Florida Participation in the National Wetland Condition Assessment

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National Wetland Condition Assessment (NWCA)

- NWCA Site Assessment
  - FDEP
  - Graduate Research
- FL Sites
  - Statewide Distribution
  - Sampling Design
- Overalls for FL Wetlands
  - USA-RAM method
- Future Research

NWCA

Site Verification and AA Establishment
Site Photographs
Veg Plot Layout and Characterization (5)
USA-RAM
QA/QC and Unknown Collection

AA Team

Buffer Plot Layout and Characterization (12)
Hydrologic Characterization
Water Quality Characterization
Algal Toxins and Algae Taxonomy
Chlorophyll
Soil Pesticides
Soil Pit Layout, Characterization, Sampling
Soil Enzyme and Isotope Sampling

AB Team

FDEP

YSI Sampling
Water Sample Collection

Did we mention the ice?!!

Graduate Research

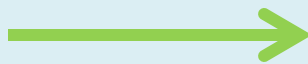Establish Long-Term Sensors
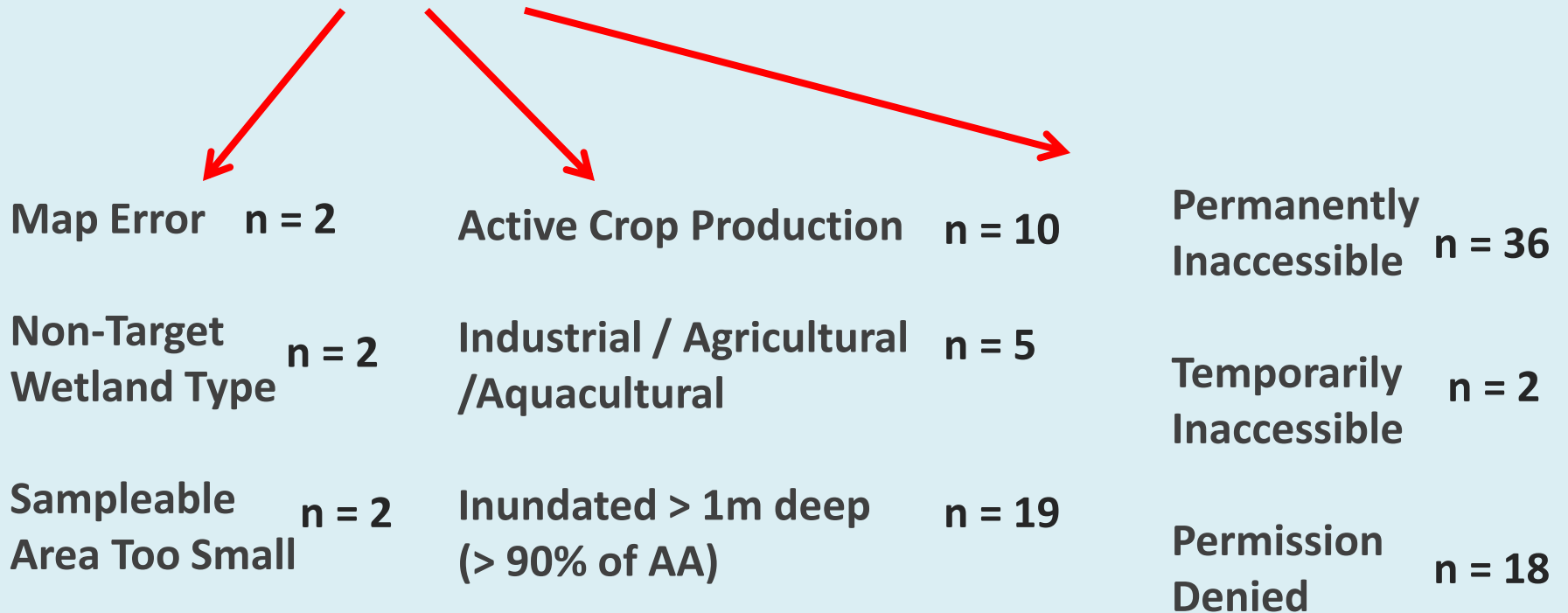Collect Macro-Invertebrates

