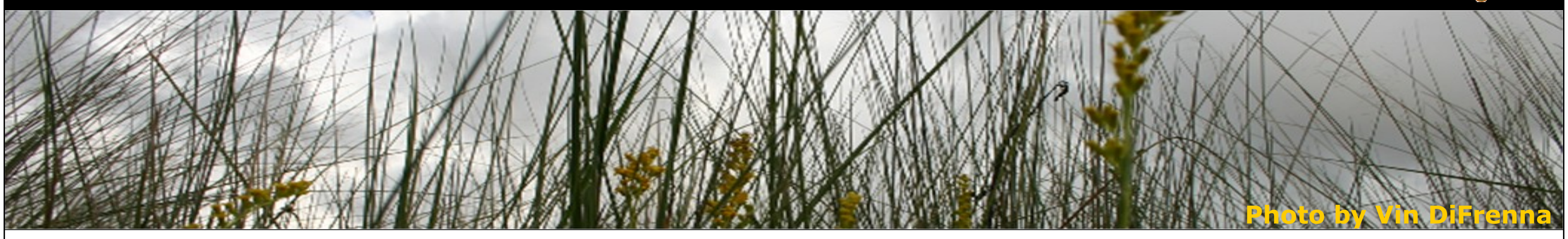
Critical Ecosystem Studies Initiative (CESI)

National Park Service
U.S. Department of the Interior

Everglades National Park
South Florida Natural Resources Center



Savannah Howington, Ph.D., CESI Project Management Specialist

Who We Are

Since its inception in 1997, the Critical Ecosystem Studies Initiative (CESI) has been the primary investment by the U.S. Department of Interior (DOI) to provide scientific information for use in ecosystem restoration decision making and to guide its own land management responsibilities for South Florida ecosystem restoration. The program's mission is stated: "CESI supports studies conducted to provide physical and biological information, simulation modeling, and planning that are critical for achieving South Florida ecosystem restoration." The CESI Manager is the Superintendent of Everglades (EVER) and Dry Tortugas National Park (DRTO). The South Florida Natural Resources Center within EVER, which includes a Science Coordinator and a CESI Project Management Specialist, provides assistance in the solicitation of proposals, tracking of project information, and archival of products resulting from the studies.

What We Do

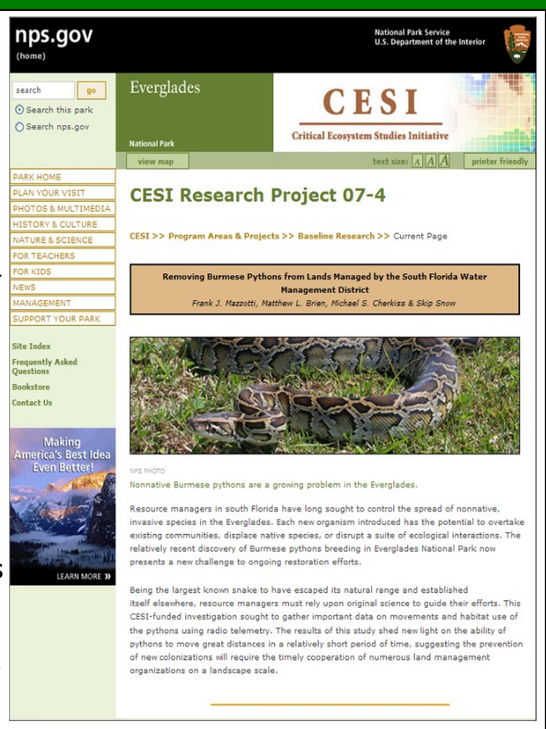
Awards are selected through a request for proposal process using a Broad Agency Announcement (BAA). The BAA is administered following the Federal Acquisitions Regulation (FAR), Part 35—Research and Development Contracting. CESI funds are requested annually as part of the request for support of Everglades Restoration in the Department of Interior (DOI) Appropriations Bill. A BAA is posted on the http://www.Grants.gov. Three Florida universities have an Everglades Fellowship Program supported with CESI funding. Students work on projects directly related to the priority science needs of Everglades restoration. CESI has contributed to the Florida Coastal Long Term Ecological Research Network(LTER), interagency RECOVER Monitoring and Assessment Plan for South Florida, and the NPS South Florida and Caribbean Regional Inventory and Monitoring. The majority of the projects are administered through the Cooperative Ecosystem Studies Unit program.

CESI Program Areas

Basic Research

Baseline Research projects are intended to fill the gaps in the data or analysis required to produce the science information needed by land managers. These projects are particularly related to hypothesis testing, process studies, and the linkages between hydrologic alterations and ecosystem responses.

