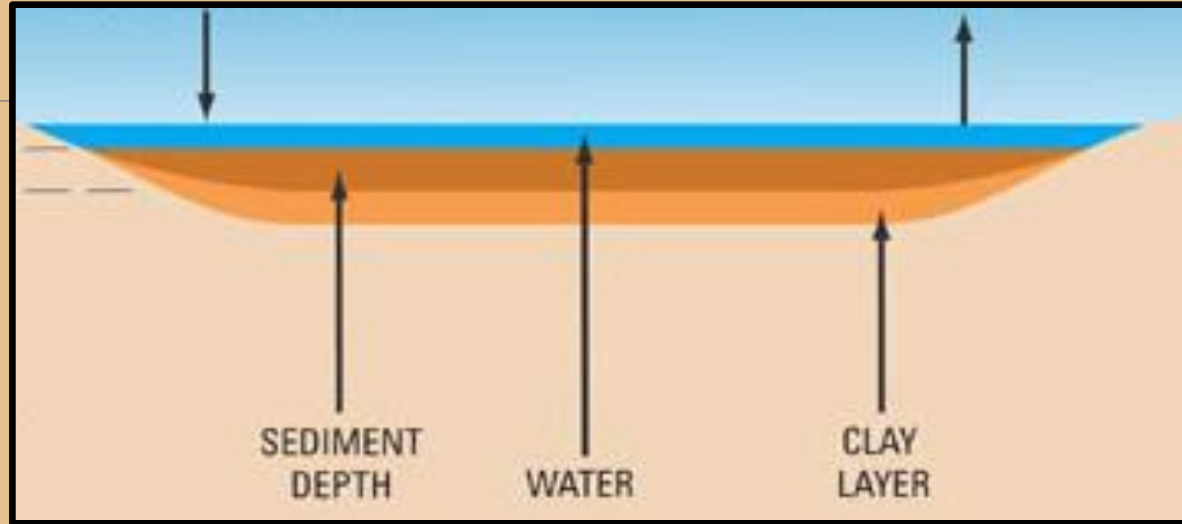

Rainwater Basin Joint Venture Water Plan

Dana Varner, Rainwater Basin Joint Venture Science Coordinator
and **Randy Stutheit**, Nebraska Game And Parks Commission



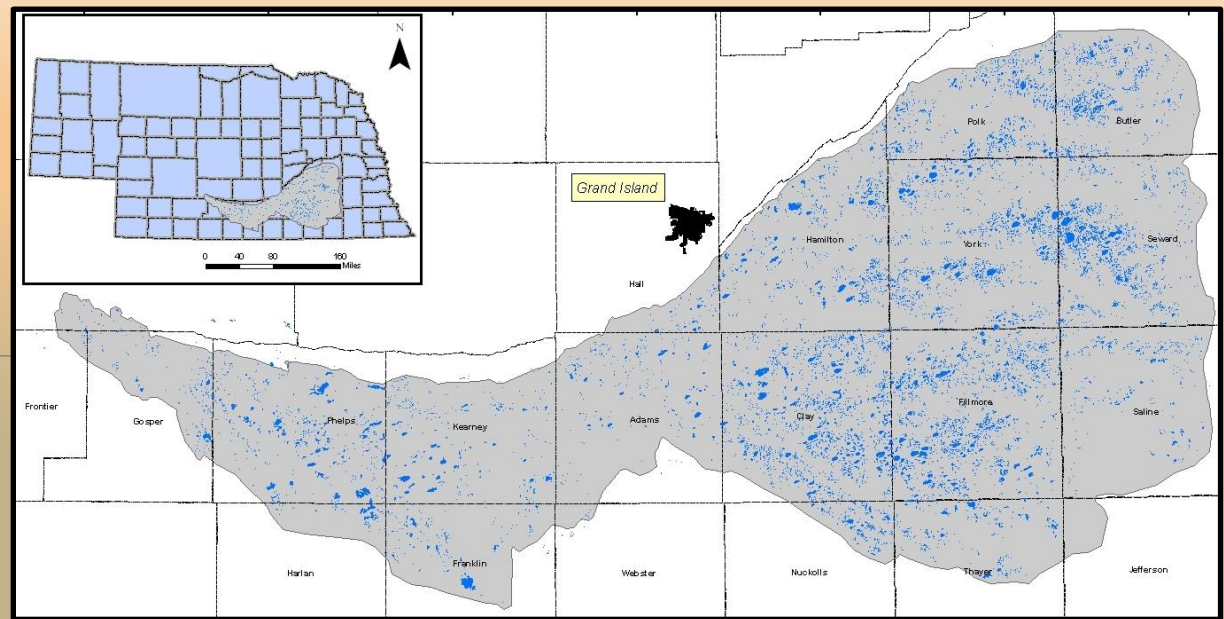
What is a playa wetland?



