



Introduction to Management Strategies

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Definition of Terms

Protection - Prevent changes to existing conditions

Restoration - Re-establish missing components

Enhancement - Improve quality of existing components

Creation – No identified historical wetland conditions

Landscape Approach

Wetland Habitat Complex

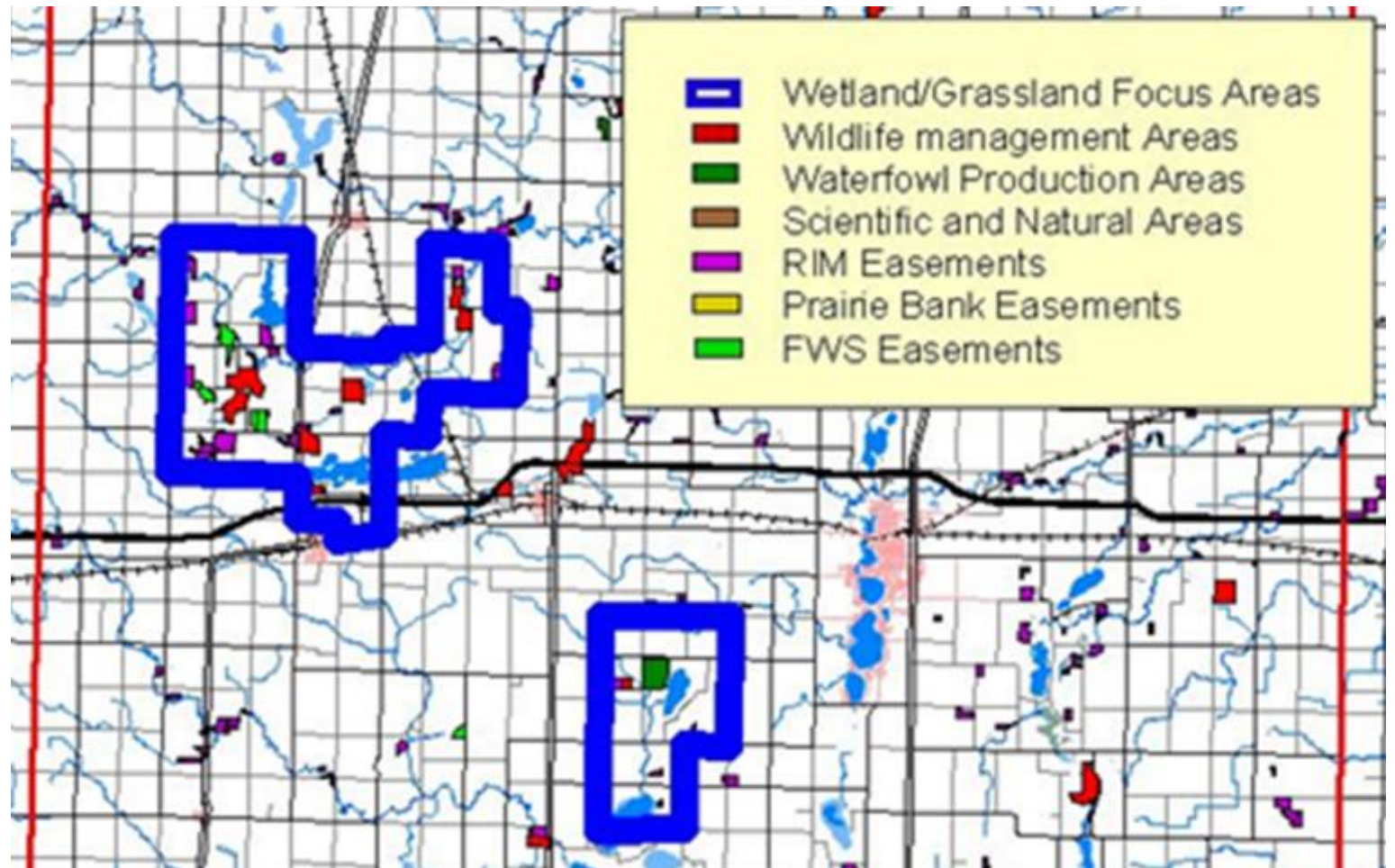
What's there? What's missing?

What can be replaced?

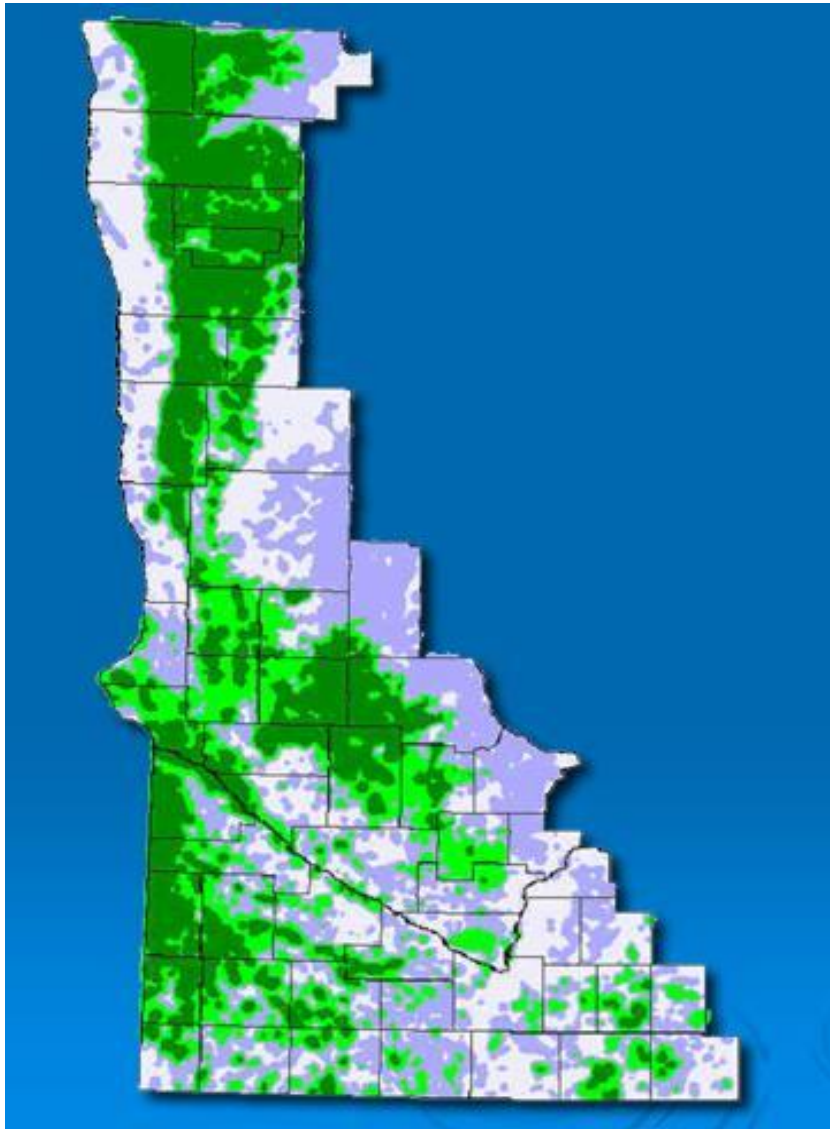
What can be improved?

Landscape Level Assessment

Focus efforts
where?
To do what?

