

## MOVEMENT CONTROL ORDER NOTICE – POLYPHAGOUS SHOT-HOLE BORER AND CARRIERS

Pursuant to section 124 of the *Biosecurity Act 2014* (the Act), I make the following movement control order.

### 1. Why this movement control order is being made and what it is intended to achieve

This movement control order is being made to assist in preventing the entry of *Euwallacea fornicatus* (polyphagous shot-hole borer) into Queensland, on the basis that:

- polyphagous shot-hole borer has been detected within 25 Local Government Authority areas in Western Australia being City of Bayswater, Town of Bassendean, City of Belmont, Town of Cambridge, City of Canning, Town of Claremont, City of Cockburn, Town of Cottesloe, Town of East Fremantle, City of Fremantle, City of Gosnells (Localities of Beckenham, Canning Vale, Huntingdale, Kenwick, Langford, Maddington and Thornlie only), City of Joondalup (Localities of Duncraig, Greenwood, Marmion, Sorrento and Warwick only), City of Kalamunda (Localities of Forrestfield, High Wycombe, Perth Airport and Wattle Grove only), City of Melville, Town of Mosman Park, City of Nedlands, Shire of Peppermint Grove, City of Perth, City of South Perth, City of Stirling, City of Subiaco, City of Swan (Localities of Caversham, Guildford and South Guildford only), Town of Victoria Park, City of Vincent and City of Wanneroo (Localities of Alexander Heights, Girrawheen, Koondoola and Marangaroo only) (reference current Western Australia Quarantine Area Notice, 3 November 2022). These quarantine areas may change over time. Any change to the current situation in Western Australia, may be found on the Department of Primary Industries and Regional Development (DPIRD) website: <https://www.agric.wa.gov.au/borer>; and
- polyphagous shot-hole borer is a high-risk quarantine pest that can be introduced with unrestricted trade practices, has a high potential for establishment and spread and has a demonstrated ability to cause serious economic and ecological damage. Polyphagous shot-hole borer is therefore a serious risk to plant industries, urban amenity, and the environment in Queensland; and
- if movement control and prevention measures fail and polyphagous shot-hole borer enters Queensland, eradicating polyphagous shot-hole borer once it has entered Queensland will be costly and challenging; and
- polyphagous shot-hole borer can be spread on and within various carriers.

In this context, I consider it necessary to make this movement control order, to restrict the movement of polyphagous shot-hole borer and its carriers into Queensland, as I am satisfied, on reasonable grounds, that polyphagous shot-hole borer poses a biosecurity risk of enough seriousness, and the risk of entry, establishment and spread is high enough to justify the making of the order.

### 2. Details of the controlled biosecurity matter(s) and carrier(s) to which the movement control order relates

The movement control order applies to *Euwallacea fornicatus* (polyphagous shot-hole borer) and all of its known carriers, as detailed below.

#### *Controlled biosecurity matter (polyphagous shot-hole borer)*

The polyphagous shot-hole borer is a beetle considered to be native to Asia (China, Japan, Thailand, Vietnam), that has been introduced to Israel, South Africa, and the United States of America (California). Polyphagous shot-hole borer has been reported to form symbiotic relationships with several different fungal species in natural situations (i.e. countries of native distribution). However, in countries where it is an invasive pest of commercial crops and forests, polyphagous shot-hole borer is usually associated with *Fusarium* species, in particular *F. euwallacea*. In Western Australia, the *Fusarium* species identified in association with polyphagous shot-hole borer is currently undescribed. This species of *Fusarium* shares closest genetic similarity to species of *Fusarium* isolated from polyphagous shot-hole borer infecting avocado in Taiwan, and *E. euwallacea* (polyphagous shot-hole borer), *E. kuroshio* (Kuroshio

shot-hole borer) and *E. perbrevis* (tea shot-hole borer) in *Acacia crassicarpa* (northern wattle) in Indonesia.

Irrespective of the particular species of symbiont associated with polyphagous shot-hole borer, the adults cultivate fungi inside the tree as a food source for themselves and their progeny (larvae). The fungus disrupts water and nutrient movement within the vascular system of susceptible trees, causing dieback of branches or whole trees. Specifically, leaves and branches wilt and die with symptoms often appearing in the upper canopy first. In susceptible trees, death of the whole tree is common.

