

Oak Processionary Moth  
(*Thaumetopoea processionea*)  
Contingency Plan  
Updated March 2021

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## 1. Introduction and scope

The purpose of pest-specific contingency plans is to ensure rapid and effective responses to outbreaks of the pests or diseases described: in this case the Oak processionary moth *Thaumetopoea processionea*.

This contingency plan was prepared by the Forestry Commission's (FC) Plant Health Forestry Service in 2015 (revised 2021), to be used at country and national (Great Britain) levels.

It should be used in England in conjunction with Defra's [Generic Contingency Plan for Plant and Bee Health in England \(Defra 2017\)](#), under review, which provides details of the teams and organisations involved in pest response in England, and their responsibilities and governance. It also describes how these teams and organisations will work together in the event of an outbreak of a plant health pest. The Scottish and Welsh Governments are additionally developing their own generic contingency plans for Plant Health.

FC England's Forest Services will use OGB17b 'Managing Incidents in the Forestry Commission' for relevant incidents (provides managers across the FC with guidance on and help with contingency planning and managing incidents when they happen). FC Scotland and the Welsh Government will develop similar documents detailing their management of outbreaks. When an outbreak becomes of UK or Great Britain (GB) wide concern, the UK Chief Plant Health Officer will form an incident management team to co-ordinate the activities in the different countries.

This contingency plan falls into three main parts:

- official action following a presumptive diagnosis
- official action following the confirmation of an outbreak
- background information about the pest

This contingency plan covers outbreaks of *Thaumetopoea processionea* in all situations where oak (*Quercus* species) and other suitable host species are planted or occur naturally, i.e. forestry, natural and semi-natural habitats,

agricultural landscapes, urban environments, parks and gardens. It is designed to help government agencies anticipate, assess, prepare for, prevent, respond to, and recover from outbreaks of the pest.

This plan will be updated following new information, lessons identified from outbreaks of other pests, or changes in policy or contact details.

## **Current location of pest**

Oak processionary moth (OPM) was first detected in 2006 and is now present in areas of London and south east England, where the current policy is to contain the pest to prevent spread into the Pest Free Area and to eradicate new outbreaks (breeding populations) found within the Pest Free Area. See appendix 1 for a list of the local authorities where OPM is currently found and appendix 2 for a map showing the core, control and Pest Free Area. This contingency plan therefore refers to an outbreak in the Pest Free Area. The Forestry Commission operate an annual OPM management programme, and work collaboratively with landowners and other stakeholders to provide guidance and advice in the core zone to carry out surveillance and control activity in the control zone, and if necessary the Pest Free Area.

This plan will be updated following new information, lessons identified from outbreaks of other pests, or changes in policy or contact details (last updated January 2021).

## **Objectives of this plan**

- To raise awareness in the event of a new outbreak of the potential threats posed by OPM, and therefore ensure that stakeholders are aware of the symptoms caused by infestations of this pest. For existing OPM populations, reference should be made to the current management plan (for a copy of this plan contact [OPM@forestrycommission.gov.uk](mailto:OPM@forestrycommission.gov.uk) )
- To provide guidance on steps to be taken whenever evidence of infestation symptoms of OPM are observed within the Pest Free Area.
- To ensure that infestations of OPM are managed promptly with the aim of eradicating pioneer populations of the moth within the Pest Free Area.
- To ensure that all relevant FC staff, other Government agencies and Local Authorities are aware of the plan and its contents so that effective, consistent and immediate action is implemented.
- To ensure that good communications are put in place so that all stakeholders (including the media) are kept fully informed of the scale of infestation both at regional and national levels.

## 2. Anticipation and assessment

2.1. *Thaumetopoea processionea* (Linnaeus), commonly known as the oak processionary moth (OPM) is a pest in many countries and threatens the health of oak trees. The common and scientific names refer to the caterpillar's behaviour of forming long processions.

2.2. OPM is present in many European countries, including the UK (see the [UK Plant Health Risk Register](#) entry for an up to date list) and also in parts of the Middle East, including Israel, Lebanon and Jordan (Groenen, 2010; Groenen and Meurisse, 2012).

2.3. The main host plants of this pest are *Quercus* spp. There are no known records of OPM successfully feeding and breeding on non-oak tree species. However, in instances of high population densities and where their main food source is limited, OPM nests and caterpillars have been found living on other tree species, including *Betula*, *Carpinus*, *Castanea*, *Corylus* and *Fagus*. However, it has not been observed completing its lifecycle on any other species than *Quercus* spp. – only in circumstances where caterpillars nest on a non-oak species but feed on an oak tree via a bridge formed by touching branches have caterpillars successfully nested on non-oak trees.

2.4. Repeated severe defoliation reduces the viability of oak trees and the moth can therefore contribute to the general trend of oak decline alongside other biotic and abiotic contributory factors, such as climate change (Thomas *et al.*, 2002). The larvae have irritating hairs which can cause skin problems, and less commonly, conjunctivitis, sore throats, and breathing difficulties, in humans and animals. Irritation can occur through contact with the live/dead larvae, cocoons, nests and debris from infested oak trees. Their hairs are also carried on air currents, and therefore direct contact is not necessary to cause health problems (FAO, 2009). Repeated exposure can present a particular occupational health risk to those working in the arboriculture sector. See Public Health England paper [Health effects of exposure to setae of oak processionary moth larvae](#)

2.5. A [Pest Risk Analysis](#) (PRA) was produced in 2007 for the UK in response to infestations of the species in Europe from 2006. At this time, infestations of the moth were observed on a range of oak species in London.

### 3. Preparation

3.1. OPM is listed in the UK Plant Health Risk Register with a high unmitigated risk score of 100/125 and a mitigated risk score of 45/125. Plants for planting, roundwood of oak with bark present and natural spread have been identified as the major pathway risk (Evans, 2007).

3.2. In 2008 an emergency amendment added the OPM to the list of pests in The Plant Health (Forestry) Order 2005 that required all oak trees coming into the UK from the rest of Europe to be accompanied by Plant Passports. In October 2014, GB was granted Protected Zone status against OPM. Any oak trees, other than seeds, and except for *Q. suber* (cork oak), entering the UK, from EU member states, must be accompanied by a plant passport. In July 2019, the UK Government introduced strengthened measures on the import of most species of oak into England to protect native trees from the threat of OPM.

The Pest Free Area includes all regions of GB and Ireland excluding infested local authorities in London and south east England – see Appendix 1 for a list of the local authorities. This reference to the pest status will need to be updated at the end of the EU exit transition period.

The annual Pest Free Area survey (prior to 2021 the Protected Zone survey) involves the inspection of 67 sites (mainly in England) which were formerly used for the Forestry Commission Forest Condition Survey. Each site contains 24 numbered trees and each of these trees is inspected for signs and symptoms of OPM. This survey has been carried out by Forest Research's Technical Services Unit on behalf of the Forestry Commission during the summer months since 2010. There were an additional two sites surveyed during 2019 where surveyors visited oak stands during other duties. In addition, 36 additional OPM survey plots were surveyed to give coverage of the uninfested area surrounding the OPM control zone in London.

