

COMPLETED PROJECT REPORT

Project Title: Chlorophacinone treated cabbage for Belding's Ground Squirrel.

Research Agency: Genesis

Principal Investigator: Baroch

Budget: \$89,152.00

Summary:

This study was conducted to determine the field efficacy of 50 ppm chlorophacinone-treated cabbage bait to control Belding's ground squirrel. Another objective of the study was to determine the potential hazard to nontarget wildlife posed by spot baiting applications.

The study site was located in Alturas, Calif. Fifteen census plots were established in March 1996. Two census methods were used: visual counts and closed burrows. Squirrels were counted during pretreatment, treatment, and post treatment periods. The cabbage bait was mixed in the field by Genesis Laboratories. Bait was applied during the March 18 - 21 period. Carcass searches were conducted once and sometimes twice each day on the treated plots. Carcasses were frozen until analyzed for chlorophacinone residues.

In spite of very good bait acceptance, the 0.005% chlorophacinone-treated cabbage was not effective in reducing squirrel populations. Visual activity indices showed a population decrease of 8.6% on the single treatment plots and an increase of 3.1% on the double treatment plots. The active burrow index showed an increase of 11% on the single application plots and a decrease of 13.3% on the two-application plots. Activity also declined on the control plots by about 25% over the course of the study. The efficacy calculations for the treated plots were adjusted for the decline in control plot activity. There were no statistically significant differences in the efficacy of the treatment patterns.

Based on the carcass searches, many squirrels died from bait consumption on the treated plots. The activity patterns observed suggest that control plot squirrels may have been filling the void home ranges left on treated plots by the baiting.

The limited telemetry information we gathered from a few individuals indicates that the squirrels move large distances at this time of year. Of 5 ground squirrels captured and collared, 4 moved more than 300 meters. One moved 1065 m and then returned to the initial capture area the following day. Given the magnitude of these movements, it is possible that control plot squirrels were also picking up bait on treated plots. A balanced group block design should be used in

future studies to avoid intermingling of treatment and control plot animals. In addition, the treated buffer zones may need to be greatly enlarged.

The wide ranging movements of the squirrels and the unsettled weather we encountered may have contributed to the erratic activity index results. Telemetry may be a more appropriate method of estimating efficacy.

While bait acceptance was good, the poor results indicate that more applications or perhaps a pulsed baiting approach may be necessary to give the entire population access to a lethal dose of the bait. The slow acting nature of the active ingredient may allow socially dominant squirrels the opportunity to consume several lethal doses of bait while subordinate squirrels get little or none under the baiting patterns used here.

Ten nontarget carcasses were found: 9 *Peromyscus* spp. and 1 pocket gopher. No ill effects were observed in any predators, scavengers, or other wildlife on the test plots.

Analysis of bait samples exposed to field conditions showed the active ingredient to degrade rapidly.

Last Updated:

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