EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION
ORGANISATION EUROPEENNE ET MEDITERRANEENNE POUR LA PROTECTION DES PLANTES

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This PRA document was modified in 2021 and 2025 to clarify and adjust the phytosanitary measures recommended

Report of a Pest Risk Analysis for *Oemona hirta*

This summary presents the main features of a pest risk analysis which has been conducted on the pest, according to EPPO Decision support scheme for quarantine pests (PM 5/3(5)). The full PRA record is also available (see under references)

Pest: ***Oemona hirta***
PRA area: EPPO region
Assessors: Expert Working group for PRA for *Oemona hirta*

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In addition, comments were received from Dr Christian Cocquempot (INRA, Montpellier, France) and Dr Matteo Maspero (Fondazione Minoproprio, Vertemate con Minoprio, Italy).

EPPO Secretariat
Ms Muriel Suffert
Ms Fabienne Grousset – Consultant for EPPO who has prepared the draft PRA.

Date: 2012-05-29/06-01. Core members (Mr Fried, Mr Guitian Castrillon, Ms Le Fay-Souloy, Ms Levi, Mr MacLeod, Ms Petter, Mr Pfeilstetter, Ms Schrader, Mr Sletten, Mr Steffek, Ms Ustun) reviewed the draft PRA between October and December 2012. The risk management part was reviewed by the Panel on Phytosanitary Measures on 2013-03-06. The Panel recommended that management measures should also be elaborated for wood commodities. The Working Party on Phytosanitary Regulations agreed in June 2013 that *O. hirta* should already be recommended for regulation with measures for the most risky pathway (plants for planting). The Panel drafted measures for wood, wood chips and wood waste in March 2014 and they were approved in June 2014.

STAGE 1: INITIATION

Reason for doing PRA: Following findings of *O. hirta* in the UK on *Wisteria* plants, and the conclusions from a rapid assessment (FERA, 2010) that a more detailed PRA was needed, the Working Party on Phytosanitary Regulations decided in 2011 that a PRA should be performed for the whole of the EPPO region.

Taxonomic position of pest: Insecta: Coleoptera: Cerambycidae
Genus: *Oemona*
Species: *hirta* (Fabricius, 1875)

STAGE 2: PEST RISK ASSESSMENT

PROBABILITY OF INTRODUCTION

Entry

Geographical distribution:
(see PRA record for references)

EPPO region: Absent.
Oceania: New Zealand (throughout the country)

Major host plants or habitats:
(see PRA record for references)

Oemona hirta is extremely polyphagous. Its original hosts were native New Zealand plants but it now includes a large number of species that have been introduced into New Zealand. *O. hirta* is recorded as being the insect with the highest number of host plants in New Zealand (Plant SyNZ, 2011): over 200 host species from 81 families are considered as host plants.
Hosts on which damage has been reported frequently are as follows:

- Fruit species: *Citrus* spp., persimmon (*Diospyros kaki*), grapevine (*Vitis vinifera*), apple (*Malus* spp.)
- Non-fruit species: poplar (*Populus* spp.), gorse (*Ulex europaeus*).

Which pathway(s) is the pest likely to be introduced on:

- **Plants for planting (other than seeds) of host species from New Zealand**

Eggs may be present on the bark, on wounds at the surface of the wood, at leaf and branch junctions. Larvae of all ages and pupae may be present, mostly in twigs and branches but also in stems. Cuttings/budwood is also covered as they may carry eggs and small larvae. This pathway was considered moderately likely with a medium uncertainty. The pest was intercepted on Wisteria plants for planting from New-Zealand in the UK.

Pathways identified but considered currently very unlikely (but that will present risk if trade increases):

- **Wood (round or sawn, with or without bark) of host plants from New Zealand**

Larvae and pupae may be present and survive in the wood. However, the likelihood of entry on wood is rated as very unlikely because of the very low volumes of wood imports from New Zealand, and low likelihood of association (as the pest is mainly present in branches).

