

CONTINGENCY PLAN FOR OUTBREAKS OF

**PINE-TREE LAPPET
(*Dendrolimus pini*)**

in Great Britain

**Forestry Commission
Plant Health Service
Edinburgh
2009**

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1. Background

Pine-tree Lappet (*Dendrolimus pini*) is a European native, but is also known in the western part of Asia. It has not yet been detected in North America. It is a major defoliator of pines and other conifers over much of its natural range with Scots pine (*Pinus sylvestris*) the main host although other tree hosts include Swiss stone pine (*Pinus pinea*), Sitka spruce (*Picea sitchensis*), Siberian larch (*Larix sibirica*), silver fir (*Abies alba*), Douglas-fir (*Pseudotsuga menziesii*) and common juniper (*Juniperus communis*).

Outbreaks can occur over large areas and last for 7-8 years. Defoliation can cause growth loss, dieback and tree mortality of conifers, many of which are of vital economic importance. Moreover, defoliated trees are susceptible to secondary attacks by bark beetles and wood boring insects. Should this pest develop significant population levels in pine growing areas, it could cause major ecological disruptions including extensive tree mortality, changes in species composition and have a serious impact on production forecasts.

While *D. pini* is native to central and northern Europe, it has now been found in north Scotland (Inverness-shire). The first finding was in 2004 by an amateur moth recorder, but not officially reported, with further findings by the same person in 2007 and again in 2008 by the Forestry Commission. Possible pathways are still under investigation.

If *D. pini* was to become permanently established in north and east Scotland, it could pose a serious threat to the extensive pine plantations to be found in the region and provide serious management problems for foresters and tree owners in both urban and rural situations. Although the current outbreak is confined to a limited area in north Scotland this Contingency Plan will be applicable to the whole of GB.

2. Objectives of the Contingency Plan

- 2.1 To raise awareness of the potential threat posed by *D. pini* and therefore ensure that stakeholders are aware of the symptoms caused by infestation by this pest.
- 2.2 To provide guidance on steps to be taken whenever symptoms of attack by *D. pini* are observed.
- 2.3 To ensure that all infestations of *D. pini* are managed promptly with the aim of eradicating pioneer populations of the moth.
- 2.4 To ensure that all relevant Forestry Commission staff, private forestry interests, other Government agencies and Local Authorities are conversant with the contents of this Contingency Plan so that effective and immediate action is implemented.
- 2.5 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.
- 2.6 This Plan will be in the public domain on the Forestry Commission Internet site.
- 2.7 This Plan will be updated regularly in the light of new information, changes in policy, amendments to legislation (EU or national) or changes in contact

details.

3. Action

The main criterion for action has been:

- The discovery of *D. pini* in Inverness-shire (north Scotland).

4. First contact

- 4.1 The finding of Pine-tree Lappet in light traps in 2004 and 2007 have been received by Centre for Forestry and Climate Change (CF&CC) and the Head of Plant Health (PH).
- 4.2 The moths were sent to Aberdeen University for identification and confirmed as *D. pini*.
- 4.3 The Head of PH shall be responsible for initiating this Contingency Plan. **(NB- the Generic Contingency Plan was initiated 20th November 2008)**

