

Everglades Project - WCA Historical Tree Island Mapping

Management Issue:

The SFWMD monitors and models changes in Everglades vegetation distribution and structure in order to determine if water management practices are having an effect on plant communities. The resulting data trends, if any, can act as an indication of the condition and dynamics of the ecosystem and the success or failure of the CERP.

Project Overview:

Historical black and white and color infrared aerial photography of varying scales and sources are being analyzed under a multiyear contract with Baymont Inc. of Clearwater, Florida to document losses and gains in WCA 3 tree island location and acreage from the 1940s to 1995. A preliminary 1995 tree island map is being used as the base to which data from other eras are being compared. A number of stereoscopic optical instruments and established change detection techniques together with strict adherence to pre-established mapping conventions are being used to ensure accurate comparisons between air photo data sets. GIS trend analysis routines are used to generate acreage figures representing coverage changes between time periods.

Project Objective:

- compile independent maps of tree island locations and extent in WCA 3 for the 1940s, 1950s, 1960s, 1970s, 1980s, and 1995
- document changes in acreage and locations of tree islands between time periods
- determine cause-and-effect relationships between changes in tree island locations/size and water management practices

Application of Results:

Mapping is complete for WCA-3 and is now being planned for Northeast Shark Slough using the same methodology and decadal times. Final products may help determine historic tree island responses to past water management practices and guide managers in future decision-making efforts with regards to depth and duration of water levels in WCA-3 and surrounding Everglades. Results for WCA-3 show a major loss of tree island habitat (as defined by study guidelines) between 1940 and 1995.