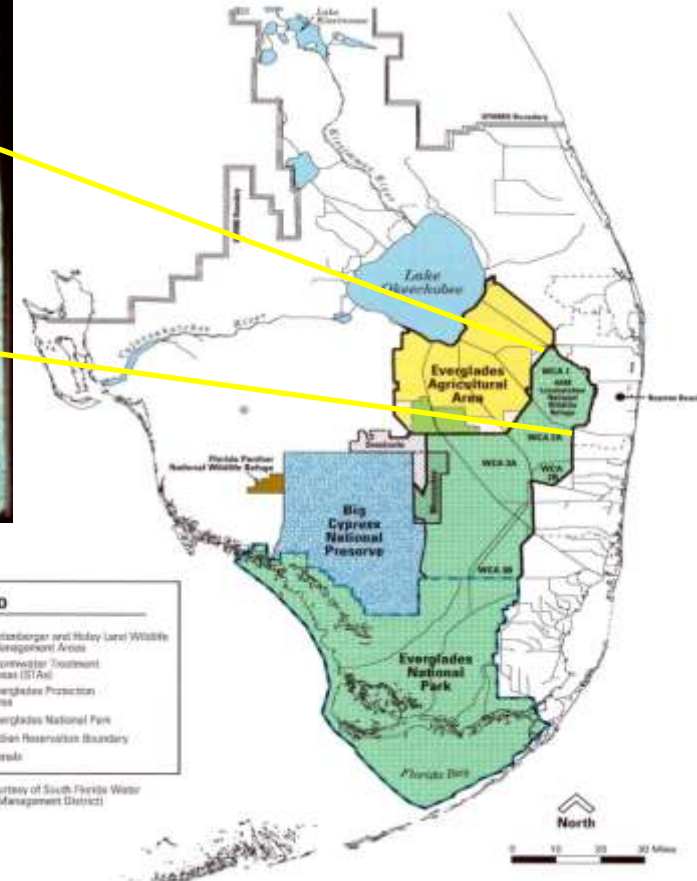
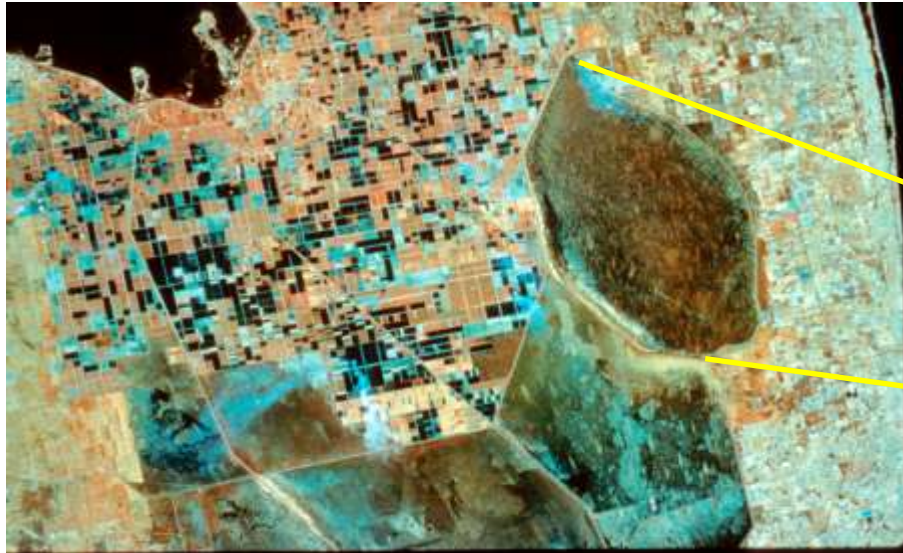


