Committee(s)	Dated:
Hampstead Heath Consultative Committee Queen's Park Joint Consultative Group Highgate Wood Joint Consultative Group Hampstead Heath, Highgate Wood and Queen's Park Committee	9 November 2015 18 November 2015 18 November 2015 23 November 2015
Subject: Update on Oak Processionary Moth (OPM) at the North London Open Spaces Division	**Public**
Report of: Superintendent of Hampstead Heath	**For Information**

Summary

This report provides an update on the Oak Processionary Moth (OPM) *Thaumetopoea processionea* population and its management at the North London Open Spaces Division, following the discovery of caterpillars and nests at Queen's Park and Hampstead Heath in June 2015.

Recommendation

Members are asked to:

- Note the contents of this report.


Figures 1 & 2. Forestry commission images of moth and caterpillars

Background

1. OPM is a native of southern Europe, where predators and environmental factors usually keep its numbers in check and minimise its impact. However, aided by the movement of plants, its range has been expanding northwards over the past 20 years, and it has become established as far north as the Netherlands, Belgium and northern Germany. The caterpillars arrived in the UK in 2006 in West London, close to Kew Gardens, as egg plaques on twigs of imported tree nursery stock from the Netherlands.

Figure 3. FC image of egg plaques

Figure 4. Author's image of browsing

2. The caterpillars feed on the foliage of oak trees from April through to early August, and have been known to cause significant defoliation and subsequent tree health issues where there are large populations and nests.

Health concerns

3. Of most concern are the human health problems the caterpillars can potentially cause, placing it on the London Risk Register under Section 24. The caterpillars in their later stages of development carry barbed (urticating) hairs that can cause severe skin irritation and breathing difficulties. There is an additional risk to dogs, which are highly sensitive to the microscopic hairs.
4. Human contact with the hairs (setae) of OPM can be associated with a range of symptoms of varying severity, from urticarial rash and dermatitis to anaphylaxis. Following the investigation of an outbreak of dermatitis in a group of residents living in South West London, concerns were raised over the potential health risks to the population, with particular anxiety about the potential of the caterpillar setae to trigger anaphylaxis-like reactions.
5. Occupational exposure is a concern regularly reported across the Arboricultural industry, where repeated exposure has been identified as a risk factor for sensitisation to OPM caterpillars, with those who are sensitised experiencing an increasingly severe response. A previous history of exposure does not appear to be necessary for a reaction to occur.
6. Prevention and treatment advice can be found in appendices in the Public Health England document *'Health effects of exposure to setae of oak processionary moth larvae - Systematic review 2015 '* (see appendices). This report places the risk from the pest between low and medium and refers to control in the UK and mainland Europe as 'encouraging'. This overall analysis of the situation is not necessarily shared by those professionals involved in the control programme or by a number of the duty holders who are struggling to keep on top of the relentless spread of the pest in the London area.

Figures 5 & 6. Gristwood & Toms images of rash symptoms on contractors exposed to OPM setae

London-wide management

7. Attempts to eradicate this pest have been through the use of Plant Health Notices issued by the Forestry Commission, which obligate landowners or duty holders to take action to control the caterpillars. Despite best efforts, treatment of the pest has turned to containment. Eradication measures are difficult, because the pesticides used are highly toxic to other insect species and the collateral damage is high. Kew Gardens for example has managed to limit the impact of OPM by the use of a non-biological chemical insecticide, but this treatment is not selective. Widespread use eradicates any other species susceptible to the chemical, many of which are beneficial to the natural system, with some species being endangered. This control option is simply not viable for many sites with significant nature conservation status.