3.3. OPM is listed as a harmful organism under Part B of [Annexes III and X of Commission Implementing Regulation \(EU\) 2019/2072](#)

3.4. A list of all the relevant legislation which might be pertinent to an OPM outbreak is given in Appendix 4.

3.5 Three distinct geographical zones have been defined for OPM management purposes (see map in Appendix 2). The response, and any assistance available to deal with OPM, will depend on which of these zones the trees are in. They are referred to as:

- the '**Core Zone**' (the central part of the West London outbreak area, coloured orange on the map). In the Core Zone, it is tree owners' responsibility to check their trees for OPM infestation and to take any necessary action.
- the '**Control**' or **Buffer Zone** (an area surrounding the Core Zone, coloured yellow) where the aim is to prevent or minimise outward spread into the Pest Free Area.
- the '**Pest Free Area**' (the OPM-free area, coloured green). This is effectively the whole of the remainder of the United Kingdom, where we are required to prevent incursions by OPM or, if they do occur, to take action to eradicate them. Prior to the EU transition period the 'Pest Free Area' was a 'Protected Zone'.

In the event of an interception (recently planted material that is likely to have been infested with OPM at the time of planting) in the Pest Free Area statutory action is taken to eradicate OPM. Outbreaks (breeding populations) of OPM in the Pest Free Area are treated in a similar way to a finding in the control zone (e.g. chemical treatment), with the aim of eradication of the findings in the Pest Free Area.

## 4. Response

### Trigger

4.1. The key indicators which would trigger a response are findings or reports in the **Pest Free Area** of:

- characteristic silken nests observed on host trees.
- egg masses, larvae or pupae being discovered in association with live plants imported for planting.
- a live insect or insects found in the wider environment; or
- findings in a trap (single females or multiple males).

Adult males are strong flyers and can travel up to 20 kilometres (12 miles) from the nests from which they emerge. Capturing OPM males some distance from known OPM-affected areas does not necessarily mean that the pest has spread to the area of the trap: they might just be moths which flew into the area from elsewhere. However, the greater the number of adult males caught in a single trap or cluster of traps, the greater is the likelihood that they indicate a local breeding population.

By contrast, females are not strong flyers, and are rarely found more than about 500 metres from their original nests.

Individual findings should be looked at in the context of the latest information on the distribution of OPM within the core and buffer zones.

## **Official action following a presumptive diagnosis**

### **Strategic actions on suspicion**

4.2. In England, a duty officer from FC England or the Animal Plant Health Agency (APHA) will act as a point of contact for incidents, and it is their job to assign a response officer to incidents when they occur. Similar arrangements are expected to be in place in Scotland and Wales. The response officer investigates and reports back to the Defra contingency core group (CCG), which is an 'ad hoc' group put together in response to a notification and which is usually chaired by the Chief Plant Health Officer. Country Plant Health teams in Scotland and Wales will fully manage the outbreak in accordance with their own generic contingency plans but will provide updates to the CCG for information.

4.3. The response officer will gather information including location, likely origin, host or commodity, level of damage, extent of outbreak, and risk of spread. The composition of the CCG will depend upon the pest or disease in question and will comprise of plant health officials and specialists from the risk group. Based on the information fed back to it, the CCG in England will decide upon the alert status given (black, amber or red), which will determine the level of response (see appendix 3 for Alert Status Table). In Scotland and Wales, the CCG can advise on alert status and the appropriate response. In England, if required the CCG will request the relevant organisation/s to set up an Incident Management Team to resolve the incident.

### **Tactical actions on suspicion**

#### **Holding consignments and movement/planting restrictions**

4.4. Whilst investigations are ongoing, a containment statutory plant health notice should be issued preventing any potential host material from leaving the site and suspending any local operations associated with tree management pending the results of the investigation. The extent of the site will depend on the extent of the host material and will be determined by the incident management team Controller.

#### **Preliminary trace forward / trace backward**

4.5. The most likely source of entry is the import of live oak trees from continental Europe or movements of live trees or branch material from the GB

core/control zone into the GB Pest Free Area.

4.6 Depending upon the pathway of entry, trace forward and trace back investigation will be conducted to identify suspect material. This will include suppliers, propagators and wholesalers, including any clonally related or potentially contaminated stocks, where appropriate.

## **Confirming a new outbreak**

### **How to survey to determine whether there is an outbreak**

4.7. A new outbreak of OPM in the Pest Free Area is most likely to be detected through specific surveys carried out as part of the annual Pest Free Area survey or nursery inspections. However, reports from forestry or arboricultural practitioners, general surveillance by woodland owners/ agents, TreeAlert or by interested members of the public may also lead to the identification of new outbreaks. OPM may also be detected following import inspections (interceptions) of host material prior to or following planting or from public health incidents arising from OPM infestations.

4.8. If there is evidence of the presence of OPM then follow-up inspections and surveys should be conducted with information gathered on:

- likely origin of the pest and, if a consignment of plant and plant product is suspected to be the origin of the outbreak, details such as other points of destination.
- geographical location and ownership of the affected site, including any abiotic factors that may influence the outbreak, e.g. public access, presence of watercourses, etc., with maps included if possible.
- hosts infested at the site (species, variety, development stage, etc.).
- distribution of hosts in the area to inform decision making.
- when and how the pest was detected and identified (including photographs of symptoms).
- level of pest incidence and, where appropriate, life stages present.
- extent and impact of damage (including part of host affected).
- recent import or movement of host plants or host plant products into and out of the affected site, movement of people, products, equipment and vehicles, and where appropriate relevant treatments applied to host plants which might affect development of symptoms or detection and diagnosis of the pest;

- history of the pest on the site, place of production or in the area; and
- likely biodiversity impacts of any control, including any duty of care obligations under Natural Environment and Rural Communities Act (2006).

These surveys should be conducted by an APHA inspector or an FC plant health officer depending on the location of the finding. Generally, APHA inspectors will inspect nurseries and their surroundings and FC will inspect hosts in the wider environment.

### **Data standards**

4.9. A review of the Generic Contingency Plan for Bee and Plant Health and lessons learnt exercise in relation to the significant number of planted out trees that were found to be infested with OPM during summer 2019 identified data management and sharing as a significant issue in managing outbreak situations across multiple sites. A project is ongoing to address these recommendations. Information on the distribution of OPM and the associated management programme within GB is routinely updated and published on Forest Research's [OPM web page](#).

### **Sampling**

4.10. Suspected infected trees should be confirmed via photographs (which is safer, quicker and cheaper than collecting samples) of the relevant evidence i.e. larvae, nests or adults. Photographs should be e-mailed to the FC OPM Management team for verification at [OPM@forestrycommission.gov.uk](mailto:OPM@forestrycommission.gov.uk). The mail should be headed as 'Urgent OPM photographs for verification' and should include the location (address, postcode, GPS) and contact details of the person collecting the samples. If the OPM team are unable to confirm that the photos are of OPM material then they will contact FR entomologists for verification either directly and/or via the FR Tree Health and Diagnostic Advisory Service at [thdas.ah@forestresearch.gov.uk](mailto:thdas.ah@forestresearch.gov.uk)

**Nests or larvae should not be approached without proper training and equipment, due to the human health risk posed by the irritating hairs.**

If photographic evidence is **not** considered to be sufficient then suspect material from infected trees in the wider environment should be either:

- triple wrapped in robust sealed plastic bags; or
- double wrapped in robust sealed plastic bags and the bags placed inside a secure box or vial.

Samples should only be removed from the site by trained individuals using safe and appropriate equipment and operating according to [biosecurity guidelines](#).

Samples should be sent immediately to the THADS for diagnosis, with an advanced warning. Suspect individual life stages should be kept separate and placed in a secure, robust plastic container (to avoid squashing the sample) and double wrapped in sealed plastic bags and sent in a similar manner. The samples should be accompanied by information about the date when the samples were collected, the location (address, postcode, GPS) and contact details of the person collecting the samples. The address is: Entomology, Tree Health Diagnostic & Advisory Service, Forest Research, Alice Holt Lodge, Gravel Hill Road, Wrecclesham, Farnham, Surrey, GU10 4LH.

