

SOUTHERN PINE BEETLE

SCOURGE OF SOUTHERN PINE FORESTS

Overview

The southern pine beetle is the most destructive insect pest of southern pine forests. The causal agent is the bark beetle species *Dendroctonus frontalis*. The generic name, *Dendroctonus*, means “tree destroyer,” and the southern pine beetle has lived up to that reputation. It has destroyed thousands of acres of pines and continues to be the most significant threat to southern pine forests.

Hosts

Southern pines, particularly shortleaf pine (*Pinus echinata*) and loblolly pine (*P. taeda*), are the preferred hosts. Longleaf pine (*P. palustris*) is tolerant of southern pine beetles, but still susceptible to attack.

Signs/symptoms

Early in the infestation, popcorn-sized pitch tubes will be seen on the trunk; they may be high up the trunk, requiring binoculars to see. The female excavates S-shaped galleries that overlap. The needles will change from yellow to orange as the infestation progresses. Ambrosia beetles, Ips beetles and other secondary insects will begin to arrive, producing pale sawdust at the base of the tree. The beetles are 2.5 to 4 mm long and construct distinctive serpentine galleries.

Life cycle

Multiple overlapping generations (probably six or seven in South Carolina) of the southern pine beetle occur in the southern U.S. Female beetles seek out suitable, usually weakened, trees. She begins constructing an oviposition gallery and is soon joined by a male. They release pheromones that, combined with the chemicals released by the wounded tree, attract more bark beetles. Once a host is completely colonized, the beetles begin to release a pheromone that keeps other beetles away. The larvae and adults feed on the phloem tissue of the tree, girdling the tree. Adult female beetles introduce a fungus that grows in the galleries. The fungus, *Entomocortium*, concentrates nitrogen from the cambial cells, increasing the growth of the beetles. Adult beetles may also introduce mites, which introduce the blue stain fungus, *Ophiostoma minus*. The blue stain fungus competes with *Entomocortium*, and larval growth of southern pine beetles is reduced in areas with blue stain fungus. Adults, larvae and eggs overwinter in infested trees, emerging in spring as adults to seek out new hosts. In outbreaks populations are so large that they are able to attack healthy trees and overcome their defenses, destroying thousands of acres of pines.



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Timeline

The southern pine beetle can be active all year in warm temperatures, but in South Carolina they emerge in early spring and are active through late fall. Historically outbreaks have occurred roughly every seven to 10 years.

Range

The southern pine beetle is native to North and Central America and ranges from New Jersey southwest to the Ohio Valley, south to Arizona, Texas and Mexico and Central America, and east to Florida. Only in the last decade has the southern pine beetle been recorded as far north as Long Island, New York.

Management

Management practices go a long way toward preventing southern pine beetle outbreaks. Thinning when appropriate or planting at wider spacing keeps pines from competing for light and space, resulting in healthier growth. Tolerant species, such as longleaf pine, can be planted in appropriate areas. Historically, outbreaks have been associated with drought. A cost-share program is available to help non-industrial private forest landowners mitigate future loss from southern pine beetle by managing pine density through prevention and restoration practices. For more information on the program, visit www.trees.sc.gov/spbguide.pdf.

Contact the SCFC Insect & Disease staff

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