

ADDITIONAL INFORMATION

See Publication 2260: "Are My Pine Trees Ready to Thin?" available on the MSUCares.com web site: <http://msucares.com/pubs/publications/p2260.pdf>

For more information on bark beetles and direct control methods such as Cut and Leave and Salvage go to: <http://www.barkbeetles.org/>



S-shaped galleries of the SPB.



Ips galleries are long and straight, often joining to form a Y or H shape.



Mississippi Forestry Commission
301 North Lamar Street, Suite 300
Jackson, Mississippi 39201
www.mfc.state.ms.us

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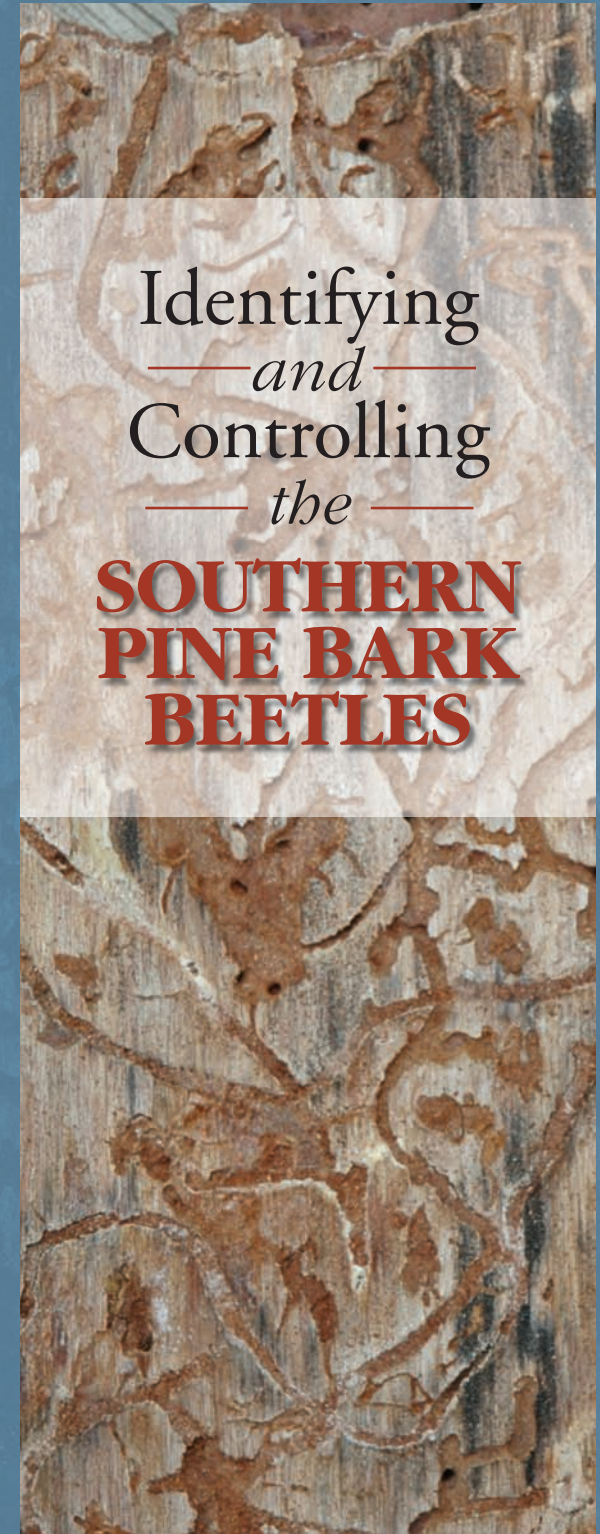
By **Doug Stone**, Research Associate, Department of Entomology and Plant Pathology; Dr. T. Evan Nebeker, Emeritus Professor, Department of Entomology and Plant Pathology; and **Dr. Andrew Londo**, Associate Extension and Research Professor, Department of Forestry.

