

INSECT PESTS

of Non-bearing Pecan Trees

Andrew Sawyer
Southeast District Area Pecan Agent

Angel Acebes
Former UGA Research Entomologist Extension Pecan Specialist

Young or non-bearing pecan trees are susceptible to a number of insect pests that can be damaging to newly established orchards.

This publication details the most common and important pests of young trees and their respective monitoring and management strategies.



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Ambrosia beetles

Granulate ambrosia beetles (formerly known as Asian ambrosia beetles) are small, invasive beetles that attack young pecan trees by boring into the trunks. The most reliable way to detect ambrosia beetle infestation is by checking for the presence of sawdust “toothpicks” sticking out of the bark (Figure 1). Granulate ambrosia beetle attacks are associated with stressed trees, diseased trees, and trees that are in poorly drained soil. Transplanted pecan trees can be susceptible to ambrosia beetle attacks due to stress, and generally, these pests do not attack healthy trees. Attacks generally occur in early spring: mid-February in south Georgia and late March in middle Georgia. This coincides with the beetle’s first flight of the season.

Monitoring

Using ethanol-baited traps is currently the best option for monitoring ambrosia beetle flight activity. To make a trap, drill a hole in the center of a bolt of wood and fill it with denatured alcohol (Figure 2). Deploy traps by early February along woodlines (~100 yards apart), as the influx of beetles will be coming from wooded areas. Traps should be placed about waist high above the ground. Check for the appearance of toothpicks every day, and refill the hole with denatured alcohol weekly. Monitor all orchards that have been established for less than three years.

Management

Once activity is detected, applying pyrethroid insecticides has proven most effective. Application should be repeated at frequent intervals (seven to 10 days, but immediately if it rains) until the trees have been completely flushed out. Individual trees that show signs of infestation (toothpicks) should be treated immediately using a drench application from a handgun. Quick action is vital for the best chance of saving the tree. It may be necessary for pecan growers to remove the plastic protective guards from the young trees in order to check for infestations and perform site-specific treatment.



▲ **Figure 1.** Sawdust toothpicks caused by AAB infestation.



▲ **Figure 2.** Ethanol-baited log trap used for AAB monitoring.

Pecan bud moths

Pecan bud moth is a sporadic and occasional pest of young trees, mostly affecting recently planted trees. The overwintering adult moth lays eggs on the twigs of young pecan trees in the spring. After hatching, caterpillars feed in new buds, in shoot apices, and on leaves, and bore into shoots. The damage is evident on expanding leaves, appearing as if the foliage were scorched (Figure 3). Severe damage can kill or deform young trees. Pecan bud moth completes development in about one month with as many as six generations in one year. Generally, the damage from the first and second generations is of most concern.



▲ **Figure 3.** Pecan bud moth damage on a newly transplanted tree. Detail: Curled leaves infested with bud moth.

Management

If bud moth activity is observed, apply insect growth regulators (IGR) to the leaves before larvae bore into the shoots. When damage is severe, growers can use a contact insecticide with retreatment every two to three weeks. Systemic diamide insecticides can also be used to protect new foliage for an extended period, requiring fewer retreatments.

May/June beetles

Adult May or June beetles are an occasional pest of young pecan trees (Figure 4). There are more than a dozen species, mostly in the genus *Phyllophaga*, capable of feeding on pecan and many other hardwood host species in the Southeastern U.S. The adult beetles feed on leaves and small stems and their damage to young pecan trees is common when surrounded by uncultivated land or pastureland. These beetles are active at night and can defoliate trees up to 5 or 6 years old (Figure 5). Most of their approximately annual life cycle is spent underground as grubs feeding on grass roots. Adults emerge and are active for a few weeks in late spring, feeding, mating, and laying eggs in the soil. It is during this period that pecans are susceptible to their attacks.

▼ **Figure 4.** Adult June beetle.
Photo: Steven Katovich, Bugwood.org



Management

Although research has shown that pyrethroids and carbaryl work well on adult May/June beetles, these options can be harmful to natural enemies, particularly when applied earlier in the season. Imidacloprid (neonicotinoid) may be a better choice. During moderate and high infestations, any of the abovementioned efficacious insecticides are good options. Heavy feeding on young (first- or second-year) trees can cause a serious reduction in growth, but light feeding on larger trees may not require control. Beetle feeding only lasts for a short period, so damaged trees can recover with proper management.



► **Figure 5.** Five-year-old tree defoliated by June beetles.
Photo: Will Hudson

Other borers: twig girdlers and flatheaded borers

Twig girdlers (Figure 6) are occasional pests of non-bearing pecan trees due to their ability to cause girdling and break off branches. Removing the broken twigs, which contain the developing larvae, will help reduce subsequent infestations.

Anecdotal reports in past years show that flatheaded borers (Figure 7) have caused damage to young pecan trees. The injury is characterized by darkened and sunken areas on the outside of the trees caused by larval feeding. On young trees, this could cause girdling and even tree death. Integrating neonicotinoid insecticides through irrigation lines can help protect susceptible trees to attacks by flatheaded borers.



◄ **Figure 6.** Injury caused by a twig girdler.
Detail: Adult twig girdler.
Detail photo: Clemson University, USDA Cooperative Extension Slide Series, Bugwood.org



► **Figure 7.** Detail: Flatheaded borer adult. Left: Injury caused by flatheaded borers on nursery trees. Right: Injury on a 4-year-old pecan tree two years after the initial attack.
Photos: (Left) Eric R. Day, Virginia Polytechnic Institute and State University, Bugwood.org
(Detail) Natasha Wright, Braman Termite & Pest Elimination, Bugwood.org



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