

QUANTIFICATION OF CATTAIL (*Typha spp.*) IN THE PRAIRIE POTHOLE REGION OF NORTH DAKOTA IN RELATION TO BLACKBIRD DAMAGE TO SUNFLOWER.

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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.

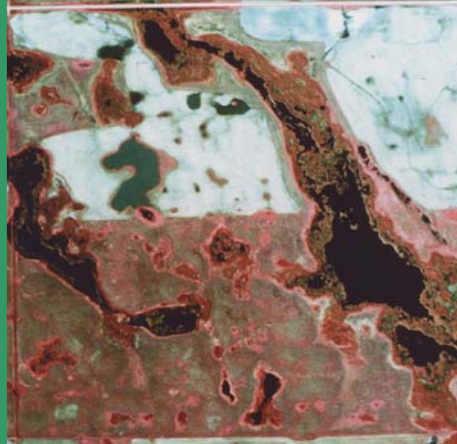
Previous research on individual wetlands has demonstrated that cattail dominated wetland habitat management can disperse congregations of roosting blackbirds, reduce the number of breeding blackbirds, and increase attractiveness of wetlands to other wildlife, like waterfowl.

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.



Cattail Quantification

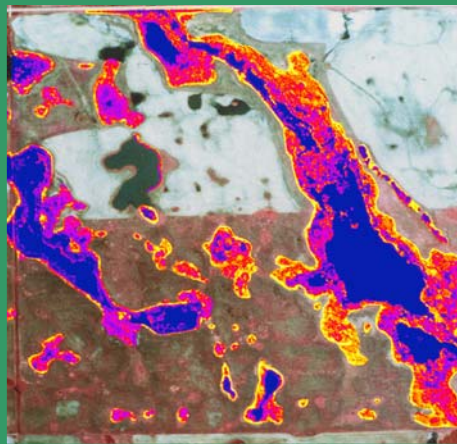
Aerial color infrared photos were taken of each sample site in fall of 2002. All photos were digitized at 300 dpi, then geo-referenced and rectified. ESRI ArcInfo Geographic Information Systems software Version 8 was used to digitally analyze the photos. Spectral signatures of the pixels were analyzed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



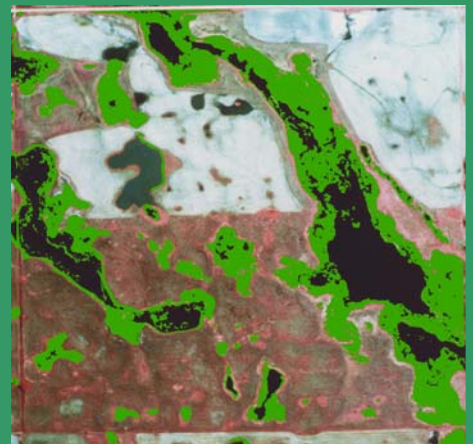
Color infrared aerial photo is digitized, rectified, and geo-referenced.



Cattail areas are masked out for analysis.



Pixels in masked area are reclassified and sorted.

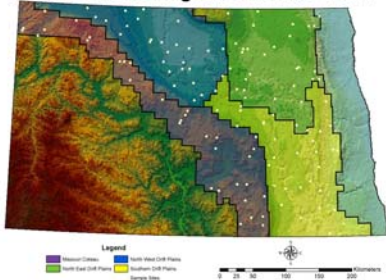


Cattail area is extracted from reclassified image.

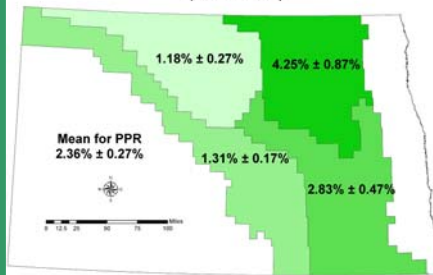
Methods

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 95,000 square kilometers and is divided into four strata based on biotic differences (Stewart and Kantrud 1972). One hundred and twenty 10.36-km² sample sites were randomly chosen with allocation to each stratum proportionate to its area.

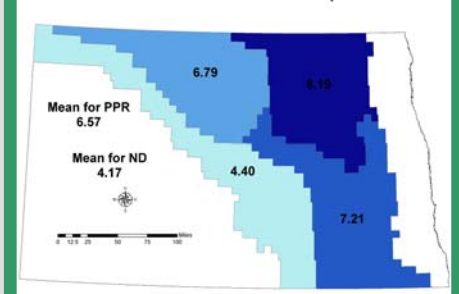
Sample Sites Within the Stratified Prairie Pothole Region of North Dakota



Percent of Land Covered by Cattail in 2002 (Mean ± S.E.)



Number of NWI Classified Wetlands / Square Kilometer



Funding and Support Provided By:



Results

Prairie Pothole Region: 2,244 ± 257 (s.e.) square kilometers of cattail
 Missouri Coteau: 344 ± 44 (s.e.) square kilometers of cattail
 Southern Drift Plains: 718 ± 118 (s.e.) square kilometers of cattail
 Northeast Drift Plains: 932 ± 191 (s.e.) square kilometers of cattail
 Northwest Drift Plains: 258 ± 60 (s.e.) square kilometers of cattail

In 2002, the USDA Wildlife Services sprayed 16.65 square kilometers of cattail enrolled in their Cattail Management Program. Data from this study suggest the amount of cattail sprayed in 2002 represents about 0.74% of the total available cattail in the Prairie Pothole Region of North Dakota.

United States Fish and Wildlife Service's 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, some areas such as the Southern Drift Plains, contained both high levels of cattail and high densities of sunflower fields in 2002. Thus, the USDA Cattail Management Program may be beneficial in reducing sunflower depredation in these "high risk" areas. Because a small fraction of the total available cattail is being sprayed, non-target species will not suffer from significant loss of habitat.