

In this Issue:

Flatheaded Borer Damage in Pear Fruit

By Clebson Gonçalves, PhD, Diversified Agriculture Advisor

Cindy Kron, PhD, North Coast IPM Advisor and

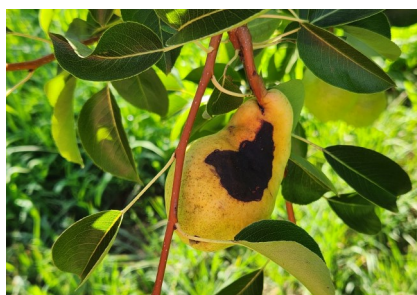
Flatheaded borers (family Buprestidae) are present worldwide with more than 15,500 known species. Many are considered serious pests in the United States with different species known to attack walnut, apple, pear, peach, apricot, plum, prune, cherry, as well as many other trees and shrubs (Fig. 1). At least 330 species of flatheaded borers occur in California. Also called jewel beetles or metallic wood-boring beetles, the larvae kill or weaken trees by girdling the trunks and lower branches. Flatheaded borers are attracted to stressed trees making them the most vulnerable.

Fig. 1. Adult Pacific flatheaded borer next to exit holes caused when the adult emerges from the wood. **Photo Credit:** Jack Kelly Clark



Last year (2023), Pacific flatheaded borer (*Chrysobothris mali*) larvae were found feeding on pear fruit in a few orchards in Lake County (First report by Broc Zoller, The Pear Doctor Inc. - PCA) (Fig. 2).

Fig. 2. Pacific flatheaded borer damage in pear fruit. **Photo Credit:** Clebson Gonçalves



Flatheaded borers often invade sunburned areas on the trunk of newly planted first-year trees. Since flatheaded borers are wood-feeding insects, this pest has generated a lot of curiosity among UC Cooperative Extension specialists, commodity advisors, integrated pest management advisors, and pest control advisers, as this family of insects had not been previously documented attacking any fruits.

In collaboration with the California Pear Advisory Board and professors from the University of Tennessee and Tennessee State University, we [UC Cooperative Extension Advisors] have taken all necessary steps to correctly identify this species via molecular diagnostics. Taxonomic identification was also performed from adults that were reared from larvae on artificial diet (Fig. 3). Adults were also reared from larvae that were left undisturbed in the pear fruits showing that this species can complete its life cycle on pear fruit alone. The results from molecular analysis and taxonomic identification confirmed this species as the Pacific flatheaded borer (*Chrysobothris mali*).

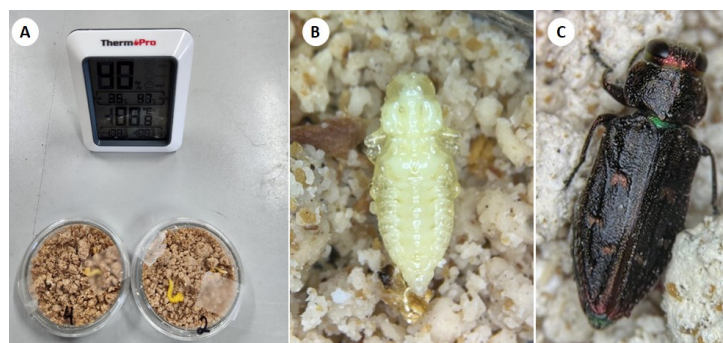


Fig. 3. Rearing Pacific flatheaded borer on artificial diet (A) Larval stage, (B) Pupal stage, and (C) Adult stage. **Photo Credit:** Clebson Gonçalves (A) and Cindy Kron (B,C)

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Codling Moth Damage versus Flatheaded Borer Damage

For the codling moth, larvae penetrate the fruit and tunnel to the core, leaving holes in the fruit that are filled with red-dish-brown, crumbly droppings called frass (*Fig. 4A*). The flatheaded borer damage tends to have a black spot on the sun side of the fruit and near the calyx with no external frass (*Fig. 4B*).