- **Shallow**
- **Lined with an impervious layer of clay**
- **Fed by precipitation (melting snow and spring rain)**
- **Watershed channels runoff into playa**

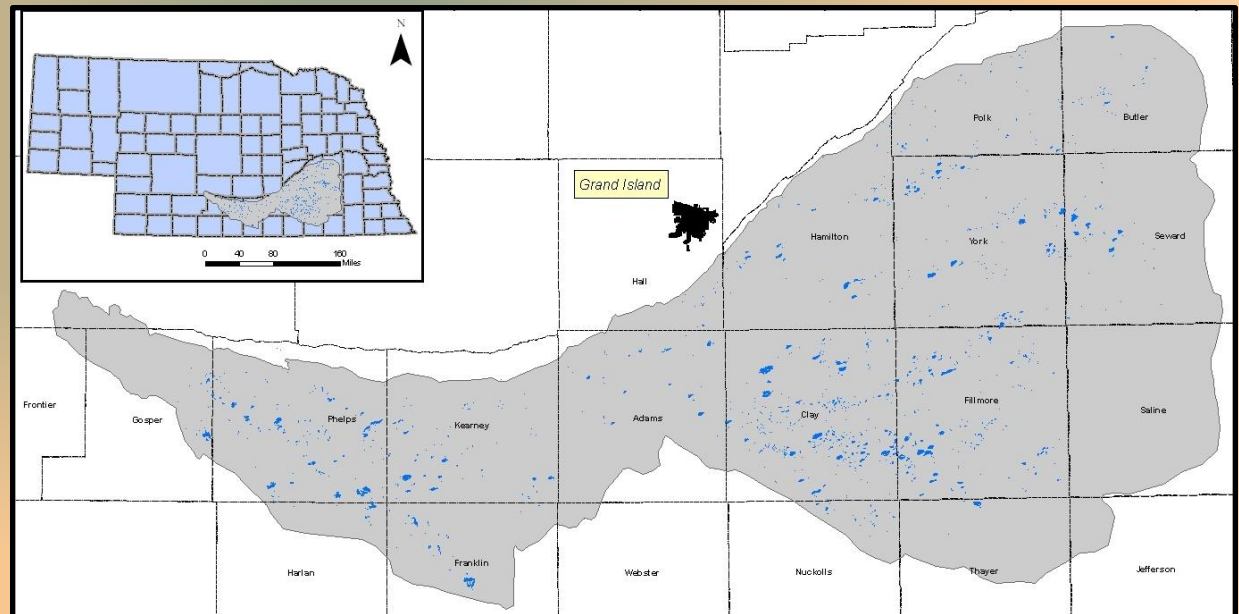
Historic

>200,000 acres
5% of the landscape



Current

~40,000 acres
1% of the landscape





Feb 2008

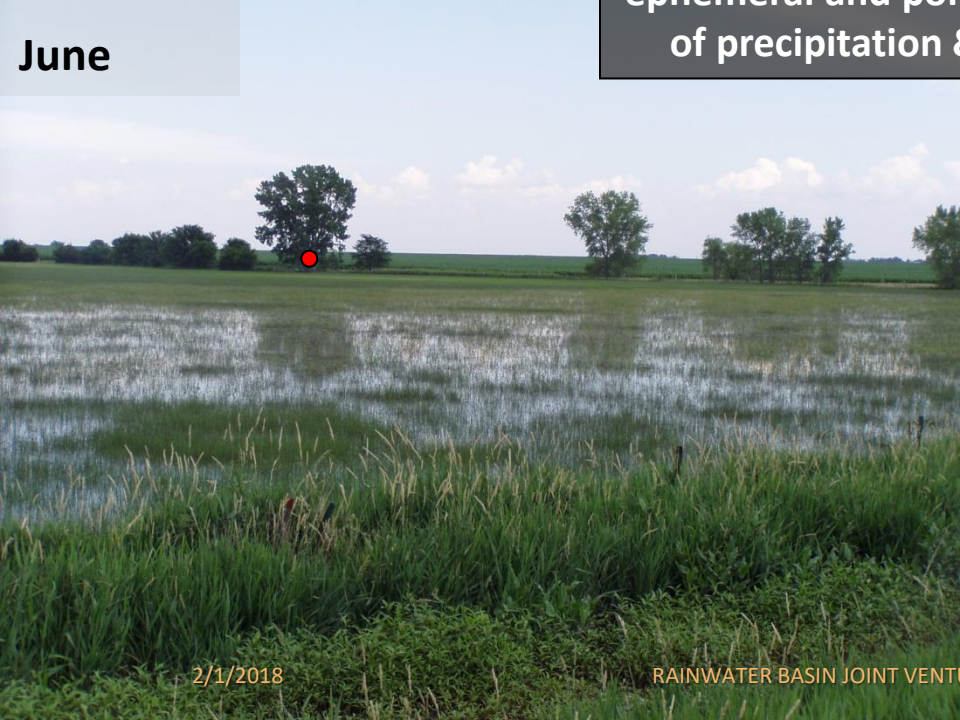
June

Rainwater basin wetlands are ephemeral and pond water as a result of precipitation & surface runoff.