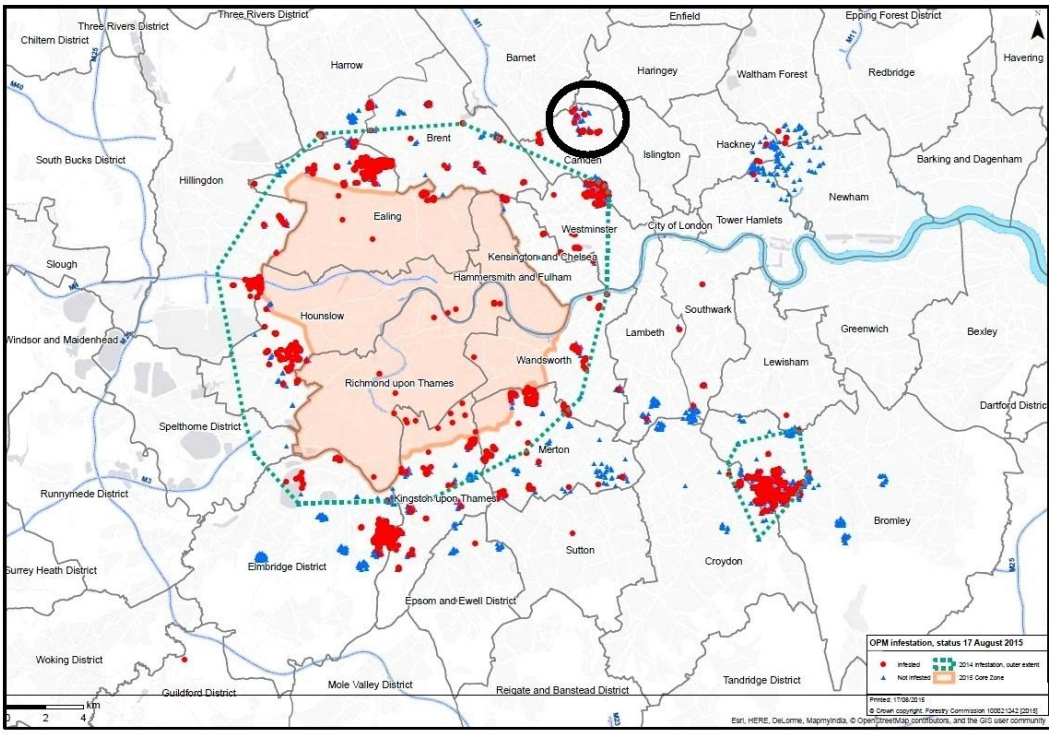

Figure 7. Current London spread (2015) FC map

Tree safety and the Law with regard to OPM

8. There are legal requirements for duty holders responsible for trees that affect our staff and the public.

9. **Health and Safety at Work Act 1974**: this is the most critical responsibility that we undertake, including Section 3 of the Act which is concerned with the safety of the public. Along with the duty owed to all our staff, we also have a duty of care to members of the public, to ensure their safety *'so far as is reasonably practicable'* while they are on our land. The execution of that duty of care should be *proportionate to the risk identified,* and the HSE recognises that there will be a financial aspect to this.
10. **Occupiers Liability Acts 1957 and 1984**: these impose a duty of care on the tree owner to take '*reasonable care to avoid acts or omissions which cause a reasonably foreseeable risk of injury to persons or property'*. Tree owners should adopt the approach of a reasonable and prudent landowner, as failure to do so could lead to potential claims of negligence or nuisance. The tree owner must also understand that the duty of care is owed to persons entering their land, both invited and uninvited.
11. **Management of Health and Safety at Work Regulations 1990:** regulation 3 imposes a responsibility to carry out risk assessments, to assess the risk to non-employees. These regulations require duty holders to carry out risk assessments on their trees, and operate an inspection system that focuses available resources on tree stock in high-use, high-target areas.
12. **Plant Health Act 1967 and the Plant Health (Forestry) Order 2005:** the 1967 Act forms the Foundation Legislation for imposing controls and biosecurity measures in the UK, and the 2005 Order deals specifically with the EEC Council Directive 2000/29/EC on Plant Health.

OPM management at Hampstead Heath, Highgate Woods, and Queen's Park.

