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## PINE BARK BEETLES

Small Southern Pine Engraver [*Ips avulsus* (Eichhoff)]  
Southern Pine Engraver [*Ips grandicollis* (Eichhoff)]  
Coarse Writing Engraver [*Ips calligraphus* Germar]  
Southern Pine Beetle [*Dendroctonus frontalis* Zimmerman]  
Black Turpentine Beetle [*Dendroctonus terebrans* (Olivier)]

**Description.** The three *Ips* beetles are very similar in appearance except for size and the number of spines on the posterior margin of the elytra (wing cover). All are reddish-brown to black and range in size from 1/8 to 1/4 inch in length. When viewed from above, the head is not visible. The posterior region of the wing covers and abdomen have a "scooped out" depression that is characteristic of the *Ips* beetles.

Southern Pine Beetles are brown to black and about 3/16 inch in length. The head is visible from above and has a median groove that gives appearance of two "horns" projecting from the head.

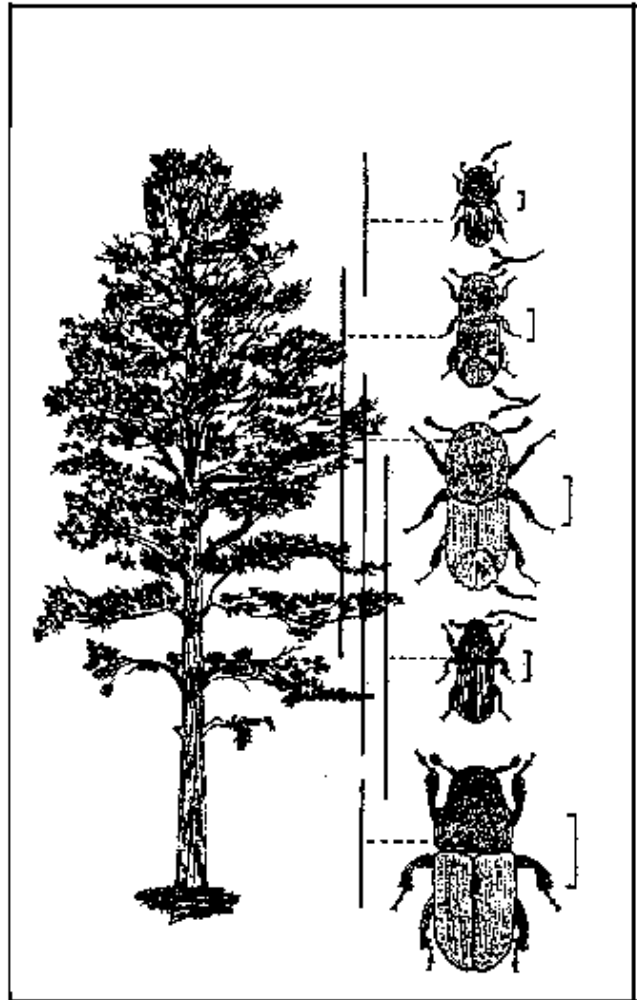
The Black Turpentine Beetle is the largest of the major pine bark beetles, about 1/4 inch long. It is reddish-brown to black. The head is visible when viewed from above.

**Hosts.** Most species of pines found in South Carolina are subject to attack by the pine bark beetles. Trees under stress are much more susceptible. Some preference is shown for loblolly, shortleaf, and Virginia pines.

**Injury.** The most severe and ultimately fatal injury is caused by larval feeding on the cambium layer under the bark. Ultimately, the tree is girdled and the flow of nutrients and moisture is cut off. The adults bore into the bark and cut egg galleries, but in itself this injury is secondary. Fungal diseases are introduced also.

The primary symptoms include pitch-tubes, popcorn or larger sized layers of resin on the outer surface of the bark, reddish sawdust-like material on the bark, and a general decline of the tree. Decline is indicated by fading of the needle color from a rich green to yellow, red, and brown.

Each bark beetle has certain preferences as to the area of the tree they initially attack. These preferences are indicated in Figure 1.



**Figure 1.** Major pine bark beetles: A. Small Southern Pine Engraver; B. Southern Pine Engraver; C. Coarse Writing Engraver; D. Southern Pine Beetle; E. Black Turpentine Beetle. The long lines next to the tree indicate the primary areas of infestation. The short lines to the right of the beetles indicate actual size. Arrows indicate key characteristics.

All of the bark beetles have similar life histories. Usually, the adult beetles are attracted to trees under stress. They bore into the bark and hollow out galleries. The females lay eggs in niches along the galleries. After about a week the larvae hatch and start feeding on the cambium layer. When mature, they pupate in cells constructed in the bark. When the adults emerge, a small exit hole is cut in the bark and the beetles fly to another tree. Several generations are produced each year. Infested green trees are attractive to adult beetles.

The best control is to keep trees in vigorous healthy condition. This will usually prevent the initial attack by adult beetles. Healthy trees have a heavy flow of pitch and can "drown" the beetles as they bore through the bark. It is not possible to prevent natural weakening factors such as old age, prolonged floods, fire, drought, and lightning strikes from occurring. However, in the homeowner situation, water and fertilization go a long way towards keeping the tree healthy. Avoid injuring trees with riding lawnmowers.

If a tree is severely injured or struck by lightning, early removal of the tree will prevent beetle infestations. Avoid soil compaction and injury to trees during house construction. Also, do not leave only large, mature pines on the lot.

During hot, dry weather, inspect the trees for the initial signs of attack. If a tree is beginning to show color changes in the needles, remove it as soon as possible. One infested tree can be the source of thousands of adult beetles that will spread to other pines in the yard and neighborhood. Spraying a tree 20 to 60 feet tall is not an option.

The key factors to remember for control of pine bark beetles are:

- Avoid damage to pines during yard work or construction;
- Keep pines healthy by watering and fertilizing them;
- Watch for pitch tubes and boring dust;
- Remove infested trees immediately.

Consult your local County Extension Agent for assistance in beetle identifications and control.

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