4.11. Samples collected from nurseries by APHA's PHSI staff should be sent for analysis to:

Fera Science Ltd (Fera),  
National Agri-Food Innovation Campus,  
Sand Hutton,  
York,  
YO41 1LZ.

4.12. Results from pheromone traps can be used as an indirect measure of presence (e.g. if 5 or more male moths are caught in a trap, it could be concluded that a breeding population of OPM is likely to be present) The [OPM Manual](#) contains detailed information on the setting up and management of pheromone traps.

The Forestry Commission welcomes reports of results from private light trapping, which can add value to its own data.

## **Official action following the confirmation of an outbreak**

4.13. The FC will appoint an incident controller and an incident management team, unless the outbreak is in a nursery in England and Wales, in which case APHA will take the lead. In a nursery situation in Scotland the Scottish Government's Horticulture Marketing unit will take the lead. FC Forest Services will work to the generic Defra contingency plan (under review July 2020) and this OPM contingency plan, which will be enacted in response to a confirmed outbreak in the Pest Free Area.

## **Strategic actions on confirmation**

4.14. On positive confirmation the following should be initiated:

- notify senior Defra and FC officials, who will in turn notify Ministers as appropriate.
- set up regular Lead Government Department (LGD) meetings or communication (determined by scale of outbreak) to keep partners aware of the status, actions and possible future requirements, and to agree a communication strategy.
- notify the Devolved Administrations; and
- inform and discuss with stakeholders.

4.15. Initial efforts will be towards eradication of new outbreaks in the Pest Free Area following the procedures set out below, failing which, efforts will concentrate upon containment.

4.16. If there is evidence of the presence of OPM then follow-up inspections in line with [ISPM 6 \(guidelines for surveillance\)](#) which builds on the steps listed in para 4.9.

- likely origin of the pest and, if a consignment of plants or plant products including wood and wood products is suspected to be the origin of the outbreak, details such as other destinations.
- geographical location and ownership of the affected site, including any other abiotic factors which might influence the outbreak, e.g. public access, transport routes, etc. Include detailed maps.
- hosts infested at the site (species, variety, development stage, etc.), and an estimate of the abundance and distribution of potential hosts in the surrounding area.
- when and how the pest was detected and identified (including photographs of symptoms).
- level of pest incidence and, where appropriate, life stages present.
- extent and impact of damage (including part of host affected).
- recent import or movement of host plants or host plant products into and out of the affected site.

- movement of people, products, equipment and vehicles, where appropriate.
- accessibility to the site for machinery to treat trees.
- relevant treatments applied to host plants that may affect development of symptoms, or detection and diagnosis of the pest.
- history of the pest at the site or place of production, or in the area; and
- likely biodiversity impacts of any control measures, including any duty of care obligations under the Natural Environment & Rural Communities (NERC) (2006) Act.

These surveys should be conducted by the FC Plant Health Forestry Team or the APHA plant health team depending on the location.

### **Incident management and communication**

4.17. The incident controller will set up a management structure to deliver the incident management functions. The outbreak will determine the size and nature of the management structure. Identification of and liaison with key stakeholders is a crucial part of this process.

### **Surveillance to delimit the outbreak in the Pest Free Area**

4.18. The vast majority of female moths disperse less than 1 km, and most probably disperse less than 500m. To determine the extent of the new outbreak, oak trees within a 500m radius of infected oak trees should initially be inspected for signs (adults, larvae and nests) of OPM. If OPM is found, then the radius should be extended again by 500m from the point of detection. It should be noted that nests or larvae must not be approached without proper training and equipment due to the human health risk posed by the irritating hairs.

4.19. Deployment of pheromone traps (see para 4.27 and reference to the OPM manual) at certain times of the year, baited with the female sex attractant pheromone of OPM, can be used as a longer-term strategy to provide an indication of population size and distribution. However, the traps only capture males and, since they are strong fliers, it is uncertain whether the distribution of captures in the traps is an accurate reflection of the local distribution of the breeding population of the moth. Consequently, captures soon after initial adult emergence will tend to provide the most accurate measure of the distribution of OPM in the local area. Pheromone traps should be left in situ for 2 – 3 years after nest removal to assess whether any moths remain present in the area. See

for further information: Nigel Straw, Andrew Hoppit and Julia Branson. The relationship between pheromone trap catch and local population density of the oak processionary moth *Thaumetopoea processionea* (Lepidoptera: Thaumetopoeidae)

<https://onlinelibrary.wiley.com/doi/abs/10.1111/afe.12349>

4.20. Surveillance should also include a winter follow-up survey to identify any missed nests which may help to better define the infested area. Details of this standard method are available in the annual OPM management plan, along with details of further survey work in the summer months. The public can be encouraged to look for any signs of outbreaks and warned of the health implications through information notes, leaflets and posters at sites of high public usage.

### **Demarcated zones**

4.21. In an outbreak situation a 2 km demarcated zone will be established around infested trees whilst oak trees are assessed for the presence of OPM, and all oak trees within a 50 m radius of the infested trees are treated with insecticides.

4.22. Nurseries within the 2 km demarcated zone will be inspected for the presence of OPM and have their plant passporting for oak plants suspended until the presence or absence of OPM, both within the nursery and the results of the survey as per para 4.18 – 4.20 are determined.

### **Tracing forwards/backwards**

4.23. If the infected trees have been recently planted, i.e. within the last two years, then the source of the plants must be traced back to the supplying nursery and the nursery visited (if within the UK) and inspected for the presence of OPM. In addition, any supplies of oak planting material from the nursery over the previous two years should be traced to the final planting site and inspected for the presence of OPM. Some oak tree plants are known to be delivered directly to UK planting sites by nurseries based in EU Member states.

### **Pest management procedures within the Pest Free Area**

4.24. The strategy is to eradicate any outbreak of OPM in the Pest Free Area. Recently intercepted planted infested trees will be destroyed.

4.25. Established outbreaks of OPM within the core/control zone will be contained by treating the leading front to control the spread of the moth and minimise its

impact. Experience shows that the costs and wider impacts are far greater if the outbreak is not quickly brought under control.

4.26. Depending on the location of the new outbreak, statutory plant health notices (SPHNs) will be issued by either APHA in a nursery situation, or the FC in a non-nursery situation. The timely issue of and response to SPHNs, and the subsequent actions, is vital if new outbreaks are to be contained and eradicated. It should be made clear at the outset that the costs of any remedial actions required will be borne by the landowner. In exceptional cases the FC or APHA will need to consider whether direct intervention by government is needed in terms of actions to ensure a rapid response within the Pest Free Area to prevent the risk of spread and impact on human and animal health.

4.27. The [OPM 'manual'](#) developed by FC under their annual OPM management plan for landowners and managers details the exact timing of surveys and eradication procedures and includes information on:

- health advice
- OPM management zones
- biology, life cycle, habitat and spread
- surveying of trees and timing of control and treatment
- chemical control of larvae
- nest and larvae removal
- pheromone trapping
- other work on oak trees; and
- sources of further information.

