

Arthur R. Marshall Loxahatchee



National Wildlife Refuge

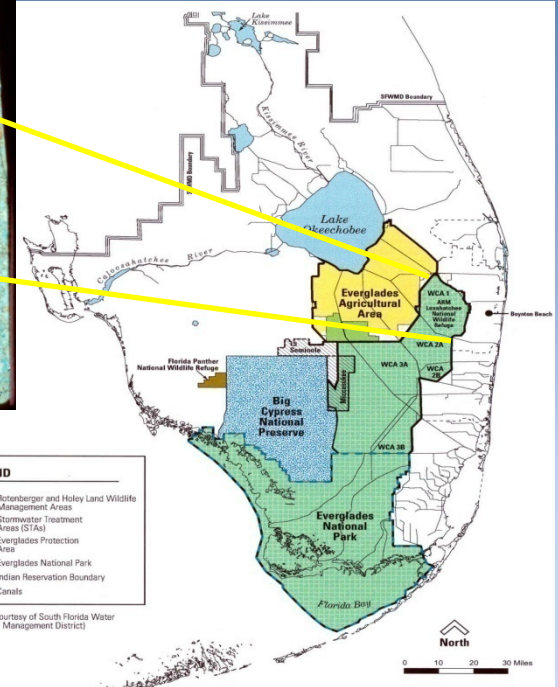
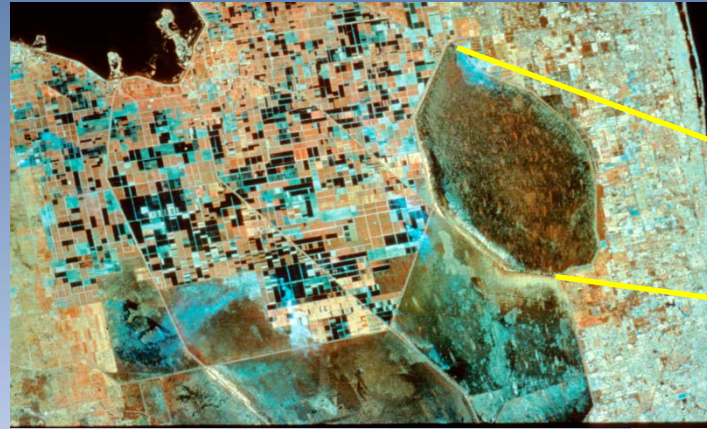
Lisa Jameson

Invasive Species Biologist

United States Fish and Wildlife Service



Invasive Species Programs



Objectives of the Exotic Vegetation Control Program:

- ✓ To achieve maintenance control of all exotic invasive species within the Refuge.
- ✓ Achieve and sustain maintenance control levels of Melaleuca, Lygodium, Brazilian pepper and Australian pine by 2017.

Priority Plant Species

- **Priority Plants**

- 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 Refuge

- **Newly Treated Plant Species**

- Torpedo Grass (*Panicum repens*)

- Primrose (*Ludwigia peruviana*)

- Tropical Soda Apple (*Solanum viarum*)

- Wright's Nutrush (*Scleria lacustris*)

Priority Animal Species

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



Sacred Ibis – surveyed for during nesting season (no reported sightings in 2011)



Exotic Apple Snails – over a million egg clusters removed from impoundments and canals



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

Nile Monitor Lizards – baiting and trapping for in compartment D



Cuban Tree Frogs -trapped and dispatched from the Cypress Swamp



Priority Animal Species

- **Early Detection: Animal Species**

Redbay Ambrosia Beetle (*Xyleborus glabratus*)

