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MIDSUMMER BAITING TO CONTROL SEED-EATING MAMMALS

by

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INTRODUCTION

On many acres of cut or burned-over lands in the Pacific coast Douglas fir region, restocking by commercially important tree species occurs with much variation in the rate and density. Many areas reseed to and remain in hardwood brush for long periods of time, even when an adequate seed source is present.

Many variable factors, such as temperature, seed bed, soil moisture, etc., affect the establishment of seedlings. Two other such factors are the small seed-eating mammal populations and the sporadic occurrence of Douglas fir cone crops.

When a good cone crop year does occur, it may be desirable to protect the seed from seed-eating mammals, thus utilizing more of the seed crop. From August, when the cones ripen and the seeds start falling, until the following June, when germination is about complete, the loss of seed to the small mammals is tremendous. Protection of seed depends upon the successful control of the mammals until germination is complete.

PURPOSE OF EXPERIMENT

The purpose of this experiment was to determine the duration of control which could be achieved over the small seed-eating mammals with a single mid-summer application of bait.

EXPERIMENTAL PROCEDURES

Plot Description:

In early August, 1952, a 500 acre plot was located in the Little Sardine Creek area in Section 23, Township 9 South, Range 4 East, W.M. This area had been burned severely by the Sardine Creek fire of 1951. Part of the plot boundary coincided with the fire boundary. Thus the area is bordered by green timber to the north and northeast and by burned-over area in the other directions. The area, drained by Little Sardine Creek, has a southerly exposure, steep slopes, with elevations ranging from 2000 to 4000 feet. A year after the fire very little growth had been made by the herbaceous vegetation, although lupine and fireweed were reappearing.

Baiting Procedure:

The plot was baited August 19, 1952 with wheat coated with 1080 and overcoated with safflower oil. (1) Bait distribution was by helicopter at the rate of 1/4 pound per acre. The area was not cross-flown when the bait was spread.

Small Mammal Census:

The prebait census was obtained with standard Sherman live traps on August 12, 13, 14, approximately one week before baiting. The trapline was in an approximate straight line, consisting of 100 traps spaced 1/2 chain apart.

The post-bait trapping was started on September 9, three weeks after bait distribution, and again on September 24, five weeks after baiting. Fire weather conditions and lack of traps prevented further checking of populations until May 12, 1953. Traps were re-set in the identical spot for each rodent census.

All trapping was done in a similar manner. Traps were baited with whole oats and visited daily for three days. All rodents caught were eartagged, recorded for trap number, sex, apparent age, and released at the point of capture.

RESULTS

When the prebait census was taken, a total of 24 white-footed mice (Peromyscus maniculatus rubidus, Osgood) were caught (Table I). Three weeks after baiting 3 sub-adult white-footed mice appeared, and five weeks after baiting 13

- (1) O.S.B.F. Research Bulletin No.8, "Some Experiments in Baiting Forest Lands for the Control of Small Seed Eating Mammals" by Edward F. Hooven, February, 1953.

of the same species (54 per cent of the original population count) were trapped. Nine months later, in May, 1953, 71 per cent of the original population count were present on the area.

TABLE I

| | Pre-Baiting Census | | Post-Baiting Census | |
|------------|-----------------------|-------------------------------|------------------------|-----|
| | August 12-13-14 | September 9-10-11 24-25-26 | May 12-13-14 | |
| ♂ | 11 | 1 | 6 | 4 |
| ♀ | 13 | 2 | 7 | 13 |
| Total | 24 | 3 | 13 | 17 |
| Adults | 30% | | 46% | 71% |
| Sub-adults | 37% | 100% | 31% | 29% |
| Juveniles | 33% | | 23% | |
| Pregnant ♀ | 21% | | 46% | 46% |

Baited August 19, 1952.

DISCUSSION AND CONCLUSIONS

The bait was distributed during warm, clear weather conditions, insuring a good spread. Weather following baiting remained good until the end of September, so that there was no weathering of the bait during the late summer trapping period. Germination of Douglas fir and west coast hemlock from the seed crop of 1951 was observed on the study area. There was no seed dispersed from natural sources during the summer of 1952. The ground still showed the effects of the 1951 burn and little was visible that would make food for a mammal of any size.

It is disappointing that better control was not achieved during the late summer when weathering extremes did not occur, since the bait has provided satisfactory control in the fall and winter when its lethal qualities were reduced by heavy rainfall.

No tagged mice were ever caught in subsequent trappings. It is thought that, although new to the trapline, the rodents were native to the area. The natural food potential did not appear sufficient to attract or hold outsiders. However, this raises the question as to why so many untagged mice were

found in May. Had the population of September 24-26 succumbed to the bait, or had they disappeared through privation and emigration to be replaced by outsiders?

From the foregoing it is obvious that baiting with 1/4 pound per acre of wheat coated with 1080 and overcoated with safflower oil would not have protected seed dispersed in mid-summer and fall. The results would indicate that the duration of medium control is about one month, after which too many mice appear. An average of 6 mice per acre is indicated, assuming that each live trap was servicing 0.025 of an acre through the winter. A population of such an intensity would make serious inroads into all but the greatest of natural seed falls. Evidence from other research projects indicate that baiting in midfall or early winter would produce better results since there is a natural decrease in rodent populations during this period.