

CATTAIL MANAGEMENT: DEVELOPING, IMPLEMENTING AND REFINING A NONLETHAL METHOD TO REDUCE SUNFLOWER DAMAGE BY BLACKBIRDS

H. JEFFREY. HOMAN¹, GEORGE. M. LINZ¹, RYAN L WIMBERLY²,
AND BRIAN D. PEER³

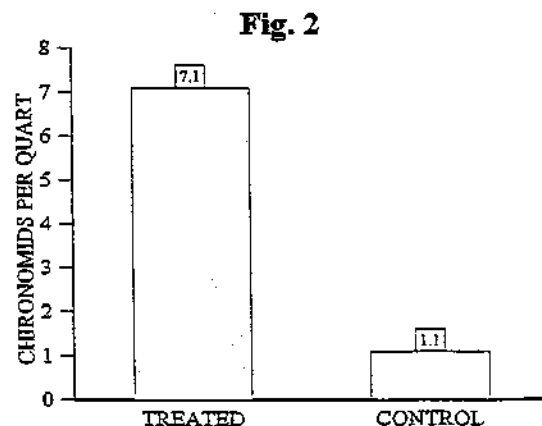
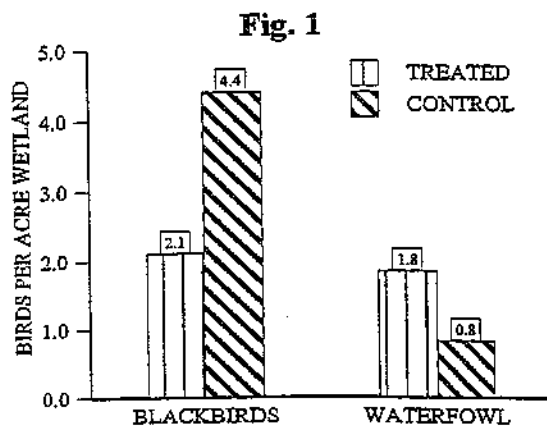
¹USDA-APHIS, National Wildlife Research Center, Bismarck, ND 58501

²USDA-APHIS, Wildlife Services, Bismarck, ND 58501

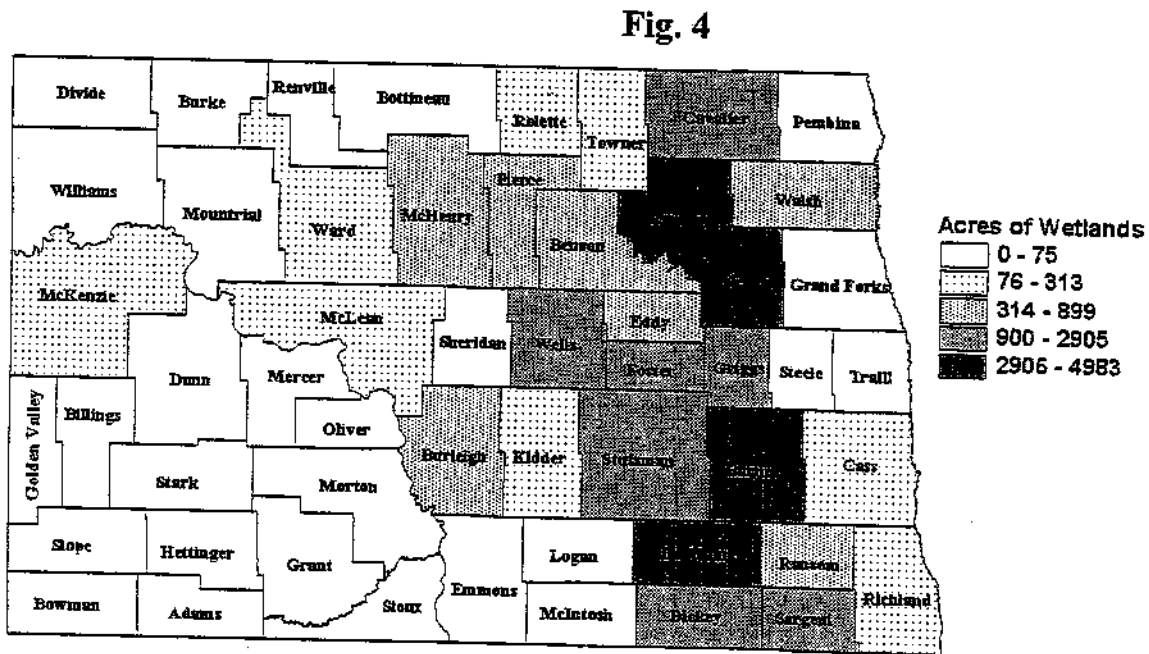
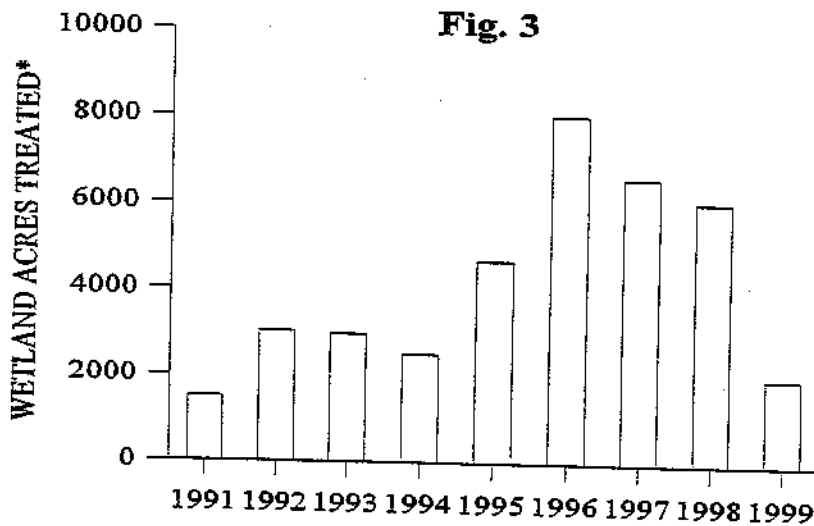
³Department of Zoology, North Dakota State University, Fargo, ND 58105

