

EFFECTS OF GLYPHOSATE ON SMALL MAMMAL POPULATIONS
USING CATTAIL MARSHES IN NORTH DAKOTA

Laura A. Mendoza* ¹, George M. Linz ²,
David L. Bergman ² and William J. Bleler ¹
¹ Department of Zoology and ² USDA/APHIS Field Station
North Dakota State University, Fargo, ND 58105

From 1989 to 1991, wetlands in Nelson County, North Dakota, were aerially sprayed with glyphosate herbicide to control cattails (*Typha* spp.) used by fall-roosting blackbirds. Fragmenting dense cattail stands may disperse blackbirds responsible for damaging sunflowers. Killing vegetation in and around marshes may affect small mammal populations.

Six marshes were randomly chosen for the study. Four of those marshes were treated for a 70% cattail kill. Two marshes were sprayed in 1990 and two others in 1991. In addition, two control marshes, one from 1990 and one from 1991, were randomly selected from a pool of eight controls. A single side from each marsh was randomly chosen for sampling, and parallel trap lines were established on that side. The length of each trap line was determined and 20 trap stations were placed equidistant from one another. At each station, 2 Museum Special snap traps were set and baited with peanut butter. At alternate stations, pitfall traps were placed into the ground and were half-filled with water to euthanize the animals. Traps were checked at sunrise; all trapped animals were collected, and marsh, station, trap type, and species were recorded.

Ten species and 296 individuals were collected. Species and number of individuals included the following: Microtus pennsylvanicus (n=120), Peromyscus maniculatus (n=101), Sorex cinereus (n=30), Zapus hudsonius (n=24), Clethrionomys gapperi (n=7), Spermophilus tridecemlineatus (n=6), Microtus ochrogaster (n=3), Blarina brevicauda (n=2), Peromyscus leucopus (n=2), and Onychomys leucogaster (n=1). Four of the ten species accounted for 271 or 93% of the total animals collected. One-way ANOVA was used to compare the numbers of mammals trapped in marshes treated in July of 1990 (n=2) to the control marshes (n=2) and those marshes designated for treatment in 1991 (n=2). No significant difference was found among the treatments ($\bar{x} = 24.7 \pm 14.6$ (SD), 1 df, $P = 0.4561$). In addition, we compared the numbers of mammals trapped in August in those marshes treated in 1990 (n=2), 1991 (n=2), and the controls (n=2). Number of mammals trapped did not differ among treatments ($\bar{x} = 24.7 \pm 11.4$ (SD), 2 df, $P = 0.2756$).

This preliminary study indicates that alteration of cattail marshes with glyphosate had no effect on small mammal populations.