Note: There are a large number of *Agrilus* species found in Europe and the adults of many species are morphologically similar. Therefore, they should be identified by a specialist.

Agrilus beetle pests

Please note, for more details on the symptoms described for the organisms, scan the QR code to access the accompanying poster.

Birch bark borer
(*Agrilus anxius*)

Introduction

Bronze birch borer is a specialist wood-boring beetle pest of birch trees, native to North America. It mainly attacks trees weakened by drought, old age, defoliation, or soil compaction, although it can also attack healthy trees. It poses a threat to birch trees in Europe and is regulated in the UK and EU.

Hosts

All species of birch (*Betula* spp.) are susceptible, including species native to the UK.

Biology/description

The life cycle takes one or two years to complete. Each female can lay up to 75 eggs, singly or in clusters in bark crevices. The larvae feed on the inner bark and cambium (the first layer of tissue under the bark), forming sinuous larval galleries. This restricts or blocks the movement of water and nutrients through the plant, with serious consequences, including death for some hosts plants.

Symptoms

Adult beetles are small, slender, elongate, metallic copper-coloured, and 7-12 mm long. The beetles initially attack the upper crown, causing leaf yellowing in summer, and branch dieback. Rust-coloured sap oozing, and staining, can also appear on the outer bark, along with swellings and bumps where the tree has healed inside. Small ‘D’-shaped adult emergence holes (3-5 mm wide) may be observed in the bark.

See accompanying *Agrilus* beetles pest poster via the QR code at the top.

More information and how to report

https://gd.eppo.int/taxon/AGRLAX
https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/bronze-birch-borer-agrilus-anxius/

Two-lined chestnut borer
(*Agrilus bilineatus*)

Introduction

Two-lined chestnut borer is a specialist wood-boring beetle pest of sweet chestnut and oak trees, native to North America. It causes high mortality in already weakened and stressed trees in eastern North America. It has been found in Turkey since 2002.

Hosts

It infests American sweet chestnut (*Castanea dentata*), and numerous species of oak, including the UK's native English or pedunculate oak (*Quercus robur).*

Biology/description

The life cycle takes one or two years to complete. Adult females lay eggs singly or in clusters of up to 10 eggs in bark crevices. The larvae feed on the inner bark and cambium (the first layer of tissue under the bark), forming sinuous larval galleries. This restricts or blocks the movement of water and nutrients through the plant, with serious consequences, including death for weakened and stressed host plants.

Symptoms

Adult beetles are small, slender, elongate, black, with a light, yellowish stripe on each wing cover, and 6-12 mm long. Winding 'mines' or galleries excavated by the larvae in the inner bark and outer sapwood of the main trunk and large branches are visible after peeling off the bark. Attacks usually begin in the upper tree canopy and extend downwards as the tree progressively weakens. Small 'D'-shaped adult emergence holes may be observed in the bark. Epicormic shoots (foliage sprouting from the trunk and base) may develop.

See accompanying *Agrilus* beetles pest poster via the QR code at the top.

More information and how to report

https://gd.eppo.int/taxon/AGRLBL
https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/two-lined-chestnut-borer-agrilus-bilineatus/

Two-spotted oak buprestid
(*Agrilus biguttatus*)

Introduction

Two-spotted oak buprestid is a specialist wood-boring beetle native to the UK and Europe, that feeds mostly on oak (*Quercus* spp.). In sufficient numbers, feeding activity by its larvae can weaken trees, and there is also concern about its possible role in acute oak decline, a serious and often fatal condition of oak trees. It appears to be becoming more abundant in the UK.

Hosts

It primarily infests numerous species of oak, including the UK's native English or pedunculate oak (*Quercus robur)*. It has also been found on European beech (*Fagus sylvatica*) and European sweet chestnut (*Castanea sativa*). It prefers mature oak trees with trunks greater than 30cm in diameter, and which are weakened, damaged or stressed.

Biology/description

The life cycle takes two years to complete. Adult females lay eggs in bark crevices. The larvae feed on the inner bark and cambium (the first layer of tissue under the bark), forming sinuous larval galleries. This restricts or blocks the movement of water and nutrients through the plant, impairing the health of the host.

Symptoms

Adult beetles are small, slender, elongate, iridescent green/blue or bronzy/green, with two distinctive white spots on the wing-cases, and 10-13 mm long. Zig-zag 'mines' or galleries excavated by the larvae in the inner bark and outer sapwood of the main trunk are visible after peeling off the bark. Small 'D'-shaped adult emergence holes may be observed in the bark.

See accompanying *Agrilus* beetles pest poster via the QR code at the top.

More information and how to report

https://gd.eppo.int/taxon/AGRLBG
https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/two-spotted-oak-buprestid-agrilus-biguttatus/

Jewel beetle
(*Agrilus convexicollis*)

Introduction

Agrilus convexicollis has no common name but belongs to a large family of beetles called Jewel beetles. It is native to Europe and widespread on the continent but not present in the UK. It feeds on dead and feeds on dead and dying ash trees.

Hosts

It primarily infests numerous species of ash, including the UK's native European ash (*Fraxinus excelsior).*

Biology/description

The life cycle is poorly known but it is likely to be similar to the other *Agrilus* species reported on this poster.

Symptoms

Adult beetles are very small, slender, elongate, iridescent brown, and 3.5-5.0 mm long. Symptoms will be similar to the other *Agrilus* species: 'mines' or galleries in the inner bark and outer sapwood; small 'D'-shaped adult emergence holes in the bark.

See accompanying *Agrilus* beetles pest poster via the QR code at the top.

More information and how to report

https://gd.eppo.int/taxon/AGRLCV
https://planthealthportal.defra.gov.uk/plant-health-api/api//pests/27371/risk-analyses/388/documents/4046/document

Emerald ash borer
(*Agrilus planipennis*)

Introduction

Emerald ash borer is a specialist wood-boring beetle pest of ash trees, native to East Asia. It was introduced to North America where it has killed tens of millions of ash trees. It has also been introduced to Russia and is spreading west and south from Moscow. It poses a serious threat to ash trees in Europe which have already been affected by Chalara ash dieback and is regulated in the UK and EU.

Hosts

It infests several North American, Asian, and European species of ash, including common ash (*Fraxinus excelsior*).

Biology/description

The life cycle takes one or two years to complete. Each female can lay up to 90 eggs, singly or in clusters in bark crevices. The larvae feed on the inner bark and cambium (the first layer of tissue under the bark), forming sinuous larval galleries. This restricts or blocks the movement of water and nutrients through the plant, with serious consequences, including death for some host plants.

Symptoms

Adult beetles are small, slender, elongate, metallic emerald green, and 7.5-13 mm long. It causes leaf yellowing and thinning in summer, and branch dieback. Longitudinal fissures between 5-10 am long may form in the bark. Small ‘D’-shaped adult emergence holes (3 mm wide) may be observed in the bark. Epicormic shoots (foliage sprouting from the trunk and base) may develop.

See accompanying *Agrilus* beetles pest poster via the QR code at the top.

More information and how to report

https://gd.eppo.int/taxon/AGRLPL
https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/emerald-ash-borer-beetle-agrilus-planipennis/

Acknowledgements
This factsheet was written by Chris Malumphy, Fera Science Ltd. Edited and produced by Lara Salido, BGCI. March 2023