Training

13. A number of key staff have had off-site training since 2010 at Syon Park and Richmond Park, looking at caterpillars, nests and browsing, and have also attended various seminars and London Tree Officer Association workshops.


Figures 8 & 9. Author's own images of training

Pheromone trapping & inspection

14. The NLOS Tree Team first implemented pheromone trapping in 2007 at Hampstead Heath and Queen's Park, to catch male moths for the Forestry Commission's London-wide OPM flight study. This continued for the following two summers until 2009. One male was reported in 2009.

15. Three traps were placed across the Division: one at Queen's Park, one at Golders Hill Park, and the third on the Extension. Periodic visual inspections for caterpillars and foliage browsing were undertaken at the three sites each year during the OPM season (April to August)

16. Due to a change in the study programme parameters, the Team did not continue the trapping at NLOS after 2009, starting again in the summer of 2014. That year, seventeen males were captured from three of the four traps (Golders Hill Park, Spaniards Road and the Hampstead Way/Extension), which had been installed that August. Because of the confirmation of nests at Queen's Park and Hampstead Heath this year (2015), the four traps have been concentrated at Highgate Woods. There have been no records of male moths in these traps so far this year.

Figures 10 & 11. Author's own images of pheromone trapping

Confirmation of first OPM at NLOS

17. During inspection in June 2015, the Tree Team discovered caterpillars in one oak and a suspected nest in an adjacent tree in Queen's Park, not far from the Café. Fences were erected to exclude the public from these trees and information signs were installed. At this point, we informed the Forestry Commission, who sent an Inspector to the site to confirm. The inspector then carried out a further 100m-radius thorough inspection around these trees. No further nests were discovered.

18. Over the next few days, a report by a member of the public who was running across the Heath suggested that they had rash-like symptoms, which may have been associated with OPM caterpillars. A map of the runner's route was created and the Tree Team was dispatched to inspect the trees along the route. A nest was discovered on one of the first trees inspected, which led to the FC inspectors being brought onto the Heath to confirm. After confirmation, a further 100m-radius inspection was carried out, with further nests being discovered.

19. Over the next month, a total of fifteen nests in thirteen trees on the Heath were discovered by a combination of FC inspectors and the Tree Team, as shown in Figure 12. A further two trees with a nest each were discovered within the neighbouring English Heritage Kenwood property.

20. During this period Hampstead Heath and Queen's Park received separate Statutory Plant Health Notices to remove all nests across the sites, and to carry out spraying operations in Spring 2016.

Figure 12. Map of chronological order of discovered nests on the Heath in yellow (orange marks nest located within the Kenwood Estate.

Specialist Nest removal

21. Due to the significant health implications caused by the setae (urticating hairs) found on the caterpillars and in the nests, the decision was made not to expose the Tree Team to this hazard. Contractors were used who have specialist Personal Protective Equipment (PPE), including full respiratory helmets and disposable climbing kit.


Figures 13 & 14. Images of specialist PPE

22. The identified nests are removed and put into sealed double-skin plastic bags, which are placed into a container and then taken off-site for incineration. Figures 15 and 16 show nests containing the hairs at different stages of pupation, taken from trees no more than 50 metres apart.


Figures 15 & 16. Author's own images of removed nests

Ongoing management

23. The thirteen identified trees will be revisited this winter (out of leaf) by the FC inspectors, to see if there are any additional nests that may have been missed. These target trees and a surrounding 50-metre radius will be sprayed by contractors with the biological pesticide *Bacillus thuringiensis* (BT). This will help control next year's early-stage caterpillars when they emerge from their egg plaques.

Figure 17. OPM spraying at Kew gardens

24. The Tree Team will continue inspections of areas deemed to be at risk, based on the previous year's inspection areas, the nest location map, the jogger's route map, FC inspectors' discoveries, plus public and staff reports. The Team will continue with the removal of discovered nests, and with staff presentations in the field showing nests, caterpillars and browsing.

Other Pest and Disease threats

25. There has been a marked escalation in the rate of occurrence of novel threats from pests and diseases in the UK, mainly through importation.

