

# Everglades National Park

## Big Cypress National Preserve

National Park Service  
U.S. Department of the Interior

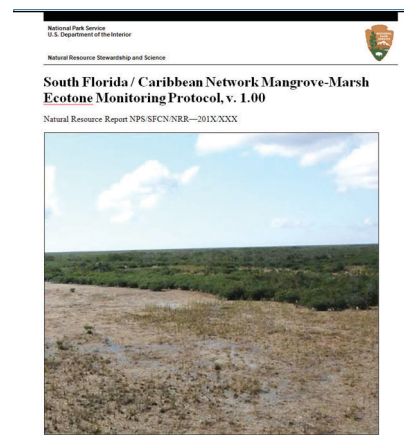
Inventory and Monitoring Program  
South Florida/Caribbean Network



### Ecotonal Boundary Monitoring and Protocol Status 2017

#### Importance: Landscape-wide Change in the Parks

The mangrove-marsh ecotone protocol monitors ecotonal movement of the mangrove-marsh interface in Everglades National Park and Big Cypress National Preserve. Remote sensing approaches are used to delineate the physical location of the mangrove forest to freshwater marsh ecotone. New aerial imagery is used to digitize the mangrove-marsh ecotonal boundary and must be 1 meter (3.2 feet) or better resolution and have positional accuracy of  $\pm 3$  meters (9.8 feet) or better. Field point locations (marker points) are established along the ecotone boundary to provide a field-based measurement and ground-truthing of the digitized line. The monitoring duties for the mangrove-marsh ecotone monitoring protocol is conducted by South Florida/Caribbean Network staff and the information collected is used to support the management of natural resources in Everglades NP and Big Cypress NP.



The Mangrove-Marsh Ecotone Protocol is in the regional peer review process.

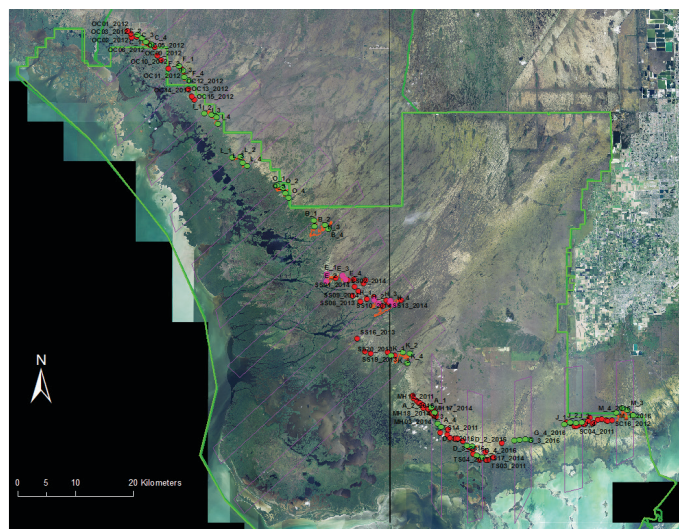
#### Objectives

The specific objectives for the mangrove-marsh ecotone monitoring protocol include:

- Delineate the current mangrove-marsh ecotonal boundary in Everglades National Park and Big Cypress National Preserve at a subset of sites using both remotely sensed imagery and field confirmation.
- Determine the spatial and temporal movement of the mangrove-marsh ecotonal boundary at a subset of sites using both remotely sensed imagery and field confirmation.
- Collect ancillary vegetation data to document what species are contributing to changes in the ecotone.

#### Protocol Status

All sites along the ecotone have been digitized from aerial imagery and pilot field work has begun on this protocol. Field work consists of arriving at each site by helicopter, landing nearby and collecting a GPS point and vegetation data at each field monitoring site. A total of 144 field monitoring sites along the digitized lines have been assigned. Currently, 107 of the 144 sites have been sampled with the remaining sites to be sampled once water levels from Hurricane Irma have dropped enough to permit a helicopter to land. The mangrove-marsh ecotone protocol is currently in the regional peer review process.



Pilot study ground truth points along the mangrove-marsh ecotone. A total of 144 field monitoring sites along the digitized lines have been assigned.



**Right:** Dwarf mangrove communities (foreground) are expected to migrate into the freshwater marsh (background) with future sea level rise.



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[https://science.nature.nps.gov/im/units/sfcn/monitor/terrestrial\\_freshwater/mangrove\\_ecotone.cfm](https://science.nature.nps.gov/im/units/sfcn/monitor/terrestrial_freshwater/mangrove_ecotone.cfm)