

# **A SCULPTED RIVER OF GRASS:** *Addressing Tree Island Uncertainties*



**Loxahatchee Impoundment Landscape Assessment (LILA)**

**RECOVER Greater Everglades**

RECOVER Science Mtg.  
March 1, 2016



[sfwmd.gov](http://sfwmd.gov)

## Objective:

Use LILA to define hydrologic regimes (flow, depths and hydroperiods) that sustain and restore a healthy Everglades ecosystem with an emphasis on 1) tree islands, 2) ridge and slough patterns and 3) wading bird ecology.



# Mandates

## CERP

- Reduce uncertainty in linkages between hydrological regimes and biological and physical performance measures
- Develop quantitative performance measure targets

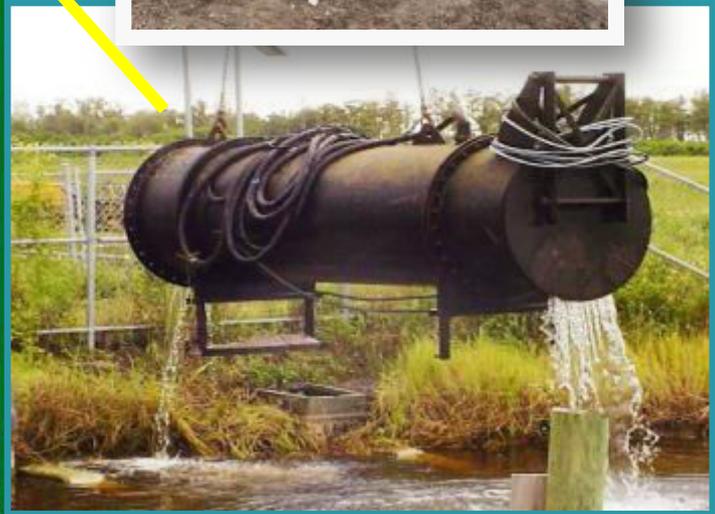
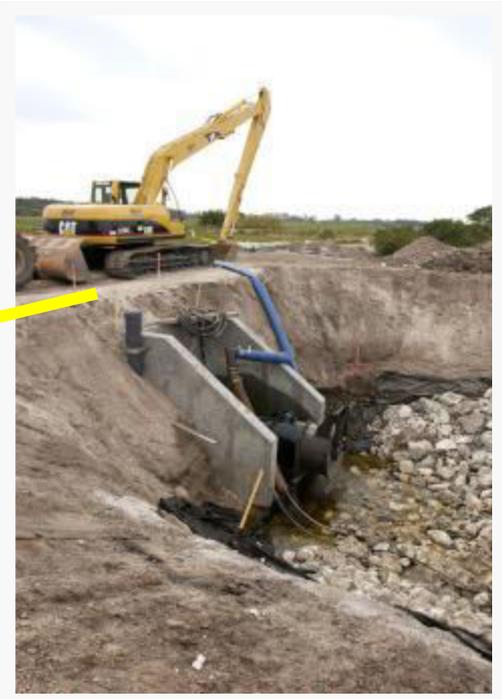
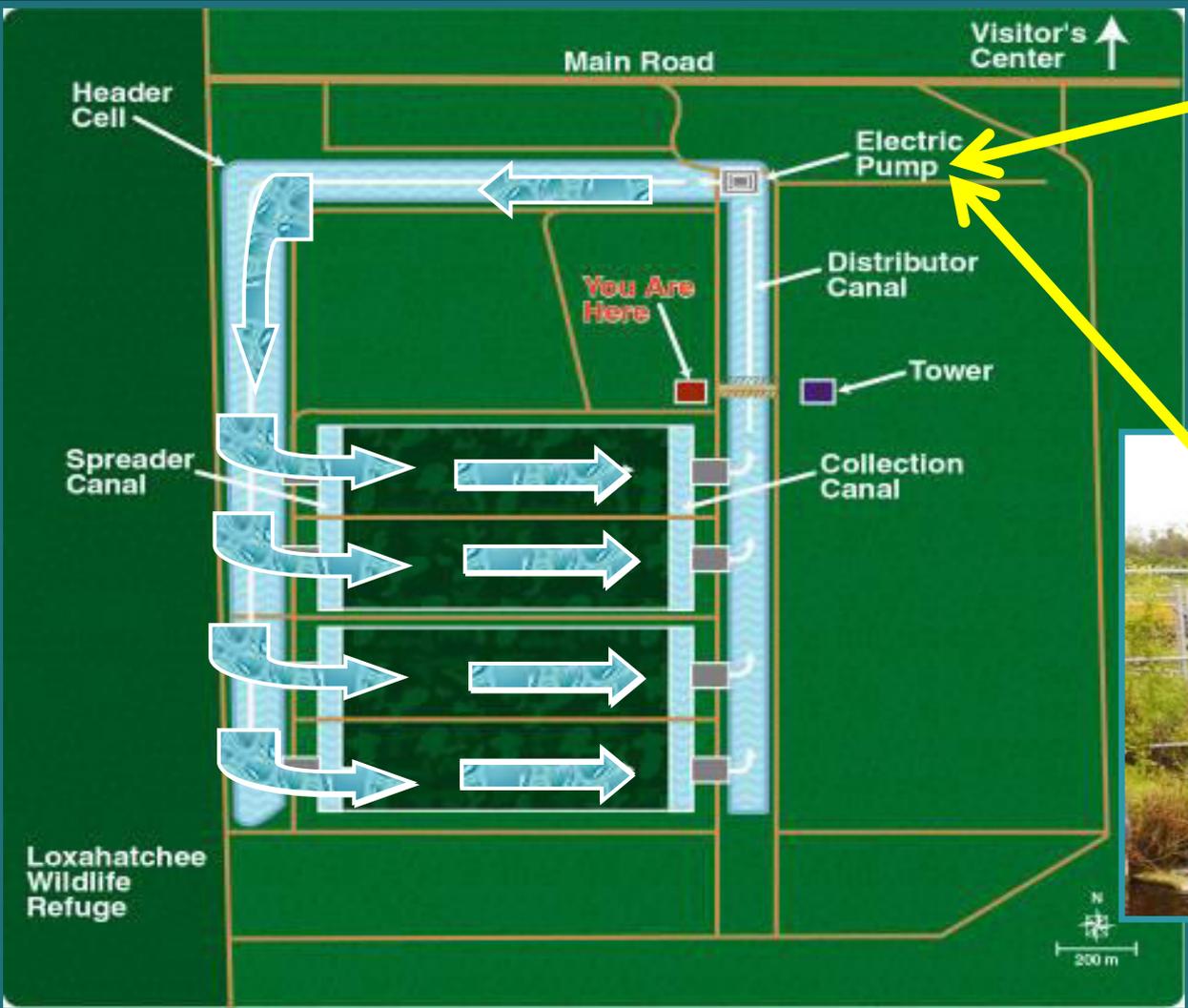
## Everglades Forever Act