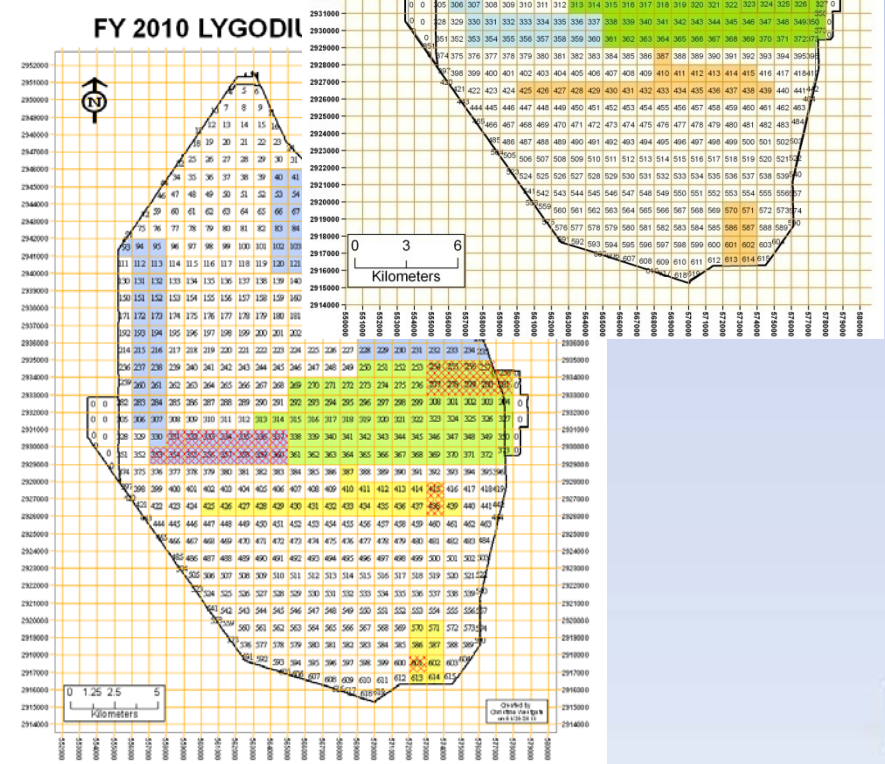
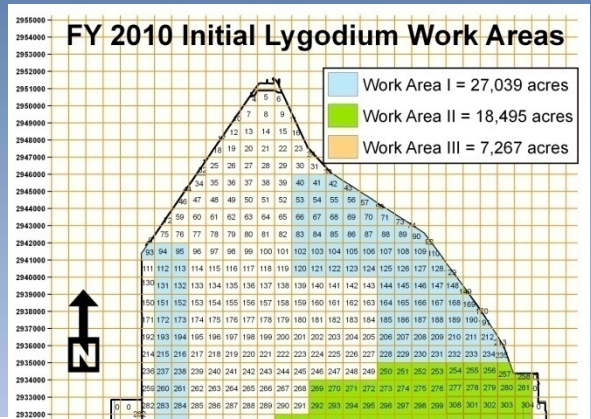
Gypsy Moth (*Lymantria dispar*)

Bullseye Snakehead (*Channa marulius*)

Marine Toads (*Bufo marinus*)