5. When an infestation is found

- 5.1 A formal Pest Risk Analysis (PRA) on *D. pini* was completed by the CF&CC and submitted to the Head of PH. **(NB: PRA - commissioned 20 November 2008, revised and published November 2009)**. Based on the evidence contained in this PRA the Head of PH will consider whether *D. pini* should be classified as a quarantine pest, which will require action through the EU Standing Committee on Plant Health.
- 5.2 The Head of PH, shall inform the Head of Corporate & Forestry Support (CFS) of the outbreak. **(NB: informed 21 November 2008)**
- 5.3 An Outbreak Management Team (OMT) was convened on 19 February 2009 and met again on 15 October 2009.
- 5.4 The Head of PH shall immediately inform the Forest District Manager (FDM) (if FC), the Local Authority or the owner or their elected agent (if private) that an infestation of *D. pini* has been confirmed on their land and that this Contingency Plan is to be implemented within 2 working days. **(NB: FC meeting held on November 2008, site managers notified.)**
- 5.5 The FDM, Local Authority or owner shall be asked not to carry out any activities in any area where *D. pini* infestation is suspected or confirmed pending the arrival of the Plant Health Regional Manager (PHRM) who shall, in consultation with specialists in CF&CC, advise on strategy for the infestation. In particular, no material of *Pinus* spp. shall be removed from the outbreak site without the written authority of a Plant Health Inspector. If necessary, on non-FC land, statutory notice shall be served on the owner or occupier. On FC land, the FDM shall be asked by the Head of PH to confirm in writing (e-mail) that no activities will be carried out without first consulting the PHRM. **(NB: all parties aware – no notices served).**

6. Determining the extent of the infestation

Rapid gathering of information in the field will provide the basis not only for immediate action but will also be used to formulate a more comprehensive and longer term Action Plan. Discussion between the Head of PH, the Head of CF&CC and the relevant PHRM will identify what information is required.

The PHRM and contract Entomologist spent three days surveying for caterpillars at two of the sites where the moth was found. None were found. In March 2009, sticky bands were attached to 1000 trees at three woodland locations in order to trap the caterpillars as they climbed back up the tree after overwintering in the vegetation layer. None were caught. Follow up pheromone and light trapping took place during the summer of 2009 when 282 pheromone traps were set up at 47 sites 10km, 20km and 50km from the known epicentre. Amateur recorders also set up a number of light traps close to the Kiltarlity area. A total of 98 moths, all males, were caught (90 in light traps and eight in pheromone traps) in seven sites. A further sticky band exercise took place during October and November when 1900 trees at the seven sites had sticky bands attached to capture caterpillars as they climbed down the trees in order to overwinter in the vegetation. To date (26 November 2009) 33 caterpillars have been caught.

As an outbreak has been confirmed further information which needs to be gathered include:

- whether the outbreak has spread from the current 7 sites - this will involve further pheromone and light trapping in all 47 sites in 2010;
- whether there is any injury to the Scots pine plantations where the moth has been found;
- any other factors which might affect the aim of eradication or containment;
- likely impact of recommended actions and their outcome.

Supplementary information will also continue to be sought on:

- likely origin of the pest with its likely point of entry into GB, and date and means of arrival, if possible
- consignment details including the source and supply and other possible points of destination (traceforward).

Consideration will also be required on the information and advice to be disseminated to stakeholders

Any phytosanitary certificates or plant passports, which are available, must be sent to the Head of PH who will report details to relevant National Plant Protection Organisations (NPPO), the European Commission (EC) and other member States.

7. Pest Risk Analysis

As part of a Pest Risk Analysis (PRA) prepared by the CF&CC, including pest management options for *D. pini* were also outlined. The management options, in conjunction with the information gathered on site by FR and others shall be used to

formulate the detailed action plan. The PRA will be published on the FC website (www.forestry.gov.uk/planthealth) and shall be kept updated.

8. Outbreak Management Team (OMT)

Following confirmation of the presence of *D. pini*, which in the opinions of the Heads of PH and CFS poses a risk to tree health, an OMT has been formed. This is centrally based at FC Edinburgh (Silvan House) and comprises the following personnel.

Chairperson	-	Roddie Burgess	Head of PH
Scientific Advisor		Dr Roger Moore	CF&CC
FC Liaison Officer		Michael Hymers	Forest Management Officer FCS
Press Officer	-	Charlton Clark	Communications
Finance Officer		Ian Brownlee	PH Operations Manager
Investigating Officer		Dave Tracy	PH Regional Manager
Secretariat		Debbie Erskine	Corporate & Forestry Support

If necessary the OMT shall seek to co-opt other staff e.g. the Scottish Executive - Rural Directorate, Plant Health personnel, Local Authority Environmental Health as well as an Environmental advisor from, for example, the Scottish Environmental Protection Agency (SEPA) and Scottish Natural Heritage.