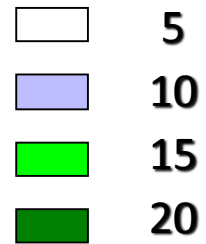


Landscape Assessment Example



WRP Priority Mapping circa 2006 NRCS

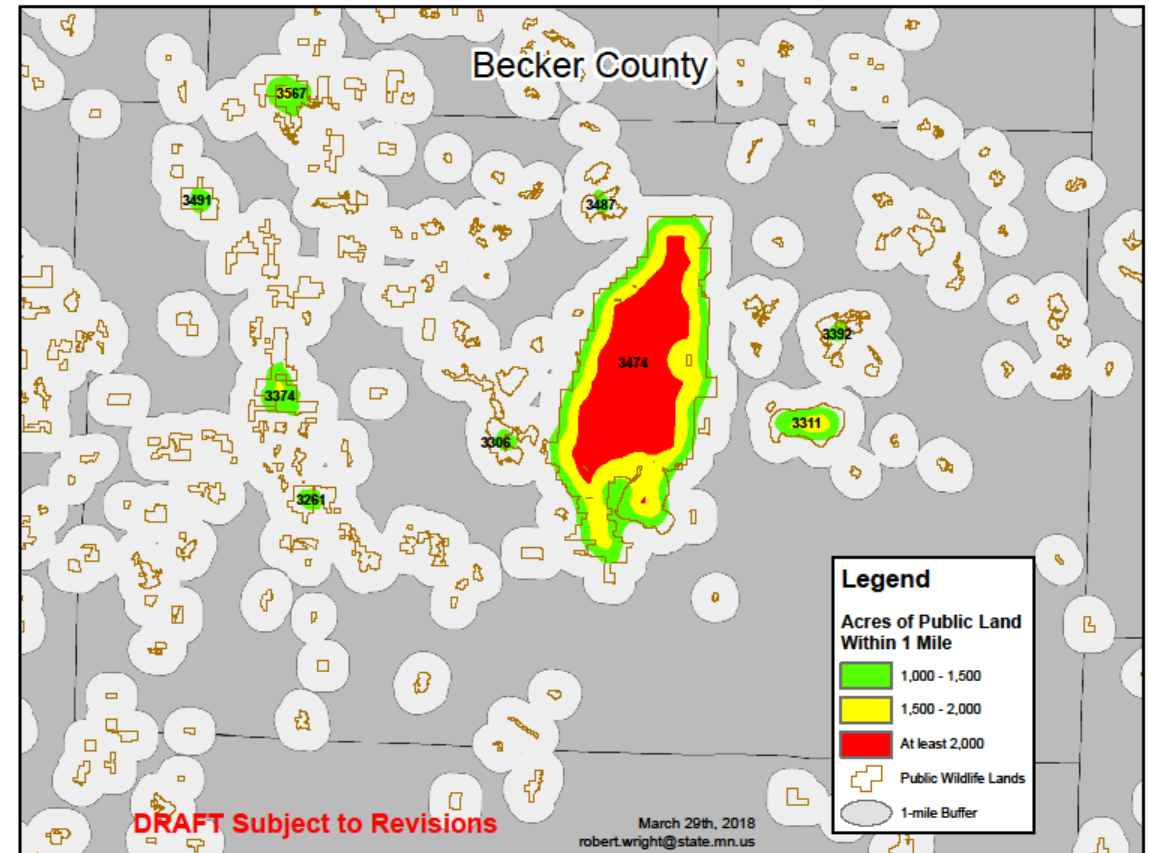
Number of Points
4 Classes



Landscape Assessment Example

Strategy: Build / Enhance Wetland Habitat Complexes

Complex Criteria:
4 square miles
Public land and easements
60% Grassland/Wetland



Site Level Assessments

- Watershed location
- Topography
- Soils
- Online FWS Training



Wetland Protection

- Regulations
- Fee acquisition
- Easements
- Incentives
- Contract agreements



Protection - Farmed Wetland Contract

MNDNR Working Lands Initiative, 2010

- Corn/soybean rotation
- 2 basins, 10 acres
- Controlled drainage system
- Drainage delayed until May in half the years
- Drainage stopped after fall tillage



