

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

USDA National Wildlife Research Center - Staff  
Publications

U.S. Department of Agriculture: Animal and  
Plant Health Inspection Service

---

February 2004

## Cattail Quantification in the Prairie Pothole Region of North Dakota Regarding Cattail Management for Reduction of Blackbird Sunflower Damage

Scott T. Ralston

*North Dakota State University, Fargo*

George M. Linz

*USDA/APHIS/WS National Wildlife Research Center, george\_m\_linz@yahoo.com*

William J. Bleier

*North Dakota State University, Fargo*

Follow this and additional works at: [https://digitalcommons.unl.edu/icwdm\\_usdanwrc](https://digitalcommons.unl.edu/icwdm_usdanwrc)



Part of the [Environmental Sciences Commons](#)

---

Ralston, Scott T.; Linz, George M.; and Bleier, William J., "Cattail Quantification in the Prairie Pothole Region of North Dakota Regarding Cattail Management for Reduction of Blackbird Sunflower Damage" (2004). *USDA National Wildlife Research Center - Staff Publications*. 361.  
[https://digitalcommons.unl.edu/icwdm\\_usdanwrc/361](https://digitalcommons.unl.edu/icwdm_usdanwrc/361)

This Article is brought to you for free and open access by the U.S. Department of Agriculture: Animal and Plant Health Inspection Service at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in USDA National Wildlife Research Center - Staff Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Published in **National Sunflower Association Research Forum Papers 2004.**

The annual NSA Research Forum is highly regarded as the premier conference at which private and public researchers present the results of their latest sunflower research. For nearly a quarter of a century, the National Sunflower Association has produced the workshop as a forum for sunflower research to be shared with the public.

Papers from NSA Research Forums 2003 and later are online at:

<http://www.sunflowernsa.com/research/default.asp?contentID=70>

NSA Contact Information

**National Sunflower Association**

**4023 State Street**

**Bismarck, ND 58503-0690**

**(701) 328-5100**

**(888) 718-7033**

# Cattail Quantification in the Prairie Pothole Region of North Dakota Regarding Cattail Management for Reduction of Blackbird Sunflower Damage

Scott T. Ralston<sup>1</sup>, George M. Linz<sup>2</sup>, William J. Bleier<sup>1</sup>

1. Biological Sciences, NDSU Fargo, ND 58105 2. USDA NWRC Great Plains Field Station Bismarck, ND 58501

## Introduction

The spread of cattail across the Northern Great Plains has increased the amount of breeding and roosting habitat available to marsh-nesting blackbirds. In the fall, dense cattail stands attract large numbers of roosting blackbirds, that damage crops like sunflower. In an effort to disperse roosting blackbirds and reduce the resulting crop damage, scientists from the USDA's National Wildlife Research Center and North Dakota State University have developed wetland habitat management techniques using a glyphosate-based aquatic herbicide. These techniques have been used by USDA Wildlife Services as a non-lethal method for reducing blackbird damage.

Previous research on individual wetlands has demonstrated that wetland habitat management can disperse congregations of roosting blackbirds, reduce the number of breeding blackbirds, and increase attractiveness of the wetlands to other wildlife, like waterfowl.

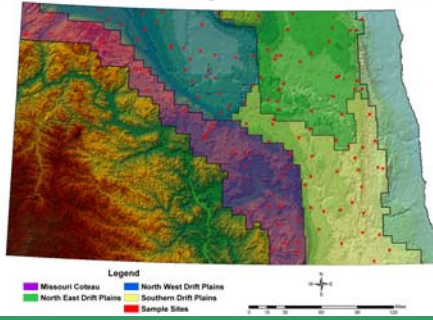
The prospect of an expanded cattail control program has raised concerns about the scale of management efforts and the effects of habitat alterations on other wetland species. A precise estimate of the amount of cattail habitat presently available will form a basis to address concerns about the overall scope of the cattail management program.



## Methods

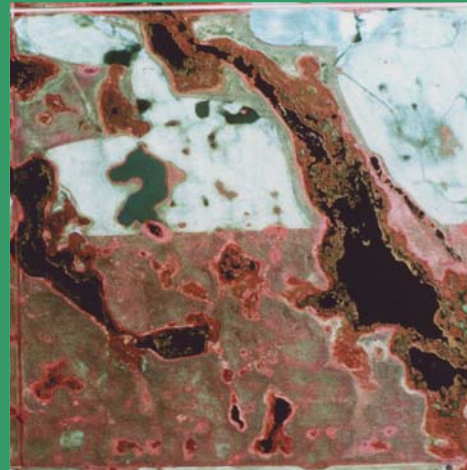
The Prairie Pothole Region of North Dakota is our study area because of the high number of wetlands in the region. This area covers approximately 36,700 square miles. The Prairie Pothole Region is divided into four strata based on biotic differences as described by Stewart and Kantrud (1972). One hundred and twenty, 4-mi<sup>2</sup> sample sites were randomly chosen with allocation to each stratum proportionate to its area.

