Fact sheet

Polyphagous shot-hole borer

(*Euwallacea fornicatus*)

About polyphagous shot-hole borer (PSHB)

Polyphagous shot-hole borer (*Euwallacea fornicatus*) is a beetle native to Southeast Asia.

The tiny beetle bores into living trees creating tunnels and distinctive shot-hole exit holes. It is considered an agricultural and environmental pest with more than 400 host species, including horticulture production, native and amenity trees.

The adult female beetle is 2 millimetres long and tunnels into the tree's stems and branches, causing damage and dieback.

Polyphagous shot-hole borer

The PSHB has a symbiotic relationship with the *Fusarium* fungus, cultivating it inside the tree as a food source for the beetle and its larvae.

The fungus disrupts water and nutrient movement within the vascular system of susceptible trees, causing the disease Fusarium dieback. Symptoms are wilting and dieback of tree branches and leaves, often starting in the upper canopy.

Host trees

Trees in which the beetle can breed and multiply (referred to as reproductive host trees) include maple, oak, plane, coral tree, avocado and willows- link to the host list.

Eucalyptus, citrus, and olive trees are considered non-reproductive host trees. Therefore, the beetle will attack the tree but cannot complete its life cycle and breed—link to the host list.

If the borer spreads beyond urban amenity trees, it could impact the nursery, fruit, and nut tree industries. It may also have potential impacts on the forestry industry.

Spread

Natural dispersal occurs over relatively short distances, but the borer can spread long distances with the movement of infested trees, firewood, and green waste material. This includes whole plant parts, timber for construction, timber packaging, wood chips, or other material produced from host trees. This can occur via eggs, larvae or adults concealed within these items.

What to look for

The adult beetles and their larvae can be hard to spot as they are tiny and spend most of their lives inside the host tree. However, several signs indicate the borer could be present, including:

- multiple entrance holes on the trunk or branches that are up to 2 millimetres or the size of the tip on a ballpoint pen
- frass (powdery substance) extruding from the tree and crystalline foam, which look like sugar volcanoes exuding from the entry holes
- thick resin or sap on the tree's branches or trunk – this can sometimes push the beetle out of the gallery
- dark brown to black staining of the wood around entrance holes
- wilting and dying branches and eventually tree death. Symptoms usually start in the upper canopy.

Spring and autumn are when the beetle is most visible.

Polyphagous shot-hole borer in a maple tree.
All photos courtesy P Scanlon DPIRD, WA.

Exit holes in a tree created by polyphagous shot-hole borer

Importing PSHB host materials into South Australia

The PSHB is known to exist in the state of Western Australia. Plant material and wood timbers (round or sawn logs with or without bark, including firewood and wood chips) excluding structural timber products are prohibited from entry into South Australia without first meeting Condition 30 of the Plant Quarantine Standard (PQS)

Reporting

If you think you have found evidence of PSHB, please report it to PIRSA's Biosecurity SA division by:

Emailing a photo along with your contact details to PIRSA.BiosecuritySA@sa.gov.au

Calling the Exotic Plant Pest Hotline

EXOTIC PLANT PEST HOTLINE
1800 084 881

Visiting our website

pir.sa.gov.au