

DEVELOPMENT OF A REFERENCE CONDITION CANDIDATE POOL FOR THE OXBOWS OF OKLAHOMA

Oklahoma Water Resources Board

Introduction

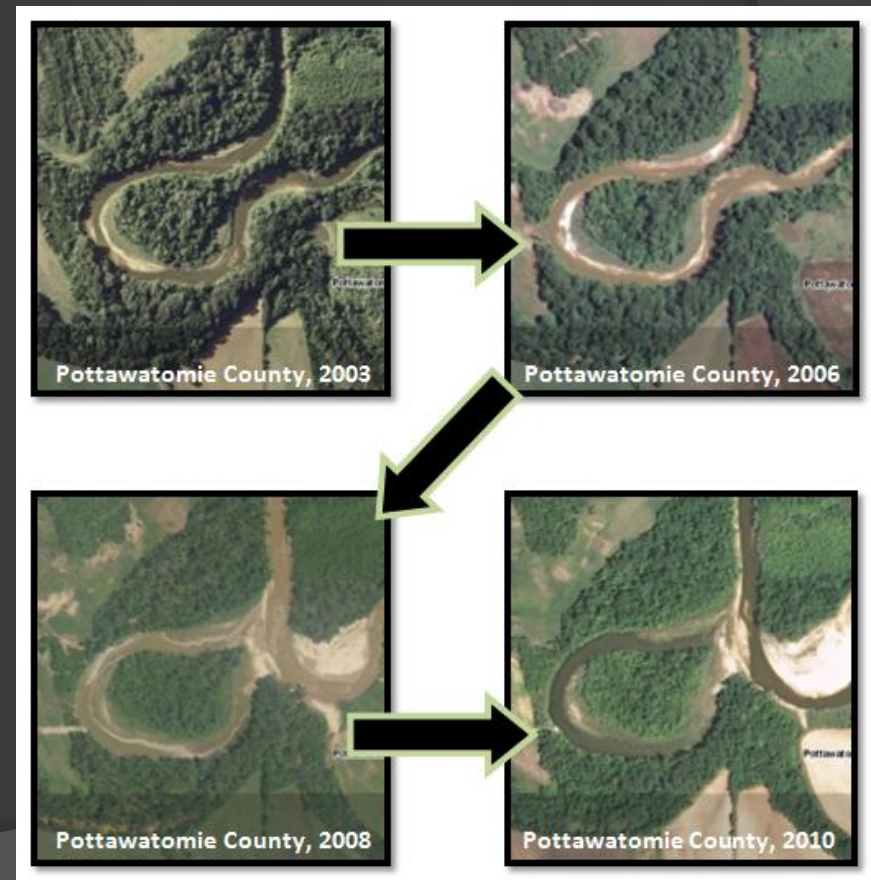
- ◎ The aim of this project is to help fulfill objectives in Oklahoma's Wetland Program Plan.
- ◎ It builds on previous research to understand oxbow wetlands as a resource for the state, such as, *Oxbow System Assessment and Protocol Development* (OSAPD I-III)

Scope of this Research

- ⦿ A) Identification of stressors and the application of a drainage-based assessment to the dataset collected in OSAPD I-III
- ⦿ B) Selection of 90 candidates with potential for characterizing reference condition for field sampling
- ⦿ C) Selection of the oxbows best suited to represent reference condition in each Omernik Level III ecoregion of Oklahoma*