Site Evaluation

Potential Sites

Evaluated Sites

n = 164

Sampled Sites

n = 67

Map Error   n = 2

Active Crop Production   n = 10

Permanently Inaccessible   n = 36

Non-Target Wetland Type   n = 2

Industrial / Agricultural /Aquacultural   n = 5

Temporarily Inaccessible   n = 2

Sampleable Area Too Small   n = 2

Inundated > 1m deep (> 90% of AA)   n = 19

Permission Denied   n = 18

Site Distribution and Access

Regions of Florida

Wetland Region	Total	
	Wetland Points (n)	% of Wetland Points
South	23	33
Central	14	20
North	18	26
Panhandle	14	20
Total	69	

(regions after Lane 2000)

Wetland Type

Wetland Class	Total	
	Wetland Points (n)	% of Wetland Points
E2EM	18	26
E2SS	13	19
PEM	17	25
PSS	13	19
PFO	8	12
Total	69	

(Cowardin et al 1979)
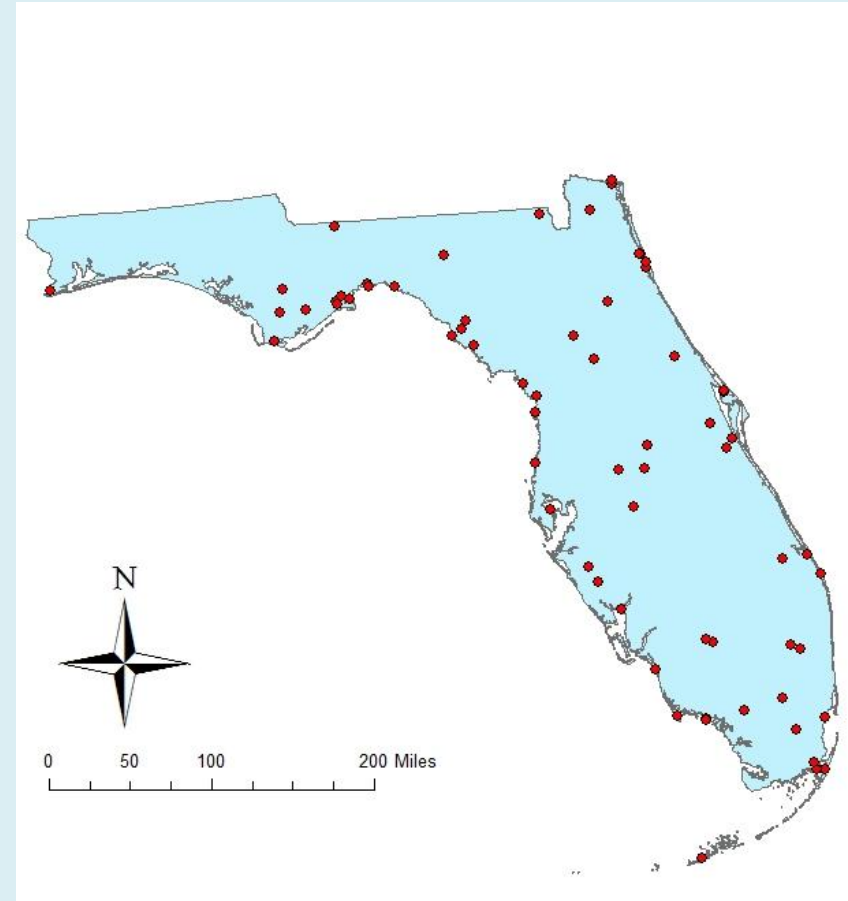
Transportation Logistics
65% by foot (n = 45)
20% by motorboat (n = 14)
10% by canoe (n = 10)
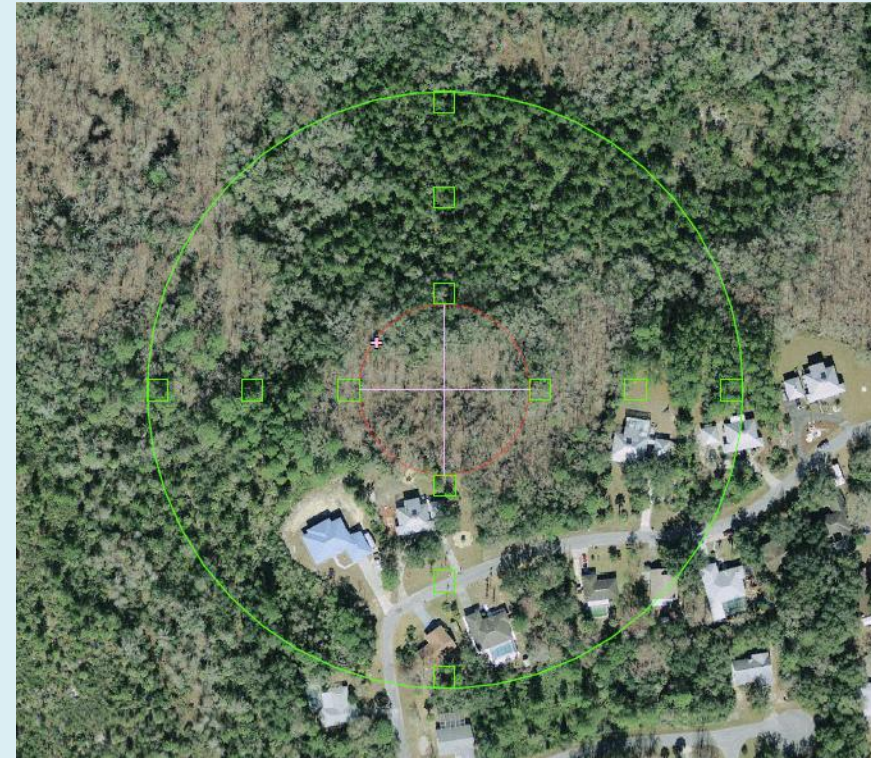4% by airboat (n = 3)

