

US EPA ARCHIVE DOCUMENT

National Wetland Condition Assessment: Planning Progress to Date

NEAB Meeting

March 19, 2009

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Outline

- Wetlands Information
- NWCA Goals
- Wetland Monitoring 1-2-3's
 - Level 1: Survey Design
 - Level 2: USA-RAM
 - Level 3: Biotic & Abiotic
- Reference Condition
- Plans for 2009-2010



Wetland Information Nationally

2005 FWS Wetland Status & Trends

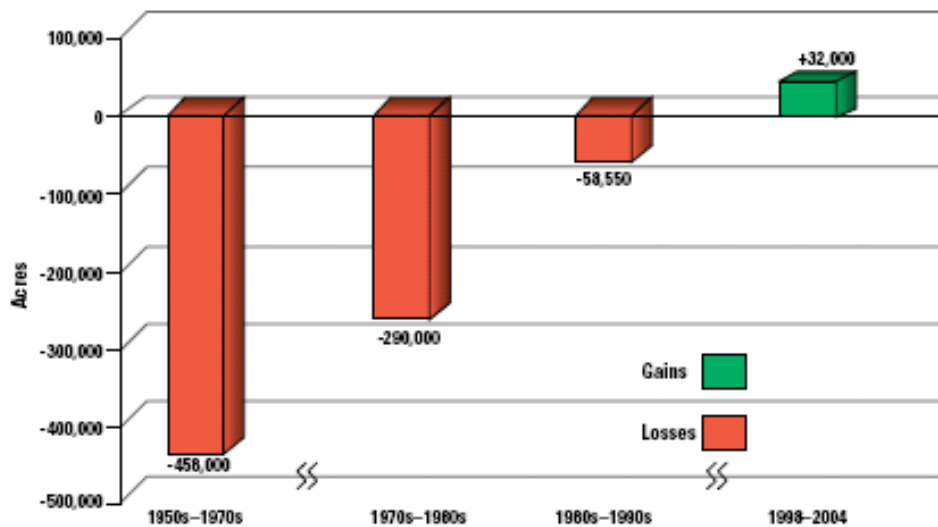


Figure 10. Average annual net loss and gain estimates for the conterminous United States, 1954 to 2004. Sources: Frazer et al. 1988; Dahl and Johnson 1991; Dahl 2000; and this study.

2004 NWQI (305b)

- 10 States
- 1.8 million acres
 - (107 mil nationally)
- 30% Impaired
 - DO
 - Turbidity
 - Sediment

NWCA Goals

1. Produce a national report that describes the ecological condition of the nation's wetlands
2. Help States and Tribes implement wetland monitoring and assessment programs
3. Advance the science of wetlands monitoring and assessment



Photo by Jim Newton

3-Level Approach

Level 1 Indicators - Landscape Assessment:

Use GIS and remote sensing to gain a **landscape view of watershed and wetland condition**. Typical indicators include wetland coverage (NWI), land use, and land cover.

Level 2 Indicators – Rapid Wetland Assessment:

Evaluate the **general condition of individual wetlands using relatively simple field indicators**. Akin to a physical habitat assessment for wetlands. Assessment can also be based on the characterization of stressors known to limit wetland services. (e.g. road crossings, tile drainage, ditching).

Level 3 Indicators – Intensive Site Assessment

Indicators requiring intensive field measurements. Often involves developing an index of biological integrity. Can be used to validate Level 1 or 2 indicators or diagnose the causes of wetland degradation.

Level 1: Survey Design

- **Target Population**
 - All Wetlands – tidal and non-tidal and farmed, specifically wetted areas with rooted vegetation or shallow open water



Wetland Classes in NWCA

CLASSIFICATION	COMMON NAME (eg.)
Estuarine Intertidal Emergents	Saltwater Marsh, Brackish Marsh
Estuarine Intertidal Shrub/Scrub	Mangrove Forest, Swamp Tupelo
Palustrine Forested	Bottomland Hardwoods, Pine Savannah, Cypress Swamps, Vernal Pools
Palustrine Shrub/Scrub	Bogs, Pocosins, Buttonbush Marsh, Bayberry Fen, Meadowsweet Marsh
Palustrine Emergents	Prairie Potholes, Freshwater Marsh, Fens, Seeps & Springs, Wet Meadows
Palustrine Unconsolidated Bottom/Palustrine Aquatic Bed	Open Water Ponds (Natural or Urban)
<i>Palustrine farmed</i>	<i>Rice paddies, 'wet' agricultural fields</i>