Lygodium FY2010 Work Area I-III



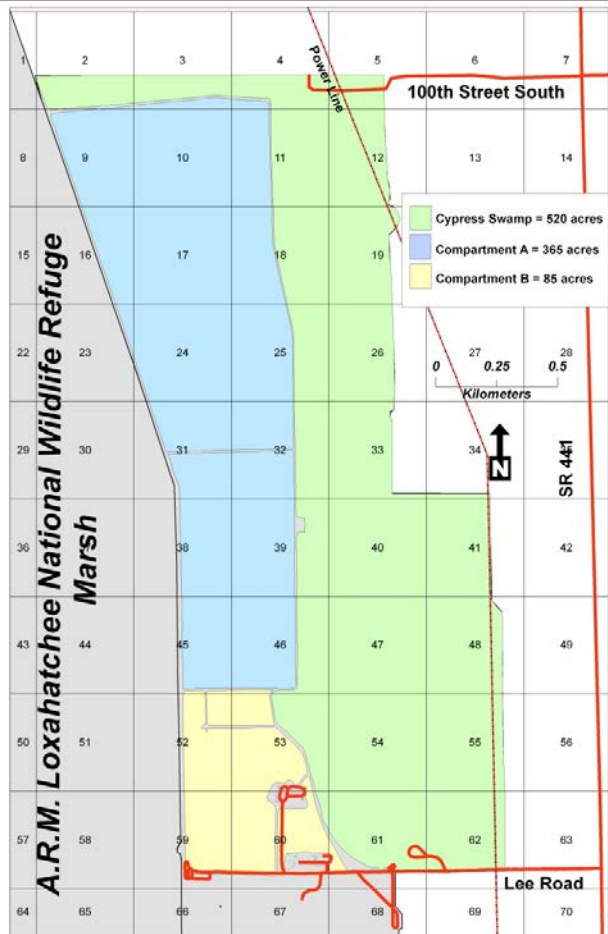
Applied Aquatic Management Inc. (AAM)
 FY2010 funding \$500,000.00
 Start Date: September 9, 2010
 End Date: January 27, 2011
 Completed: 5,345 acres

Earthbalance Inc., (EBI)
 FY2010 funding \$375,000.00
 Start Date: September 13, 2010
 End Date: December 29, 2010
 Completed: 975 acres

De Angelo Brothers Inc. (DBI)
 FY2010 funding \$125,000.00
 Start Date: September 7, 2010
 End Date: November 10, 2010
 Completed: 525 acres

Cypress Swamp Re-Treatment

Cypress Swamp Retreatment FY2010



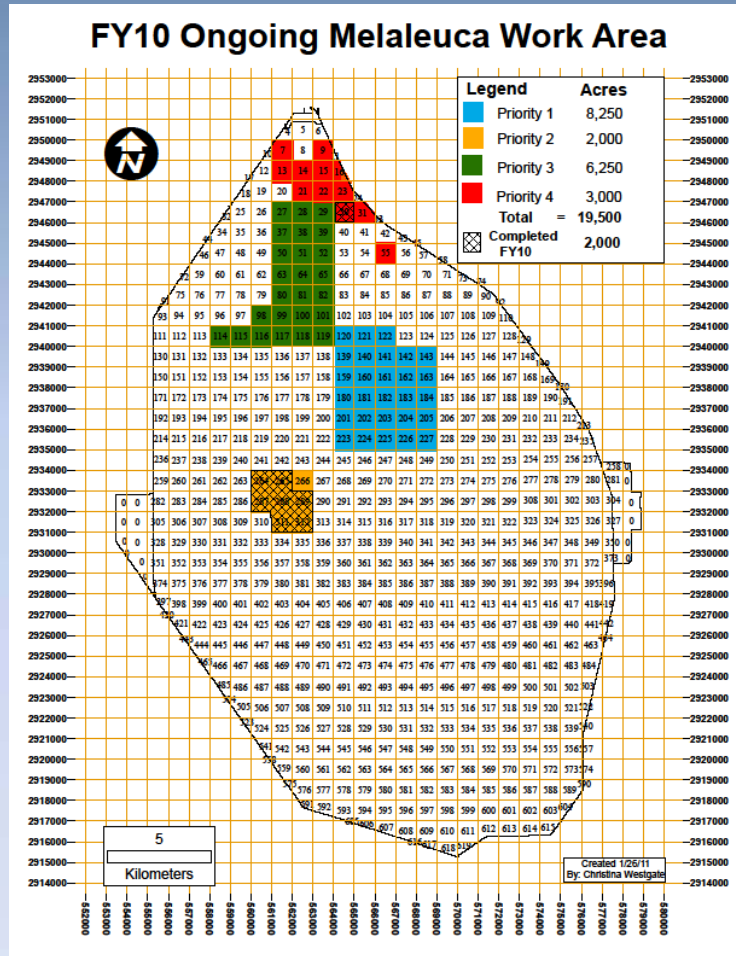
Awarded to :
Florida Best Inc. (FBI)