USA – RAM – Level 2 Assessment

- Rapid → Across Classes

- Overall Site Condition

- State Adaptation

- Metrics

Buffer (1-3)

- % Adjoining Buffer
- Buffer Width
- Stressors
  - Hydro
  - Res/Urb/Com
  - Hab/Veg
  - Agric.

AA (4-11)

- Topo Complexity
- Patch Mosaic
- Vert. Complexity
- Plant Community Complexity
- Water Quality
- Hydro Alteration
- Substrate Alteration
- Cover of Invasives
- Veg Stressors

NWCA11-1325 - Shifted Circular AA
Point = 28.923066 N -82.621731 W
Plot Center = 28.922829 N -82.621438 W

PFO

Landscape Stressors

- ## Metric 1 (100%)

  >75 → **90.77% (59)**

  50-75 → 6.15% (4)

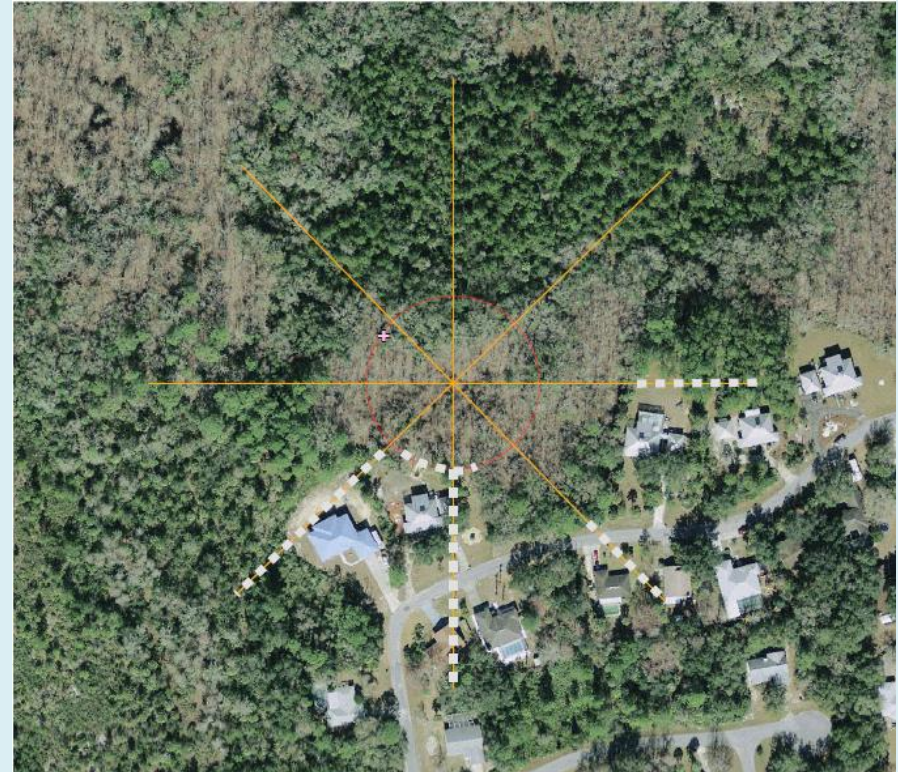 25-50 → 1.54% (1)