4.28. New trees found to be infested the previous season will be sprayed with *Bacillus thuringiensis Bt* for a minimum of 2 years. *Bt* is a bacterium that is pathogenic to insects, especially Lepidoptera (butterflies and moths). Where infested trees have been identified, all potential host oak trees within 50 m will be sprayed. [Section 6 of the OPM manual](#) explains the application of chemical for control purposes. A mixture of application methods will be employed to ensure maximum control capacity during the small window of opportunity for spraying with *Bt* (mid-April to May). There is no evidence that *Bt* has an impact on vertebrates, and whilst it might affect Lepidoptera species, this impact is short-lived. Although *Bt* loses its activity rapidly, in the short time it is active it can eradicate or seriously harm local populations of rare Lepidoptera, in which case the impact could be long-lasting. It is however the least damaging and most

cost-effective option available before the caterpillars begin building nests. Application rates are 1.5 kg/ha, and reference should be made to the specific plant protection product regulations in Appendix 4.

4.29. For trees in urban areas, such as parks, ground spraying is proposed as the accepted treatment. A major limitation on applying insecticides using ground-based spraying equipment is that this equipment does not always deliver sufficient insecticide to the tops of the tallest trees (>20 m). OPM lays most of its eggs in the top of the canopy and this is where most of the early instar larvae are likely to feed. Consequently, a significant proportion of the population on 25-30 m tall trees can be missed by the insecticide treatments. Mobile Elevating Work Platforms (MEWPS) and mist-blowers can help to deliver insecticide to the upper canopy, but this is not always an option.

4.30. Diflubenzuron is an alternative chemical which is only used in exceptional circumstances. Current thinking is that whilst spraying diflubenzuron is a more effective insecticide control method, it is only suitable for isolated locations well away from water, due to the threat it poses to aquatic species. It also kills a wider range of invertebrates than *Bt* and therefore has a greater impact on general biodiversity. There are no toxic effects on vertebrates and, like *Bt*, any impacts on Lepidoptera are relatively short-lived. Deltamethrin is more effective than either *Bt* or diflubenzuron, but it is likely to have a greater impact on the wider biodiversity. It should be considered though, in certain situations i.e. later in the season as it more effective than other treatments when the caterpillars are in the later stages of development, and in this situation is the most likely treatment to result in eradication. [See the OPM Manual -6. Chemical control of larvae.](#)

4.32. Later in the season (June to August) larvae and nests may be removed manually by vacuum equipment or by hand. Removal of nests can be very effective in reducing OPM populations, but this method alone is unlikely to lead to eradication, as it might not be possible to find and locate every larva and pupa. Eradication of OPM on larger trees is most likely to be achieved by a combination of methods which includes correctly timed applications of insecticide that treat the whole of the tree canopy.

## **Disposal plan**

4.33. OPM nest material is classified as [hazardous waste](#) and its transport and destruction is regulated. Current practice is to destroy the material at a licensed incinerator or mobile incinerator, or by burying it deeply in the ground at an approved landfill site or within a demarcated zone.

4.34. Trees, including the branch material and roundwood that are to be felled to eradicate OPM infestation, should be destroyed, preferably on site, by either:

- (a) burning on site or in a nearby location within the demarcated area designated for this purpose ([burning](#) must comply with appropriate waste management regulations, Environment Agency in England, Scottish Environment Protection Agency and Natural Resources Wales); or
- (b) deep burial (to a minimum depth of 2 m) within the demarcated zone.

4.35. If material must be moved from site it should be transported with a protective covering ensuring all material is contained, to a licensed incinerator, or buried deeply in the ground at an approved landfill site.

### **Public outreach**

4.36. It is crucial to have public support for the management programme and to help with general surveillance. Engaging the public will require the provision of timely, balanced and accurate information about monitoring and control. It can also provide opportunities for the public to participate in monitoring and reporting suspect trees using the reporting tool [TreeAlert](#). The voluntary tree health surveillance network, [Observatree](#), could also be deployed. Information, subject to available budget, can be made available through newspapers, radio, TV, publicity materials, the internet and social media, and should be targeted locally, especially within the infected and regulated areas and, where appropriate, regionally and nationally.

4.3. A communication plan to be used in the event of an outbreak has been developed. It is important to provide information on the location (generally provided at county level) and size of the infected and regulated areas, statutory and voluntary responsibilities, indications of changing or enlarging distribution, management options, pathways by which the pest might have arrived and could be dispersed, the prospects for GB forestry and the host species more generally and what people can do to help, especially in terms of monitoring. Basic facts about OPM biology should also be communicated, including oak-specificity, nest appearance and caterpillar appearance to reduce instances of mistaken identity. Managing this level of public engagement will require a central administration office, set up by the LGD, capable of handling large numbers of enquiries and able to provide general and specific information. Liaison with communications and press teams from Wales and Scotland will be required for cross border outbreaks.

### **Review measures in the case of prolonged official action**

4.38. Where eradication attempts prove ineffective, efforts should shift to containment. This is a decision for the Defra contingency core group to make based on the evidence and recommendations from the LGD. The focus should then move to using the FC annual OPM management plan for existing OPM populations and the methods prescribed therein. A review of the management program should be undertaken regularly (e.g. annually) to determine the success and cost-effectiveness of the measures in the longer term. This review will involve consultation with stakeholders and should include:

- evaluation of the effectiveness of current measures.
- evaluation of the economic impact and cost-effectiveness of continuing existing measures.
- consideration of further measures to strengthen containment and eradication actions.
- consideration of statutory obligations and impact on import and export procedures.
- consideration of alternative approaches or the cessation of statutory action; and
- consideration of the impacts on biodiversity following control methods.

### **Criteria for declaring /change of policy and reviewing the contingency plan**

4.39. This and other contingency plans will be reviewed on a regular basis to accommodate any significant changes in pest/pathogen distribution, dispersal, refinement of surveillance techniques, resource availability, PH risk register rating, legislation changes or changes in policy. When and if policy makers in the country/countries affected deem that eradication is no longer a viable option then there will be a move towards a containment strategy. Further details can be found in the Defra generic contingency plan.

4.40. In circumstances where official action is no longer considered appropriate, stakeholders should be informed together with a timetable and mechanism agreed for the removal of official measures and for the dissemination of information on managing the pest as appropriate.

4.41. The plan should only be re-consulted upon if significant new information is presented which affects the approach to the management of an outbreak.

## **5. Recovery**

5.0. A site can be deemed as recovered from an outbreak if, after 3 years of monitoring, there are no indications of moth presence. This includes nests as well as presence of male and female moths. The occasional presence of 1-2 male moths may not contradict recovery. Long distance male dispersers may turn up in areas otherwise free of a breeding population.

## Appendix1: Background information

(Source: CABI-datasheet, Plantwise knowledge bank, OPM Pest Risk Analysis)

### Identity of organism and quarantine status

- Species name: *Thaumetopoea processionea* (Linnaeus, 1758)  
(Lepidoptera: Thaumetopoeidae)
- Synonyms: *Cnethocampa processionea*
- Common name: Oak processionary moth (OPM) UK
- Risk rating: Unmitigated risk High – 100 out of 125; Mitigated risk 45 out of 125
- EU status: *Thaumetopoea processionea* is listed as a harmful organism under Part B of [Annexes III and X of Commission Implementing Regulation \(EU\) 2019/2072](#)
- UK status: Parts of the country have Pest Free Area status as of January 2021 previously Protected Zone status from October 2014. Any tree being moved into or within the GB Pest Free Area must be free from OPM, and movement must be accompanied by an official document.

### Hosts

*Quercus robur* (pendunculate oak) has been the most-affected host in the UK due largely to its prevalence in the outbreak area. Where they are grown, other European oaks such as *Q. petraea* (sessile oak) and *Q. cerris* (turkey oak) are used as suitable hosts. American oaks such as red (*Q. rubra*) and pin (*Q. palustris*) can also be affected, along with evergreen species such as holm oak (*Q. ilex*).

