group charged with system-wide assessments of planned and completed projects as well as with programmatic level activities. DOI has a formal concurrence requirement on these programmatic activities including: Rulemaking to define water supply reservations, Guidance Memoranda to formalize how CERP projects will be built, operated, and evaluated, as well the development of Interim Goals that will be used to track our restoration progress and provide five-year status reports to Congress.

With respect to CERP implementation, in FY 2004, the NPS:

- Contributed to the completion of the Guidance Memoranda and Interim Goals and Targets specified in the Programmatic Regulations, including the development of the procedure to identify water to be reserved for the environment;
- Supported NPS participation in ecosystem restoration projects such as the Biscayne Bay Coastal Wetlands Project, Everglades Agricultural Area Reservoirs, L-31N Seepage Management, Modified Water Deliveries Project, C-111 Project, the C-111 Spreader Canal, Picayune Strand, Decompartmentalization, Aquifer Storage and Recovery Pilot, and Florida Bay and Florida Keys Feasibility Study;
- Supported monitoring network for water levels; flows; rainfall; salinities; wading birds; alligators; deer; periphyton; fish and aquatic communities; and vegetation;
- Participated in leadership role in RECOVER, including participation in Leadership Group, technical team chairs, development of Interim Goals, and evaluation the system-level effects of project alternatives.

### ***CERP Interim Goals and Targets***

ENP staff participated as part of the CERP Restoration, Coordination, and Verification (RECOVER) team in the process of developing Interim Goals and Targets for the CERP. The objective of this process was the production of a document containing RECOVER's recommendations for the CERP Interim Goals and Interim Targets. ENP staff focused primarily on the Interim Goals, which are related to ecosystem restoration. Interim Targets are related to the flood protection and water supply aspects of CERP.

The CERP Programmatic Regulations require the establishment of an Interim Goals Agreement “to facilitate interagency planning, monitoring and assessment so as to achieve the overarching objectives of the Plan.” The Regulations also require that RECOVER recommend a set of Interim Goals for the implementation of the Plan.

A series of meetings with agency science personnel focused on the selection process for indicators of ecological restoration. Selection criteria for appropriate indicators of hydrologic, water quality, and ecological restoration were developed, and these criteria were used to examine a large number of proposed indicators. A final set of 23 Interim Goal indicators was selected that covers the major ecological characteristics and spatial extent of the south Florida ecosystem.

ENP staff worked with a variety of public and private sector scientists to complete the predictions for Interim Goals. For each indicator, a documentation sheet was developed that includes information on the importance of the indicator to the ecosystem, the scientific methodology used to calculate the predictions, and further developmental work needed for improvement of the Interim Goal. These documentation sheets will provide guidance during the required 5-year review and update of Interim Goals.

An external peer review panel was convened in April 2004 to review and comment on the Interim Goals process. The experts were drawn from a number of universities and government agencies that have participated in large-scale restoration projects in other areas of the country. The review resulted in a number of constructive criticisms on a technical level, as well as the general observation that the Interim Goals document should be written for a public as well as a technical audience. Following this guidance, the RECOVER team developed a public-oriented report based on describing the ecosystem and associated indicators on the level of four regional modules: the Northern Estuaries, Lake Okeechobee, the Everglades, and the Southern Estuaries.

Technical support from ENP staff was critical to the development of scientific documentation sheets and to the writing of the main body of the report. During the interagency process for developing Interim Goals, ENP staff defended the principle that the CERP ecological and water quality interim goals are equal in importance to the CERP hydrologic interim goals. ENP staff worked with our other partners to advance the principle that the aspiration of full ecological restoration is critical to the interpretation of Interim Goals as measures of CERP success.

### ***Water Quality:***

The NPS and FWS have worked with the State of Florida to develop the Phosphorus Rule. This rule set a 10 ppb numeric criterion for total phosphorus as the threshold for imbalance within the Everglades.

The NPS and FWS also worked with the State of Florida, the Army Corps, and EPA (through the Technical Oversight Committee) to develop specific actions to reduce future phosphorus exceedances within the ARM Loxahatchee National Wildlife Refuge.

### ***Modified Water Deliveries Project (MWD):***

The Everglades National Park Protection and Expansion Act of 1989 authorized the addition of 109,600 acres of the critical Northeast Shark River Slough to the Park. The Act directed the Corps of Engineers (COE) to improve water deliveries to Everglades National Park (Park) and, to the extent practicable, take steps to restore the natural hydrologic conditions in the Park. COE recommended increased conveyance of water from water conservation areas north into the park's largest drainage basin, the Shark River Slough. Northeast Shark Slough is critical for restoration of water flow to the Park. Restored water flow will bring significant benefits to Park plant and animal life and may be critical to the survival of several endangered species, including the Cape Sable seaside sparrow. The project consists of three general components: 8.5 Square Mile Area Flood Mitigation; Conveyance/Seepage Control features; and, Tamiami Trail (U.S. 41) modifications

*Status of the 8.5 Square Mile Area Component.* The Corps' original 1992 General Design Memorandum (GDM) for the MWD Project provided for the construction of a mitigation canal and levee, with land acquisition only to meet the needs of constructing these project features. Subsequently, the Corps, with the USFWS and NPS participating as cooperating agencies, completed a General Reevaluation Report (GRR) and Supplemental Environmental Impact Statement (SEIS). Based on the new GRR/SEIS, the Corps also signed a Record of Decision (ROD) in December 2000 on the new federally selected flood mitigation plan for the area. This plan (Alternative 6D) uses a combination of land acquisition and flowage easements, coupled with structural features to accomplish the required mitigation. In addition, pump station S-357; designed to remove seepage water from the 8.5 SMA, has been relocated on the south side of the area in lieu of its previous position on the north side. This will allow for the seepage water to now be discharged into the C-111 Project, where a Stormwater Treatment Area (STA) will be constructed.

Benefits to the ecosystem through the implementation of the modifications to the 1992 GDM flood mitigation plan for the 8.5 SMA are substantial. Based on the hydrologic analyses conducted by the NPS and USFWS, ecological performance was significantly improved in more than 20,000 acres in Northeast Shark Slough (NESS) with the revised mitigation plan when compared to the original design. Land acquisition and construction were initiated in FY 2004.

