# BOX TREE MOTH

## An Invasive Pest Threatening Ornamental Boxwood Plants in Canada

Invasive Species Centre

Photo: Hannah Nadel, USDA, Wikimedia Commons

### What is it?

The box tree moth (*Cydalima perspectalis*; BTM) is a destructive invasive pest that poses a major threat to box trees (*Buxus* spp; commonly called boxwood) in Canada and Europe. Damage to these common decorative shrubs is largely caused by larvae feeding on leaves and bark, resulting in defoliation and dieback. BTM can produce multiple generations per year, causing significant damage over a short period of time.

### Where is it?

Native to Asia, BTM was first detected in North America in August 2018 by a community scientist through iNaturalist in Toronto, Ontario. Since its introduction, BTM has been found across eastern Canada with Ontario, Quebec, New Brunswick, Nova Scotia, Newfoundland and Labrador, and Prince Edward Island being regulated for box tree moth in Canada.

### Plants at risk:

BTM gets its name from the host tree boxwood (*Buxus* spp.), an ornamental evergreen often used for hedges or topiaries in North America. Although there are no native species or natural stands of boxwood in Canada, these plants are considered an important woody ornamental representing an estimated annual value of $40 million for the Canadian nursery and landscaping industry. BTM could cause economic losses and negatively impact trade. In its native range, BTM also feeds on spindle (Euonymus spp.) and holly plants (Ilex spp.) although it has only been found feeding from boxwoods in Canada.

## Signs and Symptoms:

Boxwood damage from BTM, Ferenc Lakatos, University of Sopron, Bugwood.org

- Translucent yellow eggs on the underside of leaves
- Presence of pale white webbing, green pellet-like frass (excrement), and molted exoskeletons
- Loss of the underside surface of leaves
- Skeletonized leaves with only the midribs (central vein) intact, defoliation, and plant dieback
- Presence of larvae, pupae, and adult moths

## Impacts:

Left: a healthy boxwood plant. Right: A boxwood dead or dying following BTM infection. Photo: Ignacio Baez (l) and Mafalda Weldon (r), USDA, Wikimedia Commons

- Increased cost for insecticide application and potential shrub removal for homeowners
- BTM can cause repeated defoliation, making shrubs susceptible to other pests and diseases
- Loss of important boxwood nursery stock and revenue
- Reduced property and aesthetic value of both public and private green spaces

# How is box tree moth spread?

BTM dispersal is limited by the distribution of its host species, with these invasive moths only found on box trees in Canada. While adult BTM can travel up to 10 km per year, this invasive pest is primarily spread through the human movement of infested nursery stock. Eggs, larvae, and pupae can survive undetected over long-distance transport on host plants, making inspection key to preventing the spread.

## Life Cycle:

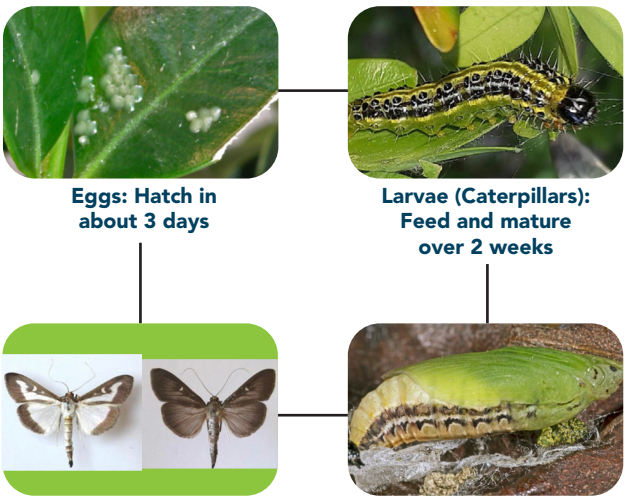
BTM can have 1–5 generations a year depending on geographic location, temperature, and humidity. In Ontario, 2 generations of adult moths (late June/early July, and late August/early September) have been observed, in contrast to the 3–5 generations reported in Europe.

**Eggs:** Usually laid on the underside of leaves in clusters of 10-20; eggs hatch in about 3 days. They are initially translucent yellow, with black larval heads becoming visible towards the end of the hatching period.

**Larvae:** Light green caterpillar with black and white stripes, black dots, and a black head. They go through up to 7 larval instars over the course of about 2 weeks and can reach 4 cm long.

**Pupae:** Larvae pupate in a cocoon spun among boxwood leaves and twigs. On average, pupa measure 1.5–2.0 cm long. This stage lasts 1-2 weeks before adults emerge.

**Adults:** Two colour variants have been recognized; the more common has white wings with thick dark brown borders, while the less common has brown wings with a small white streak on the forewing. Both variants have a small white marking on the forewing. Adults have an average wingspan of 4 cm, live for 2-4 weeks, and can disperse 10 km from the boxwood host.



**Eggs: Hatch in about 3 days**

**Larvae (Caterpillars): Feed and mature over 2 weeks**

**Adult Moths: Survive for about 2 weeks and produce clusters of 10-20 eggs**

**Pupae (Cocoons): Develop into adults over 2 weeks**

*Photo: Recently laid BTM eggs, Hannah Nadel, USDA, Wikimedia Commons; BTM larvae, Markus Krieger, iNaturalist.org; BTM Pupa, Didier Descouens, Wikimedia Commons; Adult BTM variations, Szablocs Sáfián, University of West Hungary, Bugwood.org.*

# What can you do?

- Learn how to identify the signs and symptoms of BTM
- Regularly inspect boxwoods for signs and symptoms of an infestation
- Report any suspected sightings to the Canadian Food Inspection Agency (CFIA)
- Refrain from moving boxwood plants, especially ones that are within infested areas
- If BTM is confirmed in an area, homeowners are encouraged to remove/treat the pest and/or remove boxwoods and replace them with a non-host shrub

## Report sightings of box tree moth to:

- EDDMapS: www.eddmaps.org
- Canadian food inspection agency (CFIA): www.inspection.gc.ca/pests

## For More Information on box tree moth, visit:

- Invasive Species Centre: https://www.invasivespeciescentre.ca
- Canadian Food Inspection Agency (CFIA): https://inspection.canada.ca/en/plant-health/invasive-species/insects/box-tree-moth/fact-sheet

September 2026

Invasive Species Centre