OPM was detected on Cork oak (*Quercus suber*) at Hampstead Heath in London during 2019. Tree officers reported that caterpillars had been seen on the tree for 2 growing seasons, indicating that one lifecycle is likely to have occurred.

Other broadleaved trees such as hornbeam (*Carpinus* spp.), hazel (*Corylus* spp.), beech (*Fagus* spp.), sweet chestnut (*Castanea* spp.) and birch (*Betula* spp.) have also been attacked by this pest, mainly when they are grown next to severely defoliated oaks.

Though a handful of records exist of OPM nesting on other tree species, these are always in instances where the caterpillars are still feeding on an oak nearby but have chosen to nest elsewhere. These records are too rare to be considered at all likely in an initial establishment scenario in the Pest Free Area.

New outbreaks in the UK are more likely to occur on urban trees, because of the importation of infested stock to planting sites in cities and towns, but this is not something relevant to Europe as a whole. It is also more frequent along forest edges, and in both situations, there is a high probability of its coming into contact with humans.

### Host Plants and Other Plants Affected

<b>Plant name</b>	<b>Family</b>
Betula (birches)	Betulaceae
Carpinus (hornbeams)	Betulaceae
Castanea (chestnuts)	Fagaceae
<i>Corylus</i>	Betulaceae
<i>Crataegus</i> (hawthorns)	Rosaceae
Fagus (beeches)	Fagaceae
<i>Pinus halepensis</i> (Aleppo pine)	Pinaceae
<i>Pinus sylvestris</i> (Scots pine)	Pinaceae
<i>Pistacia</i>	Anacardiaceae
<i>Quercus</i> (oaks)	Fagaceae
<i>Quercus cerris</i> (European Turkey oak)	Fagaceae
<i>Quercus frainetto</i> (Hungarian oak)	Fagaceae
<i>Quercus petraea</i> (durmast oak)	Fagaceae
<i>Quercus pubescens</i> (downy oak)	Fagaceae
<i>Quercus robur</i> (common oak)	Fagaceae
<i>Quercus rubra</i> (northern red oak)	Fagaceae
<i>Quercus sessilifolia</i>	Fagaceae

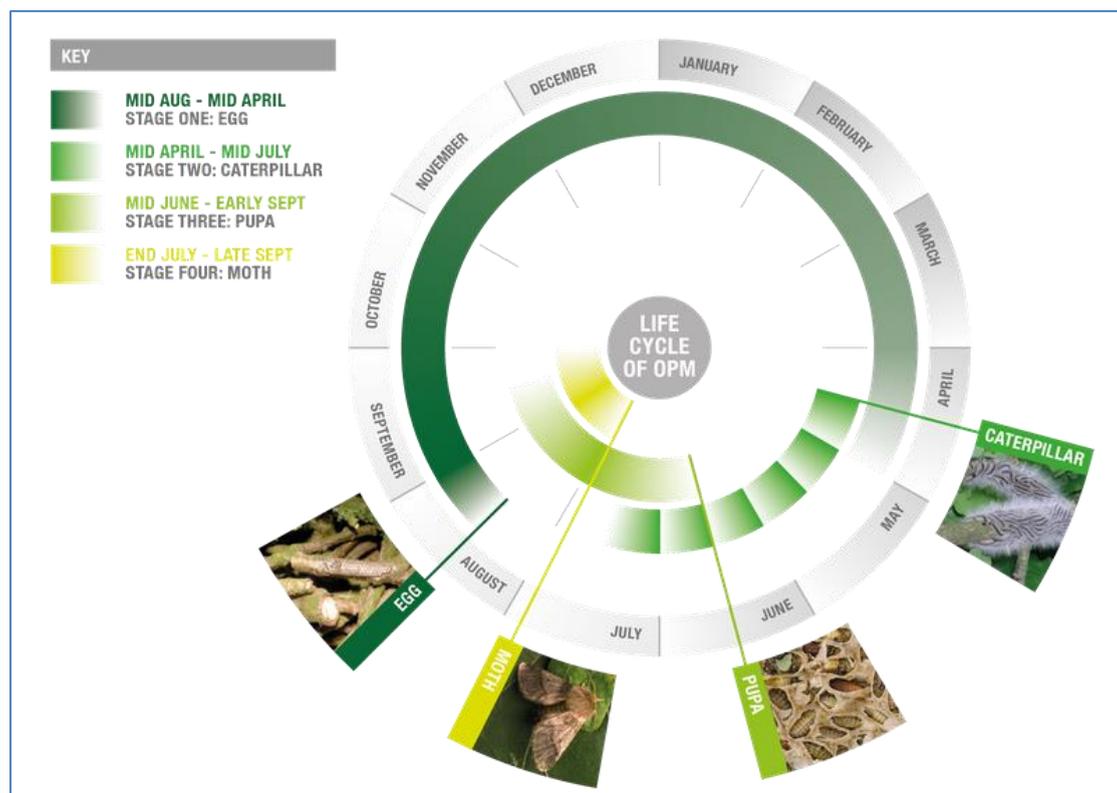
<b>Plant name</b>	<b>Family</b>
<i>Quercus trojana</i> (Macedonian oak)	Fagaceae
<i>Robinia</i> (locust)	Fabaceae

## Life history

OPM has one generation per year. Females lay their eggs (100 to 200 in number), from July to early September on twigs and small branches in the canopy. They are deposited in groups forming plaques of a single layer of eggs, which are covered with greyish scales and remain on the branches over the winter.

Larvae can be found from April to June. They feed in groups and congregate in communal white silken nests under branches or on the trunk when not feeding. At low densities larval nests are typically small, about the size of a tennis ball, but much larger ones have been reported. Where OPM populations are established, then nests tend to be larger and they can reach a considerable size. The larvae pass through 6 instars, shedding their skin between each stage as they grow. The cast skins and hairs accumulate in the nests, changing the nests to an orange-brown colour over time. The larvae typically migrate in procession, following one another head-to-tail in long lines to and from the nest and from one feeding position to another, which gives rise to the common name.

Pupation takes place in the nest, typically during late June or early July. Adults typically emerge in August. They are nocturnal and live for only a day or two.



**Figure 1:** Timings of the lifecycle stages and when control methods are best applied

It should be noted that the timings of the various stages can vary considerably, depending on conditions such as the weather. There may also be staggering of the lifecycle such that the same tree may host caterpillars of stages 3 to 5 at the same time.

### Identification

The larvae are most easily recognised by their distinctive habit of moving about in late spring and early summer in nose-to-tail processions, from which they derive their name, and the fact that they almost exclusively live in and feed on oak trees.

They also build distinctive white, silken webbing nests in oak trees and leave white, silken trails on the trunks and branches in early summer. These become discoloured after a short time, and more difficult to see as a result.

The adult moth is an indistinctive, brown moth very similar in appearance to

other, harmless species. They are active from mid to late summer and lay their eggs on the smaller twigs and branches in oak trees.

