

# Core Element: Monitoring and Assessment

- Background
- Level 1 Landscape Assessments – An Oregon Example
- The National Wetland Condition Assessment (NWCA)

***Elements of a State Water  
Monitoring and Assessment Program  
For Wetlands***

**April 2006**

**Wetlands Division  
Office of Wetlands, Oceans and Watersheds  
U.S. Environmental Protection Agency**

**Monitoring** - the systematic observation and recording of current and changing conditions.

**Assessment** - the use of those data to evaluate or appraise wetlands to support decision-making and planning processes

**Wetland condition** is the current state as compared to reference standards for physical, chemical, and biological characteristics.

**Wetland functions** represent the processes that characterize wetland ecosystems.

# Wetland Monitoring: what is your goal?

- Ambient condition monitoring?
  - Status and trends analyses?
- Local land use planning to protect ecological integrity?
  - Mitigation project evaluation/attainment of performance standards?

# **3 Tiered Assessment Approach**

- **Level 1 - LANDSCAPE LEVEL**
- **Level 2 - RAPID ASSESSMENT LEVEL**
- **Level 3 - SITE-SPECIFIC LEVEL**

# **Conceptual Framework for Assessing Wetlands and their Condition – Level 1 Landscape Assessments**

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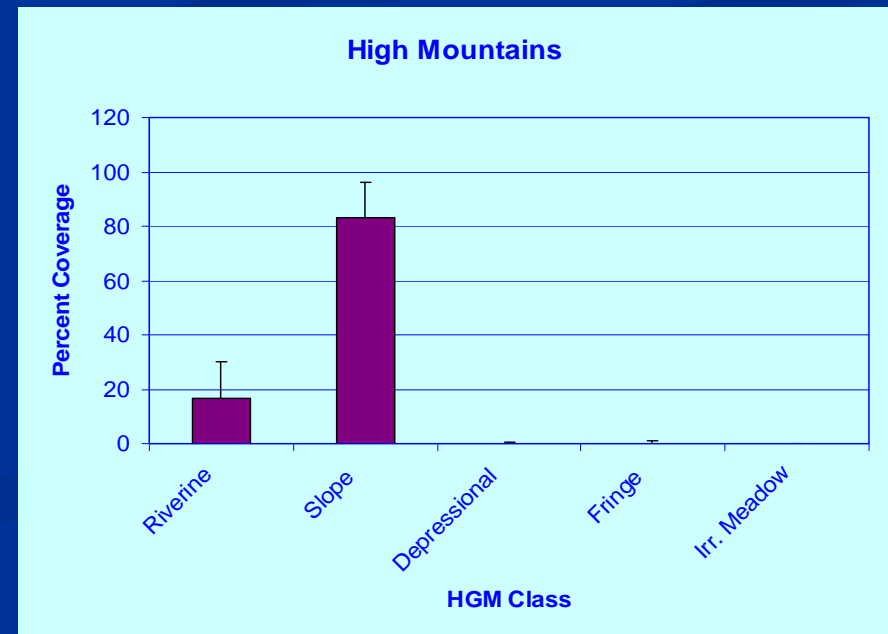
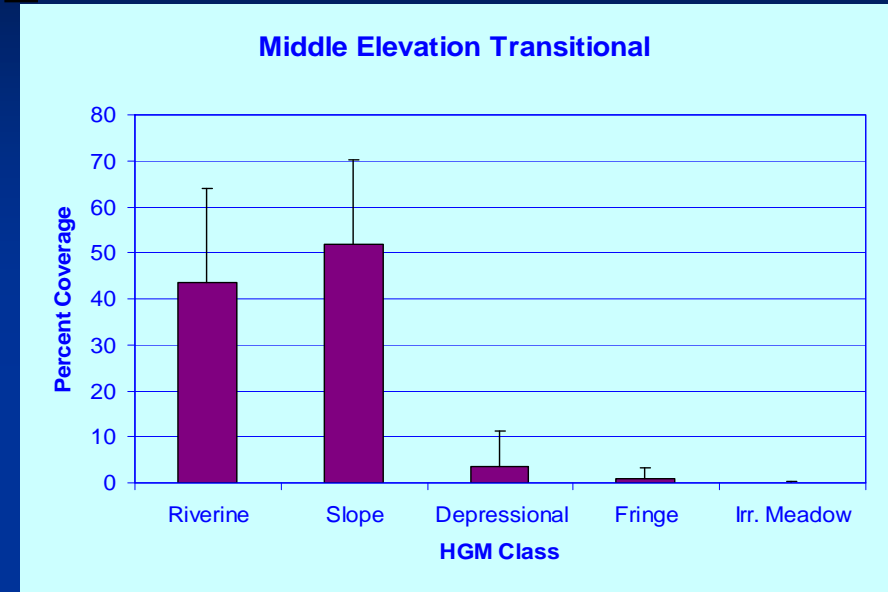
Yvonne Vallette  
EPA Region 10  
Oregon Operations Office