Award amount:
FY 2010 funding \$189,280.00

Start Date: November 29, 2010
End Date: January 3, 2011

Acres
Completed in 2010: 358
Completed: 520

Melaleuca FY2010



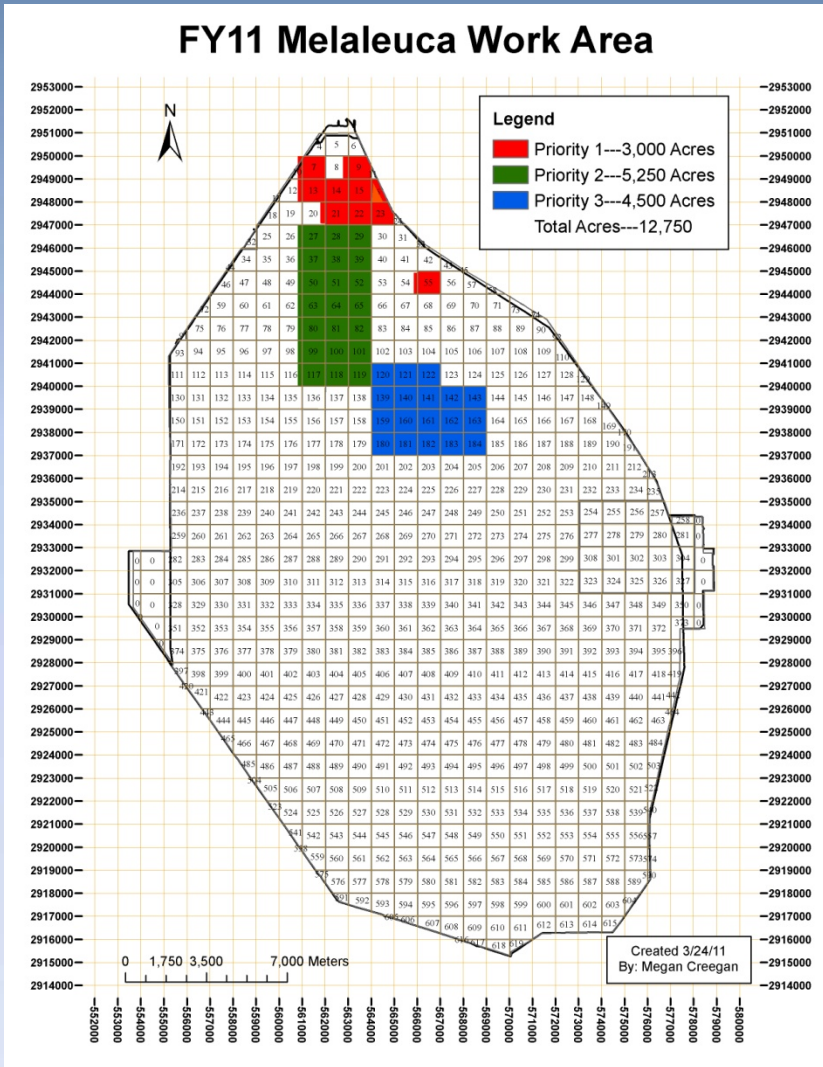
Awarded to :
Aquatic Vegetation Control, Inc.
(AVC)

