

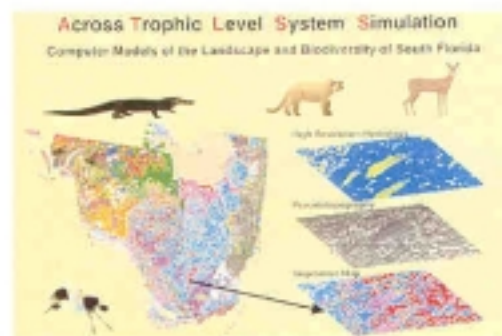
The USGS Florida Caribbean Science Center's Restoration Ecology Branch in South Florida conducts and coordinates research related to sustainable restoration of south Florida's greater Everglades and coastal ecosystems. The Branch addresses critical information needs of resource managers by integrating biological inventorying, monitoring, and empirical research on species and ecosystem processes through development of predictive ecological models. The Branch works in collaboration with resource managers and scientists from a multitude of other agencies and universities. In addition, the Branch is developing a digital library capability to ensure that all of its information, data, metadata, and ecological modeling tools are widely available to resource managers, other scientists and the general public.

Major Research Areas and Initiatives

Across-Trophic-Level-System Simulation (ATLSS) Program

Dr. Donald L. DeAngelis (don_deangelis@usgs.gov)

Scientists at REB's University of Miami site have developed a set of landscape level computer simulation models (ATLSS). These models can provide a detailed understanding of several key species on the Greater Everglades landscape under changing environmental conditions. ATLSS models have played an important role in assessing Everglades restoration plans.



American Alligator Population Ecology

Dr. Kenneth Rice (ken_g_rice@usgs.gov)

The Center's scientists, in cooperation with the National Park Service and other State and Federal resource managers, investigate the effects of hydrological patterns on alligator population dynamics, providing information critical to the restoration of the Everglades Ecosystem.



Aquatic community structure and dynamics in the seasonally variable wetlands of southern Florida

William F. Loftus (bill_loftus@usgs.gov)

Branch staff at Everglades National Park conduct integrated studies of the ecology of South Florida's wetland fauna in partnership with local agencies and universities. Understanding the wetland communities and their responses to the environment is critical to the scientific management and restoration of these imperiled systems.



Experimental cages in the Everglades

Fire Ecology of South Florida Pinelands

Dr. James R. Snyder (jim_snyder@usgs.gov)

Scientists at the Big Cypress National Preserve Field Station are investigating the ecological effects of fire on South Florida pine forests. Their long-term experimental study of fire regimes in Big Cypress examines the effect of repeated fires on pine forests and cypress domes at different seasons and frequencies. A shorter-term study comparing the response of pine rockland vegetation to winter and summer burning is being conducted on Big Pine Key within the National Key Deer Refuge.

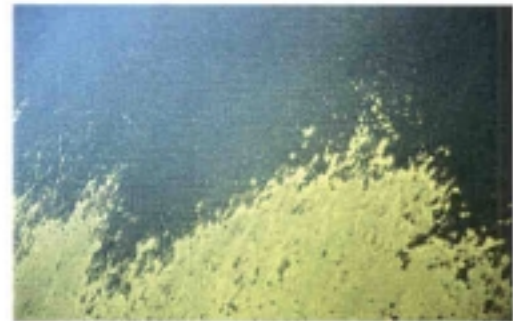


NPS fire crew lighting off prescribed fire

Empirical and Modeling Studies in Support of Florida Bay Ecosystem Restoration

Dr. Michael B. Robblee (mrobblee@fiu.edu)

Understanding the responses of seagrasses and their fauna to changes in habitat and in the quality, quantity, timing and distribution of freshwater inflows is critical to linking upstream water management to salinity and biotic structure and function in Florida Bay and other coastal waters.



Aerial view of seagrass die-off in the dense grass beds of Johnson Key Basin, Western Florida Bay, 1989

Vegetation and Hydrology of Land-Margin Ecosystems: The Mangroves of South Florida in Relation to Disturbance, Global Change and Response to Restoration

Dr. Thomas J. Smith III (tom_j_smith@usgs.gov)

Critical research for the restoration of land margin ecosystems of South Florida involves understanding the responses of mangrove forests to changes in the quality, quantity, timing and distribution of freshwater inflows, response to global change (e.g., sea level rise) and catastrophic disturbances such as hurricanes.



An aerial view of young and old mangrove stands along Broad Creek in Everglades National Park.

Studies Supporting Restoration of Mangrove Habitat in Everglades National Park: Faunal Component

Dr. Carole C. McIvor (mclvorc@fiu.edu)

Critical research for restoration of the faunal support function of the mangrove zone and adjacent waters involves understanding the responses of mangrove-associated fauna to changes in the quality, quantity, timing and distribution of freshwater flows. Initial efforts will focus on fish and macrocrustaceans (shrimp and crabs). A second high priority is to link avifaunal use of mangroves and adjacent inland marshes to patterns of hydrology and secondary productivity of forage organisms.



Green-backed heron forages from mangrove prop roots, Everglades National Park.