Scottish Forestry
Coilltearachd na h-Alba

Phytophthora ramorum on larch Action Plan

Revised - July 2022

Review Date;	July 2022	Review Date;	
Review Date;		Review Date;	

Scottish Forestry is the Scottish Government agency responsible for forestry policy, support and regulation

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1. Audience

Primary audience for this Action Plan is the Scottish forestry sector and all those with an interest in trees, woodlands and forestry in Scotland. Specifically, those with responsibilities for managing larch trees whether as land owner, agent, manager or regulator.

2. Background and context

Actions for the health of Scotland's trees, woods and forests are set within the overarching sustainable forest management principles set out in the UK Forestry Standard and Scotland's Forestry Strategy. Such actions must also have regard to the aims of the Scottish Biodiversity Strategy. Legislation relating to plant health matters does not override other legislative requirements – and vice versa.

The fungus-like pathogen *Phytophthora ramorum* ('*P. ramorum*') was first detected in GB in the nursery trade in 2002 and then in established gardens in 2007. It was not until 2009 that *P. ramorum* was found to be infecting Japanese larch in south west England, and the first confirmed infection on larch in Scotland was found in November 2010 on the Craignish peninsula.

P. ramorum on larch causes needle necrosis, shoot dieback, bleeding cankers and death of trees – which can be rapid (one to two seasons). The three main commercial larch species in Britain (Japanese, European and hybrid) can be infected.

Dispersal of *P. ramorum* from larch is primarily via asexual spores from sporangia that are produced on needles, these being distributed by rain splash, mist, and water movement. Long distance spread can occur in moist winds, movement of infected plant material and associated growing media, and soil movement on people, vehicles and animals. Research indicates that the most significant period for sporulation on larch occurs in the autumn (over a period from September to needle drop, depending on

the season). Sporulation risk is also heightened in late spring and generally lower over summer months. Weather may play a role in locally significant events.

The highest risk areas in Scotland, climatically, are in the western half of the country, but infections can establish elsewhere if the microclimate is suitable and host plants are present (such as larch or *Rhododendron ponticum*). Modelling work undertaken by the UK Centre for Ecology and Hydrology (CEH) on behalf of the Scottish Government helped refine areas potentially at high risk.

P. ramorum is regulated under the retained EU Plant Health Regulation 2016/2031, the retained EU Phytosanitary Conditions Regulation 2019/2072 and the retained EU Commission Decision 2002/757. Retained EU plant health legislation is implemented in Scotland by the Plant Health (Official Controls and Miscellaneous Provisions) (Scotland) Regulations 2019. Official controls include the use of Statutory Plant Health Notices (SPHNs) requiring the felling of infected larch by land owners by a specified date.

In 2012 an area of the south west experienced the most significant surge in the scale of new infections seen in Scotland, resulting in between 5,000 and 6,000 hectares of larch becoming affected over a single year. This prompted the establishment of the '*P. ramorum* Management Zone' (MZ) where SPHNs were no longer required to be issued and rules regulating the movement of larch roundwood were only applied when timber was transported out of the MZ. This localised derugulation resulted in greater freedom for the sector to manage the remaining resource. Observed infection rates in the MZ over following years were significantly lower, however, infections continued to spread towards the outer edge of the MZ. New infections have been observed on larch trees in the MZ area each year.

Over the last 9 years infections have been detected across most regions of Scotland, with greatest success of control seen when early detection and early control measures are applied, especially in areas known to be climatically less favourable to reinfections.

Between 2018 and 2021, in large parts of southern and western Scotland outside the MZ, particularly in Dumfriesshire and parts of the Cowal peninsula, infection levels had reached a scale where the necessary actions from ground surveys through to forest opeartions, that would be required to control local outbreaks, was greater than the capacity of the local resources of the sector to deliver on the swift timescales required for successful control of local infections.

3. Picture at the start of 2022

Acknowledging the continuing scale of infections in some areas and feedback from stakeholders within the sector, a review of the policies that have been in place since 2013 was completed in early 2021. The outcomes are detailed in this document.

