

American Plum Borer in Utah Orchards

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Quick Facts



Fig. 1. American plum borer adult.

- The American plum borer (APB) is a minor pest that feeds in the cambium of multiple hosts, including fruit, nut, and ornamental trees.
- Adult moths primarily lay eggs on wounds, allowing larvae to enter the tree. In some states, APB is a pest in tart cherry orchards due to widespread trunk wounds from mechanical harvesting.
- Male flight can be monitored with pheromone traps.
- Cultural controls include removing infested wood, preventing wounds, and managing canker diseases.
- An insecticide can be applied to the trunk during the egg-laying period of the first generation.

American plum borer (APB), *Euzophera semifuneralis* (Walker), is a native wood-boring pest with hundreds of hosts, primarily damaging fruit trees. In some fruit-growing states such as Michigan, New York, Pennsylvania, Virginia, and Wisconsin, it has historically caused severe tree losses, especially where trees are wounded by mechanical harvest, sunscald, or canker diseases. APB moths were detected in traps in Utah in 2026, but to date, no tree damage has been found. Because the larvae feed horizontally in the cambium, it could be more destructive than other fruit tree borers, such as the greater peach tree borer.

Hosts

APB has a wide host range that includes 15 plant families, from fruit and nut to ornamental and forest trees. It prefers to feed on trees in the family Rosaceae, such as cherry, plum, peach, nectarine, almond, and apple, but also infests trees in the family Juglandaceae, such as walnut and pecan. Other hosts include basswood, cottonwood, ginkgo, London plane, mountain-ash, mulberry, persimmon, poplar, and sweetgum.



Fig. 2. American plum borer larva.

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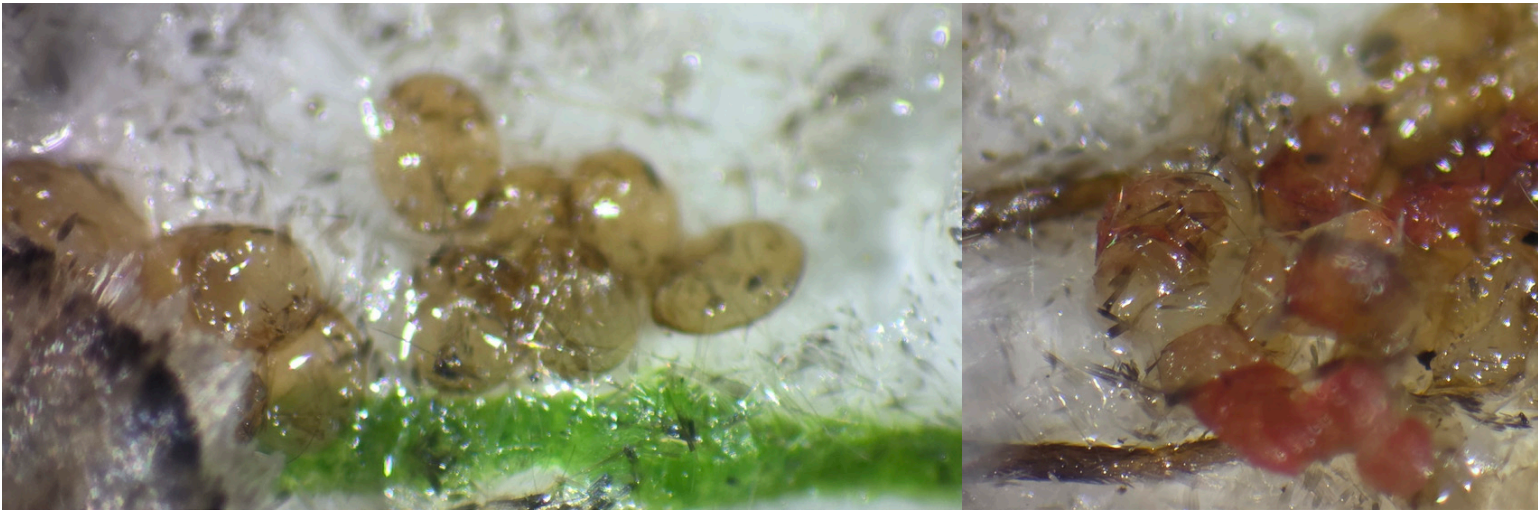
Identification

American plum borer is a moth from the family Pyralidae.

Adults are 0.75 to 1 inch long (19–25 mm) and have a wingspan of 0.8 inch (20 mm). Females and males are similar in appearance, but females are slightly larger than males. The moth is grayish-brown to reddish-brown, with a wavy vertical band of black and brown markings on its forewings (Fig. 1).

