Long Term Plan Goals and Everglades 'Data Universe'

By

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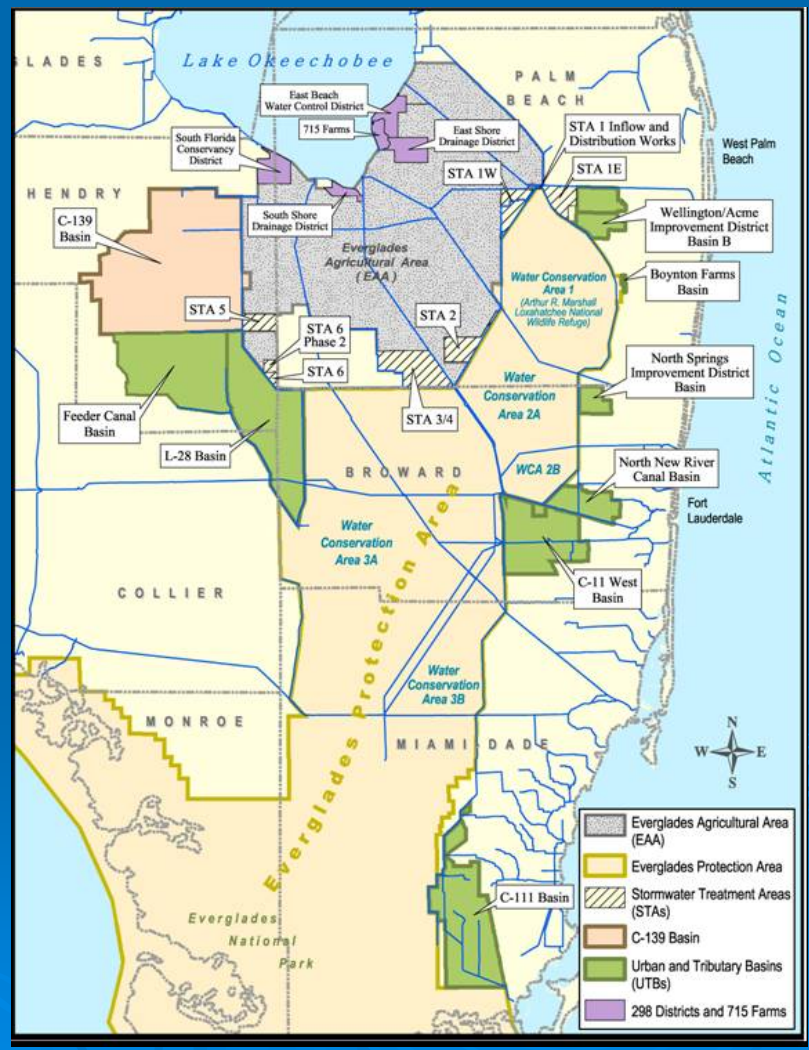
Outline

- **Primary Research Programs to Develop Better Understanding of Everglades**
  - Long Term Plan; Ridge and Slough Program; Tree Island Program; Exotic Species Initiative; etc.
- **Everglades Division Data**
  - Principal Types of Measured Data
- **Use of Models in**
  - Everglades Research
  - Accelerated Recovery

Everglades Long Term Plan

- **Achieve compliance with state water quality standards including the phosphorus criterion in the EPA**

- **Plan Addresses:**
  - **Seven Everglades Construction Project (ECP) Basins**
  - **Six Everglades Stormwater Program (ESP) Basins**