*Status of Conveyance and Seepage Control Component.* Subsequent to the completion of the 1992 GDM, additional scientific and engineering data analyses, in conjunction with improved hydrologic and ecologic modeling, indicate modifications to the selected project features are warranted in order to better meet the original objectives of the project. The structures identified in the 1992 GDM for restoring the hydrologic connection between WCA-3A, WCA-3B, and NESS were analyzed subsequently through detailed hydrologic modeling that occurred in an inter-agency evaluation process over approximately a one-year period during 1999 and 2000. As a result of this process, the Corps completed a Value Engineering (VE) Study in January 2001 that recommends replacing the original 1992 design conveyance features in the L-67A levee (S-345's and S-349's) and constructing three additional weirs in the L-29 levee to augment the flow of the existing L-29 conveyance structures, S-355A and S-355B. The VE Study also recommended eliminating the L-67C canal and levee. A re-evaluation of

the conveyance features subsequent to the decision in the 2003 GRR for the Tamiami Trail will be required to fully assess the benefits and potential impacts in order to identify a final recommended plan and complete the required NEPA documents for these components. These analyses will be conducted as part of the Combined Structural and Operational Plan (CSOP), a project currently underway that will identify the final configuration of the structural and operational features of the MWD Project and a sister project, the C-111.

*Status of the Tamiami Trail Component.* The Tamiami Trail (U.S. 41) provides a vital transportation link from Miami-Dade County west to Monroe County and Collier County, Florida. Under the 1992 GDM, increased flows from WCA-3B to NESS are assumed to pass through the existing culverts beneath the road and only a small portion of the main roadway along Tamiami Trail is elevated. As additional scientific and engineering data have become available and incorporated into hydrologic models, it has been recognized that the original plan may not be the most optimal solution for providing the increased conveyance capacity and connectivity required to meet the goals and objectives of the MWD Project. Based on the MWD project's proposed modifications to the upstream conveyance features within the WCAs as well as the increased conveyance requirements associated with CERP implementation, the quantity of water ultimately discharged under Tamiami Trail will be increased substantially over the quantities originally anticipated in 1992. Additionally, these increased flows required for restoration of NESS will result in higher water levels in the Tamiami Canal (L-29), immediately north of the roadway. The resulting high-water condition will periodically saturate the roadway sub-base and under extreme conditions might overtop the roadway in some locations. There is now a high degree of certainty that the current elevation of the 10.7-mile portion of Tamiami Trail between the S-334 and S-333 structures must be increased. The Corps completed a GRR and SEIS in December 2003. This document underwent the required review periods and was published in the Federal Register. The 2003 GRR Recommended Plan (Alternative 7A) specifies building a 3,000 foot bridge and raising the remaining portion of the road surface. Concerns with the plan were expressed by Florida Department of Transportation (FDOT), based on safety, and by the National Park Service, based on environmental performance. Based on these concerns, DOI and the Corps are reconsidering the 2003 GRR Recommended Plan. A thorough evaluation of the benefits and impacts of the DOI recommended plan for Tamiami Trail will be documented in the revised GRR and FWCAR. These documents are expected to be finalized and a Record of Decision signed in November, 2005.

**In FY 2004, the Center devoted significant staff and time to the following noteworthy projects affecting Everglades National Park's resource condition through resource management and inventory and monitoring activities:**

### **Wildlife Management and Monitoring**

#### ***Wading Bird Colony Surveys: January – July 2004***

Aerial surveys of wading bird colonies were conducted monthly (January through July) by 1 or 2 observers using a Cessna 182 fixed-wing aircraft (~20 person hours). Traditional colony sites as well as new colonies discovered during colony and other project flights were surveyed. Survey dates were: 16 January, 13 February, 12 March, 21 April, 21 May, 18 June, and 19 July.

Wading birds in Everglades National Park formed colonies and initiated nesting later than usual this year. Nesting was not initiated until March at most sites. Most colonies had fledged all young by the end of May; however, several colonies were still active into late June and July.

We observed a significant increase in the numbers of colonies formed and numbers of nesting wading birds compared to the 2003 nesting season. We located approximately 3774 wading bird nests within 23 colonies. Total nest numbers increased by 107% compared to 2003. White Ibis and Great Egret nest numbers more than doubled this year. The increase was due to a number of new mixed-species and Great Egret colonies that formed along the eastern and western edges of Shark River Slough.

Some notable differences in colony nesting sites were seen this season. Drought conditions prevailed and water levels in northern Shark River Slough were drastically reduced. The relatively small transient (mostly Great Egret) colonies that appear each year at the eastern and western sides of Shark River Slough were located further south than in previous years. These colonies appeared to be successful as the southern reaches of Shark River Slough maintained continuous water levels throughout the nesting season.

Three of the new colonies that formed this season were noteworthy. Two of these (“New 7” and “New 8” colonies) were located in areas that have not been used by wading birds for many years. The “New 8” colony formed in the headwaters of the Shark and Harney Rivers. It was a large mixed-species colony (~650 nests total) consisting of mostly Great Egrets, White Ibis, and Snowy Egrets, but also contained approximately 50 Wood Stork nests. The Wood Stork nests contained eggs and new young in April, but the nests had been abandoned when checked again in May. The “New 7” colony was a small Great and Snowy Egret colony but was also located in the southern Shark River Slough region at the headwaters of the Broad River. A third colony, “New 13” was located in an area not previously known for wading bird colonies –it was located approximately 9 miles north of the Rodgers River Bay colony and east of Alligator Bay.

Overall most colonies were successful this year; however, Wood Storks failed completely at the large Tamiami West colony. Wood Storks also attempted to nest in some of the smaller “new” colonies, but failed there as well. The southern Wood Stork colonies (Rodgers River Bay, Paurotis Pond, and Cuthbert Lake) appeared to have successfully fledged young. Great Egrets and White Ibis at the same colonies also succeeded in fledging young.

The most prevalent species recorded nesting in Everglades National Park colonies were Great Egrets, White Ibis, Wood Storks, Snowy Egrets, and Cattle Egrets. The following species were found in nesting colonies but numbers of nests could not be estimated due to their location within the colonies: Little Blue Heron, Tricolored Heron, Black-Crowned Night Heron, and Roseate Spoonbill.

### ***Wading Bird Abundance (Foraging and Nesting)***

Systematic reconnaissance flights (SRF's) were performed monthly between Dec 2003 and May 2004. Flights were conducted over 4 consecutive days using a fixed-wing Cessna 182 at an altitude of 60 m. The area covered included Everglades National Park and the southern region of Big Cypress National Preserve. The area was surveyed using

transects oriented E to W and separated by 2Km. Wading birds were counted, identified, and geographically located using GPS units. Changes in surface water patterns (hydropatterns) were also recorded.

Five categories were used to describe the hydropatterns: DD - absence of surface water and no groundwater visible in solution holes or ponds; WD - absence of surface water but groundwater present in solution holes or ponds; DT - ground surface area mostly dry but small scattered pools of surface water present and groundwater visible in solution holes or ponds; WT - ground surface area mostly wet but small scattered dry areas; and WW - continuous surface water over the area.