  < 25 → 1.54% (1)

- ## Metric 2 (800m)

  693.18 ± 182.42 m (mean ± SD) (n=65)

Region	Mean ± SE
North	717.22 ± 46.72
South	722.50 ± 28.15
Central	630.46 ± 49.14
Panhandle	678.00 ± 80.11
PUB/PAB	598.75 ± 111.55
PSS	480.46 ± 86.92

NWCA11-1325 - Shifted Circular AA
Point = 28.923066 N -82.621731 W
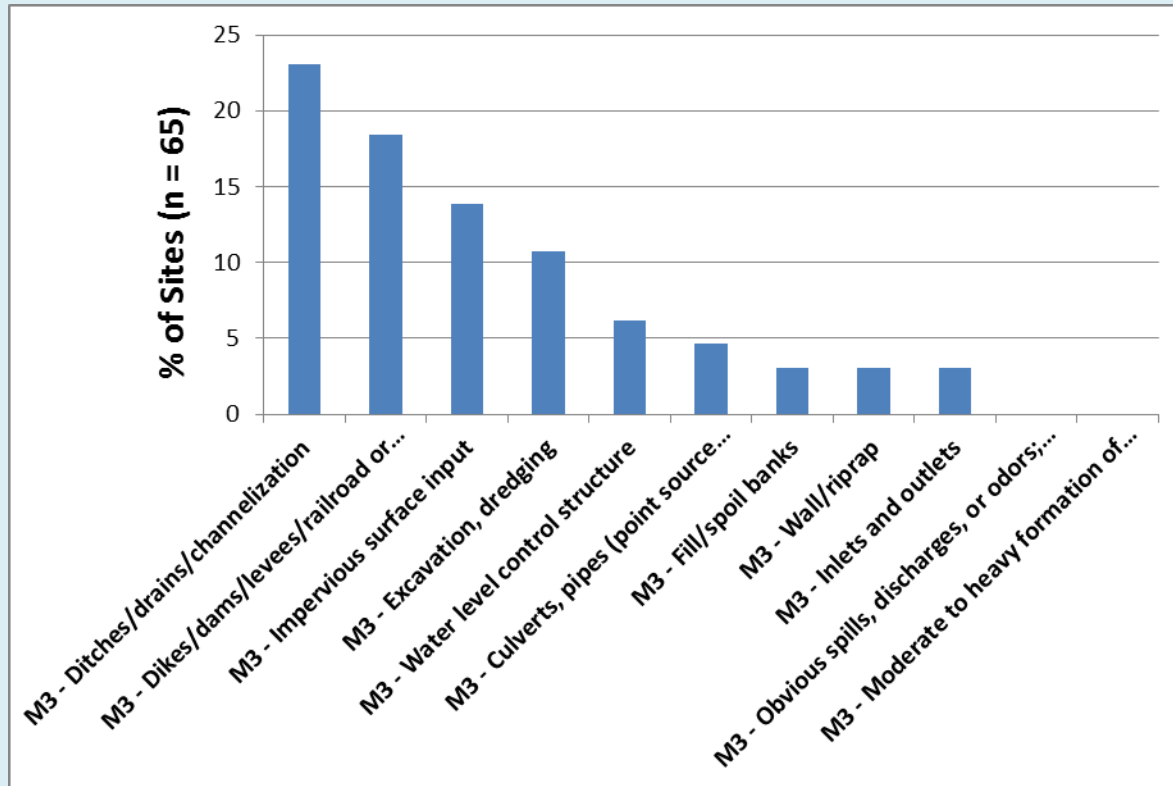Plot Center = 28.922829 N -82.621438 W

