

A CHRONIC INFESTATION OF MOUNTAIN PINE BEETLES IN LODGEPOLE PINE IN GLACIER NATIONAL PARK, MONTANA

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ABSTRACT

An infestation of mountain pine beetle (*Dendroctonus ponderosae* Hopk.) in lodgepole pine (*Pinus contorta* var. *latifolia* Engelm.) has been active since about 1950 in an area of 162 ha within Glacier National Park, Montana. Tree mortality is reported for 14 years. It fluctuated yearly, ranging from 0 to 4.7 trees per 0.405 ha (1 acre). Most trees above 25.4 cm in diameter had been killed by 1963.

INTRODUCTION

Mountain pine beetle (*Dendroctonus ponderosae* Hopk.) is a major pest of lodgepole pine trees (*Pinus contorta* var. *latifolia* Engelm.) in the western states. Its potential destructiveness was documented by Evenden and Gibson (1940). From 1927 to 1936, 57.75 million lodgepole pine trees above 7.62 cm in diameter were killed in an area of 543,453 ha in the Beaverhead National Forest, Montana. Outbreaks are usually of long duration and do not subside until most trees above a certain diameter (generally 15.2 cm) are killed.

An example of a tenacious mountain pine beetle infestation is discussed in this paper. It has been active since about 1950, but has not spread beyond 162 ha. This infested lodgepole pine stand is on the south-facing slope of Starvation Ridge north of Kintla Lake, Glacier National Park, Montana. The trees are about 60 years old and vary from 10.2 to 50.8 cm in diameter at breast height; the average d.b.h. is 22.9 cm.

Since 1954, surveys have been made annually to determine the number of trees killed within the infestation. Data were collected along 15 sample strips 20.1 m wide and up to 1,307.2 m long. The strips ran north and south, were 100.5 m apart, and sampled 31.9 ha of the infested stand. Table 1 shows the trees killed per 0.405 ha yearly from 1954 to 1967.

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Table I. — Lodgepole pine trees per 0.405 ha killed annually since 1954 by the mountain pine beetle on Starvation Ridge, Glacier National Park, Montana

Year		Year	
1954	2.2	1961	0.4
1955	4.4	1962	0.9
1956	2.1	1963	0.4
1957	4.7	1964	0.5
1958	2.2	1965	0.0 ¹
1959	0.8	1966	0.2
1960	0.2	1967	0.9

¹ Only one infested tree was found on the sample strips.

It is interesting to note the even fluctuations in numbers of trees killed each year from 1954 to 1958. Woodpeckers fed heavily on 1957 and 1958 broods and probably caused the infestation to decline. A drought occurred in 1961 and the number of trees killed increased during 1962. By 1963, most trees over 25.4 cm d.b.h. had been killed. Droughts occurred again in 1966 and 1967, and an upward trend in the infestation followed. Approximately 7,960 lodgepole pine trees were killed by the mountain pine beetle in this area of only 162 ha between 1954 and 1967. No control action has been considered because the stand is in a remote area of the Park which does not receive or make much public impact.

Reference

- Evenden, J. C. and A. L. Gibson. 1940. A destructive infestation in lodgepole pine stands by the mountain pine beetle. *J. Forestry*, **38**: 271-275.