The OMT shall be responsible for:

- i. instigating investigations to determine the scale of the problem, both locally and nationally, and directing action to contain and, if possible, eradicate the pest;
- ii. mobilising appropriate resources;
- iii. preparing reports as and when required;
- iv. liaising with the press, both locally and nationally, stakeholders including owners, growers and nursery owners as well as Forestry and Plant Health Ministers.

Roles:

Chairperson: (Head of PH)

- receives and interprets advice from all quarters including phytosanitary, scientific, political and financial;
- liaises with the Head of Corporate and Forestry Support, Director General and the Executive Board, the Chairman of the Forestry Commission, Forestry Ministers and other government departments;
- acts as the link between the Plant Health Regional Managers and the OMT;
- liaises with Head of CF&CC in relation to scientific and management aspects.
- seeks legal advice as required;
- liaises with the Heads of Plant Health of Fera and the Scottish Government Rural Directorate (SG-RD);
- is the FC representative to the EU Standing Committee on Plant Health and will liaise and advise the European Commission and the member States on the outbreak situation in GB and the steps which are being taken or planned to contain and/or eradicate the pest.

Scientific Advisor: (CF&CC)

- advises the Head of PH and the OMT as and when required;
- advises and comments on data gathered on the pest infestation;
- advises on safe disposal of contaminated material;
- advises stakeholders on any aspect of the control programme as required;
- informs the media (via the press office).

Forestry Commission Advisors:

- shall be a nominated representative from each of the three countries, as appropriate, although initially it shall only be from FC Scotland where the outbreak has occurred;
- shall be responsible for maintaining a record of any expenditure incurred while pursuing an eradication or containment policy on FC land;
- shall be responsible for co-opting any further expertise from the country they represent.

Press Officer:

- shall liaise with the press officers from each country.
- advises the Head of PH and the OMT on media releases.
- shall keep the OMT updated on all media coverage and advise where responses are considered necessary.

Secretary:

- keeps accurate minutes of all meeting of the OMT;
- distributes the minutes to members and others as agreed by the OMT in a timely manner;
- gives additional administrative support as and when required.

9. The Investigating Team

An Investigating Team or Teams may be initiated by the OMT as and when required. The make up of these teams shall include:

9.1 Outbreaks on Forestry Commission land:

- i. the Plant Health Regional Manager who shall act as Team Leader
- ii. specialists from CF&CC of Forest Research
- iii. the Technical Services Unit (TSU) of Forest Research and/or Forest District staff for survey work.
- iv. the local Forest District Manager (FDM)
- v. others may be co-opted e.g. local GIS officer, local beat forester.

9.2 Outbreaks on private land or public open space:

- i. the Plant Health Regional Manager who shall act as Team Leader

- ii. the owner or Local Authority tree officer
- iii. others may be co-opted e.g. FC Woodland Officer
- iv. appropriately qualified personnel for survey work.

9.3 The Investigating Team Leader shall be responsible for the implementation of this Contingency Plan at all outbreak sites within his region.

9.4 The FDM, the owner or the tree officer, as appropriate, shall be responsible for carrying out or overseeing all containment or eradication operations in accordance with safe working practice.

10. Role of the Plant Health Regional Manager

10.1 The Plant Health Regional Manager (PHRM) shall report directly to the Head of PH on the scale of any outbreak.

10.2 The PHRM shall report to the Head of the PH any problems associated with implementing the agreed plans.

10.3 In conjunction with the Head of PH and CF&CC, shall arrange for surveys to be carried out on any outbreaks identified outside the known outbreak area using the basic procedure in Appendix I and using an appropriate pro forma for logging survey details.

10.4 The PHRM shall liaise with the OMT to agree who will be responsible for carrying out the survey. This may be Forest District staff, TSU, or other appropriately qualified personnel.

