

A GIS Note From the Everglades

By Michael Rose, David Buker, and Frank Draughn

Editor's Note: On June 6, 1991, the A/D Natural Resources for the NPS sent a memo to all RDs on the role and function of the GIS Division. In part he said: "I acknowledge that implementation of the Servicewide GIS program objectives will take time and will require a significant commitment ... (but) I can point to early successes that reinforce our approach ... I am convinced that the Servicewide strategy developed by the GIS Division is a positive step, which strengthens the Division's partnership with the Regional Offices."

Everglades NP is a subtropical bank of biological diversity. Its 1.4 million acres of south Florida wilderness provides a sanctuary for flora and fauna from both the tropic and temperate zones. Geographic Information System technologies are being utilized by the park to integrate research databases into the natural resource management decision-making process for this national treasure.

Baseline databases are being developed for use by a variety of research and resource management projects. The park also has acquired high resolution photography and digital scanner data for the entire park area. These will be used to develop a vegetation map for the park. A project to develop freshwater hydrological themes on a regular basis also is underway. A variety of wildlife distribution databases, including wading birds, alligator nests, deer, Florida panthers, and manatees are on the system, and many other databases are presently on the system or soon will be added. Many of these themes form the basic information needed to evaluate long-term changes in the park's plant and animal communities. Additional work directly addressing global climate change can be integrated with this existing information to predict and monitor effects on the park.

A number of studies of major importance to the park

are using the GIS. One of these is evaluation of proposed changes to water management structures and management. Results of these analyses were documented in "An Assessment of Hydrological Improvements and Wildlife Benefits from Proposed Alternatives for the U.S. Army Corps of Engineers' General Design Memorandum for Modified Water Deliveries to Everglades NP" (June 1990).

The hardware includes a UNIX-based dual-processor Masscomp 6700 supermicrocomputer, a UNIX-based SUN SparcStation 2, a Polaroid ACT II color plotter, Tektronix 4596 Graphic printer, a Versatec electrostatic color plotter (36" format), Calcomp 9100 digitizer (36" by 48"), and a Calcomp 2300 digitizer (24" by 36"). The Masscomp system has two high resolution graphics display terminals, 1.2 gigabytes (GB) of fixed disk storage, a 1 GB read/write optical disk (with removable optical disks), a 45 megabyte (MB) cartridge tape drive, and a 9-track tape drive. The SUN system has one graphics display terminal, 2 GB of fixed disk storage, a 150 MB cartridge tape drive, and a 2.3 GB 8 millimeter tape drive. These two computers are on an Ethernet local area network, so data can easily be exchanged between the two systems.

GIS software consists of GRASS (Geographical Resource Analysis Support System) on both the Masscomp and SUN systems, ELAS (Earth Resources Laboratory Applications Software) on the Masscomp, and Arc/Info on the SUN, MAPGEN from USDA SCS on the Masscomp and SUN, and Home Range wildlife survey software on a PC. ORACLE database management system software also is presently available on the Masscomp, and soon will be added to the SUN, for both GIS and non-GIS related databases.

Rose is a Remote Sensing Specialist, Buker is Program Manager for Computer Operations, and Draughn is a GIS Specialist at Everglades NP.