April

September

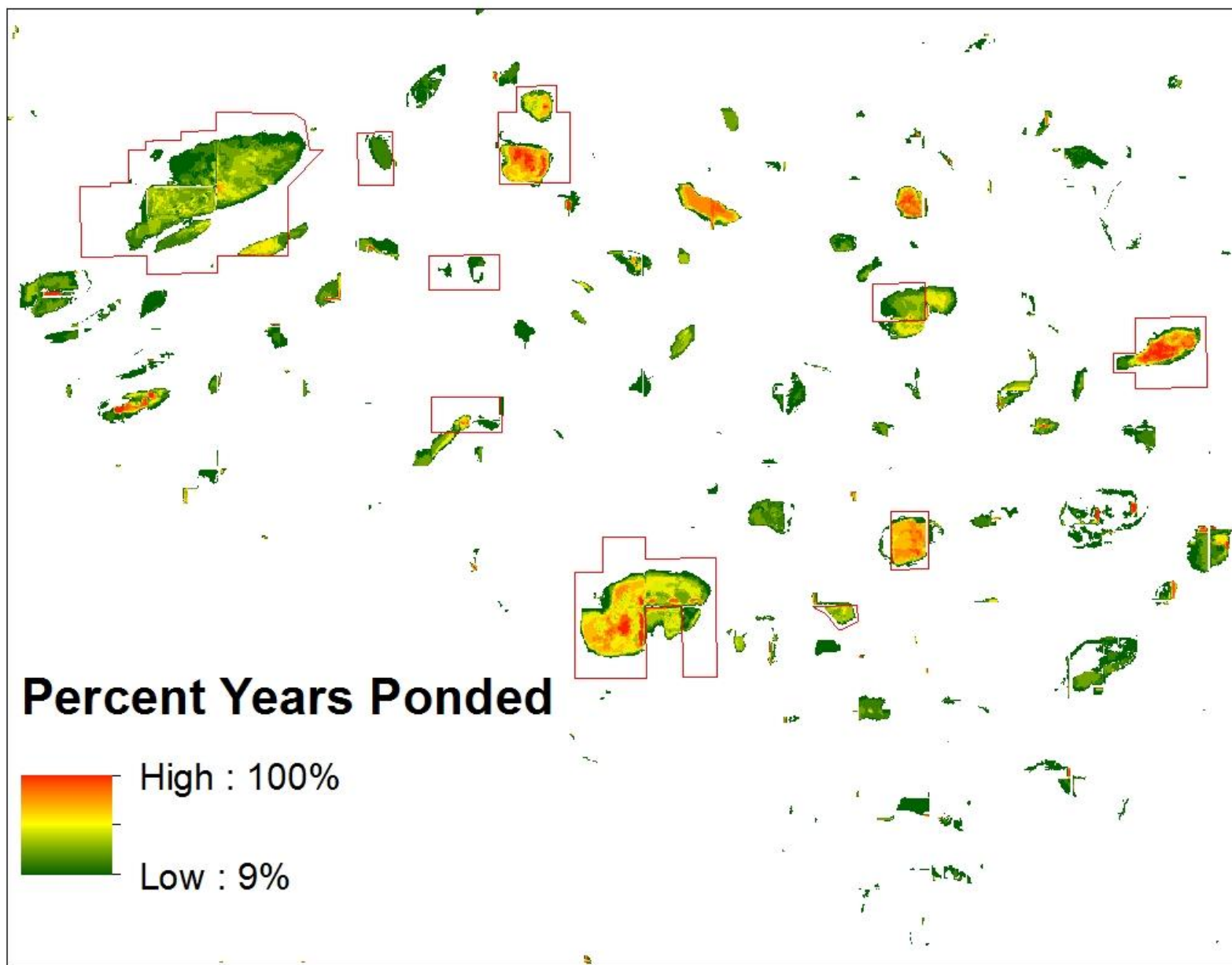


2/1/2018

RAINWATER BASIN JOINT VENTURE INFORMATIONAL SEMINAR

4





Importance of the Rainwater Basin During Spring Migration

- 340 bird species
- Shorebirds – 500,000
- Water birds - Whooping Cranes
- Waterfowl
 - 25 species
 - 50% of mid-continent mallards and 30% of pintails
 - 8.6 million ducks and geese



Importance of the Rainwater Basin During Fall Migration

- **Whooping Cranes**
- **2.6 million waterfowl**
- **Waterfowl hunting**
 - Recent declines lead to fewer financial resources for conservation
 - Limited hunting opportunities on public lands



Waterfowl Wetland Food Requirements

Species	% Wetland Plant Seeds in Diet
Mallard	30
Northern Pintail	30
Blue-winged Teal	80
Gadwall	35
Canada Goose	2
Snow Goose	1

Number of waterfowl in RWB during spring: 8.6 million

Number of kcals needed: 4.4 billion

Number of kcals currently available: 0.4 - 2.7 billion

How can we increase the number of ponded wetland acres available during spring and fall migration?



Rainwater Basin Joint Venture Water Plan

A contribution to the
Rainwater Basin Joint Venture Implementation Plan

By the Rainwater Basin Joint Venture

Water Workgroup

September 2017



Executive Summary

- 1) Strategic acquisition of public land round outs or the use of floodage easements to mitigate impacts to adjacent private lands after restorations.
- 2) Hydrologic improvements including the filling of concentration/irrigation reuse pits and surface drains and removal of culturally-accelerated sediment and fill.
