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U. S. Department of Agriculture, Forest Service  
Southern Forest Experiment Station  
Division of Forest Insect Research

BLACK TURPENTINE BEETLE  
(Dendroctonus terebrans)

Importance

1. Typically destroys patches of bark, not killing tree. Common along wood roads and trails.
2. In recent years, beetle has repeatedly changed from a secondary pest and become capable of killing trees--often the best trees in stand.
3. Especially prevalent following fires, selective cutting, and other disturbances to forest.
4. The increased use of mechanized logging equipment may have something to do with the insect's new importance.

Habits

1. Beetles tunnel under the bark of lower trunk and larger roots of living pines and recently-cut stumps. Larvae feed in groups, eating out large patches between bark and wood.
2. Attracted by fresh resin and scorched bark. Populations may build up in fresh-cut stumps and vicinity of "skinned" surfaces of living trees. Show preference for low, flat, poorly-drained sites, especially during dry periods.
3. When few beetles attack, injuries heal over and tree recovers. When large numbers present, tree is girdled but dies slowly.
4. Two and a half to four months are required to complete life cycle. Usually about two generations annually. Broods overlap.

Symptoms

1. Crown foliage color is not a clue to activities of this pest.
2. Conspicuous, medium- to walnut-size, reddish pitch-tubes on lower trunk and stumps. Older pitch-tubes have sugar-like consistency.
3. Granular pieces of hard, whitish resin on ground below pitch-tubes.
4. Tunnels beneath bark irregular in shape, packed with sticky resin and red boring dust.
5. Creamy-white grubs, up to 1/3-inch long, feeding side-by-side in groups.



6. Beetles, 1/4- to 1/3-inch long, dark-brown to black.
7. Whitish boring dust of associated ambrosia beetles around base of heavily-infested trees and stumps.

### Prevention and Protection

1. Avoid unusual disturbances to the stand. During logging operations, prevent unnecessary injury to residual trees.
2. Immediately following cutting operations, especially where heavy equipment is used on poorly-drained soils, or where pre-cutting is done before crop trees are removed, spray green stumps and areas of skinned bark on trees with benzene hexachloride-diesel oil solution (formula below).
3. In outbreak areas where seed trees or other valuable trees are to be protected, spray the lower trunks with benzene hexachloride-diesel oil solution. Trees will be protected for 6 months or longer.

### Control

Control is necessary when trees are being killed or where large numbers of active pitch-tubes on trunks and stumps indicate population increases.

1. Cut-salvage and stump-spray method: Cut and remove dying and dead trees and burn slabs at mill. Spray stumps and all remaining infested trees with benzene hexachloride-diesel oil solution.

(a) Dying trees to be salvaged: Because of the nature of attack, it is often difficult to determine which of the heavily-infested trees will die and which may recover. Many infested trees can be saved by timely spraying.

As a guide to salvage marking, trees that are completely encircled by active pitch-tubes, and particularly those having white boring dust of ambrosia beetles around the base, may be considered doomed to die.

(b) Marking salvageable trees: If several salvage cuttings are possible within the year, light marking can be applied with the hope that many infested trees may recover or be saved by spray treatment. When only one salvage cutting can be made in the immediate future, heavy marking of infested trees may be necessary.

2. Spray method: If salvage work is not practical because of the scattered nature of the infestation, or if it cannot be immediately carried out, spray stumps and infested butts of standing trees with benzene hexachloride-diesel oil solution.



(a) Spray formula:<sup>1/</sup>

Stir 2 gallons of benzene hexachloride concentrate containing 1 pound of gamma isomer per gallon into 50 gallons of No. 2 diesel oil. BHC concentrate sold in 5-gallon containers and 53-gallon drums at approximately \$2.25 and \$2.00 per gallon respectively, f.o.b. factory.

(b) Application of spray:

Thoroughly cover all surfaces of infested bark and bark crevices until spray begins to run off.

Scrape aside litter around base of tree or stump to help the spray penetrate vicinity of larger roots.

The cost of spraying should approximate 10 to 30 cents or more per stump or butt depending upon diameter, bark crevices, accessibility and concentration of trees to be treated.

Most Important Features

1. The insect may become destructive in stands disturbed by either natural or man-made causes.
2. Build-up to outbreak proportions is comparatively slow. Its increase should be watched for following heavy cutting or other unusual disturbance to the forest.
3. In marking trees for salvage, considerable care must be given to separating dying trees from those that might recover or be saved by spraying.

Precautions

Benzene hexachloride is poisonous. Keep insecticide off skin and away from eyes and nose. Wash carefully with soap and warm water after applying spray.

