

Southern Pine Beetle, *Dendroctonus frontalis* Zimmermann (Insecta: Coleoptera: Curculionidae: Scolytinae)¹

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Introduction

The southern pine beetle (SPB), *Dendroctonus frontalis* Zimmermann, is the most destructive insect pest of pine in the southern United States. A recent historical review estimated that SPB caused \$900 million of damage to pine forests from 1960 through 1990 (Price *et al.* 1992). This aggressive tree killer is a native insect that lives predominantly in the inner bark of pine trees. Trees attacked by SPB often exhibit hundreds of resin masses (i.e., pitch tubes) on the outer tree bark. SPB feed on phloem tissue where they construct winding S-shaped or serpentine galleries. The galleries created by both the adult beetles and their offspring can effectively girdle a tree, causing its death. SPB also carry, and introduce into trees, blue-stain fungi. These fungi colonize xylem tissue and block water flow within the tree, also causing tree mortality (Thatcher and Conner 1985). Consequently, once SPB have successfully colonized a tree, the tree cannot survive, regardless of control measures.

When beetle populations are low (endemic), attacks are generally restricted to senescent, stressed or damaged pines; however, epidemics periodically occur (Thatcher *et al.* 1980). During epidemics, SPB infestations often begin in weakened or injured trees, but the high beetle populations can invade and overcome healthy vigorous trees by



Figure 1. Pitch tubes of the southern pine beetle (SPB), *Dendroctonus frontalis* Zimmermann, on outer bark.

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attacking in large numbers over a short period of time (Thatcher *et al.* 1980). Widespread and severe tree mortality can occur during epidemics, SPB spots (groups of infested trees) may expand at rates up to 50 ft. (15 m)/day, and uncontrolled infestations may grow to thousands of acres in size (Ron Billings, Texas Forest Service, personal communication). SPB attacks are not limited to conventional forest sites; they also may kill high-value trees in yards, parks, and other ornamental settings (Thatcher *et al.* 1978). Because

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