Pupae are about 0.5 inch long (~13 mm) and hide in a white silken cocoon under the bark of the tree. Red frass can be found around the cocoon.

Larvae vary in color from greenish-white to reddish-purple (Fig. 2). They develop through seven instars, reaching 1 inch (25 mm) at maturity. Larvae have a dark brown head capsule and two rows of proleg crochets.



3. *American plum borer eggs showing color variation, with white-brownish (top) to pinkish color (bottom).*

Eggs are oval and covered with a network of triangular facets. They are dirty white when freshly laid, turning pink and then bright red as they mature (Fig. 3).

Distribution

APB is native to North America, including parts of Canada and northern Mexico. Although it is found throughout the U.S., it causes the greatest damage in eastern fruit-growing states. In 2026, monitoring traps detected moths in orchards in northern and southern Utah (i.e., Utah County and Grand County). It is likely that APB has been in Utah for several years, as it has been detected in locations hundreds of miles apart.

Biology

The biology of APB has not been studied in Utah, but based on research from eastern states where it has two and three generations, the following is likely the case in northern Utah and southern Utah, respectively. APB overwinters as a larva (caterpillar) in a white, silky cocoon under loose bark. During bud swell in spring, larvae become active and begin pupation within their cocoons. About 4 weeks later, moths emerge and fly at night to mate. Females are attracted to fresh wounds in the bark, such as shaker harvester wounds, pruning cuts, cankers, and grafts. Females lay 20 to 50 eggs and deposit them singly or in small clumps. The newly hatched larvae bore into the cambium through nearby wounds, as they cannot penetrate intact bark. The first-generation larvae complete development from early May to the end of June, and pupation takes 2 weeks. Adult emergence of the second generation overlaps with first-generation larval development,

generally beginning in early July and peaking in mid-July. The second-generation flight is longer than the first, lasting up to 4 months (through September). After eggs are laid, larvae hatch and feed until mid- October or the first frost.



Fig. 4. Trunk damage (exposed by peeling the bark) showing dead outer bark with old feeding galleries from American plum borer.

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Damage

APB larvae are unable to enter a tree without a pre-existing wound or crack in the bark (Fig. 4). Mechanical damage, pruning cuts, wounds from diseases (cankers or black knot), sunscald, and winter injury create openings for larvae to enter trees. In Michigan, the incidence of borer damage has been greatest on tart cherries, which are harvested with mechanical shakers. This creates splits in the bark and provides oviposition sites. The second generation is usually the most devastating because egg-laying occurs during mechanical harvest, and the fresh trunk wounds provide ideal sites for oviposition. On peach, damage in other states has been found associated with sunscald and cankers caused by *Cytospora*. Sap may ooze from feeding sites. In apples, APB may be found feeding in burr knots.

Once inside the tree, larvae tunnel within the cambium and quickly add to the initial damage of the bark (Fig. 5). Gummy frass may occur, and liquid exudate may ooze from feeding sites around injured wood. Their horizontal feeding pattern can girdle twigs and branches, causing breakage. Trunks and scaffold limbs may be girdled in 5 years or less, resulting in tree death or significant loss of vigor. Drought conditions intensify feeding effects. APB can also spread spores of fungal pathogens from one tree to another.

Management

Monitoring



Fig. 5. American plum larva in wood.

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Inspect trees in spring and summer for signs of infestation around pruning cuts, loose bark, and other wounds. Look for dark brown to reddish frass (sawdust-like excrement) that may be mixed with sap or gum. If you can remove or lift dead bark, look for cocoons of loosely woven white silk. Moth flight in commercial orchards can be monitored using pheromone traps (Table 1). The trap consists of a pheromone lure that attracts males. Place the lure on a sticky liner inside an orange or red plastic delta trap. Hang the trap at 5 feet in the canopy, at least 30 feet from orchard borders, to prevent attracting populations from non-crop hosts outside of the orchard. If traps are placed too close to the orchard edge, then the predicted population size in the orchard will be overestimated. Three traps per 10 acres are recommended.

Trap Threshold

When the average number of males from three traps exceeds six per trap per week, the borer is likely to cause economic damage.

Mechanical and Cultural Control

If larvae are detected, remove and destroy infested wood when possible. Minimize trunk damage caused by mechanical harvesting and cankers. Paint trunks with white latex paint (diluted to 50% in water) to prevent wounding and thus limit APB females from egg-laying.



Fig. 6. *Venturia nigricoxalis*, a parasitoid (Hymenoptera: Ichneumonidae) of American

plum borer.