- Define ecological and hydrological needs of the Everglades.
- Define hydrologic patterns that maintain physical and biological features in enriched environments

## Operations

- Water management alternatives that maximize operational flexibility during flood and drought events by minimizing impacts to natural system

# LILA Design and Hydrologic Control System



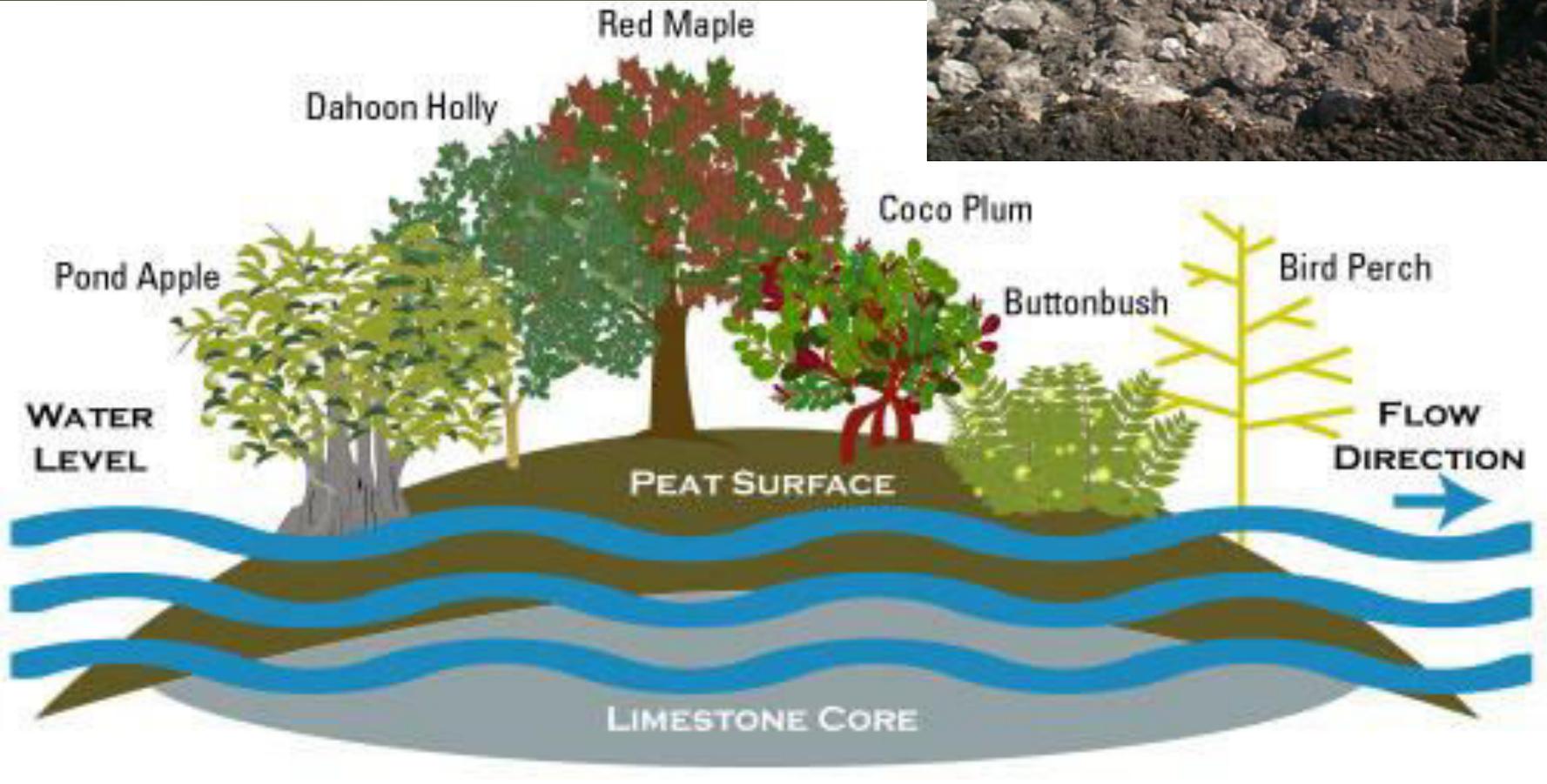
# Construction of LILA 2002 - 2003

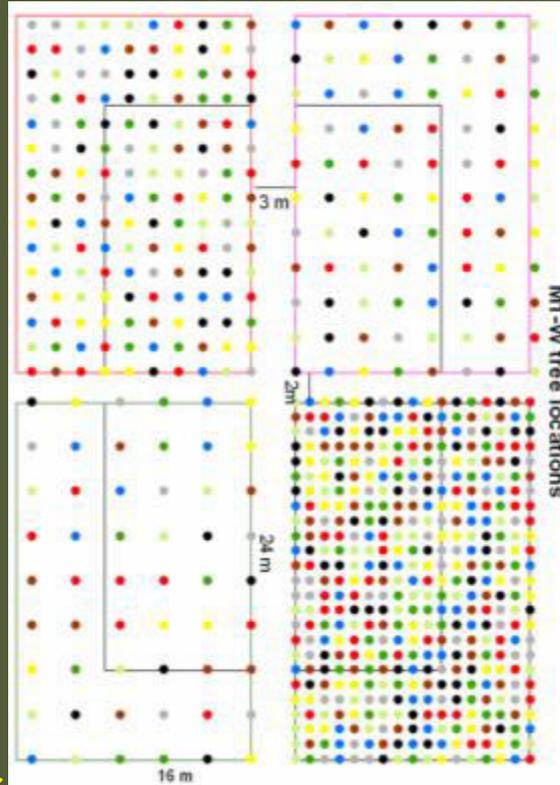


**March 2003**

# LILA Tree Islands

- Trees planted in a specific pattern for quantifying hydrologic tolerances



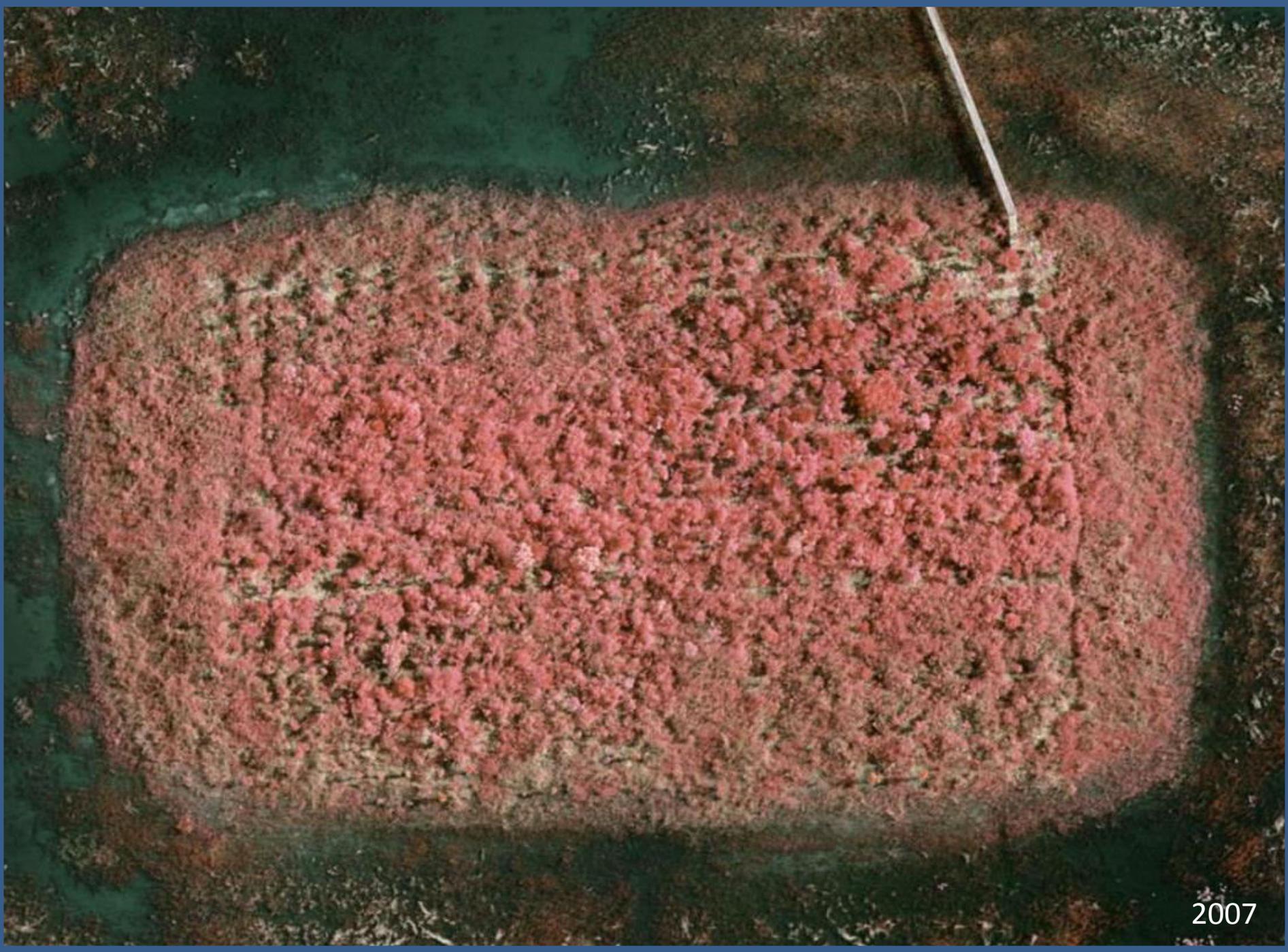


**8 species;  
5,736 native  
trees**

M1WVP



2006



