



Department
for Environment,
Food & Rural Affairs

Plant Pest Factsheet

Lemon tree borer

Oemona hirta

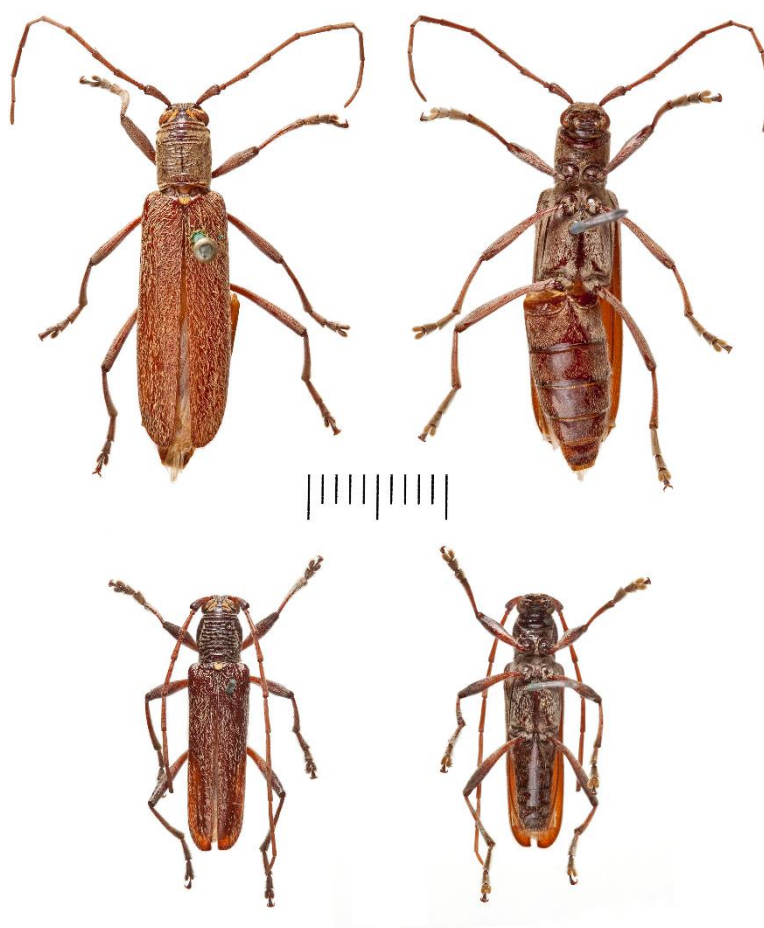


Figure 1. *Oemona hirta* Top row female; bottom row male. Scale bar
= 1 cm Image © The Natural History Museum London

Background

The lemon tree borer (*Oemona hirta*) is a longhorn beetle native to New Zealand, where it is a common species and a significant economic pest.

In the UK, the first known interception of this insect occurred in October 1983, when a single live larva was found inside a *Wisteria* plant. In June 2010, multiple *Wisteria* rootstocks imported from New Zealand to a nursery in Worcestershire were discovered to be infested with *O. hirta* larvae and subsequently destroyed. The following month, another live larva was detected in a *Wisteria* plant in Cheshire, which was linked to the previous case through the supplier.

Several consignments of *Wisteria* rootstocks from the same supplier were sent to other UK nurseries and examined for signs of infestation, but no further evidence was found. Since these incidents, there have been no additional interceptions or reports of *O. hirta* in the UK.

Geographical Distribution

Oemona hirta is native to New Zealand and found throughout both islands.

Host Plants

The lemon tree borer can feed on a wide variety of plants and is recorded from more than 230 different species of trees and shrubs, mainly broad-leaved species, in 134 different plant genera. Within its natural range, it infests both native and introduced plant species from Europe and beyond.

Some of its known host genera include *Acacia*, *Acer*, *Aesculus*, *Albizia*, *Aleurites*, *Alnus*, *Aristotelia*, *Asparagus*, *Betula*, *Brachyglottis*, *Callistemon*, *Casimiroa*, *Cassinia*, *Castanea*, *Chaenomeles*, *Choisya*, *Chrysanthemoides*, *Citrus*, *Clerodendrum*, *Cornus*, *Corylus*, *Crataegus*, *Cyphomandra*, *Cypressus*, *Cytisus*, *Dahlia*, *Eucalyptus*, *Euonymus*, *Fagus*, *Ficus*, *Hibiscus*, *Hoheria*, *Juglans*, *Koelreuteria*, *Leptospermum*, *Ligustrum*, *Macadamia*, *Malus*, *Oleana*, *Persea*, *Phyllostachys*, *Pinus*, *Platanus*, *Populus*, *Prunus*, *Pyrus*, *Quercus*, *Rhus*, *Ribes*, *Rosa*, *Salix*, *Syringa*, *Syzygium*, *Tamarix*, *Telopea*, *Tilia*, *Ulex*, *Ulmus*, *Vaccinium*, *Verbascum*, *Vitex*, *Vitis*, *Wisteria*, and *Zelkova*.

