

5240

OCTOBER 1963

BIOLOGICAL EVALUATION OF SOUTHERN PINE BEETLE INFESTATIONS
FRANCIS MARION NATIONAL FOREST, SOUTH CAROLINA

By

R. T. Franklin, J. S. Astin, Jr. and H. L. Lambert

INTRODUCTION

The southern pine beetle, Dendroctonus frontalis Zimm., is in outbreak status on the Francis Marion National Forest. Suppression projects are now in operation on the three ranger districts of the forest. This evaluation was to observe any changes in population trends occurring since mid-summer (Ciesla and Buchanan, 1963).

Ground observations were made by R. T. Franklin, J. S. Astin, Jr. and H. L. Lambert, assisted by Allan G. Parham, Santee District; Billy Ray Watson and Tom Brunson, Witherbee District, and Joe Bennett, Wambaw District.

Suppression and salvage projects have reduced beetle populations on the Santee District, but on the Witherbee and Wambaw the outbreak appears to be increasing in area and intensity.

TECHNICAL INFORMATION

CAUSAL AGENT.--The southern pine beetle, Dendroctonus frontalis Zimm., is the primary insect attacking pines on the three districts. Ips avulsus (Eichh.) was found in one tree in two spots. Black turpentine beetle, Dendroctonus terebrans (Oliv.), occurred in most of the spots checked but not in appreciable numbers. The ambrosia beetle, Platypus flavicornis (Fab.), was in evidence by its boring dust in almost all red topped and dead trees.

HOST TREES ATTACKED.--Loblolly pine, Pinus taeda L., is the species under primary attack. Longleaf, P. palustris Mill., pond, P. serotina Michx, and shortleaf, P. echinata Mill., pines were occasionally attacked.

TYPE OF DAMAGE.--Trees attacked by D. frontalis are girdled and killed. Blue staining fungi, which hasten the death of the tree and discolor the wood, are brought in with the beetles

BIOLOGICAL DATA.--Predators, the clerid, Thanasimus dubius (F.), and the ostomid, Temnochila virescens (F.), were present in trees with southern pine beetle brood. Larvae of T. dubius were numerous, occurring at from 2 to 4 larvae per square foot of bark surface. Predators did not appear to be exerting any significant reduction of bark beetle populations.

ENVIRONMENTAL FACTORS.--As reported in the previous evaluation (Ciesla and Buchanan, 1963) following the ice storm of 1962 there were prolonged periods of dry weather followed by periods of excess rainfall. Dry weather has prevailed since the last evaluation. The largest southern pine beetle spots occur in the dry bays and swamps.

LOCATION AND INTENSITY OF OUTBREAK.--The southern pine beetle is currently most active on the Witherbee and Wambaw Districts. The general distribution is still within the area shown on the map in the previous evaluation (Ciesla and Buchanan, 1963). The outbreak appears to be subsiding on the northern edge and increasing in intensity on the central and southern part.

On the Santee District, the northern part of the outbreak, only three new small spots were found on the last aerial operational survey.

Hell Hole Bay is the center of the outbreak on the Witherbee District. Spots are large and the southern pine beetle broods are vigorous. The most recent aerial operational survey showed 38 new spots ranging in size from 50 to 1500 trees. There are almost two green trees for every red top and fader. In a limited number of samples brood density averaged about 300 beetles per square foot of bark surface.

The Wambaw District, the southern part of the outbreak, has the most vigorous southern pine beetle broods. Accurate determination of a red to green tree ratio was not practical. However, there were at least two green trees to every red top and fader. In a limited number of samples, brood density averaged from 300 to 500 beetles per square foot of bark surface.

IMPACT OF CONTROL ON OTHER RESOURCES.--Individual tree spraying, as is required for adequate bark beetle control, should have little or no affect on wildlife or other natural resources.

DISCUSSION

The observations made on the Francis Marion National Forest show that the southern pine beetle is increasing in numbers and that an aggressive outbreak is currently underway on the Witherbee and Wambaw Districts. As shown by the red-green ratio, the infested spots are enlarging rapidly. High brood counts indicate this trend will continue. Broods are emerging from green trees and very few beetles are left in the bark by the time fading is well advanced. In many cases spot size is increasing faster than control and salvage crews can treat infested trees.

Prompt suppression of remaining spots on the Santee may end the outbreak there. Surveillance should be continued, however, until the outbreak is brought under control over the entire forest.

RECOMMENDATIONS

1. Continue present suppression program, but on an increased scale. Control crews should be able to treat all infested trees within three weeks after they are found. Any effort less than this is falling behind the beetle populations.
2. Where salvage crews are working in large spots, cut green trees and faders first. At present the red tops are being cut first, allowing broods to continue to emerge from green and fading trees.
3. Zone I should conduct a training school, as soon as practical, for all supervisory personnel involved in the control work.

REFERENCES

- Ciesla, W. M. and W. D. Buchanan. Biological Evaluation of Southern Pine Beetle Infestations, Francis Marion National Forest, South Carolina. Report no. 63-33.