Award amount:
FY 2010 funding \$736,464.00

Start Date: December 13, 2010
End Date: On-going due to low water

Completed in 2010 2,000 acres
Completed (to date) 6,765 acres

Planned Treatments: Melaleuca FY 2011

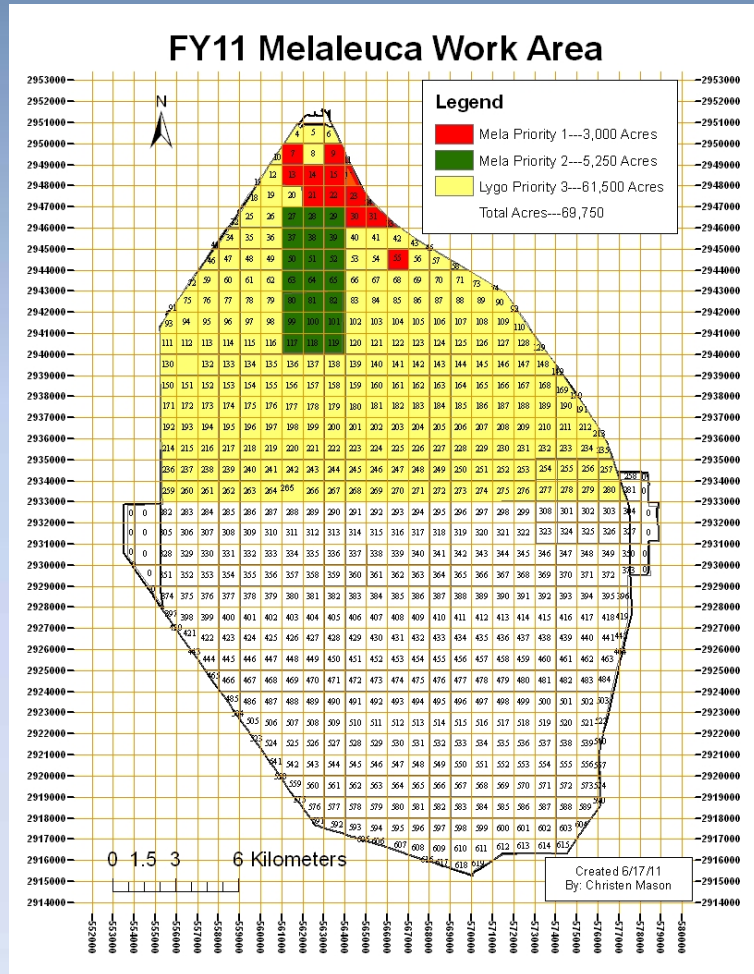


Awarded to : (AVC)
Aquatic Vegetation Control, Inc.

