

THE EFFECT OF THE POLYPHAGUS SHOT HOLE BORER

on the Western Australian Nursery Industry

INTRODUCTION

The Polyphagus shot hole borer (PSHB), *Euwallacea fornicates*, is an invasive beetle species that has become a significant pest within Western Australia. Since its detection in the Perth suburb of East Fremantle, the beetle has spread to other areas of the Perth metropolitan area. Originating from Asia, PSHB has rapidly established itself across various regions, causing considerable concern for the local nursery industry. Its impact is multifaceted, affecting plant health, industry economics, and biosecurity measures.

A fungus was also found with the borer, and testing has determined it is a *Fusarium* species, which is closely related to *Fusarium variasi*. More detailed testing is being conducted by the Royal Botanic Gardens in Sydney to determine if it's an exotic species. Polyphagous shot-hole borer has a symbiotic relationship with the fungus *Fusarium euwallaceae*, which is used as a food source for the beetle and its larvae and can cause tree death; however, this species has not yet been identified in borers sampled to date in WA.

Trees in which the beetle is able to breed and multiply are referred to as reproductive host trees. Reproductive host trees include maple, oak, plane, coral tree, avocado and willows. The beetle attacks non-reproductive host trees, but the beetle does not establish galleries, also called tunnels. And the beetle does not breed in these trees. Non-reproductive host trees include eucalyptus, citrus, jacaranda, figs and olives.

In South Africa, where the Polyphagous shot-hole borer is established, the removal and treatment of dead trees in urban areas has caused significant economic impacts.



Close-up of the Polyphagus shot hole borer (PSHB), showing its small size and distinctive appearance. (DPIRD website)

THE CURRENT SITUATION

The National Management Group – responsible for directing eradication programs for exotic pests and diseases – met on 18 June 2025 and determined it was no longer technically feasible to eradicate Polyphagous shot hole borer from Western Australia.

A national Transition to Management (T2M) plan is now being developed to transition from the eradication response to a management phase from 1 July 2025.

The National Management Group's determination considered the latest scientific data and advice from plant biosecurity experts – highlighting the difficulty in early detection, control before reproduction and the lack of proven effective chemical treatments.

The department will lead the transition to management in WA to minimise the impact of shot-hole borer on Perth's tree canopy and help protect the State's horticultural industries.

Over the next 18 months, the department will work with industry, community and local government partners to build capacity to manage the pest.

IMPACT ON PLANT HEALTH

One of the primary effects of PSHB is the extensive damage it causes to a wide range of host plants, including many ornamental and urban species vital to the nursery industry. The beetle bores into tree trunks and branches, creating characteristic shot holes and tunnel networks. These tunnels often harbour symbiotic fungi, which further weaken the structural integrity of the plant and can lead to accelerated dieback and death of affected specimens.

ECONOMIC AND INDUSTRY IMPACTS

Economically, the presence of PSHB may lead to increased costs for nursery operators. These include expenses related to monitoring and early detection, applying control measures, and an additional task for inspection of plants at dispatch. There is an increased risk of exporting contaminated plant material, which has implications for trade, with stricter biosecurity regulations potentially restricting market access both domestically and internationally.

BIOSECURITY AND CONTROL MEASURES

From a biosecurity perspective, the establishment of PSHB highlights the importance of strict quarantine measures and industry compliance with biosecurity protocols. The Department of Primary Industries and Regional Development (DPIRD) in Western Australia has responded with a comprehensive suite of measures to prevent the spread of PSHB. These include strict quarantine regulations restricting the movement of potentially infested plant material across regions, with mandatory inspections and certifications required before shipment.

DPIRD has also expanded surveillance programs utilising visual inspections, trapping, and molecular diagnostics to detect early infestations. Once detected, control strategies involving physical removal of infested material, targeted chemical treatments, and ongoing research into biological control options are employed. Public and industry engagement is crucial, with DPIRD promoting education campaigns to encourage early reporting and sanitation practices such as sterilising tools and soil to prevent inadvertent spread.