The core of this revised action plan was developed over winter and spring 2020/2021 by a working group led by Scottish Forestry and including sector representatives from the Scottish Tree Health Advisory Group (STHAG), including representatives from CONFOR, private sector managers, Forestry and Land Scotland and Forest Research and SASA, to ensure that resources and conflicting priorities were considered against the backdrop of continued efforts and the latest scientific advice to control the spread of *P. ramorum.*

Initial observations from the aerial surveilance programme that took place during June and early July 2022 have not revealed any significant surges in spread of symptoms in the PAZ. Some sites of concern were picked up in the Aberfoyle and Loch Lomond areas but the scale and spread of these symptoms are consistent with areas of infection that have been succesfully controlled in the PAZ in previous years.

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Ongoing spread of symptoms was observed in large areas of the RRZ. This was expected due to the nature of the policy now in place. The successes and consequences of the approach in the RRZ will not become apparent until 2023 when many of the larger scale SPHNs issued in 2021 will have reached their compliance date.

The areas of Scotland where ongoing successful control of infections is being achieved represent over 65% of Scotland's larch resource – estimated at roughtly 40,000 hectares. (See Priority Action Zone (PAZ) area in Appendix 1.)

4. Strategic national objectives

Control of the spread of *P. ramorum* infection as part of the sustainable management of Scotland's forests through:

- Eradicating geographically isolated infections wherever possible;
- Balancing outbreak control objectives with other principles of sustainable forest management (SFM) in areas where infection eradication is no longer deemed a viable option.

It is recognised that eradication of the disease on larch is not achievable in all areas of Scotland. Infected larch sites are required to be felled as soon as possible and ideally prior to either of the two known peaks in *P. ramorum* sporulation, with the most significant peak being in autumn and a second one in late spring/early summer.

Highest priority will be given to areas of Scotland where control of localised infections is achievable and can prevent infections spreading to new areas and reaching levels where eradication becomes unachievable. Priority will also be given to areas where remaining healthy larch resource is sufficient to justify the priority actions. The map in Appendix 1 defines where the national priorities have been set. This will be reviewed annually by the end of June.

In support of this, Scotland has been divided into three zones:

- The **Priority Action Zone (PAZ)**
  Is the area where actions will have the greatest impact on controlling spread of *P. ramorum*. Outbreaks to date have been limited in scale and control efforts have been successful at eradicating infections on larch. See the graph below for annual breakdown of historic SPHNs that would have been covered by the new zones. Figures do not cover the area that became the MZ in 2014. Prioritisation of survey and regulatory efforts will ensure Statutory Plant Health Notices (SPHNs) are issued quickly, with felling required, wherever possible, before the end of August in the year of detection.