# **Landscape Assessment Methods**

- **Landscape Assessment is the first level of understanding wetland condition**
- **Based on an understanding that functions provided by wetlands are a product of their landscape**
- **Characterization of that landscape offers approximation of cumulative wetland condition**

# Wetland Profiling – One Potential Tool

- Simply a means of tallying and reporting on the abundance of wetland types within a defined area
- Utilizes the HGM or other approaches to wetland classification
  - Provides an index of overall wetland function



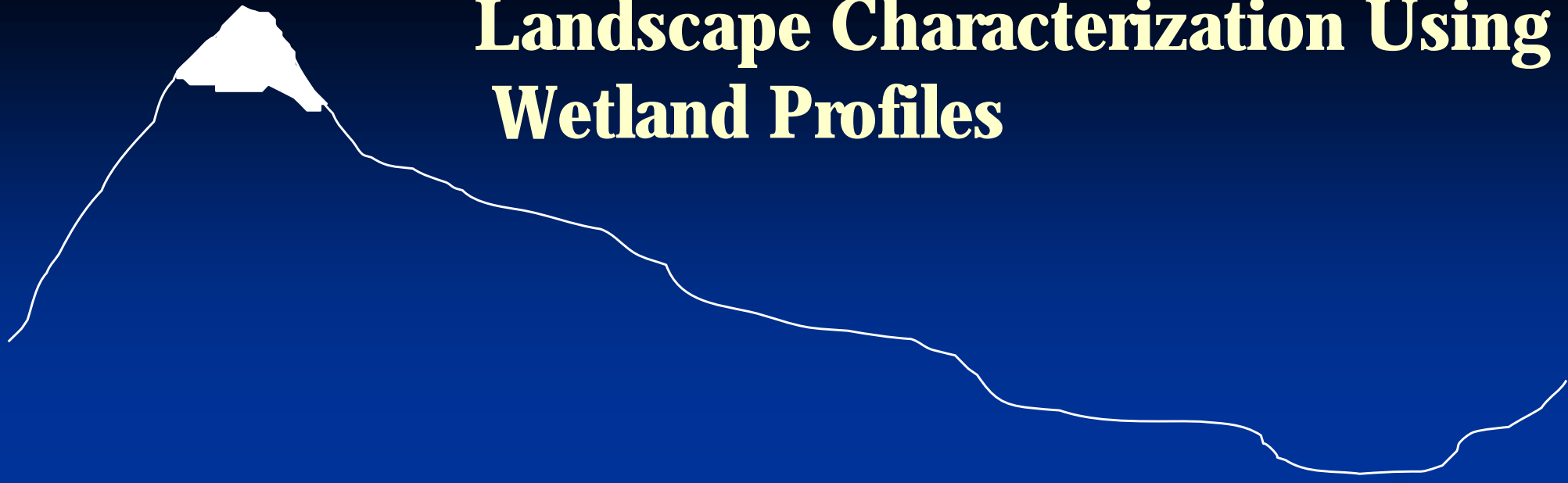
# The Concept Behind Profiling

- Different types of wetlands perform different functions, or the same functions to differing degrees
- Profiling classifies wetlands according to their potential functional capacity (HGM, IBI, etc.)