- **Wood chips and wood waste from New Zealand**

This pathway is considered as very unlikely. In New Zealand, wood chips

are made from trunks and not branches, mostly of pine wood, and on the few occasions that *O. hirta* has been found in pine, it has been in the branches rather than in the trunks. The trade of wood chips to the PRA area from New Zealand is considered extremely minimal (only one import of less than 1 tonne over the last 10 years) and it is considered unlikely that the trade of wood chips from New Zealand will increase because of the cost of shipping.
The trade of wood waste is also limited although it has increased recently. The risk depends mainly on the type of waste wood that it traded. However, it may be similar to the risk of rough wood.

Other pathways identified but considered very unlikely

- **Wood packaging material from New Zealand**

Larvae and pupae may be present in wood packaging material but they need a sufficient humidity level to allow development. It is considered that the implementation of ISPM 15 address the potential risk.

- **Movement of individuals, shipping of live beetles, e.g. traded by collectors.** Cerambycidae are widely collected and *O. hirta* may circulate between hobbyist entomologists but are most likely to be sent dead.

- **Cut foliage and cut roses from New Zealand.** Eggs and larvae may be present on and in cut foliage but there is no indication that the host species considered are used for such purpose, nor that there is a trade to the PRA area from New-Zealand. In addition, cut branches would be too small for the larvae to complete their development and transfer to a host where the pest could complete its life cycle would be improbable**.**

- **Wooden objects made from wood of host plants from New Zealand**. Larvae could be present in such objects, although processing may destroy them. In addition desiccation would impair their development. This pathway is considered very unlikely and there is not enough information to consider it in detail.

- **Hitch-hiking.** There is no indication that this would be a relevant pathway for intercontinental movement of the pest. In New Zealand, a live adult of *O. hirta* was intercepted at one occasion on a used utility vehicle from Japan. It is assumed that it had become associated with it after its arrival in New Zealand. *O. hirta* does not present any ecological features that would favour hitch-hiking (e.g. attraction to light in loading sites).

- **Bark of host plants from New Zealand.** Eggs may be associated with bark. Processes used to produce the bark commodity may destroy eggs, and these would also be exposed to desiccation. If larvae emerged, they would not find wood to feed on. Finally, there is no indication that there is a trade from New-Zealand.

Establishment

Plants at risk in the PRA area:

Most host species and genera attacked by *O. hirta* occur in the PRA area. They are grown for fruit production (commercially or in gardens), for ornamental purposes (private and public gardens, landscaping, cities), occur naturally or are planted in forests, including in commercial plantations. Some of the hosts or other species in the same genera grow in the wild over large areas (e.g. poplar, oak, gorse, broom, birch, etc.) in the PRA area. In general, although there are hosts of *O. hirta* in any parts of the EPPO region, there are more hosts in the southern part of the PRA area, and more under commercial cultivation, than in the northern part.
It is considered that *O. hirta* could increase its host range if it was introduced in the PRA area.

Climatic similarity of present distribution with PRA area (or parts thereof):

The similarities between the climate in areas of New Zealand in which *Oemona hirta* has been recorded and the climate in the EPPO region, suggest that large parts of the EPPO region would be climatically suitable for the pest. There are no published studies on the climatic tolerances of *Oemona hirta* therefore it is difficult to make confident predictions about whether the beetle would be able to survive in areas which do not have a similar climate to New Zealand. The warmer parts of the PRA area are expected to allow more rapid build-up of populations.

Characteristics (other than climatic) of the PRA area that would favour establishment:

Areas with high densities of host plants are more favourable than areas of low density. For example, it is expected that higher populations of *O. hirta* will occur in hardwood forests and monocultures of *Citrus*, than in forests with mainly conifers.

Which part of the PRA area is the area of potential establishment:

Climatic conditions are considered appropriate in most of the PRA area and there are numerous hosts in a variety of habitats, including in commercial cultivation.