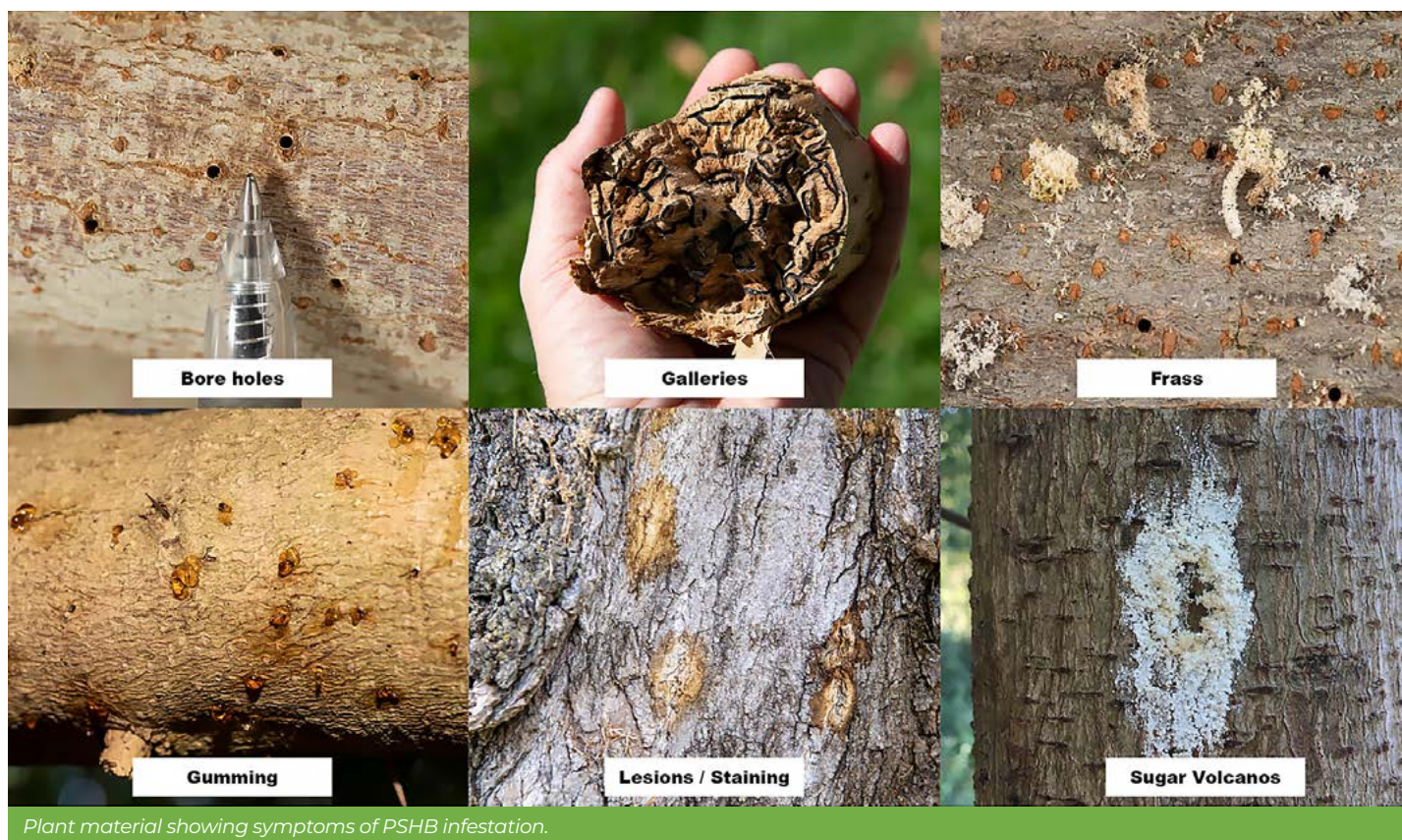
QUARANTINE AREA

The PSHB Quarantine Area (QA) will remain in place as a key measure to limit the spread of the pest. The QA covers the entire Perth metropolitan region, encompassing 30 local government areas across more than 6400km².

Movement Restrictions

To slow the spread, movement of PSHB material is restricted under the following rules:

- Movement of PSHB host material within the QA is discouraged.
- Movement of PSHB host material from within the QA to areas outside is prohibited.



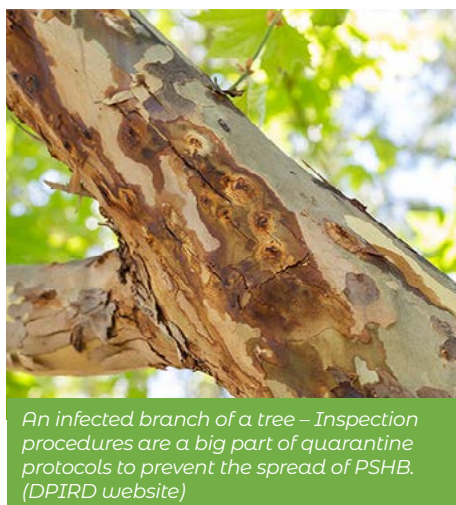
These restrictions apply to material such as tree prunings, mulch (>2.5cm diameter), unseasoned wood, and plants (>2.0cm diameter).