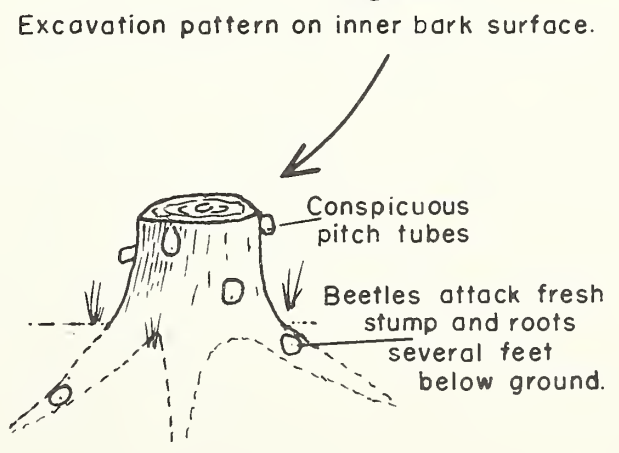
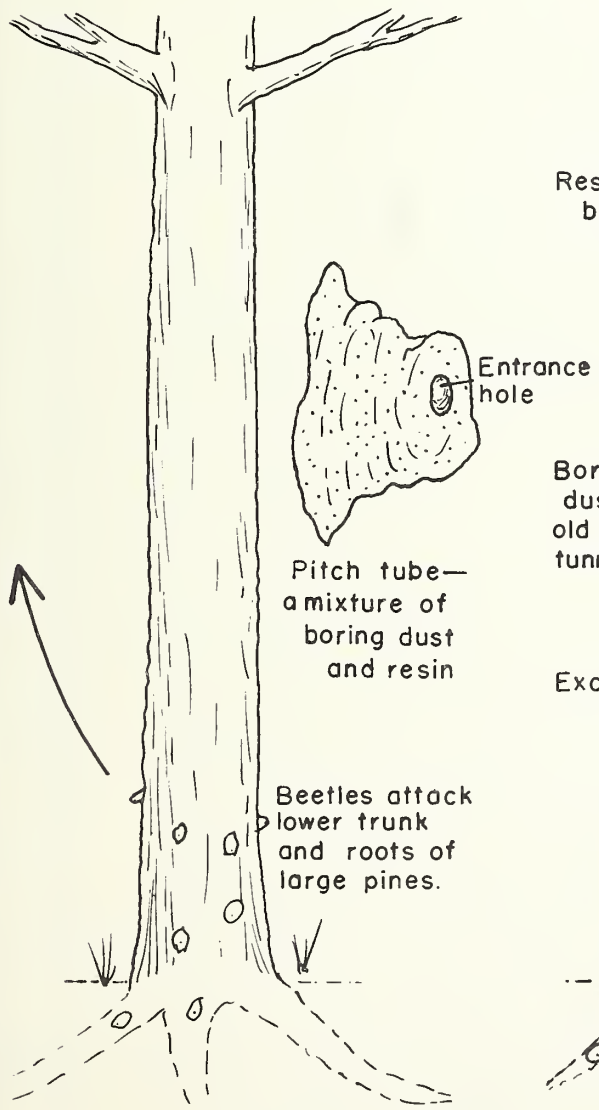
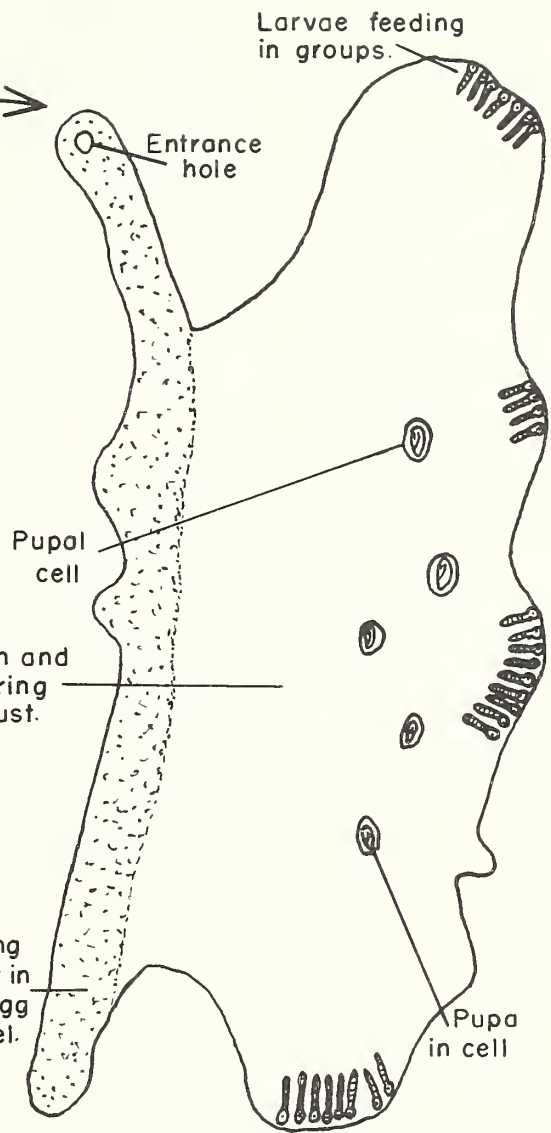
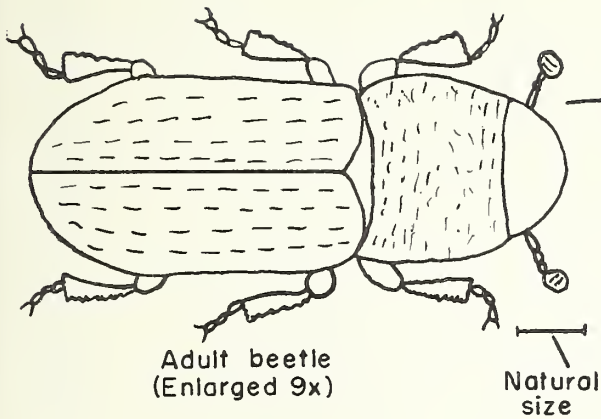
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<sup>1/</sup> The formula provided here is known to be effective under ordinary circumstances. In some cases, however, where very thick-barked pines are infested, double the proportion of insecticide may be necessary to give satisfactory results.

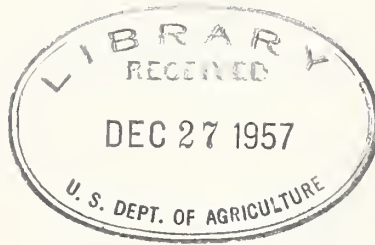
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