Both *E. fornicatus* and *F. euwallaceae* (Fusarium dieback) are amongst the highest risk rated species on the National Priority List of Exotic Environmental Pests, Weeds and Diseases (DAWE 2021).

In Australia, polyphagous shot-hole borer is currently restricted to Western Australia; with two previous suspect detections of polyphagous shot-hole borer in Queensland (2010 and 2017) subsequently determined to be tea shot-hole borer (*E. perbrevis*).

Polyphagous shot-hole borer has polygynous reproduction, i.e. one male mates with several females.

The adult female borer is very small, 2 millimetres long. After mating, adult female borers disperse to look for suitable host trees and have been reported to fly up to 400 metres, but distances of 35 to 40 metres are more usual. Spring and autumn are when the adult borers are most likely to be seen, when they move to new trees. A single mated adult female may lead to the establishment of a new population.

After establishing in a new location and depending on the *Fusarium* species cultivated by the polyphagous shot-hole borer, the host range of the pest is likely to change. As an example, in Western Australia, polyphagous shot-hole borer was recently found to infect mulberry and lime; neither of these plants have been reported as hosts overseas.

Polyphagous shot-hole borer attacks a very wide range of woody plants and is considered a pest of agricultural, environmental, and urban amenity trees. To date, more than 400 host species in 75 families have been reported, including horticulture production crops such as avocado and mango, plantation forestry, native forest, and urban amenity trees. Trees in which polyphagous shot-hole borer can breed and multiply (referred to as reproductive host trees) include but are not limited to avocado, coral tree, lime, maple, mulberry, oak, plane and willows. Trees attacked by polyphagous shot-hole borer where breeding galleries (tunnels) are not established are considered non-reproductive host trees, and include eucalyptus, some citrus and olive. It is important to note that the host range of polyphagous shot-hole borer continues to expand, especially when it is introduced to new locations, as has been demonstrated in Western Australia. It is thought that the particular *Fusarium* species cultivated by the polyphagous shot-hole borer can also impact its ability to infest new hosts. The detection of *Fusarium* species other than *F. euwallaceae* in association with polyphagous shot-hole borer in Western Australia, may explain the different host species impacted by the borers there.

Polyphagous shot-hole borer has the potential to establish and spread throughout Queensland, as demonstrated by the widespread distribution of the closely related tea shot-hole borer (*E. perbrevis*). Many currently known reproductive host species are distributed throughout Queensland, including some native *Acacia* and *Brachychiton* species and commercially produced avocado and mango.

As almost the entire lifecycle of polyphagous shot-hole borer occurs inside the host plant, infestations are well protected from changes in temperature and humidity, as well as any predators. The protection provided by the host tree makes control of polyphagous shot-hole borer with insecticides difficult, as only adult females leave the galleries.

No effective natural enemies of polyphagous shot-hole borer are reported in the scientific or technical literature from anywhere in the world, limiting the potential for biological control.

Establishment of this pest in Queensland is highly likely to have a significant impact on urban amenity trees, native vegetation, plantation forestry and fruit and nut tree crop industries.

## **Carriers**

Wood, living plants and wood machinery are considered carriers for polyphagous shot-hole borer (*E. fornicatus*).

The polyphagous shot-hole borer may be spread on any of the following carriers:

- (a) **Wood** means wood that is not treated, dried or seasoned. Treated, dried or seasoned (>6 months) timber or wood products that are in use for construction, fencing or furniture, packaging or pallets are not considered to be wood and are therefore not considered to be polyphagous shot-hole borer carriers. Wood does include green waste materials of plants with woody stems that are greater than 2.0 centimetres in diameter and that are not dried or seasoned including any cut branches, pruning's, or floral arrangements, bark, firewood, plant mulch or wood chips greater than 2.5 centimetres in diameter.
- (b) **Living plants** means any host plant (both reproductive and non-reproductive) or plant part (including plant cuttings) with woody stems or branches that are greater than 2.0 centimetres in diameter. For the purposes of this condition, plant material means all of the woody parts of the plant, excluding fruits, leaves or flowers. Up to date host list (reproductive and non-reproductive) is available on the Department of Primary Industries and Regional Development website: <https://www.agric.wa.gov.au/sites/gateway/files/PSHB-Global-Host-List.pdf>
- (c) **Wood machinery** means any vehicle, equipment or other mechanical apparatus of any kind that has been used in relation to arboriculture, wood mulching, wood chipping or handling of any other wood.