26. As well as the control of OPM, the Tree Team is involved with the ongoing inspection and management of current and future pests, as well as with disease threats that are affecting the trees across the Division. These include:

I. Monitoring for Chalara Ash dieback – *Hymenoscyphus fraxineus.*

II. Detecting and removing branches on London Planes with Massaria disease – *Splanchnonema platani.*

III. Monitoring for Acute Oak Decline.

IV. Working with the LTOA inspecting sites across North London, looking for symptoms of Canker stain of plane – *Ceratocystis platani.*

Corporate & Strategic Implications

27. Tree management contributes to producing a Clean, Pleasant and Attractive City (Objective CPAC4) and to Conserve and Protect Biodiversity (Goal 15) in the Community Strategy. It will also help fulfil the Department's Strategic Goals and Objectives: No. 2. To adopt sustainable and sensitive working practices, promote biodiversity and protect the Open Spaces for the enjoyment of future generations, and No. 5. To ensure that the profile of the Open Spaces is further recognised through working in partnership with others to promote our sites and through influencing policies at a local, regional and national level.

Costs of managing OPM at NLOS 2015

Inspection and admin time

- Tree Team inspection at Queen's Park and Hampstead Heath
- Liaison time with the FC inspectors and installing barriers around nest trees (FC will advise their Inspectors' time and rates)
- Managing the nest-removing contractors (thirteen trees/fifteen nests)
- Placing and surveying pheromone traps over the flight period
- Administration costs @ 10%

The individual hours total = 250:

- 75 hours for Arborist
- 75 hours for Tree Team Leader
- 60 hours for Trees Management Officer
- 40 hours for Tree Manager
  + administration time

The time spent on OPM at Queen's Park = 40 hours
Time spent on OPM at Hampstead Heath = 210 hours

Cost of inspection and admin time = £8,080.00

Nest removals

4 site visits by Gristwood & Toms
x 1 at QP = £200
x 3 at HH (£400 half days) = £1,200.00

Cost of nest removal = £1,400.00

Total spend during 2015 is £9,480.00

Conclusions

28. It is quite clear that attempts to eradicate this pest across the London area have not been successful. This is due to a number of factors, including the moth's highly evolved survival strategy. Although we have been closely monitoring our Oak populations since the initial outbreak in 2006, the arrival of the egg-laying females has occurred earlier than we expected. Focussing resources on the current known populations will manage the individual trees that are affected but we have to face the certainty that Hampstead Heath, Queen's Park and potentially Highgate Woods will continue to have new nests as an ongoing management issue. There are several study programmes looking at various chemical and non-chemical controls, including natural predation by nematodes, bacteria, and predatory insects, but it could be a long time before a balanced mortality level in tune with the local ecosystem can be achieved.
29. Until that point, there is a need to assess the local resources required to continue managing this developing situation. This may include supplementing the Tree Team with independent Inspectors, looking at training and utilising local

volunteers, and a continuing dialogue with the Forestry Commission and neighbouring Local Authorities and site managers (including Kenwood)

31. Unfortunately the experience of other sites suggests that the caterpillar is virtually impossible to eradicate; it is a case of management and careful monitoring. They are here, they are not going away. City of London staff and the public will need to learn to live with them during the emergence, feeding, pupation and flight season of March to August.

Figure 18. Trees containing nests, fenced off in an open access public area (Parliament Hill Bandstand).

Appendices

Links & References

- **Forestry Commission** http://www.forestry.gov.uk/opm
- **London Tree Officer Association** http://www.ltoa.org.uk/docs/Forestry_Commision-A4.pdf
- **Public Health England** https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/432003/Oak_Processionary_Moth_FINAL__2_.pdf
- **Tree diseases in London - Ian Keen Associates** https://www.cityoflondon.gov.uk/business/economic-research-and-information/research-publications/Documents/research-2013/Tree-diseases-in-London-WebVersion.pdf

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