POTENTIAL ECONOMIC CONSEQUENCES

How much economic impact does the pest have in its present distribution:

The economic importance of *O. hirta* in New Zealand is due to attacks on exotic plants grown in orchards, and plantations, and in gardens (such as citrus, poplar, persimmon, grapevine, apple, etc.). It was considered as very destructive when citrus orchards were first established and the pest started attacking citrus (Hudson, 1934). Nowadays, *O. hirta* is not considered as an important pest in New Zealand, except in *Citrus* spp., where it has, at most, a moderately negative effect. The pest affects the fruit-bearing wood, can compromise fruit production and affect the longevity, vigour and yield of the tree. *O. hirta* is the main insect pest of poplars in New Zealand and has caused losses in both poplar and tree willow pole production nurseries.

Describe damage to potential hosts in PRA area:

The damage is caused only by larvae, which bore into the wood soon after hatching, creating tunnels in the branches or stems. Small twigs are mined and killed by young larvae, resulting in clusters of dead leaves in summer.
Older larvae mine in larger branches and, to a lesser extent, main stem. This may cause branch breaking, with wind or fruit load, as well as stem death in some cases.
Even if *O. hirta* does not generally kill its hosts, it may cause a degradation of the productivity of fruit trees over several years. In the southern part of the PRA area, the pest may have an annual life cycle, which will increase damage. The impact has the potential to be massive for individual growers in case of outbreaks in vulnerable crops such as citrus, grapevine or apple. In New Zealand, it has been suggested that natural enemies contribute to keeping populations under control. However, only three natural enemies have been specifically identified. They are not known to occur in the PRA area.

How much economic impact would the pest have in the PRA area:

In areas where *O. hirta* could establish, the pest would attack Citrus spp. poplars, and other crops and plants in the natural environment, commercial orchards, gardens, plantations and urban areas. There are few control measures available. Uncertainty on impact is medium as it is not clear why impact of the pest in New-Zealand is more limited now than some decades ago, and the pest may thrive better in the absence of its natural enemies.
If it is introduced and spreads to natural environments, *O. hirta* is expected to have moderate environmental impact in the PRA area. Many hosts of *O. hirta* are native in the PRA area and are common in the environment.

However *O. hirta* is not expected to kill healthy plants.

CONCLUSIONS OF PEST RISK ASSESSMENT

Summarize the major factors that influence the acceptability of the risk from this pest:

O. hirta is a pest of important fruit and forest trees grown in the PRA area. It is extremely polyphagous. It may attack healthy trees. Eradication or containment would be unlikely due to the hidden life stages of the pest and the fact that it might not be detected before it has already established and caused damage. It is also very likely that the pest would spread (natural spread as it is a strong flier; human-assisted through movement of infested material).

Estimate the probability of entry:

The probability of entry is considered **moderately likely** with a medium uncertainty. However the pest has been found in imported *Wisteria* plants in the UK in 1983 and 2010. It was considered that currently the only relevant pathway for entry was plants for planting.
There is uncertainty regarding the volumes imported into the PRA area (although they are considered to be low), as well as for the association of the pest with the pathways at origin. Low volumes of imports are the main reason for the low likelihoods of entry attributed to the pathways. However if trade of wood, wood chips and wood waste increase, entry is also possible with these commodities. Therefore requirements have been defined for them too.

Estimate the probability of establishment:

The probability of establishment is **high (with a medium uncertainty)**. Climatic conditions are considered appropriate in most of the PRA area and there are numerous hosts in a variety of habitats. The uncertainty is linked to the lack of knowledge on the pest biology (e.g. possibility to establish in the colder or hot-dry parts of the PRA area).

Estimate the probability of spread:

The overall rate of natural spread is low-moderate and the spread by human means is very high. Satellite populations may be established in multiple locations through human spread, but natural spread from these outbreaks will be relatively slow. The overall rate of spread (i.e. increase in infested area) is rated as **moderate with a high uncertainty** as it is difficult to know if spread will occur naturally or via human assistance.