10.5 Where it becomes necessary to destroy infested material by burning, the PHRM shall, where appropriate, liaise with the local police, fire brigade, the Scottish Environmental Protection Agency (in Scotland) and the Environment Agency (England & Wales), owners, and neighbours as well as the local media on the proposed course of action particularly where it leads to the closure of public access areas (NB: this may require enabling legislation before this can be executed).

10.6 Where infested material is to be buried in a landfill site, the PHRM will liaise with the local Environmental Health Officer and potential landfill operators on the proposed method of transport from the site of infestation to the landfill site.

10.7 The PHRM shall be responsible for gathering of all necessary information required for the completion and serving of all statutory notices.

10.8 Where the outbreak is on premises (including land) which is used wholly or mainly as a dwelling and the landowner, their agent or the occupier is absent or uncooperative, the PHRM shall contact the Head of PH who shall decide whether to obtain a warrant to enable entry.

10.9 The PHRM will, when appropriate, liaise with Plant Health officers from other agencies e.g. Fera or SG-RD.

11. Role of the local FDM

11.1 Where outbreaks are confirmed on FC land, the local FDM shall liaise with the PHRM on the method of control and disposal of infested material. This work to be carried out using safe forestry or arboricultural practices and in accordance

with due concern for health and safety.

12. Survey protocol

To determine if a breeding population exists

A range of survey work has been carried out since December 2008 (**see 6 above**) which has confirmed the presence of a breeding population. Further pheromone and light trapping will be carried out during the summer of 2010 to monitor population levels and to determine the area infested.

Immediate action to delimit the extent if new infestations are found

If *D. pini* is reported from any new locations, initial efforts shall be concentrated on the susceptible trees in the immediate vicinity. Surveys shall be used to determine the extent of the infestation and will concentrate on providing information for the Heads of PH and CF&CC to make initial decisions on the action to be taken. Survey protocols for all inspections of individual trees are in Appendix II.

Supplementary action to assess potential infestations in other parts of Great Britain

FR to design and co-ordinate a survey protocol possibly based on an extensive pheromone trap network

b) Surveys shall be carried out in accordance with the following procedures:

- the survey shall be co-ordinated by CF&CC who shall advise on timing of the surveys.
- all enquiries on damage shall be handled by CF&CC with the details entered on to a database.
- data on interceptions of presence of larvae, symptoms of attack, adult moths (based on pheromone and light traps) or presence of egg masses to be logged on to the central database by CF&CC.
- trees around an area where positive identification of symptoms shall be inspected first.
- CF&CC shall organise training of surveyors, as appropriate on damage symptoms, when samples should be taken if required, health and safety issues, completion of an agreed pro-forma and the time scale for surveys to be carried out.
- any positive findings shall be submitted, within 24 hours, to the Head of Plant Health for discussion with the OMT where further decisions on action to be taken and/or extending the scope of the survey will be discussed.
- a survey report, to be submitted to the OMT shall be completed by CF&CC and shall include information on enquiries, surveys and any action arising from the surveys.

13. Staffing

Appropriate expertise and staff resources shall be identified by the OMT. The PH Operations Manager shall liaise with the OMT and others, as appropriate, to identify funding and resource requirements and agree procedures for provision of these requirements.

14. Other resources

Other resources may be required e.g. support staff, accommodation, equipment, computer links and maps and publicity material. These shall also be discussed and agreed by the Heads of CFS, PH, CF&CC and TSU.

15. Contact with the media

- 15.1 FC members of the OMT shall consult with the Press Officer and the Head of PH on the OMT before contact with the local is made.
- 15.2 With the agreement of the Press Officer, the local Conservator or the Head of CF&CC may deal with media. Non-FC members of the OMT are requested to inform the Press Officer of any contact with the media.
- 15.3 Any questions on the outbreak at national level shall be directed to the national press from the Press Officer.
- 15.4 In accordance with policy on disclosure, details of locations of individual outbreak sites, other than those on the FC estate, shall not be made public without the owner's written consent.