PFO

USA-Ram - - Metric 1
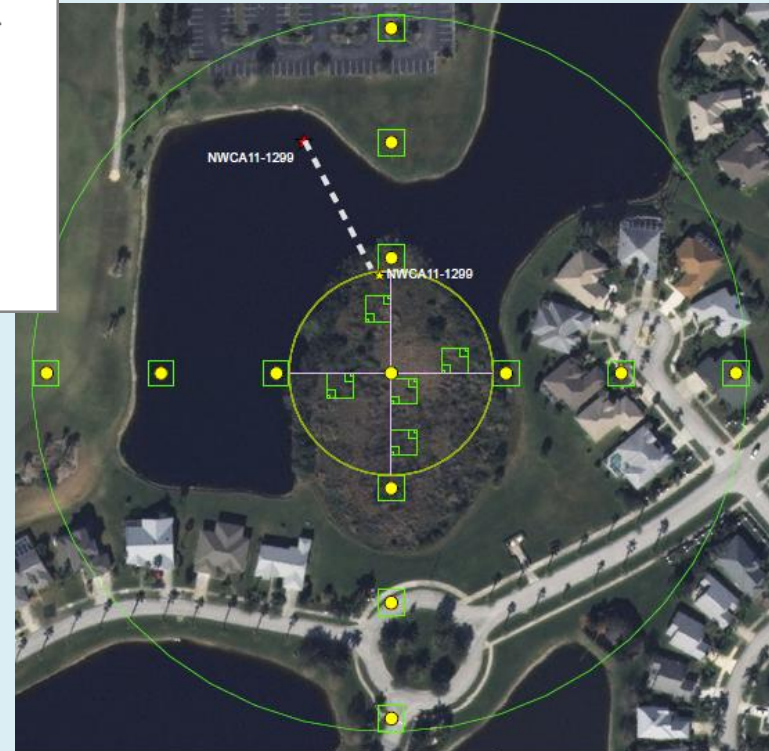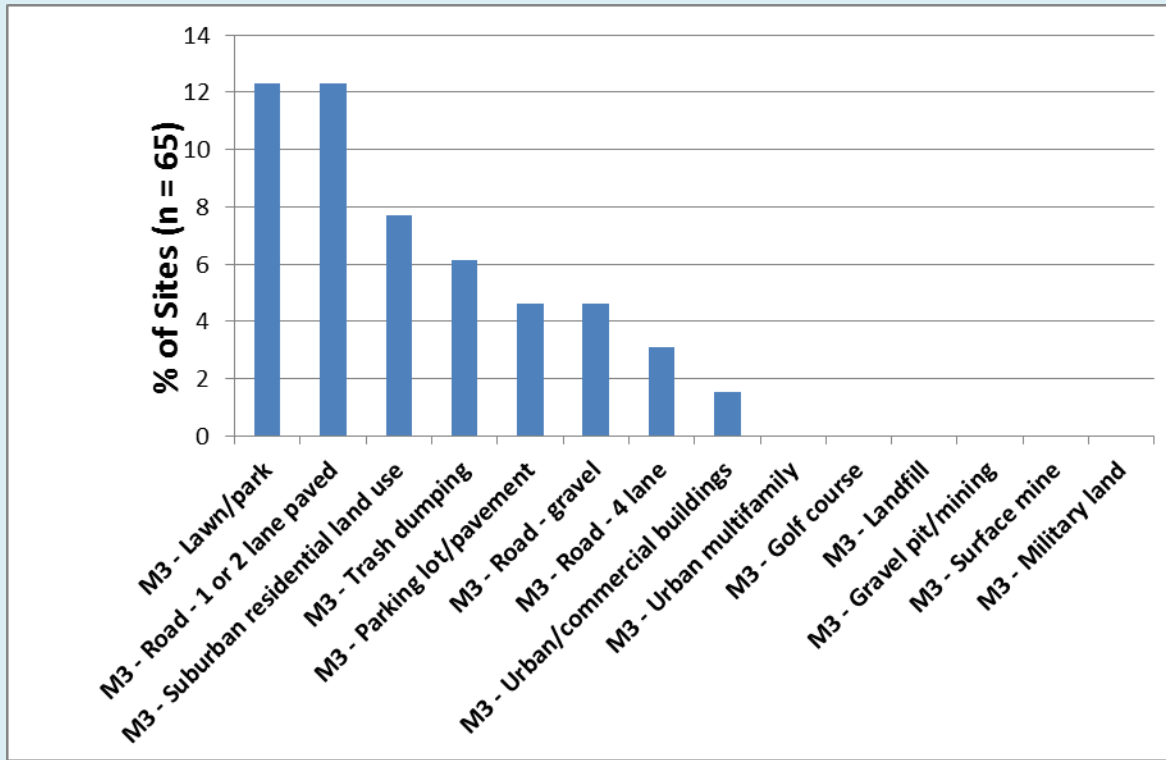>75% of AA perimeter
adjoining buffer