- 3) Off-site watershed restoration, to the extent possible, intended to maximize natural runoff to the wetlands by removing at least 75% of the abandoned irrigation reuse pits in the watersheds with priority given to pits nearest the wetland with the largest storage volume.

Executive Summary - Continued

- 4) Re-contour waterways and add or replace culverts and other road infrastructure to maximize the amount of water reaching the wetland.
- 5) Use supplemental water deliveries (i.e., groundwater and surface water) to support timely ponding.
- 6) Install necessary infrastructure (e.g., wells, buried pipelines, well motors) to maximize supplemental water deliveries to wetlands.
- 7) Develop a reliable, long-term funding source that will support and expanded supplemental water delivery program.

Strategy #1

Strategic Acquisition of Round Outs

- 95 publicly owned properties in the RWB (NGPC – 35, USFWS – 60)
- These properties contain all, or portions of 179 wetland footprints, or approximately 1.5% of the historic footprints.
- These 95 properties contain 19,226 acres of hydric soil.
- Provide approximately half of the foraging resources for migrating birds.
- 783 public land round outs (11,620 acres) have been identified.
- 136 tracts identified in the highest priority round out class.
- Acquisition of round outs allows for full hydrologic restoration of the wetland and increases management efficiency and effectiveness.
- It should be noted that the RWBJV partnership only pursues acquisitions on a WILLING SELLER/WILLING BUYER basis.