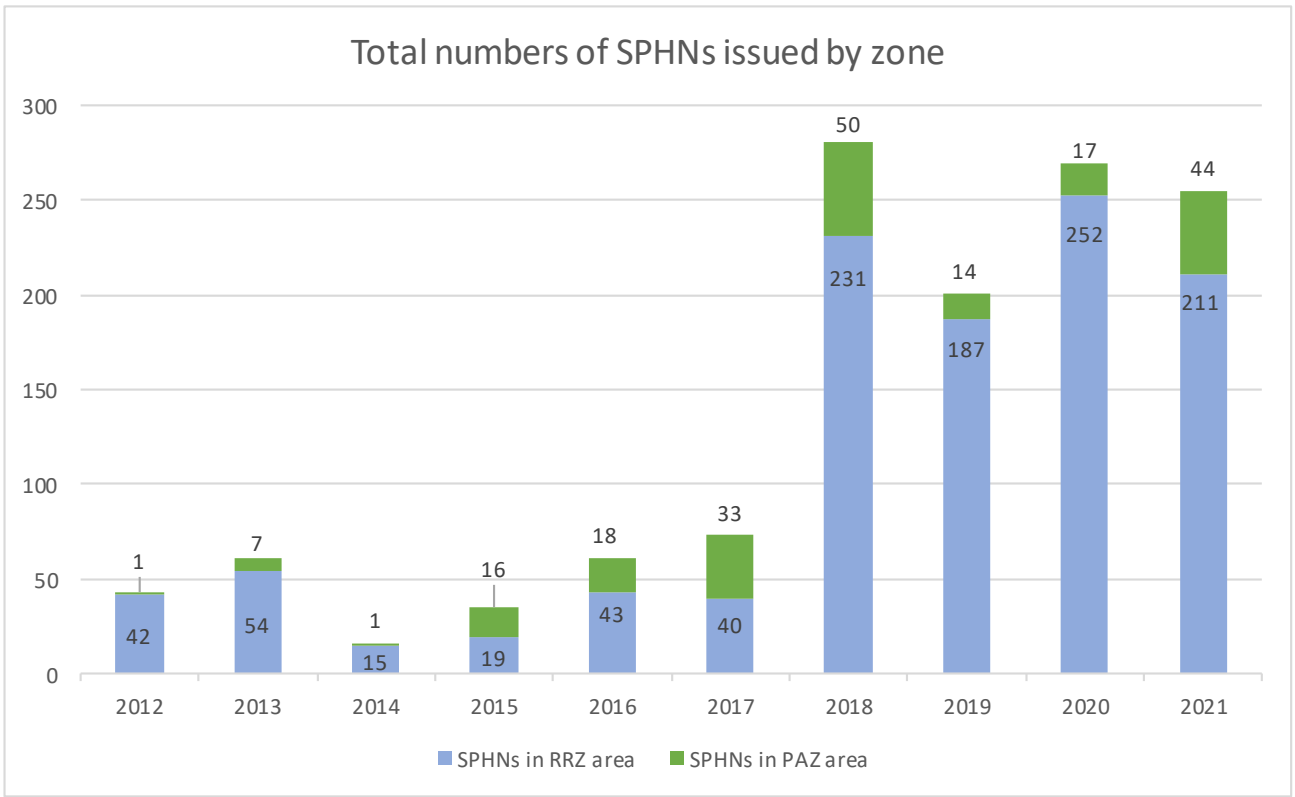
  This area contains roughly 2/3 of Scotland's larch resource, including areas like Speyside and Deeside where larch may still have a long term future. Parts of Eastern Scotland also have a significantly greater proportion of larch in the stocked forest area, with NFI figures showing larch comprising over 14.8% of the stocked conifer area in Tayside and Fife compared to the national average of 7.6%. See also FR reports on larch in Scotland from 2011 here.

- The **Risk Reduction Zone (RRZ)**
  Is the area where spread and scale of infection is beyond what can be controlled locally with available resources. The principal aim is now to reduce the risk of *P. ramorum* to the sector.

  Statutory actions in the form of SPHNs will continue to be used as the main tool to ensure consistency of control efforts across the range of land ownerships. Timescales for felling will not be as short as in the PAZ (typically a year or more from initial detection to required SPHN felling date will be acceptable).

- The ***P. ramorum* Management Zone (MZ)**
  Is maintained in the way it was set up in 2014, with SPHNs only used in exceptional circumstances.
  The Plant Health (Forestry) (Phytophthora ramorum Management Zone) (Scotland) Order 2014 (legislation.gov.uk).

For context, the graph below shows the change in scale of SPHNs issued over the last 10 years in the PAZ and RRZ areas.



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4.1 Priority Action Zone (PAZ)

Purpose:
To eradicate local infections by felling affected trees rapidly after detection.