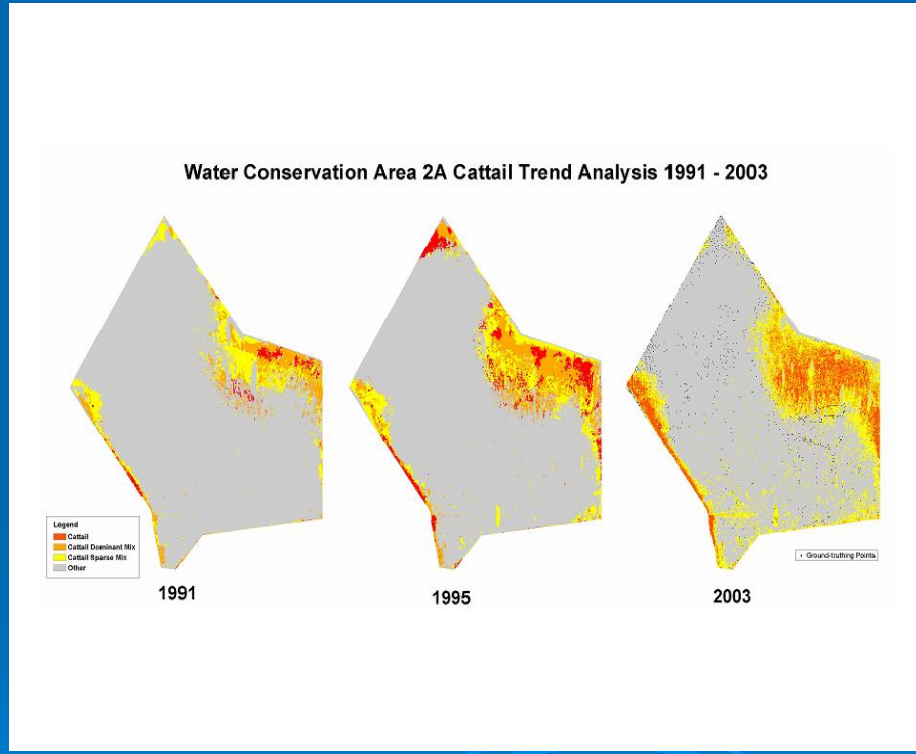


Everglades Long Term Plan

Options for Accelerating Recovery Project

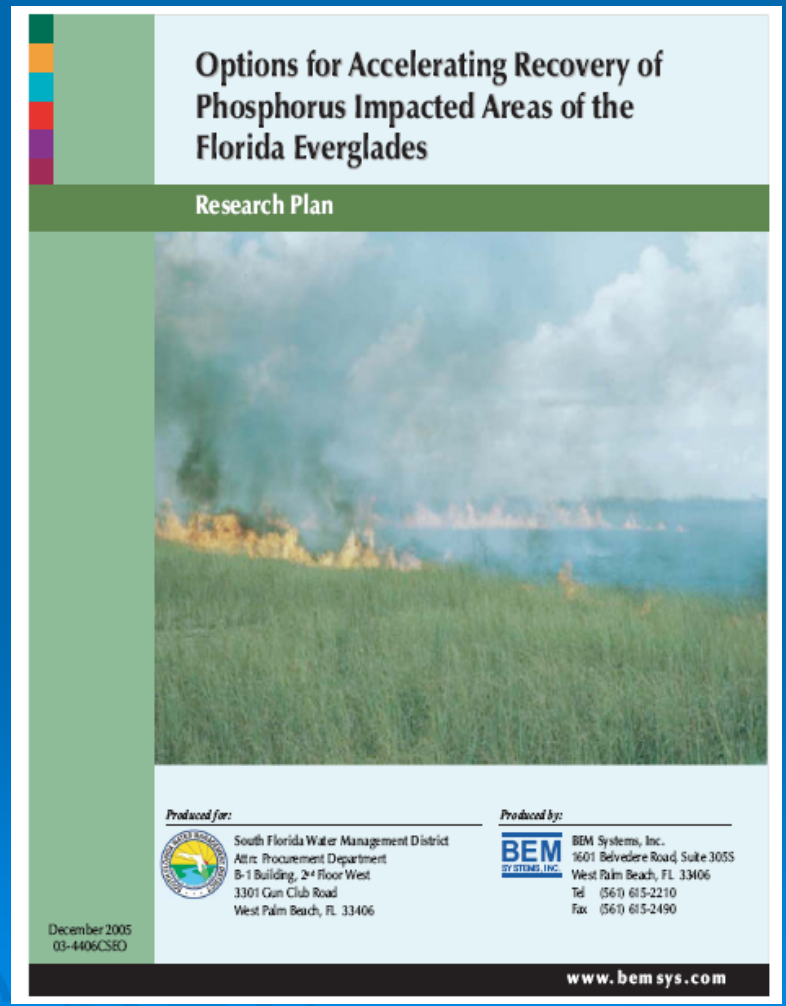
Problems:

- Phosphorus enrichment
- Changes to hydrologic patterns
- BMP and STAs address the source of P
- Monotypic stands of cattail
- Sediment will continue to be a source of P for cattail for decades



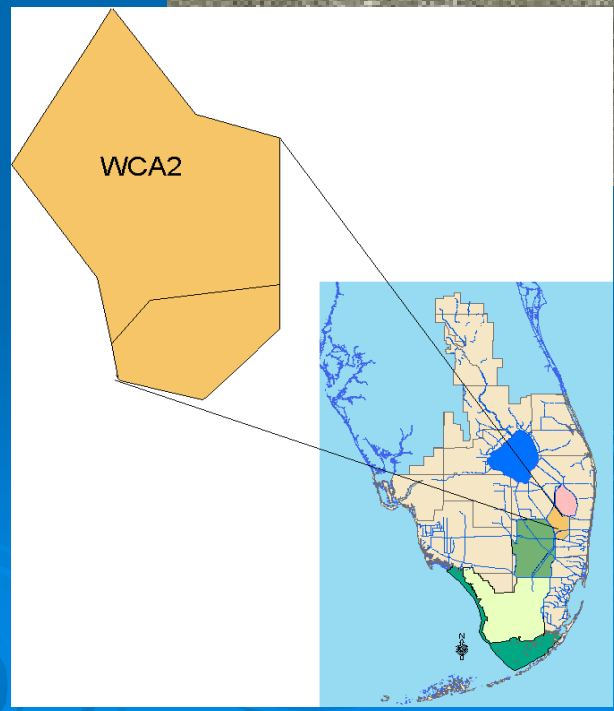
Options for Accelerating Recovery Project

- **SFWMD scientists developed research projects to address the issue:**
  - Fire Project
  - Cattail Habitat Improvement Project (CHIP)
- **Scientific and Public Workshop**
- **Reviewed by an external panel of experts**



Options for Accelerating Recovery

- **FIRE Project:**
  - To assess whether repeated fire can be used as an effective management tool to manage cattail expansion by examining vegetation and biogeochemical cycling

