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EVALUATION OF A PINE CHRYSOMELA INFESTATION ON THE BEECH CREEK SEED ORCHARD NATIONAL FORESTS IN NORTH CAROLINA

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INTRODUCTION

Large numbers of a chrysomelid beetle were reported infesting ramets planted in the Beech Creek Seed Orchard near Murphy, North Carolina during April 1965. An evaluation of this infestation was made during April and May 1965 by personnel of the Forest Insect and Disease Control Branch and the Beech Creek Seed Orchard.

TECHNICAL DATA

CAUSAL AGENT -- The causal agent was identified by comparison with determined specimens in the North Carolina State University collection as the pine chrysomela, Glyptoscelis pubescens Fab.

HOST TREES ATTACKED -- Virginia pine, Pinus virginiana Mill. and eastern white pine P. strobus L. were infested in the seed orchard. In addition, four adults were collected from a single sawtimber size shortleaf pine, P. echinata Mill. near the seed orchard in early May.

TYPE OF DAMAGE -- The adults damage one year old needles by irregularly chewing the edge of needles in to the midrib causing the ends to turn brown. This damage is similar to that caused by the pine colaspis, Colaspis pini Barber which has been reported as a pest of pine reproduction

in the Gulf States. Ramets that had heavy feeding injury had noticeably less height growth than ramets with little or no feeding injury.

BIOLOGICAL DATA -- The adult is a thick, cylindric, coppery hued, rather stout beetle which ranges from 3/8 to 5/16 inch in length. This species has been collected from pine and spruce foliage from the Middle Atlantic States south to North Carolina and has been recorded from Oregon (Felt, 1906). The insect is widely distributed in North Carolina, having been reported from Lake Waccamaw, Raleigh and Southern Pines as well as numerous locations in the western part of the state. (Brimley, 1938).

A small number of adults were first observed on April 6, 1965 at the Beech Creek Seed Orchard. By April 8, the insect was a common occurrence in the area and was present in large numbers on April 11. On April 20, as many as 100 adults were collected from Virginia pine ramets approximately 18 inches tall. Numbers of adults tapered off in early May, one adult was collected May 5, and none were seen in the seed orchard on May 11, although four adults were collected from shortleaf pine near the seed orchard on that date.

Little is known about the life history of this insect. Collection records indicate that there is one generation per year, adults being present in the field during April and May in the coastal areas and from April to June in the mountain areas (Brimley, 1938). The immature stages (egg, larva and pupa) are apparently unknown.

ENVIRONMENTAL FACTORS -- The infested area is an open grassy site with small pines planted at a wide spacing interval. Planting sites are fertilized with commercial fertilizer (8-8-8) and cottonseed meal, prior to planting. The influence of fertilization on host material, in this case pine, on insect populations is not well known although recent observations on cone worms, Dioryctria spp. indicates that these insects show a marked preference for fertilized trees.

LOCATION AND INTENSITY OF INFESTATION -- Heavy populations of G. pubescens were restricted to the seed orchard. Insects were found over the entire area but tended to be more common on Virginia pine.

DISCUSSION

The effect of feeding injury by G. pubescens is not known but probably causes little, if any, permanent damage to healthy, vigorous pines. The insect might have the ability to kill scions however, and in view of the high values involved in the seed orchard, preventative spraying is recommended to keep damage at a minimum.

One percent DDT spray applied to the planted ramets with a hand sprayer was recommended for control when the insect was first reported. Casual observations in the seed orchard following spraying indicated that this gave a high degree of control but several applications were necessary due to the long period of time that the adults were active.

RECOMMENDATIONS

1. Maintain intensive surveillance over the Beech Creek Seed Orchard to detect this and other possibly injurious insects at the earliest possible date.

2. A preventative spray consisting of a 1% DDT emulsion should be applied to all ramets planted in the Beech Creek Seed Orchard during early April, 1966 to prevent injury by G. pubescens.

REFERENCES

Brimley, C. S. 1938. The insects of North Carolina, N. C. Dept. Agri., Div. Ent. Raleigh. 560 pp.

Felt, Ephram Porter 1906. Insects affecting park and woodland trees N. Y. State Mus. Mem. 8 v.2 N. Y. State Education Dept., Albany. 877 pp.