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SFWMD



Ecological Issue

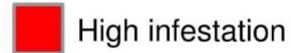
- Aggressive invasive exotic
- Spreads via spores
- Grows over native plants, blocking sunlight and changing habitats

Old World Climbing Fern (*Lygodium microphyllum*) expansion in the Northern Everglades over 20 years.

2015

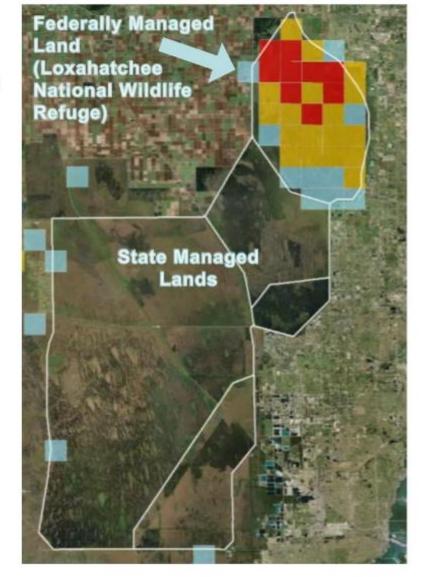
Federally Managed Loxahatchee National Wildlife Refuge) State Managed Lands

20 YEARS



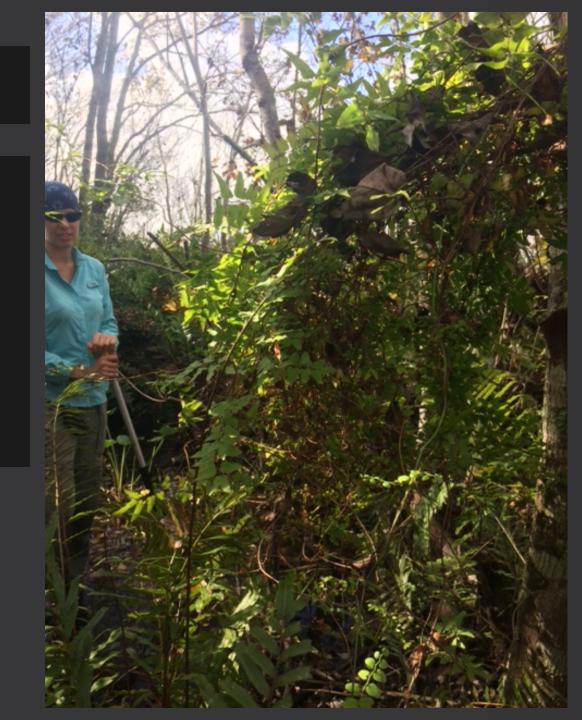
Intermediate

Low infestation



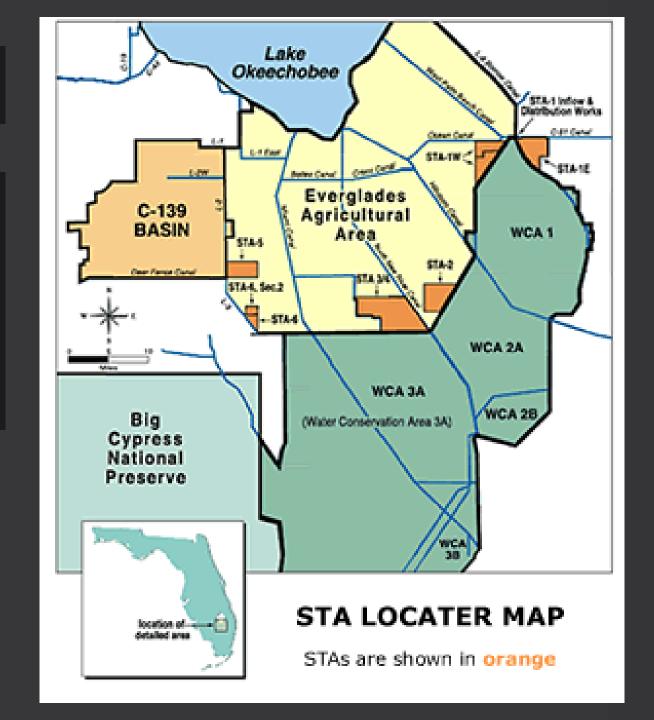
Study Objective

- Document the presence of *L. microphyllum* and other exotic plants in tree islands
- Determine patterns and processes of invasion



