

EVALUATION OF AN INDEX OF PLANT COMMUNITY INTEGRITY  
FOR ASSESSING WETLAND PLANT COMMUNITIES  
IN THE PRAIRIE POTHOLE REGION

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

By

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

Major Program:  
Natural Resources Management

Major Department:  
Animal and Range Sciences

September 2005

Fargo, North Dakota

## ABSTRACT

Hargiss, Christina Louise Melaas; M.S; Program of Natural Resources Management; Department of Animal and Range Sciences; College of Agriculture, Food Systems, and Natural Resources; North Dakota State University; September 2005. Evaluation of an Index of Plant Community Integrity for Assessing Wetland Plant Communities in the Prairie Pothole Region. Major Professor: Dr. Don Kirby.

An evaluation of the Index of Plant Community Integrity (IPCI) was conducted for assessing wetland plant communities in the Prairie Pothole Region. The IPCI is used to evaluate the condition of temporary, seasonal, and semi-permanent wetland plant communities based on disturbance level and multiple community attributes. During 2003 and 2004, vegetative composition was measured for temporary, seasonal, and semi-permanent wetlands located in the Northern Glaciated Plains and Northwestern Glaciated Plains Ecoregions of South Dakota, North Dakota, and Montana. Wetlands were selected based on classification and type of disturbance, ranging from little disturbance (native rangeland) to heavily disturbed (cropland). Wetland data were analyzed using vegetation metrics and further analyzed using nonmetric multidimensional scaling and cluster analyses. All metrics tested were significant in indicating disturbance level in wetlands. Three classes were determined (good, fair, and poor) for temporary and semi-permanent wetlands. Five classes were determined (very good, good, fair, poor, and very poor) for seasonal wetlands. Based on these classes, score ranges were assigned to the metrics that better defined the ranges designated in the original IPCI. Using the modified IPCI, wetlands in the Northern and Northwestern Glaciated Plains of South Dakota, North Dakota, and Montana can be placed into disturbance classes for ecological purposes and mitigation needs.