Data obtained during each SRF were compiled into a database, which contains the information collected since 1985 to the present. During this period, SRF surveys were not conducted during Dec 1984, Dec 1987, and Jan 1998. Missing data for those months were estimated using a general-purpose multiple imputation model. Densities of birds were estimated using a 2X2 Km grid. The number of birds counted during the SRF inside the 300m stripe width was extrapolated to the rest of the 4Km<sup>2</sup> cell dividing the number of birds observed by 0.15.

During the survey period (December 2003 – May 2004) a decrease of ten-percent in the abundance of wading birds was observed, for all the species combined, in comparison to the previous year. Despite the decrease in the number of birds observed in 2004, an overall slight increase persists when numbers from 1985 to the present were compared using a linear regression model.

The number of birds for six of the nine species declined in relation to those observed in 2003. Glossy ibis (GLIB) declined 49%, small dark herons (SMDH) 47%, great white heron (GWHE) 45%, wood stork (WOST) 37%, small white heron (SMWH) 29%, and white ibis (WHIB) 13%. The only species with an increase in the number of birds were roseate spoonbill (ROSP) 16%, and great egrets (GREG) and great blue herons (GBHE) with 7% respectively. Linear regression models were used to determine the general trends in the annual estimated number of birds by species from 1985 to the present. A tendency to increase was observed for GREG, GBHE, GLIB and WHIB. Some species such as ROSP, WOST, and SMWH showed a stable trend; while only two species SMDH and GWHE, showed tendencies to decrease.

The maximum density of birds occurred this year during the month of January, with seven of the nine species surveyed showing peak numbers, including those species with the largest number of individuals such as GREG and WHIB. Other species such as WOST and GLIB reached maximum densities in March and April respectively. The month of May, however, was the month with the overall lowest number of individuals for all the species but for SMWH, GLIB and ROSP.

### ***Eagle & Osprey Nesting Surveys***

Surveys of Eagle and Osprey nesting are currently in progress for the 2004-2005 season. So far, 18 active bald eagle nests have been found. Osprey nests have not yet been tallied.

### **Bald Eagle Nests:**

Site	Active nest	# young	Comments
Arsenicker Key (Biscayne)	Y	unknown	1 adult incubating on new nest at top of tree.
Rookery Key	Y	unknown	Incubating unknown number of eggs.
N Nest Key	N		No eagles seen.
N Park	N		No eagles seen.
Lake Key	Y		New nest site – may be the Park
Key pair.			
Madeira Bay	Y	2	Observation from Brian Mealey.
Triplet	N		No eagles seen.
Calusa	N		No eagles seen.
Cluett	N		Eagle seen nearby but no attempt to nest yet.
Jim Foote	Y	unknown	Incubating unknown number of eggs.
Derelict	?	unknown	Adult present but can't tell status of nest.
Rankin	Y	unknown	Nest under tree canopy –can't tell status.
Boey	N		No eagles seen.
Cormorant	?		Can't see nest; no eagles seen.
Pelicans (south)	Y	unknown	Incubating unknown number of eggs.
Johnson	?		No eagles seen.
Camp	?		Nest if present is under canopy. No eagles seen.
Clive	?		Brian Mealey saw 2 adults but nest not active.
Palm	?		No eagles seen.
Sandy	Y	1	Observation from Brian Mealey.
Murray	?		No eagles seen.
Catfish	?		No eagles seen.
Frank	Y	unknown	Incubating unknown number of eggs.
Mahogany Hammock	Y	unknown	Incubating unknown number of eggs.
Lane River	Y	unknown	New nest site; adult incubating on nest.
N Shark River	Y	unknown	Incubating unknown number of eggs.
Broad River	Y	unknown	New nest site; adult incubating eggs.
Harney River	Y	1	New nest site; 1 small eaglet seen in nest.
Lostmans Island	?		2 adults.
Mosquito/Crab Key	N		No eagles seen.
Storter Bay Island	Y	unknown	Brooding unknown number of young.
Rabbit Key Pass	Y	unknown	Incubating unknown number of eggs.
Gaskin/Faka Pass	Y	unknown	Brooding unknown number of young.

Ever City Airport eagles seen.	N		Construction next to nest site; no
Sig Walker	Y	1	Adult brooding 1 eaglet.



#### ***American Alligator Systematic Reconnaissance Flights 2004***

The initial Systematic Reconnaissance Flights (SRF) nest searching survey was conducted during the week of July 12<sup>th</sup>. Nest checks were conducted during the weeks of July 26<sup>th</sup> and August 23<sup>rd</sup>. A final nest check flight was conducted on September 8<sup>th</sup>. Forty-four nests were checked. Of these, 28 were partially or totally flooded, eggs had hatched in 13 of the nests, and 3 nests proved inactive.

During our initial SRF nest survey, we found that many of the potential alligator nesting areas were nearly or completely dry due to drought. Taylor and East sloughs were mostly dry. Northeast Shark River slough was approximately 1/2 - 2/3 dry. Central Shark slough water depths were low compared to previous years. The Rocky Glades area was completely dry and therefore mostly not surveyed.

The lower reaches of Shark Slough contained most of the alligator nests found this year.

#### ***Florida Panther (Felis concolor coryi)***

Everglades National Park has been monitoring and documenting panther movements within the park since 1986, providing very valuable information for the Florida panther restoration efforts. At least three times a week data has been collected with the help of radio-telemetry equipment mounted in a fixed-winged airplane. Radio-tracking activity normally is done on Mondays, Wednesdays, and Fridays as time permits. During these flights, the exact location of the animal is determined, as well as other important data including date, time of the day, type of habitat where the animal is located, condition and behavior if the animal is observed, possible mating behavior, possible denning behavior, presence of prey in the area, and mortality signals. This report summarizes the Florida panther activity inside the park in the year 2004.

Radio-tracking missions were performed during 155 days throughout this year generating 366 attempts to locate Florida panthers. From those attempts, panthers were successfully located 353 times and in only 13 cases was the observer not able to locate a panther. Four collared Florida panthers were radio-tracked in 2004. Two adult females, FP95 and FP94, were tracked the entire year, establishing 151 and 144 locations respectively for each one. Two more adult panthers, the males FP125 and FP85 were tracked only part of the year. Panther 125 was tracked from the middle of July to the end of September and its location was determined a total of 32 times. Finally, 26 locations were determined for panther 85 from January to the beginning of March of 2004.