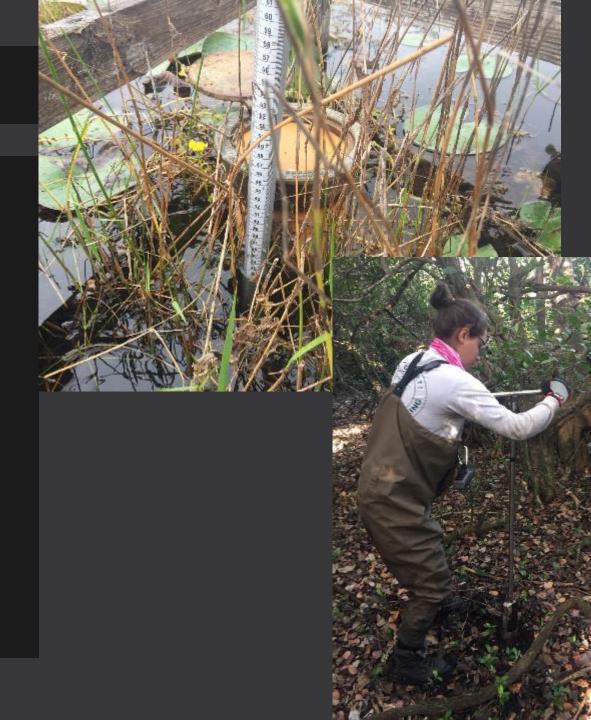
Area of Interest

- Work has been conducted in WCA-3A and 3B
- Some islands have been resurveyed over the years



Method

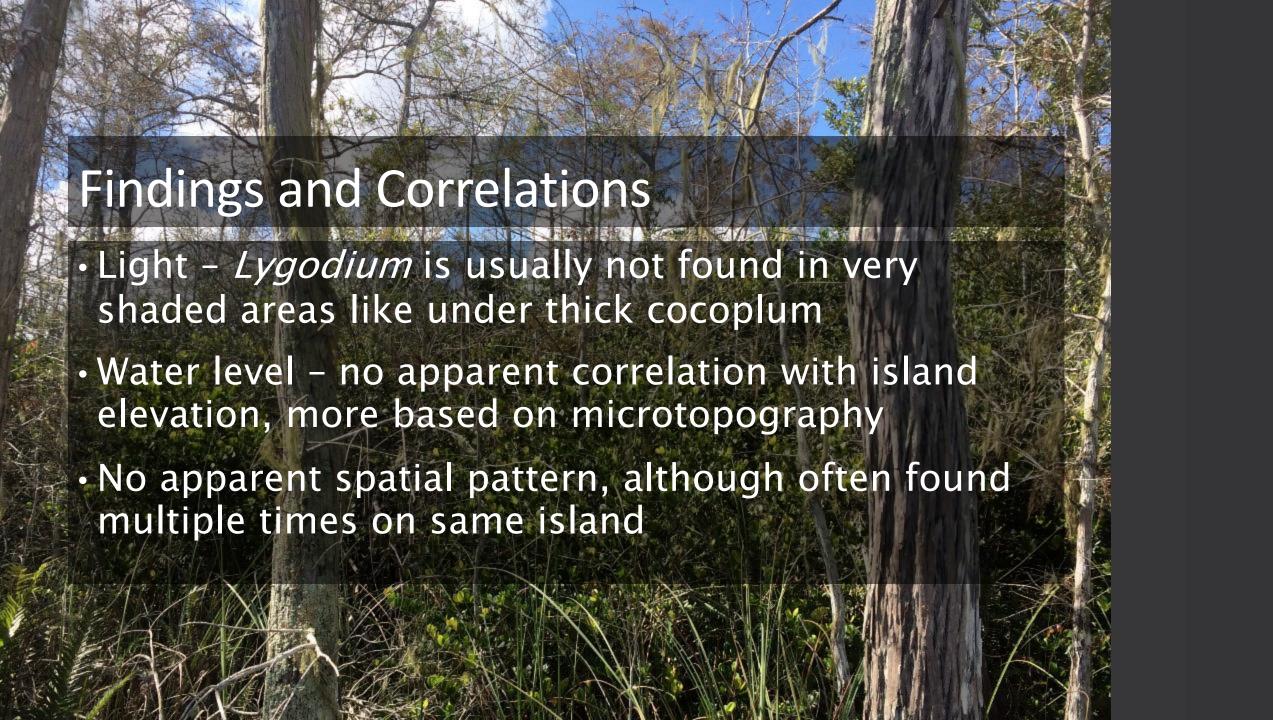
- Transect surveys looking for invasive plants
- Assess island vegetation at island mid-points
- Determine island elevations by comparing water table depth to benchmark water levels



