National Park Service
Exotic Plant Management Teams

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National Park Service
Southeast Region Office
Natural Resource Challenge

- Protect native and endangered species and their habitats
- Accelerate natural resource inventories
- Expand monitoring efforts including air and water quality monitoring
- Improve resource planning
- Increase collaboration with scientists
Natural Resource Challenge

- Enhance use of parks for scientific research
- Use parks for learning
- Enhance environmental stewardship
- Assure fully professional staff
- Aggressively control non-native species
Natural Resource Challenge

• Exotic Plant Management Teams (EPMT).
Exotic Plant Management Teams

“A New Approach”

Teams are based on:

• Wildland Fire Fighting rapid response tactics
• Pilot teams established in 1997 at Lake Mead NRA
Exotic Plant Management Teams

Objectives

- Assess and prioritize invasive non-native species;
- Provide training to park staff;
- Supplement parks control efforts;
- Support as many parks as possible;
- Use partnerships.
EPMTs

- Host Park;
- Team Composition;
- Steering Committees.
National Park Service Units in Florida

(2.6 million acres)

- Gulf Islands NS: 135,625 acres
- Timucuan EHP & Ft. Caroline NM: 46,000 acres
- Castillo De San Marcos NM and Ft. Matanzas: 25 acres
- Canaveral NS: 57,600 acres
- De Soto NM: 27 acres
- Canaveral NS: 57,600 acres
- Big Cypress NP: 728,000 acres
- Dry Tortugas NP: 64,700 acres
- Everglades NP: 1,506,539 acres
- Biscayne NP: 173,000 acres
National Park Service Units in the U.S. Virgin Islands
(16,200 acres)

Virgin Islands NP
14,371 acres

Salt River Bay NHP and EP
936 acres

Buck Island Reef NM
867 acres

Christainsted NHS
25 acres
Florida/Caribbean Partnership EPMT

**Top Ten Species**

- Melaleuca (*Melaleuca quinquenervia*)
- Australian pine (*Casuarina equisetifolia*)
- Brazilian pepper (*Schinus terebinthifolius*)
- Old World climbing fern (*Lygodium microphyllum*)
- Latherleaf (*Colubrina asiatica*)
- Mahoe (*Thespesia populnea*)
- Chinese Tallow (*Sapium sebifereum*)
- Lead Tree (*Leucaena leucocephala*)
- Sweet Lime (*Triphasia trifolia*)
- Guinea Grass (*Panicum maximum*)
Florida/Caribbean EPMT

How we function?

- Coordinator, Crew Leader, Data Manager
- Steering Committee
- Invasive Plant Control
  - Private Contractors
  - Seasonal Crew
- Monitoring
  - Digital Aerial Sketch Mapping
  - Efficacy Plots
- Treatment Data
  - WEEDAR/APCAM
  - GPS/GIS (Contractor Tracks)
Steering Committee

Steering Committee Meeting, Project Selection
Digital Aerial Sketch Mapping (DASM)

- Observers detect features from aircraft and digitally record spatial and attribute data “on-the-fly”
  - Uses touchscreen computers linked to a GPS receiver

Specialized software:
- Displays background imagery for current location
- Allows rapid digitizing of points, lines, and polygons
  - Allows rapid attributing of features
- Displays map at multiple scales
- Provides standard GIS format output
The DASM System

GPS & Antenna

Power Supply

Software & Imagery

Touch Screen Laptops (networked)

GPS & Antenna
DASM Methods

• East-west transects on 1 km intervals

• Helicopter

• Altitude: 500 feet

• Speed: variable
Access

Helicopter

On Foot

Airboat

Boat

Pack Animals

Off Road Vehicle
Treatment Methods

- Hand Pulling
- Heavy Equipment
- Aerial Application
- Herbicide Treatments
Seasonal Crew

- Small Parks/Small Projects
  - Temporary Employees
  - October- March (dry season)
Invasive Plant Control
Private Contractors
Everglades NP
Casuarina equisetifolia
Everglades National Park

**Australian Pine**

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<th>Acres</th>
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<td>High</td>
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<tr>
<td>Low</td>
<td>411</td>
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<td>Total</td>
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Everglades NP
*Melaleuca quinquernervia*
Melaleuca

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Everglades NP

Schinus terebinthifolius
Everglades NP
Flamingo
Brazilian Pepper

Coverage Class | Acres
---|---
High | 7793
Medium | 28494
Low | 1089
Total | 37376
Everglades NP
*(Lygodium microphyllum)*
Biscayne NP
Colubrina asiatica
Biscayne NP
*Casuarina equisetifolia*
Biscayne NP

Thespesia polpunea

Manikara zapota
Virgin Islands NP
Big Cypress NP
Spot Sprayer
Contracting Officers
Technical Representative
(COTR)

• Statement of Work (SOW)
• Inspections
• Approve Invoices
Database

- WEEDAR

Various types of reports can be generated by selecting from the Report Menu.
GPS Monitoring

- One GPS unit per individual/per project
GPS Tracking Devices allow us to:

- Verify Time in/Time out
- Identify Treatment locations
- Identify Treatment Routes
- Increase Productivity (+ 30%)

People work harder when Big Brother is watching.
Check Accuracy of Data Sheets

**Device:** 1917

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Three GPS tracking devices were used to record contractor locations at five minute intervals throughout the duration of the project. The breadcrumb trails symbolize the path taken by each individual contractor.

Legend:
- 1920 Recorded Locations
- 1920 Breadcrumb Trail
- 1913 Recorded Locations
- 1913 Breadcrumb Trail
- 1927 Recorded Locations
- 1927 Breadcrumb Trail
Efficacy Plots

1) How well the exotic removal treatment performed?
2) Native Plant Recovery
3) Determine if additional treatment or restoration management action is required.
Sampling consists of composition/coverage (trees, shrubs, vines and herb layer) and the light environment using a spherical densiometer.
Training

St. Croix

Everglades NP
Partnerships
Florida Invasive Species Partnership

CWMA/CISMA:
A local organization that integrates all invasive management resources across jurisdictional boundaries.

http://www.floridainvasives.org/
Rapid Response

(Pacific) Black Mangrove
*Lumnitzera racemosa*

Mile a Minute Vine
*Mikania micrantha*
Florida/Caribbean EPMT Accomplishments To Date

- >800,000 acres of exotics treated
- 10 out of 15 NPS units are considered under maintenance control.
Everglades NP, Flamingo
Everglades NP, Pavillion Key
Buck Island Reef
NM