Minimum convex polygon home-ranges were calculated for each of the four mentioned panthers with the following results. Panther 94 was the one that used the larger area during this year. The home-range for this panther was estimated as 477 Km<sup>2</sup>. Panther 95's home-range was estimated at 201 Km<sup>2</sup>, less than half of the extent covered by panther 94. During the two and a half months that FP125 was tracked, it was estimated to have covered a 165 Km<sup>2</sup> home-range. Finally, the home-range for FP85 was estimated to be 184 Km<sup>2</sup> for the two months it was tracked.

Panther 85 was reported dead on March 1. The carcass was collected relatively fresh at 16:30 hrs on that day using helicopter access. The causes of death were unknown. Panther 125 was relocated from the Loop Road area to the East Everglades in the middle of July. After the relocation, this panther was observed several times from the airplane and it was in apparent good condition. On September 28th, the collar of panther 85 was found along Krome Ave. near the Krome Detention Center. The fate of this panther remains unknown.

Not all was bad news during 2004. There were strong signs that panther 95 was denning in the middle of August in a hammock close to Hidden Lake. Several unsuccessful attempts were made to find the den and treat the kittens until the mother finally moved out of the area. Finally, on December 17<sup>th</sup>, panther 95 was observed from the air walking on saw grass with two healthy looking kittens, confirming our expectations that she was denning four months earlier.

### ***American crocodile***

The American crocodile (*Crocodylus acutus*) is a primarily coastal crocodylian that occurs in parts of Mexico, Central and South America, the Caribbean, and, at the northern end of its range, south Florida. As with other species of crocodylians, hunting (for hides, meat, collections, and out of fear) and habitat loss (direct and/or due to degradation) have made the American crocodile endangered throughout its range. In Florida, habitat loss, due to development required to support a rapidly growing human population along coastal areas of Palm Beach, Broward, Dade, and Monroe Counties, has been the primary factor endangering the United States population of the American crocodile. This loss of habitat principally affected the nesting range of crocodiles, restricting nesting to a small area of northeastern Florida Bay and northern Key Largo by the early 1970's (Ogden 1978, Kushlan and Mazzotti 1989). At one time most of the

remaining crocodiles (about 75% of known nests) were located in Florida Bay in Everglades National Park.

A total of sixty-two nests were located in 2004. Nesting in Everglades National Park reached a new record in 2004 with 55 known nests. In the park, 76% (42) were successful, 24% (13) were depredated by raccoons.

Following the loss of nest sites to reconstruction of the East Cape Plug, crocodiles began nesting along the banks of East Cape Canal, north of the plug. Several hundred meters of berm with marl soil and adequate elevation for nests compose this area. In addition, there has been an increase in the number and size of crocodiles observed in the East Cape Canal and surrounding creek areas, as well as an increase in nesting activity observed in the East Cape Canal past the plug.

The increase in crocodile and nesting activity has been observed both during surveys for crocodiles and during patrols by rangers. There has also been an increase in nesting at beach locations. This year, 19 nests were located past the plug in East Cape Canal, three of which were depredated. Ten nests were found on Cape Sable, all but three were successful. A possible explanation for the recent increase in both number of crocodiles and nests in this area is the maturing of hatchlings from this area's earlier successful nests.

West Lake and Buttonwood Canal provide important habitat for hatchling and juvenile crocodiles. Buttonwood Canal has daily use by motorboats, canoes, and kayaks during the winter season. The increased use of these areas by crocodiles for nesting shows that as long as humans do not directly harass or threaten crocodiles, crocodiles and humans can coexist. At both locations, there are other bodies of water where crocodiles could easily move to in response to being disturbed by humans.

Similar intensive monitoring and management programs are underway with respect to crocodiles outside of Everglades National Park. Nesting has been observed at Deering Bay and Ocean Reef. An additional nest was located in the Florida Keys on Lower Matecumbe Key. This nest represents the southern most known active nesting site in Florida.

### ***Burmese pythons***

The Burmese python (*Python molurus bivittatus*) can reach a length greater than twenty feet, making it a big snake indeed. The non-native python's diet in the Everglades includes gray squirrel, opossum, cotton rat, black rat, rabbit, house wren, pied-billed grebe, and white ibis. Raccoons and other small mammals, such as the native mangrove fox squirrel, a species of special concern, could also provide a suitable food base for pythons in the park. As Burmese pythons are known to eat birds, the proximity of python sightings to the Paurotis Pond wood stork rookery is troubling.

Observations of pythons exist primarily from three locations in the park: the saline glades and mangroves between Flamingo and Paurotis Pond, the greater Long Pine Key area, and the greater Shark Valley area along the Tamiami Trail. They have also been observed on the eastern park boundary, along canal levees, in the remote mangrove backcountry, and in Big Cypress National Preserve. For the period of record, mostly starting in the mid-1990s, up to and including calendar year 2003, records show about

52 pythons removed from the park or adjacent lands (e.g., we caught and killed, someone else caught and removed, dead on the road, carcass found elsewhere, etc.). Records for just calendar year 2004 show 61 removed. Individuals ten to twelve feet in length have been seen with increasing regularity in the park.

In recent years, multiple observations of individuals of different size-classes support the probable establishment of breeding populations of the Burmese python in Everglades National Park. The measured total individual length for snakes recovered ranged from two feet to fourteen feet, including five hatchling sized animals recovered in the summer of 2004.

### ***Butterfly Reintroduction and Interpretation***

South Florida has a diverse lepidopteran fauna consisting of subtropical species that can be seen only in the southernmost areas of the United States, as well as species that winter in the southernmost areas of the State. Although the potential for attracting visitors with an interest in butterflies is great, to date the parks have done little to encourage this interest or to interpret butterflies to the public. A number of butterflies have been extirpated in the national parks, and many species are becoming rare in South Florida because of habitat loss and mosquito spraying. The parks provide habitat and the hope that a number of these species might be saved from extinction by reintroduction and improved management of their habitat.

During 2004, we started a butterfly reintroduction program in Everglades and Biscayne National Parks. In May, we started reintroductions of the state endangered Miami blue butterfly (federal candidate species) and the rare Atala butterfly. Both species were once common in south Florida, were considered extirpated for a time, and then rediscovered in only one location. We conducted NEPA screening and decided upon categorical exclusions for both species. We are also completing programmatic NEPA documents for the reintroduction of other species of butterflies (e.g., dingy and Florida purplewings, Schaus swallowtail) and for planting butterfly host and nectaring plants.

