

Wetland Management in Nebraska's Rainwater Basin



2024 RWBJV Info Seminar

March 14th, 2024

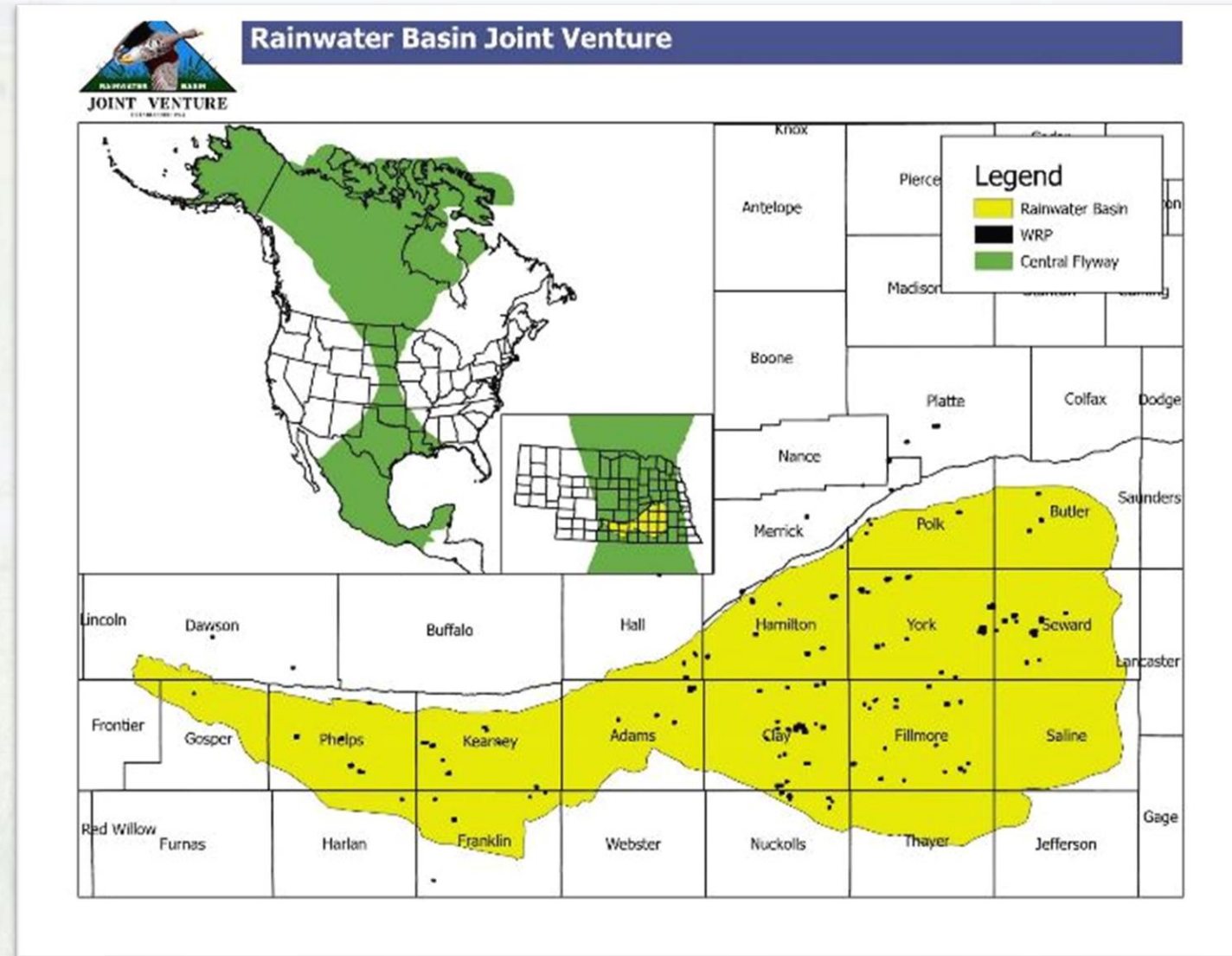
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Introduction to the Rainwater Basin

