



Department
for Environment
Food & Rural Affairs

Plant Pest Factsheet

Red-Necked Longhorn Beetle

Aromia bungii

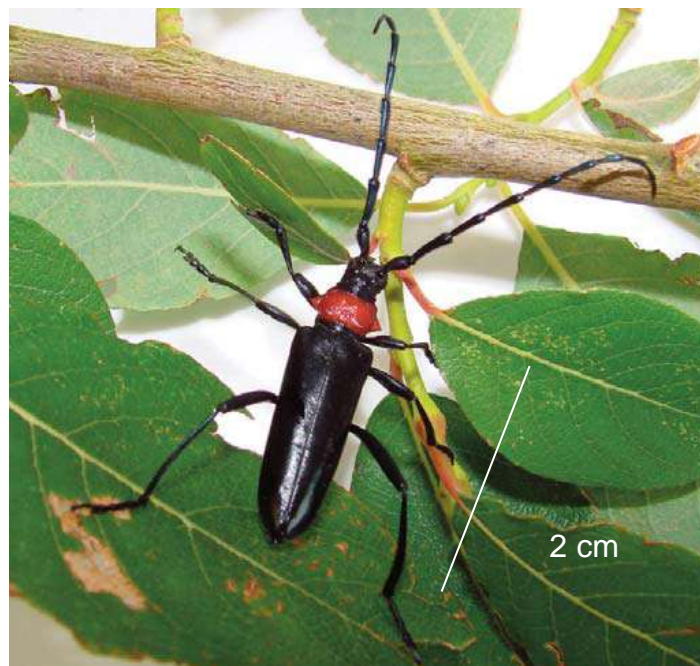


Figure 1. Red-necked longhorn beetle adult, an invasive wood-boring pest of *Prunus*. Scale bar = 2 cm
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Background

Aromia bungii Faldermann (Coleoptera: Cerambycidae) is native across the south-eastern Palaearctic and Oriental regions. It has several common names but is most widely known as the red-necked longhorn (or longicorn) beetle. *Aromia bungii* larvae develop in the wood of *Prunus*, resulting in economic damage to apricot, cherry, peach, plum and ornamental species. The first detection of *A. bungii* in Europe was in 2008 when three adults were intercepted among wooden pallets in a warehouse in the UK. The first reported occurrence of the species in the open field in Europe was in Germany in July 2011. An old damson plum tree was found to be infested in a private garden in the southern part of Bavaria. The tree was promptly destroyed but several trees were found to be infested by the beetle in the same region during 2016. In 2012 *Aromia bungii* was also

reported from *Prunus* spp. in parks, gardens and orchards in Campania, Italy (although there is evidence that it had been present in 2010) and it has been found each year since. In 2013 *Aromia bungii* was also found in Lombardia, Italy. The outbreaks in Germany and Italy are officially under eradication, although the outbreak in Italy is much larger and more widespread. Wood packaging material and nursery plants are considered to be potential pathways of accidental introduction.

Geographical Distribution

Aromia bungii is native across the south-eastern Palaearctic and Oriental regions. It is recorded from China, Korea, Taiwan and Vietnam, and has recently been introduced to Japan. Outbreaks have occurred in Germany and Italy.

Host Plants

Aromia bungii is oligophagous on *Prunus* spp., including *P. americana* (American plum), *P. armeniaca* (apricot), *P. avium* (cherry), *P. cerasifera* (cherry plum), *P. domestica* (common plum), *P. domestica* subsp. *insititia* (damson plum), *P. grayana* (Japanese bird cherry), *P. japonica* (Korean cherry, flowering almond or oriental bush cherry), *P. mume* (Japanese apricot), *P. persica* (peach), *P. pseudocerasus* (False cherry), *P. salicina* (Japanese plum cherry) and *P. yedoensis* (Yoshino cherry).

Aromia bungii has also been reported to attack numerous other plants belonging to 11 families but these records require confirmation. Only *Prunus* species have been observed to be attacked by *A. bungii* in Germany and Italy.

Description

Aromia bungii adults (Figs 1-2 and 4) are elongate and shiny blue-black except for the pronotum (section just behind the head), which is usually distinctively bright red (Figs 1-2) and bears a pair of stout, spine-like lateral tubercles; they are 22-38 mm in length, being about 4 times longer than wide. The antennae are as long as, or slightly longer than, the body, and uniformly black, as are the long thin legs. As with many other longhorn beetles the male tends to be smaller, with proportionally longer antennae, than the female. Some adults have recently been found in Italy to be entirely black (Figs 4-5) and these are more difficult to recognise in the field.