16. Courses of Action to prevent further infestations/outbreaks and, if possible, avoid permanent establishment of *D. pini* in Great Britain

a. Monitoring of imported stock

Head of PH shall request inspectors of SG-RPID and Fera to be on the lookout for symptoms of infestation on all imported conifer plants and to take or order remedial action to deal with infested material (**NB under review**).

b. Control

CF&CC will investigate whether control by insecticide or biological means is possible. It should be noted that the release of any non-native BCA shall require to be licensed under the Wildlife and Countryside Act 1981.

17. Termination of Emergency Action

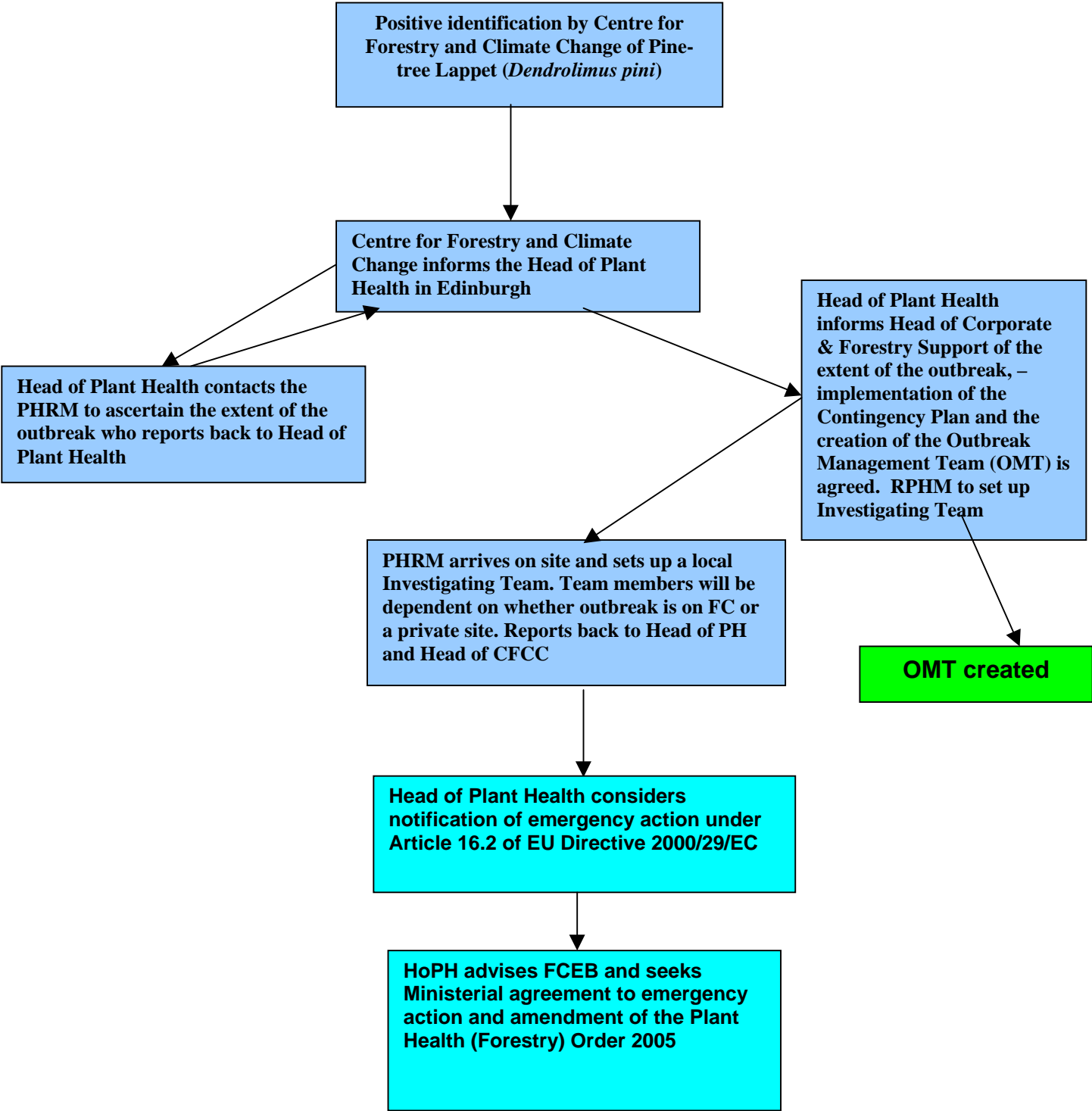
The role of the OMT shall be considered to be ended either when it has been determined that eradication has been achieved or when procedures for the long-term management of the outbreak have been implemented, a report has been signed off, and the overall handling of the emergency action has been reviewed.

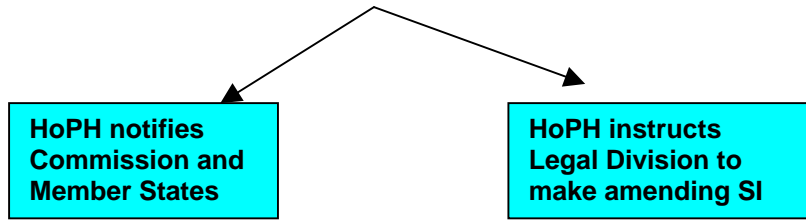
18 Review of the Plan

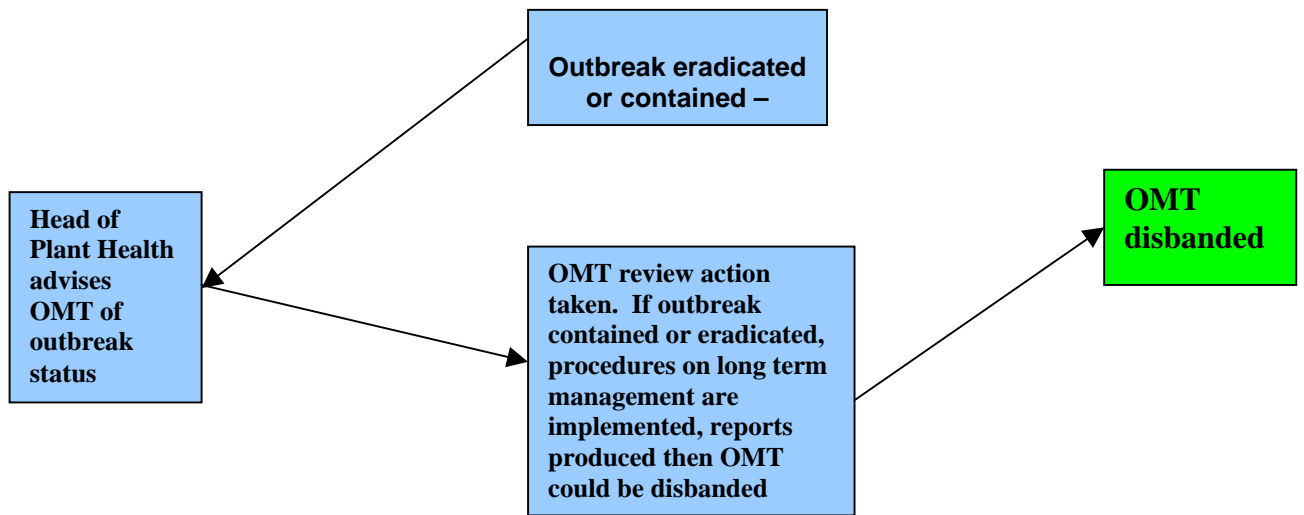
This plan will be updated as necessary and will be completely reviewed every three years. The date of the first review will not be later than 31 March 2012.

Appendix I

Flow diagram showing series of events leading to the implementation and cessation of this contingency plan







Surveying & Sampling Procedure

The following survey procedure shall be used to assess trees for infestation by *D. pini*.