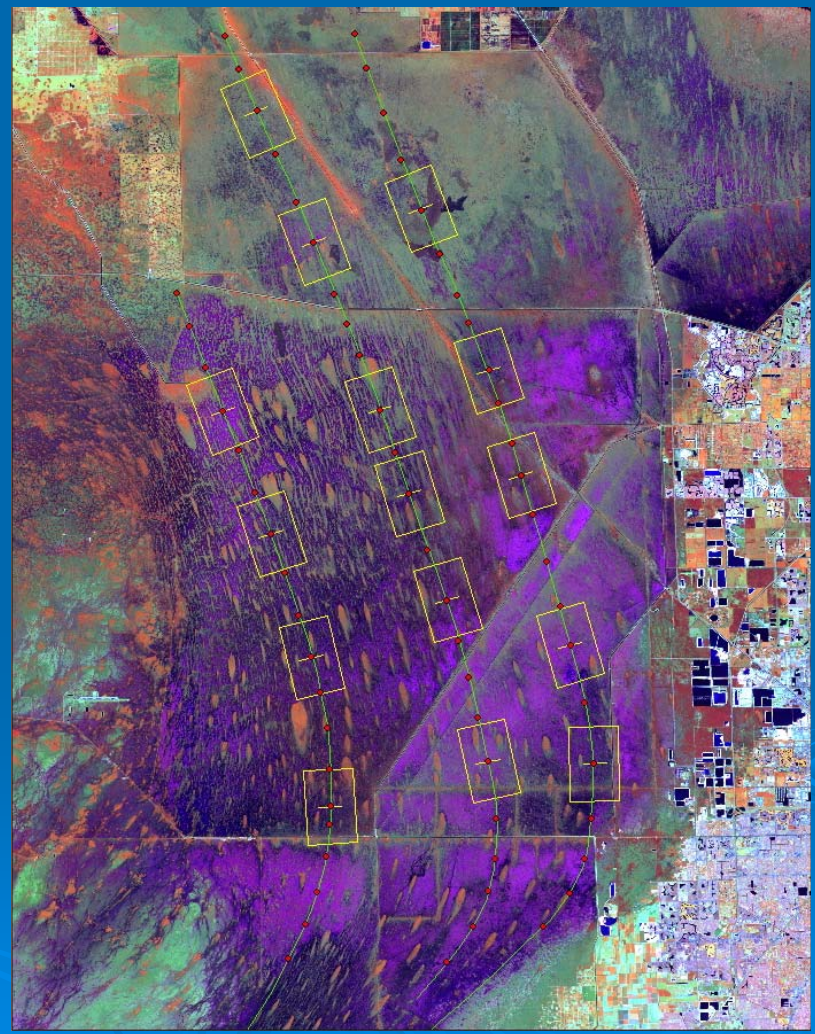


Options for Accelerating Recovery

- **CHIP:** To assess the effect of created openings in cattail stands on ecosystem function by examining food web dynamics using a stoichiometric approach

Ridge and Slough Program

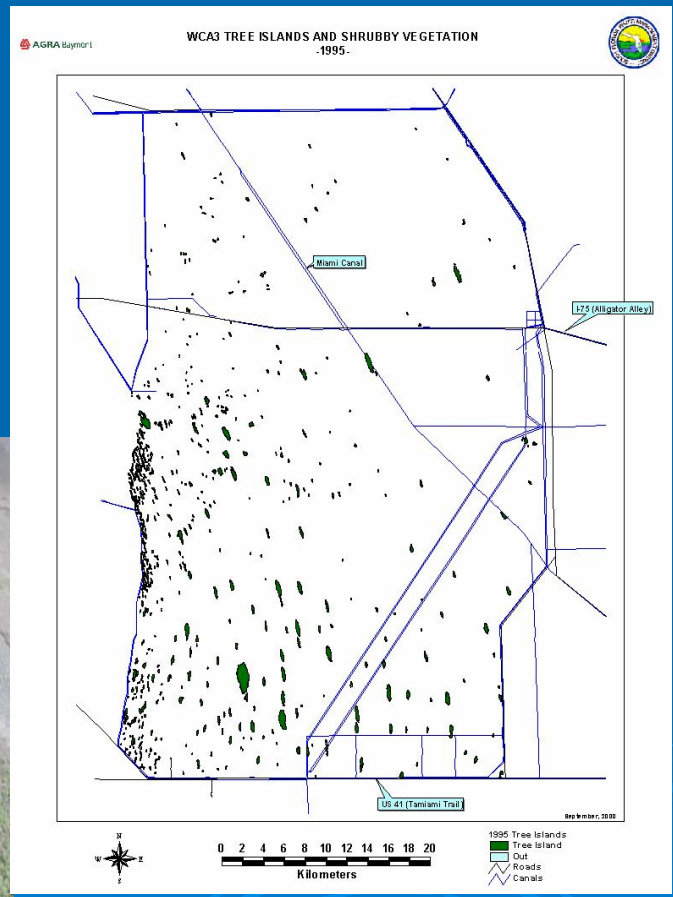
- Microtopography
- Synoptic Water Depths
- Landscape-Hydrology Relations
- Pre-drainage Flow Patterns



Courtesy of C. McVoy

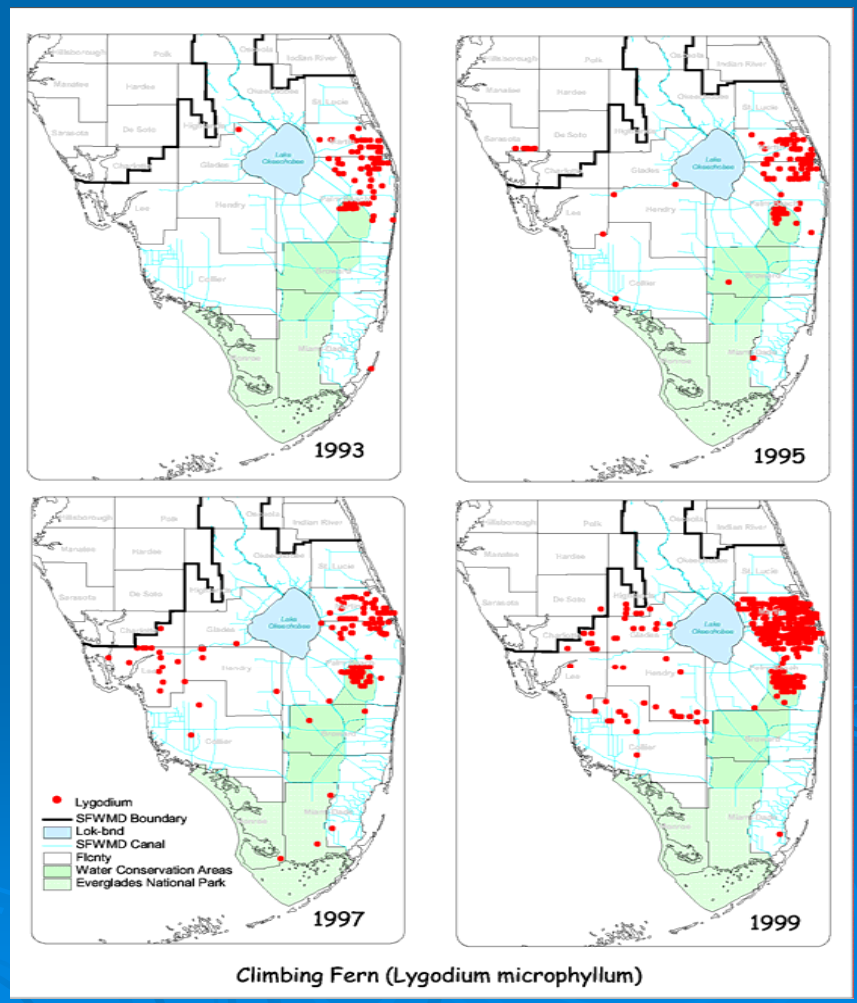
Tree Island Program

- Tree island characterization
- Tree island elevation
- Biological and ecological processes on tree islands



