



Borers in Landscape Trees

Many deciduous trees such as cottonwood and willow are planted in residential landscapes because of their fast growth. These trees typically do well for three to five years, then growth slows and the trees die seven to ten years later. Lack of irrigation is usually the cause. Cottonwoods and willows perform best when growing next to a source of fresh water such as a lake, river, stream, or ditch. Most sprinkler or drip irrigated landscapes simply cannot supply the water necessary to support large riparian trees. These stressed trees can then be colonized by wood boring insects which hasten their decline.

Wood borers are insects that develop underneath the bark of woody plants. Most of these insects can attack only dying trees, felled logs or trees under stress. In our area, the cause of stress is usually lack of irrigation, but stress can also be the result of mechanical injury, root disturbance, sunscald, and diseases. Wood borers colonize these stressed trees and are often blamed for tree mortality. However, the underlying issue is the physiological stress which provided the wood borers with opportunity. Wood borers are usually beetles or moths which develop in the wood as larvae and emerge in one or two years as adult insects. These adult insects emerge with the sole purpose of finding a mate and depositing eggs on another susceptible host tree.



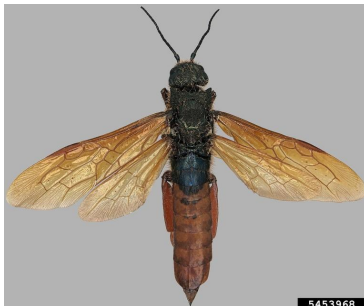
An adult and larvae of the longhorn California prionus beetle (*Prionus californicus*) in the laboratory (David Gent, USDA Agricultural Research Service, Bugwood.org).

Longhorn borers, named for their long antennae, are a common group of wood boring beetles. Their larvae are commonly referred to as roundheaded wood borers which feed deep within the wood and their life cycle may last several years. In Arizona, we have two large species of longhorn beetles. The Palo Verde Borer and the Giant Oak Root Borer. A mature larva of these species is often three inches or more in length. There are many other longhorn beetles which are smaller in size. Adult long-horned beetles have occasionally emerged from pine logs used on log homes after construction. Most longhorn beetle larvae feed on wood that has already been stressed or killed by other agents.

Metallic wood borers are named for the metallic sheen of the adults which are often green, bronze, or blue. Their larvae are known generally as flatheaded wood borers and their galleries have an oblong shape in cross section. Many times, the galleries are packed with frass (insect excrement). They feed on recently killed wood, creating oval-shaped tunnels through the cambium and sapwood. Complete development from egg to adult usually takes one year. Metallic wood borers develop only in dead wood or in drought-stressed trees. They can be found in dead and dying ponderosa pine and sycamore trees, but there are many species that occur in various host trees.



Flatheaded wood borer larva in pine (William M. Ciesla, Forest Health Management International, Bugwood.org).



Blue horntail wasp (*Sirex cyaneus*, Steven Valley, Oregon Department of Agriculture, Bugwood.org).

Horntails (also called wood wasps) are a family of non-stinging wasps that develop solely within trunks and branches of killed or damaged trees. Of greatest concern are horntails that normally are attracted to and complete their life cycles in newly dead or dying conifer trees. Timber salvaged from these trees can be processed into infested lumber. This can lead to adult wasps emerging in recently completed buildings or structures. Wood wasp damage in buildings is more cosmetic than structurally weakening. Although these insects are extremely annoying, they aren't harmful to humans or structures. They only colonize trees and won't bore into wood in buildings or furniture. Two or more years are required for the horntails to complete their development.

Clearwing moths are also found in our area. These day-flying moths have transparent areas on their wings, a narrow body, and are often striped yellow and black which sometimes allows them to be confused with wasps. The larvae include some insect pests, such as the sequoia pitch moth, ash/lilac borer, peach tree borer, raspberry crown borer, viburnum borer and currant borer. Their life cycle typically requires a year to complete. Of the species discussed in this publication, the clear-wing borer is an example of a boring insect that is capable of damaging apparently healthy trees.



Western poplar clearwing (*Paranthrene robiniae*, James Solomon, USDA Forest Service, Bugwood.org).

Emerald ash borers (*Agrilus planipennis*) are invasive insects native to Asia. They have killed untold millions of ash trees (*Fraxinus* spp.) in urban, rural, and forested settings in the Midwestern and Eastern U.S. As of this writing, the emerald ash borer has not been found in Arizona.

The adult beetle can normally fly only short distances, staying in the near vicinity of the tree from which they developed; some will fly longer distances with the aid of favorable winds. Transport of firewood or other ash materials harboring live emerald ash borers is normally the way that this insect is carried over long distances. The emerald ash borer can be identified by S-shaped, frass-filled galleries under the bark and 1/8 inch D-shaped holes in the bark of the tree.



Adult emerald ash borer (*Agrilus planipennis* , Leah Bauer, USDA Forest Service Northern Research Station, Bugwood.org).



Emerald ash borer exit hole; David Cappaert, Bug-

Additional Resource

[Pitch Moths](#) (a species of Clearwing Moth)

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