

RX-RM INSECT SURVEY PROGRAM  
Reports  
Bandelier National Monument  
Bark beetle infestation

Bark Beetle Conditions  
Bandelier National Monument  
August 1955

Reconnaissance Survey

Bark beetle infestations reported by National Park Service personnel on Bandelier Monument and surrounding Government lands were examined on August 12, 1955.

On that date S. T. Carlson and C. L. Massey examined the Otowi Section and the South Mesa of the Monument. Lands adjacent to the Monument on the Santa Fe National Forest and areas managed by the Atomic Energy Commission were examined visually from observation points on Bandelier National Monument.

Ponderosa pine in the areas are heavily infested with Dendroctonus barberi and Ips sp. Trees for the most part are dying from the top towards the base. The trees are evidently being attacked by Ips spp. in the upper 1/3 of the tree; the base is subsequently attacked by Dendroctonus barberi.

The infestation has reached alarming proportions on sections of Bandelier National Monument. It is estimated that 30 percent of the ponderosa pine in some areas of the Monument has been killed during the past year. Undoubtedly drought has played a significant role in weakening the trees which are growing in marginal areas.

An aerial survey will be made of the area during September to ascertain the specific boundaries of the infestation. An appraisal survey will then be made to determine the extent of the infestation and the approximate numbers of trees infested.

*C. L. Massey*  
C. L. Massey, Entomologist.

cc Chief  
S. T. Carlson  
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an appraisal survey with recommendations for control as it is deemed necessary. It is anticipated that some control measures will be necessary, and, on the basis of the preliminary reconnaissance, it would cost about thirty thousand dollars to treat this infestation on Park Service lands.

I will make it a point to follow the infestation and the work the Forest Service is going to do on it so that we can keep well-informed and prepared for any control possibilities that will come up.

Throughout the piñon type in and adjacent to Bandelier, a great number of these species are being attacked and killed by twig beetles (Pityophthorus spp.). In some of the dying trees a species of Ips are also present. This type of infestation and loss of piñons has been observed throughout the portions of Southwestern Colorado, Arizona and New Mexico which I have visited during the past two months.

(SIGNED)

S. T. Carlson  
Regional Forester

Approved for Distribution: /s/ HUGH N. MILLER Date: APR 16 1935  
Regional Director

Copy to: - ~~Director, Washington Office~~  
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## INTRODUCTION

For the past several years heavy losses of ponderosa pine has occurred in the marginal ponderosa pine stands on Bandelier National Monument and to the adjoining lands managed by the Atomic Energy Commission on the north and the Santa Fe National Forest on the south. Past and current examinations of dead and dying pine in the affected area revealed the presence of the Southwestern pine beetle Dendroctonus barberi Hopk., and Ips spp. However, it is questionable if insects alone are the primary cause of the heavy pine mortality in the marginal areas. It is probable that the increase of beetle activity is associated with drouth conditions which has seriously lowered the resistance of the trees to bark beetle attacks.

During the summer of 1955 Bandelier National Monument personnel reported an increase in tree-killing throughout the outbreak area; losses were as high as 30 percent in some localities. National Park Service officials responsible for the protection of the trees on the Monument requested that the situation be appraised with the possibility of applying control measures.

## SURVEY METHODS

A combined aerial and ground survey was made of the infestation.

The extent of the infestation, which was based on "faders" (ponderosa pine already killed and showing foliage discoloration) was determined by a preliminary aerial reconnaissance. The flight revealed approximately 24,000 acres were involved, portions of which were inaccessible. An aerial count of "faders" was made of these inaccessible areas. A total of 2 hours flying time was used on the aerial survey. Aircraft used was a Cessna 180. Aerial observers were Arthur White, Forester, Bandelier National Monument, and F. M. Yasinski.

The systematic ground survey method employed was that which is used by the Rocky Mountain Forest & Range Experiment Station in appraising Black Hills beetle infestations. The infestation pattern of the Black Hills beetle and the complex Southwestern pine beetle and Ips spp. is similar. The surveyed area of 5,000 acres was covered at a 5 percent intensity using a 1-chain-wide-strip every 20 chains. A 100 percent survey was made of the town of Los Alamos and vicinity. All information pertinent to the aerial and ground survey was recorded. The survey party consisted of James B. Goedsch, Chief of party, and Carl Van Hesen, crew member. The ground survey started on September 20 and terminated on October 4.

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PRELIMINARY REPORT

Preliminary studies of the life history and habits of the Southwestern pine beetle was initiated on the Monument during November 1955. It is hoped that the studies will provide information leading to a better understanding of the problem.

Submitted by:

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