Lygodium Assessments

- The population is photographed and geo-referenced.
- Data about the plants, substrate, and water level are recorded.
- A 5 meter radius surrounding *L.* microphyllum is searched for additional growth.
- Plants are removed or treated with 3% glyphosate by us or SFWMD

Lugadium Assesment				
Lygodium Assesment				
Island:				
Date: Surveyor(s)				
Coordinates				
NW				
No. of Individuals				
Life Stage: Juvenile / Adult				
Reproductive Yes / No				
In Canopy: Yes / No				
Height (m):				
Vertical Coverage (m):x				
Horizontal Coverage (m):x				
Percent sunlight penetration at high noon:				
Lygodium Infested Area (m^2):				
Water Depth at Roots (cm):				
Meristem Height Relative to H2O(cm):				
Substrate Description:				
Leaf Litter:				
Dominant Canopy Species:				
Dominant Herbaceous Species:				
Removed: Yes / No				
Treated: Yes / No				
Volume Herbicide Used:				
If yes, see herbicide treatment form.				
Notes:				



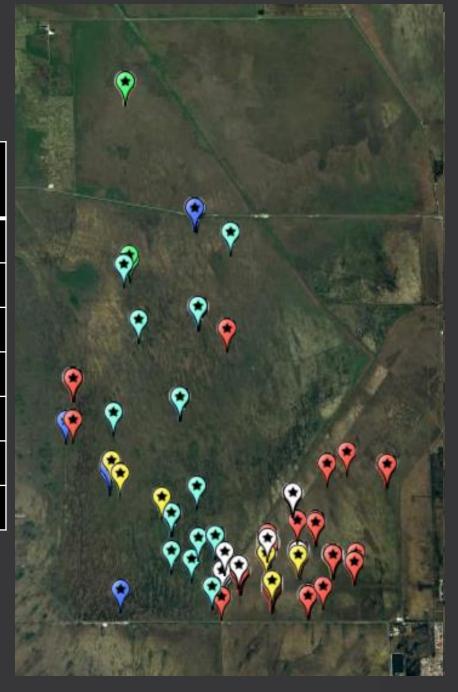
Previous Surveys

- 72 islands in 2007
- 41 islands in 2009
- 43 islands in 2010
- 38 islands in 2015
- 58 islands in 2017
- 25 islands in 2018



Findings

Year	# Islands Surveyed	Islands Infested	
		3A	3B
2007	72	4/46 (9%)	16/26 (62%)
2009	41	4/35 (11%)	3/6 (50%)
2010	43	3/40 (8%)	3/3 (100%)
2015	38	4/38 (11%)	0/0
2017	58	11/58 (19%)	0/0
2018	25	0/6 (0%)	7/19 (37%)



Some Key Observations:

- Greater infestation in WCA-3B compared to WCA-3A
- Islands continue to be infested despite SFWMD/E&E eradication efforts



Some Key Observations:

- Lygodium expansion may be a function of annual hydrologic regime
- Micro-topography may also be a key factor



Some Key Observations:

- Lygodium found outside of islands
 - Floating grass mounds
 - Shrubs
 - Near boat ramps



