

# Fusarium dieback on California avocado trees vectored by Polyphagous Shot Hole Borer (*Euwallacea* sp.)

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Both the fungus and the beetle were found on several backyard avocado (cv. Hass, Bacon, Fuerte, Nabal) trees in residential neighborhoods in Los Angeles and Orange Counties.

**Fusarium dieback symptoms:** White powdery exudate either dry or surrounded by wet discoloration of the outer bark in association with a single beetle exit hole (Fig. A-C). While there is no visible injury to the bark at this stage of colonization, examination of the cortex and wood under the infested spot bored by the beetle, reveals brown discolored necrosis caused by the fungus. (Fig. D).

**The beetle:** An exotic ambrosia beetle (*Euwallacea* sp.) is very small and hard to see. The beetle holes penetrate ~1-4 cm (0.4-1.57 inch) into the wood and there are often many exit holes on an infested tree (Fig. B). Females are black colored and about 1.8 – 2.5 mm (0.07-0.1 inch) long (Fig E, F (right)), males are brown colored and about 1.5 mm (0.05 inch) long (Fig F (left)). The exit hole on avocado is about 0.85 mm (0.033 inch).

**Background:** The Polyphagous Shot Hole Borer is an ambrosia beetle that has a symbiosis with *Fusarium* sp. and is a serious problem for the Israeli avocado industry. The Polyphagous Shot Hole Borer was first reported on black locust (*Robinia pseudoacacia*), Lychee (*Litchi chinensis*), Box elder (*Acer negundo*), but there were no reports of fungal damage.

**Known Hosts:** Box elder (*Acer negundo*), Avocado (*Persea americana*), Coast live oak (*Quercus agrifolia*), California Sycamore (*Platanus racemosa*), Castor bean (*Ricinus communis*), Black locust (*Robinia pseudoacacia*), English oak (*Quercus robur*), Bigleaf maple (*Acer macrophyllum*), Olive (*Olea europaea*), Peach (*Prunus persica*), Persimmon (*Diospyros* sp.), Goldenrain (*Koelreuteria elegans*), Mimosa (*Albizia julibrissin*), American Sweetgum (*Liquidambar styraciflua*), Wisteria vine (*Wisteria sinensis*),

**What to do:**

- Look for a single exit hole with surrounding white powdery exudate.
- Scrape off the bark layer around the infected area to see the canker.
- Follow the gallery to look for the beetle (may or may not be present).
- Avoid movement of infested avocado wood out of infested area.
- Look for other hosts (Castor bean, box elder, black locust, coast live oak) showing symptoms of the beetle/disease.
- Because the beetle tends to colonize both live and new dead wood, chip the dead wood within the grove and cover with a tarp for at least a week to prevent further beetle colonization
- Sterilize tools to prevent to spread of the disease with either 25% household bleach, Lysol® cleaning solution, or 70% ethyl alcohol.

**Who to contact if you find the problem:**

If you suspect that you have found this beetle or seen symptoms of the Fusarium dieback in your grove or surrounding areas in other host plants please contact either your local farm advisor, pest control advisor, county Ag Commissioner office or Dr. Akif Eskalen by either phone 951-827-3499 or email at akif.eskalen@ucr.edu . You can also call the CAC office at 949-341-1955.