Recent incidents at Flamingo (herbicide spraying at Eco Pond and prescribed burns) have killed the rare silver-banded hairstreak butterfly (first documented in EVER in 2003) and its host plant balloonvine. Concerned visitors are requesting actions to enhance this and other rare species. These requests led to a plan to develop butterfly viewing areas in Flamingo in 2005 by planning a butterfly garden and trail. We are also working with Fire Management on planning of prescribed fires to include consideration of butterfly host plants and rare butterflies. We are working with Maintenance to reduce their costs by minimizing mowing through the planting of native plants attractive to butterfly species in some yard areas.

The Florida Fish and Wildlife Conservation Commission (FFWCC) is planning to fund another year of Miami blue reintroductions. They have agreed to hire a person to monitor the Miami blue and station him/her at Flamingo -- if EVER will provide housing. We have not yet committed funding to housing for that person or for volunteers to assist with butterfly projects. We plan to continue Atala reintroductions with volunteers, including a graduate student at Florida Atlantic University. As part of the Atala butterfly reintroduction program, we are working with Fairchild Tropical Garden. The director, Dr. Mike Maunder, has been very supportive and has indicated an interest in working with

us on rare and endangered butterflies. Dr. Mary Collins, chief horticulturist at Fairchild, is currently growing about 700 coontie plants at Fairchild for planting in the Long Pine Key picnic area, where we plan to reintroduce atalas in an area that can be easily viewed by the public.

We are identifying requirements to begin planning to develop a butterfly garden behind the Flamingo Lodge along the Guy Bradley Trail and an interpretive trail on an old spur road bed that extends from the Main Park Road just west of Eco Pond to the T loop of the campground. Roger Hammer, Miami-Dade County Parks, has agreed to help us with this project. The gardens would be maintained by volunteers. The hope is to develop subsequently butterfly gardens/trails in other ranger districts.

The butterfly program is a new initiative with no park base funding. The Miami blue reintroduction is being funded by FFWCC, and the Atala reintroduction is currently unfunded and is being conducted with volunteers. Re-introduction projects for the Atala, Dingy Purplewing, Florida Purplewing, and Schaus swallowtail butterflies were on a list of approved NPS Cooperative Conservation Initiative projects for FY2005 and FY2006, but the entire program was eliminated in the FY05 Omnibus Bill. We will apply for funding to reintroduce other species, and in the short term, attempt to reintroduce other extirpated species using volunteers or with funding from other agencies. We have arranged for a volunteer from the University of Miami during summer 2005, and two French student volunteers from August-November 2005 and March to August 2006. We will work with the Florida Parks and Monuments Association to obtain funding for butterfly gardens.

### ***Fresh Water Fisheries***

Everglades National Park has a history of project specific freshwater fisheries monitoring efforts dating back to the 1960's. Much of what is known about the freshwater fishes of the southern Everglades has been collected from the *Eleocharis* spp.-dominated wet prairies of Shark River and Taylor sloughs. Since 1999, we have expanded sampling efforts into the shorter hydroperiod wetlands of the Rocky Glades to examine patterns in fish assemblage (species of fish found occurring together in space and time) dynamics and to relate characteristics of the fish assemblage to patterns of hydrology. Understanding the influence of habitat and hydrology on fish assemblages will help provide the knowledge needed to guide restoration programs in Everglades National Park.

Through our fisheries monitoring, we have begun to detect a pattern of hydrological influence on the assemblages that re-colonize the Rocky Glades in the early wet season and track the introduction, establishment, and range expansion of several new exotic species into Everglades National Park. Minimum water levels in Shark River Slough appear to have more influence on the fish assemblage composition that re-colonizes the Rocky Glades during the early wet season than do the minimum water levels in the Rocky Glades themselves. This suggests many fish re-colonize the Rocky Glades from Shark River Slough upon rewetting. We have also conducted a park-wide sampling effort to assess the distribution of exotic species within Everglades National Park waters. Since 2000, 6 new species of exotic fish have been observed or collected within park waters. All of these species were established within South Florida canals outside of park boundaries prior to the observations in Everglades National Park. The increased rate of

introductions corresponds with recent changes in water management beginning in 2000. Although not all of these 6 species are considered established in Everglades National Park, a few of the new species were more common in 2004 than in previous years. One species in particular, the African jewelfish (*Hemichromis letourneauxi*) has continued to rapidly expand its range and in some areas is the dominant fish collected.

Monitoring is important to understand the status and trends of the freshwater fisheries in Everglades National Park. The Everglades fish assemblage is proving to be a useful indicator of changes in hydrologic conditions. A robust monitoring plan may be used as a tool to track the progress of restoration programs. The recent increased rate of invasion by exotic species emphasizes the need to develop a monitoring program that provides both the early detection of and the ability to track the establishment of exotic species. These data would further our understanding of the exotic fishes within Everglades National Park and provide information that may be used to help prevent new introductions. We plan to continue to develop freshwater fisheries monitoring in Everglades National Park.

### ***Marine Fisheries***

Fishing activity and harvest of marine game fish from Everglades National Park (ENP) have been monitored nearly continuously since 1958, and is reportedly the longest ongoing survey of its kind in the world. The monitoring is conducted by interviewing anglers at the conclusion of their weekend fishing trips. The objectives of the marine fisheries monitoring project in ENP are to estimate the catch/harvest per unit effort, (CPUE/HPUE also known as catch/harvest rate), relative abundance, age structure, total catch/harvest, total estimated catch/harvest, and boating and fishing activity. This monitoring program was initiated because of concern over increased fishing pressure resulting from the construction of a highway, marina facilities, and an access canal to Whitewater Bay in 1958. The first 11 years of the park's fishery monitoring program (1958-1969) were conducted through the University of Miami's Institute of Marine Science and were directed at evaluating only the sport (recreational) fishery. Under this program, measures of catch/harvest and CPUE/HPUE were made only from those fishermen operating out of Flamingo. Guide and commercial fishermen began reporting their total catches in 1965. These data covered a large part of the ENP fishery, but missed the lower 10,000 Islands. In 1970, ENP managed the data for the program and in 1973 initiated aerial surveys to estimate total fishing activity in Florida Bay based on boat trailer counts. Information has also been gathered from ENP-permitted fishing guides since 1970, when they were required to report their daily catch and effort on a monthly basis. In 1974, fish size (length) was added to the information recorded and, in 1980, interviews at Chokoloskee-Everglades City (lower 10,000 Islands) boat ramps were added on a routine basis. In 1985, commercial fishing was eliminated from ENP, and only recreational and guided anglers were permitted to fish within park waters. Due to personnel shortages, only basic data collection activities were maintained from 1991-1994. In 1999, the position for the interviewer, or port sampler, at Flamingo became permanent, which has contributed to the success and progress of the project (ability to "catch up" with data entry, analysis of the data, and integration of the data set into the park's South Florida Natural Resources Center ORACLE web database system).