Metric 2
Transect - - Buffer Width (m)
1-N - - 100
2-NE - - 100
3-E - - 45
4-SE - - 50
5-S - - 0
6-SW - - 5
7-W - - 100
8-NW - - 100

0   40   80   160 Meters

Hydrologic Stressors

Residential / Urban / Agricultural Stressors

More Overalls

- Point Source (2)

  Point Source Input → 1.53% (1)

  Stormwater Inputs → 4.62% (3)

- Sedimentation/ Pollutants (4)

  Sedimentation (deposit/fan/plume) → 3.08% (2)

  Debri lines (plants) or Silt-laden Veg → 1.53% (1)

  Turbidity in Water Column → 1.53% (1)

  Industrial/Domestic Spills or Discharge → 0%

- Eutrophication/ Mining/Salinity (7)

  Formation of Heavy Algal Surface Mats (or Lemna sp.) → 1.53% (1)

  Obvious Increases in Concentration of Dissolved Salts → 4.62% (3)

  Direct Discharges (Domestic / Agricultural / Dairy / Mining

Overall Habitat / Vegetation Stressor
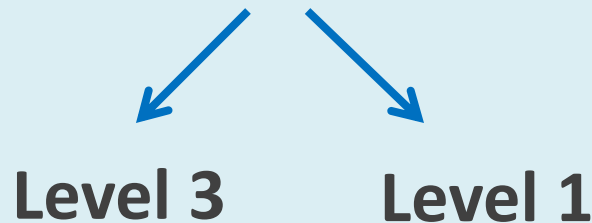
Buffer →

Substrate Disturbance → 21.54% (14)

Mowing/Shrub Cutting → 12.31% (8)
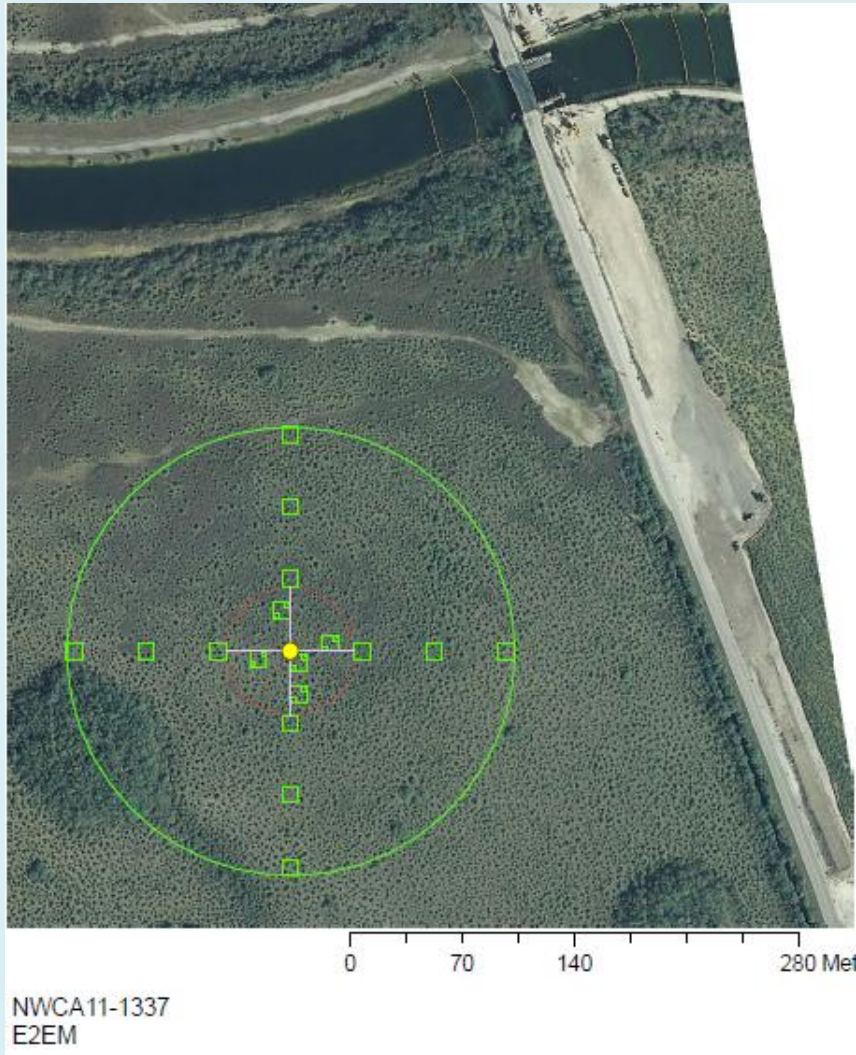
Cover of Non-native / Invasive Sp. → 12.31% (8)

