1997 Survey of Deer Exclosures in the Ceded Territories of Michigan and Wisconsin

by
Miles Falck
Wildlife Biologist

Project Report 99-01
January 5, 1999

Great Lakes Indian Fish & Wildlife Commission
Biological Services Division
P.O. Box 9
Odanah, WI 54861
(715) 682-6619

Introduction

The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) is currently exploring a research preproposal to better understand the impacts of deer herbivory on understory plant communities in northern hardwood stands. In the past century, widespread logging, slash fires, and predator removals have resulted in significantly elevated white-tailed deer populations. The impacts of elevated deer herbivory on understory plant communities in summer range is poorly understood. Because GLIFWC member tribes harvest both deer and the plants they forage on, this information is essential to guide future deer management recommendations.

When deer populations peaked in the 1930's and 40's, numerous state and federal agencies constructed deer exclosures to better understand the impacts of the high deer numbers on tree regeneration. Unfortunately, there was little coordination or documentation of this effort and few exclosures were maintained.

During the summer of 1997, GLIFWC staff conducted an inventory of existing deer exclosures within the ceded territories of northern Wisconsin and the Upper Peninsula of Michigan. The objective of the inventory was to assess the potential for using these existing deer exclosures to evaluate the impacts of white-tailed deer on understory plant communities. This report summarizes the results of this effort.

Methods

State and federal land managers, biologists, and foresters were contacted and queried for knowledge of past or present deer exclosure studies throughout the region. In the course of contacting resource agency personnel, it was learned that a similar inventory had been initiated by Dr. Donald Waller (UW - Madison) in 1995 and a current inventory was being conducted by Barbara Fillmore (Michigan Technological University (MTU)). Barbara and I have utilized the information compiled by Dr. Waller and have coordinated our efforts by exchanging information over the summer.

Information on exclosure locations, ownership, habitat, and other relevant data were compiled into a computer database. Exclosure sites were visited to evaluate their utility for future research efforts. The latitude and longitude coordinates for each exclosure were estimated from a map. For sites that were not visited, the geographic center of the 40 acre legal description was used. Photographs were taken of effective exclosures as well as notes on stand composition, understory plant species composition, and any obvious differences noted within exclosures (e.g. regeneration of deer sensitive species).

Results

A total of 88 exclosures were identified for potential site visits (Figure 1). Ten exclosures were ground checked in 1995 by Kirk Haskins (UW - Madison), 30 were visited by GLIFWC staff, and MTU personnel inspected 24 sites during the summer of 1997. Of the 24 remaining exclosures, 8 were identified as unlikely to warrant site visits due to their age, lack of maintenance records, and the condition of similarly aged exclosures that were inspected. This leaves 16 exclosures to visit.

Out of 64 site visits since 1995, 40 exclosures have been located in the field. Only 25 exclosures were considered still effective (Figure 1). Three exclosures were considered partially effective because, although they were breached by fallen trees, the protruding branches still provided a barrier to deer entry and there was no evidence of browsing within the exclosure. Twelve exclosures were ineffective due to deterioration and we were unable to locate the remaining 24 exclosures.

Although quantitative data relevant to tree regeneration exists for a few of the newer exclosures, data on other understory plant species was lacking for most exclosures

To be useful for scientific study, exclosures should possess the following characterisitcs:

1) Random placement
2) Control plots
3) Large enough (~45 m^2, B. Lynch, GLIFWC, pers. Commun.) to sample natural variation of understory flora.
4) Documentation of initial understory conditions within exclosures and associated control plots.
5) Documented effectiveness against deer entry throughout the exclosure's existence.

None of the exclosures examined during the course of this survey possessed all of the above criteria to be included in further studies.

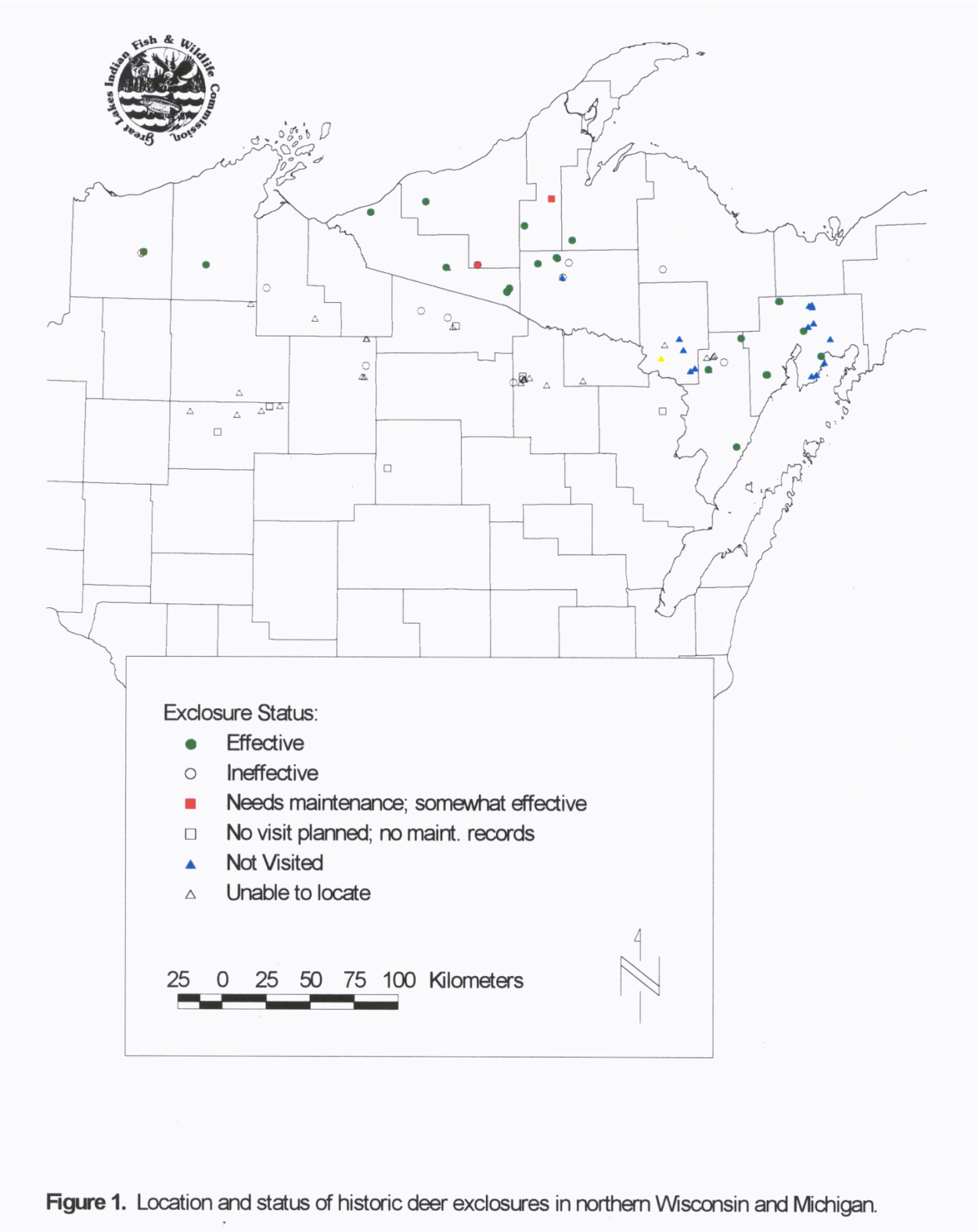

Figure 1. Location and status of historic deer exclosures in northern Wisconsin and Michigan.