Award amount:
FY 2011 funding \$350,000.00

Start Date: TBD due to low water
End Date: 1 year from start date

Melaleuca FY 2011A

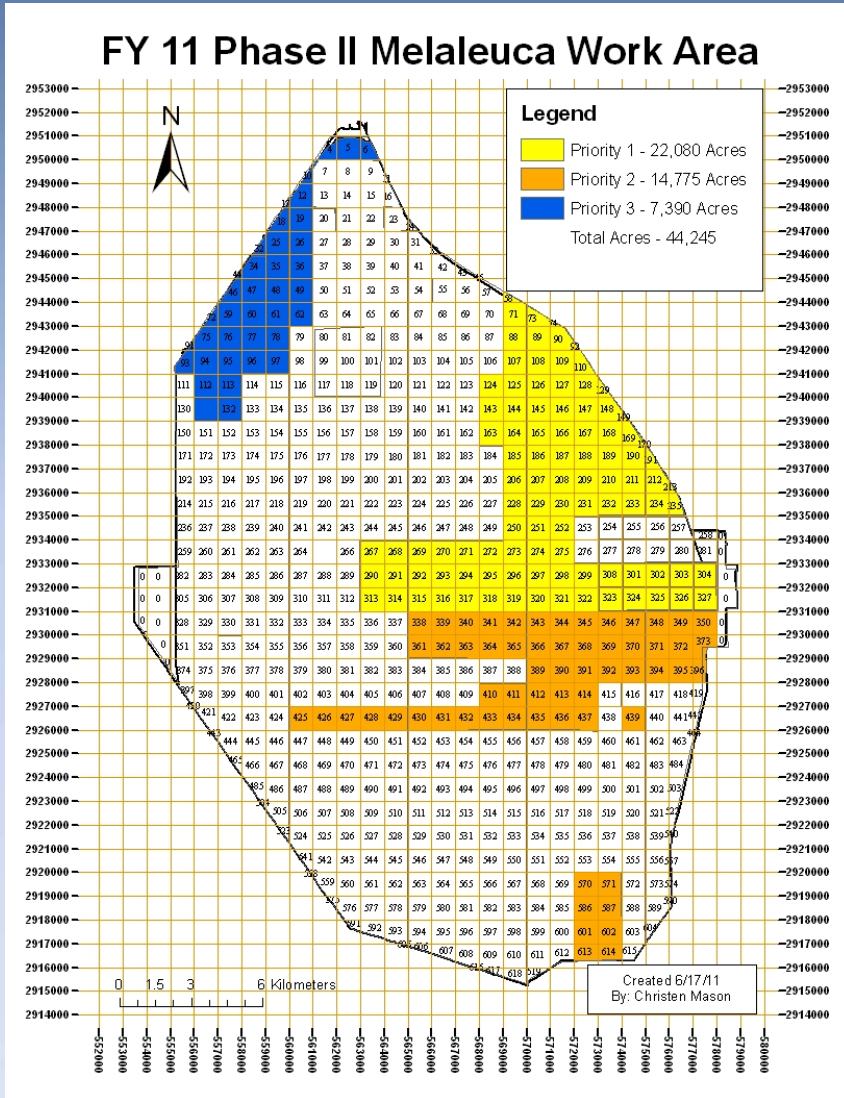


To be awarded with new IDIQ contract.

Award amount:
FY 2011 funding \$850,000.00

Start Date: TBD due to low water
End Date: 1 year from start date

Melaleuca FY 2011 Phase II



To be awarded with new IDIQ contract.

Award amount:
FY 2011 funding \$815,608.00

Start Date: TBD due to low water
End Date: 1 year from start date

CY 2011 January-July

ACRES TREATED

Ground Treatment = 5,418

Prescribed Fire = 6,000

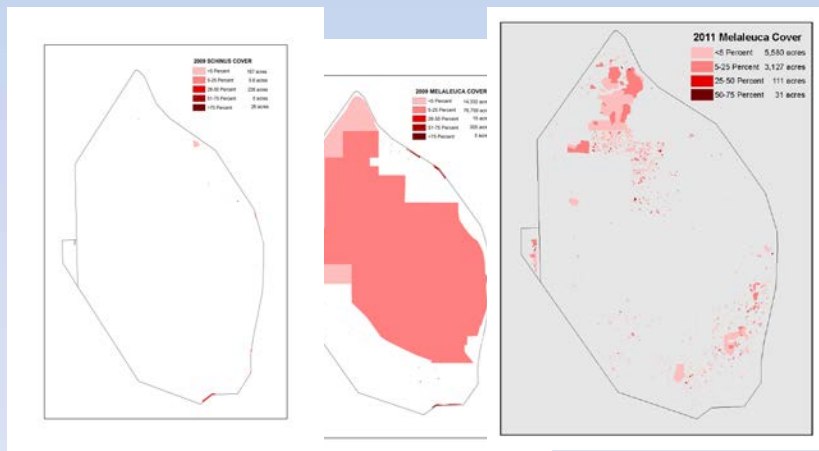
Total treatments = 11,418

Monitoring

Digital Aerial Sketch Mapping

(SFWMD, NPS)