“Wetland Classes”

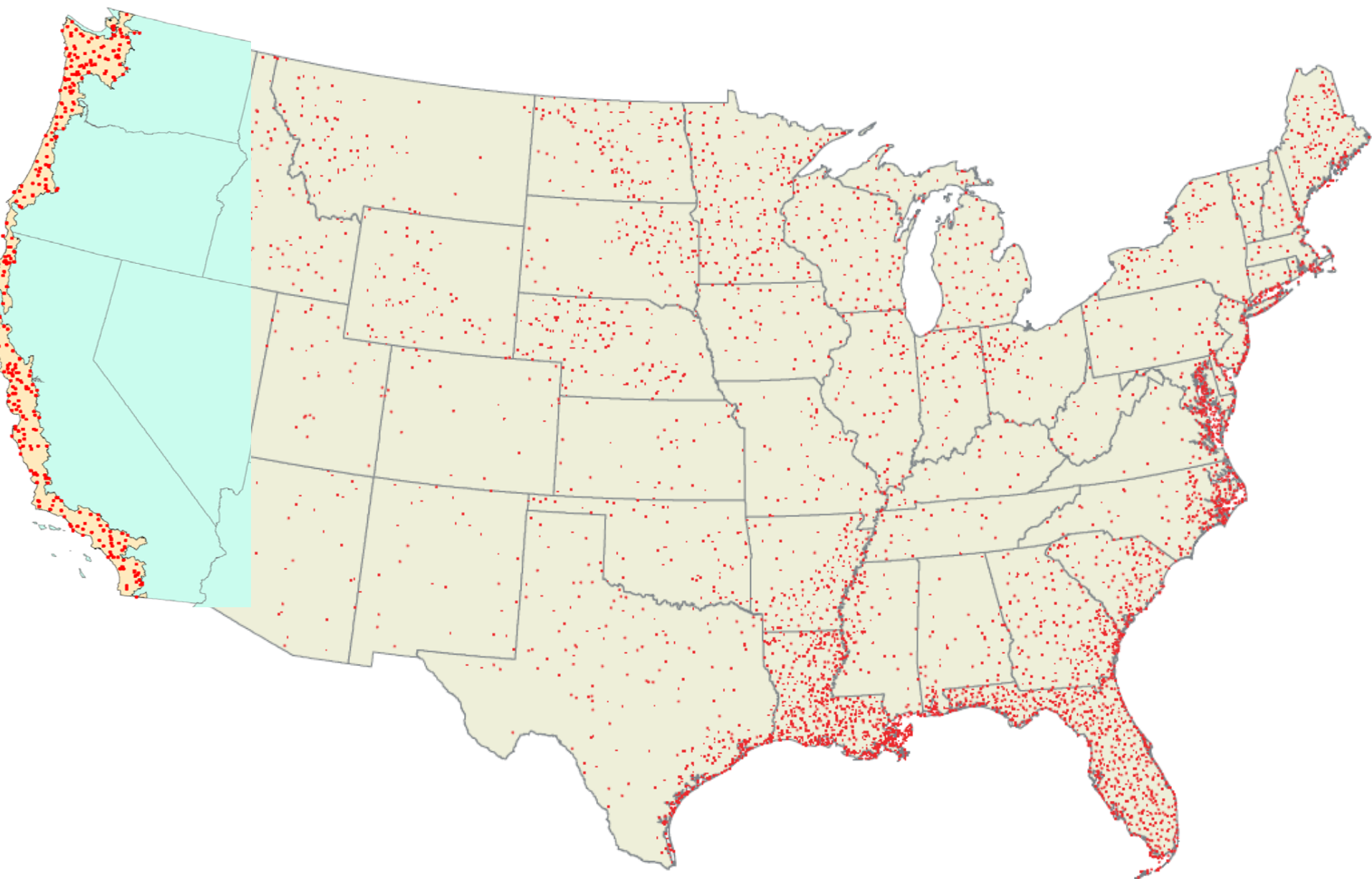
Excluded OR Inadequately Represented

- Mud Flats
- SAV Beds
- Industrial, Aquaculture & Farm Ponds
- Vernal Pools
- Hanging Gardens
- Others