## Images

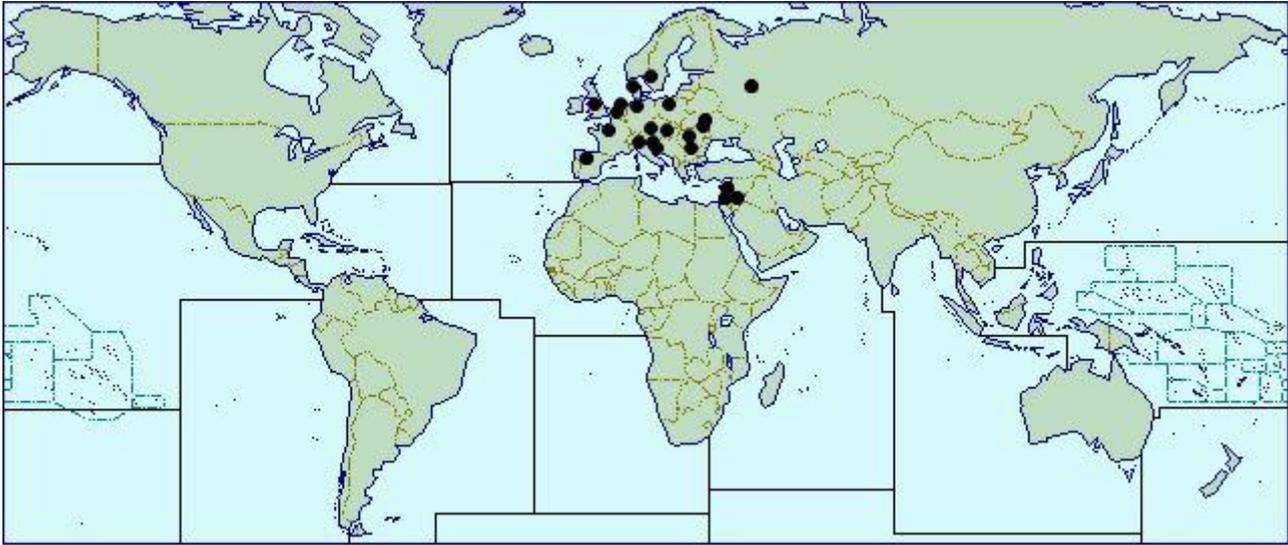
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	Larval defoliation	©Louis-Michel Nageleisen/Departement de la Santé des Forêts, France/Bugwood.org - CC BY 3.0 US

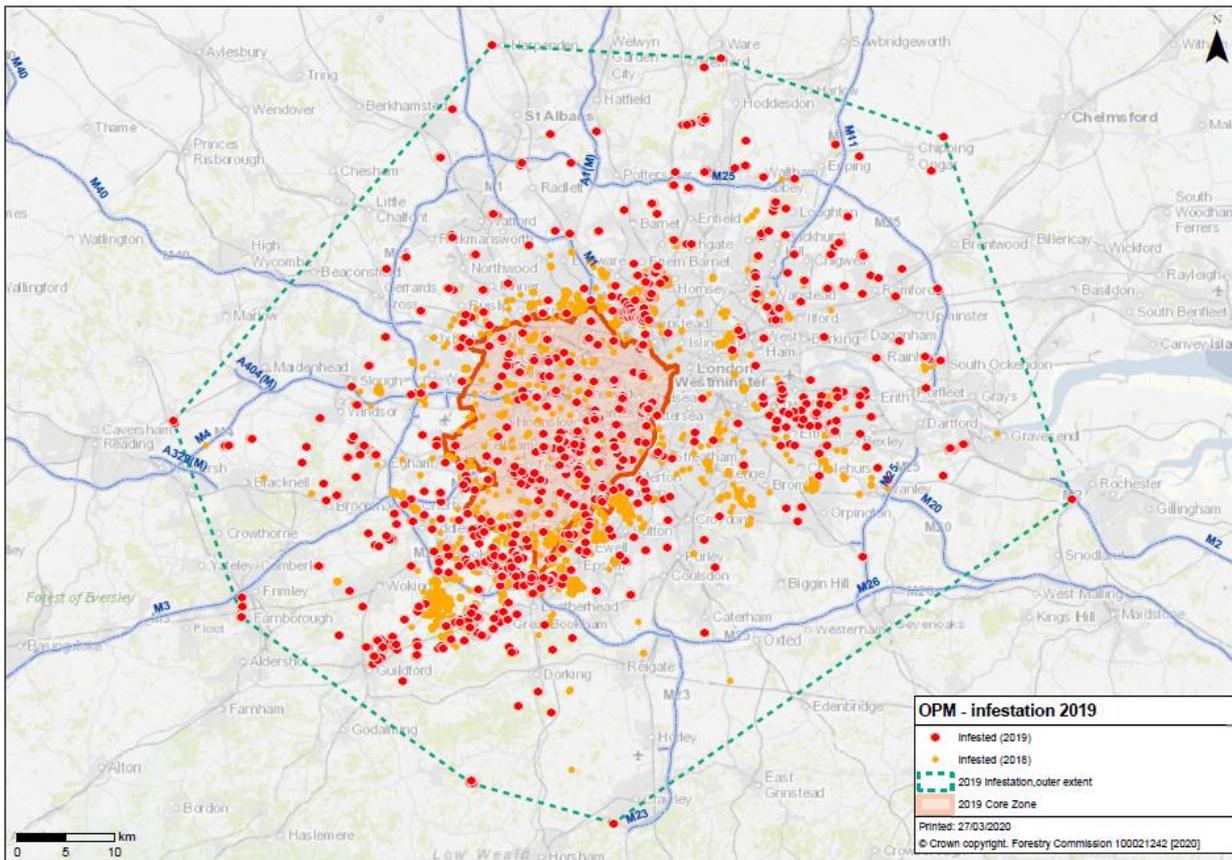
Further images taking you through the different life stages can also be found [here](#).

### **Distribution of the organism**

OPM is native to central and southern Europe. Its distribution is expanding northwards, and it is now firmly established in Belgium, northern France and the Netherlands. It has been reported in southern Sweden. In 2006 it was found in London in two locations, to the north of Kew Gardens and Hanger Lane in Ealing. In the UK, it is established in most of Greater London and in some surrounding counties in South East England. See figures 2 and 3 below.



**Figure 2:** World distribution of OPM in 2014 (CABI, 2014).



**Figure 3:** Distribution in the wider London area (as of end of 2019 survey period).

OPM (based on 2019 survey data) is currently found in the following local authorities of London and south east England where containment or eradication is being sought: Barking and Dagenham; Barnet; Basildon; Basingstoke and Dene; Bexley; Bracknell Forest; Brent; Brentwood; Bromley; Broxbourne; Camden; Castle Point; Chelmsford; Chiltern; City of London; City of Westminster; Crawley; Croydon; Dacorum; Dartford; Ealing; East Hertfordshire; Elmbridge District; Enfield; Epping Forest; Epsom and Ewell District; Gravesham; Greenwich; Guildford; Hackney; Hammersmith & Fulham; Haringey; Harlow; Harrow; Hart; Havering; Hertsmere; Hillingdon; Horsham; Hounslow; Islington; Kensington & Chelsea; Kingston upon Thames; Lambeth; Lewisham; Medway; Merton; Mid Sussex; Mole Valley; Newham; North Hertfordshire; Reading; Redbridge; Reigate and Banstead; Richmond Upon Thames; Runnymede District; Rushmoor; Sevenoaks; Slough; South Bedfordshire; South Bucks; South Oxfordshire; Southwark; Spelthorne District; St Albans; Sutton; Surrey Heath; Tandridge; Three Rivers; Thurrock; Tonbridge and Malling; Tower Hamlets; Uttlesford; Waltham Forest; Wandsworth; Watford; Waverley; Welwyn Hatfield; West Berkshire; Windsor and Maidenhead; Woking, Wokingham and Wycombe.

### **Damage impact and controls**

If OPM were to become widely established in Britain, it could pose a serious threat to native oaks, particularly if repeated cycles of defoliation occur. It could also provide significant management problems for arboriculturists, local authorities and tree owners in both urban and rural situations. In addition, public health bodies have identified that the larvae and in particular their hairs, may pose a health risk to individuals as well as domestic pets, farm animals and wildlife.

