

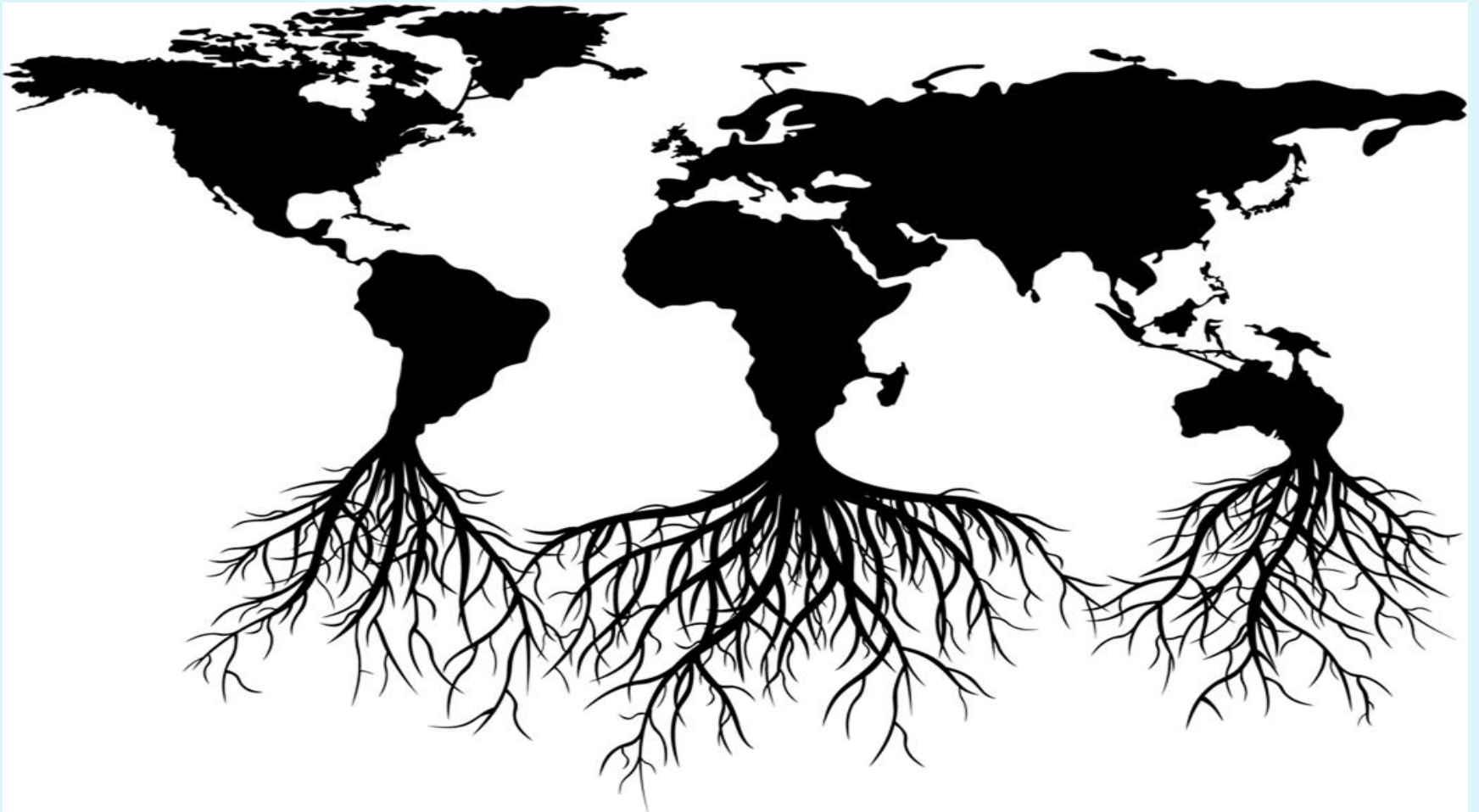
Arthur R. Marshall Loxahatchee National Wildlife Refuge Invasive Species Program