2007



2008



2009



2010



2011



2014



2015

# TREE ISLAND PROJECTS

SAP Flow  
ESA

Tree Growth and  
Survival – ISU & FIU

Litter trap/bag - FIU

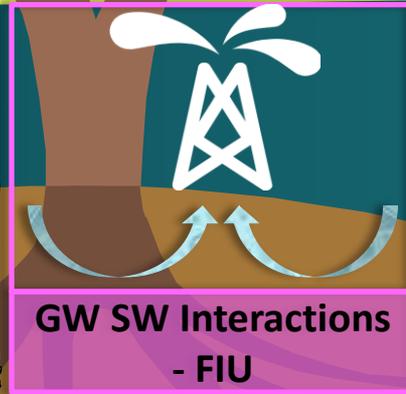
Nutrient Stress - FIU

GW SW Interactions  
- FIU

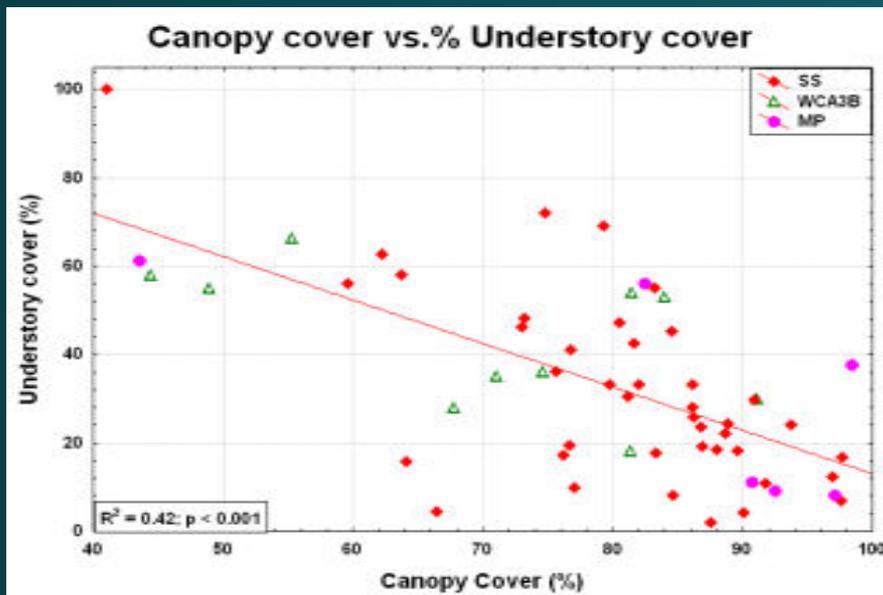
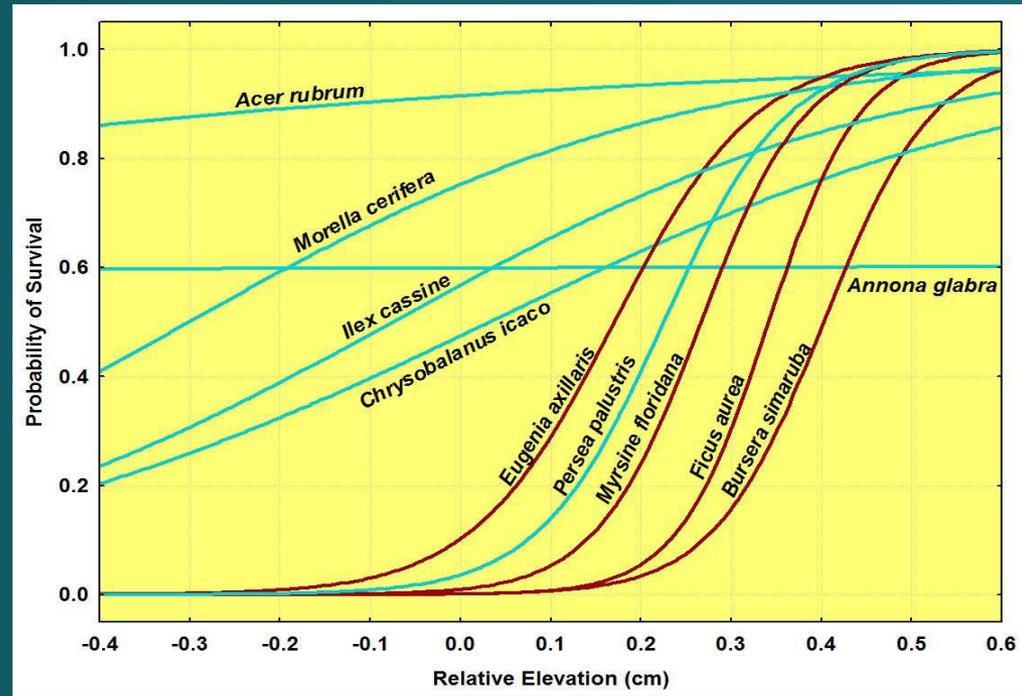
SET/Feldspar- FIU