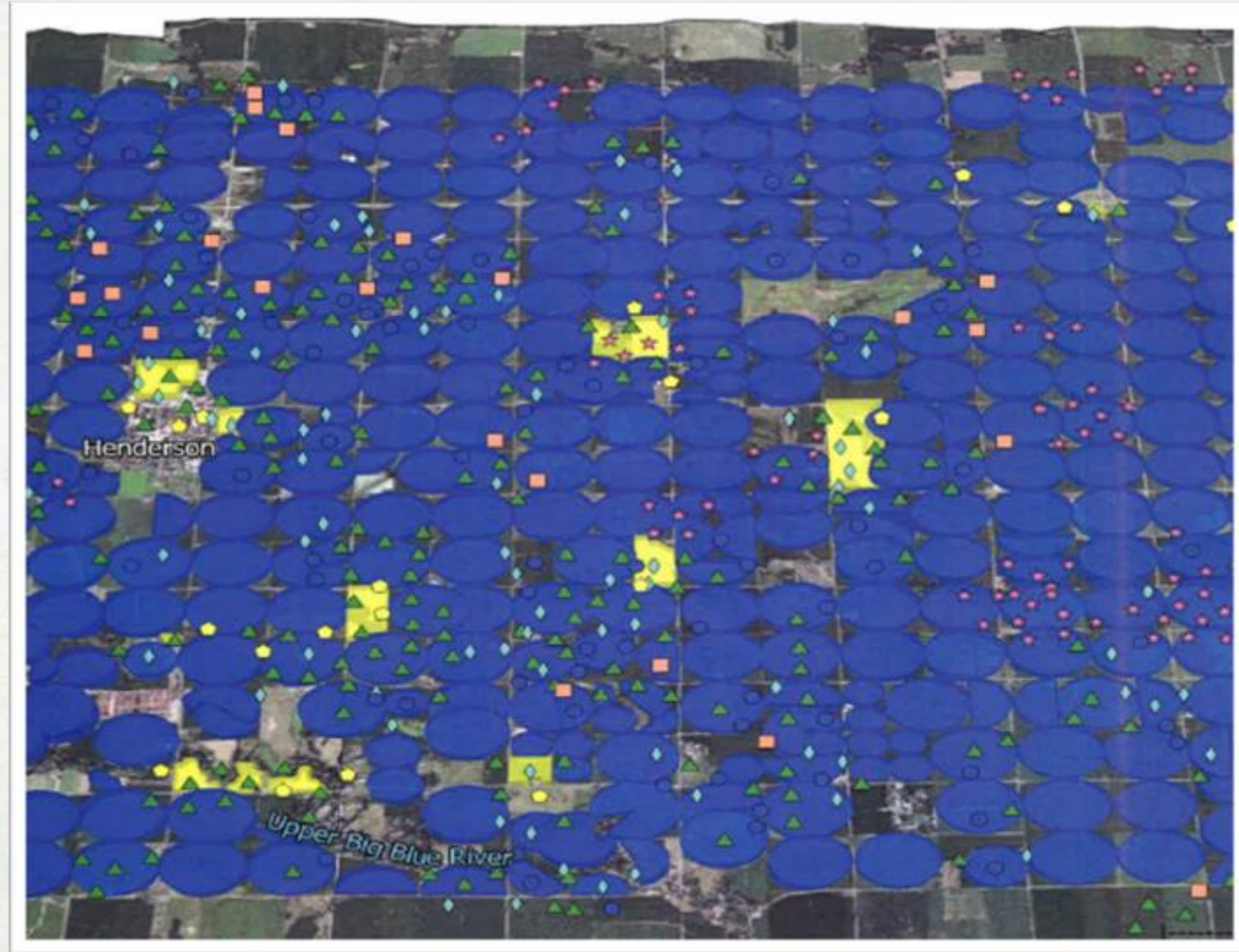
- The RWB is a 6,150 square mile wetland complex in south-central Nebraska
- Contains expansive rolling loess plains formed by deep deposits of windblown silt with a high density of clay-pan playa wetlands
- Annually filled by overland runoff from intense summer storms and melting winter snowfall