Currently, ENP port samplers are involved in a collaborative effort with the Florida Fish and Wildlife Conservation Commission to assess the condition of snook stocks

throughout south Florida. ENP personnel interview anglers to determine snook size (released and/or harvested) and take biological samples (otoliths, gonads, and fin clips) in order to determine snook stock condition. Size estimates of released fish will help to determine the size of snook that remain in park waters. A 5-year status report on these activities is forthcoming. Other collaborative interagency (NOAA/NMFS) activities involve developing standardized catch rates for species of special concern, i.e., goliath (formerly jewfish) grouper, and for the first federally endangered fully marine species, the smalltooth sawfish. Park waters serve as centers of abundance for monitoring of recovery activities for both species. In addition, the development of CERP southern estuaries performance measures to monitor the long-term recovery/restoration of key recreational species using park survey data is underway for feasibility studies planned in Florida Bay and the Ten Thousand Islands.

ENP is a multi-species fishery and we have seen individual species trends that have fluctuated overtime. Overall, however, status and trends, based partially on our survey results (presented in our Annual Fisheries Reports) as well as collaborative research and monitoring reports, suggest the park fishery is strong and is able to withstand increased recreational and guided fishing pressure. Our monitoring program thus provides valuable information to use in assessing the status of marine game fishes within ENP for years to come.

### ***Vegetation Management***

During 2004, monitoring of vegetation communities focused on collecting ground reference data for several vegetation mapping efforts. The NPS-USGS park vegetation mapping program providing funds for accuracy assessment of the Everglades/Big Cypress/Biscayne vegetation map, developed by the University of Georgia. An accuracy assessment protocol was developed jointly with Big Cypress National Preserve and the South Florida and Caribbean Inventory and Monitoring Coordinator. Cooperators from the Institute for Regional Conservation completed the evaluation of approximately half of the accuracy assessment points during 2004. Data collection will be completed in 2005, and the results of the accuracy assessment will dictate whether to revise the existing map or initiate efforts to construct a new vegetation map. The data will also be used to assess the accuracy of the vegetation map produced by the USGS Gap Analysis Program. Vegetation staff also collected species cover information from plots in marl prairie and sawgrass marsh areas, primarily in Taylor Slough, and are using these to investigate whether Landsat satellite images can be used to differentiate sawgrass marsh from marl prairie. Image analysis is currently being conducted by the park GIS staff. Evaluation of the feasibility of mapping these vegetation communities from Landsat images will be completed in 2005.

Rare plant inventory and monitoring efforts focused on identifying plant species of management concern and determining which of these species require augmentation or reintroduction to achieve a self-sustaining population. During 2004, an initial list of plant species of management concern was compiled, based on historic data and monitoring conducted cooperatively with the Institute for Regional Conservation. This effort discovered populations of a number of species that had not been observed in the park for many years. Eleven candidates for reintroduction or augmentation were identified, based on the criterion that their populations have been severely reduced or eliminated by human activities. Monitoring of rare plant species will continue in 2005 to determine whether additional species require assistance to achieve self-sustaining populations.

Monitoring for introduced pests that threaten rare plants was initiated during 2004 by conducting surveys to detect the Mexican bromeliad weevil. Bromeliads in the East Everglades, Royal Palm, Long Pine Key, Snake Bight, and in cypress domes and woodlands were examined for weevil damage. One leatherleaf airplant in a cypress dome exhibited damage probably caused by the Florida bromeliad weevil, but no Mexican bromeliad weevils were found in the park.

The Everglades vegetation program supported a variety of NEPA compliance evaluations during 2004. The most significant was an Environmental Assessment of the Fire Management Program. For this assessment, vegetation staff helped identify affected environments, contributed an evaluation of impacts to these environments, simplified the vegetation community classification for the park to reflect plant communities that vary in their response to fire and/or their ability to support fire, and produced a map of the resulting vegetation communities.

### ***Exotic Plant Control***

Non-native exotic plants (Exotics) are the single greatest natural resource threat to the native plant communities of Everglades National Park (ENP). There are approximately 1,000 plant species recorded from the park. Of these, over 200 species are exotic. Limited funding allows for routine control of only 10 to 15 exotic plant species. The most commonly targeted exotics are Brazilian Pepper (*Schinus terebinthifolius*), Melaleuca (*Melaleuca quinquenervia*), Australian Pine (*Casuarina equisetifolia*), Seaside Mahoe (*Thespesia polypnea*), Latherleaf (*Colubrina asiatica*), and, the most recent addition, Lygodium (*Lygodium microphyllum*). Observations from biennial systematic reconnaissance flights have estimated that Brazilian Pepper affects 125,000 gross infested acres, Melaleuca and Australian Pine affects 50,000 gross infested acres each, Latherleaf has affected over 5,000 gross infested acres and Lygodium infests more than 10,000 gross acres. Overall, these species are estimated to affect approximately 200,000-250,000 acres of the park. The earliest efforts to treat exotics in ENP date back to the 1960s (Doren and Jones 1997). Funding for exotics projects has always been problematic and has limited the duration and scope of systematic treatments. However, from the mid 1980s to the present, ENP has received generous support for the treatment of exotics.

### ***Exotics Projects Fiscal Year 2004***

In order to address the threat posed by exotics, Everglades National Park's Exotic Vegetation Management Program requested and received funds from the South Florida Water Management District (SFWMD), Miami-Dade County's Wetland Mitigation Trust Fund, which is managed by the Special Area Management Planning Committee (SAMP), the United States Army Corps of Engineers (ACOE), the Department of Interior's Cooperative Conservation Initiative (DOI-CCI), Department of Interior's Land and Water Conservation Fund (DOI-LWCF), the Everglades National Park, South Florida Natural Resource Center (SFNRC), and the National Park Service's Florida Exotic Plant Management Team (EPMT) for the treatment of invasive exotic plants. Provided below is a table summarizing the agency donations and the gross infested acres treated in FY 2004.

<b>Project Location</b>	<b>Agency</b>	<b>Gross Infested Acres Treated</b>	<b>Costs</b>
Pine Island District	SFWMD/ EPMT	4,164	\$160,000
Pine Island District	SAMP	21,696	\$511,000
Pine Island District	ACOE	83,092	\$280,000
Pine Island District	DOI-CCI	3,148	\$309,000
Pine Island District	DOI-LWCF	700	\$375,000
Gulf Coast District	SFNRC	800	\$75,000
Flamingo District	EPMT	493	\$66,513
Key Largo District	EPMT	613	\$ 33,487
Dry Tortugas	SFNRC	33	\$1,000
<b>Total</b>		<b>114,739</b>	<b>\$1,811,000</b>

In FY 2004, exotics projects were carried out in every district of the park. The majority of the funding has been utilized in the East Everglades Acquisition Area (EEAA) within the Pine Island District. Since 2002, ENP has received funds sufficient to complete the systematic initial treatment of approximately 69% (73,959 acres) of the roughly 107,652 acres in the EEAA. This is a significant milestone. Volunteer projects are also carried out on a regular basis. Park-wide volunteers coordinated by district rangers, interpreters and the park botanist play a crucial role in assisting with exotics control. The most notable efforts are in Flamingo, Everglades City, and Paradise Key.