## Sample Sites Within the Stratified Prairie Pothole Region of North Dakota

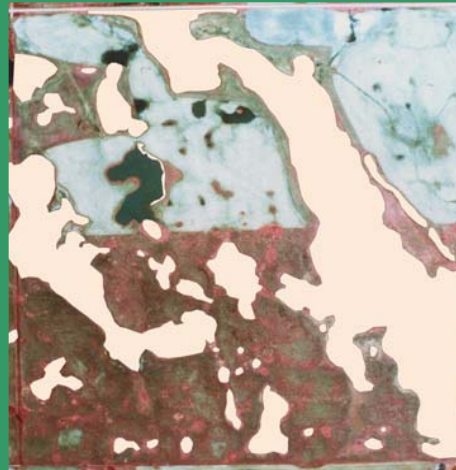


## Cattail Quantification

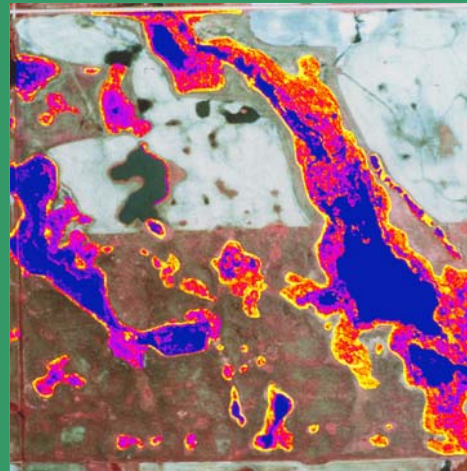
Aerial color infrared photos were taken of each sample site in fall of 2002. All photos were digitized at 300 dpi, then geo-referenced and rectified. ESRI ArcInfo Geographic Information Systems software Version 8 was used to digitally analyze the photos. Spectral signatures of the pixels were analyzed and supervised reclassification was used to determine the area of cattail in each sample site.



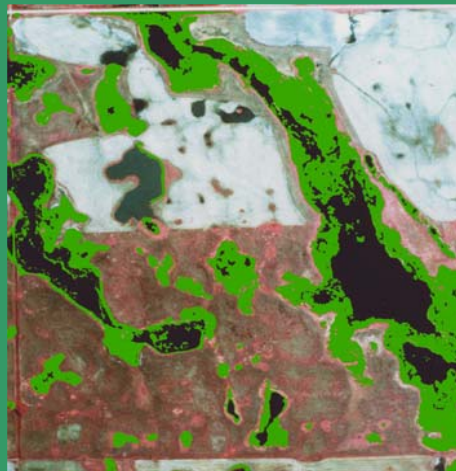
Color infrared aerial photo is digitized, rectified, and geo-referenced.



Cattail areas are masked out for analysis.

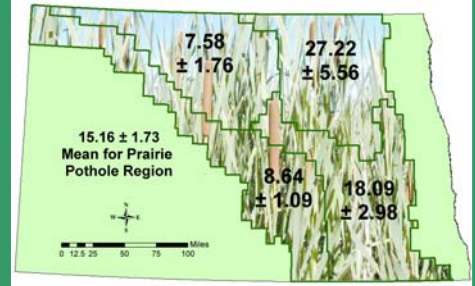


Pixels in masked area are reclassified and sorted.



Cattail area is extracted from reclassified image.

## Acres of Cattail Per Square Mile in Each Stratum for 2002



## Results

Prairie Pothole Region – 556,987 ± 1,505 (s.e.) total acres of cattail

Missouri Coteau – 87,247 ± 149 (s.e.) total acres of cattail

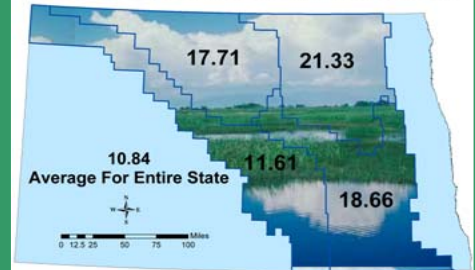
Southern Drift Plains – 177,116 ± 825 (s.e.) total acres of cattail

Northeast Drift Plains – 230,459 ± 2,003 (s.e.) total acres of cattail

Northwest Drift Plains – 63,611 ± 175 (s.e.) total acres of cattail

In 2002, the USDA Wildlife Services sprayed 4,082 acres of cattail enrolled in their Cattail Management Program. Data from this study suggest the amount of cattail sprayed in 2002 represents about 0.73% of the total available cattail in the Prairie Pothole Region of North Dakota.

## Number of "National Wetland Inventory" Wetlands Per Square Mile in Each Stratum



United States Fish and Wildlife Services, National Wetlands Inventory data were compiled and analyzed for the study area. Results showed that the density of the wetlands was correlated to the amount of cattail found in most strata.

Incidentally, the same positive correlation was found with the amount of sunflower grown in each stratum in 2002; the areas with more cattail wetlands also contained more acres of sunflower with the exception of the North West Drift Plains. Thus, the USDA Cattail Management Program may be beneficial in reducing sunflower depredation in "high risk" areas. The low percentage of total available cattail being sprayed ensures non-target species will not suffer from significant loss of habitat.

Funding and Support Provided By:

