

Pine-tree Lappet Moth Outbreak Management Team
Minutes of Seventh Meeting held on 27 September 2011
Silvan House, Edinburgh
Present:

Stewart Snape, Deputy Head of Plant Health (Chair)
 Stuart A'Hara, Molecular Biologist, Forest Research
 Hugh Clayden, Tree Health Policy Adviser, FC Scotland
 Joan Cottrell, Programme Group Manager, Forest Research
 Chris Inglis, Executive Director & Company Secretary, ConFor
 John Morgan, Specialist Advisor, Plant and Seed, Corporate and Forestry Support
 Roger Moore, Senior Scientific Officer, Forest Research
 Tom Prescott, Species Conservation Officer, Butterfly Conservation
 Athayde Tonhasca, Species Adviser, Scottish Natural Heritage
 Richard Wallace, Development and Operations Advisor, Highland Conservancy
 David Jardine, FDM, Inverness, Ross & Skye FD (by phone)
 Dietrich Pannwitz (by phone)
 Patrick Porteous, Forestry Advisor, John Clegg & Co. (pm) only
 Sheila Inglis, Secretary

Summary of action points arising

Action Point	Date Due
Action 1/11 - Joan would contact Felix Karthaus regarding Ptl samples	a.s.a.p
Action 2/11 - Tom will attempt to find the personnel working at Aigas at the time of the first Ptl find	a.s.a.p
Action 3/11 - Richard to follow up on the location and timing of proposed felling within the Ptl zone by SSE	immediate
Action 4/11 - - Athayde Tonhasca would ensure that the SNH management update was properly dated	a.s.a.p
Action 5/11 - Hugh will provide a copy of the scoping report to Sheila Inglis for circulation to Dietrich and David Jardine.	immediate
Action 6/11 - Hugh will provide a copy of the flight plan to Sheila Inglis for circulation to Dietrich and David Jardine.	immediate
Action 7/11 - Hugh to prepare report of 3 day intensive survey to be held early in October and circulate to Management Team	a.s.a.p
Action 8/11 - Hugh to provide Dietrich Pannwitz and David Jardine with a copy of Roy Leverton's email dated 26/9/11	a.s.a.p
Action 9/11 - Richard to prepare draft Paper on proposed solution for future control and monitoring	2 weeks

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Action Point	Date Due
Action 10/11 - Roger to provide glue banding costs	a.s.a.p

Agenda Item 1: Welcome

1. Stewart welcomed everyone to the seventh meeting of the Management Team. Apologies were received from David Barbour.

Agenda Item 2: Minutes of the meeting held on 18 May 2011

The minutes of the meeting held on 18 May 2011 were agreed.

Agenda Item 3 - Matters arising

Joan advised that Felix Karthaus had not yet been contacted but would carry this forward.
Action: Joan Cottrell/Stuart A'Hara

Agenda item 7

Joan said that the specimens for sale had been removed from the Russian website. Assistance from Stewart 's contact in the FCO resulted in receiving a single response.

Stewart confirmed that a copy of Ian Murgatroyd's analysis of spraying methods had been circulated to OMT members.

Tom Prescott reported that light trapping had been carried out in Tentsmuir Forest; no Ptl had been found.

Roger advised he had found two types of incubators which with modification would be suitable. Roger would also like to purchase a fridge/freezer.

Tom had managed to contact Martyn Waller, a Professor in an English University regarding the initial find of Ptl at Aigas in the 70's but MW said that he hadn't heard of Ptl and had not trapped for it. He will attempt to find the personnel working at Aigas at the time.

Agenda item 8

Richard reported that some SSE line bases had been erected in open country and would be informed when line felling within the Ptl control area will start. Dietrich felt that this was imminent. Richard will follow up with SSE.

Action: Richard Wallace

Athayde informed the team that funding from SNH is a definite maybe but a case would have to be made. Roger would have to supply some costings. Glue bands would be required over a wider area.

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Hugh and Chris decided to delay drafting an article for Confor publication until after the meeting and after Ministerial clearance for proposed courses of action.

Action: Chris Inglis/Hugh Clayden

Stewart circulated the PRA for Ptl and asked for comments. The PRA will be modified as required.

Agenda item 9 – Stewart circulated the Memo addressed to the head of the SNH Advisory team. Athayde will update the memo, date it and identify it as an SNH document.

Action: Athayde Tonhasca

Agenda item 4 – FCS Update

Hugh advised a scoping report was being prepared on aerial pesticides. The report outlined steps to be taken adding that FRA would then pick up on details. Hugh circulated a copy of the scoping Report to everyone at the meeting; a copy will be forwarded to Dietrich Pannwitz and David Jardine. Hugh added that FCS will co-fund to pay for the report with technical Development Branch.

Hugh circulated a flight plan of the organised flyover of the Ptl area, a copy of which will be forwarded to Dietrich and David.

Action: Hugh Clayden

will provide copies of the scoping report and the flight plan to Sheila Inglis for circulation to Dietrich and David Jardine.

Hugh commented that several foliar diseases appeared to be present, on about half of the pine area in the Ptl zone. He added that active forest management is necessary to maintain the health of pine stands eg ongoing thinning will help to suppress disease. Richard concurred and commented the flights gave good views of the condition of canopies.

A 3 day pine survey on (mainly) the national forest estate in the north and east of Scotland will be undertaken early in October and a report will be prepared which will aid subsequent ground-truthing of potential tree health issues. A copy of this report will be issued to the Ptl management team.

Action: Hugh Clayden

Hugh will put a Paper to the Management Board in December on the four main pests, Red Band Needle Blight, Pine-tree Lappet Moth, Pine Beauty Moth and Pine Sawfly.

Richard mentioned that there was unease in the industry regarding the inability (due to snow/ice) to harvest pine in the Ptl area during the unrestricted winter months.

Inverness, Ross & Skye FD intends to fell pine in Birch Wood near Muir of Ord to reduce risk in pine. A mixed stand will be felled this winter.

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Agenda Item 5: Research Update – Genetics

Stuart reported that despite concerted efforts to acquire new samples for molecular analysis, additional specimens had only been received from the Czech Republic and France. The final new sequences included in the latest analysis were generated by the successful re-processing of a Bulgarian and a Majorcan sample which had previously not produced readable sequence. As agreed at the last meeting, a larger number of sequences had been generated and included in the NAD analysis since only a small sub-section of samples were analysed previously.

The Scottish sequences remain unique. The addition of the new sequences in the analysis still does not allow us to place the Scottish sample any closer to any of the members of group II. The data allows us to rule out Group I and Group III samples as possible sources of the Scottish population.

Agenda Item 6: Research update – Population dynamics - Insect Growth and development

Roger gave a quick overview of the life cycle of Pine-tree Lappet Moth.

Growth of caterpillars collected during spring 2011 continued and showed that

- Some caterpillars are capable of cocooning immediately on entering the lab
- Caterpillars captured in the spring >0.5g in weight developed rapidly and had cocooned by 10/5/11 as did those of similar weight at slightly lower temperatures in a controlled environment cabinet
- Spring captured caterpillars <0.5g in weight and split between lab and the controlled environment cabinet (CEC) all continued to grow until autumn. Only one caterpillar successfully cocooned in the lab emerging as an adult on 28/7/11. Eight caterpillars in the CEC cocooned after this date and have continued to emerge up until 20 September.
- This suggests that it is more difficult to get Ptl caterpillars to cocoon under subdued ambient light and a natural day night rhythm such as would be experienced by caterpillars cultured indoors. It also indicates a subtle interplay between temperature and/or light in inducing changes in caterpillar behaviour/metamorphosis.
- The small caterpillars (<0.5g in weight and between 2.0 and 2.5cm in length) were almost certainly laid as eggs in late June and July 2011. This indicates that the Pine-tree Lappet Moth under controlled laboratory conditions is capable of developing in a 1 year life-cycle overwintering once in the caterpillar stage and that it is not genetically fixed in a 2 year cycle.

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The PtLM adults that emerged following development of the larger spring caterpillars were mated and eggs from known 'adult pairings' have been allowed to hatch to caterpillars and these have been used in additional experiments. Hatching of caterpillars occurred between 3/6/11 and 8/6/11. This is estimated to be about 4 weeks earlier than egg hatch would naturally occur in the field.

- An experiment has been established to look at nutritional indices (CI, AD, ECI, ECD) and the relative growth rate (RGR) of caterpillars growing on Scots pine and Sitka spruce. The experiment is ongoing and has shown that PtLM caterpillars are capable of feeding and developing on Sitka spruce.
- Growth of caterpillars at an average of 15°C indicates slower growth than at the higher temperatures previously studied but at 10°C growth is very slow and there is an indication that the caterpillars are losing weight.
- This group of caterpillars are growing rapidly in the lab and some individuals (likely to be females) are over 5cm in length in c 3¹/₂ months since hatching from eggs (max female caterpillar length previously observed is c 8cm). There is a high degree of variation in size even within caterpillars from the same male: female pairing growing on the same food source.
- A number of this group of caterpillars were taken into the field and put out onto Scots pine needles in muslin sleeves on 24/6/11 at two sites (Long wood and Boblainy). There is an obvious difference in weights/size of the 2 groups of caterpillars. Those at the higher site in Boblainy are smaller/lighter than those in Longwood. Caterpillars are between 2.2 and 3.6cm in length and 0.15 and 0.58g in weight. Those in the latter group would be well placed to develop to adults next year but they were clearly c 4 -5 weeks advanced at the time they were put out than similar larvae hatching naturally in the field. However, they are still likely to continue to develop in the field prior to overwintering.

Population Monitoring Surveys

Pheromone trapping for adult males

A core of 47 sites have been monitored in all 3 years (2009-11). A single additional site was monitored in 2010 (48 sites) and a further 14 sites added in 2011 (62 sites). Ten of the latter sites were ancient Caledonian pine sites which best 'matched' the climate of sites where PtLM has been found breeding. In 2009 all traps were funnel traps, in 2010 half were funnel and half delta traps and in 2011 all traps were the more efficient delta traps.

- PtLM adults were captured at 5 sites in 2009, 9 sites in 2010 and 15 sites in 2011.
- All sites where captures occurred in 2009 also had captures in 2010 (4 new sites).
- In 2011 there were an additional 7 sites where captures had not previously been recorded using pheromone traps. 5 of these were on sites that had previously been monitored in both 2009 and 2010 and no moths captured. 4 of the sites were on the edge of the known 2010 distribution and 1 further away on the Black Isle.
- These results tend to suggest that PtLM could be expanding its distribution but glue banding will be required to establish if breeding is taking place at these sites.
- No PtLM were caught at any of the 10 ancient Caledonian pine sites.

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Light trapping for adult males (and females)

Light trapping intensity was low in 2009 but increased dramatically in 2010-11.

- PtLM adults were caught at 5 of 8 sites that were monitored with light traps in 2009.
- PtLM were caught in every year (2009-11) at all of these 5 sites.
- In 2010 adults were caught at 10 of 26 sites monitored. The additional 5 sites were all the closest sites to where they had previously been caught in 2009.
- In 2011 adults were caught at 9 of the 24 sites monitored.
- All of the sites where adults were caught in 2009 and 2010 also produced adults in 2011. Two of the sites which were monitored with light traps in 2010 and had produced adults were not monitored with light traps in 2011- but pheromone traps showed that adult PtLM were still present at these two sites. One additional site that had not previously been monitored in either 2009 or 2010 did produce adults but this was within the known area of distribution anyway.
- The light traps did not produce any evidence of range expansion but it should be remembered that light trapping occurs over 1 night only unlike the pheromone trapping that occurs over a 6-8 week period and is therefore better at picking up the presence of the moth and therefore range expansion.

Tree Banding for caterpillars

- PtLM breeding was confirmed at 5 sites in 2009/10 and 8 sites in 2010/11
- All breeding sites were at locations where the highest pheromone and light catches were taken

There is a high degree of agreement between captures in pheromone and light traps with both techniques consistently capturing PtLM adults at the same sites which are grouped together in the same area. Adults are always caught at all sites within this area and rarely caught outside this area. However, a small number of moths have been caught outside the area this year using pheromone traps and whilst these are single male individuals the fact that they are almost exclusively at sites on the edge of the 2010 does appear to suggest range expansion.

There is no clear evidence of dramatic population changes at the moment but this would not be expected in a newly colonising insect population where emigration from its area of distribution is much greater than immigration. There are some early indications that populations may be declining in the smaller woods where the intensity of trapping has been greatest.

Agenda Item 7: Lunch

Agenda Item 8: SNH Update

Ahayde Tonhasca advised that the Memo addressed to the Head of the SNH Advisory team had not yet been circulated to the Management Team. Athayde commented that action taken in the future would depend on many other people joining in to assist with licencing for

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example. Continuation and intensification of monitoring is required. Stewart added that we would continue working in partnership as we are at present.

Agenda Item 9: Industry perspective

Dietrich offered his thanks to all for their efforts so far. Dietrich advised that the value of the affected timber equates to 2% of Highland Regional Council Budget. The amenity value of the woodlands could also be reduced if forest management remained in abeyance.

Dietrich advised that

- the research carried out in Germany had been conducted in under managed and under thinned forest areas.
- the restriction on harvesting has a major impact on the industry and on all other parties involved.
- that if Ptl is a serious pest something must be done quickly.

Patrick said there is real concern in the private sector especially as the market is buoyant at the moment and prices are the highest since 1985. He added that the three month window is very restrictive. 200 ha of LP must be cleared in 5yrs on his estate alone.

The firewood market is increasingly important; this movement of timber is difficult to control.

The OMT discussed the movement restrictions. Dietrich explained that he preferred that the restrictions be lifted.

Chris felt that Trade was restricted and that the number of insect 'finds' was relatively small. He also was of the opinion that we were being alarmist and stacking up problems in woodlands not being properly managed. Chris was in favour of ending restrictions but a plan would have to be in place if restrictions were removed.

Agenda Item 10: Next steps

The OMT discussed the decision paper at length.

Richard suggested that further glue banding should be carried out, outside the control area. Chris felt that this would meet the approval of Confor members. Glue banding could also be used around harvesting sites prior to harvesting.

Hugh commented that if Ptl is a significant pest, control would be by Statutory Notice and the cost would be borne primarily by private owners.

Richard put forward a suggested solution and agreed to provide a draft paper. The proposed solution included

- Continue monitoring
- Glue banding outside the controlled area

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- Monitoring near processing plants
- Glue banding by private owners who wish to fell during the restricted period to demonstrate no population is present
- Replacement notices to be issued along with any thinning licences

It was agreed that the current movement controls be reviewed as soon as possible.

Action: Richard Wallace

Roger to provide glue banding costs.

Action: Roger Moore

AOB

Date of next meeting

Close