AMBROSIA BEETLE (AMB)

X. germanus, X. crassiusculus and other ambrosia species

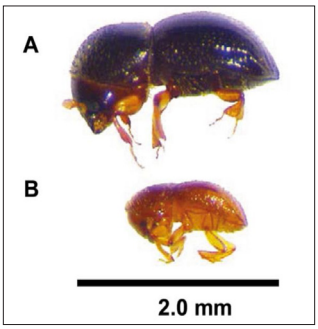
Description:

Adults:

Small beetles (up to 3 mm in length, depending on species) with dark brown cylindrical bodies. The head is hidden beneath the body and may only be viewed from the side or underneath. Like other insect species, the females are larger and darker in coloration than the males.

X. germanus adult females are dark brown to black with shiny bodies. Their length has been found to range from 2.0 to 2.4 mm.

X. crassiusculus adult females are reddish brown near the head and fade into a darker brown down the rest of their body. They appear duller than X. germanus. Their body length has been found to range from 2.1 to 2.9 mm.



Source: Adult X. germanus female (top) and male (bottom) (B. Anderson)

Eggs:

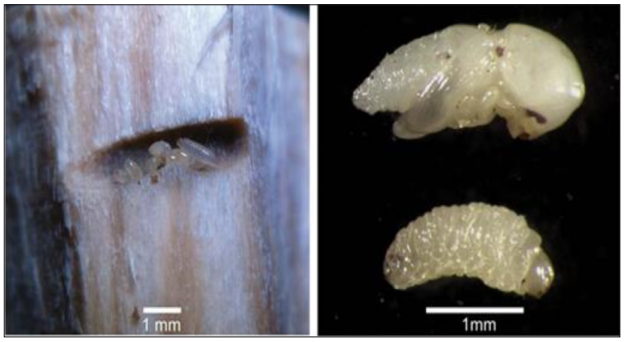
Eggs are shiny and translucent to white in appearance. They are less than 1 mm in width and length and are laid in the galleries that adult beetles create inside the tree. They will not be seen from the outside of the infested plant. *X. germanus* can lay up to 18 eggs per day while *X. crassiusculus* can lay up to 6 per day.

Larvae:

Larvae have long white bodies without legs, but develop rounder, curved body forms and their head capsule darkens slightly as they age. Larvae will undergo three instars during their development.

Pupae:

Pupae are white and range from 1 to 3 mm in length depending on sex. Wings, legs, and body are apparent.



Source: Left - Eggs in gallery tunnel (E. Barekzi)
Right - Pupa (top) and larva (bottom) (C. Ranger)

Hosts:

Ambrosia beetles have been reported to attack a variety of ornamental plants and fruit trees. Hosts for *X. germanus* and *X. crassiusculus* include over 200 species of woody plants, with an emphasis on deciduous species with thin bark. The ambrosia beetle targets plants and trees that are in a weakened state due to other factors such as drought or disease.

Damage:

- Infestation can result in dieback in plants, growth/aesthetic deformities, and plant death.
- Detection can be difficult, signs of infestation include small entry holes with toothpick-like projections, sap stains, wilting foliage, branch dieback with subsequent basal sprouting.

Source: Top Left - Toothpick projection (C. Ranger)

Top Right - Entry hole with sap stain (C. Ranger)

Bottom Left - Basal sprouting associated with upper branch dieback (C. Ranger)

Phenology:

- The life cycle may be completed in 42 to 60 days; however, offspring will typically wait to disperse until ideal environmental conditions are met, especially if overwintering.
- The first flight of spring dispersal will not occur until after the first two days of the season that average temperatures reach above 68˚F.
- Primarily, females disperse to initiate galleries in new hosts. This is typically the only time the insect will be seen as the rest of their life cycle takes place within the galleries formed in the host.
- Female ambrosia beetles inoculate host with fungal spores, which serve as the food source for all beetles living within the gallery.

Lure Type and Maintenance:

- PHEROCON® PEEL-PAK™ STK-TIGT™ lure
- Change lures every 12 weeks, depending on environmental conditions.

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Lure Storage:

- Store in unopened factory sealed packages in a cool place (< 74° F or 24° C maximum) for short periods or refrigerate longer term.
- DO NOT store in freezer.

Trap Design:

PHEROCON® AMBROSIA STKY™ CANOPY™ & PHEROCON® DUAL PANEL STKY™ trap

Placement Time:

- Monitoring and prevention are most effective when started from the first flight of the spring growing season, after two consecutive days of average temperatures above 68˚F
- Ambrosia beetle flights occur from spring to early fall

Placement Pattern:

- Place traps 1.0-5.5 ft (0.5-1.7 m) off the ground.
- Place traps along the perimeter of the growing area to intercept flight.

Trap Density (in non-disrupted orchards):

	Number of traps	*Acres*	*Hectares*
All crops	Minimum of 2 traps	≤ 10	≤ 4
	One trap per 5-10 acres (2-4 hectares)	10-100	4-40

Trap Maintenance:

- Check traps weekly.
- Record data.
- Replace trap liners every 6 weeks or when fouled with dust or insect debris.

Recommendations:

- Insecticidal treatments are only reliably effective prior to infestation, monitoring is the most important tool to decide when to treat. Once colonization of a tree or plant has occurred, the beetles will be safe from treatments until the adult progeny disperse.
- *X. germanus* and *X. crassiusculus* are most attracted to distressed, but living, hosts. Sanitization practices are important both inside and outside of the growing area to prevent attraction.

Note, always:

- Count and record captures as recommended.
- Change trap as needed.
- Discard lures in trash far from the area of use and remove trash afterwards.
- Follow recommendations.
- Contact local extension authorities and consultants for regional advice.

Sources: Recommendations and certain other sections were sourced from:

Christopher M. Ranger, Michael E. Reding, Peter B. Schultz, Jason B. Oliver, Steve D. Frank, Karla M. Addesso, Juang Hong Chong, Blair Sampson, Christopher Werle, Stanton Gill, Charles Krause, Biology, Ecology, and Management of Nonnative Ambrosia Beetles (Coleoptera: Curculionidae: Scolytinae) in Ornamental Plant Nurseries, Journal of Integrated Pest Management, Volume 7, Issue 1, January 2016, 9, https://doi.org/10.1093/jipm/pmw005

Kelsey N Tobin, Sandra Lizarraga, Rajendra Acharya, Apurba K Barman , Brent D Short, Angelita L Acebes-Doria, Monique J Rivera, Comparison of ethanol-baited trap designs for ambrosia beetles in orchards in the eastern United States, Journal of Economic Entomology, June 2024, 28, https://doi.org/10.1093/jee/toae145

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