Introduction to the Rainwater Basin

- Historically contained ~11,000 individual playa wetlands totaling ~204,000 acres
- Today, over 82% of the major wetlands have been converted to agriculture
- Playa wetlands comprise ~1% of the total Rainwater Basin landscape



Introduction to the Rainwater Basin

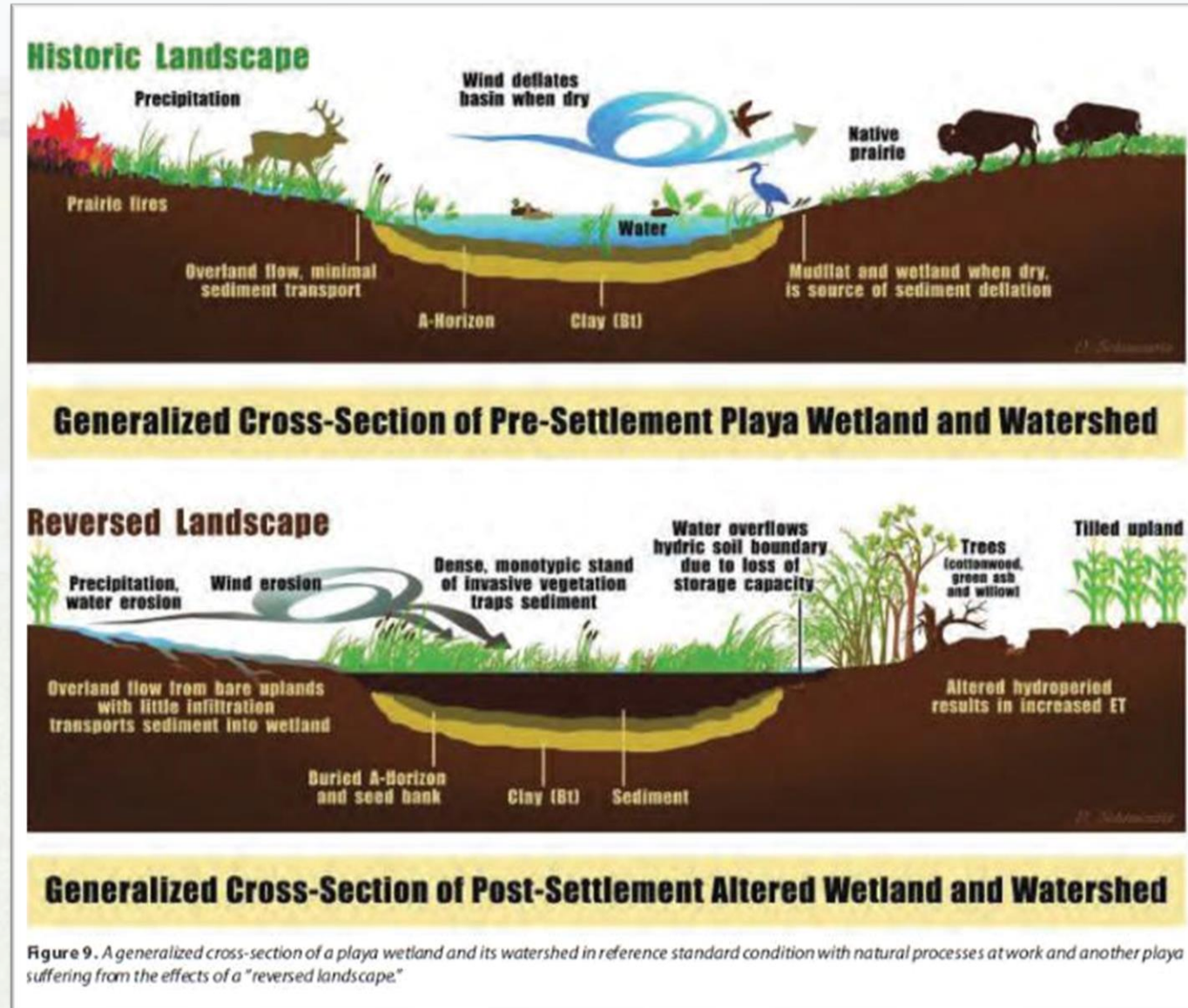


Figure 9. A generalized cross-section of a playa wetland and its watershed in reference standard condition with natural processes at work and another playa suffering from the effects of a "reversed landscape."

Moist Soil Plant Community: Contains a variety of plants, bare soil, and shallow open water.



Cattail/Bulrush Invaded Community: Plant community dominated by cattails/bulrush with very little to no bare soil or open water.



Grassy/Tree Invaded Community: Plant Community dominated by reed canarygrass/trees with very little/no bare soil or open water.





