



# Targeting the Wetlands Reserve Easement Component of ACEP Using Geographic Information System Technology in the Rainwater Basin Region of South Central Nebraska

Roger Grosse<sup>1</sup>, Andy Bishop<sup>2</sup>, and Daniel Uttecht<sup>1</sup>

<sup>1</sup> Rainwater Basin Joint Venture GIS Lab, 9325 S Alda Rd, Wood River, NE 68883

<sup>2</sup> Rainwater Basin Joint Venture, 2550 Diers Ave # L, Grand Island, NE 68803

USDA wetland conservation programs, such as the Wetlands Reserve Easement (WRE) component of the Agricultural Conservation Easement Program (ACEP), are among the most effective programs for conservation of Rainwater Basin playa wetlands. The Rainwater Basin Joint Venture (RWBJV), working collectively with the USDA Farm Service Agency and Natural Resources Conservation Service, generated a targeting tool to identify eligible properties with high priority restoration potential. A geospatial model created by RWBJV was used to rank all eligible tracts in the RWB for inclusion in WRE, with a higher rank representing higher priority.

Figure 1.



Figure 1. Tract ranking for inclusion in WRE. Numbers are the rank assigned to each tract, with higher numbers representing higher priority. Blue lines indicate hydric soil footprints.

The model used two base layers: the Common Land Unit (CLU) or field boundary layer developed by the FSA, and the hydric soils extracted from the Soil Survey Geographic (SSURGO) Database digital soil survey. The hydric soils were used to identify the CLU tracts that are eligible for WRE.

The spatially explicit additive model was based on 11 Geographic Information Systems (GIS) factors using the following ranking system:

<b>Factor 1: Existing Wetland Manipulations</b>	<b>Points</b>
1. Wetland has hydrologic modifications on site. Hydrologic restoration will result in a significant increase in functions and values.	120
2. Wetland has hydrologic modifications on site. Hydrologic restoration will result in some increase in functions and values.	105
3. Wetland has hydrologic modifications on site. Hydrologic restoration will result in some increase in functions and values.	95
4. Wetland has no significant hydrologic modification but is a naturally wooded area that had been cleared or will not be restored to the extent technically feasible.	75
<b>Factor 2: Wetland Vegetation Composition</b>	<b>Points</b>
1. Plant community is not suitable and is dominated by invasive species	10
2. Wetland plant community is not suitable to wetland type and is not dominated by invasive species, i.e. cropland	5
3. Plant community is suitable to wetland type	0
<b>Factor 3: Percent of wetlands in the tract rank</b>	<b>Points</b>
1. Wetland area is between 50% and 69.9% of the offered area	10
2. Wetland area is between 70% and 79.9%	8
3. Wetland area is between 80% and 89.9%	6
4. Wetland area is between 90% and 100%	4

5. Wetland area is less than 50%	0
<b>Factor 4: Wetland size</b>	<b>Points</b>
1. Offer is 100.0 acres or more	10
2. Offer is between 80.0 and 99.9 acres	8
3. Offer is between 40.0 and 79.9 acres	6
4. Offer is between 20.0 and 39.9 acres	4
5. Offer is between 10.0 and 19.9 acres	2
6. Offer is between 0.1 and 9.9 acres	0
<b>Factor 5: T &amp; E Species</b>	<b>Points</b>
1. Offer has known population or located within federally designated critical habitat.	5
2. Offer has no known population or is not located within federally designated critical habitat.	0
<b>Factor 6: Proximity to wetlands in long-term protection</b>	<b>Points</b>
1. Offer is within the same wetland.	5
2. Offer has separate wetlands.	3
3. Offer does not connect to long-term property.	0
<b>Factor 7: Contribution to local wetland complex</b>	<b>Points</b>
1. 8 or more distinct wetlands are in the offer and/or within one mile of the offer	5
2. 3 to 7 distinct wetlands	3
3. 1 to 2 distinct wetlands	1
<b>Factor 8: Carbon Sequestration</b>	<b>Points</b>
1. Offer after restoration would likely increase carbon sequestration	3
2. Offer after restoration would likely maintain current level of carbon sequestration	1
3. Offer after restoration would likely increase carbon sequestration	0
<b>Factor 9: Floodwater Attenuation</b>	<b>Points</b>
1. After restoration the offer will contribute to floodwater attenuation	5
2. After restoration the offer will not contribute to floodwater attenuation	0
<b>Factor 10: County Land Value Rating</b>	<b>Points</b>
1. West	5
2. North, Southeast, Missouri River, and Southwest	3
3. Northeast and Central	2
<b>Factor 11: Environmental Benefit Score and Weighted EBS</b>	
This factor uses the Environmental Benefit Tool to score an area. The area was then weighted by multiplying the score by seven. Scores for this factor range from 0 to 77.	

Final points for tracts eligible for inclusion in WRE ranged from 30 to 71 and can be found in the WRE model pdf file.