- Other Metrics of Veg on USA-RAM
  - Topographic Complexity (20)
  - Patch Mosaic – 4 options
  - Vertical Complexity - % cover classes for 7 strata
  - Plant Community - Dominant/Co sp., % cover, 7 strata, invasives
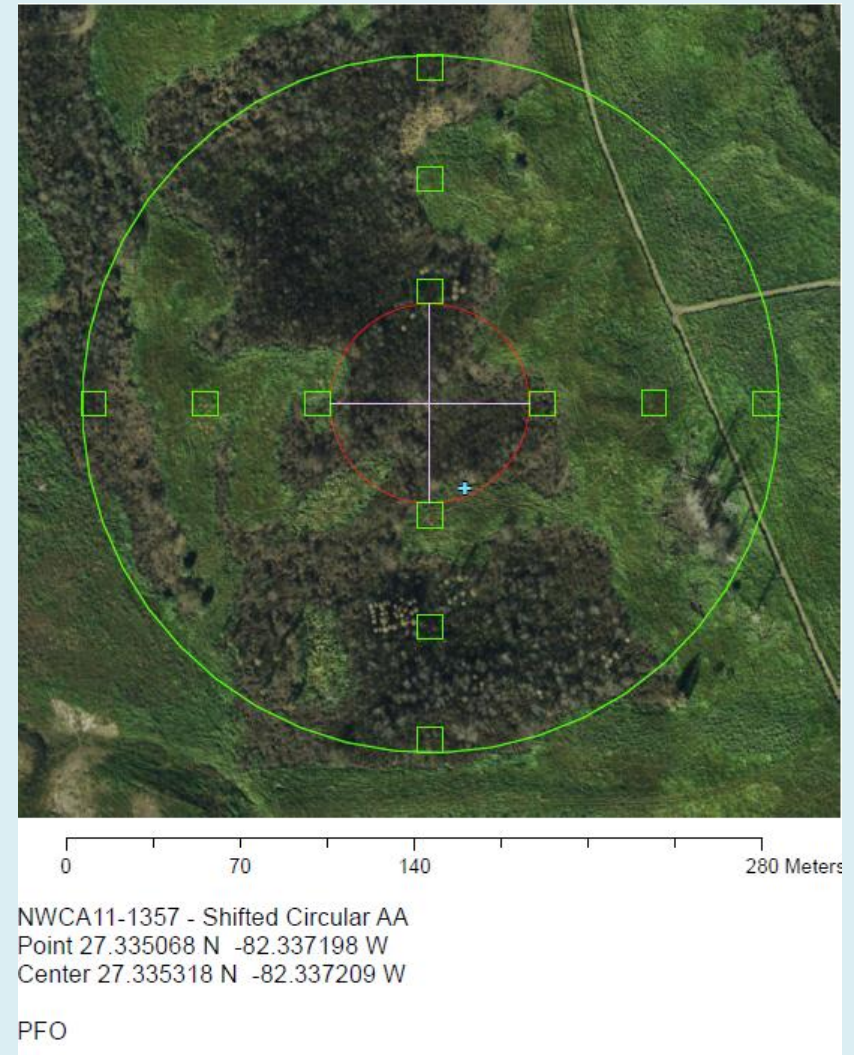 - Cover of Invasive Species – 5 cover classes

Level 3   **Level 1**

Other Thoughts – Spatial / Temporal Scale

NWCA11-1337
E2EM

Navy Base – Key West, FL

NWCA11-1357 - Shifted Circular AA
Point 27.335068 N -82.337198 W
Center 27.335318 N -82.337209 W

PFO

**Phosphate Mining – Central Florida
Restored / Natural Wetland**

NWCA and Florida

- This is IMPORTANT.

- This is INTENSE.

- This should be REPEATED.

- This is GREAT DATA.

Acknowledgements

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  - Co-Leader Erica Hernandez
  - FLORIDA FIELD CREW!!!

Questions