



Aerial Surveys of Waterfowl on the Upper Mississippi River National Wildlife and Fish Refuge



Brian Stemper

USFWS, Upper Mississippi River National Wildlife and Fish Refuge, Winona, MN

Introduction

The Upper Mississippi River National Wildlife and Fish Refuge encompasses 261 miles of Mississippi River floodplain from Wabasha, Minnesota downstream to approximately Clinton, Iowa. The Refuge has used standardized aerial transect surveys since 1978 to collect data on waterfowl abundance and distribution. The Refuge is portioned into open and closed areas for hunting. The closed areas established provide migratory waterfowl an opportunity to feed and rest.

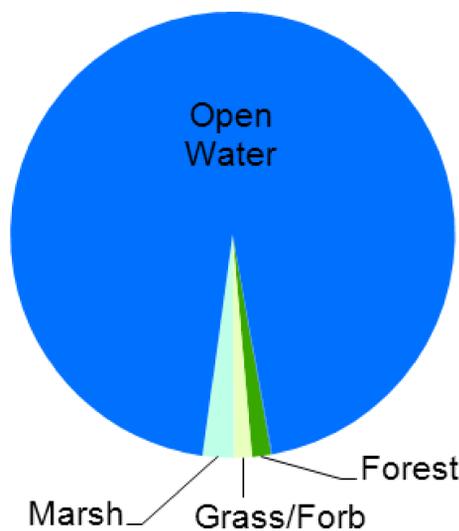
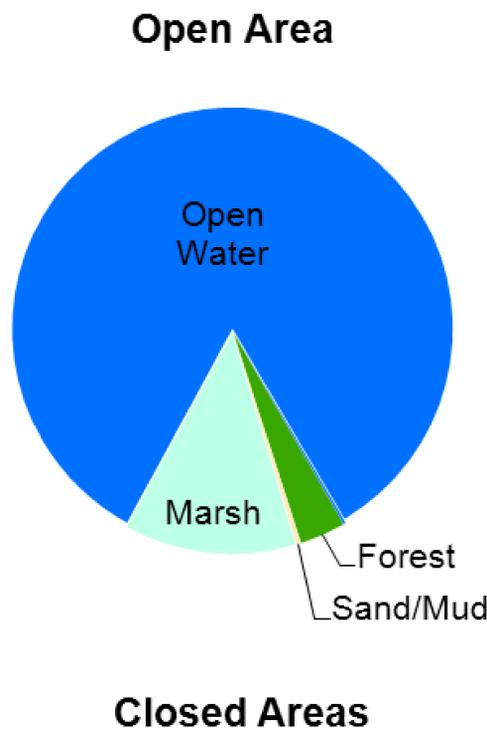
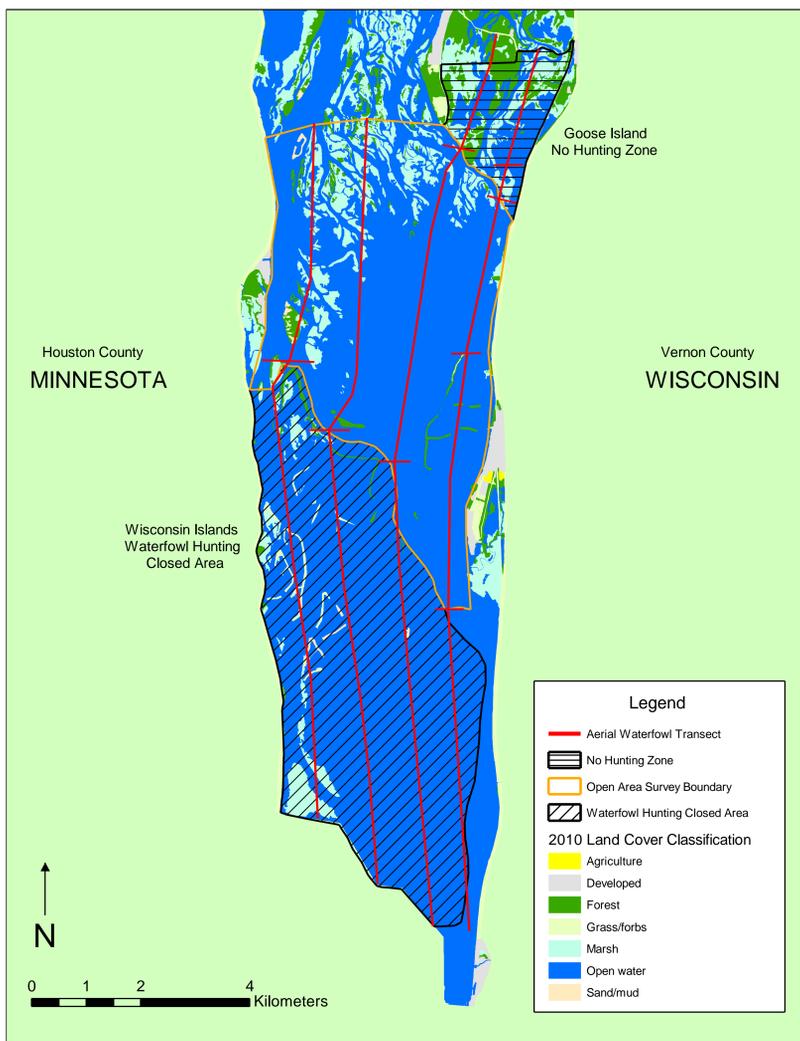
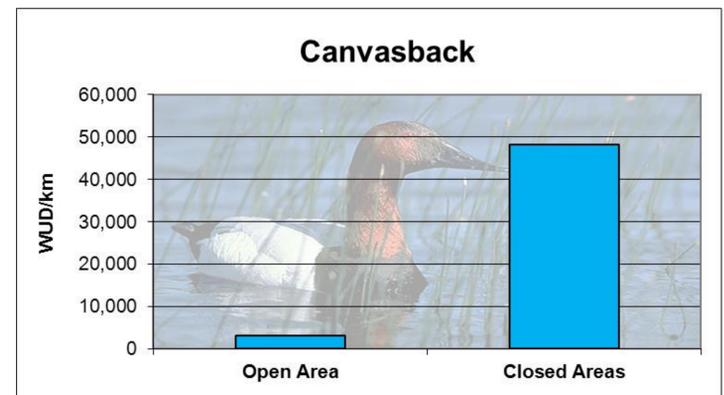
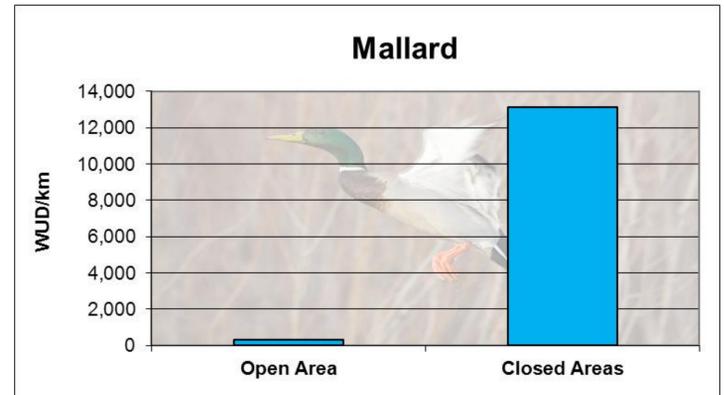
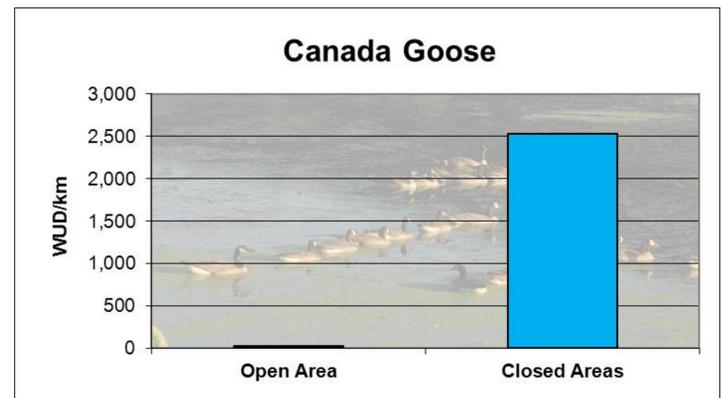
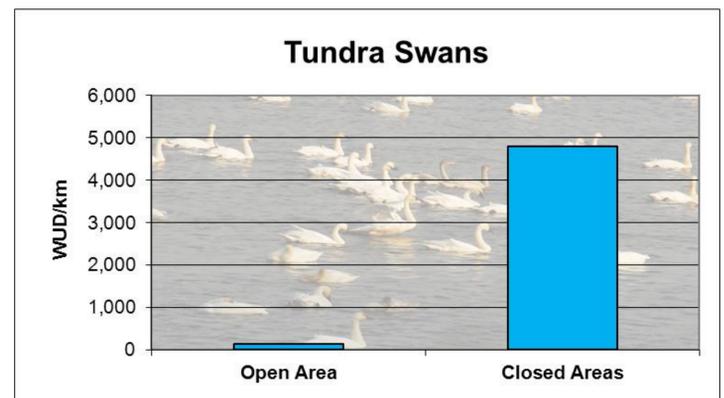