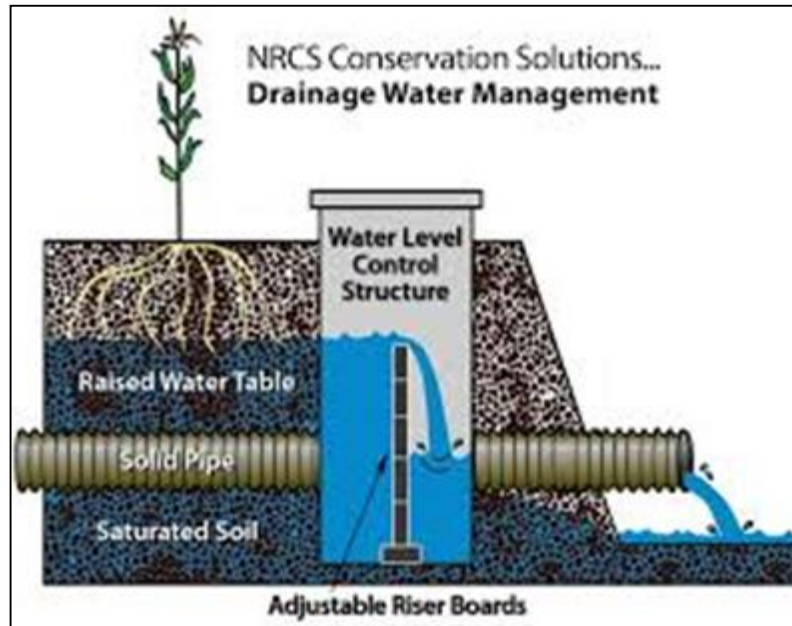
Wetland Restoration

- Use all sources to identify opportunities
 - Maps, anecdotes, NWI, historical photos, topography, soils
- Don't be bound by historical conditions
- What is missing for a functional complex?



Restoration - Retaining Infrastructure

Normal restoration practice would simply break the drainage tile



Plan for future management

Restoration - Sediment Removal



Remove
accumulated
sediment

Examine the soil profile



Restoration - Planting Vegetation



Bulrush



Seed mixes



Wild Rice

Wetland Enhancement

Stability of individual wetlands does not support stability in wetland systems or complexes.

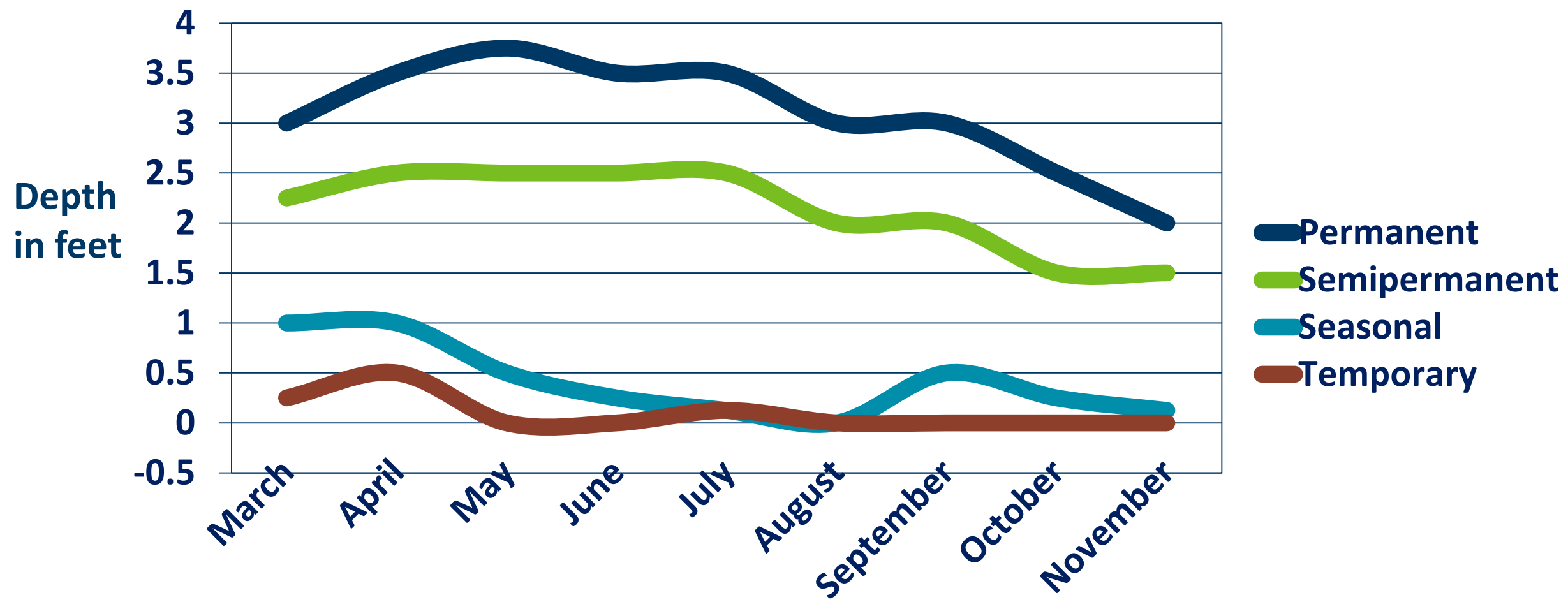
Depressional wetlands in particular can benefit from periodic disturbance



