

## COMPLETED PROJECT REPORT

**Project Title:** Spot Baiting with Chlorophacinone for Beldings Ground Squirrel.

**Research Agency:** National Wildlife Research Center

**Principal Investigator:** G. Matschke

**Budget:** \$54,895.00

### Summary:

In May 1996 efficacy investigations were conducted in Siskiyou County in northern California using 0.01% chlorophacinone on steam-rolled oat (SRO) groat bait. Bait was applied by hand at burrow entrances to control free-ranging Belding's ground squirrels (*Spermophilus beldingi*) in alfalfa. The study was conducted in collaboration with personnel from CDFA and the Siskiyou County Department of Agriculture. The study site was located near Dorris in the northeast corner of Butte Valley. Six square treatment units (TU), 4 treated and 2 control, were established in alfalfa hay fields that supported populations of ground squirrels. Each TU measured 0.4 ha (1.0); flags defined the outer boundaries. To reduce post treatment ground squirrel immigration to the TU, a square 5.5-ha (13.8ac) buffer zone was established around each TU and was treated with the same type of bait. A minimum of 50 m (164 ft) separated the edge of a buffer on one TU from the adjacent buffer and TU. The bait was formulated by a commercial supplier; quality control assay indicated the mean percent of chlorophacinone (w/w) was 0.0109% (SD=0.00008%, n=5). Bait application was made according to label specifications. Trained applicators scattered a tablespoon (11.5 g) of 0.01% bait on bare ground around each active ground squirrel burrow entrance. Baiting commenced on May 13, but was discontinued for 7 days when an arctic storm brought unexpected wet weather to the study area. An uninterrupted supply of bait was then made available following baiting on May 20 and 22, for 6 to 8 days (ending May 28) during dry conditions. After commencement of baiting, treated areas were searched daily and all intact squirrel carcasses found at the study site were frozen and kept for tissue analysis. Efficacy (uncorrected and corrected % reduction) as measured directly by visual counts (73.5% and 64%) and indirectly by open-hole index (80% and 68%) was near the EPA's 70% recommended minimum standard. Forty-six squirrel carcasses were recovered, but only 42 were sent to NWRC for residue analysis because 4 were extremely decomposed. Of the 42, only 38 were analyzed by ACP for chlorophacinone because an additional 4 were partially decomposed. Of the 38 analyzed, about 80% had detectable levels of chlorophacinone in liver and/or whole body. Chlorophacinone in the liver ranged between the low based on the average Method Limit of Detection (MLOD) of 0.031 ppm (SD+ 0.017, n=9) to a high of 0.648 ppm, with an average concentration of 0.1279 ppm (SD+0.1314 ppm, n=29). Chlorophacinone levels in the carcass (minus the liver, appendages, head, and pelt) ranged from a mean low based on the MLOD of 0.025 ppm (SD+0.009, n=6) to a high of 0.546 ppm (mean = 0.1594 ppm, SD+0.1409 ppm, n=32), with an average concentration of 0.1131 ppm (SD+0.0928 ppm, n=29). Nontarget mortality was not observed in any other species in or within close proximity to the treatment units.

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