In this context, this movement control order applies to all of the above carriers.

### **3. The area to which the movement control order relates**

This movement control order relates to the entire State of Queensland.

### **4. The prohibitions and restrictions that must be complied with by persons to whom this movement control order applies**

- A. A person within the area to which the movement control order relates must notify an inspector appointed under the Act about:
  - (i) the presence of polyphagous shot-hole borer;

**or**

  - (ii) if the person reasonably suspects the presence of polyphagous shot-hole borer, the suspected presence of polyphagous shot-hole borer must be reported.
- B. A person must not move any polyphagous shot-hole borer carrier(s) listed in section 2 (a), (b) and (c) of this movement control order into Queensland unless they meet the following criteria:
  - (i) The polyphagous shot-hole borer carrier(s) were grown on or sourced from a property located in a State or Territory of Australia with no detections of polyphagous shot-hole borer.  
  
Under this condition, documentation that verifies the origin of the carrier may be requested.

**or**

  - (ii) The polyphagous shot-hole borer carrier(s) were grown on or sourced from a property located in a State or Territory of Australia for which an "area freedom certificate", issued by an officer responsible for agriculture for the State or Territory of Australia where the polyphagous shot-

hole borer carrier(s) were grown or sourced is currently in force certifying that all of the State or Territory of Australia is known to be free from polyphagous shot-hole borer.

Under this condition, documentation that verifies the origin (or history) of the carrier may be requested.

**or**

- (iii) The polyphagous shot-hole borer carrier(s) were grown on or sourced from a property located within that part of the State or Territory of Australia for which an “area freedom certificate”, issued by an officer responsible for agriculture for the State or Territory of Australia where the polyphagous shot-hole borer carrier(s) were grown or sourced is currently in force certifying that part of the State or Territory of Australia is known to be free from polyphagous shot-hole borer.

Under this condition, documentation that verifies the origin (or history) of the carrier may be requested.

**or**

- (iv) The polyphagous shot-hole borer carrier(s) were grown or sourced, treated, inspected, labelled and certified in accordance with the conditions prescribed in an approved accreditation program, administered by the department responsible for agriculture in the affected State or Territory of Australia.

The carrier(s) must be accompanied by an acceptable biosecurity certificate under section 413 of the Act certifying that the condition has been met. A copy of the biosecurity certificate(s) must be emailed to Biosecurity Queensland ([qld.plantquarantine@daf.qld.gov.au](mailto:qld.plantquarantine@daf.qld.gov.au)) at least 24 hours prior the arrival of the consignment to which it relates.

**or**

- (v) All polyphagous shot-hole borer carrier(s) as listed in section 2 (a), (b) and (c) of this movement control order in the consignment have been treated according to the following schedule prior to entry into Queensland:

Irrespective of the type of treatment applied, wood packaging material, apart from those not considered to be wood in section 2(a), must be made of debarked wood. For this standard, any number of visually separate and clearly distinct small pieces of bark may remain if they are:

- less than 2.0 centimetres in width (regardless of the length) or
- greater than 2.0 centimetres in width, with the total surface area of an individual piece of bark less than 5.0 centimetres square.

For methyl bromide treatment, the removal of bark must be carried out before treatment as the presence of bark on the wood may affect treatment efficacy. For heat treatment, the removal of bark may be carried out before or after treatment. When a dimension limitation is specified for a certain type of heat treatment (e.g. dielectric heating), any bark must be included in the dimension measurement.

### **Methyl bromide fumigation**

Wood packaging material containing a piece of wood exceeding 20 centimetres in cross-section at its smallest dimension must not be treated with methyl bromide.