2005, 2007, 2008, 2009, 2011



Monitoring

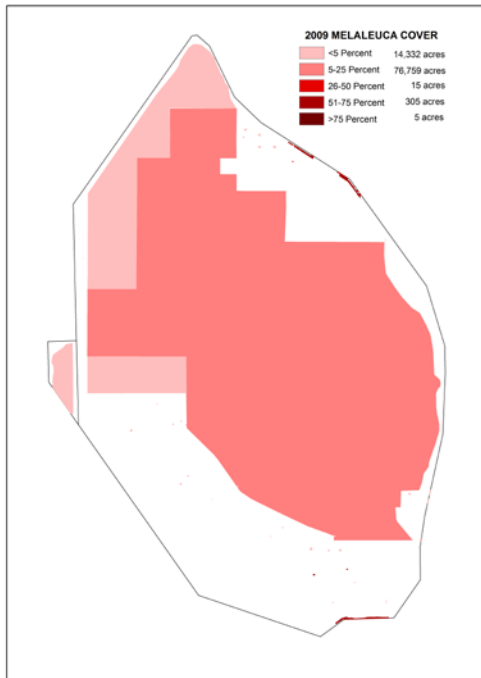
Daily:
Equipment
Personnel
Chemicals
Time
Track Logs

Weekly:
Spot checks on work
Safety

Monthly:
Inspections of treatment areas
100% treated
95% kill rate

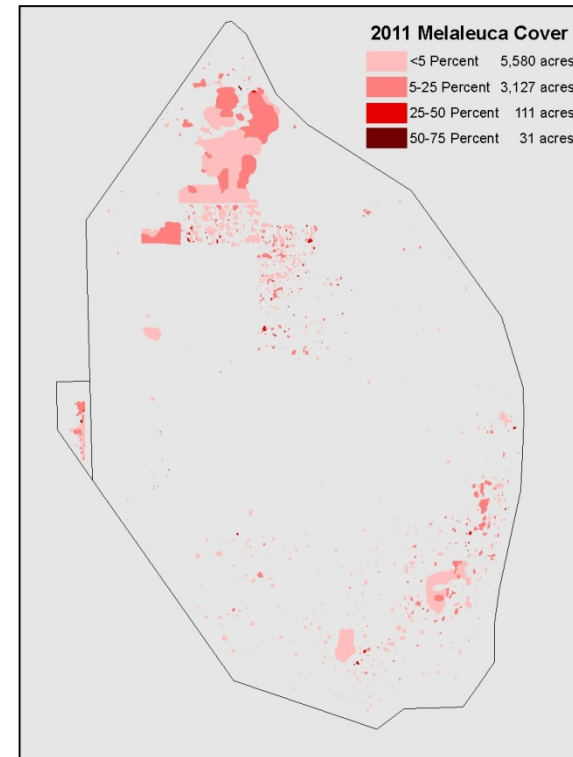
2011 Everglades Invasive Species Summit

Digital Aerial Sketch Mapping



Melaleuca

Coverage Class	Acres
High	310
Medium	15
Low	91,091
Total	91,416



Melaleuca

Coverage Class	Acres
High	31
Medium	111
Low	8,707
Total	8,849

Digital Aerial Sketch Mapping

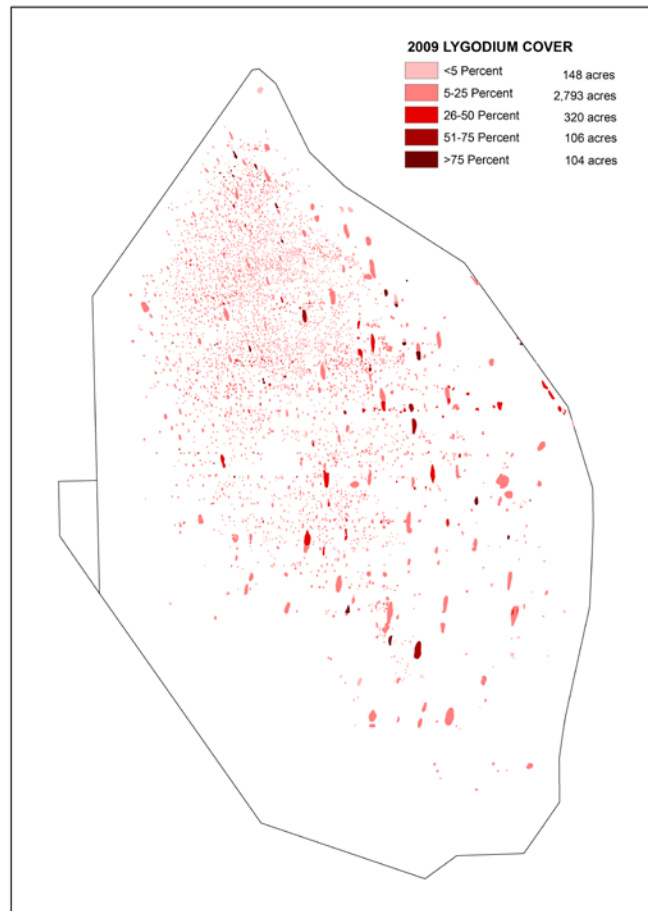


All acres have been treated, % cover is less than 1%.

Brazilian Pepper

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

Digital Aerial Sketch Mapping



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

Old World Climbing Fern

<u>Coverage Class</u>	<u>Acres</u>
High	210
Medium	320
Low	2,941
Total	3,471