Tree Island  
Understory  
- FIU

Soil CO<sub>2</sub> flux- FIU

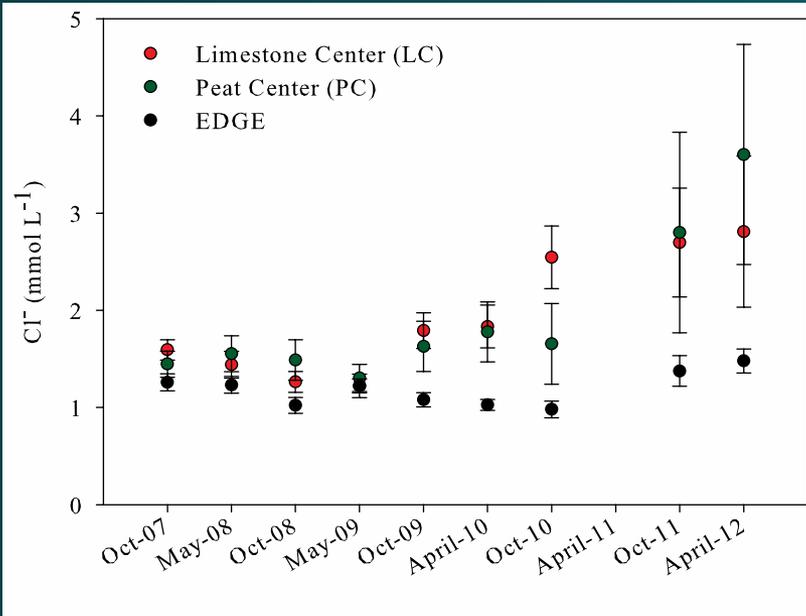
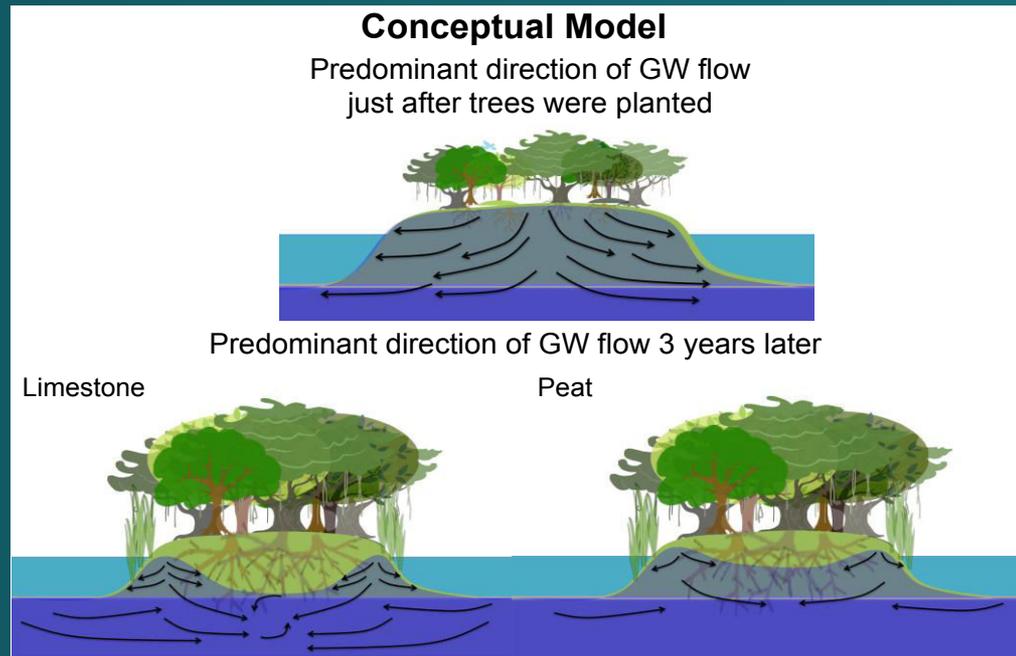


# Significant Findings: Hydrologic Requirements of Various Tree Island Tree species



# Significant Findings: Effects of Canopy Closure on Understory Cover

# Significant Findings: Hydrologic Changes on Tree Islands as Trees Mature



## Significant Findings: Concentrations of Ions Increase as the Tree Island Ages

# Questions or Comments?



**Tree Island  
Planting Study  
Left: at planting  
Right: 22 months  
later at harvest**

**Alligator and  
Turtles Nesting on  
a LILA Tree Island**

