

Georgia Forestry Commission

FOREST HEALTH FACT SHEET



PINE BARK BEETLES

GENERAL INFORMATION

Pine bark beetles are small insects that kill pines by boring beneath the bark. Five species are common throughout Georgia. These are (1) southern pine beetle (2) black turpentine beetle and (3) three species of Ips engraver beetles (Figure 1). Bark beetles are most active between March and September with limited activity on warm winter days. Two types of populations are generally recognized; endemic and epidemic. Endemic populations occur most often and are characterized by less than one beetle spot for every 1000 acres of pine. Epidemic populations occur every 5-10 years and may be scattered over two-thirds of the state and there are one or more spots per 1000 acres of pine. During epidemics vast areas of pine are killed and the monetary losses are estimated in the millions of dollars.

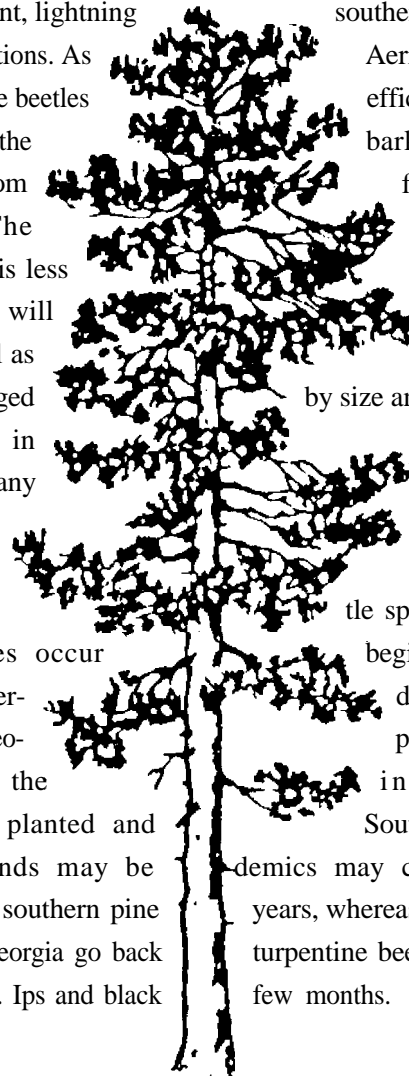
The engraver beetles prefer hot weather and will attack logging slash and trees damaged by lightning, fire, drought, disease and overcrowding. They are most active from June through

September and kill trees in groups of 20 or less. The black turpentine beetle prefers trees damaged by logging and construction equipment, lightning and naval stores operations. As the name implies, these beetles are highly attracted to the odor of pine resin from wounded trees. The southern pine beetle is less discriminating and will attack healthy as well as weakened and damaged trees. It kills trees in groups of 10 to many thousand and is the most destructive of the pine bark beetles.

Pine bark beetles occur across all land ownership patterns and geographic regions of the State. Natural and planted and young and old stands may be attacked. Records of southern pine beetle epidemics in Georgia go back as early as the 1700's. Ips and black

turpentine beetle epidemics are more sporadic and occur every 10 or more years unlike the 5-7 year cycle of the southern pine beetles.

Aerial detection is the most efficient method of locating bark beetle spots. Large forested areas and cities can be surveyed in a relatively short period of time. From the air, spots can be classified by size and type which aids entomologists in predicting future trends. Many small (5-10 trees) scattered southern pine beetle spots usually indicate the beginning of a serious epidemic. As the epidemic progresses spot size may increase 10-50 fold. Southern pine beetle epidemics may carry over for several years, whereas, those of Ips and black turpentine beetles fizzle out within a few months.



Recognizing Infested Tree

As bark beetles bore through the bark to reach the cambium layer, they produce a reddish brown boring dust and cause resin to flow from the tree. As the resin flows to the outside of the tree it forms into a glob of pitch called a pitch tube. Pitch tubes vary in size, color and location on the tree depending on which bark beetle attacked the tree (Figure 2). Black turpentine beetle pitch tubes are large pinkish-white

and about the diameter of a quarter. They occur in the bark crevices between groundline and up to six feet. Southern pine beetle pitch tubes are similar but considerably smaller (dime size). They too are formed in the bark crevices but are formed from eye level up to the tree crown. Engraver beetle attacks don't always result in a pitch tube but when they are produced they resembles those of

the southern pine beetle but will mostly occur on the bark ridges and not in the crevices. Other external signs and symptoms of bark beetles in trees are dead and dying needles and sawdust-like boring dust at the tree base. The most definitive signs will be tunnels made under the bark by adult beetles. Each species makes a characteristic tunnel (Figure 3).

Life History and Habits

Southern Pine Beetle: These beetles attack all species of southern yellow pines of sapling, pulpwood and saw-timber size. They are particularly destructive in oven-nature and overcrowded stands. Infestations are often caused by extended droughts, flooding, lightning strikes and man cause disturbances. Approximately 30-40 days are required for the completion of one brood during the active season. Five to seven broods may develop in Georgia every year.