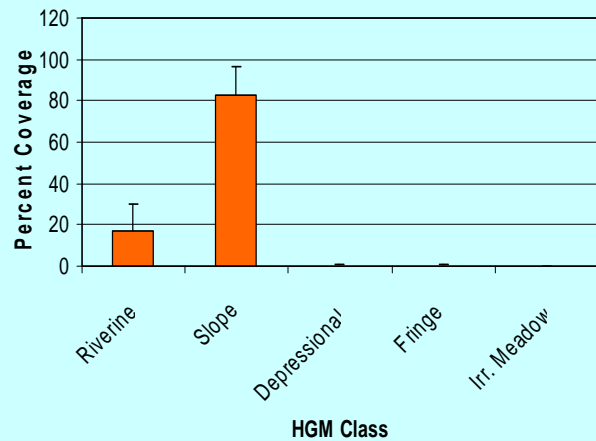
# Comparison of Relative Functioning

Type/Function	Surface Water Storage	Transport of Organic Material	Flood Flow Attenuation
Riverine	Moderate	High	High
Slope	Low	Moderate	Low
Depressional	High	Low	Low
Fringe	High	Low	High

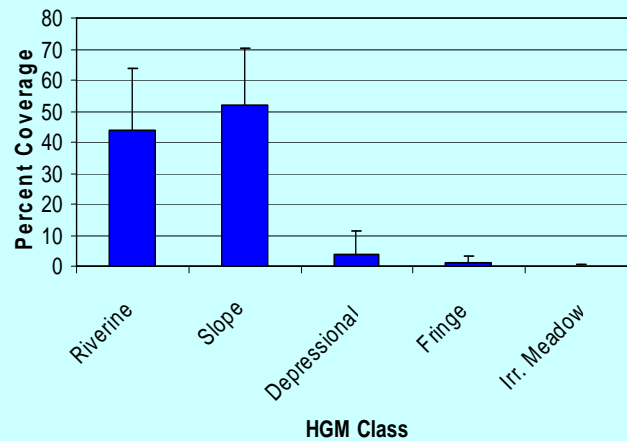
# Landscape Characterization Using Wetland Profiles