A.R.M. Loxahatchee National Wildlife Refuge

Lisa Jameson
Biologist for Exotic Species Control



2008 Everglades Invasive Species Summit



- Established in 1951 under a 50 year license agreement with South Florida Water Management District under the Migratory Bird Conservation Act
- To promote conservation of fish and wildlife and for other purposes and objectives of planned multiple land use
- 147,392 acres, 12-21 miles, over 50 miles of levees surround refuge.
- Part held in fee title (2550 ac) the rest (WCA1) managed under a license agreement
- Home to two listed spp. – snail kite and wood stork
- The refuge hosts 300,000 visitors annually
- The refuge is an important part of the overall Everglades restoration

Invasive Species Programs

Team Members:

- **Lead Biologist – Lisa Jameson**
- **Monitoring Biologist – Jeremy Conrad**

Transitioning from:

- **Biologist – Gayle Martin**
- **Maintenance – George Pelt**



Invasive Species Programs

Exotic Plant Control Program

- **Description**
 - *Applying integrated pest management techniques to control invasive exotic plants*

Complete initial surveys and treatment of top four species for the entire refuge.

Establish consistence monitoring protocols for treatment and control success.

Establish aggressive follow-up strategy for re-treatments and restoration.



Invasive Species Programs

Objective

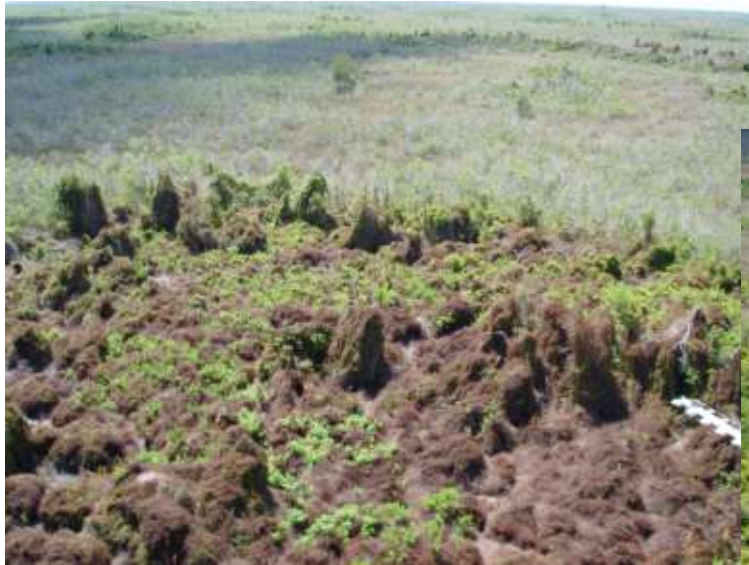
- *To achieve maintenance control of all exotic plant species present within the Refuge*



Invasive Species Programs

Status:

Treatment efforts have increased



Still have a significant problem



Invasive Species Programs

Start/End Dates

- *2001 to present*

Funding (FY)

- *\$\$ Annual funding of 1 million \$\$*
++ plus special funding ++



Invasive Species Programs

- Partners



Invasive Species Programs

Annual Summary

Between FY01-07 \$13 million has been allocated from state, federal, and private sources to control invasive exotic plants on the Refuge.

Ground contractors have initially treated:

73,000 acres for Melaleuca

59,000 acres for Lygodium

Aerial contractors have initially treated:

10,000 acres of Melaleuca

8,000 acres of Lygodium

Ground contractors have re-treated:

42,000 acres of all exotic species

For a total of treated/re-treated acres 192,000



Priority Plant Species

- **Priority Plant**
Old World Climbing Fern
(Lygodium microphyllum)



Priority Plant Species



Melaleuca
(Melaleuca quinquenervia)

Priority Plant Species

- **Brazilian pepper** (*Schinus terebinthifolius*)



Priority Plant Species

Australian pine (*Casuarina equisetifolia*)



Secondary Plant Species

Air Potato
Tropical Soda Apple
Carrotwood



Laurel fig
Hydrilla
Water Lettuce
Earleaf Acacia
Guava
Java Plum
Shoebuttan ardisia