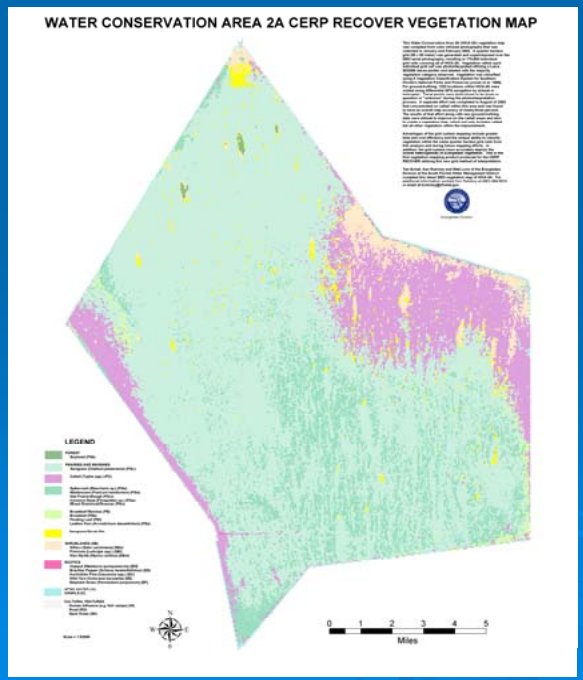
Exotic/Invasive Species Initiative

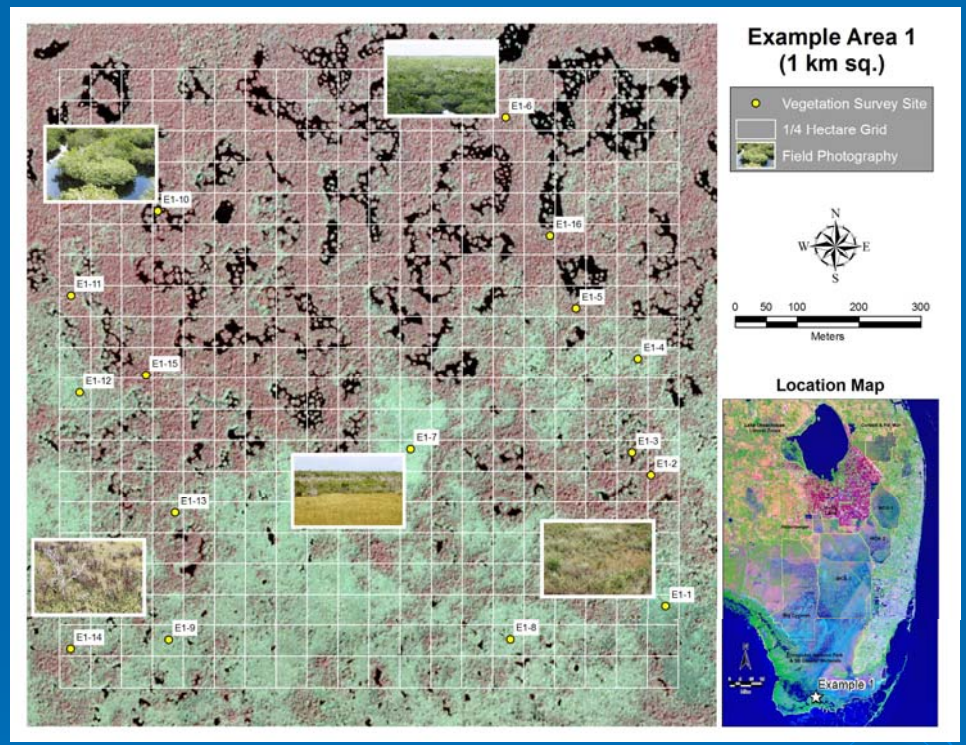
- **Exotic Species Strategic Research Plan**
  - Information gap identification
  - Use of fire for *Lygodium* management
- **Tree island exotic plant surveys in the EPA**
- **Cattail genetics**



Vegetation Mapping

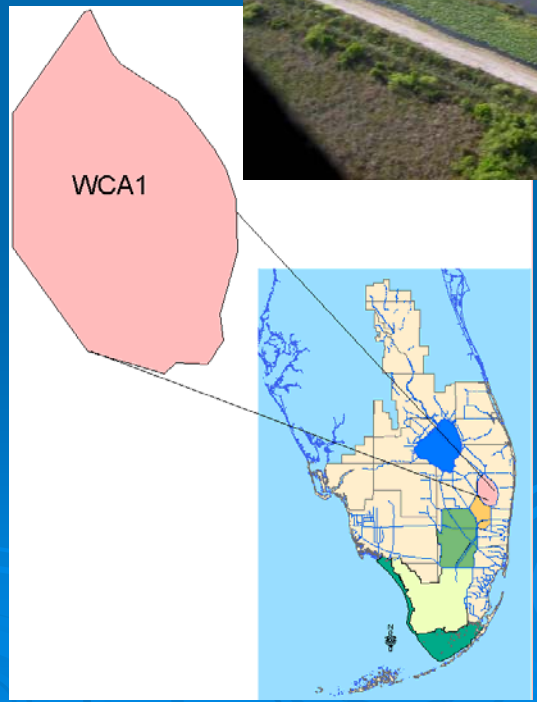
- **Vegetation mapping and assessment in the Greater Everglades**