(1) Treated by methyl bromide fumigation for a minimum of 24 hours at one of the following rates:

- a) 10°Celsius – 15.9°Celsius @ 64 g/m<sup>3</sup>; **or**
- b) 16°Celsius – 20.9°Celsius @ 56 g/m<sup>3</sup>; **or**
- c) 21°Celsius or above @ 48 g/m<sup>3</sup>; **and**

(2) Monitoring at regular intervals throughout the fumigation treatment to ensure minimum concentration is maintained at the following rates:

Starting temperature and dosage		Minimum concentration (g/m <sup>3</sup> ) at:			
Temperature	Dosage (g/m <sup>3</sup> )	2 hours	4 hours	12 hours	24 hours
10°Celsius – 15.9°Celsius	64	48	42	36	32
16°Celsius– 20.9°Celsius	56	42	36	32	28
21°Celsius or above	48	36	31	28	24

**and**

(3) The treated consignment must permanently bear a treatment symbol approved by the Chief Inspector, or delegate, placed in a visible location and containing the treatment date; **or**

The carrier(s) must be accompanied by an acceptable biosecurity certificate under section 413 of the Act certifying that the condition has been met. A copy of the biosecurity certificate(s) must be emailed to Biosecurity Queensland (qld.plantquarantine@daf.qld.gov.au) at least 24 hours prior the arrival of the consignment to which it relates.

**or**

#### **Heat treatment**

(1) The temperature of the core of the timber and/or product is measured at a minimum of 56°Celsius for at least 30 minutes; **and**

(2) The temperature of the core of the timber and/or product is regularly measured at maximum of 5 minute intervals verifying the temperature has not fallen below 56°Celsius throughout the treatment; **and**

(3) The treated consignment must permanently bear a treatment symbol approved by the Chief Inspector, or delegate, placed in a visible location and containing the treatment date; **or**

The carrier(s) must be accompanied by an acceptable biosecurity certificate under section 413 of the Act certifying that the condition has been met. A copy of the biosecurity certificate(s) must be emailed to Biosecurity Queensland (qld.plantquarantine@daf.qld.gov.au) at least 24 hours prior the arrival of the consignment to which it relates.

**or**

(vi) Host plants with a woody stem greater than 2.0 centimetres diameter when inspected in accordance with the following procedure:

(1) Inspected at a rate of 2 per cent or 600-unit (whichever is greater) prior to dispatch and

found to be free of signs or symptoms of polyphagous shot-hole borer infestation; **or**

(2) Plants inspected and found to be free of signs or symptoms of polyphagous shot-hole borer and treated with preventative cover sprays of bifenthrin at four (4) weekly intervals, with the last treatment applied within four (4) weeks prior to export from the quarantine area. Treatments must be applied in accordance with all Australian Pesticides and Veterinary Medicines Authority (APVMA) permit conditions or label requirements.

The carrier(s) must be accompanied by an acceptable biosecurity certificate under section 413 of the Act certifying that the condition has been met. A copy of the biosecurity certificate(s) must be emailed to Biosecurity Queensland (qld.plantquarantine@daf.qld.gov.au) at least 24 hours prior the arrival of the consignment to which it relates.

**or**

(vii) All machinery and equipment used in the production of any polyphagous shot-hole borer carrier has been treated according to the following schedule:

(1) Washed and cleaned free of biosecurity risk material by brushing, high pressure water or steam.

The carrier(s) must be accompanied by an acceptable biosecurity certificate under section 413 of the Act certifying that the condition has been met. A copy of the biosecurity certificate(s) must be emailed to Biosecurity Queensland (qld.plantquarantine@daf.qld.gov.au) at least 24 hours prior the arrival of the consignment to which it relates.

- C. A person within the area to which this movement control order relates must allow an inspector appointed under the Act or a person under the direction of an inspector appointed under the Act:
- (i) to inspect or test any polyphagous shot-hole borer carrier(s);
  - (ii) to treat or destroy any polyphagous shot-hole borer carrier(s); or
  - (iii) to clean or disinfest any place, including any structure or thing at a place.

## **5. Period of the order**

The movement control order is effective from 1 June 2023 and will stay in force for three months unless earlier revoked.

## **6. Revocation of previous movement control order**

This movement control order replaces the movement control order relating to Polyphagous-shot hole borer that was signed on 21 February 2023 and commenced on 1 March 2023 (the Previous MCO).

## **7. Authorisation**



Signed

10 May 2023

Date of Authorisation

**Robert Gee**  
**Director-General**  
**Department of Agriculture and Fisheries**