Priority Animal Species

- **Priority Animals**

Sacred ibis

- nests have been reported



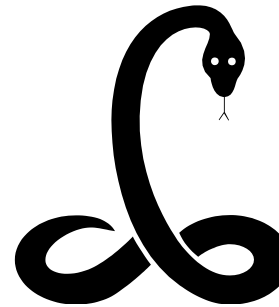
Priority Animal Species

Newly Detected or Species of Concern: Purple swamp hen

none reported but anticipate they can utilize interior

Pythons

who isn't looking for them



Iguanas

there here and being watched



Monitoring

- Systematic Reconnaissance Flights
2002, 2003, 2005

- Digital Aerial Sketch Mapping (SFWMD, NPS)
2005, 2007, 2008



Digital Aerial Sketch Mapping

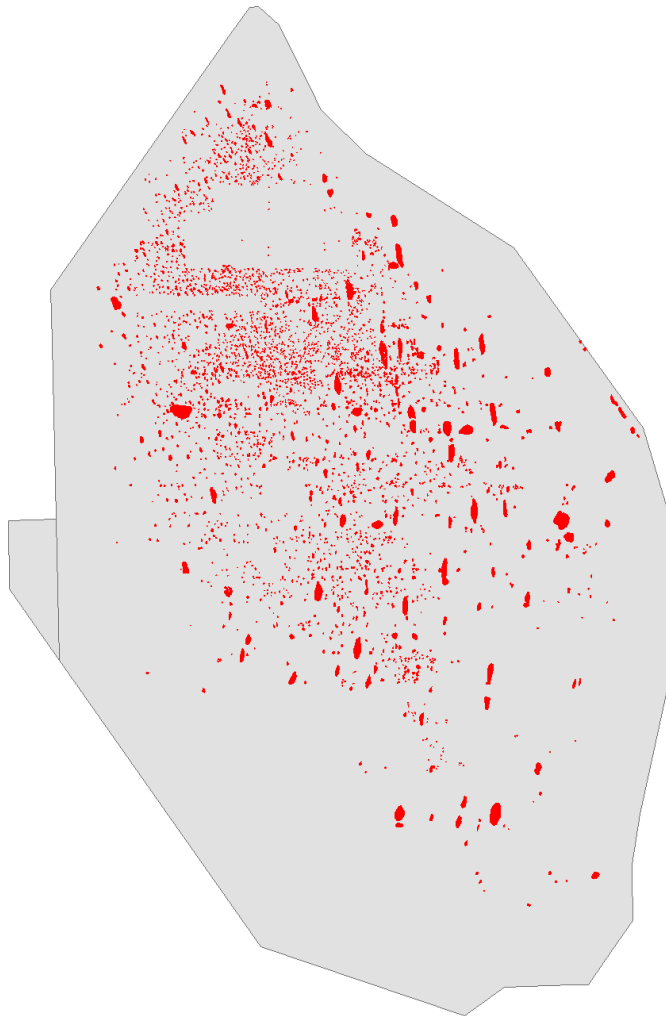


A.R.M. Loxahatchee NWR

Melaleuca

<u>Coverage Class</u>	<u>Acres</u>
High	669
Medium	90,217
<u>Low</u>	<u>268</u>
Total	91,154