Biology

In New Zealand the life cycle takes at least two years to complete. Adults are active from early October to the first week of January (spring to midsummer in the southern hemisphere), during this time they mate, and females lay eggs. Each female can produce over 50 eggs, laying them individually at the point where the leaf meets the stem, bark crevices, or fresh pruning scars.

Once the eggs hatch, the larvae immediately tunnel into the host plant, creating long galleries as they grow. These galleries feature side branches that allow the larvae to eject their sawdust-like droppings (frass). Larvae remain active throughout the year, but when they reach full maturity—between mid-June and mid-October—they form a protective chamber within the host and pupate.

Newly emerged adults stay inside this protective chamber until their outer protective layer (integument) hardens. Once they emerge, they take four days to become sexually mature and then live for approximately two months.

Description

Adults: A relatively plain-looking brown beetle. Females are larger than males, measuring between 14.3–30.9 mm in length, and have proportionally shorter antennae (Fig 1, 2 & 4). Both sexes have a long, narrow body shape, that is longer than wide. Their wing cases (*elytra*) are covered in pale yellow hairs (Figs 2 - 5), though these may fade over time. The most distinctive feature of this species is the set of parallel, raised ridges on the dorsal surface of the thorax (most pronounced in males) which are absent in all of our native longhorn beetles (Fig 3 & 5).

Larvae: Mainly creamy white (Fig 6) with dark brown to black mandibles (jaws) (Fig 7) that they use to tunnel into and feed on host plants. When fully grown, they can reach 35 mm in length and 8 mm in width. Although they may appear legless, they actually have three pairs of small, inconspicuous legs on the thorax (segment after the head).



Figure 2. Female *Oeomona hirta*



Figure 3. Ridges on the thorax



Figure 4. Male *Oeomona hirta*



Figure 5. Ridges on the thorax



Figure 6. *Oeomona hirta* larva in situ within a *Wisteria* stem © Fera Science Ltd.



Figure 7. *Oeomona hirta* (head end) showing the dark brown/black jaws © Fera Science Ltd.

Dispersal and Detection

Adults are strong fliers and can easily move between host plants. In New Zealand, they are most active in the early morning (5–7 AM) and evening (7–9 PM), during which time mating occurs. If this species were to become established in the UK, its natural spread is estimated to be a few kilometres per year. The lemon tree borer can also be spread through the movement of infested trees and wood products, including wood packaging material. This dispersal can occur both locally and internationally via trade, just as it was transported from New Zealand, through international trade before being intercepted in the UK.

One indicator of the presence of the lemon tree borer is the appearance of lines of small holes where larvae eject their sawdust-like droppings (*frass*). As they feed, larvae can also cause small twigs to wilt and die, leading to clusters of dead leaves. Severe feeding damage from larger larvae can weaken branches, making them more likely to break due to wind or heavy fruit loads. In extreme cases, larvae can girdle branches (cutting off nutrient flow) resulting in tree death.

Economic Impact

Even a single larva can significantly weaken the branches of trees or vines, and if it burrows into the main stem or trunk of a host, it can kill the entire plant.

In New Zealand, this species is considered a highly important economic pest. It severely affects commercial citrus orchards (which is how it gets its common name), damages other top fruit (apples, pears, plums etc.) and some soft fruit crops, harms ornamental trees and shrubs, and has even been reported to impact forestry crops such as *Populus* (poplar trees).

Pest Management and Reporting

Longhorn beetles are difficult to control because their larvae and pupae develop inside the host plant, where they are protected from insecticide treatments and most predators by the surrounding plant tissue. The only completely effective way to eliminate larvae is by destroying the infested plant.

Insecticides may help control adult beetles, but only if they come into direct contact with the treatment or consume treated foliage.

In New Zealand, infestations have been reduced through regular pruning, though this method requires significant labour. Any cuttings must be burned, as larvae can continue developing in the pruned plant material. Additionally, wounds on pruned trees need to be painted to prevent females from laying eggs and reinfesting the host.

Suspected outbreaks of ***Oemona hirta*** or any other non-native plant pest should be reported to the relevant authority:

For **England and Wales**, contact your local **APHA Plant Health and Seeds Inspector** or the **PHSI Headquarters**, York.

Tel: 0300 1000 313

Email: planthealth.info@apha.gov.uk

For **Scotland**, contact the **Scottish Government's Horticulture and Marketing Unit**:

Email: hort.marketing@gov.scot

For **Northern Ireland**, contact the **DAERA Plant Health Inspection Branch**:

Tel: 0300 200 7847 Email: planthealth@daera-ni.gov.uk

Web: www.daera-ni.gov.uk/topics/plant-and-tree-health

For additional information on UK Plant Health please see:

planthealthportal.defra.gov.uk/pests-and-diseases/uk-plant-health-risk-register/

planthealthportal.defra.gov.uk/

www.gov.uk/plant-health-controls

www.gov.scot/Topics/farmingrural/Agriculture/plant/PlantHealth/PlantDiseases

daera-ni.gov.uk/topics/plant-and-tree-health

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Version 3

Date: March 2025

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