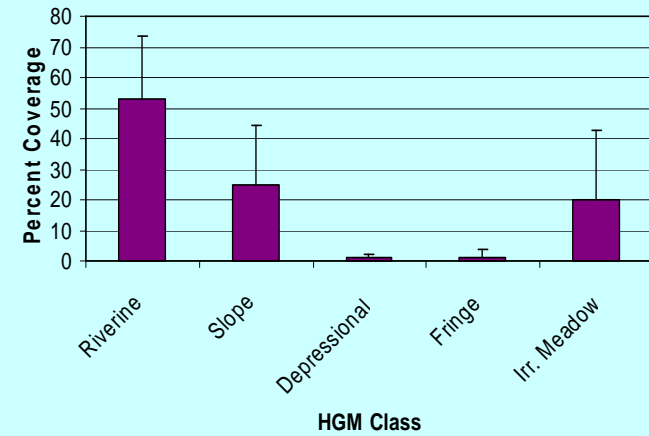
### High Mountains



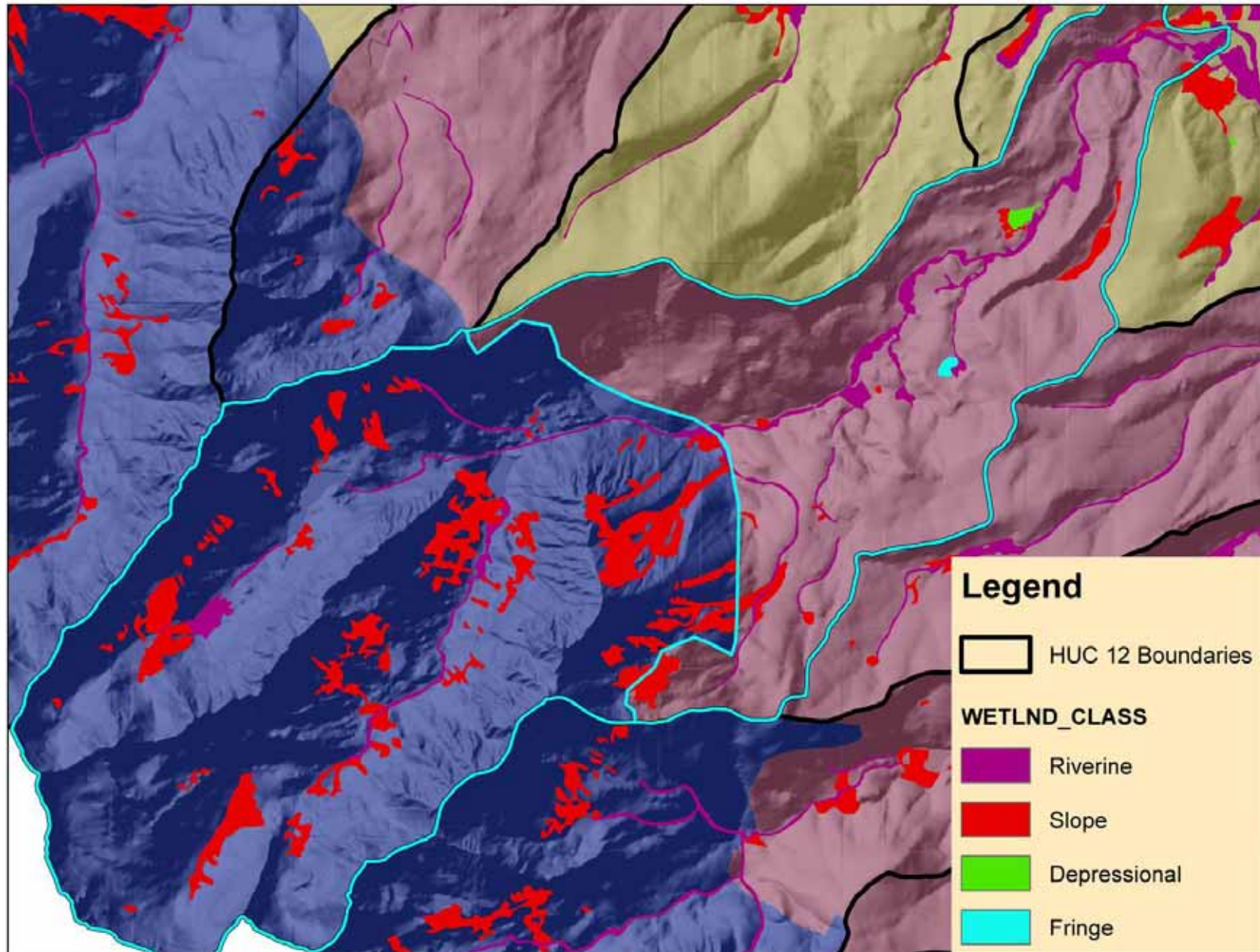
### Middle Elevation Transitional



### Low Lands



# Wetland Mapping