Conservation Strategies

Strategic Acquisition of Round Outs

This example is the Smith WPA



Strategy #2

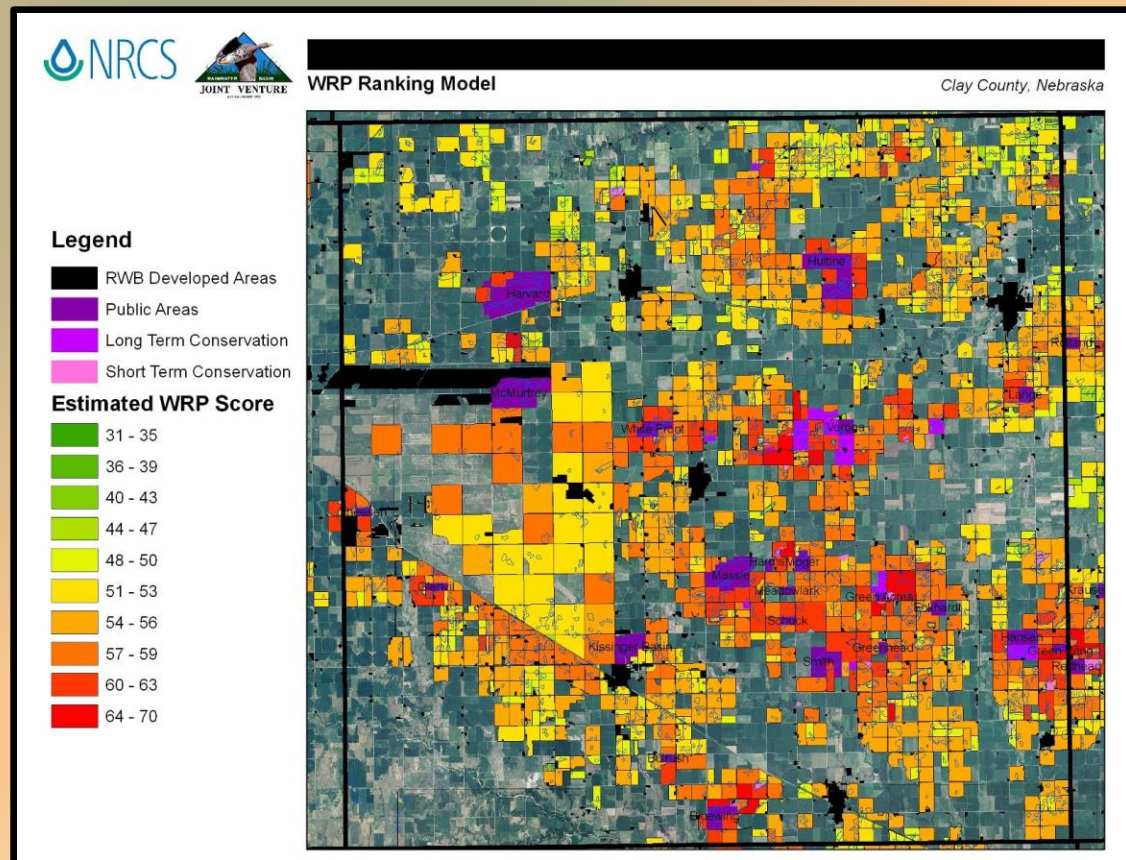
Long-Term Conservation (LTC) Program Enrollment

- Private wetlands enrolled in LTC programs are treated as distinct conservation targets because they are administered through deed restrictions and easements.
- LTCs are at least 30 years in length, most are perpetual.
- Wetlands are integrated into working ag operations while maximizing habitat.
- As of 12/2016 there were 77 properties (6,346 acres of wetlands) enrolled.
- At target, an additional 9,250 acres of wetlands would be enrolled.
- RWBJV Easement Model used to identify highest priority tracts to enroll.

Conservation Strategies

Long-Term Conservation Program Enrollment

WRP ranking model



Strategy #3

On-Site Hydrologic Restoration

- Majority of RWB wetlands have been hydrologically modified to some degree.
- Concentration pits, surface drains, tile drains, dikes, fill, culturally accelerated sedimentation.
- Wetlands purchased by USFWS and NGPC have their hydrology restored by removing as many of the modifications as feasible.
- Priority round outs will also have hydrology modifications, especially pits, removed after acquisition or enrollment in a LTC program.
- Removal of culturally accelerated sediment is important to restore the historical storage volume of the wetland and enhance hydrology.