RWB Wetland Management Techniques

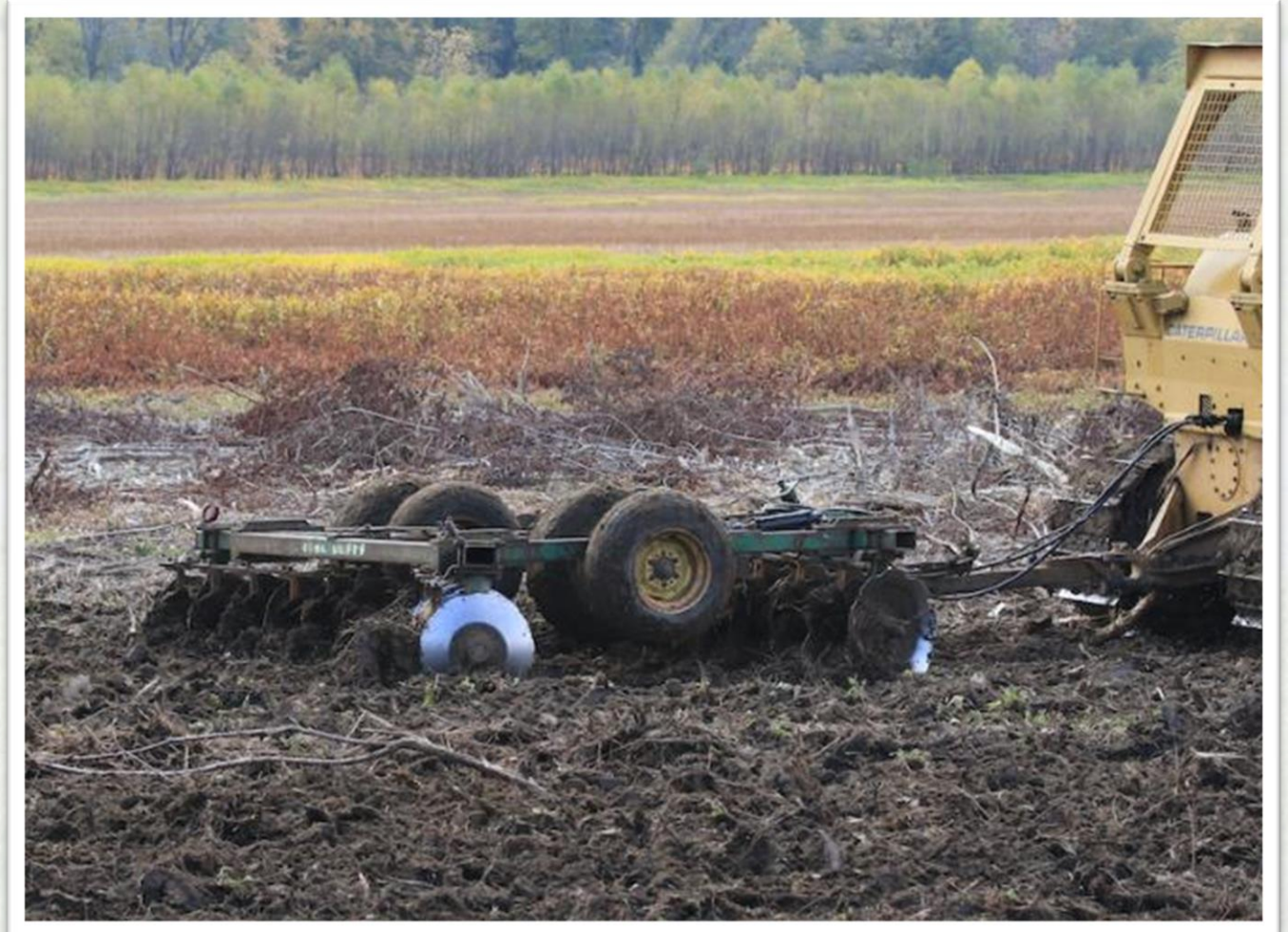
- Sediment Removal/Restoration





RWB Wetland Management Techniques

- Sediment Removal/Restoration
- Disking
- Grazing/Haying
- Mechanical Tree Removal
- Prescribed Fire
- Herbicide/Spraying





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RWB Wetland Management Techniques





RWB Wetland Management Techniques

- Prescribed Fire
 - Often used as a pretreatment to other management practices and can be conducted year-round.
 - Spring burning prior removes the litter layer and stresses actively growing plants.
 - Heavily graze the site after green up.
 - Winter and fall burning removes the litter layer and prepares the site for a spring herbicide treatment.
 - Burning during the non-growing season and without another management action has no impact.





RWB Wetland Management Techniques

- Need to have multiple disturbances in multiple years to increase ponding.
 - Works best when done in back-to-back years to kill the undesirable species plants, as well as the seed bank
