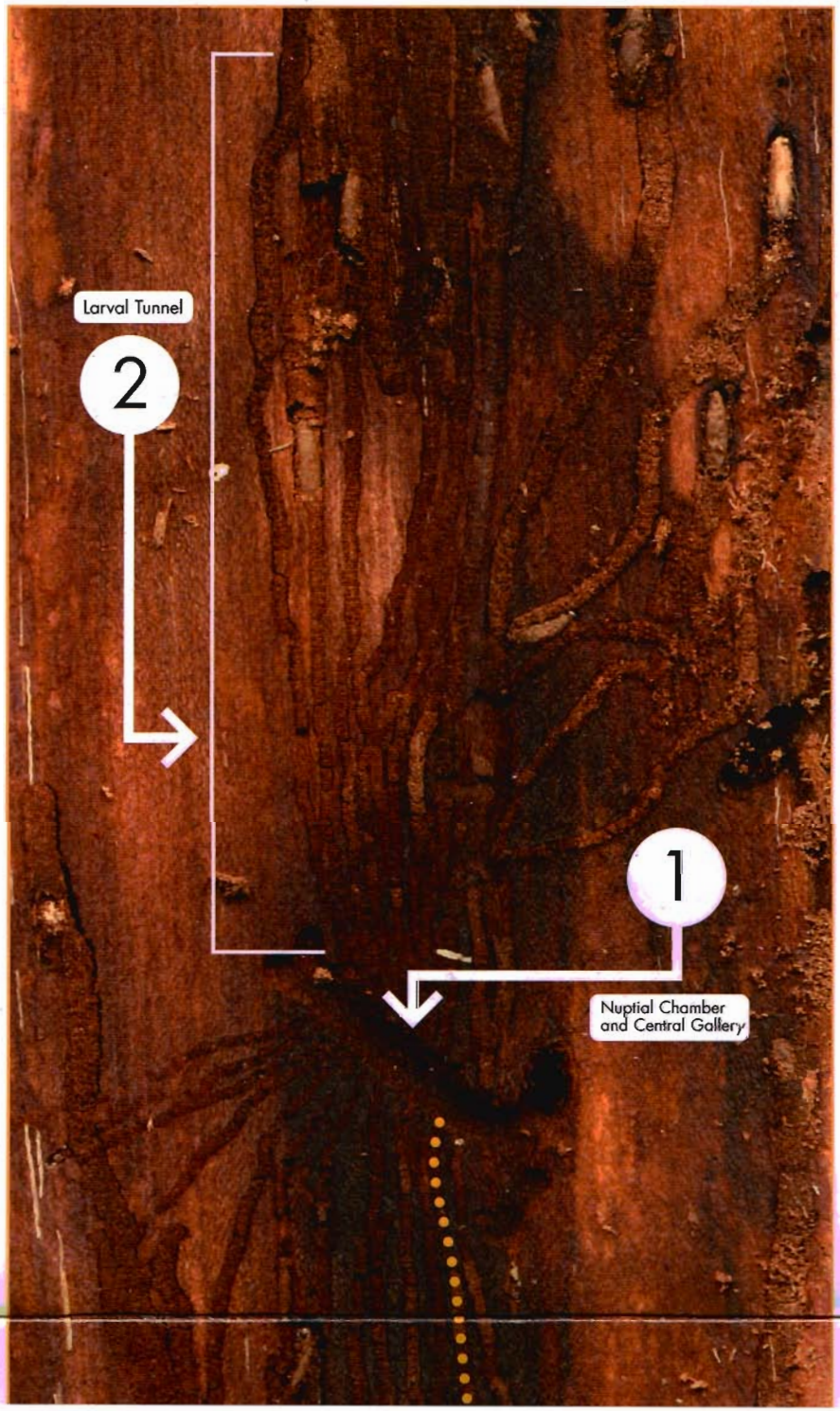
BARK BEETLES

BARK BEETLE GALLERY



Bark beetles (order Coleoptera, family Scolytidae) spend most of their life hidden between the bark and the sapwood of a tree. There a bark beetle carves its life history, earning it the nickname "engraver" beetle. To the careful observer, the bark beetle's complete metamorphosis from egg to adult is recorded in delicate patterns beneath the bark.

1. The story begins when the female bark beetle chews out a long tunnel, or gallery, through the wood. She stops regularly along the way to cut small notches on each side of the gallery. Into each notch she deposits an egg.

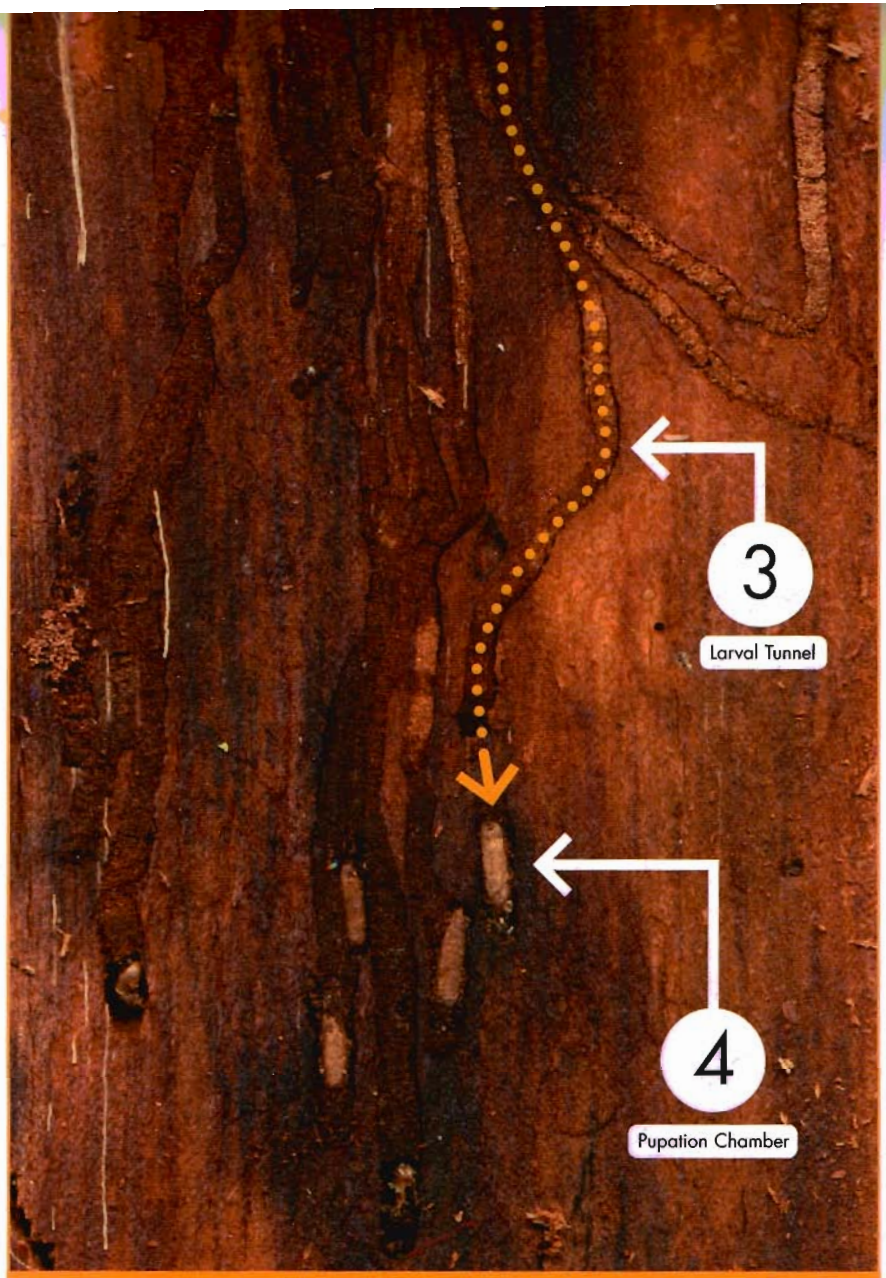
2. The eggs hatch into larvae. They have strong chewing mouthparts, and begin to cut their own tunnels (called mines) through the sapwood. Soon there are small larval tunnels leading away from the original long gallery cut by their mother.

3. It is interesting to observe one of the larval mines closely. Notice that the tunnel gradually gets wider. As they feed on the sapwood, the larvae grow bigger and stronger, and their tunnels gradually become bigger, too.

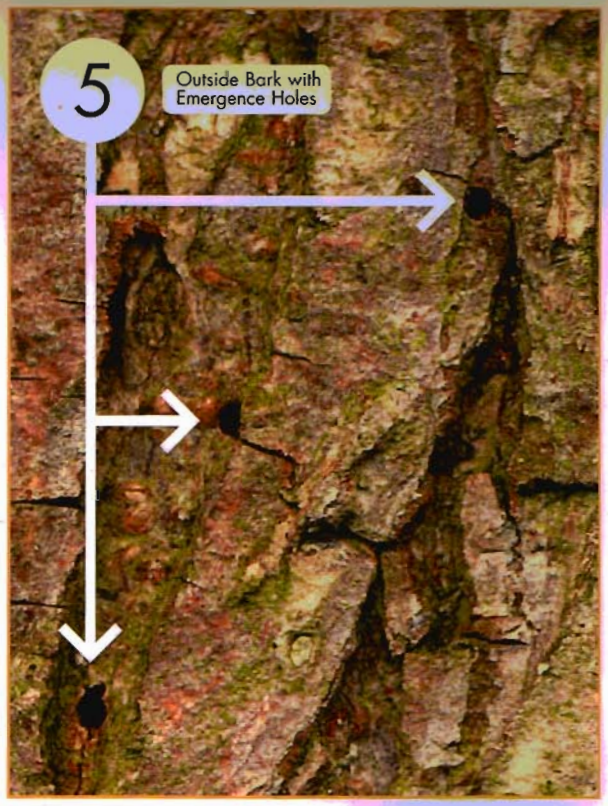
4. Finally the larvae cut themselves little chambers at the ends of their galleries. They spend the winter here. In spring the larvae pupate. During this phase they slowly change into adult bark beetles.