There are various direct ways in which the tree can be affected: defoliation, but the tree generally recovers from this. Repeated defoliation may leave the tree susceptible to secondary stresses.

Given the potential health risks associated with OPM, there are also indirect impacts from an outbreak, including reduced woodland/tree management due to occupational health concerns, with parks and woods closed during severe outbreaks. Public perceptions of woods may be altered during an outbreak, although the actual risk is generally lower than what is perceived.

A number of control options exist, including: the destruction of egg masses if found before they hatch the following spring; the application of biological pesticides against the larval stages soon after they hatch; destruction of the nests during the brief pupal stage during the summer to reduce the number of

adult moths that will emerge; and debarking of roundwood to reduce the spread of this pest to new areas (FAO, 2009). The annual OPM management plan outlines detailed options for control.

### **Main pathways**

Adult males are strong fliers, capable of moving up to 20 km in favourable conditions and are thus capable of natural dispersal to new areas. However, the females are not strong fliers, making it unlikely that they would be able to migrate directly to the UK. Possible introduction pathways include the movement of nursery stock, live oak trees, branches and roundwood (with bark) which is infested with eggs or larvae.

### **Import controls**

#### **Pest Free Area**

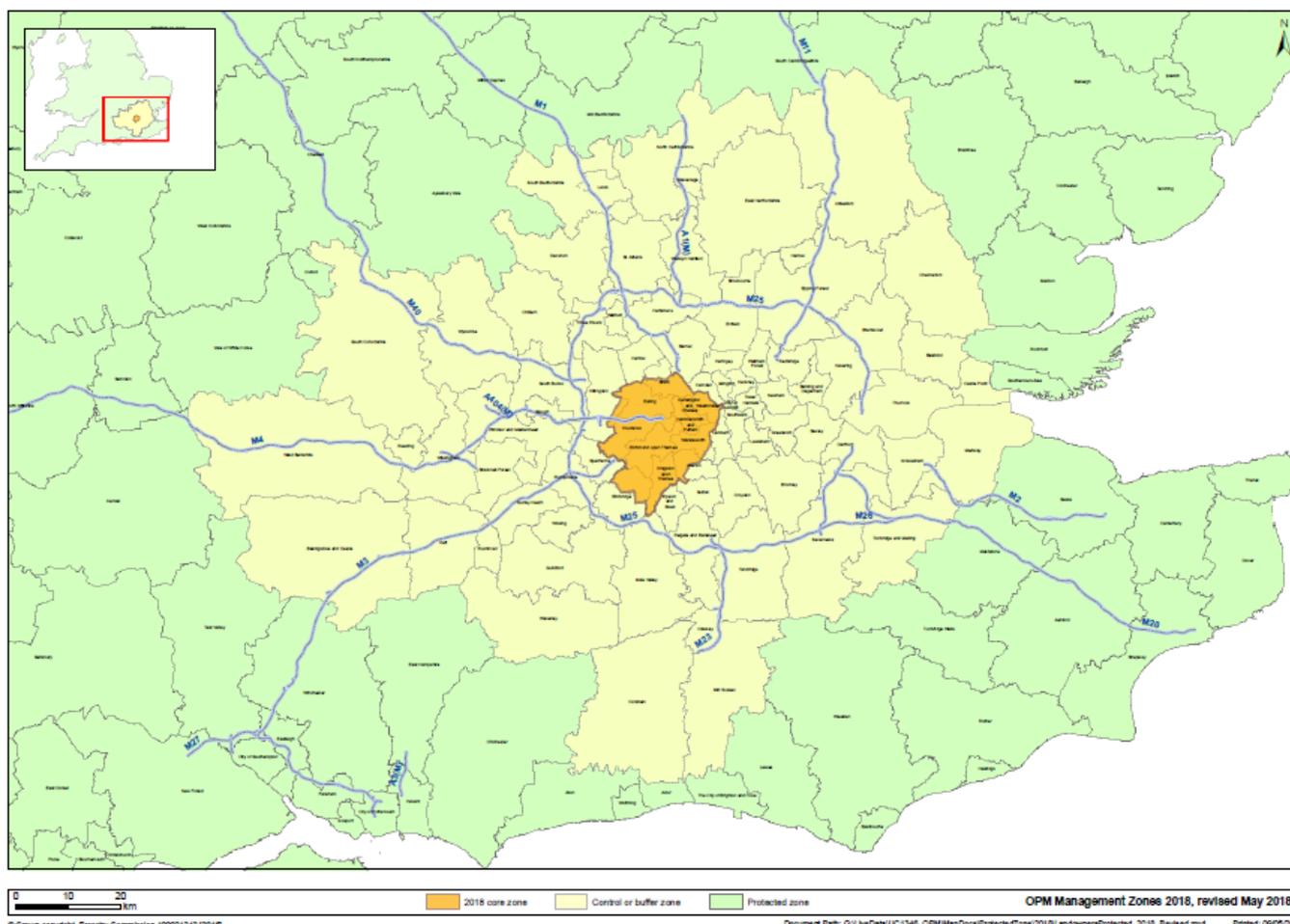
In October 2014, GB was granted Protected Zone status against OPM. From January 2021 i.e. at the end of the EU exit transition period the Protected Zone became a Pest Free Area. Any oak trees, other than seeds, of *Quercus* spp. except for *Q. suber*, entering the UK must be accompanied by a phytosanitary certificate. The Protected Zone now the Pest Free Area has been updated several times since 2014 and as of 2020 includes all regions of GB excluding the infested local authorities in London and south east England as follows: Barking and Dagenham; Barnet; Basildon; Basingstoke and Dene; Bexley; Bracknell Forest; Brent; Brentwood; Bromley; Broxbourne; Camden; Castle Point; Chelmsford; Chiltern; City of London; City of Westminster; Crawley; Croydon; Dacorum; Dartford; Ealing; East Hertfordshire; Elmbridge District; Enfield; Epping Forest; Epsom and Ewell District; Gravesham; Greenwich; Guildford; Hackney; Hammersmith & Fulham; Haringey; Harlow; Harrow; Hart; Havering; Hertsmere; Hillingdon; Horsham; Hounslow; Islington; Kensington & Chelsea; Kingston upon Thames; Lambeth; Lewisham; Medway; Merton; Mid Sussex; Mole Valley; Newham; North Hertfordshire; Reading; Redbridge; Reigate and Banstead; Richmond Upon Thames; Runnymede District; Rushmoor; Sevenoaks; Slough; South Bedfordshire; South Bucks; South Oxfordshire; Southwark; Spelthorne District; St Albans; Sutton; Surrey Heath; Tandridge; Three Rivers; Thurrock; Tonbridge and Malling; Tower Hamlets; Uttlesford Waltham Forest; Wandsworth; Watford; Waverley; Welwyn Hatfield; West Berkshire; Windsor and Maidenhead; Woking, Wokingham and Wycombe.

### **Strengthened measures.**

In July 2019, the Government introduced strengthened measures on the import of most species of oak into England to protect native trees from the threat of OPM. The measures only permitted imports of certain oak trees if they come from OPM-free countries, from designated pest-free areas including Protected Zones (PZ), or have been grown under complete physical protection for their lifetime.

