

PLANT COMMUNITY COMPOSITION OF WETLANDS  
LOCATED ON RESTORED AND NATIVE PRAIRIE

A Thesis  
Submitted to the Graduate Faculty  
of the  
North Dakota State University  
of Agriculture and Applied Science

By

Breanna Lyn Paradeis

In Partial Fulfillment of the Requirements  
for the Degree of  
MASTER OF SCIENCE

Major Program:  
Natural Resources Management

Major Department:  
Soil Science

April 2008

Fargo, North Dakota

## ABSTRACT

Paradeis, Breanna Lyn, M.S., Program of Natural Resources Management, Department of Soil Science, College of Graduate and Interdisciplinary Studies, North Dakota State University, April 2008. Plant Community Composition of Wetlands Located on Restored and Native Prairie. Major Professor: Dr. Edward Shawn DeKeyser.

The goal of this study was to evaluate the species composition and physical characteristics of restored prairie pothole wetlands. Plant communities of restored and native temporary, seasonal, and semi-permanent wetlands were evaluated using the Index of Plant Community Integrity approach, a transect method, and a Floristic Quality Index. Wetland functions were evaluated using the Hydrogeomorphic approach. Data were analyzed using Nonmetric Multidimensional Scaling ordination and the Multi-Response Permutation Procedure. This study compared restored and native plant communities located on Tewaikon National Wildlife Refuge and Lostwood National Wildlife Refuge. Plant communities were grouped according to refuge location and land-use history. In general, the restored plant communities were found to have less species richness and diversity than the native plant communities located on the same national wildlife refuge. In addition, plant communities located on Lostwood National Wildlife Refuge were found to be higher in species richness and diversity than the plant communities on Tewaikon National Wildlife Refuge. However, restoration attempts have been successful in returning certain native species to formerly degraded areas. Restored communities are expected to improve over time with proper management. The results of these analyses may be used to identify the potential composition of restored wetland communities and to evaluate the success of restoration efforts throughout the Prairie Pothole Region.