CESI Basic Research projects include studies designed to characterize the pre-drainage ecosystem and the defining ecological and hydrological characteristics that have been lost from the current ecosystem. Also included are data collection efforts to parameterize models. Monitoring methods are tested through research projects as well as data collection need to determine the potential targets needed for the development of appropriate performance measures to characterize the ecological response to hydrological change.



Summary descriptions of Basic Research projects and downloads of final reports are available on-line:
http://www.nps.gov/ever/naturescience/cesibaseline.htm

Long-term Monitoring

Long-Term Monitoring is critical to determining ecosystem responses to our restoration actions. CESI contributes to the physical and ecological monitoring needs of DOI at different landscape scales in the Greater Everglades. These projects contribute to measures of the progress of reaching restoration and resource management targets. Monitoring data is collected to provide calibration and validation data for simulation models and to provide status and trend reports of key indicators of the health of the Everglades system.

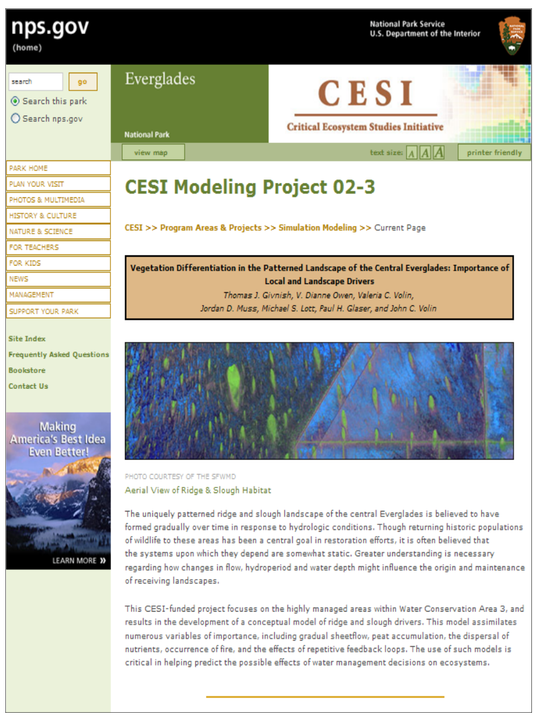
Monitoring projects include support for hydrologic monitoring stations, status reports on water quality and contamination, wildlife and vegetation inventories using reconnaissance flights, ground surveys and remote sensing, and monitoring of threatened and endangered species. Short-term monitoring projects, less than three years, have also been conducted to test indicator species of hydrological change.

Summary descriptions of Monitoring projects and downloads of final reports are available on-line:
http://www.nps.gov/ever/naturescience/cesimonitoring.htm

Simulation Modeling

Simulation Modeling projects support the development and refinement of physical and ecological predictive models, including GIS-based models, that simulate the response of the environment to proposed modifications to the Central and South Florida Project, the network of water control structures managed by the South Florida Water Management District (SFWMD).

Projects include the development of new models and refinement of models designed by other agencies involved in Everglades restoration activities. Studies focus on improving the confidence level of decisions that rely on science-based analysis. Moreover, CESI has cost-shared extensively with the USGS and USFWS to expand the scope of models beyond NPS application to include the landscape continuity of the Greater Everglades. Efforts include the Joint Ecological Modeling program (JEM) led by DOI and hydrologic modeling projects led by the SFMWD.

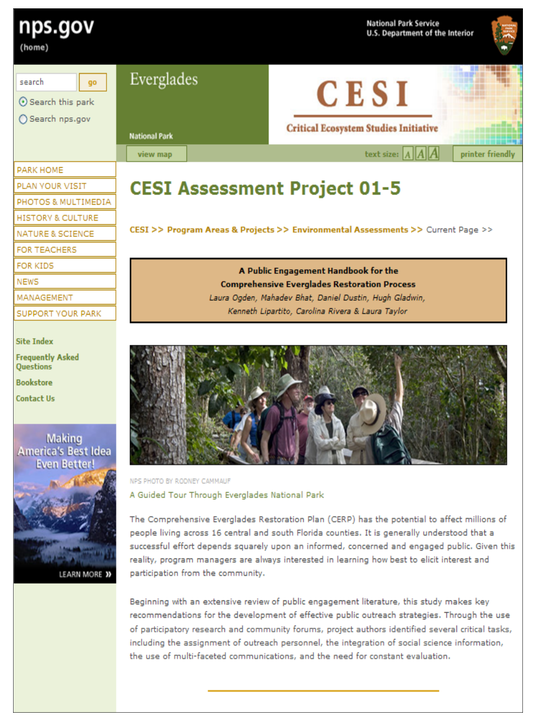


Summary descriptions of Simulation Modeling projects and downloads of final reports are available on-line:
http://www.nps.gov/ever/naturescience/cesimodeling.htm

Impact Assessments

Impact Assessments projects funded by CESI support evaluations of restoration projects before, during and after implementation. The focus of new CESI Impact Assessments projects shift with the science needs of large-scale restoration efforts such as Modified Waters Delivery, the Comprehensive Everglades Restoration Plan, and DOI concerns regarding the impacts of climate change on federally managed land. Projects funded through the other CESI program areas provide background data, analysis, and synthesis reports that is used to streamline assessment of Everglades restoration success.