Estimate the potential economic impact:

The potential economic impact is considered as **moderate with medium uncertainty**. The whole area of potential establishment is at risk of an economic impact. *O. hirta* is likely to have moderate to major economic impact for *Citrus* spp. and persimmon. On other crop species, it is expected to have generally minor economic impact, although major impacts cannot be excluded in the case of local outbreaks on crops such as grapevine. The southern part of the PRA area where *Citrus* sp. are grown is most endangered.

Degree of uncertainty

The main uncertainties are :

- Whether the impact in the warmest parts of the PRA area on *Citrus* spp. could be worse than in New Zealand because of a faster rate of development of *O. hirta*, and because of hot and dry conditions.
- Hosts: if certain native cultivated species in the PRA area will be very susceptible.
- The contribution of natural enemies to the control in New Zealand, and the possible natural enemies in the PRA area.
- Ecoclimatic conditions: whether it would adapt to climatic conditions that are present in the PRA area but not in New Zealand (e.g. colder winters, or warmer drier summers)
- Actual yield losses in New Zealand, especially on *Citrus* spp.

OVERALL CONCLUSIONS Introduction of the pest in the PRA area is rated as moderately likely. Interceptions have already occurred. Early detection of an outbreak is unlikely and eradication or containment of this pest would therefore be difficult.

STAGE 3: PEST RISK MANAGEMENT

IDENTIFICATION OF THE PATHWAYS

Pathways studied in the pest risk management

- **Plants for planting (other than seeds) of woody dicotyledons**

Because of the wide host range of *O. hirta*, the EWG discussed which plants for planting or categories of plants for planting these measures should be applied to. The EWG recommends that the measures could apply to all woody dicotyledons, because the hosts that are mainly attacked in New Zealand are woody dicotyledons, the pest has a constantly expanding host range within the group of woody dicotyledons, and consequently the current host list is likely to be incomplete. In contrast, the findings on other plant species (including conifers, monocotyledons such as palms and bamboos, non-woody dicotyledons) have been extremely rare; therefore the risk associated with trading these plants is judged to be very low.

- **Wood, wood chips and wood waste of host plants**

Measures were not identified by the EWG for the wood pathways (wood, wood chips and wood waste), as *O. hirta* was considered very unlikely to enter on these pathways currently. However, the Panel on Phytosanitary Measures noted that the main reason for the low probability of entry was because of low volumes of import. As this may change in future, the management measures for wood commodities are recommended.

IDENTIFICATION OF POSSIBLE MEASURES

- **Plants for planting (other than seeds) of woody dicotyledons**

Measures related to the crop or to places of production:

- Visual inspection is not sufficient as a standalone measure to detect all life stages of the pest.
- Treatment of the plants will reduce infestation levels but cannot guarantee pest freedom.

- Pest free area. Establishment of PFAs in New Zealand is not considered possible because the pest is present throughout the country. This option is recommended for countries where the pest is not known to occur.
- Pest free place of production/production site: The plants should be under complete physical protection throughout their life (including rootstock and mother stock from which cuttings are taken. They should be inspected during the growing season and also prior to export. Facilities should be officially authorized.

Measures related to consignments:

- Visual inspection is not sufficient as a standalone measure to detect all life stages of the pest.
- Treatment: no specific data is available. Fumigation with methyl bromide may be effective against borers in deciduous woody dormant plants but this measure is not recommended because methyl bromide will be phased out in 2015 and its use is not favoured in many EPPO countries because of its environmental consequences.
- Post-entry quarantine (for high value material): This requires keeping the plants in post-entry quarantine for a sufficient time to detect the symptoms of larval activity (ejection holes and frass). A period of 3 months at 15°C is appropriate. Regular inspections should be performed. This is applicable only to small consignments.

Systems approach

No measures could be combined to achieve a sufficient level of protection.

- **Wood of host species, Harwood wood chips, Hardwood wood waste:**

Measures related to the crop or to places of production:

- Visual inspection is not sufficient as a standalone measure to detect all life stages of the pest.
- Pest free area. Establishment of PFAs in New Zealand is not considered possible because the pest is present throughout the country. This option is recommended for countries where the pest is not known to occur.

