

COMPLETED PROJECT REPORT

Project Title: Chlorophacinone in bait stations for Beldings Ground Squirrel.

Research Agency: National Wildlife Research Center

Principal Investigator: G. Matschke

Budget: \$62,325.00

Summary:

March 1999

Abstract: In May 1996, an efficacy investigation was conducted in the northeast corner of Butte Valley near Dorris, California, Siskiyou County. The study tested 0.005% chlorophacinone steam-rolled oat (SRO) groat bait applied in bait stations to control free-ranging Belding's ground squirrels (*Spermophilus beldingi*) in alfalfa. The chlorophacinone was applied as a dry powder to SRO groats using the adhesive Alcolec-S. The EPA required a field investigation on a typical wild population with both sexes and all cohorts of Belding's ground squirrels.

Six 0.4-ha (1.0-ac) square treatment units (TU) were established in alfalfa fields with existing squirrel populations. To reduce post-treatment ground squirrel migration onto the TU, a square 5.5-ha (13.8-ac) buffer zone was established and baited around each TU. A minimum of 50 m (164 ft) separated the edge of adjacent TU buffers. PVC T-bait stations were constructed by CDFA personnel and placed in an 800 X 800-ft grid, with spacing of 100-ft intervals on the 6 TU and their associated buffers. The bait was formulated by a commercial supplier and chemical analysis indicated the mean percent of chlorophacinone (w/w) was 0.0052%. On the first day of baiting (May 13), 0.91 kg (2 lb) of either the treated or control bait was placed in each bait station. Bait stations were refilled daily until the end of the study (May 21).

The percent population reduction was determined by visual counts and the closed-hole index and averaged 52.1% and 28.3%, respectively, on the chlorophacinone treated TU. Because efficacy as determined by either method failed to surpass the EPA's 70% minimum control effectiveness standard, the efficacy on the treated units was not corrected for natural mortality. Ground squirrel carcasses recovered were analyzed for chlorophacinone. Whole body estimates of chlorophacinone concentrations ranged the MLOD to 0.365 ppm and averaged 0.122 ppm. Concentrations of chlorophacinone in liver tissue ranged the MLOD ppm to 0.87 ppm, averaging 0.177 ppm. Three *Microtus* spp. were recovered dead in the TU. Whole body chlorophacinone concentrations in the *Microtus* spp. ranged from 0.422 ppm to 6.50 ppm, averaging 2.49 ppm. An immature red-tailed hawk (*Bufo jamaicensis*) was also found moribund in the buffer zone of a treated unit. Necropsy and chemical analysis failed to confirm the cause of illness. In conclusion, the use of a PVC bait station baited with 0.005% chlorophacinone oat groat bait at this time of year was not an effective control agent with Belding's ground squirrels.

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