Fig. 4. (A) Codling Moth damage and (B) Flatheaded borer damage. **Photo Credit: Clebson Gonçalves**



Pear Fruit Injury

The borer more commonly enters via the calyx (*Fig. 5A*) and tunnels its way to the sunny side of the fruit (on the west side of the orchard), but it has also been observed to enter through the shoulder region and near the peduncle (*Fig. 5B*).

The severity of the fruit damage (black spot) increases as the larvae develop inside the fruit, creating a hardened chamber that keeps the larvae dry and warm inside (*Fig. 6*).

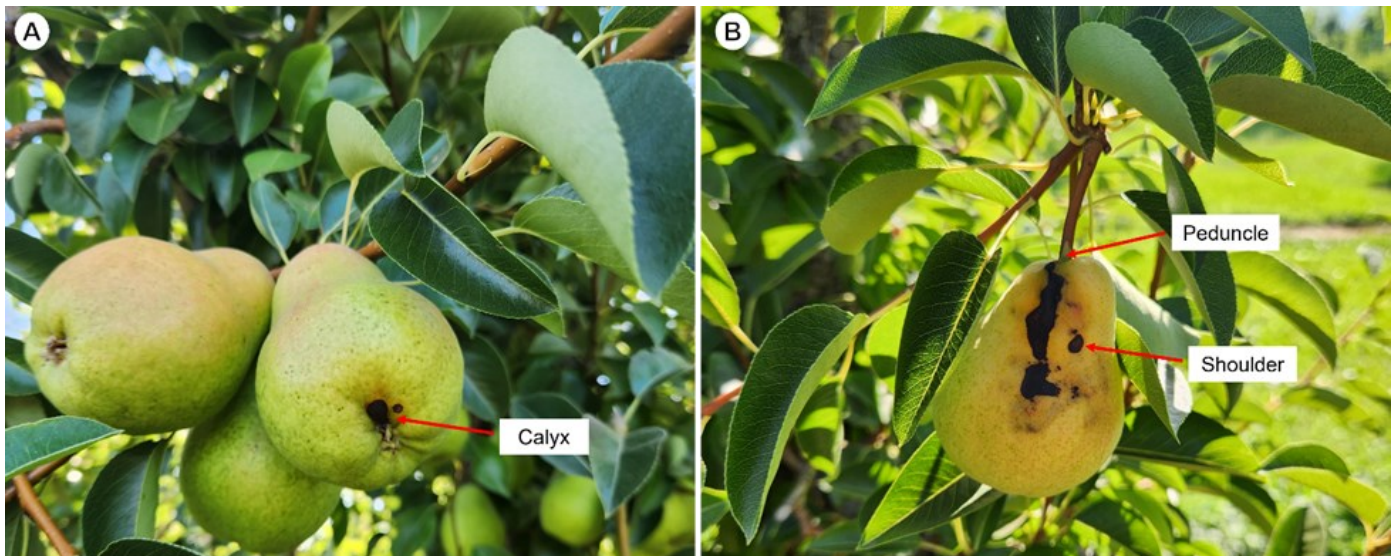


Fig. 5. The flatheaded borer entry point (A) calyx and (B) shoulder and peduncle. **Photo Credit: Clebson Gonçalves**

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Fig. 6. Flatheaded borer damage in pear fruit (different levels of injury). Photo Credit: Cindy Kron

We need your help!

This season (2024 growing season), we will continue to monitor the flatheaded borer to determine if the flatheaded borer in pear fruit was just an isolated incident or if we are dealing with a new pest. We are contacting pear growers to gain access to pear orchards to survey for the presence of the flatheaded borer so that we can have a better understanding of the distribution and the extent of damage being caused by this insect. In addition, pear growers and PCAs are encouraged to contact UC Cooperative Extension if they identify flatheaded borer damage in their pear orchards.

Acknowledgements:

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Please contact our UCCE offices with any questions Monday-Friday 8 am-5 pm;

THANK YOU ALL FOR YOUR SUPPORT!

Sincerely,

Clebson Gomes Gonçalves, PhD
Diversified Agriculture Advisor
UC Cooperative Extension
goncalves@ucanr.edu

Cindy Kron, PhD
North Coast IPM Advisor
UC Cooperative Extension
ckron@ucanr.edu