Ips Engraver Beetles: These beetles can multiply rapidly in fire or storm damaged timber, in logging slash or

along powerlines in recently pruned pines. Duration of Ips outbreaks are usually short-lived (3-6) months), and they are not as widespread as southern pine beetle outbreaks. The small southern pine engraver prefers the upper portions of trees such as limbs and tops and is often found in logging slash. The southern pine engraver is found more often at mid-bole and will also attack logging slash. The six-spined engraver attacks the entire bole but is commonly found in the lower 1/2 of the tree. The smaller southern pine engraver completes its life cycle in about 20 days during hot weather and may produce ten or more generations per year. The

southern pine and six-spined engravers develop over a 20-25 day period producing 6 or more generations per year.

Black Turpentine Beetle: These beetles are found most frequently in trees damaged by logging and landscape equipment, naval stores operations and lightning. Epidemics are also triggered by droughts, fire and thinning. During droughts infestations often appear in sawtimber sized trees in low lying areas. Pulpwood and saw-timber sized trees of all ages are attacked. Development is completed over a 70-80 day period during the active season.

Control Of Pine Bark Beetles

Many other insects and diseases can cause pine needles to fade similarly to bark beetles and an accurate ground assessment must be made to identify the casual agent. Several options are available and each one depends on

locating all infested trees. Also landowners need to be aware of any endangered plant and animal species and historic sites that may be adversely impacted by a control action. Certain state and federal laws provide

protection to endangered species and historic landmarks and usually a professional forester will be knowledgeable of the current guidelines for complying with the various laws.

Where To Get Help

The Georgia Forestry Commission conducts aerial surveys over the state several times a year. Each area of infestation is noted on a map or aerial photo. Landowners can find out the

status of bark beetles in their area by calling or visiting the local GFC office. The county forester or ranger will be able to provide you with the proper instructions on what to do. For more

information concerning Georgia's Forest Health Monitoring Program call the toll free number 1-800 GATREES.

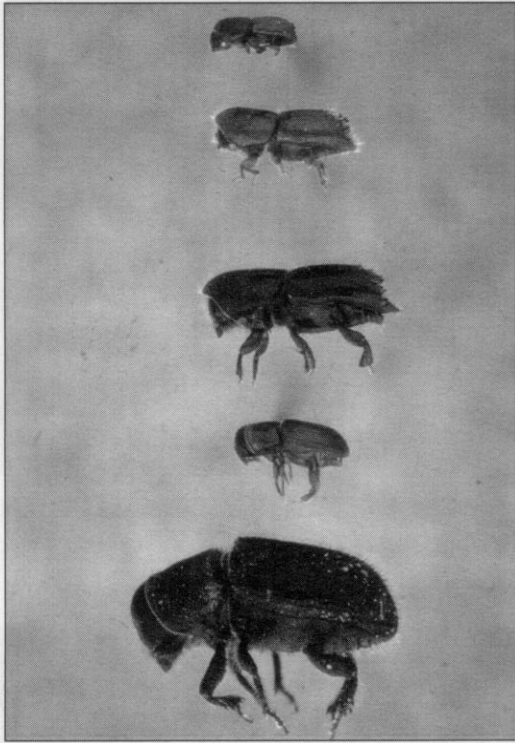
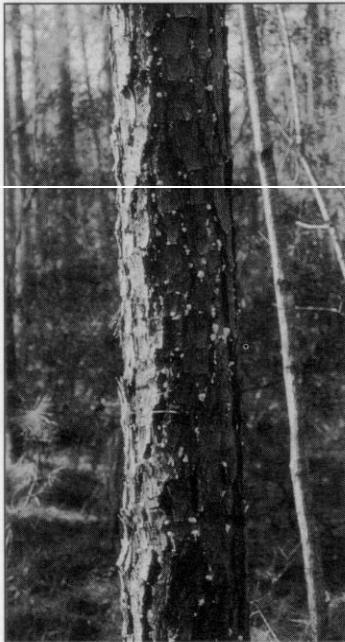


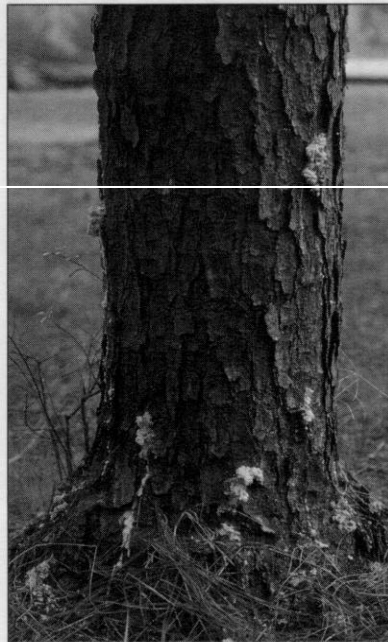
Figure 1.
From top to bottom;
small southern pine engraver, southern pine engraver, six-spined engraver, southern pine beetle and black turpentine beetle.

Actual Size 1" Scale

- ①. |...|...|...|...|
- ②. |...|...|...|...|
- ③. |...|...|...|...|
- ④. |...|...|...|...|
- ⑤. |...|...|...|...|



Southern Pine Beetle
(found over entire bole)



Black Turpentine Beetle
(found on lower six feet)



Engraver entrance hole
without pitch tube

Figure 2. Bark Beetle Pitch Tubes

Figure 3. Bark Beetle Galleries



Small Southern Pine Engraver



Southern Pine Engraver



Six-spined Engraver



Southern Pine Beetle



Black Turpentine Beetle