Digital Aerial Sketch Mapping

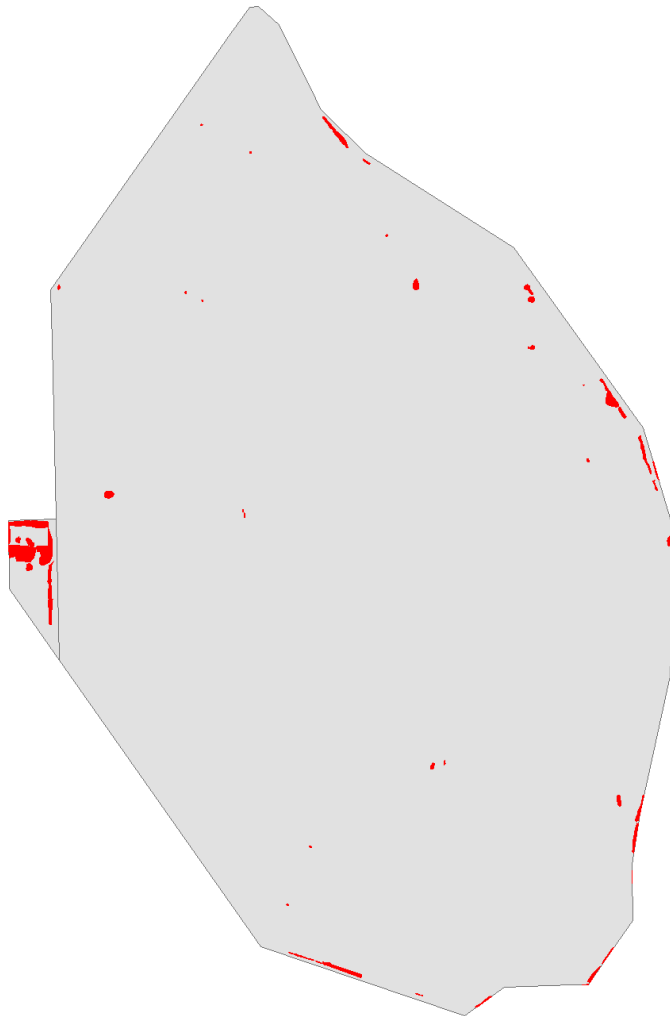


A.R.M. Loxahatchee NWR

Old World Climbing Fern

<u>Coverage Class</u>	<u>Acres</u>
High	614
Medium	2,189
<u>Low</u>	<u>127</u>
Total	2,931

Digital Aerial Sketch Mapping



A.R.M. Loxahatchee NWR

Brazilian Pepper

<u>Coverage Class</u>	<u>Acres</u>
High	245
Medium	436
Low	13
Total	694

Monitoring

- Prescribed fire post-burn vegetation
2008



Aerially treated Lygodium islands

1.5 months post-burn
Lygodium islands



Monitoring



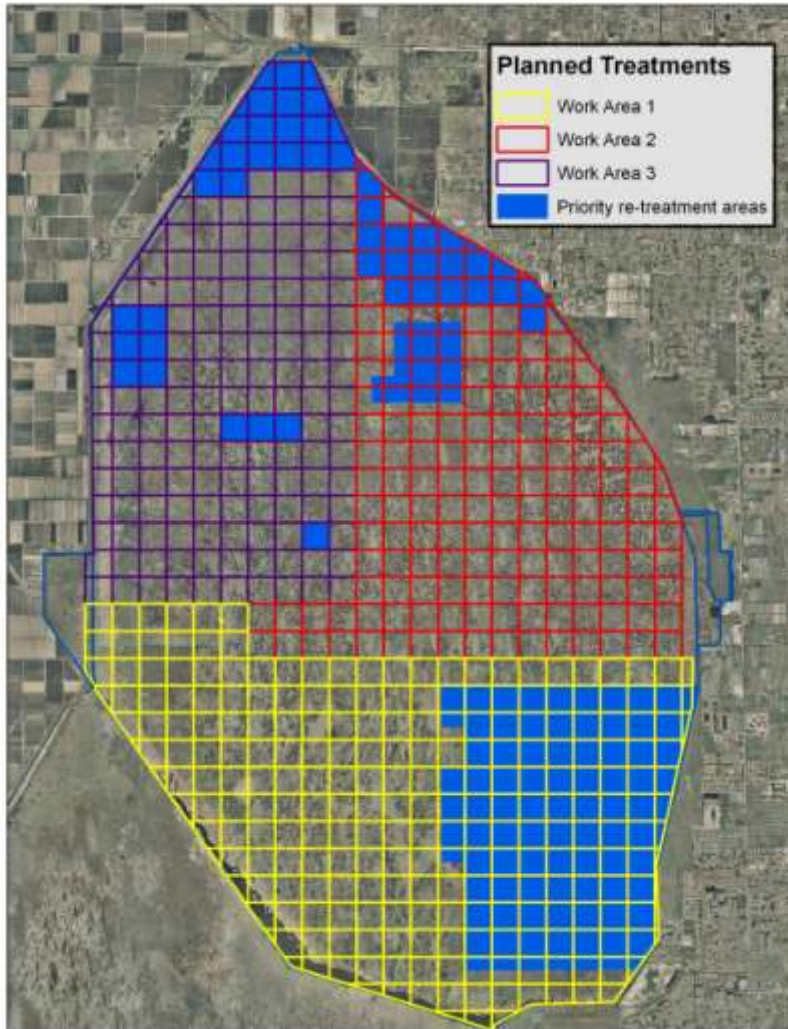
**Bio-mass removal
for native plant
recovery??**