Wetland Enhancement Tools

- Water level management
- Fish barriers
- Invading vegetation control
- Vegetation disturbance

Natural Temperate Wetland Regimes



Enhancement - Water Level Control Structures

Typical design uses stoplogs
Sliding gates are less common
Size depends on need
Benefit depends on use



Agdrain.com

2/15/2019



Eric Schrading USFWS



University of Idaho

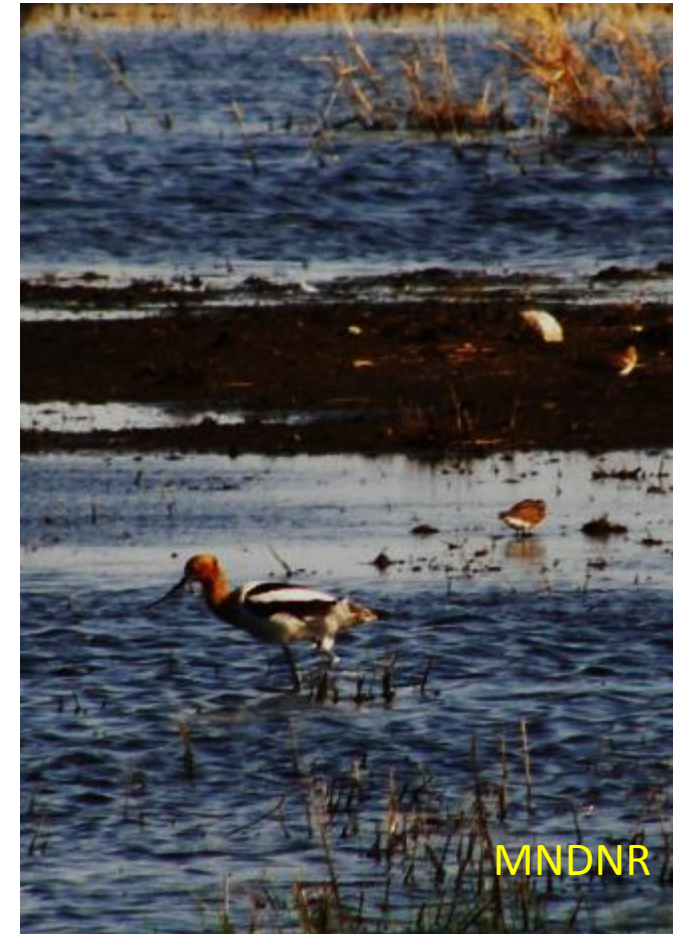
Enhancement - Slow Drawdowns

- Slow drawdowns (1"/day or slower) promote vegetation variety
- Partial drawdowns are a valuable option



Enhancement - Spring Drawdowns

- Target the 1st third of the growing season
- Stimulates bulrush and soft rush
- Moist soil plants in seasonal basins



Enhancement - Summer Partial Drawdowns

- Mimic natural seasonal changes
- Provide shallow areas for waterfowl hens and broods
- Strengthens submergents
- Exposed soil promotes cattails



Enhancement - Fall Drawdowns

- Maximize available food for migrating birds
- Prepare for winterkill of fish in northern climates
- Begin in late summer to reduce negative impacts on turtles / amphibians



Enhancement - Moist Soil Management Tactics

Spring and Fall Flooding



- Inches, not feet
- Emphasis on annual plant seeds and invertebrates
- Apply principles to wetland mgmt.