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SOUTHERN PINE BARK BEETLES

The five southern pine bark beetles found in Mississippi are the southern pine beetle (SPB), *Dendroctonus frontalis*; black turpentine beetle (BTB), *Dendroctonus terebrans*; 4-spined engraver, *Ips avulsus*; 5-spined engraver, *Ips grandicollis*; and 6-spined engraver, *Ips calligraphus*. These beetles have killed millions of dollars' worth of pine timber throughout the southeastern United States. Beetles are attracted to trees weakened by drought, flooding, lightning strikes, and storm or logging damage. The best way to make an attack less likely is thinning. Thinning reduces competition, which in turn increases water and nutrients available to the remaining trees. As a result, tree vigor is increased. Thinning also benefits wildlife by increasing the number of herbaceous plants available for food and cover.



The southern pine beetle (SPB) is about 1/8 inch long.

LIFE CYCLE

These beetles may have multiple generations each year. With each generation, there are four life stages: egg, larva, pupa, and adult. Development of all stages continues throughout the year; however, development slows considerably in the winter. One SPB life cycle, from egg to adult, may take from 26 to 54 days, depending on the season.



Five-spined engraver, *Ips grandicollis*, is about 1/8 to 3/16 inch long with spines present on the abdomen.



The black turpentine beetle (BTB) is a large, robust beetle about 3/8 inch long.

SYMPTOMS AND SIGNS

The first observable symptom of a beetle attack is a change in the color of the needles in the tree crown. Needles fade from green to dull green, yellowish, and finally reddish-brown before falling. Southern pine beetle behavior is different from that of the *Ips* species. SPB create "spots," or a group of infested trees, by finding the weakest trees or a lightning struck tree. Depending on the SPB population size, stand, and weather conditions, the spot may grow from there. Spot growth is the natural expansion of untreated spots as additional green trees at the edge of the spot become infested.

However, *Ips* do not create "spots." *Ips* move throughout the stand, infesting the weakest trees. In other words, *Ips* checker board across the stand while SPB create a spot and may have spot growth from that point. Signs of attack include the beetle itself, pitch tubes, and reddish boring dust (frass) on the tops of leaves in the understory and at the base of the infested tree. Vacated and brood trees will have a ring of white boring dust at the base from ambrosia beetles boring into the wood. The beetle introduces blue-staining fungus to the tree. This fungus may contribute to the death of the tree by shutting down the tree's water-conducting tissue.

PREVENTION

Thin your stand! For SPB, fell all lightning struck trees immediately after storms and remove. For *Ips*, do not pile fresh slash material at the base of standing pine trees. Spread slash to increase drying and to reduce suitability for a beetle attack. For BTB, minimize the number of pine trees wounded at the base. BTB infest pine trees weakened by logging, fire, lightning, or other bark beetle outbreaks.

IF YOU HAVE BEETLES...

SPB:

- You should have a management plan with a bark beetle component.
- You may need to **thin your pines**.
- For small spots, you may **do nothing**. Continue to monitor them.
- You may **salvage** (that is, immediately harvest all infested pine trees plus a buffer strip of uninfested pine trees).
- If you cannot salvage promptly, you may **cut and leave**. This method is designed to disrupt spot growth.
- You may use a portable sawmill to cut infested trees into usable lumber for farm or personal use. Blue-stained wood is cosmetic and does not weaken the structure of the wood.

Ips:

- You should have a management plan with a bark beetle component.
- You may need to **thin your pines**.
- **Survey** to determine the percentage of tree loss. (You may want to contact a tax advisor to find out if there are any tax implications.)
- If you have low tree loss, **do nothing**.
- If you have high tree loss, **harvest** infested trees or entire stand.
- You may use a chipper to chip all infested trees.
- You may use a portable sawmill to cut infested trees into usable lumber for farm or personal use.
- Water high-valued trees in your yard or other locations during times of drought.

BTB:

- Check your trees; BTB usually confine their activity to the 10 feet at the base of the pine tree. BTB larvae feed together under the bark below the large reddish white pitch tubes.
- Using a sledge hammer, **smash the bark** several times below the pitch tube.
- You should kill most of the larvae and adults with this method.