Conservation Strategies

On-site Hydrologic Restoration

Pit filling at KBS WMA



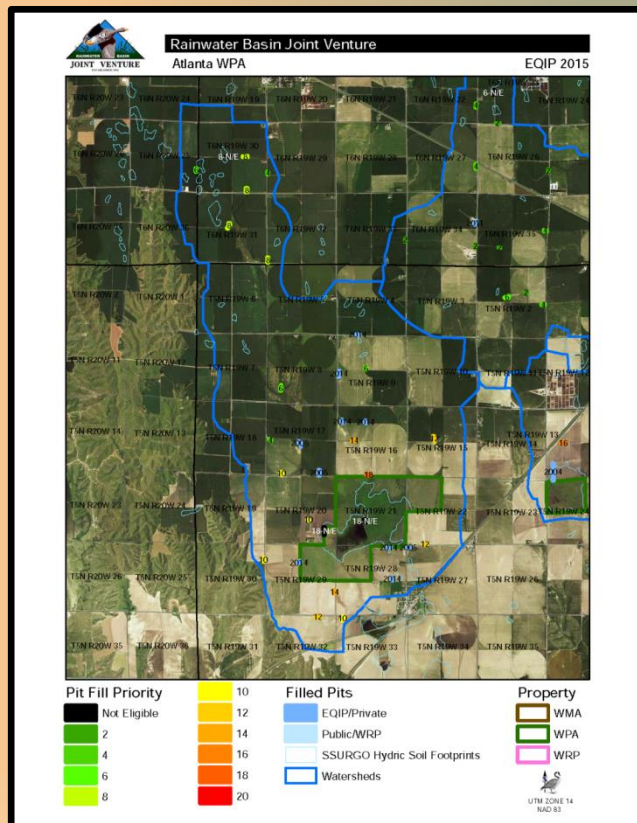
Strategy #4

Off-Site Watershed Restoration

- Prior to center pivot irrigation, flood irrigation required the installation of re-use pits to capture and recycle water.
- A 2010 GIS assessment found approximately **874** pits in the wetlands and upland watersheds of public RWB wetlands.
- Estimated storage capacity of these pits is **3,263** acre feet of water or about **19%** of the historic storage capacity of these wetlands.
- The move to center pivot irrigation has made many of these pits obsolete.
- To date, the RWBJV Watershed Restoration Initiative has helped fill **146** pits to restore hydrologic function to public wetlands.
- The RWBJV has identified a strategy to remove **413** more pits in the watersheds of public wetland.

Conservation Strategies

Off-Site Watershed Restoration



Strategy #5

Water Delivery Infrastructure

- The 95 WPAs and WMAs have 143 groundwater wells, 75 of which are operational.
- Infrastructure needs have been identified by both the USFWS and NGPC to increase efficiency and allow for the addition of supplemental water to the public wetlands.
- Priority given to public properties where a significant portion of the wetland is under public ownership and has been restored so the wetland can be pumped without negatively impacting adjacent landowners.

Conservation Strategies

Water Delivery Infrastructure



Strategy #6

Operation and Maintenance Funding

- NGPC & USFWS both use high capacity wells and surface water deliveries to supplement natural runoff into their properties.
- Between the two agencies there are **75** wells that are operational.
- NGPC: **85%** of total pumping in the fall, **15%** in the spring.
USFW: **35%** of total pumping in the fall, **65%** in the spring.
- Over past 10 years NGPC has allocated **\$30,000** and USFWS **\$50,000** to pump at an average cost of **\$39.20** per acre foot.
- **1.5:1** ratio meaning 1.5 acre foot of water pumped = 1 ponded acre of habitat.
- This cost and this ratio result in **1,020** acres of ponded habitat annually.
- Once round out acquisition goals have been reached there will be **26,800** acres under public ownership.

Strategy #6 (continued)

Operation and Maintenance Funding

- Implementation Plan has a goal of having **45% (12,060 acres)** of public wetland acres (**26,800 acres**), once round out acres goal is achieved, ponded annually.
- Once all watershed and wetland restoration is completed on public areas, an additional **3,950** acres of habitat will be available.
- It is estimated that an endowment of **\$5.5 million** with a **5%** return on investment would be needed to provide an annual dividend of **\$276,050** necessary to complement current agencies funding to provide ponded habitat on public areas.
- At goal, there would be a total of **5,270** acres of habitat on private land which would require another **\$700,000** to provide supplemental water deliveries to these acres.
- Total endowment needed to meet these goals = **\$6.2 million dollars**.
- This endowment will be managed by Ducks Unlimited with direct oversight of expenditures by the RWBJV Management Board.