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Chemical Control

Where this pest has occurred in the eastern states, growers have applied a long-residual insecticide to the trunks of tart cherry trees shortly after petal fall (during the peak egg-laying of the first generation). A second application is sometimes applied in midsummer if restrictions concerning insecticide residues can be avoided.

Biological Control

A 2014 study in Michigan cherry and plum orchards identified numerous biological control agents of APB, including birds (woodpeckers and flickers), crab spiders, beetles, and ants. Ichneumonid wasps were the most common parasitoid of APB, with *Venturia nigricoxalis* (Cushman) (Fig. 6) being the most common. It infested 13% of collected larvae in the field.

Table. 1. Commercially available American plum borer lures and their specifications.

Supplier names	Product description *	Lure longevity	Quantities sold	Recommended traps
Evergreen Growers Supply	Gray rubber septum	35 days	1, 52, or 100 lures	Red paper or plastic delta trap
Alpha Scents, Inc.	Gray rubber septum	30 days	1, 52, or 100 lures	Red paper or plastic delta trap
Great Leakes IPM	Red rubber septum	4–6 weeks	25 lures	Red paper or plastic delta trap

* All lures are made of the same active ingredients: ZE-9; 12-14Ald; Z-9-14Ald; ZE-9; 12-14OH; and Z-9-14OH.

Table. 2. Insecticide options for commercial orchards listed by mode of action (MOA).

MOA	Active ingredient	Example product	Notes
3A	beta-cyfluthrin	Baythroid XL	
3A	esfenvalerate	Asana	
3A	fenpropathrin	Danitol	Max 2 applications/year
3A	lambda-cyhalothrin	Warrior II	
3A	permethrin	Pounce 25 WP	Not for use on apple or pear after petal fall
3A	zeta-cypermethrin	Mustang Maxx	Max 6 applications/year
4A 3A	imidacloprid beta-cyfluthrin	Leverage 360	
4A 3A	thiamethoxam lambda-cyhalothrin	EndigoZC	
28 3A	chlorantraniliprole lambda-cyhalothrin	Besiege	Max 3 applications/year

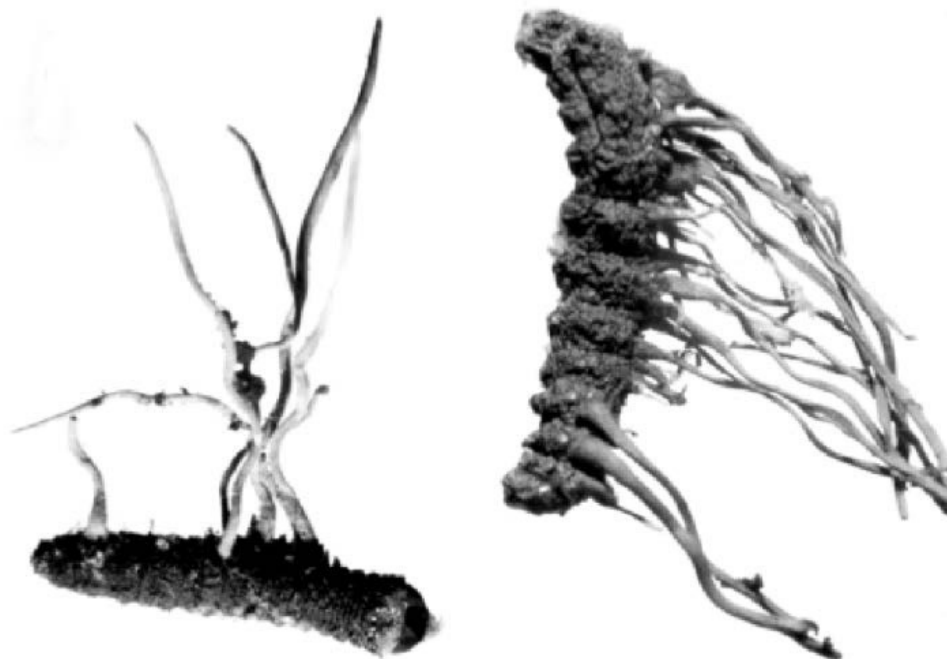


Fig. 7. *Hirsutella*-infected American

plum borer larvae

showing hyphal horns growing outward from the borer body. David Biddinger, Pennsylvania State University

Additionally, a fungal caterpillar pathogen, *Hirsutella* sp., was found to infect up to 50% of APB larvae in Michigan tart cherry orchards (Fig. 7). *Hirsutella* sp. was able to kill the larvae before pupation in most cases.

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