

## Public Abstract

Mark MacKay

M.S.

Fisheries and Wildlife Science

### DEVELOPMENT AND EVALUATION OF A TECHNIQUE FOR EVALUATING RIPARIAN VEGETATION CHANGE IN THE TALLGRASS PRAIRIE

Advisor: Dr. Ron Drobney

Graduation Term Fall 2004

North America's tallgrass prairie region is one of the world's most endangered ecosystems. Recent management and research efforts have focused on the effects of anthropogenic change to upland components of the tallgrass prairie, however, little is known regarding change to riparian vegetation. Nevertheless, riparian vegetation habitat plays a significant role in the conservation of both terrestrial and aquatic biodiversity; furthermore, anthropogenic modifications to this system have often occurred before the onset of modern ecological inventories. As a result, managers, planners, and policy makers often make decisions that impact riparian vegetation without sufficient information regarding presettlement vegetation. To provide data that can be used in the decision-making process, we developed and evaluated a technique to characterize historic and contemporary riparian vegetation, within a Geographic Information System (GIS). The methodology provides an objective, scientific approach to providing the necessary data to make informed management, planning, and restoration decisions regarding riparian systems. A comparison between historic and contemporary riparian vegetation indicated that profound changes in vegetation have occurred over time and that vegetation differences between riparian zones in different ecological subsections are less pronounced than they were before European settlement. Our findings suggest that, contrary to previous research and speculation, historic riparian zones contained a

significant amount of prairie, and that the extent varied among watersheds. We found no remaining riparian prairie today. This research contributes baseline data to facilitate the evaluation of vegetation change and the success of management and restoration efforts.