

Box tree caterpillar

Identification, Biology & Management

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The box tree caterpillar (*Cydalima perspectalis*) severely defoliates box (*Buxus*) plants (Figure 1) and originates in East Asia. Infestations of caterpillars were first recorded in the UK in 2011 and Ireland in 2018, although UK traps had been catching the adults since 2007. The moths are strong flyers, spreading rapidly, and their caterpillars defoliate box plants quickly and severely.

Figure 1: Symptoms of box tree caterpillar.



Symptoms

The caterpillars are greenish yellow with black and white stripes, black dots, and a black head (Figure 2).

The severe defoliation of box moth caterpillars is accompanied by webbing, pellets of frass, and shed black head 'capsules' from moulted larvae. The younger larvae feed from the underside of the leaf, leaving the upper surface intact like a

window. The older larvae typically consume the whole leaf aside from the midrib, producing the webbing and largest frass pellets. Under heavy infestations, the bark may also be eaten, leading to girdling of stems.

Figure 2: Mature box tree caterpillar.



Biology

As the weather warms in spring, overwintered caterpillars emerge from silken pouches between leaves, resume feeding, and pupate.

The adult moths lay sheets of small flat pale-yellow eggs on the underside of box leaves from late March. These hatch into the caterpillars. Once they have eaten and grown enough, the caterpillars pupate in a silken pouch, emerging as a white semi-transparent moth (Figure 3). An uncommon brown moth variant has also been recorded.

Within the UK and Ireland, the box tree caterpillar has 2-3 generations per growing season (Late March-October) with each life cycle lasting 6 to 8 weeks depending on temperature, 21-33°C is optimal. Box tree moths are competent fliers, flying *ca.* 10km per year.

Box plants can usually survive an initial defoliation if the larvae don't eat the bark of the main stems. However, following generations will return to feed on any new growth and this continuous damage will weaken and seriously disfigure plants. Consequently, following some form of control of the caterpillars, fertilisation, mulching, and irrigation will help plants recover from damage.

Figure 3: Typical adult box tree moth.



Control

Application of appropriate plant protection products can manage this pest.

A biologically based control option is available which is targeted specifically towards caterpillars, significantly reducing impacts on other insects. Cultural practices, such as fertilisation and mulching, can increase host resilience to pests and diseases.

Pheromone lure traps are available to monitor for when adult moths are present (March-November) and eggs are likely to have been laid. This pheromone attracts males and is

also the basis for a new treatment, a mating disruption product, that uses large amounts of the pheromone to confuse males and prevent them finding females. This treatment should reduce the number of eggs laid and other treatments required. The Bartlett laboratory is current investigating the efficacy and feasibility of this treatment.

A degree of natural control has been observed with birds, bats, bugs, spiders, beetles, hornets, and parasitoid wasps recorded feeding on the caterpillars or eggs. However, it remains to be seen if this will reduce the impact of the pest significantly. Other researchers are looking into using parasitoids to control the moth.



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