

Department of Primary Industries and Regional Development

# **Polyphagous shot-hole borer**

Polyphagous shot-hole borer (PSHB) is a beetle native to Southeast Asia. The beetles attack a wide range of plants by tunnelling into trunks, stems and branches. The beetle farms a fungus in these tunnels as a food source. The fungus spreads out from the tunnels, disrupting the flow of water and nutrients of trees. The tunnels and fungus can cause dieback and death.

Establishment of this pest in WA may have significant impact on amenity trees, native vegetation, and the fruit and nut tree industries.



# What damage does PSHB cause?





# Borer holes







Frass or noodles

# What trees does PSHB attack?



Maple (Acer)



Avocado (Persea)



Oak (Quercus)



Willows (Salix)



Plane trees (Platanus)



Castor Oil (Ricinus)



Coral trees (Erythrina)



Poplars (Populus)

# **Report PSHB damage**

DPIRD Pest & Disease Information Service (PaDIS) Ph: (08) 9368 3080 email padis@dpird.wa.gov.au

MyPestGuide<sup>™</sup> Reporter app via app or online mypestguide.agric.wa.gov.au

# More information

agric.wa.gov.au/borer

Source: University of California, <u>https://ucanr.edu/sites/pshb/resources/handouts/</u> Images: Pia Scanlon - DPIRD, University of California, FABI, Wikipedia

### Important disclaimer

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# **Polyphagous shot-hole borer (PSHB)** How to handle infested plant material at waste facilities

### **CURRENT OPTIONS**

Report any suspect PSHB damage to DPIRD - this will assist with ongoing surveillance to determine the spread of the pest. The guidelines outlined below describe methods for handling infested plant material. These methods can also be implemented as best practice for the handling of all plant material.

Live PSHB can continue to live in and emerge from infested wood - including the stump left behind after tree removal. Always follow-up tree removal with stump grinding. If relocating infested material, cover in-transit to prevent beetles from escaping. Ideally double bagged or in a tough storage tub.

Options for handling PSHB-infested plant material include:

- Cut logs and solarise
- Cut logs and kiln-dry

### SOLARISATION GUIDELINES

Solarisation is a suitable method for handling either infested chips or logs. When done properly, solar energy will heat plant material until both the beetle and fungi are killed. It is most effective during the peak of summer, when temperatures are higher and days are longer, but may be used during the rest of the year as long as time and space can be committed. Follow these tips for proper solarization:

- Use sturdy plastic sheeting/tarp (clear is recommended) that can withstand rain/wind
- Fully contain chips/logs by wrapping plastic both underneath and over the material
- During Summer: cover chips/logs with sturdy plastic for at least 6 weeks. Temperatures during these months should be regularly above 35°C
- During Autumn -Winter: cover chips/logs with sturdy plastic for at least 6 months
- Keep log/chip layers as thin as possible (2 logs deep maximum) to ensure even heating throughout the pile

### **COMPOSTING GUIDELINES**

When done correctly, composting can effectively control the plant pathogens that cause Fusarium Dieback. Composted, chipped plant material may then be repurposed as mulch or added back into soil to improve texture and water retention.

Waste can be treated at a hot composting facility if you are unable to compost the waste yourself.

### Requirements for adequate decomposition

These general composting guidelines will help assure the destruction of pathogenic fungi. Composting should ideally take place indoors, or in a covered environment. Open windrow composting is only allowed within the Quarantine Area.

- Woody material should be chipped to less than 2.5cm.
- A mixture of equal volumes of green plant and dry plant material will normally achieve a proper carbon-to-nitrogen ratio of 30 to 1.
- Do not add soil, ashes from a stove or fireplace, dairy or meat products, or manure from meat-eating animals.
- A pile should be in bins at least 1 x 1 x 1 meters to assure adequate heating. Maintain a temperature of 71°C, turn the pile every 1-2 days, and add nothing to it once the composting process has begun. If temperatures do not get up to 71°C within 1-2 days, the pile is too wet or dry. If too dry, add water. If not enough nitrogen, add green material.
- Healthy compost has a pleasant odour, gives off heat as vapor when turned, has a white fungal growth on the decomposing material, gets smaller each day, and changes colour to dark brown. Compost is ready when it no longer produces heat.