Background

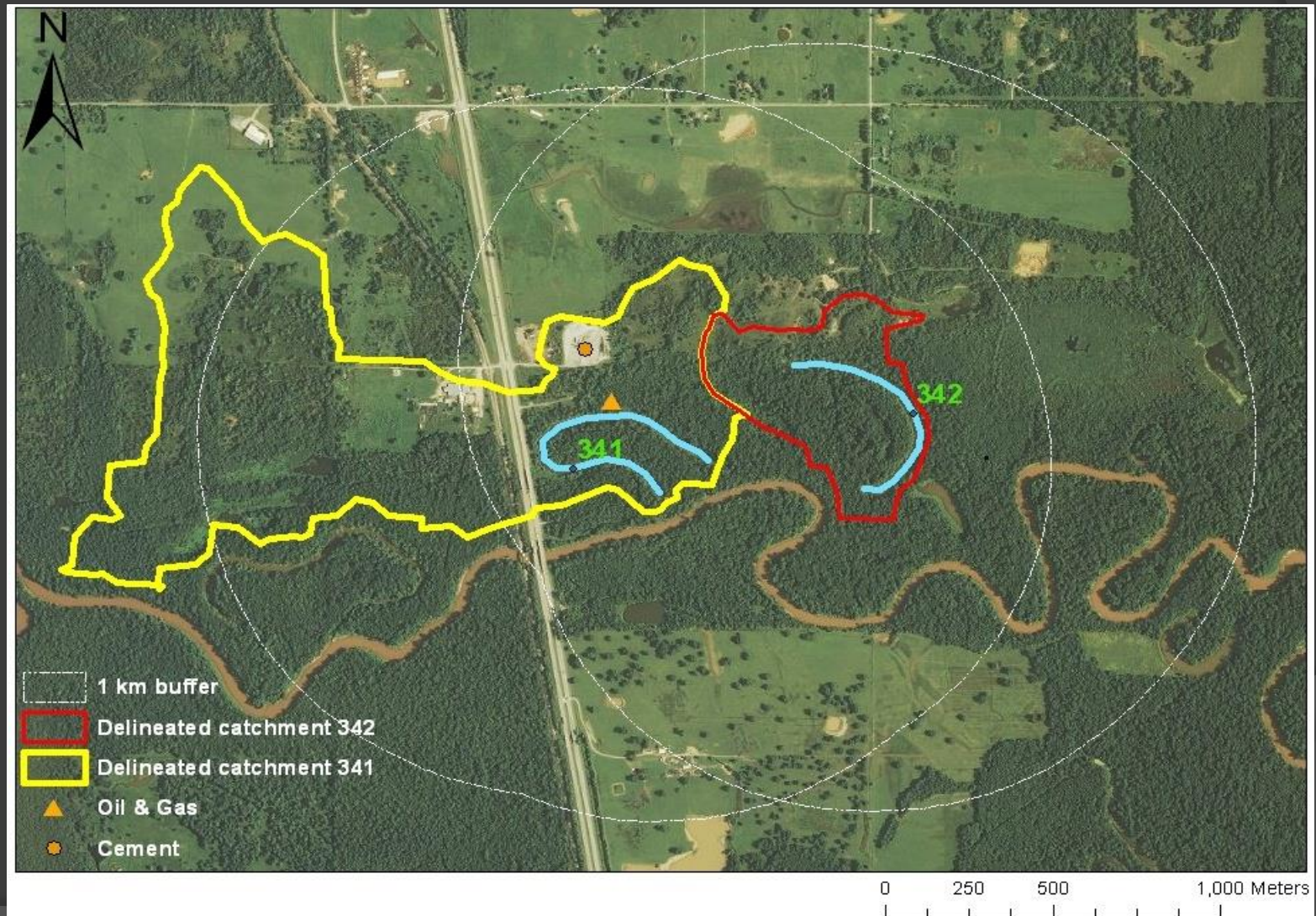
- What is an oxbow?
- A type of wetland formed by erosion & deposition processes in a river until a bend is cut off from the main channel



Site Selection

- ◎ **1168** oxbows from Phase I
 - Eliminated from consideration:
Certain 303(d) impairments
- ◎ **720** remain
 - Level I Assessment, Score & Rank
 - Only consider top-scoring per Ecoregion
- ◎ **213** to consider for sampling

Delineation Example



Landscape Score

Level 1 assessment equation is:

$$LDWT = 0.5*(a) + 0.2*(b) + 0.2*(c) + 0.1*(d)$$

Where:

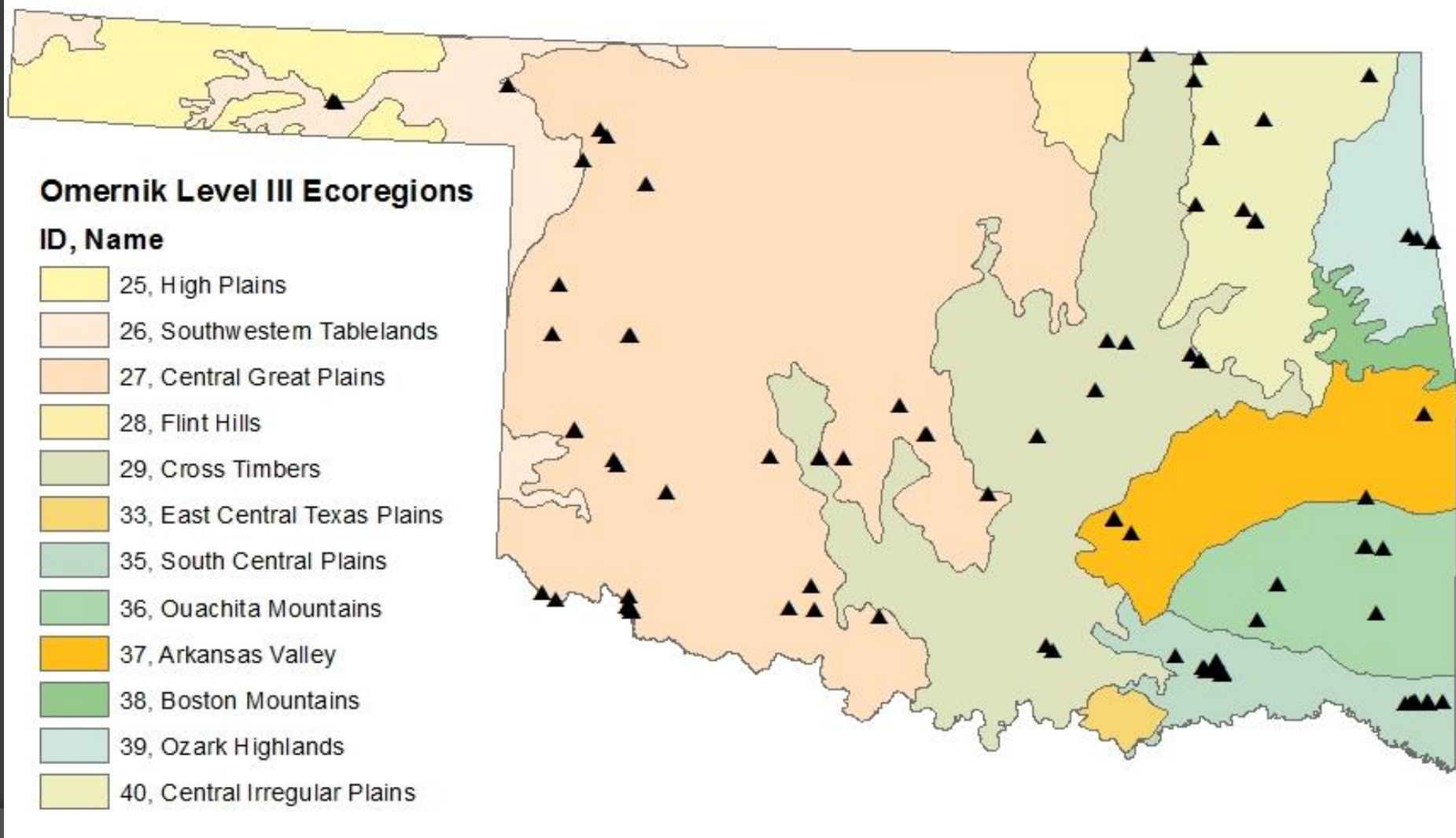
$a = \text{Land-use Score} = \sum \text{Land-use Coefficient} \\ * \text{Area per Land-use}$

$b = \text{Road Density Score}$

$c = \text{Population Density Score}$

$d = 303(d)$

Site Distribution



Sampling Approach

- ◎ Three-Tiered Sampling Approach:
- ◎ Chemistry/Nutrient Analysis
 - Surface water (when present), sediment, & sediment toxicity
- ◎ Level 2 Assessment
 - California Rapid Assessment Method (CRAM)
- ◎ Vegetation Survey (FQAI)



Findings?

- Still analyzing data, but . . .

CRAM not well-suited for teasing out
reference condition of Oklahoma oxbows.

There are significant differences among
Ecoregions.



Continued Research...

- ⦿ Different wetland types
- ⦿ Level 3 Assessments
 - Smaller geographic area?
- ⦿ The role of hydrology in wetland function
- ⦿ Oklahoma Level 2 Approach

A person with reddish-brown hair tied in a bun, wearing a light blue t-shirt and a dark backpack, is seen from behind, sitting in a small boat or kayak. They are looking out over a calm body of water in a swampy forest. The water reflects the surrounding tall, thin cypress trees and their distinctive buttresses. The scene is peaceful and scenic, with sunlight filtering through the dense canopy of green leaves.

Questions? Comments?

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