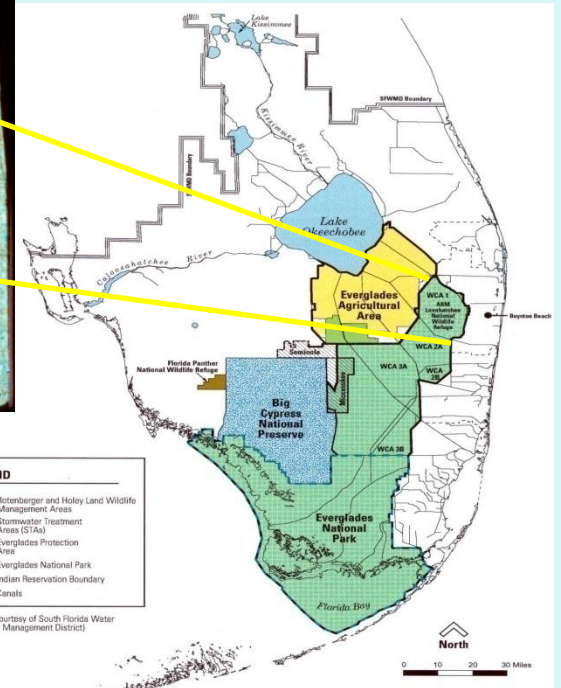
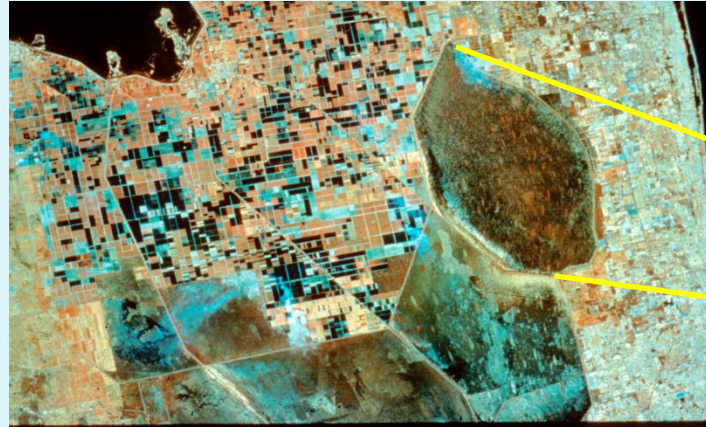
Lisa Jameson
Invasive Species Biologist
United States Fish and Wildlife Service
A.R.M. Loxahatchee National Wildlife Refuge



**Next to habitat loss non-native species
are the biggest threat to bio-diversity**



Invasive Species Programs



- The U.S. Fish and Wildlife Service primary mission is to conserve, protect and enhance the Nation's fish and wildlife populations.

- The Refuge (Water Conservation Area 1) was established in 1951 under a 50 year license agreement with South Florida Water Management District under the Migratory Bird Conservation Act.

- Strategy of the Invasive Species program is to preserve the diversity of habitats and wildlife resources by achieving and sustain maintenance level control of all invasive species on the Refuge.

Performance Measures

Strategy: Achieve and sustain maintenance level control of Melaleuca, Old World climbing fern, Brazilian pepper and Australian pine within 15 years.

Performance Measure:

Percentages of infestation at sustain maintenance control will meet or exceed the following schedule:

Species	Year 2007	Year 2012	Year 2017
Melaleuca	20%	75%	100%
Old World Climbing Fern	10%	50%	100%
Brazilian Pepper	20%	50%	100%
Australian Pine	100%	100%	100%

Priority Plant Species

Old World climbing fern

(Lygodium microphyllum)

Melaleuca

(Melaleuca quinquenervia)

*Brazilian pepper

(Schinus terebinthifolius)

*Australian pine

(Casuarina equisetifolia)