Active Treatments FY08



- **Refuge Interior:**
Primarily Lygodium
- **Cypress Swamp:**
All species

Planned Treatments



- **Aerial (\$1,035,000):**
*Aerial work across
Refuge interior.*

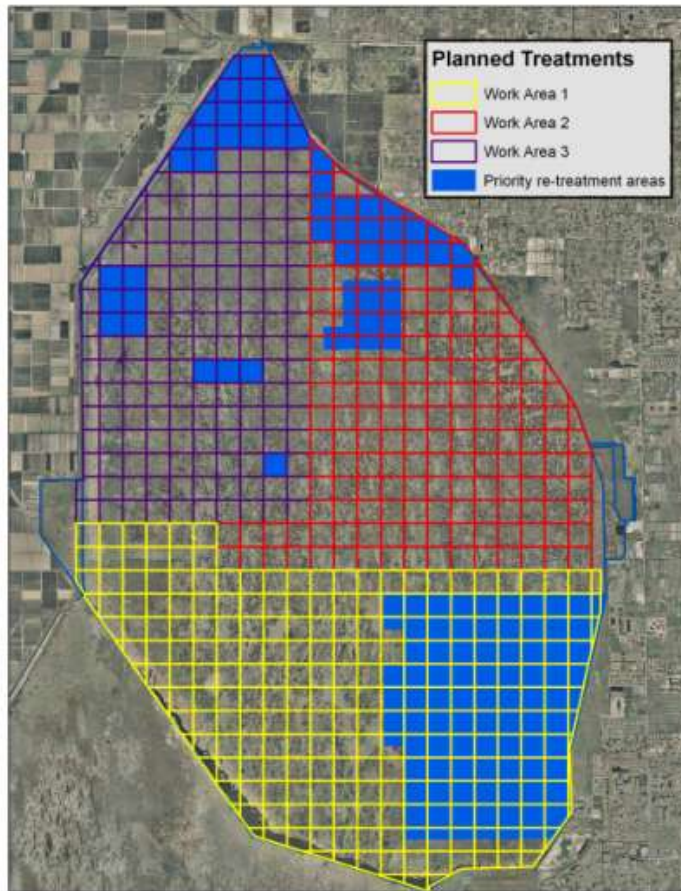
Lygodium 7000 acres

Melaleuca 300 acres

Brazilian pepper 130 acres



Planned Treatments



Ground (\$3,900,000):

Primarily:

re-treatment of all species

Maintaining:

aerially treated Lygodium
islands



Innovations and Successes

- Fire Effects



Innovations and Successes

- **Bio-control**

Melaleuca snout beetle: over 700 adults & 342 larva released in 1997



Melaleuca psyllid: over 17,000 adults released in 2001



Innovations and Successes

RESULTS



Impacts/Damage to Melaleuca all over Refuge



Questions????????????