Enhancement - Need for Fish Barriers

Cause



Effect



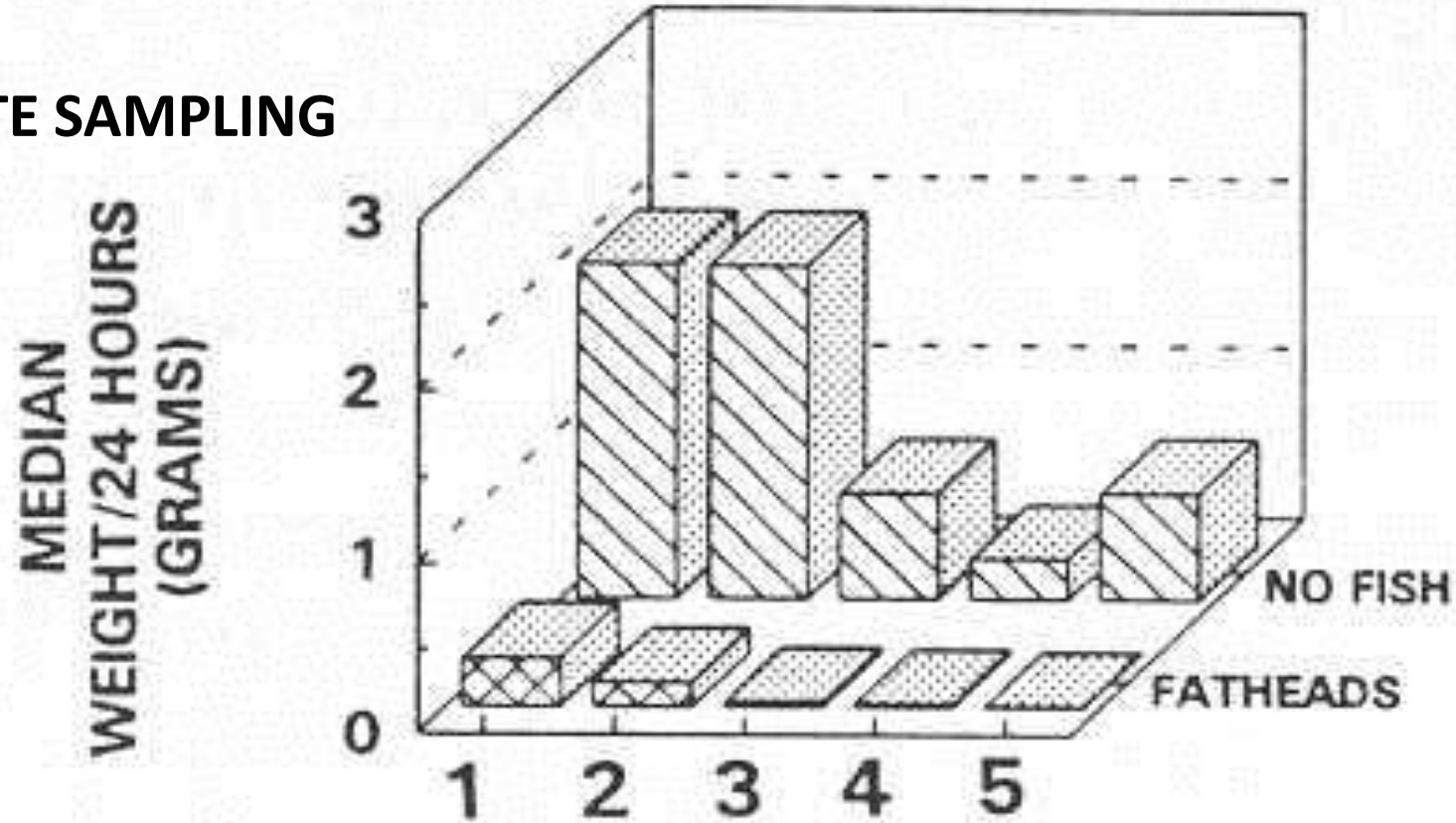
Treatment



Carp are the poster child but...