and Classification



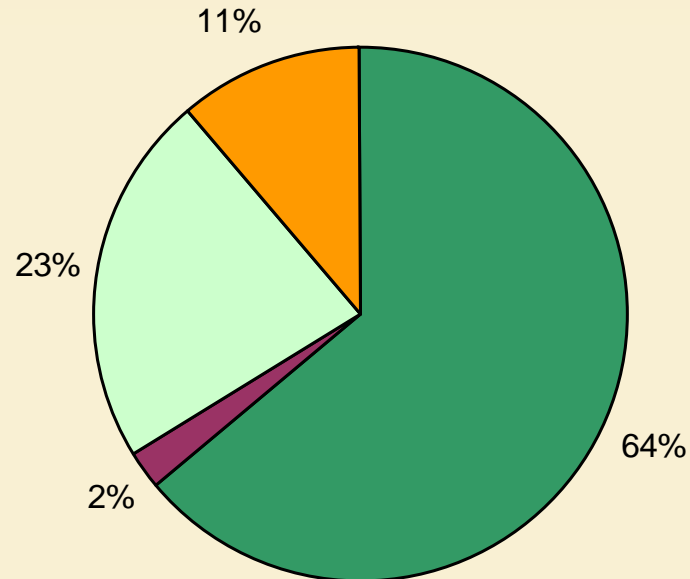
**Using Wetland Profiling to look at  
Wetland Status and Trends –  
An Oregon Example**



