

Field Identification Guide

Oak processionary moth



Photograph courtesy of Forestry Commission

Oak processionary moth

The caterpillars (larvae) of the oak processionary moth (OPM) (*Thaumetopoea processionea*) can threaten the health of oak trees (*Quercus* species) by feeding on their leaves. Large populations of the caterpillars cause extensive defoliation of oak trees, leaving them vulnerable to attack by other pests and diseases, and less able to withstand adverse environmental events such as floods and droughts. The caterpillars are also a significant public and animal health risk, as they bear toxic hairs which can cause itching skin rashes, eye and throat irritation and breathing problems. Hence it is important not to approach or touch the caterpillars, or their nests.

Species affected	The three primary hosts for OPM are our two native oaks - sessile oak (<i>Quercus petraea</i>) and pedunculate oak (<i>Q. robur</i>) - and also the non-native Turkey oak (<i>Q. cerris</i>). Other oaks such as holm oak (<i>Q. ilex</i>) may also be affected. Various broadleaved trees such as hazel, hornbeam, birch, European beech and sweet chestnut are occasionally attacked, but only if the caterpillars run short of oak leaves to eat.
Signs and symptoms	<p>Whole-tree symptoms of OPM include defoliation of the crown and skeletonising of the leaves. The defoliation can occur anywhere in the canopy. However, it can be restricted to the peripheral areas of the tree. The extent of damage increases with severity of infestation and in extreme cases the caterpillars can strip the canopy almost bare of leaves.</p> <p>During the summer months the adult moths lay eggs in rows which ultimately result in the formation of an egg plaque. Although these plaques are an indicator of OPM infestation, they are only 20–30 mm long, camouflaged and often occur on smaller branches high in the canopy and hence are very difficult to see.</p> <p>The eggs overwinter in the egg plaques and the caterpillars emerge from the eggs in the following spring. The caterpillars are small (2 mm) and inconspicuous, especially as they usually stay on the upper branches of a tree. As they develop through their six larval stages (instars) they become more visible as they increase in size, and also venture further down the tree to build their nests.</p> <p>The caterpillars have long and short white hairs covering their bodies with a dark stripe extending down their backs. The short hairs are highly irritating and should be avoided. The caterpillars move about on the trunk and on branches in</p>

	<p>a characteristic procession, often 2 to 3 caterpillars thick, as they travel between their food sources and nests.</p> <p>The nests are a more noticeable sign of OPM infestation. They are distinctive white, silken webbed nests that are semi-spherical in shape. Nest sizes usually range from golf ball size up to that of a rugby ball and can occur anywhere on the trunk or branches of the tree; they are very rarely woven among the leaves. Nests become discoloured with time and turn a muddy brown colour. The caterpillars also produce white silken threads as they move around the tree.</p>
Timing	<p>The caterpillars are most likely to be seen in late spring and early summer, usually at dawn or dusk as they process to and from their nests to feed. Occasionally processions can be seen during the day.</p> <p>Nests and silken trails can be surveyed for in the summer when they are white and easier to see, or in the winter when the leaves are not present to obstruct the view of the branches (binoculars will be required).</p> <p>Adult moths emerge from mid to late summer, so trapping and trap checking should be carried out from the middle of July to mid-September, to coincide with the flight period of the adult moths.</p>
Biosecurity	<p>There is a greater risk of spreading OPM when the caterpillars are emerging, as they are still small and difficult to spot. Greater vigilance is therefore required in the months of March, April and May.</p> <p>Do not move any oak material outside the OPM-affected area.</p>
Reporting requirements	<p>If you find this pest, please report it through Tree Alert (https://treealert.forestresearch.gov.uk).</p> <p>In Northern Ireland please report via the TreeCheck website (www.treecheck.net) or phone app, or by emailing planthealth@daera-ni.gov.uk</p> <p>For traded plants and any non-tree hosts please email planthealth.info@apha.gov.uk (England & Wales), or hort.marketing@gov.scot (Scotland)</p>

<p>Public health warning</p>	<p>OPM caterpillars have thousands of tiny hairs which, on contact, can cause itching skin rashes, sore throats, breathing difficulties, eye problems and allergic reactions.</p> <p>Please do not touch, approach or attempt to remove nests or caterpillars yourself. Please keep children and animals away from nests and caterpillars.</p> <p>If you think that you have been affected by OPM please see a pharmacist for relief from skin or eye irritations. Seek medical advice if you think you have had a serious allergic reaction.</p> <p>Consult a vet if you think your pet has been seriously affected.</p>
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Based on information available in August 2016.



Skin rash caused by contact with hairs of oak processionary moth caterpillar.

Signs and symptoms



Photograph courtesy of Forestry Commission

Adult oak processionary moth with grey forewings suffused with lighter and darker grey markings. Wingspan is 30–32 mm.