Enhancement - Need for Fish Barriers

INVERTEBRATE SAMPLING



Mark Hanson, MNDNR

Enhancement - Fish Barriers

- Fish barriers can be relatively simple or very complex depending on species and site
- Technology is advancing with the use of electronic, acoustic, and light barriers



Enhancement - Control Hybrid Cattails/Phragmites

Early Establishment



Later Successional Stage

Enhancement - Herbicide Treatment

Selective herbicide treatment
Spring Creek WMA, MNDNR

0.35 acre basin



Enhancement - Mowing

- Fall cutting of rank vegetation
- Particularly important for temporary wetlands



Enhancement - Grazing

- Grazing of rank vegetation
- Timing, duration and intensity varies with need

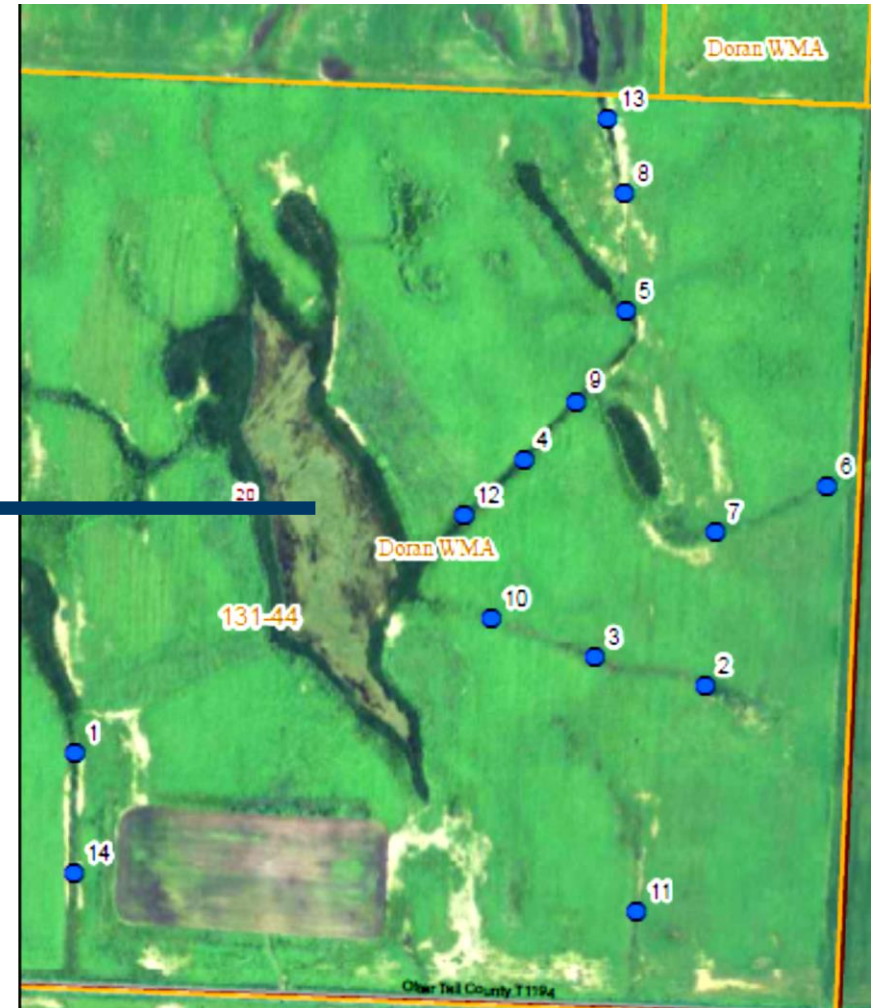


Wetland Creation



Creation - Excavations

Recreate micro-topography
Adding small wetlands



Creation - Excavations



Creating(?) Temporary and Seasonal Wetlands



Creation - Eldorado WMA



Creation - Eldorado WMA 2017



2 years post-treatment



“Resource managers sometimes assume that acquisition , easement, or legal designations may be adequate to endow wetlands with lasting benefits as wildlife habitat when, in fact, active management is nearly always necessary to sustain the ecological structure and function of wetlands.”

Baldassare and Bolen. 2006.

Waterfowl Ecology and

Management, 2nd edition. p 430