Aromia bungii eggs are yellow-green-whitish, elongate, sub-cylindrical, and about 2 mm long (Fig. 6). Mature larvae (Fig. 7) are pale yellowish-white, broadest across the prothorax, and with body segments tapering towards the abdominal apex; they vary in length from 42-52 mm. The pupa is light yellow, becoming darker as the adult develops, 22-38 mm long, with legs and long, coiled antennae (Fig. 8).

There is only one species of *Aromia* native to Europe, which also occurs in southeast England, and that is the musk beetle *A. moschata* (L.). Adults are easily separated from *A.*

bungii by their colour, being generally a uniform metallic green, blue violet, copper or black. The larvae of *A. moschata* usually develop in *Salix* spp..



Figure 2. Red-necked longhorn beetle adult with the characteristic red pronotum © Chris Malumphy, Fera



Figure 3. Larval frass of the red-necked longhorn beetle at the base of a *Prunus* tree in Italy © Don Walker, Fera



Figure 4. Red-necked longhorn beetle adult with a black pronotum © Crown copyright courtesy Fera Science Ltd.



Figure 5. Close-up of a black pronotum © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy



Figure 6. Red-necked longhorn beetle eggs © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy



Figure 7. Red-necked longhorn beetle larva © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy



Figure 8. Red-necked longhorn beetle pupa © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy



Figure 9. Red-necked longhorn beetle emergence holes © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy



Figure 10. *Prunus* infested with red-necked longhorn beetle larvae © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy



Figure 11. Larva and galleries of the red-necked longhorn beetle © Raffaele Griffo, Plant Protection Service Regione Campania, Napoli, Italy

Biology

Aromia bungii overwinters as larvae of different ages. Adult beetles emerge from June to August. Females mate several times during their lifespan and lay eggs in crevices in the bark. Each female lays, on average, around 350 eggs during its lifetime, with a maximum of 734 eggs. First-instar larvae hatch in about 10 days, and then penetrate under the bark, boring a gallery in the phloem. Larvae may overwinter two or three times and mature in 21-33 months. Larvae may spend several months without feeding before pupation. Mature larvae pupate in a pupal chamber excavated in the trunk and main branches. The pupal period lasts between 17 and 23 days, and pupation generally occurs in spring. The life-cycle from egg hatching to adult emergence ranges from 2-4 years.

Dispersal and Detection

Adult beetles can fly but there is no data on the active dispersal of *A. bungii*, however, considering the dispersal rate of other longhorn beetles such as *Anoplophora* spp., active flight is unlikely to exceed several hundred metres per year. Long distance and international dispersal is most likely to occur with trade, for example, as eggs, larvae or pupae hidden in woody planting material or wood packaging.

Adult beetles with the red pronotum (Figs 1-2) are distinctive, but in the field the first symptoms that are likely to be seen are piles of extruded larval frass at the base of infested trees (Fig. 3) and the oval adult emergence holes, approximately 12 mm in diameter (Fig. 9). Confirmation that a tree is infested requires destructive sampling. Removing bark may reveal young larvae feeding in the phloem (Fig. 10) and cutting through the trunk may reveal mature larvae and galleries in the heart wood (Fig. 11). Traps baited with different mixtures have been proposed for detecting adults in the field during the summer months.

Economic Impact

Aromia bungii is regarded as one of the most destructive longhorn beetle pests of fruit trees, especially apricot and peach, in lowland areas of China where economic loss can be substantial. Trees are weakened by larval attack and become more susceptible to diseases. Serious infestation causes tree decay and a decrease of fruit yield in orchards. In Italy several hundred apricot, cherry and plum trees have been severely damaged or killed by larval attack.

Advisory Information

Longhorn beetles are difficult to control because the larvae and pupae develop inside the host and these life stages are therefore protected from foliar applications of insecticides (and from most predators) by the surrounding plant tissue. In China, the

entomopathogenic nematode, *Steinernema carpocapsae* is used to control *A. bungii*. The insecticides used against other orchard pests are likely to have some control of any adult *A. bungii* present at the time of application. Product labels and off-label conditions should be followed when applying any pesticide. However, the only fully effective way of controlling larvae is to destroy the infested plant.

Importers and growers of *Prunus* plants and should be aware of the appearance and symptoms of this pest, and be careful not to source plants from infested parts of the EU. In addition, importers of products from Asia packaged in wood should be aware of the pest.

Suspected outbreaks of *A. bungii* 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**, Sand Hutton, York. Tel: 01904 405138

Email: planthealth.info@apha.gsi.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

For additional information on UK Plant Health please see:

<https://secure.fera.defra.gov.uk/phiw/riskRegister/>

<https://www.gov.uk/plant-health-controls>

<http://www.gov.scot/Topics/farmingrural/Agriculture/plant/PlantHealth/PlantDiseases>

<https://www.daera-ni.gov.uk>

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Date May 2017

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