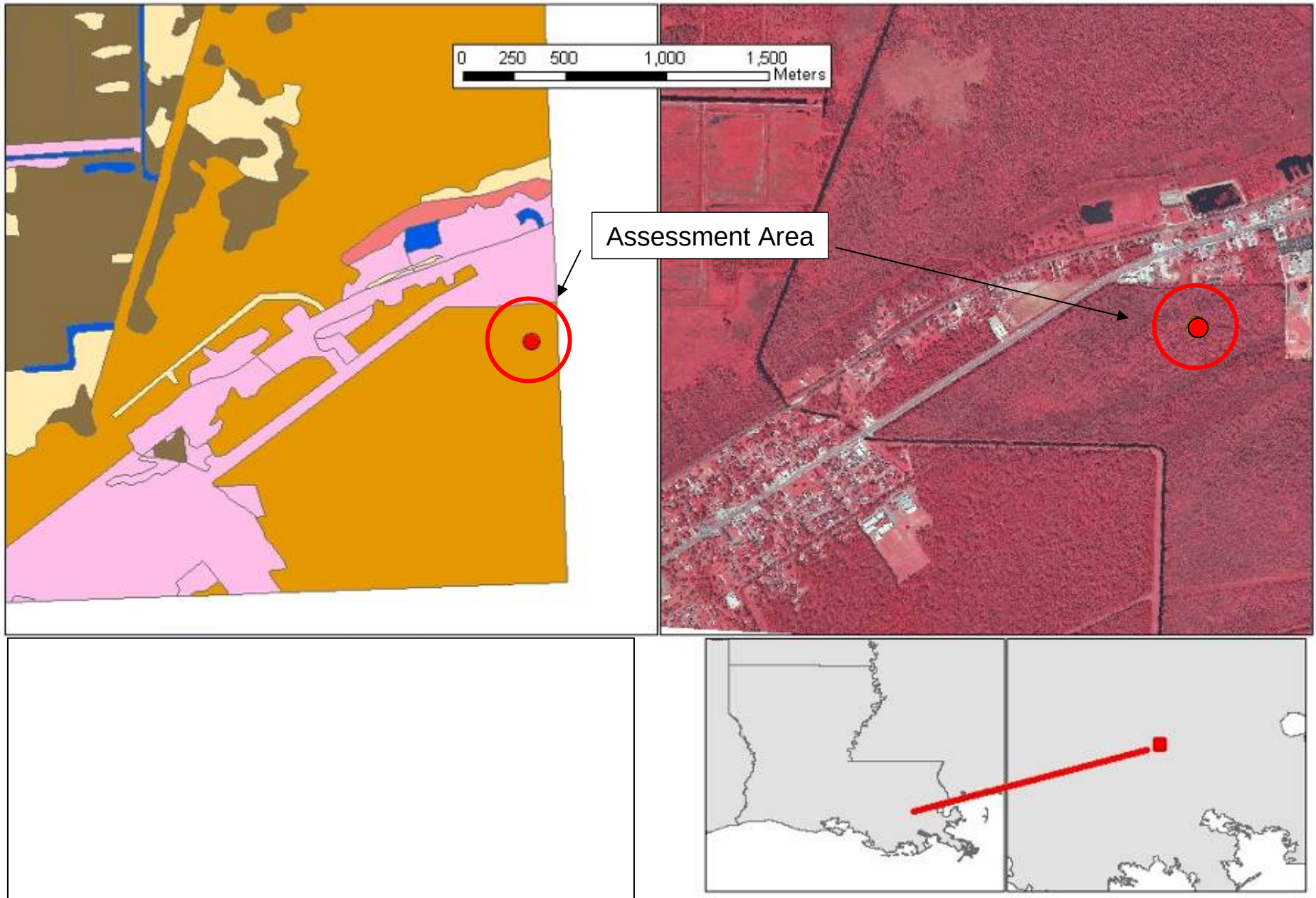




Status and Trends 2005 Plot Locations



Example of FWS S&T Plot: 2mi x 2mi



Level 2 – Rapid Assessment

- USA RAM under development
 - Use existing methods
- **Purpose 1:**
 - Wetland “structure” assessment (HGM condition)
 - ID stressors (ditching, buffer disturbance, etc.)
- **Purpose 2:**
 - Tech transfer to States and Tribes