## Wetlands in the lowlands of the Willamette River Valley:

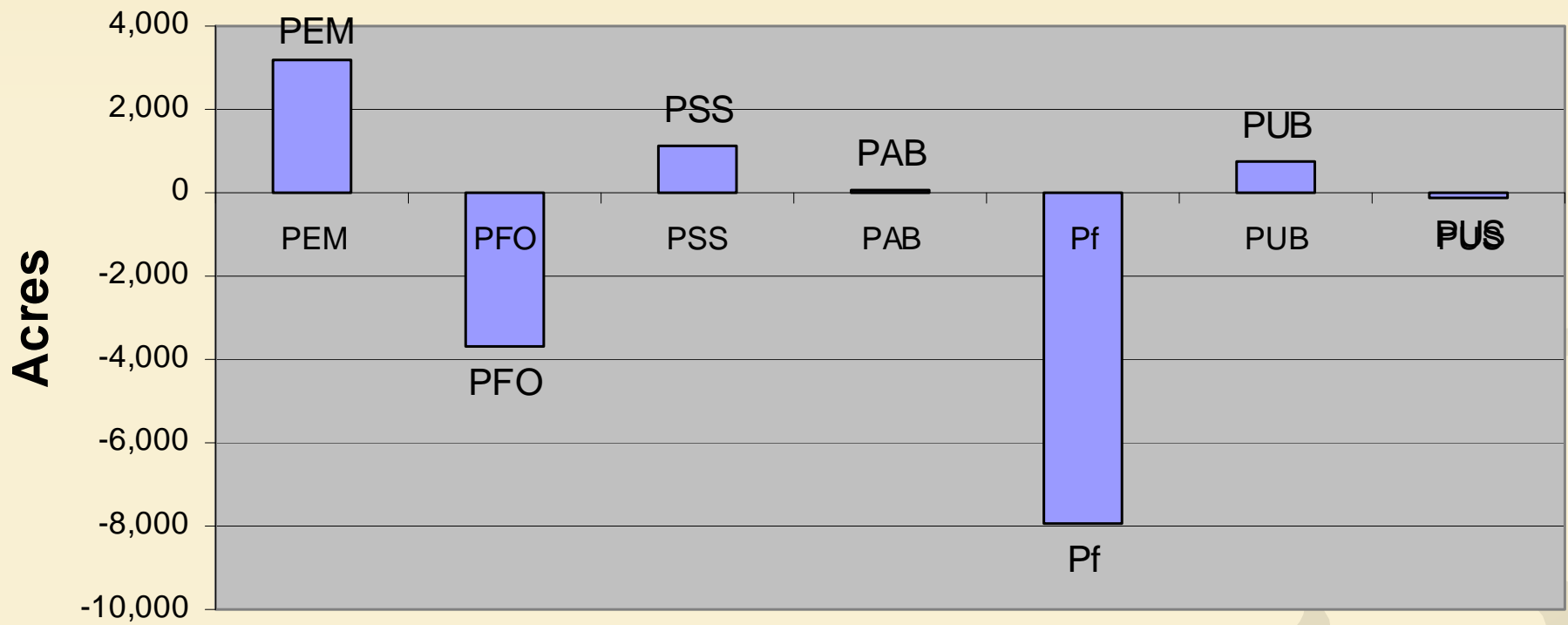
Under George Abernethy (1843):	130,000 Acres
Under Ted Kulongowski (2003):	8,000 Acres