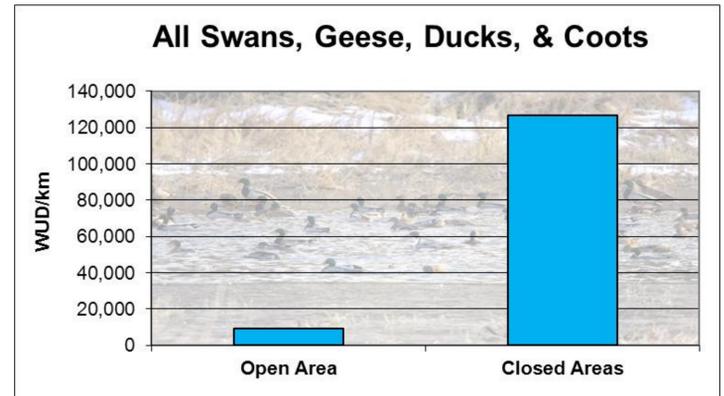
Objective

- Compare waterfowl use in open vs. closed areas in Pool 8

Methods Specific to this Analysis

- Aerial transect surveys
 - Fixed wing aircraft (90 knots/hour at 45.7 meters above ground level)
 - Strip transects 0.20 km wide
 - 23.7 km of transects in pool 8 open area
 - 36.2 km of transects in pool 8 closed areas
 - Surveys conducted weekly; September 27, 2010 to December 8, 2010
 - Weekly totals converted to season-wide Waterfowl Use Days (WUD)
 - WUD's standardized by survey effort (WUD/km transect)
- Pool 8 land coverage
 - USGS/UMESC 7 class Land Cover/Land Use data
 - Proportions calculated for open and closed areas

Pool 8 Waterfowl Data



Acknowledgements

Data collection, entry and management has been conducted by multiple USFWS and USGS staff. Aerial flights conducted by Wisconsin DNR pilots L. Wuest, M. Weinfurter, and B. Paulan and observers J. Nelson and M. Andersen.