



BUG BIZ

Pest Management and Insect Identification Series



Conotrachelus nenuphar, Plum Curculio (Coleoptera: Curculionidae)

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Description

The plum curculio is a weevil that is an important pest of pome and stone fruits, such as plums, hawthorns, apples, peaches and crabapples. The adults are approximately 0.25 of an inch (5 mm) long, with a mottled brown appearance and rough surface texture. The modified forewings (elytra) cover most of the top surface and possess a dark central raised hump, alternating with a paler brown or cream-colored marking toward the rear of the body, but these colors are variable and not diagnostic for this species. As with the majority of weevil adults, the mouthparts are small and located at the end of a prolonged snout. The larvae are pale, legless, fat grubs slightly larger than the adults. They are rarely observed outside of the fruits of the host plants.

Plum curculio is a member of a large Western Hemisphere genus, *Conotrachelus*, with an estimated 1,000 species. Over 70 occur in the U.S. and Canada, including a number of undescribed species. Identification of most members of the genus to species requires a high level of taxonomic expertise.

Life Cycle

Plum curculio undergoes four developmental stages: egg, larva, pupa and adult. The larvae undergo four growth stages (instars). During spring, adults emerge from overwintering sites in forest ground cover and spread to host plants, including fruit orchards. As fruits develop, adult females lay eggs on the surface of fruits, typically laying them at night in small pockets produced by the egg laying apparatus (ovipositor). Infested fruits typically fall prematurely, and larvae develop within the fallen fruits. They exit as mature fourth instar larvae, then burrow into the soil to pupate through the remainder of the summer. After emergence, adults feed on the remaining damaged fruits and migrate to overwintering sites. An important behavior of this and many other species of



Plum curculio adult side view (Jennifer C. Girón Duque, University of Kansas, Bugwood.org).



Plum curculio adult top view (Jennifer C. Girón Duque, University of Kansas, Bugwood.org).

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Plum curculio feeding on southern blueberry (Jerry A. Payne, USDA Agricultural Research Service, Bugwood.org).

weevils is the tendency to “play dead” (thanatosis) when disturbed. This can be used to advantage when the “jarring” method of control described below is employed. In the northern parts of the range, a single generation is completed annually, but populations in the south may complete two or more.

Ecological Significance and Pest Status

Plum curculio is native to North America east of the Rocky Mountains and occurs as far north as southern Canada and as far south as the Gulf Coast. Plum curculio injury is of two types. First, feeding and egg-laying by the adults produce small scars on the surface of fruits. Second, larval feeding within the fruits causes internal tissue damage and premature fruit drop. Both cause economic losses in orchards. Plum curculio is a native insect in Louisiana, with records as far south as New Orleans, though the species is a more serious pest further north. The most serious economic damage in Louisiana is to peach orchards, with plums also heavily impacted. Farther north, apples are also targeted.

Control

Monitoring. Cleaning fallen leaves and dropped fruits as soon as possible prevents larval development and eliminates potential overwintering habitats. Monitoring for adults and applying insecticides early is important.

Once larvae enter fruits, few options exist that prevent production losses.

Jarring. Jarring is a mechanical control method against ovipositing females. Beating trees during early morning jars the adults, causing them to fall. Placing ground sheets under the trees will allow the adults to be collected and killed. Disturbed weevils remain motionless for some time after falling.

Chemical control. Insecticide sprays such as phosmet or carbaryl protect orchards by preventing overwintering adults from laying eggs. First applications are usually made at 75% petal fall, with two additional sprays after one or two weeks. For current chemical control recommendations, see the current LSU AgCenter Pest Management Guide. Always follow legally mandated label directions.

Management using nematodes. *Steinernema riobrave* is a predatory soil nematode that is the most effective biological control organism for plum curculio. In field trials conducted in peach and apple orchards across eastern United States, control of weevils following soil applications of *S. riobrave* consistently averaged greater than 92% control.

References

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Contact Us: For advice about arthropod identification or diagnosis, contact the LSU AgCenter Department of Entomology. Reach the department through the Contact Us webpage: <https://bit.ly/36c4awm>.



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PUB3835 (online) 10/22

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