

## **Comparing two methods for the detection of boundaries between slough and marl prairie vegetative communities**

The fresh water wetlands of Everglades National Park are composed primarily of two expansive ecosystems: Shark River Slough in the core central areas and the marl prairies on either side. Sloughs are defined by long annual periods of inundation (i.e., “hydroperiods” of 240-365 days) and deep, oligotrophic, peat soils. The short hydroperiod (90-240 days) marl prairies are characterized by a rocky limestone substratum supporting thin calcitic soils and graminoid-dominated vegetative communities. An ecotone is defined as a zone of transition between two habitat types. The slough-marl prairie ecotone is a subtle gradient between two hydrologically and edaphically distinct communities, a relatively uncharacterized region of Everglades National Park, and likely to be extremely sensitive to hydrologic restoration.

In order to characterize the vegetative community interactions and abiotic processes occurring within the slough-marl prairie ecotone, the boundaries between the two ecosystems must be identified spatially. A split moving window boundary analysis and a boundary detection method have been applied to a preexisting 3.58 km long transect running east to west across Everglades National Park. Split moving window boundary analysis is a sensitive method for locating discontinuities separating different, relatively homogeneous groups along a data series. The boundary detection method uses a Monte Carlo simulation to derive an expected distribution of vegetation community boundaries along an environmental gradient and compares the random pattern to the naturally occurring observed pattern. In this way, the discontinuity or discreteness of vegetative communities can be identified. Collectively, these methods can aid in the identification and pattern of the boundary between Shark River Slough and the marl prairie.