However, there are many other areas of the park that remain affected by exotics. For example, Brazilian Pepper heavily impacts many of our hammocks, bayheads and hardwood forests in Shark River Slough. The unique and rare Coastal Hardwood Hammocks and Coastal Islands from Everglades City to eastern Florida Bay are impacted by a host of exotics, the worst of which is LatherLeaf. In the western portion of the park, between the mangroves and the sawgrass prairies, Brazilian Pepper occupies many thousands of acres. Brazilian Pepper on the northern boundary of the park, along Highway 41 also obscures the view of the extensive sawgrass prairies and pond apple stands in the park to the south. Lygodium has expanded from the remote western portions of the park and is now also found in a few discrete areas of North Shark River Slough.

### ***Hole in the Donut Wetland Restoration***

In this cooperative effort, Everglades National Park works with Miami-Dade County to restore an area of non-native plants completely surrounded by natural habitat. Known as the Hole-in-the-Donut, this area, originally a wetland, was farmed from 1918 until 1975. When farming ceased, the area became dominated by the non-native tree commonly known as Brazilian pepper (*Schinus terebinthifolius*). County wetland mitigation bank funds are now used to restore the area to a marl prairie wetland vegetative community with its associated wildlife.

The objectives of the Hole-in-the-Donut Wetland Restoration and Mitigation Project are: 1) restoration of wetland habitat; 2) removal and control of exotic plants, especially Brazilian pepper; 3) establishment of a wetland community that resembles the natural community in vegetation structure (horizontal/vertical, density of plants, functional types

of plants), if not in actual number of plant species; and 4) restoration of a wetland community that resembles natural Everglades wetlands in species composition and dynamics.

### *SIGNIFICANT ACCOMPLISHMENTS TO DATE*

#### Land Clearing

1989	52.1 acres restored
1996 - 1997	188.5 acres restored
1997 - 1998	191.6 acres restored
1998 - 1999	133.8 acres restored
1999 - 2000	240.6 acres restored
2000 - 2001	332.6 acres restored
2001 - 2002	No work done – SOW revised and new contract awarded for 2002/2003
2002 - 2003	905.5 acres restored
2003 – 2004	839.9 acres restored
2,884.6 acres restored through June 2004	

#### *Environmental Monitoring*

The majority of plant species (61% to 73%) and plant cover on restoration sites were wetland plants (either Obligate or Facultative Wetland plant species). This meets the regulatory requirement for cover by wetland plants. By comparison, 66% of species in adjacent natural vegetation and 27% of the species in unmitigated Brazilian pepper were wetland associated species.

The site restored in 1989 was most similar to natural vegetation; however, it still showed differences in the rankings of dominant species. It will take about 15 years to establish a wetland community that resembles natural vegetation in actual species dominance. Natural processes involved in shaping plant communities such as fire, freezes, tropical weather systems, extreme high water, and extreme drought will also be required.

Plant species occurrences were surveyed at 0.35 m, 0.70 m, 0.80 m, and >1.05 m. Higher elevations tended to have more species. At 0.70 m and 0.80 m in elevation, the higher number of species resulted from the addition of non-wetland associated species, not the loss or replacement of wetland associated species. At >1.05 m, wetland species were replaced by non-wetland species. At this elevation, the major community type shifts from graminoid wetland (lower species diversity) to mesic pineland-hammock (higher species diversity).

Between 61 % and 73 % of the plant species and total vegetation cover on the restored sites were wetland-associated species (either "Obligate" or "Facultative Wetland"). By comparison, 66 % of the species in adjacent natural vegetation and 27 % of the species in unmitigated Brazilian pepper were wetland-associated species. Analysis suggests that it may take up to 14 years to establish a wetland plant community on restored sites that resembles undisturbed natural vegetation in actual species dominance.

The restoration techniques employed were successful adjacent to the pinelands, and indicates that restoration of pinelands is possible. More than 3,000 pine seedlings

greater than 10 cm in height have naturally germinated on the site since January 1998 and 26 of these seedlings were greater than 50 cm in height.

During the first six years of restoration, 211 species of vertebrates have been observed. There were 24 species of fishes, 15 species of amphibians, 29 species of reptiles, 131 species of birds, and 12 species of mammals. Unmitigated Brazilian pepper had the lowest cumulative total (48 species) and the restored sites had the highest totals (range of 93 to 154). Natural vegetation had 110 species. Higher species richness of restored sites was primarily due to a higher number of birds.

The restored sites have a higher abundance of fishes and selected aquatic macro-invertebrates (crayfish, grass shrimp) than undisturbed natural vegetation. This higher prey base on the restored sites supported higher numbers of wading birds and grassland associated species including wood storks, a Federally listed endangered species. The restored sites were also regularly used by up to 35 white-tailed deer, which attracted Florida panther (photographic record), a federally endangered species, during the dry season. Raccoon, marsh rice rat, marsh rabbit, and bobcat were also frequently noted.

Six years of data indicates that some areas within the Hole-in-the-Donut that were historically associated with small sloughs, cypress stands, willow heads, mesic pinelands and associated upland hardwood hammocks and thickets are re-emerging on restored sites. Such a diversity and mosaic of plant communities should be recognized as not only natural, but also as a desirable measure of the success of large wetland restoration projects.

### ***Cape Sable Canals***

Several canals were constructed in the Cape Sable area between 1900 and the 1930's, prior to the establishment of the park. The purpose of these canals was to drain water and make the area useful for agriculture and commerce. Saltwater intrusion through these canals and sea-level rise have hastened the conversion of freshwater marshes north of Lake Ingraham to shallow marine habitat and mangrove forest. Tidal flushing has eroded the canals and deposited the sediments in Lake Ingraham. The smaller interior Homestead and East Cape Extension Canals were plugged with earthen dams to minimize these impacts and restrict access to the non-motorized wilderness area. However, these dams failed during the 1980's or early 1990s and were replaced by sheet-piling dams in 1997. The sheet-pile plugs have now also failed.