Surveys for symptoms characteristic of attack by *D. pini* shall be carried out from the ground with the naked eye or using binoculars. On symptomatic taller trees, climbing apparatus or hoists may be employed if it is not possible to see the upper crown clearly from the ground.

Symptoms & what to look for

- Defoliation of the tree

Action if infested trees are found during surveys

- i. All *Pinus* spp. within a radius of 1km of an infested tree shall be inspected for sign of infestation. This distance from the initial infestation may be revised on the advice of CF&CC.
- ii. The positions of any trees with confirmed infestation (based on both presence of adult moths and/or larvae of Pine-tree Lappet) will be recorded by GPS reading. Any affected trees will also have their position recorded by GPS. This information shall be included in any pro-forma previously agreed by the OMT to be used during surveying and sampling operations.
- iii. In most cases, the combination of damage symptoms and presence of evidence of larval activity (live larvae) will enable field identification of *D. pini* to be confirmed. If there is any doubt about the identification, samples of larvae or other signs of attack shall be removed and sent to CFCC, Forest Research.
- iv. Any specimens shall be placed in a sealed insect-proof container and placed in a sealed polythene bag which shall also contain a pre-prepared identity slip used to record the location of the suspect tree, the sample number and a contact number.
- v. Monitoring shall take place for a period to be agreed by the OMT but shall not be less than 3 years.

Area-wide monitoring using pheromone traps

A network of pheromone traps, baited with the lure for Pine-tree Lappet, were set up in the summer of 2009 at 47 woodland locations within 10 km, 20 km and 50 km from the known epicentre. Six pheromone traps (delta traps) were located at each of the 47 sites with the traps located approximately 2m up the tree. A similar exercise will take place during the summer of 2010, with the same woodland locations used.

- i. Inspect traps were inspected weekly by FR or OMT staff
- ii. Details of positive finds were sent to CF&CC for mapping .
- iii. Analyse the data to identify hotspots and to provide information for further follow up work e.g. sticky band applications in late 2009.

Area-wide monitoring using light traps

Amateur recorders also set up a number of light traps close to the Kiltarlity area during the summer of 2009 and it is hoped that this can be repeated in 2010.

The Treatment of Infested Material

Initial precautionary measures, pending adoption of a permanent regime, shall be put in place in respect of any harvesting operations carried out within the outbreak zone, defined as any woodland with a pine component located within 10 km of Ruttle Wood (grid reference NH480430). These shall include:

In woodlands where the presence of Pine-tree Lappet has been confirmed.

After harvesting operations have been completed and all timber produce removed to roadside, all plant debris shall either be burnt or chipped *in situ* to prevent the possibility of any larvae present migrating off-site. This will not be possible for all branchwood, as some of it is likely to be used as brash mats to aid forwarder operations. Such mats are likely to be crushed as a result of forwarder operations thus reducing significantly the likely survival of larvae.

In addition, the following biosecurity protocol must be applied:

ALL personnel involved in any operation in woods, which are known to contain Pine-tree Lappet, shall take the following steps to prevent the risk of spread of this pest.

Harvesting Operations.

- All equipment and machinery involved in harvesting operations must be cleaned of all plant debris, especially branches containing live foliage before moving from an infected site to a new site. Ideally, this should be carried out as close as possible to the forest gate. This applies to all harvesting equipment which may be used viz harvesters, processors, skidders and winches. All plant debris shall be destroyed either by burning or chipping.
- All timber removed from the harvesting site by forwarder must be free of plant debris to avoid these becoming incorporated in the produce awaiting uplift at the stacking area.

Haulage Operations.

- All vehicles must be free of plant debris when they arrive on site and when they leave. This applies regardless of whether used for forestry operations or other operations on site.
- All produce viz. logs or pulpwood, loaded on to lorries for transport to mill must be free of plant debris.
- Lorries should be checked by the driver after unloading at the mill to ensure that no plant debris has been missed.

Site visits by supervisory & other staff.

