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Reorganization of the South Florida Research Center

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Editor's Note: The following article was submitted prior to announcement of the proposed Biological Survey at the Department of the Interior. It is presented as an example of the kinds of research and management problems that have increasingly plagued resource management throughout the nation and that the proposed National Biological Survey is positioning itself to deal with.

Congress has not legislated clear direction for a scientific foundation for national park management (NAS 1992); hence the role of science in the NPS has never been clearly defined (Sellars 1991). Consequently, the Service has not developed the organi-

zational, financial, and personnel requirements for a science program to match resource needs (Jarvis 1991). Perhaps the best example of recognition and substantial support of a park's science needs is the 1978 establishment, amid regional and park opposition, of the South Florida Research Center.

Everglades NP represents only the downstream fragment of the functional system it was intended to preserve. Since designation of Everglades NP, major flood control, water supply, and agricultural projects have continued to displace natural processes in the upper watershed; as a result, hydrological and biological systems in the park continue their decline.

Realistically, Everglades NP now is directly tied to a totally managed system. Much of the remaining Everglades ecosystem is managed by the South Florida Water Management District and the U.S. Army Corps of

Engineers for flood control, water supply, support of agriculture, and protection of the Everglades. This circumstance leaves since 1.3 million acres of designated Wilderness dependent upon how these four objectives balance out before water is delivered through structures.

A Future in Doubt

Given this reality, the future of the Everglades is seriously in doubt. Perhaps the best one can hope for is a comprehensive management regime, which if skillfully crafted, will provide the vast expanses of Everglades NP with a water regime that mimics the original Everglades. However, even this—active restoration of the quantity, quality, timing, and distribution of water—requires a substantial and detailed system level understanding. And whether the park will now be managed for this kind of restoration, or only for visitor

Continued on page 4

The mangrove wilderness of Everglades National Park is a large labyrinth with irregular shaped islands.



use during further biological decline, will be decided as much (or more) *outside* its boundary as within ... in technically-grounded political arenas.

Thus the NPS's hope for success in the Everglades depends on sound, proactive, technically-based programs, about which park managers can focus and rally the broad national and international public support that exists for the Everglades. With adequate technical power from its scientists closely linked with clear objectives and effective political skill from its managers, the portion of the Everglades that is the national park can be restored and preserved.

Need for Reorganization

The South Florida Research Center (SFRC), as Everglades NP's main source of technical support needs to be organized to support management efficiently as it grapples with these realities, and it must be supported at the funding level necessary to match the tasks at hand.

Currently the Center's base budget has remained essentially fixed since its inception, plus it has taken on nearly all the park's resource management responsibilities. To compensate, the Center has been forced to focus solely on Everglades NP (leaving Biscayne NP and Big Cypress National Preserve to develop their own programs). The Center's research effort has been weakened. The Center also has been forced to compete for "soft money," now bringing in over \$2 million per year from other agencies for park-related research. However, dependency on such erratic funding does not allow a strong stable program. Thus we have looked for ways to become more efficient with our base funds.

Over the last two years, while immersed in such management realities as the Everglades Water Quality Lawsuit (among others), the SFRC staff engaged in many discussions on how to organize to respond better to park issues, accomplish a solid long-term research mission, and provide information in a more effective, timely way.

Subject-Oriented Approach Invalid

We concluded that the subject-oriented organizational approach in place since the Center's inception no longer provided appropriate working relationships or communication links. For example, the Hydrology, Wildlife, Vegetation, Marine Science, and Data Management programs did not work together because each was largely independent, somewhat redundant in staffing, and competitive. While each program was self sufficient (e.g. each carried out its own monitoring effort), none had any depth.

In preparing our presentation for the recent Targeted Parks Initiative for FY 92, it became clear to us that in order to tip the balance of the park's future toward restoration, the SFRC must succeed in four basic functions, which should be carried out by four **programs**:

- 1) inventory and monitoring (**I&M**);
- 2) Data storage, organization and access in a relational framework (**DATA MANAGEMENT**);
- 3) hypothesis testing, and the assembly of models (**RESEARCH**);
- 4) applications of science (**RESOURCE MANAGEMENT**) within the park and outside in the public decision-making arenas and processes.

Hence we decided to organize for these functions.

The **INVENTORY AND MONITORING PROGRAM** will provide data that drive hypothesis testing, model development, model verification, and trend assessment. With all monitoring under the I&M Program Manager, the present overlap in monitoring effort can be eliminated, with greater quality control as well. All components of the system will now be tracked and trends will be interpreted more frequently by the Program Manager.

Before, these activities were carried out in each topic-based program. The I&M Program now will undergo close evaluation as to priority, sampling protocols, and usefulness of the data by internal review. In each year's budget exercise, the monitoring program's effectiveness will be gauged by researchers for usefulness in model-building and testing, as well as by resource managers for identifying issues and tracking their resolution. Frequent analysis of monitoring data will inform managers of the results achieved by their decisions (either toward restoration or further resource impacts) in a much more timely fashion.