Signs and symptoms



Photograph courtesy of Forestry Commission / Andrew Hoppit

Egg plaque of the oak processionary moth (20–30 mm long).

Signs and symptoms



Photograph courtesy of Forestry Commission / © Ralph Parks

Egg plaque (approximately 20 mm long) of the oak processionary moth, from which the caterpillars have already emerged.



Photograph: Louis-Michel Nageleisen, Département de la Santé des Forêts, Bugwood.org

Freshly hatched oak processionary moth caterpillars (2 mm long) clustering over the egg plaque in April/May.

Signs and symptoms



Photograph courtesy of Forestry Commission / © Ralph Parks

Immature caterpillars feeding on oak leaves in May.

Signs and symptoms



Photograph courtesy of Forestry Commission

Oak processionary moth caterpillar.

Signs and symptoms



Later stage caterpillars on oak trunk (mid May through to mid June).

Signs and symptoms



Photograph courtesy of Forestry Commission / © Ralph Parks

Oak processionary moth caterpillars in procession on an oak tree (May to beginning of July).



Photograph courtesy of Forestry Commission / © Henry Kuppen

Oak processionary moth caterpillars on the trunk of an oak tree.

Signs and symptoms



Photograph courtesy of Forestry Commission / Mark Townsend

Oak processionary moth caterpillars in procession across the ground.

Signs and symptoms



Photograph courtesy of Forestry Commission / © Ralph Parks

A nest which has dislodged from a mature oak tree and fallen to the ground.



Photograph courtesy of Forestry Commission / Richard Gill. © Sheffield City Council

Nest of oak processionary moth showing cast caterpillar skins and frass.

Signs and symptoms



Photograph courtesy of Forestry Commission / Andrew Hoppit

Nests made by caterpillars of oak processionary moth.



Photograph courtesy of Forestry Commission / Nigel Straw

An old oak processionary moth nest with shed caterpillar skins and pupal cases.

Signs and symptoms



Photograph courtesy of Forestry Commission / Nigel Straw

White, silken nest of oak processionary moth on the trunk of an oak tree.

Signs and symptoms



Photograph courtesy of Forestry Commission / © Ralph Parks

Distinctive white, silken webbed nests can be found anywhere on trunks/branches of oak trees. These will be semi-spherical or teardrop-like in shape.



Photograph courtesy of Forestry Commission / © Ralph Parks

Oak processionary moths leave white silken trails on trunks and branches in early summer.

Signs and symptoms



Photograph courtesy of Forestry Commission / Nigel Straw

Old nest of oak processionary moths on the trunk of an oak tree, showing cast caterpillar skins.

Signs and symptoms



Photograph courtesy of Forestry Commission

Oak processionary moth cocoons are spun in the nest.



Photograph courtesy of Forestry Commission

Oak processionary moth nest containing pre-pupae and pupae.

Signs and symptoms



A freshly emerged adult moth on a nest.

Signs and symptoms



Photograph courtesy of Forestry Commission / Nigel Straw

Defoliation of oak trees by oak processionary moth caterpillars.



Photograph courtesy of Forestry Commission / © Ralph Parks

The distinctive feeding damage of the oak processionary moth caterpillars which skeletonise the leaves as they feed.

Look-alike signs and symptoms



Photograph courtesy of Forestry Commission

Caterpillar of buff-tip moth (*Phalera bucephala*).



Photograph © Paul Farnfield / AlamyStock Photo

Groups of buff-tip moth caterpillars can be found feeding on many broad-leaved tree species, including oak, from July to October.

Look-alike signs and symptoms



Photograph courtesy of ukmoths.org.uk / © Steve Bennett

Lackey moth (*Malacosoma neustria*) caterpillars are distinguished from those of oak processionary moth by their distinct orange and blue longitudinal stripes.



Photograph courtesy of Forestry Commission

Lackey moth caterpillars inhabit webbed nests (in April and June) on oak and a wide variety of other broadleaved trees and shrubs.

Look-alike signs and symptoms



Brown-tail moth (*Euproctis chrysorrhoea*). These dark brown, hairy caterpillars are occasionally found on oak, but are more common on hedgerow trees and shrubs. The hairs of these caterpillars can provoke an allergic reaction, so contact with them or their nests should be avoided.



Tough, webbed nests of the brown-tail moth. The caterpillars spend the winter inside the nests and emerge in spring to feed.

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This booklet forms part of a set that supports Observatree volunteers when out looking for priority pests and diseases. It supplements face-to-face training and is not intended as a full or detailed description. It will also be useful for others who have some knowledge of the particular pest or disease and understand how to look for these. Further information is available online from the websites listed below:

www.observatree.org.uk

www.forestresearch.gov.uk/tools_and_resources/fthr/pest-and-disease-resources/

www.gov.uk/guidance/prevent-the-introduction-and-spread-of-tree-pests-and-diseases

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