- Objective: Create larger areas of shallower water as opposed to smaller areas of deeper water.





Target Species #1: Cattails/Bulrush

- How we treat Cattails/River Bulrush
 - Aerial or Ground Spraying
 - Chemical: Aquatic Glyphosate
 - Application Rate: 6pts/acre
 - Spray Dates:
 - Aug 10 – Sept 20
 - Repeat @ least 2 years in a row
 - Most effective when spraying after a pre-treatment to maximize leaf-herbicide contact.
 - Average Cost/Acre: \$76.79





Effects of Herbicide Treatment





Effects of Herbicide Treatment





Target Species #2: Reed Canary Grass

- How we treat Reed Canary Grass
 - Aerial or Ground Spraying
 - Chemical: Aquatic Glyphosate
 - Application Rate: 4.5pts/acre
 - Spray Dates:
 - Oct 1 – Oct 31
 - Repeat @ least 2 years in a row
 - Average Cost/Acre: \$66.98





Target Species #3: Trees

- How we treat Trees
 - Spot Spraying
 - Chemical: Remedy Ultra
 - Application Rate:
2pts/quart
 - Spray Dates:
 - Jul 1 – Sept 30
 - Average Cost/Acre: \$33.57





Target Species #3: Trees

- How we treat Trees
 - Mechanical Removal
 - Treatment Dates:
 - Aug 11 – Sept 30
 - Average Cost/Acre: \$94.87