Starting in late August, cattail-dominated wetlands in the northern Great Plains attract blackbirds that by September will aggregate into massive flocks. These overgrown wetlands serve as activity centers for staging and migrating blackbirds, whose overall numbers may approach 100 million in North Dakota. Seeking to quickly acquire fat reserves for their journey to southern wintering grounds, blackbirds launch voracious forays into nearby sunflower fields. As a result of this intense daily foraging that may last until the end of migration in October, production in sunflower fields near cattail-dominated wetlands may decline precipitously, often $\geq 20\%$. Sunflower growers in the northern Great Plains states of North Dakota, South Dakota, and Minnesota annually report losses ranging from \$4-11 million. Three blackbird species do most of the damage: red-winged blackbirds, yellow-headed blackbirds, and common grackles.

Cattail reduction was proposed as a method to lower sunflower damage in nearby fields, and in the 1980's scientists at the National Wildlife Research Center began investigating the ecological effects of Rodeo[®] aquatic herbicide on cattail-dominated wetlands. Results indicated that blackbirds used treated wetlands at significantly lower frequencies than untreated wetlands. The reverse was true for numbers of waterfowl (Fig. 1). Impacts of Rodeo[®] treatments on invertebrates were also studied; no negative impacts were observed. Indeed, researchers found that numbers of Chironomidae increased in treated wetlands (Fig. 2). This was an important finding because chironomids are an important food source for waterfowl, whose numbers resource managers wish to increase.



With these data in hand, Wildlife Services began an operational program with Rodeo® in 1991. Demand by sunflower producers for cattail management since then has been strong (Fig. 3), with most of spraying conducted in the Drift Plain Physiographic Region (Fig. 4).



Rodeo® is typically applied in August or September. The results of late-summer applications are not observed until the next growing season, when the wetlands display a linear pattern of 15-yd strips of open water alternating with 6-yd strips of living cattail. Rodeo® treatments can last >4 years when water levels remain consistently ≥ 12 inches.

*Total acres sprayed $\div 0.7$. This adjusts for the 100% ecological effect on blackbirds resulting from a 70% Rodeo® treatment.

Rodeo® herbicide is expensive to use, costing nearly \$70/acre to apply. The National Wildlife Research Center's Great Plains Field Station is working on ways to decrease this cost by increasing the efficacy of Rodeo®. In 1998 and 1999 experiments began that will monitor the control and regrowth of cattail under various Rodeo® concentrations and dilutions below rates recommended on the label (2.25 qts/acre with a 5-gal aqueous dilution/acre). Color-infrared photography, ground truthing, and geographic information system software and hardware will be used to monitor the treated and reference wetlands. Preliminary results indicated that a rate of 1.5 qts /acre was as effective as 2.0 qts/ acre one year after treatment. Moreover, there are indications that early Rodeo® applications (mid-July or sooner) will give within-year control of cattail. Experiments may begin this year (2000) that investigate the ecological effects of treating small-sized wetlands <15 acres located within or adjacent to sunflowers.

Experiments that involve vegetation manipulation with herbicide take ≥ 3 years to complete, but can pay off with significant improvements in efficacy, thereby increasing the total amount of cattail that can be treated per dollar input. In the long term, sunflower producers may see less local damage because the cumulative effects of cattail reduction will inhibit the formation of dense flocks of blackbirds that are drawn to cattail-dominated wetlands.