# Causes of Willamette Valley Wetland Loss, 1982-1994

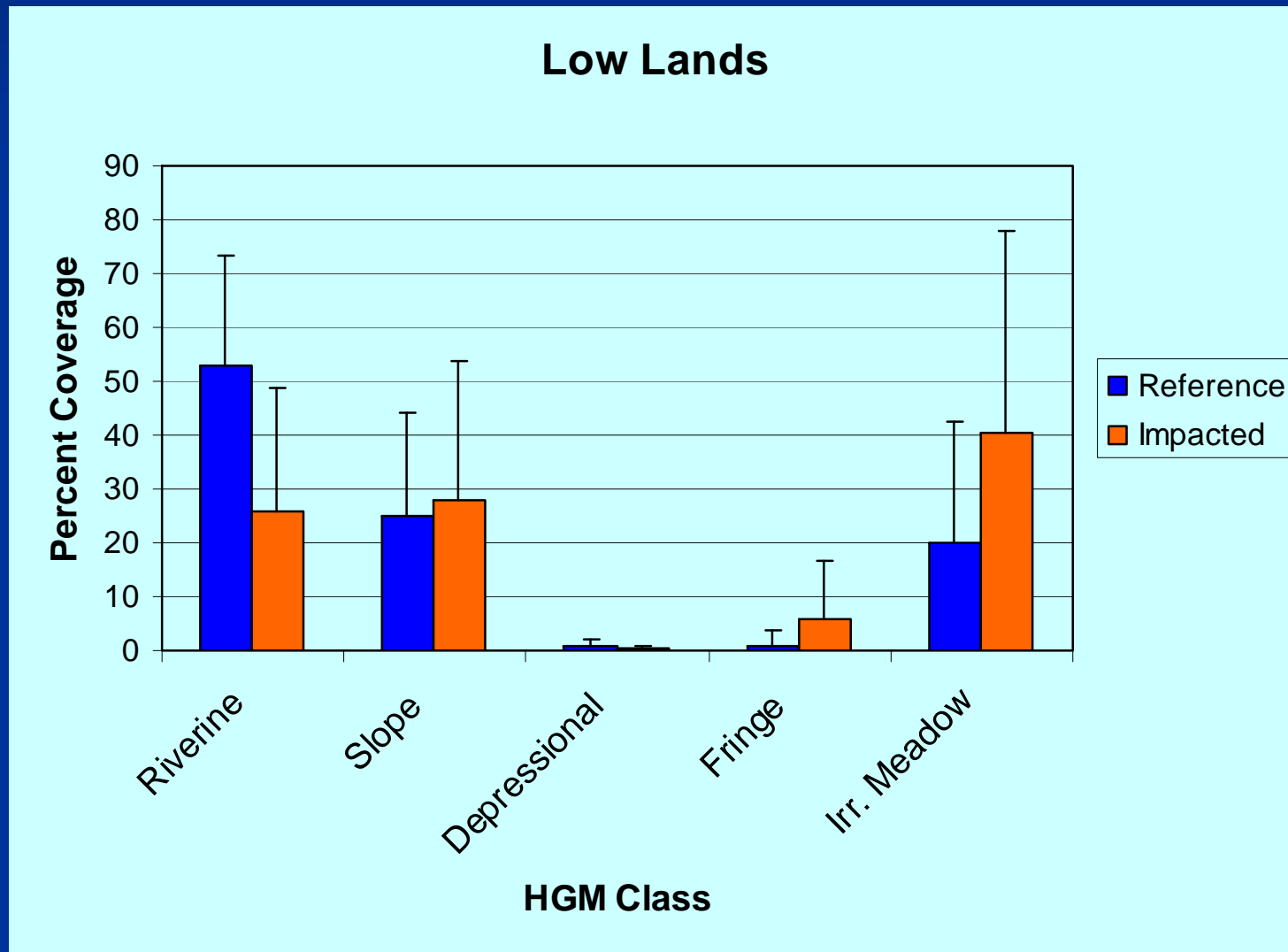


- Agriculture
- Upland Forest Plantation
- Urban & Rural Development
- Other Uplands

# Net Wetland Loss or Gain by Wetland Type, 1982 - 1994



# An Example of Cumulative Impacts Analysis using Wetland Profiles



A scenic landscape photograph of a mountain valley. In the foreground, a wide, shallow river flows through a lush green valley. The middle ground shows rolling green hills and a dense forest. In the background, majestic mountains with patches of snow rise against a blue sky with scattered white clouds. The overall scene is vibrant and natural.

# **The National Wetland Condition Assessment(NWCA)**

**How understanding condition can  
tell us about wetland resources  
across the landscape**

**Mary Anne Thiesing  
USEPA Region 10  
Seattle, Washington**

# National Water Resource Survey Schedule

	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Lakes	Field	Lab, data	Report	Research	Design	Field	Lab, data
Rivers	Design	Field	Lab, data	Report	Research	Design	Field
Streams	Research	Design	Field	Lab, data	Report	Research	Design
Coastal	Report	Research	Design	Field	Lab, data	Report	Research
Wetlands	Research	Research	Research	Design	Field	Lab, data	Report



# Monitoring Initiative: Two Components

- Assess the condition of all of the Nation's waters and changes over time
  - Create partnership among federal/State agencies and others to cost-effectively survey the Nation's waters
- Enhance State and Tribal monitoring programs by providing new funds to States and Tribes to develop and implement monitoring strategies
  - Integrate tools to support more efficient use of monitoring resources in support of decision needs

# National Wetland Condition Assessment 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





# Sampling Frame

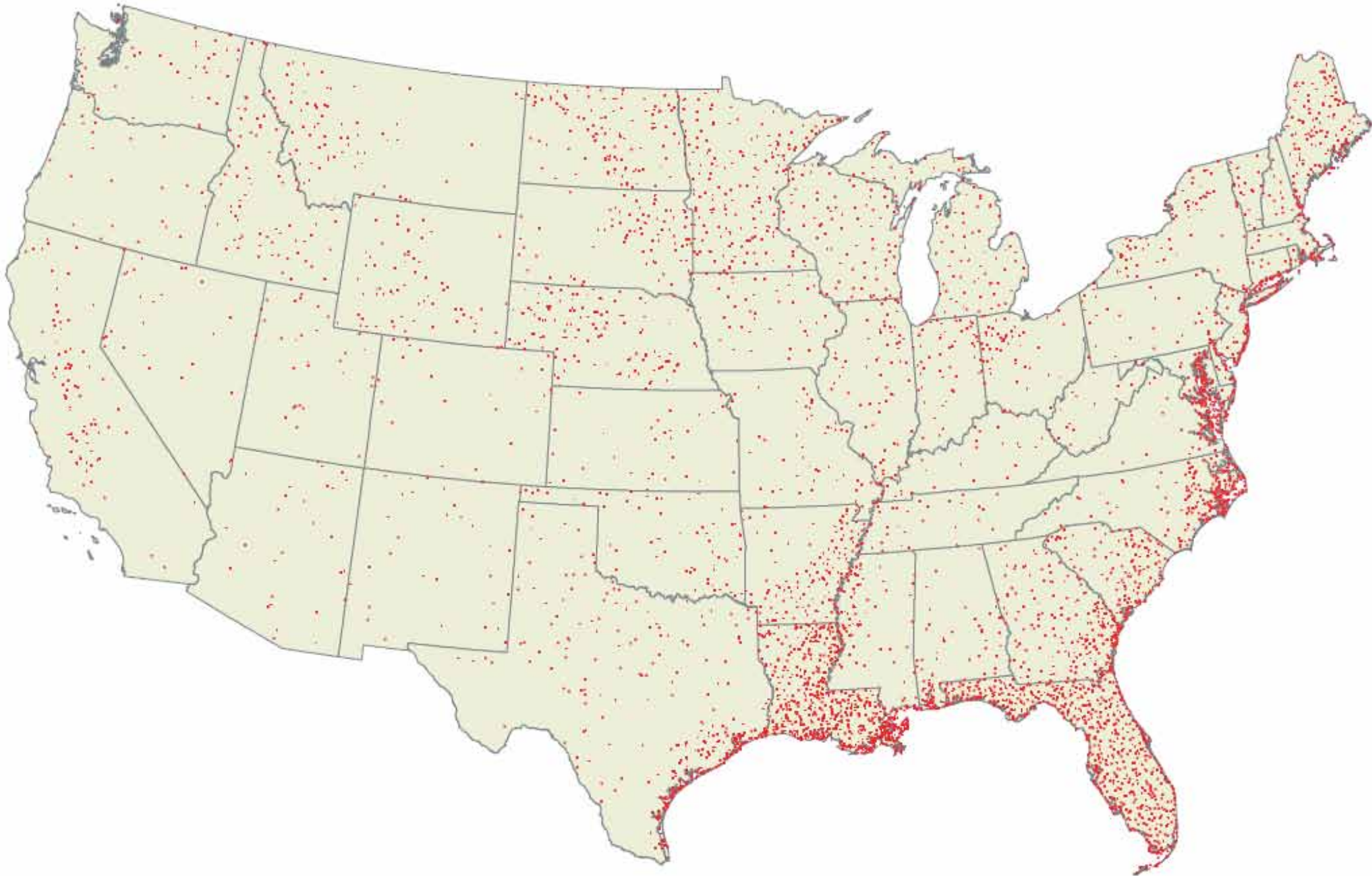


- **U.S. FWS Status and Trends Plots**
  - Tracks trends in wetland acreage since the 1970's
  - Most contemporary, nationwide dataset (recent imagery)
  - Most accurate and consistent across states (highest probability of mapped wetland actually being a wetland)
- **EPA will collaborate with FWS in designing NWCA**
  - ensure the national condition assessment most effectively complements the Service's Wetlands Status and Trends Study.



## Status and Trends 2005 Plot Locations

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# Target Population

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



Photo by Jim Newton

# Wetland Classes in NWCA

- E2EM – Estuarine Intertidal Emergent
- E2SS – Estuarine Intertidal Forested/Shrub
- PUB/PAB – Palustrine Unconsolidated Bottom/  
Palustrine Aquatic Bed
- PFO – Palustrine Forested
- PSS – Palustrine Scrub/Shrub
- PEM – Palustrine Emergent
- Pf – Palustrine farmed



# Using the Information

- 1<sup>st</sup> National-Scale Report on Wetland Quality
  - Establish the baseline to enable, in subsequent surveys, evaluation of trends in wetland condition
- Inform Federal Wetlands Policy and Management:
  - Identify critical areas or wetland types for resource management attention.
  - Influence grant priorities to better target financial resources.
- Identify Potential Solutions
  - What stressors are most widespread and most associated with poorer wetland condition?