USA RAM

- 5 Attributes
 - Separate Condition and Stressor Metrics
- Score Condition and Stress Indices Separately
- Combine Index Scores for Site Categorization

Attribute
Landscape
Buffer
Hydrology
Physical Structure
Biological Structure



Fish



Algae



Macroinvertebrates



Plants

Level 3 Indicators



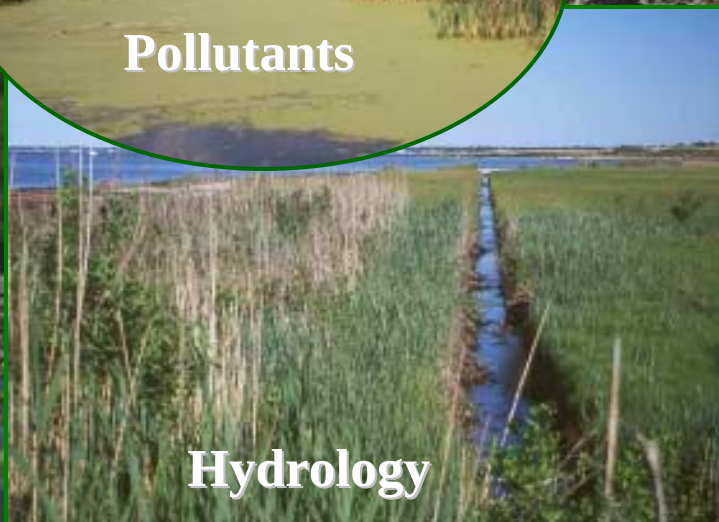
Amphibians



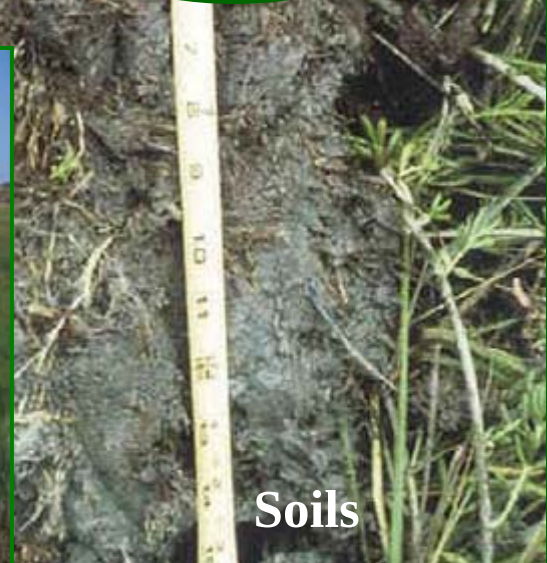
Pollutants



Birds



Hydrology



Soils

Process

- **February 2008:** Webinars to Discuss Indicator Selection Criteria
- **March 2008:** Indicators Workshop in Portland, Oregon
- **April – September 2008:** EPA develops Level 3 Indicator Straw Proposal
- **October 29, 2008:** Webinar to Discuss Level 3 Indicator Straw Proposal
- **November 21, 2008:** Level 3 Indicator Comments Due
- **December 2008:** National Meeting to finalize DRAFT list of Level 3 Indicator Classes



Photo courtesy of Janet Nestlerode

Candidate Indicators

Indicator Class	Details
Vegetation	Botanist needed
Soils	Non-soil scientist protocol
Hydrology	Inferred saturation and inundation
Algae	Soft algae and diatoms
Macroinvertebrates	Difficult to standardize field collection
Birds	Overlay existing data?
Fish	Need Water
Stressors	Includes Buffer Analysis
Water Chemistry	Where possible, limited parameters

