Integrating Agriculture into Rainwater Basin Wetland Management
Nebraska Natural Legacy Conference - October 2020
Krystal Bialas and Cortney Schaefer
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 RWB Landscape

- 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
- RWB wetlands were given a Priority 1 ranking, the most imperiled status, in the Nebraska Wetlands Priority Plan
Introduction to the RWB Landscape

- Almost 99% of the lands within the RWB are under private ownership
- Land use dominated by row-crop agriculture
- Grasslands make up ~20% of the region, remainder being savannas, woodlands and forest communities
Working Lands Initiative

- WRP – 1990 Farm Bill
  - Preserving wetlands is not enough – need to manage WRP/WREP easements

- Landowner enters a 10-year agreement that allows partners to work with the landowner to manage the wetland

- Conservation partners provide 85% cost-share for grazing infrastructure

Eligibility Restrictions:
- Must have ≥30 acres in a conservation program
In the past 10 years, the RWBJV has facilitated grazing infrastructure installation on 56 easements.

Currently have 18 easements in various stages of construction.

- Most commonly funded projects include a perimeter fence and a solar well and livestock tanks.
Working Lands Initiative

- Projects can include any other work necessary to prepare an easement for grazing
  - Luttich WREP – Fillmore County
Working Lands Initiative

- Projects can include any other work necessary to facilitate grazing on an easement
  
  - Olson WRP – Clay County
  
  - Hammond WRP – York County
Since 2010, over 56 private RWB wetlands have had grazing infrastructure installed.

These sites are scattered across 12 counties and total over 6,733 acres.

Many of these landowners do not have their own cattle and are looking for grazers to help them manage their wetlands.
Working Lands Initiative

• Cattle Grazers Register for the Network on the RWBJV Website

• Generate a list of available grazers for the easement owner based on location and # of acres

• Portable livestock corral
Grazing RWB Wetlands

• Benefits of grazing
  • Increase suitable habitat for wetland dependent species - migratory waterfowl
  • Decrease undesirable species
  • Increase plant species diversity
  • Increase bare soil
  • Generates income for the easement landowner

• Use grazing as a disturbance to shift plant communities

• Wetlands can provide adequate nutrition for cattle
Grazing RWB Wetlands – Reed Canarygrass

- Success depends on:
  - Proper stocking rate
  - Initiation of grazing at the proper time
  - Adequate recovery time after grazing
  - Use other management tools

- Graze RCG before it reaches 12” in height in the spring

- High density stocking rate & rotational grazing
  - Generally stock 1-1.5 AUM in early May through late July
  - Stock 1 – 1.5 AUM August - September
Grazing RWB Wetlands – Cattails & River Bulrush

- High intensity for short duration
  - Cross fence small areas & move around
  - Stocking rates of 5-10 cow-calf pairs per acre for just a few days

- Timing is best in spring/early summer

- Utilize other management tools
  - Prescribed burning
  - Spraying chemical
  - Disking

- May need nutrient supplementation for cattle
Grazing RWB Wetlands – Moist-Soil Plant Communities

- Provides important forage due to crude protein percentage available
  - Comparable to other communities (e.g., reed canarygrass, river bulrush, etc.)
- Forage production lower than other plant communities
  - Stocking rate of 5-10 acres per cow-calf pair reasonable
  - Rotational graze with upland or other wetland vegetation communities
- Vary timing, intensity, and duration to promote diversity of species
Grazing RWB Wetlands – Promote Moist-Soil Dominated Plant Communities

- Moist-soil plant communities shift to RCG, cattails, or bulrush less than 15% of the time following 1 year of moderate grazing

- Seed production is greater when moist-soil communities are grazed vs rested
  - Declines when grazing continues beyond mid-July
  - Conclude grazing early to maximize plant recovery and seed production

- Best management is to maintain community
Grazing RWB Wetlands Summary

- It is important that you first determine your objectives
  - Grazing later in the season will increase species diversity, but it will not decrease RCG/cattails/bulrush

- Consider the nutritional needs of the cattle
  - Continuous stocking can cause severe stand loss, but it can also cause nutritional stress on cattle
1. Discuss goals and details.
2. Complete vegetation survey.
3. Create grazing plan.
5. Additionally use other management strategies.