Innovations and Successes

Prescribed FIRE

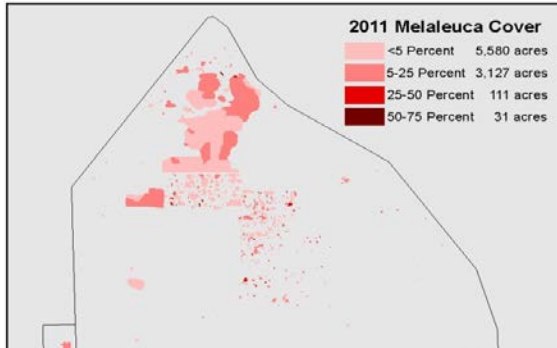
Used as post chemical treatments, **6,000** acres were treated as a secondary treatment with prescribed fire. **20-25,000** acres will be burn starting in August , 2011

Innovations and Successes

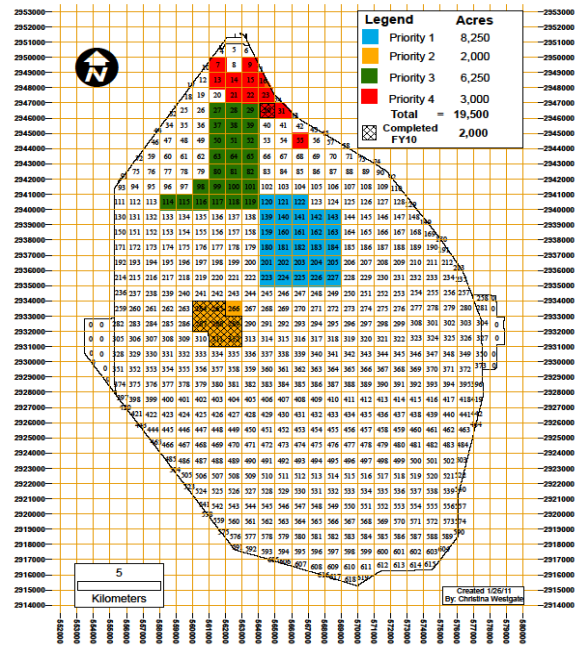
Phase I Phase II Melaleuca removal strategies

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 seedling except Lygodium



FY10 Ongoing Melaleuca Work Area



Needs & Gaps

Need:

We need water!!!!!!!!!!



Refuge closed to all work April, 2011

Gap:

Weeds are growing may loose previous work?



Refuge still closed as of July, 2011

Needs & Gaps

Need:

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



**Arthur R. Marshall Loxahatchee NWR
Science Symposium, August 30, 2011
Lygodium Breakout Session**

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?**

Questions