- All personnel must ensure their vehicles are free of plant debris before they leave the work site.
- All other authorised visitors to the site must also ensure that their vehicles are free from plant debris before they leave the work site.

In woodlands where the presence of Pine-tree Lappet has not been confirmed.

In woodlands within the designated outbreak zone biosecurity measures shall be limited to ensuring that plant debris is not moved off-site in vehicles, machinery or other equipment. There is, however, no requirement for the destruction of plant debris.

These shall be enforced by service of statutory notice served on the occupier or other person in charge of the premises under article 31.4 of the Plant Health (Forestry) Order 2005.

Outbreak Management Team , Plant Health Managers, Senior staff in the Forestry Commission and other contacts

Outbreak Management Team – contact details

Position	Name	E-mail	Office 'phone	Other 'phone
Head of CFS	Wilma Harper	wilma.harper@forestry.gsi.gov.uk	0131 314 6378	07789 926841
<i>Deputy</i>	<i>Roger Coppock</i>	roger.coppock@forestry.gsi.gov.uk	<i>0131 314 6392</i>	
Head of Plant Health (Chair - OMT)	Roddie Burgess	roddie.burgess@forestry.gsi.gov.uk	0131 314 6401	07831 843 985
<i>Deputy</i>	<i>Ian Brownlee</i>	ian.brownlee@forestry.gsi.gov.uk	0131 314 6480	07831 159 014
Head of Centre for Forestry and Climate Change (Scientific Advisor)	Dr Andy Moffat	andy.moffat@forestry.gsi.gov.uk	01420 22255	07899960360
<i>Deputy</i>	<i>Dr Joan Webber</i>	joan.webber@forestry.gsi.gov.uk	<i>01420 22255</i>	07891 073997
Forestry Commission Advisor	Country Director			
<i>Deputy</i>	<i>Assistant CD</i>			
Press Officer	Colin Morton	colin.morton@forestry.gsi.gov.uk	0131 314 6249	07771 730511
<i>Deputy</i>	<i>Charlton Clark</i>	charlton.clark@forestry.gsi.gov.uk	<i>0131 314 6500</i>	07810 181067
Secretary	Debbie Erskine	debbie.erskine@forestry.gsi.gov.uk	<i>0131 314 6423</i>	

Plant Health Regional Managers

Location	Name	E-mail	Office 'phone	Other 'phone
Northern region	Dave Tracy	dave.tracy@forestry.gsi.gov.uk	01546 602832	07810 690670
Southern region	Steve Mears	steve.mears@forestry.gai.gov.uk	01507 328275	07831 204324

Senior Staff within the Forestry Commission

Position	Name	E-mail	Office 'phone	Other 'phone
Director General	Tim Rollinson	moira.hart@forestry.gsi.gov.uk	0131 314 6243	
Chairman	Lord Clark of Windermere	ros.bull@forestry.gsi.gov.uk	0131 314 6463	
Director Scotland	Bob McIntosh	carol.finlayson@forestry.gsi.gov.uk	0131 314 6365	
Director Wales	Trefor Owen	sue.hales@forestry.gsi.gov.uk	01970 639844	
Director England	Paul Hill-Tout	lynn.hammans@forestry.gsi.gov.uk	01223 314546	
Chief Executive Forest Research	Dr James Pendlebury	claire.holmes@forestry.gsi.gov.uk	01420 526245	

Other contacts

Organisation	Name	E-mail	Office 'phone
Head of TSU	Janet Dutch	janet.dutch@forestry.gsi.gov.uk	0131 445 2176
Research Director, Forest Research	Peter Freer-Smith	peter.freer-smith@forestry.gsi.gov.uk	01420 22255
Head of Fera Policy Programme	Martin Ward	martin.ward@fera.gsi.gov.uk	01904 45 5161
Plant health & Potatoes Scottish Government Rural Directorate	John Speirs	john.speirs@scotland.gsi.gov.uk	0131 244 6403
National Wildlife Crime Unit		ukwildlifecrime@nwcw.pnn.police.uk	01620 893607