Measures related to consignments:

- Visual inspection is not sufficient as a standalone measure to detect all life stages of the pest.
- Treatment:
  - For wood: heat treatment (at least 56 °C for at least 30 min) or irradiation (1kGy) would in principle be

effective but data are needed to define the exact schedule for the heat treatment and it may not be cost-effective for low value wood such as firewood
- For particle wood and wood waste: heat treatment (at least 56 °C for at least 30 min) or chipped to pieces less than 2.5 cm in any dimension or to 1.5 cm in 2 dimensions

Remark: Other fumigants than methyl bromide may be effective but no pest-specific data was identified in the PRA record.

- Import for processing at specific time of the year (only in the framework of a bilateral agreement). This should be done under special licence/permit and specified restrictions. Wood could be imported during periods of the year outside of the flight period of *O. hirta* species, and be processed before the next flight period of the pest, provided that conditions in storage do not allow emergence of the pest (e.g. temperatures below 10°C as Dye (1950) reported adults to be quiescent at 12.7°C although there are some uncertainty about the exact threshold, see PRA record). The requirements would need to be adapted to the origin and to the destination. Waste or by-products from this wood should also be managed before the next flight period in such a way as to prevent adult emergence.

This measure would be difficult to implement and control in practice. It does not apply to wood for furniture, and is not appropriate for firewood.

Remark: In 2023, the Panel on Quarantine Pests for Forestry (P QPF) noted that there is a risk of reinfestation during transport for potted plants and bonsais because stressed plants are attractive to Cerambycidae beetles (it is not likely that other plants would be exported during the main flight period of the adults). However, in absence of sufficient data concerning the risk of reinfestation, the Panel on Phytosanitary Measures and the P QPF (2024-10) supported that storage/transport requirements are not introduced into the PRA for plants for planting.

Systems approach

No measures could be combined to achieve a sufficient level of protection.

EVALUATION OF THE MEASURES IDENTIFIED IN RELATION TO THE RISKS PRESENTED BY THE PATHWAYS

The measures identified (pest-free place/site of production under complete physical protection and post-entry quarantine) would be likely to have a large impact on the trade from New Zealand because the measures will have a high cost in relation to the value of the plants. The measures may only be economically feasible for high value material such as bonsais or breeding material.

Degree of uncertainty Uncertainties in the management part are:
- Natural spread capacity of the pest (and possible buffer zones)
- Efficacy of treatment of the crop or of the consignment (e.g. fumigation insecticides for plants for planting

IDENTIFICATION OF POSSIBLE MEASURES

Plants for planting (other than seeds) of woody dicotyledons	• Pest free area (see requirements above) (ISPM 4, ISPM 29) **OR** • Produced under a pest free place/site of production under physical protection (according to EPPO Standard PM 5/8[1]) + regular inspections of the crop + inspection of plants prior to export **OR** • Post-entry quarantine for 3 months at minimum 15°C (only for small consignments) in the framework of a bilateral agreement
Wood of host species	• Pest free area (ISPM 4, ISPM 29) or • Treatment (heat, irradiation)

[1] The Standard PM 5/8 was not available at the time of the PRA. A reference to this Standard is only added to the recommended measures.

	or • Import for processing at specific time of the year (only in the framework of a bilateral agreement)
Harwood wood chips Hardwood wood waste	• Pest free area (ISPM 4, ISPM 29) or • Treatment (chipped to pieces of less than 2.5 cm in any dimension or to 1.5 cm in 2 dimensions) or • Heat treatment (56°C for 30 min) or • Import for processing at specific time of the year (only in the framework of a bilateral agreement)

References

See PRA Record (25-30306) EPPO (2014) Pest risk analysis for *Oemona hirta*. Lastly revised in 2025. EPPO, Paris. Available at http://www.eppo.int/QUARANTINE/Pest_Risk_Analysis/PRA_intro.htm