The **DATA MANAGEMENT PROGRAM** will receive all monitoring and inventory data and provide the relational framework (ORACLE-based), including spatial array (GIS), so the data can be used by scientists, resource managers, other agency managers and scientists. We have large volumes of data that never have been accessible and are, for all practical purposes, useless. Bringing these into the ORACLE relational framework will provide a return on this investment that will illustrate that data on the past Everglades—when accessible—are priceless. The beginnings of this process are well underway, and the work of our

present Computer Division is our most exemplary internal communications effort to date.

The **RESEARCH PROGRAM** can field about 7 research scientists under the present level of funding. Presently we are very weak in modeling impacts of new threats as well as the effects of our own restoration proposals. Assembly of models from the relationships evident from monitoring and hypothesis-testing must be a cautious process. It is, however, the inevitable methodology for impact or restoration analysis in such a massive, complicated system.

Although two additional positions plus technicians, were requested under Targeted Parks funding, much of the future effort should be accomplished cooperatively with other agencies and universities, and through contracts. When sufficient funds become available, a large portion should be applied to balancing the in-house effort with work under cooperative agreements. This will allow maximum flexibility and reduce the isolation of our research scientists and staff. Each research scientist will provide up to 50 percent of his/her time directly to issues; such issues involvement will be tracked by the Program Manager of **RESOURCE MANAGEMENT** through Task Directives and timelines. The Research Director chooses task team members, monitors progress, products, and performance.

The **RESOURCE MANAGEMENT PROGRAM** will translate information into action. This Program will implement and direct resource management activities (exotics control, regional water supply planning, regional water quality issues, restoration implications for regional interests, recreational fisheries impacts and regulation, Endangered Species, Section 404 (USACOE) permit review, resource management planning, etc.) and coordinate Program activities with other SFRC Programs and park divisions.

Increased emphasis on plans and public awareness (with closer work with the Interpretation Division), and close direct linkage with the Research Program are priorities for the new Program. This Program will work directly with the Ranger Division, which will contribute on-the-ground implementation of resource management projects that are compatible with their needs to respond to many unscheduled events.

The need for coordination and logistical support for university researchers will continue and should grow. Likewise the need for editorial and archival support for publications, reports, and reprints will increase as our RGE positions and outside research ef-

forts expand. These functions are adequately covered in the current structure for the foreseeable future.

Research Director's Duties

The Research Director position will remain substantially encumbered as Technical Coordinator for the federal agencies while the Everglades Water Quality issues move from the federal courts to the State Administrative Hearing Process, or mediation. Additional duties also will fall to the Research Director's position as the NPS designee to the Technical Oversight Committee (TOC) established as part of the recent Settlement Agreement with the State of Florida. This Committee of technical representatives from five agencies will design all water quality monitoring and research programs in Loxahatchee National Wildlife Refuge, Everglades NP, and Water Conservation Areas 2 and 3, as required by the Settlement Agreement.

Extensive research programs to define numerically the state's Class III water quality standard, which protects the Everglades from nutrient induced imbalances in fauna and flora, also are required. The TOC will have responsibility to evaluate resource trends and certify compliance with water quality standards, at least until the year 2002—all of this in a public workshop format. Moreover, the TOC also has the unique opportunity to

coordinate the federal and state research programs for all of South Florida, for the first time; a joint, cooperative approach would vastly improve the long-term chances of the Everglades.

Assistant Research Director Position Needed

The existing workload, added to the additional time required to address these other long-term issues, has developed into a need for an Assistant Research Director position. This position, redescribed from the former Wildlife Program manager position, directs all operations and support functions and assists the Research Director in setting policies and priorities for the SFRC.

Each new Program now depends to a significant degree on the successful performance of the others. Researchers support the I&M effort because their models depend on the right data collected correctly; the I&M personnel have a stake in working with the researchers to publish trend analyses and other characteristics of the system stemming from their data.

Everyone is dependent on the data management group to make the database accessible and useful. All the other groups rely on the Resource Management scientists to deal with issues at agency forums, etc., and the resource management group uses output from all three other groups, identifies research needs through the resource management

plan update process, and provides feedback on how the combined efforts are doing in successfully addressing the main objective: supporting the Everglades ecosystem with timely and accurate information.

The new structure reflects the functional inter-relationships plus administrative support capability. The missing ingredient is simply enough base funding to fill our permanent positions.

There is strong internal support and enthusiasm for this change, and this year the process of inter-program presentations and budget critique worked well. As with any organizational structure, it will succeed or fail on the performance and cooperation of those involved. We hope this approach will contribute to the Center's effectiveness in determining the future of the Everglades.

Soukup, Director of the South Florida Research Center, is on detail for one year to the CPSU at Florida International University in Miami; Doren is Assistant Research Director of the SFRC.

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