Example: Reeb WRP – Fillmore Co.
Grazing RWB Wetlands - Plugging Data into Calculator

<table>
<thead>
<tr>
<th>Veg. Type</th>
<th>Plant Type</th>
<th>Percent Coverage</th>
<th>Community Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWB</td>
<td>80%</td>
<td>6.80</td>
<td>10.3</td>
</tr>
<tr>
<td>Wetland A</td>
<td>45%</td>
<td>6.80</td>
<td>10.3</td>
</tr>
<tr>
<td>Wetland B</td>
<td>45%</td>
<td>6.80</td>
<td>10.3</td>
</tr>
<tr>
<td>Wetland C</td>
<td>45%</td>
<td>6.80</td>
<td>10.3</td>
</tr>
<tr>
<td>Wetland D</td>
<td>45%</td>
<td>6.80</td>
<td>10.3</td>
</tr>
<tr>
<td>Wetland E</td>
<td>45%</td>
<td>6.80</td>
<td>10.3</td>
</tr>
</tbody>
</table>

**Table 2:**

<table>
<thead>
<tr>
<th>Wetland</th>
<th>Total Ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWB</td>
<td>60.2</td>
</tr>
<tr>
<td>Wetland A</td>
<td>2.8</td>
</tr>
<tr>
<td>Wetland B</td>
<td>2.8</td>
</tr>
<tr>
<td>Wetland C</td>
<td>2.8</td>
</tr>
<tr>
<td>Wetland D</td>
<td>2.8</td>
</tr>
</tbody>
</table>

**Table 3:**

<table>
<thead>
<tr>
<th>Veg. Type</th>
<th>Plant Type</th>
<th>Percent</th>
<th>Production Value</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWB</td>
<td>80%</td>
<td>6.80</td>
<td>238.5</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Wetland A</td>
<td>45%</td>
<td>6.80</td>
<td>115.5</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Wetland B</td>
<td>45%</td>
<td>6.80</td>
<td>115.5</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Wetland C</td>
<td>45%</td>
<td>6.80</td>
<td>115.5</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Wetland D</td>
<td>45%</td>
<td>6.80</td>
<td>115.5</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Wetland E</td>
<td>45%</td>
<td>6.80</td>
<td>115.5</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

Notes: Values for 2015-2017 are based on production values from LSD for grazing season.
### Grazing RWB Wetlands - Determine Days & Cattle Numbers