This [Statutory Instrument \(SI\), was announced on 12 July 2019](#). It built on [measures introduced in August 2018](#) and applies to all oak trees, except cork oak (*Q. suber*), over 1.2m. These measures have been included in Commission Implementing Regulation (EU) 2019/2072. This is because these trees represent the greatest likelihood of introducing OPM into the UK PZ, as they are more likely to carry the pest and are more difficult to inspect. The restrictions cover both imports into Great Britain from overseas and the movement of trees from areas of the country where OPM is already present – in London and surrounding counties ([outside the UK PZ](#)). Strengthened measures on the import of oak in [Northern Ireland](#), [Scotland](#) and [Wales](#) were also put in place. These and other measures from the Plant Health Order, as amended, were then adopted into the Official controls for England, Wales and Scotland – see Appendix 4 legislation.

## Appendix 2 - OPM Management zones (note that the Protected Zone is now the Pest Free Area)



### Appendix 3: Alert status categories

(based on alert status levels in Defra’s generic contingency plan).

<b>ALERT</b>	<b>STATUS</b>	<b>COMMAND LEVEL</b>
White	Non-significant plant pest/disease with potential for limited geographical spread	Instigation of Incident Management plan involving Operational command at appropriate level and follow Standard Operating Procedures or scientific advice where applicable
Black	Significant plant pest/disease with potential for limited geographical spread	Instigation of Incident Management plan usually involving joint Tactical and Operational command at appropriate level and follow plant pest/disease specific response plans where applicable
Amber	Serious plant pest/disease with potential for relatively slow but extensive spread leading to host death and/or major economic, food security or environmental impacts	Instigation of Incident Management plan usually involving joint Strategic and Tactical command and follow plant pest/disease specific response plans where applicable
Red	Serious or Catastrophic plant pest/disease with potential for rapid and extensive geographical spread leading to host death and/or major economic, food security or environmental impacts	Instigation of Incident Management plan involving Strategic, Tactical and Operational command and follow plant pest/disease specific response plans where applicable

## Appendix 4: Relevant legislation, References and websites

### Plant Health Legislation

Regulation (EC) 29/2000 amended by regulation (EC) 89/2002 has been repealed by Regulation (EU) 2016/2031 which forms the Plant Health Regulation, and has been transposed by: [The Plant Health \(Amendment etc.\) \(EU Exit\) Regulations 2020](#) (which also amends the implementing legislation: [The Official Controls \(Plant Health and Genetically Modified Organisms\) \(England\) Regulations 2019](#), [The Plant Health \(Official Controls and Miscellaneous Provisions\)\(Scotland\) Regulations 2019](#) and [The Official Controls \(Plant Health and Genetically Modified Organisms\)\(Wales\) Regulations 2020](#))and [The Plant Health \(Phytosanitary Conditions\) \(Amendment\) \(EU Exit\) Regulations 2020](#).

Commission Directive 103/2004(EC) has been repealed by Commission Delegated Regulation (EU) 2019/2123 which forms part of the Official Controls Regulation which has been transposed by: [The Official Controls \(Animals, Feed and Food, Plant Health etc.\) \(Amendment\) \(EU Exit\) Regulations 2020](#) and [The Official Controls \(Animals, Feed and Food, Plant Health etc.\) \(Amendment\) \(EU Exit\) \(No. 2\) Regulations 2020](#).

SCHEDULE 9 New Annex 10 to the Plant Health (Phytosanitary Conditions) (Amendment) (EU Exit) Regulations 2020.

*ANNEX 10* List of plants, plant products and other objects to be introduced into, or moved within, GB pest-free areas and corresponding special requirements.

(1)	(2)	(3)
Description of plants, plant products or other objects	Special requirements	Description of GB pest-free area
1. Plants for planting, other than fruits and seeds, of <i>Quercus</i> L., other than <i>Quercus suber</i> L., of a girth of at least 8 cm measured at a height of 1.2 m from the root collar	The plants must be accompanied by: (a) an official statement that the plants have been grown throughout their life in places of production in countries where <i>Thaumetopoea</i>	Great Britain (excluding the local authority areas of Barking and Dagenham, Barnet, Basildon, Basingstoke and Deane, Bexley, Bracknell Forest, Brent, Brentwood, Bromley, Broxbourne, Camden, Castle Point, Chelmsford, Chiltern, City of London, City of Westminster, Crawley, Croydon, Dacorum, Dartford, Ealing, East Hertfordshire, Elmbridge District, Enfield, Epping Forest, Epsom and Ewell District, Gravesham, Greenwich, Guildford, Hackney, Hammersmith & Fulham, Haringey, Harlow, Harrow, Hart, Havering, Hertsmere, Hillingdon,

(1)	(2)	(3)
Description of plants, plant products or other objects	Special requirements	Description of GB pest-free area
	<p><i>processionea</i> L. is not known to occur,</p> <p>(b) an official statement that the plants have been grown throughout their life in an area free from <i>Thaumetopoea processionea</i> L. established by the national plant protection organisation in accordance with ISPM4 as an area that is free from <i>Thaumetopoea processionea</i> L., or</p> <p>(c) an official statement that the plants have been grown throughout their life in a site with complete physical protection against the introduction of <i>Thaumetopoea processionea</i> L. and have been inspected at appropriate times and found to be free from <i>Thaumetopoea processionea</i> L.</p>	<p>Horsham, Hounslow, Islington, Kensington &amp; Chelsea, Kingston-upon-Thames, Lambeth, Lewisham, Littleford, Medway, Merton, Mid Sussex, Mole Valley, Newham, North Hertfordshire, Reading, Redbridge, Reigate and Banstead, Richmond-upon-Thames, Runnymede District, Rushmoor, Sevenoaks, Slough, South Bedfordshire, South Bucks, South Oxfordshire, Southwark, Spelthorne District, St Albans, Sutton, Surrey Heath, Tandridge, Three Rivers, Thurrock, Tonbridge and Malling, Tower Hamlets, Waltham Forest, Wandsworth, Watford, Waverley, Welwyn Hatfield, West Berkshire, Windsor and Maidenhead, Woking, Wokingham and Wycombe)</p>

[The Waste Management Licensing \(Scotland\) Regulations 2011](#)

[The Environmental Permitting \(England and Wales\) Regulations 2010](#)

[Natural Environment and Rural Communities Act 2006](#)

[Plant Health Act 1967](#)

[Forestry Act 1967](#)

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Mark Townsend. Oak Processionary Moth in the United Kingdom [https://www.researchgate.net/publication/263566114\\_Oak\\_Processionary\\_Moth\\_in\\_the\\_United\\_Kingdom](https://www.researchgate.net/publication/263566114_Oak_Processionary_Moth_in_the_United_Kingdom)

Nigel Straw, Andrew Hoppit, Julia Branson. The relationship between pheromone trap catch and local population density of the oak processionary moth

*Thaumetopoea processionea* (Lepidoptera: Thaumetopoeidae)  
<https://onlinelibrary.wiley.com/doi/abs/10.1111/afe.12349>

## Websites

Oak processionary moth (*Thaumetopoea processionea*):  
<https://www.forestresearch.gov.uk/tools-and-resources/pest-and-disease-resources/oak-processionary-moth-thaumetopoea-processionea/>

CABI (2014), *Thaumetopoea processionea* (Oak processionary moth):  
<http://www.cabi.org/isc/datasheet/53502>

Plantwise, Oak processionary moth (*Thaumetopoea processionea*) Plantwise Technical Factsheet:  
<http://www.plantwise.org/KnowledgeBank/Datasheet.aspx?dsid=53502>

UK Plant Health Risk Register, UK Risk Register Details for *Thaumetopoea processionea*:  
<https://secure.fera.defra.gov.uk/phiw/riskRegister/viewPestRisks.cfm?cslref=7319&riskId=7319>

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