*Currently under maintenance control, less than 1% cover for the



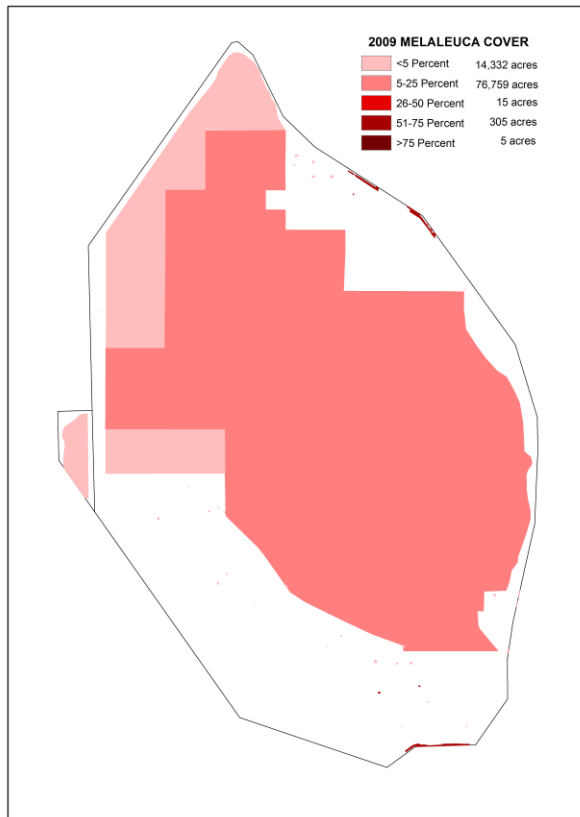
Digital Aerial Sketch Mapping

Melaleuca

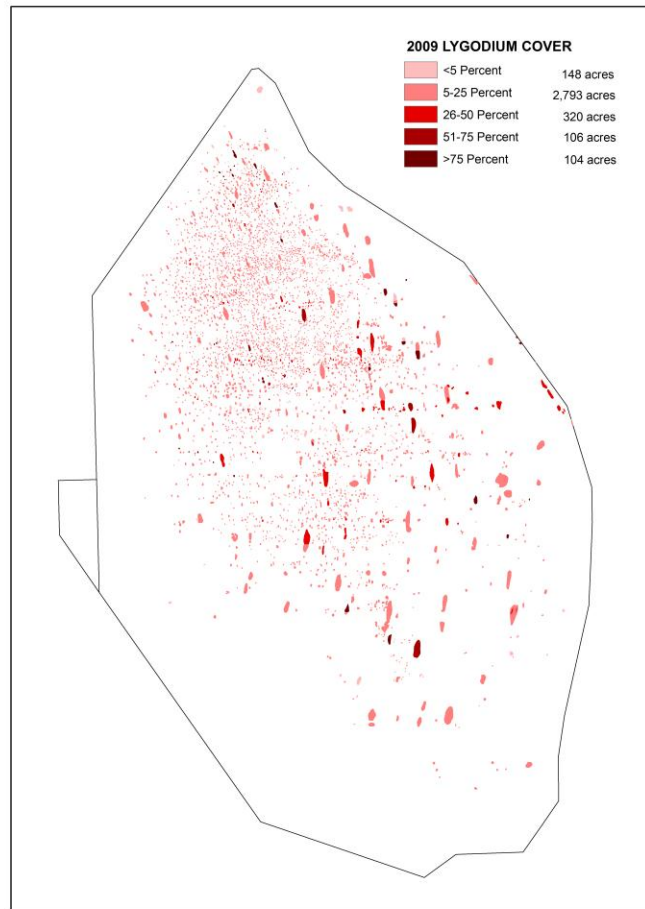
Coverage Class Acres

High	310
Medium	15
Low	91,091
<hr/>	
Total	91,416

*Acres treated
since map was
created, 87,109
acres !*



Digital Aerial Sketch Mapping



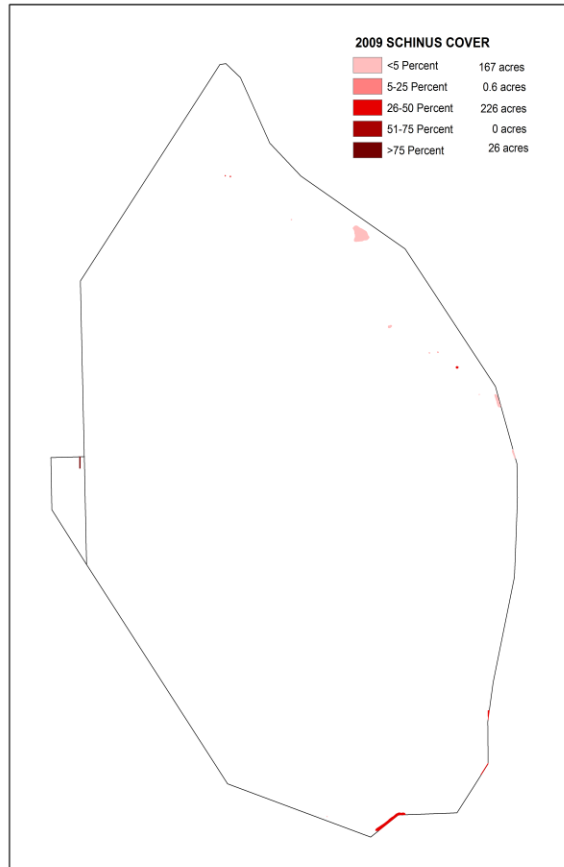
Old World Climbing Fern

Coverage Class	Acres
High	210
Medium	320
Low	2,941
Total	3,471

*Acres treated since
map was created,
9,990 acres!*

September 2012 a new aerial contract will begin to treat 4,000 acres of 50%> density cover on islands of .25> in size.

Digital Aerial Sketch Mapping



Brazilian Pepper

<u>Coverage Class</u>	<u>Acres</u>
High	26
Medium	226
Low	168
Total	420

All acres have been treated, % cover is less than 1%.

Priority Animal Species

Purple Swamp Hen - substantiated reports in STA's, northwest & northeast of Refuge boundary

Sacred Ibis – surveyed for during nesting season (no reported sightings in 2012)

Exotic Apple Snails – egg clusters removed from impoundments and canals (63,000 eggs removed)



Priority Animal Species

**Cuban Tree Frogs -
trapping and removing
from the Cypress Swamp.**



**Large Constrictor Snakes –
Red-tailed Boa removed from the Cypress
Swamp.**



**Nile Monitor Lizards –
baiting and trapping in compartment D.**



Early Detection Rapid Response (EDRR)

Redbay Ambrosia Beetle (*Xyleborus glabratus*)



2012 01 26

Early Detection Rapid Response (EDRR)

Gypsy Moth (*Lymantria dispar*)

Bullseye Snakehead (*Channa marulius*)

Marine Toads (*Bufo marinus*)