The dams appear to have influenced general ecological conditions, including critical wildlife populations in the area. In addition, there are visitor safety issues and access to designated wilderness continues to be a problem.

The canals drain fresh water from the interior wetlands and also permit salt water from the Gulf of Mexico to penetrate inland. This salt water intrusion is accelerating the change from freshwater wetlands to a more saltwater estuary ecosystem. By allowing salt water intrusion, the fresh water wetlands which consist of sawgrass and other wetland species have been transformed to mangrove forest. Tidal flushing of fresh water from the interior wetlands is also transporting organic material (i.e., peat and nutrients) causing a loss of organic soil which has resulted in soil subsidence. As a result of this flushing through both East Cape and Middle Cape Canals, Lake Ingraham is filling in

with marl sediment at a significantly accelerated rate. If this process goes unchecked, Lake Ingraham will soon become a tidal mud flat.

Dr. Harold R. Wanless and his PhD. student Brigitte Vlaswinkel, University of Miami, have been funded by NPS to study the coastal landscape, wetland, and tidal channel evolution affecting critical habitats of Cape Sable. In his interim report of February 2004, Dr. Wanless documented the rapid filling of Lake Ingram and widening of the canals and natural channels in the area. His final report is due in April 2005.

The park continues to consider the range of issues posed by these canals for the integrity of park resources, endangered species, public safety, and wilderness access. A team of National Park Service geologists and hydrologists has been formed to review and analyze existing information, define and evaluate alternatives, and make recommendations.

### ***Inventory and Monitoring of Physical Resources***

The mission of this program is to maximize the quality of data from the network and minimize the amount of missing data records.

The program is mainly focused on operating and maintaining the hydrologic monitoring network throughout ENP. The network consists of 65 stations throughout the marsh and uplands of ENP as well as 35 stations in the marine and estuarine areas. Telemetry is included in almost all stations providing real-time data acquisition necessary for a variety of resource management activities and is transmitted daily to the U.S. Army Corps of Engineers and the South Florida Water Management District for day-to-day operations of the local water control system. Naturally, every data collection network generates a need for a data management program. Data from the monitoring stations generate over 15,000 records per day that are automatically collected and loaded into the data management system for review by program staff.

In addition, to the hydrologic monitoring network, the program is involved in several cooperative monitoring efforts. The following is a list of cooperative monitoring projects conducted during FY 2004:

Air Quality Monitoring; in cooperation with NPS Air Resources Division.

National Atmospheric Deposition Network; in cooperation with the US Environmental Protection Agency (EPA).

Ultra-Violet Radiation Monitoring; in cooperation with Colorado State University and the USDA

Ultra-Violet Radiation and Stratospheric Ozone; in cooperation with the EPA and the University of Georgia

Surface water quality; in cooperation with the South Florida Water Management District

Groundwater quality; in cooperation with the South Florida Water Management District.

Accomplishments for the Physical I&M program tend to revolve around the programmatic activities relating to maintenance of the monitoring and telemetry network and managing the high volume of data generated. Below is a listing of the major accomplishments for the year.

1. Reviewing and validating water level, rainfall, salinity, and water temperature data from all stations in the monitoring network.

Data produced by the monitoring program:

are used on a daily basis by water management officials and resource managers, and researchers.  
provide hydrologic information presented and analyzed in Resource Assessment Reports such as the Interim Operational Plan (IOP) report produced as part of the Modified Water Deliveries program.  
Provides the foundation of measuring the status and trends of the hydrologic resources of ENP  
Provides the hydrologic information necessary to gage the success of various restoration project including the Modified Water Deliveries Program, CSOP, and the CERP.  
are used for the fire management activities.

2. Collected monthly surface water quality samples throughout the main drainages of ENP monthly. The surface water quality program provides information relating to the affects of upstream water management activities on the water quality entering ENP.
3. Collecting quarterly groundwater quality samples in the C111 basin. This program monitors the impacts of the C111 detention areas on ENP.
4. Hosted an interagency field technician training course on satellite data collection and telemetry systems. Participants included staff from NOAA, University of South Florida and Florida Sea Keys Laboratory.
5. In cooperation with NOAA we have joined the Coastal Observation and Monitoring Network by installing satellite telemetry equipment at selected marine sites.

The future of the monitoring program is probably most influenced by the needs of the Comprehensive Everglades Restoration Plan, which is leading to significant increases in data requests as well as requests to add more monitoring stations to the park. We expect a modest expansion in hydrologic monitoring to continue throughout the next few years.

## FINANCIAL SUMMARY

Total ONPS allocations were divided among the divisions as follows:

Park Management	2,013,300
Administration	1,332,900
Interpretation	1,209,500
Visitor Protection	2,632,700
Maintenance	3,784,200
Research	<u>2,663,600</u>
 Initial Allotment	 <b>13,636,200</b>

### FTE Actual

Fund	01	01A	Fire	04	05	06	25	26	34
Park Management	17.20	1.08			1.92				
Administration	17.24			1.21					1.04
Interpretation	20.81						.80	3.30	
SF Task Force					11.46				
Visitor Protection	30.31		22.57				14.43		
Maintenance	44.91					1.81	3.26		
Research	26.20			28.61		6.59			
 TOTALS	 156.67	 1.08	 22.57	 41.28	 1.92	 8.40	 18.49	 3.30	 1.04

**TOTAL FTE Usage:** 254.75

### Other Special-directed Funding included:

CESI	3,934,000
CERP	4,713,000
Task Force	1,308,000
Mod Water	752,150
VIP	9,800
Equipment Replacement	40,300
Air Quality	21,700
Cyclic	670,800

Donations	60,023
Museum Cataloging	50,000
Safety Training	15,000
Storm Prep	37,400
Replace Computers	70,100
Marine Stewards	12,000
YCC	15,000
SCI Exotic Plants	309,200
NR Damage	3,318
Construction Radios	287,474
<b>Total add-ons</b>	<b>12,309,265</b>
<b>Reprogramming Authority for Everglades Ecosystem</b>	<b>10,626,000</b>
<b>TOTAL EVER FUNDING</b>	<b>36,571,465</b>

Fees collected in fiscal year 2004 were:

IBP's	58,150
NPS Passports Prog	90,205
Golden Eagles	6,915
Park Specific	77,375
Entrance Fees	994,930
Golden Age	47,120
Boat Use Fees	64,359
Back country Fees	42,988
Concession Fees	267,382
Special Interp Prog	23,020
Campground	10,309
Commercial Tours	8,918
<b>TOTAL FEES COLLECTED</b>	<b>1,691,671</b>
<b>Contractor Camp Ground Sales</b>	<b>181,458.79</b>