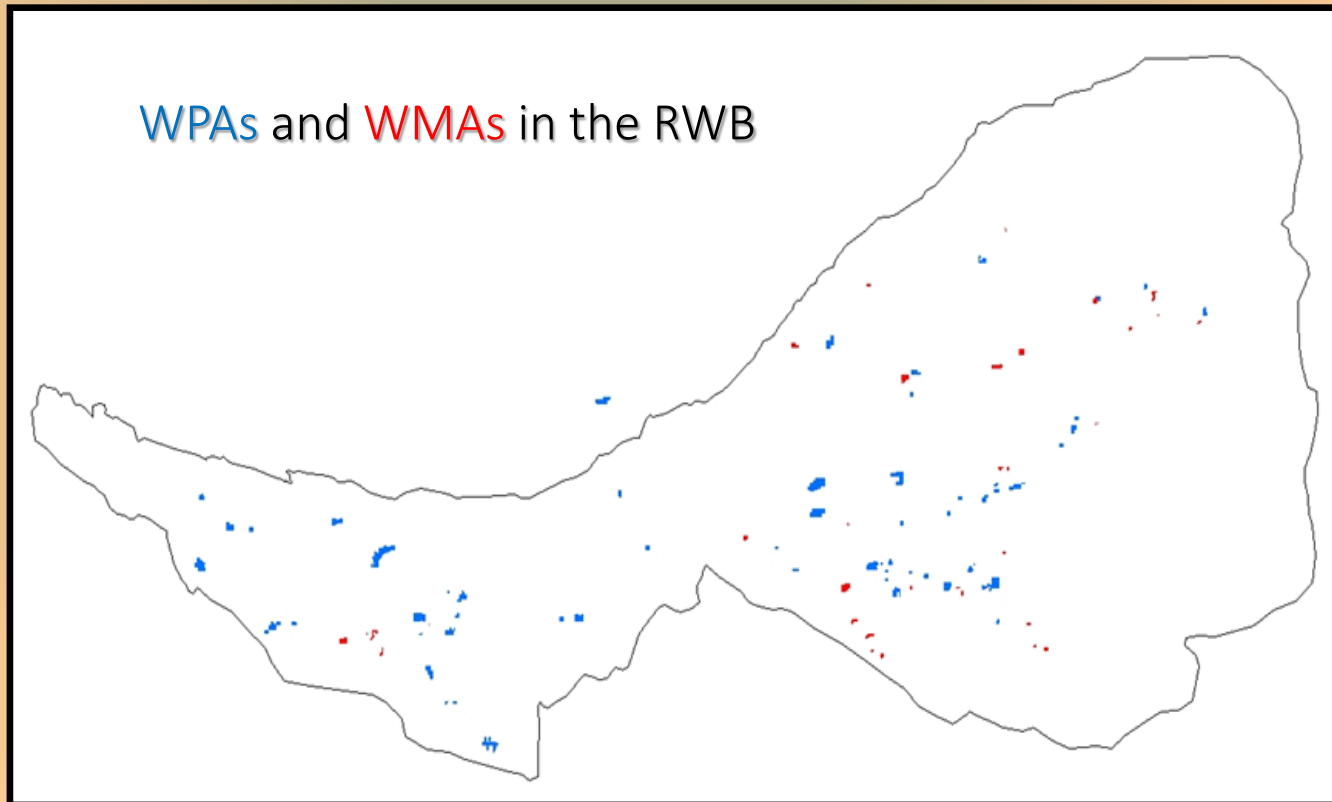
Strategy #6 (continued)

Operation and Maintenance Funding

- At full funding of the endowment there would be **\$310,000** available for all pumping needs on public and private land in LTC programs.
- Land managers with NGPC, USFWS and DU would meet in late summer to determine pumping needs for that year.
- Once wetlands have been prioritized a larger meeting will be held with NGPC, USFWS, DU, Tri-Basin NRD, Little Blue NRD, Upper Big Blue NRD and the Nebraska Department of Natural Resources to outline pumping plans and maximize communications between all parties.

Conservation Strategies

Operation and Maintenance Funding



Questions?



To read the ***Rainwater Basin Joint Venture Water Plan*** in it's entirety, on the web, go to rwbjv.org and find it under “**Our Work**”, then “**Conservation Planning Documents**”.