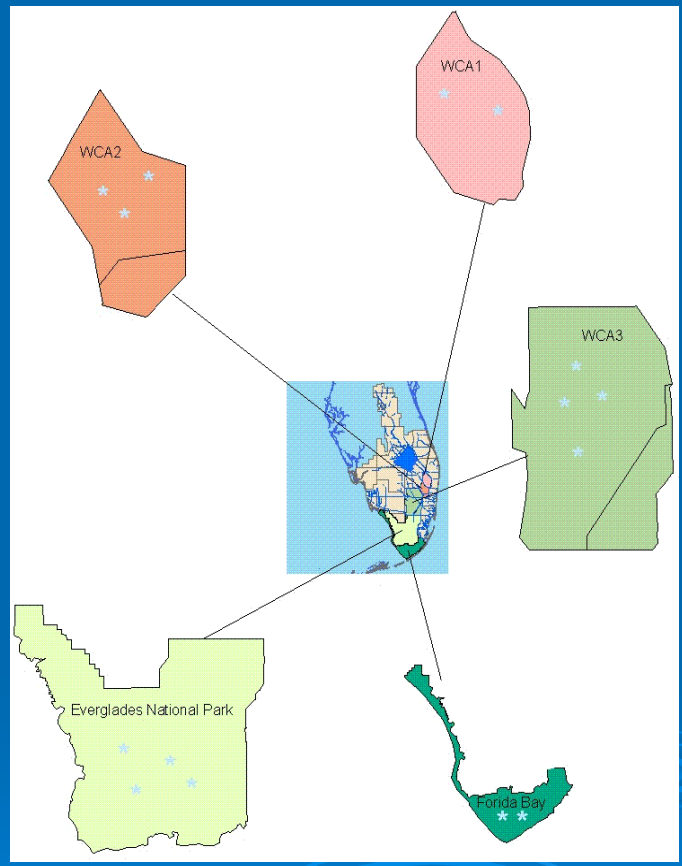
"Living Laboratory" Studies

- **Physically mimics Everglades Landscape**
  - Four 17-acre impoundments
- **Projects:**
  - Tree island seedling analysis
  - Crayfish dispersal
  - Prey vulnerability to avian predation
  - Sediment transport



Everglades Division Data

Study	Region	# Parameters
404PERMIT	ROTEN , WCA2A	43
CHIP	WCA2A	12
FIRE	WCA2A	37
GREENHOUSE	GRNHSE	24
HYDROLOGY	GRNHSE	16
LILA	WCA1	7
RIDGE AND SLOUGH	WCA3A	4
THRESHOLD	ENR , SRS, TEST, TS , WCA1, WCA2A, WCA3A	116
TREEISLAND	FLORIDABAY, GRNHSE, WCA3A, WCA3B	40
WATER QUALITY IMPACT	WCA1	7



Principal Types of Measured Data

Type	Description	Percentage of all Measurements	Start Date	End Date
SURFACE WATER	Surface water samples using 450 micron filters	18.6%	21-Dec-93	24-Apr-06
SOIL NUTRIENT	Soil core nutrient samples	12.5%	1-Jul-90	28-Mar-06
COTTON STRIP DECOMP	Cotton strip decomposition samples	12.2%	4-Aug-95	15-Sep-03
POROMETER	Porometer sampling for Tree Stress Experiment	7.8%	10-Jun-04	20-Apr-06
PHYTOPLANKTON	Phytoplankton samples	7.0%	3-Feb-94	18-Jan-05
LITTER	Treeisland litter trap sampling.	6.1%	1-Dec-98	13-Jan-05
MACROPHYTE SURVEY	Macrophyte survey data from STA monitoring study.	5.7%	1-Jun-04	6-Oct-05
PERIPHYTON NUTRIENT	Periphyton nutrient samples	5.5%	10-Jul-95	6-Feb-06
PORE WATER	Water column samples from pore water wells	5.2%	6-Jul-95	22-Mar-06
MACROPHYTE NUTRIEN	Macrophyte nutrient component samples	4.9%	1-Dec-95	6-Jan-06
PERIPHYTON	Periphyton count samples	4.2%	13-Apr-94	12-Oct-05

Use of Models in Everglades Research

- **Use ELM to model spatial water quality data to show water movement across the Loxahatchee National Wildlife Refuge**

Use of Models in Accelerated Recovery

- **Development of a Systems Model to Explore Natural and Accelerated Recovery for Fire project**
  - Answer research questions such as:
  - What are the short- and long-term responses of surface water/soil P chemistry, and cattail community to natural recovery resulting from BMPs and STAs?
  - What are the short- and long-term responses of surface water/soil P chemistry and cattail community to surface fire?

QUESTIONS?

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