

ASSESSING THE CHANGE IN TALL-GRASS PRAIRIE VEGETATION WITHIN THE CHEROKEE PRAIRIE FROM 1898 TO 2008

MELISSA HINTEN*, OKLAHOMA BIOLOGICAL SURVEY, UNIVERSITY OF OKLAHOMA, 111 E. CHEASAPEAKE, NORMAN, OK 73019

BRUCE HOAGLAND, OKLAHOMA BIOLOGICAL SURVEY, UNIVERSITY OF OKLAHOMA, 111 E. CHEASAPEAKE, NORMAN, OK 73019

Historically the vegetation of the Cherokee Prairie was contiguous native tall-grass prairie spanning 3,700 square miles east of the Neosho River and north of the Arkansas River in the Cherokee Nation; what is now northeastern Oklahoma. The objective of this study was to determine how much native tall-grass prairie has been lost due to changes in land use from 1898 to 2008. To quantify the loss of tall-grass prairie we use a Geographic Information System (GIS). Historic tall-grass prairie vegetation was identified using The United States Geologic Survey (USGS) Township Plats. These plats are the first land cover maps of the Cherokee Nation, and are based on detailed observations of surveyors in the region from 1896 to 1898. The 2008 tall-grass prairie vegetation was identified using a comparative analysis of County Mosaic images published by the National Agriculture Imagery Program (NAIP), the Oklahoma GAP Analysis (OKGap) vegetation layer, and The Nature Conservancy's Untilled Landscapes layer. Spatial analysis was used to compare changes over time of land cover type, number of tall-grass prairie patches, and patch area. We found that the majority of native tall-grass prairie has been converted to non-native forage grasses and agricultural row crops. Our findings show that the landscape matrix in 1898 was tall-grass prairie; however in 2008 tall-grass prairie was found only as remnant patches maintained as hay meadows, with a few larger tracts maintained for grazing cattle.