Outreach and Education

Python Patrol



Man vs. Dog

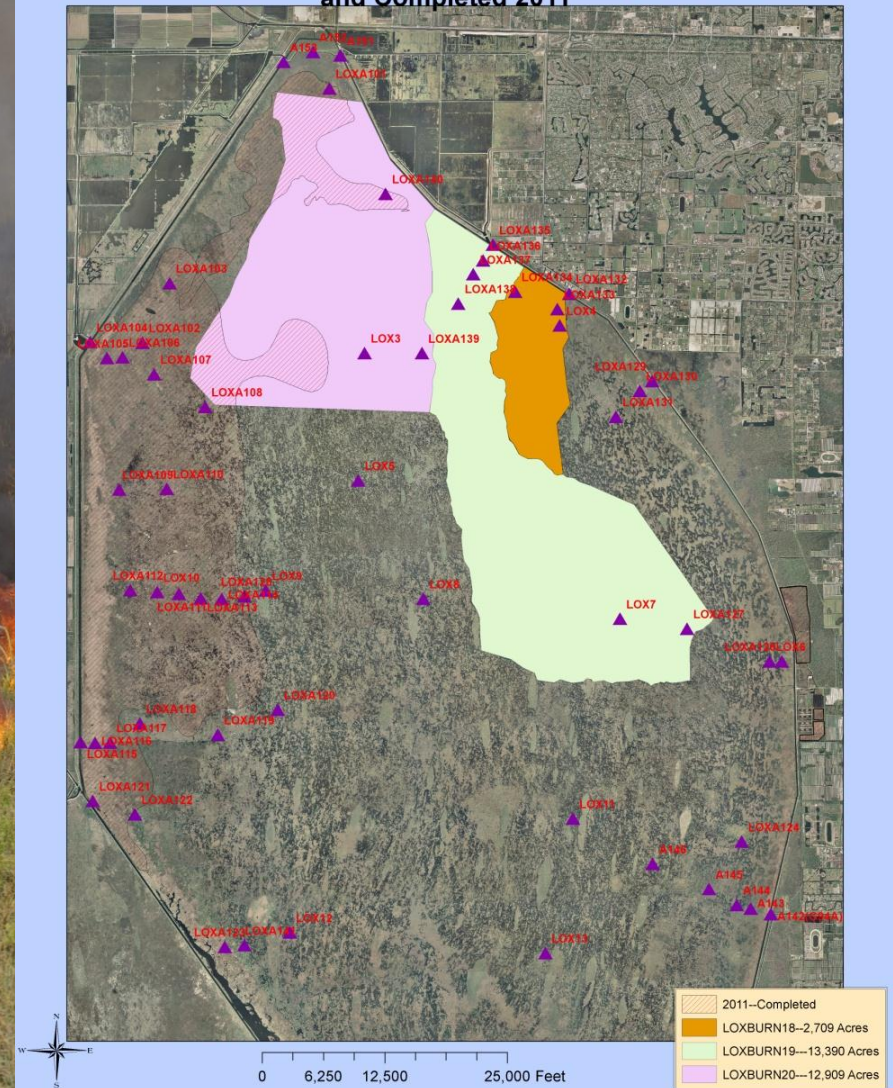


Innovations and Successes

Prescribed FIRE

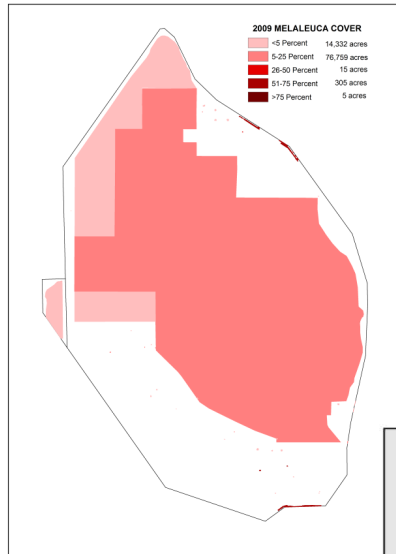
Used as post chemical treatments, **27,000** acres were treated as a secondary treatment with prescribed fire. **30,000** acres are planned to be burned 2012.

Loxahatchee RX Fire Proposed for 2012 and Completed 2011

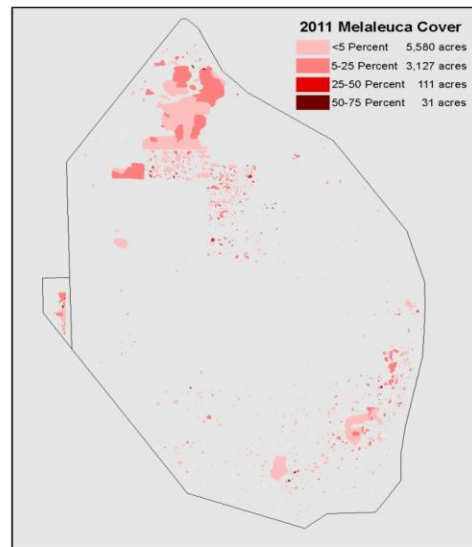


Innovations and Successes

Phase I & Phase II Melaleuca removal strategies.



Phase I – Utilize all resources to remove all invasive species except Lygodium.



Phase II – Return to the Phase I areas and remove all invasive species seedlings except Lygodium.

Innovations and Successes

Pet Amnesty Day

01/14/2012



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Surprises?

Biological Controls



Melaleuca psyllid ,
Boreioglycaspis melaleucae

Melaleuca Bud Gall Midge,
Fergusonina turneri



Needs & Gaps

Need:

Take advantage of a natural occurrences to reduce populations of invasive exotics.



Cold temperatures caused die off of exotic fish in canals.

Gap:

Understanding the long term affects of chemical treatments on the Everglades?



What areas will restore naturally, and what areas will actively need to be restored?

Needs & Gaps

Need:

Work with local land owners to reduce or eradicate invasive species seed sources.

Gap:

**Stop Treating the Symptoms.
Let's Find a Cure?**



Weeds know, no boundaries!



Efficient, cost effective treatment techniques for Lygodium.

An aerial photograph of a wetland area. The foreground and middle ground are dominated by dense, tall, dry, brownish grasses. In the upper portion of the image, there is a darker, more saturated area that appears to be a pond or a waterlogged section of the wetland. The overall scene is captured from a high angle, looking down on the landscape.

Questions ?