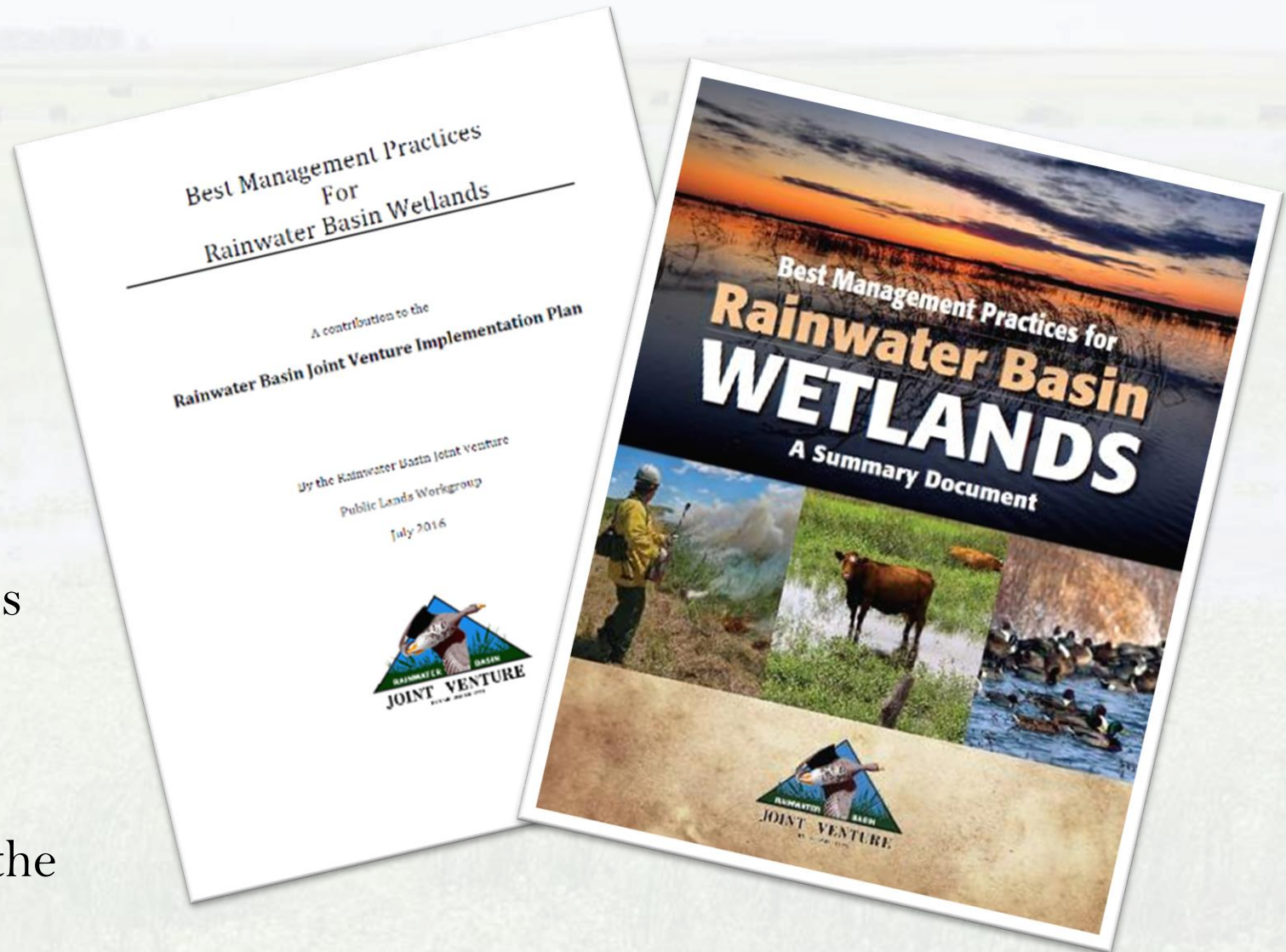






References

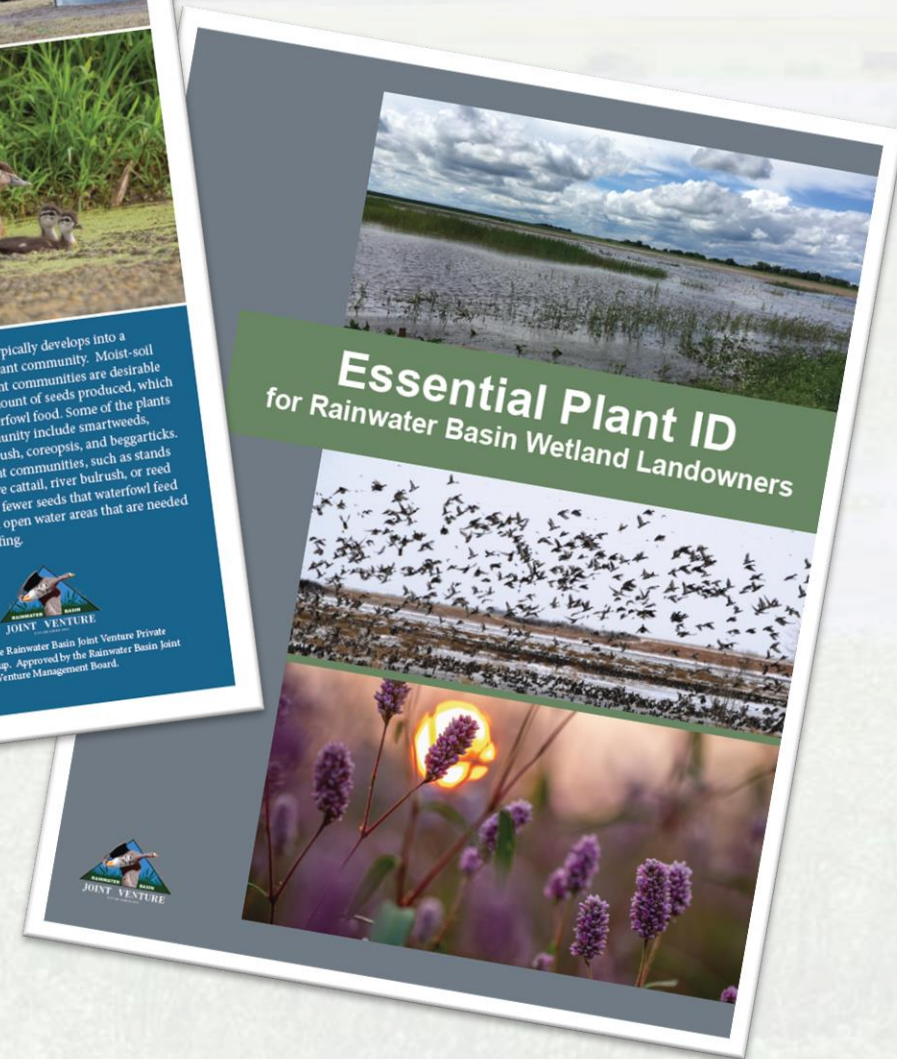
- Best Management Practices for Rainwater Basin Wetlands
 - Publication Date: 2016
 - Author:
 - RWBJV Public Lands Workgroup
 - Details:
 - Provides recommendations based on habitat assessments, management tracking, and vegetation monitoring completed in the region.





References

- Landowner Guide to Habitat Improvements in Rainwater Basin Wetlands AND Essential Plant ID for RWB Landowners
 - Publication Date: 2023
 - Author:
 - RWBJV Private Lands Workgroup
 - Details:
 - Helps LOs evaluate the health of their wetlands and determine next management steps.



Thank You!

Please feel free to email me if you would like copies of any of the materials referenced in the presentation today.

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Aerial Spraying Application Options

- Aerial Spraying Application Options:
 - Fixed-Wing/Airplanes
 - Helicopters
 - Drones





Aerial Spraying Application Options

- Advantages of Spraying with a Drone:
 - Drones more efficiently/precisely spray small, irregular-shaped fields.
 - Drones increase the penetration of herbicide below the canopy.
 - Drones significantly reduce the risk of applicators being contaminated by pesticides.
 - Drones offer more flexibility in the type of chemical you can use.
 - More cost effective: Less surfactant is necessary and transport costs are lower.



