



Plant Pest Factsheet

Red-Necked Longhorn Beetle

Aromia bungii

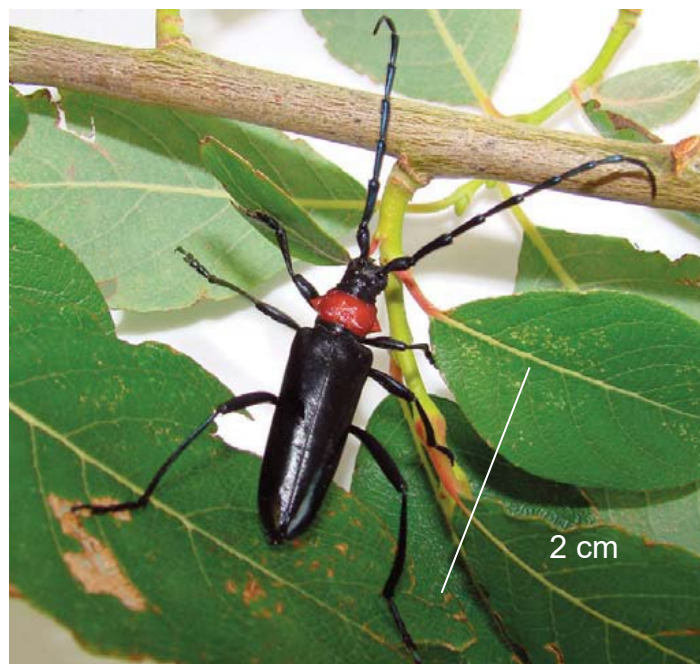


Figure 1. Red-necked longhorn beetle adult, an invasive wood-boring pest of *Prunus*. Scale bar = 2 cm
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Background

Aromia bungii Faldermann (Coleoptera: Cerambycidae) is native to 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. The larvae develop in the wood of *Prunus* spp., causing economic damage to apricot, cherry, peach, plum and ornamental species. *Aromia bungii* was first detected in Europe in 2008 when three adults were found amongst wooden pallets in a warehouse in the UK. The first reported occurrence of the species outdoors in Europe was in Germany in July 2011. An old damson plum tree (*Prunus domestica* subsp. *insititia*) in a private garden in the southern part of Bavaria was found to be infested with larvae. The tree was promptly destroyed but in 2016 several more trees were found to be infested by the beetle in the same region. 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. Traded wood packaging materials and nursery plants are considered the most likely pathways of introduction.

Geographical Distribution

Aromia bungii is native to the south-eastern Palaearctic and Oriental regions. It is recorded from China, Japan, Mongolia, North Korea, South Korea, Taiwan, Vietnam, and the Russian far East. 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 22-38 mm in length and elongate, being about 4 times longer than wide. They are generally shiny and blue-black in colour except for the pronotum (section just behind the head), which is usually distinctively bright red (Figs 1-2), however an entirely black (Figs 4-5) form is reported from Italy and these are more difficult to recognise in the field. In addition, the pronotum bears a pair of stout, spine-like lateral tubercles.; The antennae are as long, or slightly longer than the body and uniformly black, as are the long thin legs. As with many other longhorn species the male tends to be smaller, with proportionally longer antennae, than the female.

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).

The only species of *Aromia* native to Europe is *A. moschata* (L.), the musk beetle. This species occurs widely across Great Britain, being most frequent in the southeast of England. Adults are easily separated from *A. bungii* by their colour, being generally a

uniform metallic green, blue violet, copper or black. In addition, the larvae of *A. moschata* mainly develop in *Salix* spp.(willows) and have never been recorded in *Prunus* 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

Adult beetles emerge between June and August. The female will mate several times during their lifespan and lay eggs in bark crevices. Each female can produce more than 700 eggs but on an average produce about 350 eggs during their lifetime. The eggs hatch in about 10 days, and the first-instar larvae penetrate under the bark of the host boring a gallery in the phloem. Larvae of different ages may overwinter two or three times during their development reaching maturity in 21-33 months and can spend several months without feeding before pupation. Mature larvae generally pupate in the spring in a pupal chamber excavated in the trunk and main branches of the host. The pupal period lasts between 17 and 23 days. The life cycle from egg hatching to adult emergence therefore takes between 2-4 years to complete.

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 are 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 generally distinctive, but in the field the first symptoms that are likely to be seen are piles of extruded larval frass (excrement) at the base of infested trees (Fig. 3) and the elongate oval adult emergence holes, measure approximately 12 mm in their longest dimension (Fig. 9). Confirmation that a tree is infested requires destructive sampling i.e., removing bark to reveal young larvae feeding in the phloem (Fig. 10) and cutting through the trunk to reveal mature larvae and galleries in the heart wood (Fig. 11).

A field trial in China demonstrated that traps baited with a synthetically produced male-aggregation pheromone are effective in attracting both male and female beetles and this has been proposed for detecting adults in the field.

Economic Impact

Aromia bungii is regarded as one of the most destructive longhorn beetle pests of fruit trees in lowland areas of China where economic losses, especially to apricot and peach, can be substantial. Trees are weakened by larval attack and become more susceptible to diseases. Serious infestations cause tree decay and a decrease fruit yield. 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 should be aware of the appearance and symptoms caused by 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**, York.

Tel: 0300 1000 313 (please select option 3 when calling)

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: <https://www.daera-ni.gov.uk/topics/plant-and-tree-health>

For additional information on UK Plant Health please see:

<https://planthealthportal.defra.gov.uk/pests-and-diseases/uk-plant-health-risk-register/>

<https://planthealthportal.defra.gov.uk/>

<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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