Biological Indicators

- Plants

- **Why:** Biological Integrity (VIBI, FQAI)
- **How:** OH, MN, other state protocols
- **What:**
 - Tailored to dominant vegetation
 - ID all plants top species, press unknowns
 - Strong botanical skills & “office time” for IDs

- Algae

- **Why:** Inferred nutrients, inferred hydrology, biological integrity
- **How:** ME, MSU, NAWQA
- **What:**
 - Soft Algae and Diatoms
 - Multi-Habitat Composite Sample
 - Quicker Response to Stressors



Photo courtesy of Janet Nestlerode

Abiotic Indicators

- Soils
 - **Why:** Pollutants, Inferred Hydrology, Geomorphic Condition
 - **How:** NRCS, NC State, NRSA
 - **What:**
 - Basic soil profile (auger)
 - Hydric Soil Field Indicators
 - Soil chemistry
- Water (*field method still TBD*)
 - **Why:** Pollutants, Hydrologic Condition
 - **How:** Pore Water Sample, Surface Water Probe
 - **What:**
 - Water Depth
 - Water Chemistry
 - Contaminants (?)



Photo courtesy of Janet Nestlerode

Reference Condition: Issues and Potential Solutions



The Team

- NatureServe
- Reference Condition and Indicator Calibration Work Group
- U.S. EPA HQ, Biocriteria Team
- U.S. EPA HQ, Survey Team
- U.S. EPA ORD



Classification

- Issues
 - 7 Wetland Classes X 9 Ecoregions = 63 “groups”
 - Within-Ecoregion Variability
 - Within Class Heterogeneity
 - Palustrine Emergent: *Seep, Riparian, Depression*
- Potential Solutions (NatureServe Report)
 - National Vegetative Classification System
 - Macrogroup: 30 reference “groups” nationwide
 - Geographically aligned: no ecoregions

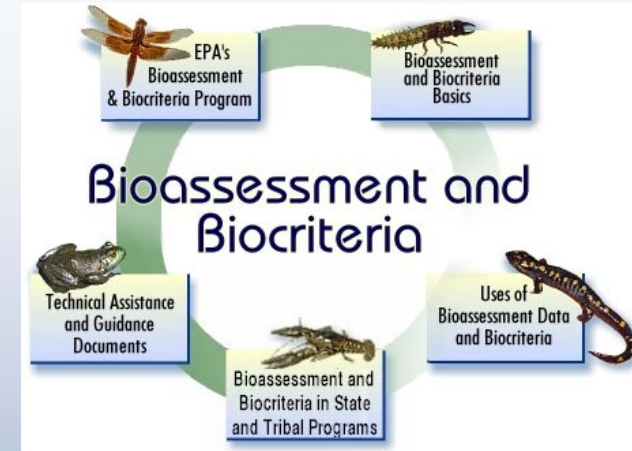
Reference Sites

- Issues
 - Numbers and Dollars
 - Definition
 - Minimally-Disturbed = this is our goal
 - Least-Disturbed = this may be what's feasible
 - Reference site variability?
- Potential Solutions
 - Coordinate with Natural Heritage Programs, States, NPS, NOAA
 - Landscape screening tools, Existing Data
 - Correct for Reference Site Variability

Assessment and Reporting

- Issues

- Regional Variability
- Linking Monitoring, Assessment and Standards
- Reporting Scale



- Potential Solutions

- Learn from Previous National Surveys
- Incorporate Bioassessment Principles
 - Two Biological Indicators
 - Reference-based assessment
- Report by wetland type nationally, all wetlands regionally

Timeline: 2009 - 2010

- **Winter/Spring 2009:** Reference Condition and Indicator Calibration Work Group Discussions
- **June 2009:** Technical Work Shop to finalize DRAFT field methods
- **Summer 2009:** Preliminary Methods Testing
- **September 2009:** Draft Final Methods and QAPP; Site Selection
- **2010**
 - Indicator Peer Review
 - Methods Testing
 - Select Candidate Reference Sites



Photo courtesy of Janet Nestlerode

For More Information

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Questions?

