

Elm tree (*Ulmus* spp.) pests and diseases

Elms (*Ulmus* spp.) are found in temperate regions of the Northern Hemisphere. They are best known for their double-toothed leaf margins and their distinctly asymmetrical leaf base. Trees can reach a height of up to 30 metres when mature. Elms produce small, petalless flowers in the spring, typically appearing before the leaves emerge, followed by a nutlike fruit known as a samara, a winged structure dispersed by wind in late spring to early summer.

In recent decades, elm populations have declined significantly due to certain pests and diseases, including:



For more information on the described organism, scan or click on the QR code to access the accompanying factsheets.



Elm zigzag sawfly (*Aproceros leucopoda*)

Background

The elm zigzag sawfly is a native to eastern Asia, including Japan and China. It is now found in many parts of Europe, including the UK, and is projected to spread further [see [distribution](#)].

In large numbers and the right environmental conditions, larvae can severely defoliate elms. Tree damage is seen in spring and summer when larvae mature.

Symptoms

- Feeding tracks, shaped as zigzags or meandering-river patterns between lateral leaf veins (Fig 1a).
- Feeding tracks merge to form leaf-skeletons (Fig 1b).
- Larvae, near-uniform green caterpillar-like grubs, usually seen within the zigzag feeding track (Fig 2).
- Loosely woven cocoons in the underside of elm leaves (Fig 3a).
- The adult, tiny (<1 cm long), black, wasp-like sawfly with whitish legs (Fig 3b), rarely seen.
- Multiple feeding tracks are usually present, so monitor damage thoroughly.



Fig 1. Feeding tracks: a) zigzag-shaped, b) leaf skeletons.



Fig 2. Larva in its feeding track in an elm leaf.

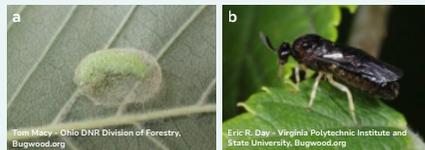


Fig 3. Sawfly: a) pupa in its cocoon, b) adult.

Elm spanworm (*Ennomos subsignaria*)

Background

The elm spanworm is a moth species native to the USA and Canada, where it has caused several outbreaks since the 1800s. Beyond North America, the species has been detected in the UK only once in 1984.

In early summer, caterpillars attack deciduous trees and understory vegetation.

Symptoms

- Defoliation and the characteristic “shot hole” effect on leaves (Fig 1).
- Adults (wingspread 30–37 mm) have unmarked white or creamy upper wings (Fig 2), unlike the darker British *Ennomos* species.
- Eggs are laid in the tree bark, bright yellow-green initially (Fig 2), but darken to dull olive grey or brown.
- Larvae (~50 mm) are typically dark grey or dull black with rust-coloured heads (Fig 3a), but some may be light green with yellow head capsules (Fig 3b).
- Larvae move with a slightly arched body (Fig 3a), and can stand very still (Fig 3b).



Fig 1. Shot holes in elm leaves.



Fig 2. Adult elm spanworm laying eggs in bark.

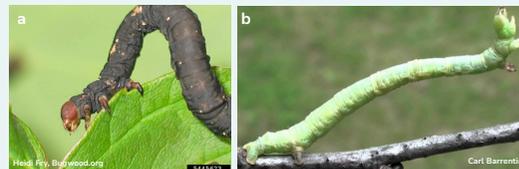


Fig 3. Elm spanworm larva: a) dull black, b) light green

Dutch elm disease (*Ophiostoma novo-ulmi*)

Background

The disease is caused by the fungus *Ophiostoma novo-ulmi*, likely native to Asia and introduced to North America, continental Europe, and New Zealand [see [distribution](#)]. This disease is deadly, killing millions of elms in the UK over the last 50 years.

It is predominantly spread by elm bark beetles, but can also proliferate between adjacent trees through root grafts. Tree damage is usually seen in summer and early autumn.

Symptoms

- Clusters of yellow and wilted leaves, turning brown and falling prematurely. Often with a mixture of healthy and diseased foliage on the same tree (Fig 1).
- Shoot dieback from the tip. Twigs bend downward forming a “shepherd’s crook” (Fig 2).
- Dark streaks under the bark of twigs (Fig 3a). Dark spots and ring-shaped staining can be visible in the cross-section of branches (Fig 3b).
- Presence of elm bark beetles (Fig 4a) and their feeding galleries (Fig 4b).



Fig 1. Infected elm with diseased foliage.



Fig 2. “Shepherd’s crook” symptom.



Fig 3. Staining in the wood: a) dark streaks, b) ring-shaped.



Fig 4. Elm bark beetle: a) adult, b) feeding gallery.