

Granulate ambrosia beetle

Xylosandrus crassiusculus



Granulate ambrosia beetles are 2.1–2.9 mm long



Background

During routine surveillance by Biosecurity New Zealand in February, specimens of a beetle were collected from an oak tree in Auckland. They have been identified as *Xylosandrus crassiusculus* (Coleoptera: Curculionidae: Scolytinae), the granulate ambrosia beetle. This is an exotic species that has not been recorded before in New Zealand. The beetle has since been identified in other locations.

Distribution

The granulate ambrosia beetle is native to tropical and subtropical East Asia and has been introduced to many areas in the world, including Africa, USA, Central America, Europe and some Pacific Islands.

Host plants

The granulate ambrosia beetle attacks many hosts. It has been recorded on more than 100 species in over 40 plant families. Hardwoods are the preferred hosts, but any broad-leaved tree or sapling may be attacked. It will attack common fruit trees such as avocado, plum, peach, persimmon, and pear.

It is known to attack common tree species such as oak, Ficus, Eucalyptus, magnolia, Acacia, and Casuarina. It has been detected in native broadleaf species. It is generally not considered a pest of conifers.

Biology

Adult female beetles bore into suitable woody plants (twigs, branches, or small trunks ranging in size from 2 to 30cm in diameter). Attacks on living plants are usually near ground level on saplings, or at bark wounds on larger trees.

While this beetle prefers moist, freshly dead wood, it will also infest living plants, and is also capable of colonising dry wood.

Adult females excavate a system of tunnels in the wood (brood galleries) and introduce a fungus to these tunnels as a food source for both the adults and their larvae. When attacking a tree, the beetles push frass out of the tunnels that can be seen on the outside of the bark in a distinctive toothpick style (see this picture and next page).



Photo: SPS Biosecurity

The larvae develop into adults inside the brood chamber tunnels. Adult male beetles are rare, flightless, and only found in brood galleries. Mated adult females leave the brood tree to attack a new host.

The generation time for *Xylosandrus crassiusculus* is 55-60 days during the breeding season (spring and summer). There may be one or two generations per year depending on temperature. Earlier emergence in spring can lead to more generations.

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Adults of related species have been recorded dispersing up to 2 km, so adults of *X. crassiusculus* may also be able to disperse this far. The annual spread of related species may be tens of kilometres per year. The spread of ambrosia beetles is likely assisted by human movement in infested timber.

The threat

This species can cause two distinct types of economic damage. Firstly, it can weaken or kill living trees. Secondly, it can cause serious damage of stored lumber by mass colonisation of the dead wood before it is processed.

In living trees, the action of female *X. crassiusculus* beetles boring in wood and introducing fungus can cause a decline in tree health. An infestation can cause wilting and dieback of the tree, and may even cause death of nursery plants, saplings and trees. It has been reported as a pest of nursery stock and young trees.

Because this beetle attacks a wide variety of plant species, it can become an abundant pest in urban, agricultural or forest areas. It is known to attack a wide range of fruit and ornamental tree species overseas. Infestation has been detected in native broadleaf species.



It is, however, not recorded to be a pest of conifers (e.g. *Pinus* spp).

Xylosandrus crassiusculus has a symbiotic relationship with fungi, which are carried on the body of the adult beetle and deliberately introduced to its tunnels to act as a food source for both adults and larvae. While it has not been shown that *X. crassiusculus* is a vector of fungi that kill or cause disease in plants, this species and other ambrosia beetles could potentially play a role in the spread of such fungi and could introduce non-native fungal species into areas where they become invasive.

What Biosecurity New Zealand is doing

Biosecurity New Zealand needs to know how far the beetle has spread beyond the known locations. It is carrying out widespread inspection of host trees and is putting in beetle traps in around the detection areas. The attached photo shows a beetle trap. While they are quite safe, it would be best to keep small children and pets away as the traps are easily damaged.



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