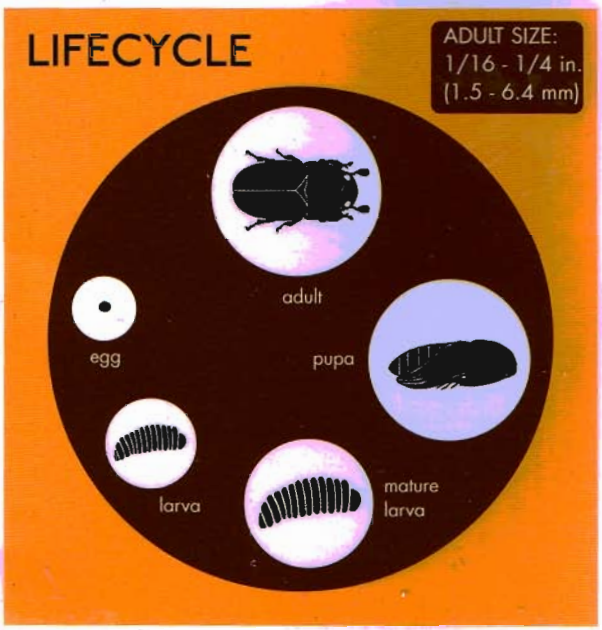
5. The adults emerge and chew their way out through the bark of the tree into the open air. This is the first and only time that they will be outside. Each adult bark beetle flies to a new tree and finds a mate. Then they chew their way into the bark of the new tree. The pair cuts out a small chamber where they mate.

6. Now the female bark beetle is ready to create a gallery and begin making notches for her eggs, and the cycle begins again.

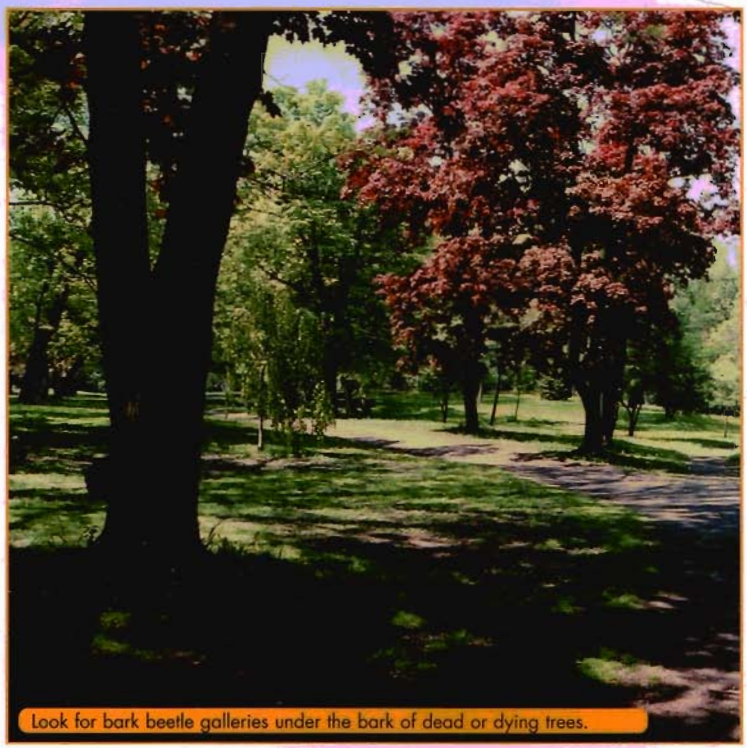


The photograph above shows a section of bark interior that has separated from the wood of a dead tree. Bark beetles live in and feed on the thin layer of green growth that lies just beneath the bark. This layer is called the cambium.





The brown trees are evergreen trees that have been killed by bark beetles.



Look for bark beetle galleries under the bark of dead or dying trees.

APPETITE FOR DESTRUCTION

Bark beetles typically attack weakened or dying trees. A healthy tree resists them by producing lots of sap that drives them out or kills them. However bark beetles can destroy healthy trees by infesting them. Large numbers of bark beetles eat so much of the green cambium layer that their galleries can "girdle" a tree. This shuts off the flow of nutrients from root to branches and the tree dies.

In the eastern United States, bark beetles spread a deadly fungus that causes Dutch elm disease. The disease has killed many, many trees.

In the western U.S., bark beetles that attack pine trees have been the cause of extensive deforestation. Scientists are searching for ways to control these destructive insects. Their infestations cause millions of dollars in damage to the timber industry.

WHERE TO FIND THEM

Bark beetles come out into the open only when they take their mating flights, usually in spring. Because of this, it may be difficult to observe adults.

Be on the lookout for dead or dying trees. Examine the wood carefully. You will probably discover evidence of multiple bark beetle galleries.

PHOTOGRAPHY / ILLUSTRATION CREDITS

Cover Painting: Mary E. Walter VanSlyke / Bark Beetle Gallery Scan: First Hand Learning, Inc. / Life Cycle illustrations: Julian Montague / Photograph 1: William M. Ciesla, Forest Health Management International, www.forestryimages.org / Photograph 2: First Hand Learning, Inc.