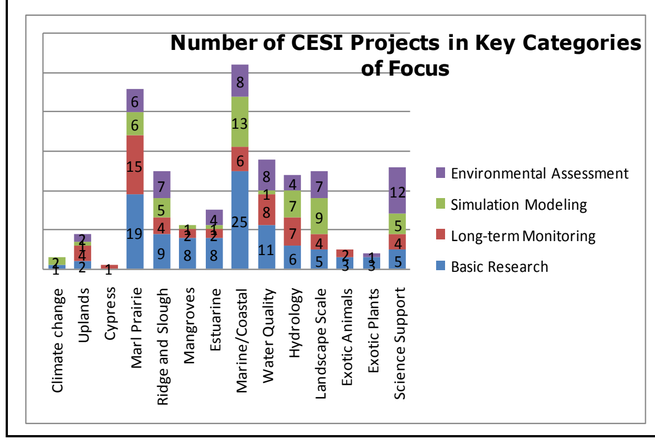
CESI funded impact assessment projects include analysis of specific proposed restoration projects, such as the Interim Operations Plan, C-III Spreader Canal, and bridging options for increasing the breadth of flow between State managed lands north of the Tamiami Trail and Everglades National Park to the south.

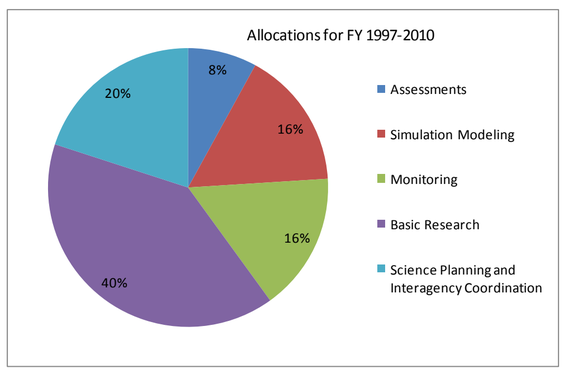


Summary descriptions of Assessments projects and downloads of final reports are available on-line:
http://www.nps.gov/ever/naturescience/cesiassessments.htm

History of Allocations

CESI funds are allocated on after an annual review of DOI science priorities. In 2005, specific science needs were compiled in the DOI Science Plan for Restoration, Protection, and Preservation. The percentage of projects in any one program area reflects the type of information that has been needed to assist federal land managers make decisions regarding the implementation of restoration projects.





NPS plays an critical role in the regional restoration of the Everglades because interagency restoration projects can impact resources put in their care. CESI funds are allocated to ensure the benefits of restoration projects outweight their cost. For this reason, an ecosystem approach is used to determine where the gaps are in restoration science needs.

Past and Present Awardees of CESI Funding

Federal Agencies
National Park Service
US Geological Survey
US Fish and Wildlife Service
Environmental Protection Agency
National Oceanographic Atmospheric Administration

State of Florida
South Florida Water Management District
Florida Fish and Wildlife Commission
Florida Department of Environmental Protection

Local Governments
Miami-Dade County Department of Environmental Resources Management

Tribes
Seminole Tribe of Florida
Miccosukee Tribe of Florida

Universities
Florida International University
Duke University
University of Florida
University of Tennessee
University of Miami
University of Virginia
University of Wash
FL Atlantic University
University of Miami
Columbia University
University of Minnesota
University of Wisconsin
Florida State University
Fairfield University
University of South Carolina
FL Atlantic University
Louisiana State University
Rutgers University
University of California
University of Virginia
University of South Florida
University of West Florida
University of North Carolina
Old Dominion University
University of Maryland

Consulting Firms
Ecostudies Institute
Wetland Management Service
Institute for Regional Conservation
Ever Research Group
Beadman & Association
Cetacean Logic
William Walker
FL Marine Research Institute
Fairchild Tropical Gardens
Cadmus Group
The Institute for Regional Conservation
Center for Biological Conservation
Everglades Foundation
Pomacea Project

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