The national response to shot-hole borer has not stopped. The response will now enter a new phase that focuses on longer-term management of the pest.

An 18-month national Transition to Management Plan is being finalised which will outline how shot-hole borer infestations will be managed, and how its spread and impact on healthy trees will be limited.

The initial phase of the transition will focus on targeted management of shot-hole borer infestations to slow its spread and minimise the risk of spread beyond the Perth metropolitan area.

The Department of Primary Industries and Regional Development (DPIRD) will work closely with industry, community and local government partners to build



the knowledge, skills and capacity required to manage the shot-hole borer long term.

Further detail on the Transition to Management Plan will be made available shortly.

Early reporting of shot-hole borer, particularly in the outer metropolitan area, remains as important as ever and DPIRD is urging people to continue to look for and report signs

of the borer to the department through the MyPestGuide reporter app or the Pest and Disease Information Service.

The State Government is investing \$2.17 million towards new research which aims to improve detection, surveillance and control methods for shot-hole borer.

RESEARCH AND FUTURE STRATEGIES

Significant resources have been allocated to research aimed at improving detection and developing effective control agents, ensuring the industry's resilience. These efforts highlight the importance of collaboration between government agencies, industry stakeholders, and the community to combat PSHB effectively.

The WA Agricultural Research Collaboration research projects will explore improved surveillance and treatment options to support the



long-term management of shot-hole borer. These projects bring together scientific expertise from across the State's leading universities, DPIRD and CSIRO to investigate how the latest science, technology and learnings can assist in responding to this pest.

The more we can learn about shot-hole borer and its associated fungus, the better equipped WA will be to protect and support the State's urban tree canopy and horticultural industry.

The first research project, led by Curtin University, will develop predictive models and risk maps to help prioritise surveillance and control efforts, ensuring efficient resource allocation and enhanced decision-making.

The University of Western Australia will lead a project investigating innovative chemical and biological control strategies against the pest, as well as improved pest detection by identifying new chemical lures.

A Murdoch University-led project will further examine the host range of shot-

hole borer in WA and look at innovative technologies, such as remote sensing, AI-driven risk mapping and geospatial tools to improve early detection of the borer.

For more information about the WA Agricultural Research Collaboration Polyphagous Shot-hole Borer Research Program, visit the WAARC website.

DPIRD is committed to working with international and local scientists to support further research under WA conditions.

DPIRD continues to work with the City of Perth and the City of Vincent to explore treatment options used overseas to help minimise the loss of trees.

The trials, which started in October 2023, are being undertaken at several locations in known shot-hole borer infestation areas in the inner metropolitan area.

The research includes direct trunk injections and paint-on applications of insecticides on preferred host trees.

More work is required to determine the effectiveness of these measures to manage shot-hole borer infestations.

The City of Canning is also undertaking a study using systemically injected chemicals to manage shot-hole borer infestations in host trees.

DPIRD will continue to liaise with local governments about the results of other chemical trials being undertaken and any potential treatments that show signs of success in managing shot-hole borer.

DPIRD continues to keep the State's horticulture industries informed about shot-hole borer and the work being done to minimise the risk to horticulture production areas.

The Quarantine Area covering the entire Perth metropolitan area remains in place and movement restrictions for wood and plant material still apply.

The community's support is vital to help limit the spread of shot-hole borer. All Perth residents and businesses are urged to continue to follow the Quarantine Area restrictions.

CONCLUSION

In conclusion, the Polyphagus Shot Hole Borer poses a significant threat to the Western Australian plant industry at all levels. Its damaging effects on plant health, economic implications, and the necessity for robust biosecurity and management strategies underscore the urgency of ongoing vigilance and research to safeguard the future of horticulture in the region.

**IDENTIFICATION
INFORMATION HERE:
[HTTPS://PESTID.COM.AU/](https://pestid.com.au/)**

All growers are encouraged to report any signs of borers in host plants to the Exotic Plant Pest Hotline on 1800 084 881.

Instructions will be given on how to collect and submit samples for identification. Your cooperation will assist in delimiting the spread of this unwanted new pest species.

REFERENCES

- Department of Primary Industries and Regional Development (DPIRD) Western Australia. (2024). *Polyphagus shot hole borer*. Retrieved from <https://www.dpird.wa.gov.au/>
- For the latest updates and specific control programs, visit the *DPIRD PSHB webpage*.
- Past nursery papers – www.greenlifeindustry.com.au/communications-centre