

Society for Range Management – Annual Meeting 2010
Poster Presentation Abstract
Comparative studies of two small, freshwater wetlands in Ellis County, Kansas

P. Allen Casey

Affiliations: 1. USDA-NRCS Plant Materials Center, Manhattan, Kansas
2. Fort Hays State University, Hays, Kansas

Vegetation composition and the composition of surface water were studied during 2007 and 2008 at two small (< 3 ha) wetlands in Ellis County, Kansas. Vegetation data were recorded at standard locations along four transects that transversed each wetland four times during the 2007 growing season. Water samples were collected and compositions were identified using deuterium isotope in 2007 and 2008 at six locations from each wetland. Eighty-one plant species were observed at study site 1 with a floristic quality index of 28, and sixty-four species were observed at study site 2 with a floristic quality index of 20. The floristic quality index suggested that study site 1 was of a higher quality than study site 2 and is best explained by the larger area and the presence of a fen at study site 1. Both study sites were similar in species composition and forb frequency during the first two sample periods (May and June) and during the last two sample periods (July and August), reflecting an overall change in the flora from cool season to warm season plants. At study site 1, water $\delta^2\text{H}$ became higher as it flowed downstream during the 2007 season with $\delta^2\text{H}$ values that ranged from -19.8 to -48.2‰. Groundwater contributed 50 to 100% of the water at study site 1. Water $\delta^2\text{H}$ at study site 2 during 2007 and 2008 was not enriched or depleted as it moved downstream with $\delta^2\text{H}$ values that ranged from -19.8 to -29.8‰.