Introduction to the Rainwater Basin

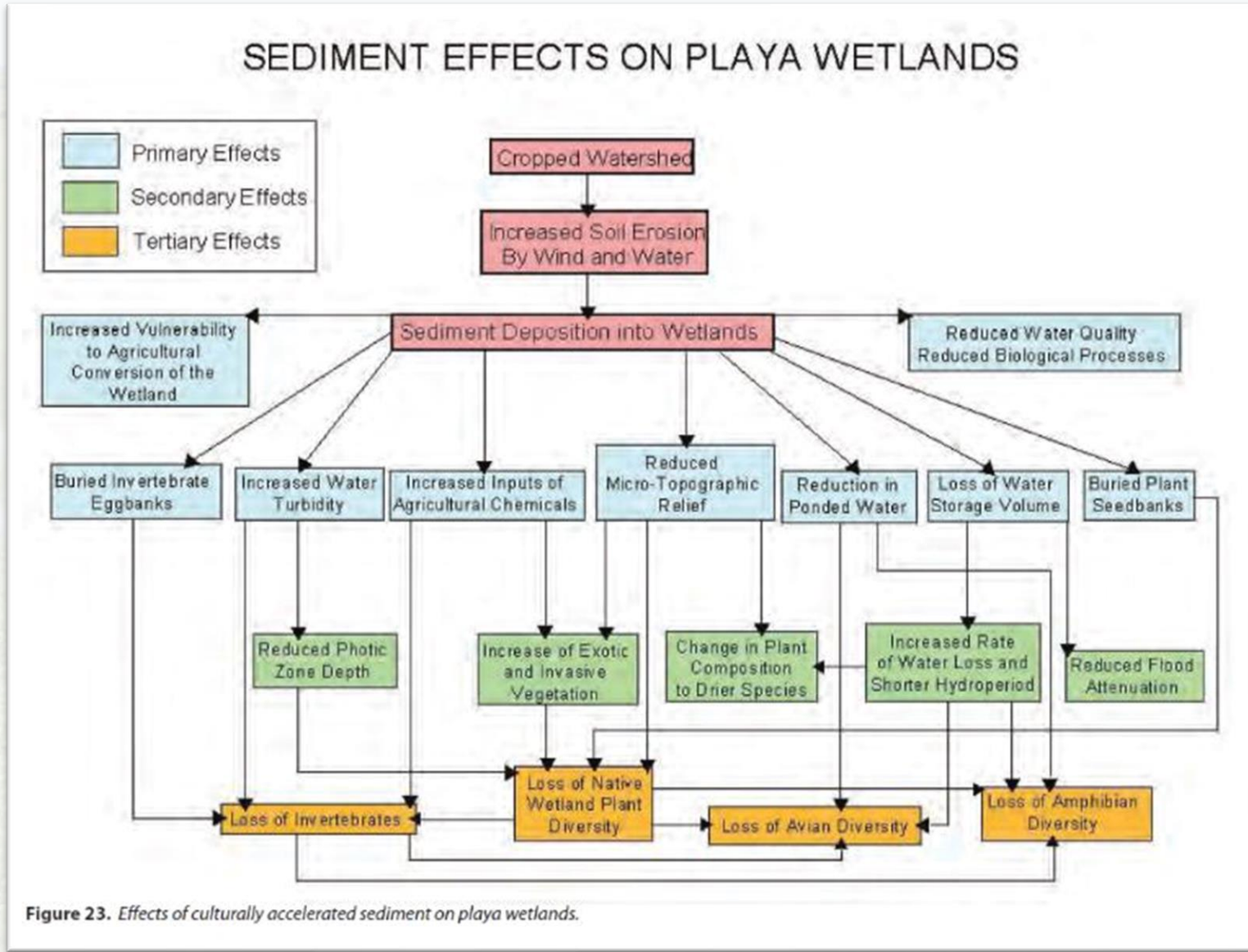


Figure 23. Effects of culturally accelerated sediment on playa wetlands.