<table>
<thead>
<tr>
<th>Padock/Parturion Number</th>
<th>Estimated Average # Pastures/At</th>
<th>Acclim. To Pasture or Padock</th>
<th>Average Weight of Sheep/Head</th>
<th>Sheep’s Needed/ Month</th>
<th>Sheep’s Available [cows @ 100% use]</th>
<th>Estimated Days @100% Use</th>
<th>Estimated Days @80% Use</th>
<th>Estimated Days @60% Use</th>
<th>Estimated Days @40% Use</th>
<th>Estimated Days @20% Use</th>
<th>Estimated Days @0% Use</th>
<th>Returned Days @100% Use</th>
<th>Returned Days @80% Use</th>
<th>Returned Days @60% Use</th>
<th>Returned Days @40% Use</th>
<th>Returned Days @20% Use</th>
<th>Returned Days @0% Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland - Spring/Summer</td>
<td>2700</td>
<td>66.3</td>
<td>68.2</td>
<td>1368</td>
<td>25</td>
<td>60</td>
<td>80</td>
<td>90</td>
<td>100</td>
<td>110</td>
<td>120</td>
<td>225</td>
<td>225</td>
<td>225</td>
<td>225</td>
<td>225</td>
<td>225</td>
</tr>
<tr>
<td>Wetland - Spring/Summer</td>
<td>2700</td>
<td>66.3</td>
<td>68.2</td>
<td>1368</td>
<td>35</td>
<td>85</td>
<td>110</td>
<td>125</td>
<td>140</td>
<td>155</td>
<td>170</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Wetland - Spring/Summer</td>
<td>2700</td>
<td>66.3</td>
<td>68.2</td>
<td>1368</td>
<td>45</td>
<td>115</td>
<td>145</td>
<td>170</td>
<td>185</td>
<td>200</td>
<td>215</td>
<td>425</td>
<td>425</td>
<td>425</td>
<td>425</td>
<td>425</td>
<td>425</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>35</td>
<td>85</td>
<td>110</td>
<td>125</td>
<td>140</td>
<td>155</td>
<td>170</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>45</td>
<td>115</td>
<td>145</td>
<td>170</td>
<td>185</td>
<td>200</td>
<td>215</td>
<td>425</td>
<td>425</td>
<td>425</td>
<td>425</td>
<td>425</td>
<td>425</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>55</td>
<td>145</td>
<td>170</td>
<td>195</td>
<td>210</td>
<td>225</td>
<td>240</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
<td>450</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>65</td>
<td>175</td>
<td>200</td>
<td>225</td>
<td>240</td>
<td>255</td>
<td>270</td>
<td>510</td>
<td>510</td>
<td>510</td>
<td>510</td>
<td>510</td>
<td>510</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>75</td>
<td>205</td>
<td>230</td>
<td>255</td>
<td>270</td>
<td>285</td>
<td>300</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
<td>550</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>85</td>
<td>235</td>
<td>260</td>
<td>285</td>
<td>300</td>
<td>315</td>
<td>330</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>600</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>95</td>
<td>265</td>
<td>290</td>
<td>315</td>
<td>330</td>
<td>345</td>
<td>360</td>
<td>650</td>
<td>650</td>
<td>650</td>
<td>650</td>
<td>650</td>
<td>650</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>105</td>
<td>295</td>
<td>320</td>
<td>345</td>
<td>360</td>
<td>375</td>
<td>390</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>115</td>
<td>325</td>
<td>350</td>
<td>375</td>
<td>390</td>
<td>405</td>
<td>420</td>
<td>750</td>
<td>750</td>
<td>750</td>
<td>750</td>
<td>750</td>
<td>750</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>125</td>
<td>355</td>
<td>380</td>
<td>405</td>
<td>420</td>
<td>435</td>
<td>450</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>135</td>
<td>385</td>
<td>410</td>
<td>435</td>
<td>450</td>
<td>465</td>
<td>480</td>
<td>850</td>
<td>850</td>
<td>850</td>
<td>850</td>
<td>850</td>
<td>850</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>145</td>
<td>415</td>
<td>440</td>
<td>465</td>
<td>480</td>
<td>495</td>
<td>510</td>
<td>900</td>
<td>900</td>
<td>900</td>
<td>900</td>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>155</td>
<td>445</td>
<td>470</td>
<td>495</td>
<td>510</td>
<td>525</td>
<td>540</td>
<td>950</td>
<td>950</td>
<td>950</td>
<td>950</td>
<td>950</td>
<td>950</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>165</td>
<td>475</td>
<td>500</td>
<td>525</td>
<td>540</td>
<td>555</td>
<td>570</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>175</td>
<td>505</td>
<td>530</td>
<td>555</td>
<td>570</td>
<td>585</td>
<td>600</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
<td>1050</td>
</tr>
<tr>
<td>Wetland - April/May</td>
<td>1200</td>
<td>88.3</td>
<td>109</td>
<td>1368</td>
<td>185</td>
<td>535</td>
<td>560</td>
<td>585</td>
<td>600</td>
<td>615</td>
<td>630</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
<td>1100</td>
</tr>
</tbody>
</table>

1 For crossfertil shear the weight of the cow and all other cows are wanted.

2 70% and 100% was checked by the planter where target grazing is being used as a benchmark wound, and varied method of variances between grasses such as seed coverage. Where 80% grass is wanted, sheep and use should be monitored closely to avoid defoliations in production on these sites from year to year. It may be necessary to provide supplemental feed to maintain livestock in less than planned to ensure year-round production with levels of use.
Thank You!

Cortney Schaefer
Cortney_Schaefer@fws.gov

Krystal Bialas
Krystal.Bialas@usda.gov

Grazing Rainwater Basin Wetlands
https://extensionpubs.unl.edu/

• Major Funding Partners:
  • NRCS
  • RWBJV
  • USFWS – PFW
  • NGPC
  • Ducks Unlimited
  • Lindsay Corporation