Action	Responsible	Start	Due	Desired Outcome
Aerial survey	SF Tree Health Team	Late May annually	Early June with second survey in August	Priority to survey PAZ before RRZ. Infection is detected as early as possible.
Follow up field surveys	SF Tree Health Team	Early June	Ongoing – as a priority as potential infection sites identified	Priority for field surveys. Up to 4 symptomatic trees felled to get best sample at time of initial survey. Where sufficient evidence of infection is identified from field survey, landowners / managers will be notified from mid-June onwards.
*Issue of SPHNs	SF Conservancy	ASAP following field survey	Ongoing	Initiate the fast felling of affected trees by landowner.
Standard SPHN approach is to ensure felling of all larch within a 250m buffer around infections prior to the end of February in the year following detection	Landowner	Before the second sporulation after detection	**The end of August in the year of detection where possible, and by the end of February in the year following detection at the latest	Removal of risk associated with sporulating standing trees prior to second sporulation period in the spring, plus removal of trees that may have become infected in the autumn sporulation period. Retain option for a landowner or agent to include the whole larch coupe. Neighbouring landowners will only be affected if they have larch growing within 250m of the identified symptomatic trees.
A reduced felling area of all larch within a 100m buffer of infections is an option but **only** where felling of the SPHN is completed prior to the end of August in the year of detection	Landowner	Before the first sporulation after detection	**The end of August in the year of detection	Removal of risk associated with sporulating standing trees prior to main sporulation period in the autumn. Retain option for a landowner or agent to use 250m buffer or include the whole larch coupe as a second phase of the SPHN. Neighbouring landowners will only be affected if they have larch growing within 100m of the identified symptomatic trees.

Symptomatic trees felled swiftly after receiving SPHN	Landowner	As soon as possible when an SPHN has been served	ASAP - prior to autumn in the year of detection where possible	Removal of risk associated with sporulating standing trees.
Extensions to SPHN	SF Conservancy	Only for specified restrictions which inhibit rapid response		In all circumstances every effort must be taken to fell symptomatic trees immediately. Extensions may be considered for the following reasons; • Breeding season for specific species • Core path/ROW requiring closure • Exceptional site conditions requiring specialist equipment and planning • Overhead and underground services requiring 3rd party consultation and planning • Complex ownership arrangements involving multiple owners Other exceptional circumstances may arise and this should be communicated to SF Conservancies immediately for consideration.

*SPHNs will be issued by SF on suspicion. If sufficient evidence is found at first visit, landowners may be offered the opportunity to accept an SPHN at a lower threshold of cetainty – allowing them an earlier start on an SPHN, to utilise the 100m buffer option. Confirmation of infection will still be sought using laboratory analysis of symptomatic material.

Exemptions to these strict SPHN deadlines may be required where there are conflicts between legislation or other key principles of sustainable forest management (SFM). Decisions on these will be taken on a case by case basis and **are at the discretion of SF Conservancies.

Where land managers receive SPHNs in both the PAZ and RRZ, SF will work with land managers to facilitate rapid action in the PAZ.

4.2 Risk Reduction Zone (RRZ)

Purpose:
To make it easier for the sector to swiftly comply with control actions in the PAZ.
To promote removal of larch trees in the RRZ, using a partnership approach to achieve targeted, cooperative and strategic action.

Action	Responsible	Start	Due	Desired Outcome
Aerial survey	SF Tree Health Team	June	June and July	Symptomatic infection areas are mapped and risk based approach applied to prioritising survey resources to areas where actions can have greatest effect. Review and confirmation of Zone boundary.
Follow up field surveys	SF Tree Health Team	July	July and August	Priority areas of RRZ surveyed once PAZ surveys are complete.
Issue of SPHNs	SF Conservancy	August	Ongoing	Landowners / agents given notification of minimum felling areas required under SPHN and timescale for this.
Ensure felling of all larch within a 250m buffer for SPHN sites	Landowner	Felling to start as soon as practicable after receiving SPHN	The end of August, in the year following detection	Allowing longer timeline for planning and operations to incorporate the principles of sustainable forest management.
Extensions to SPHN	SF Conservancy	Only for exceptional circumstances which prevent rapid response		In all circumstances every effort must be taken to fell symptomatic trees immediately to reduce risk of further local spread of infection. Extensions to set deadlines may be considered where sites have operational issues including the following; • Breeding season for protected species • Core path/ROW requiring closure • Exceptional site conditions requiring specialist equipment and planning

				• Overhead and underground services requiring 3rd party consultation and planning • Complex ownership arrangements involving multiple owners • Proximity to boundary with PAZ – sites distant from the PAZ will be considered with greater leniency by SF This list is not exclusive. Conservancy staff will consider special circumstances on a site by site basis. This must be balanced with the desire to reduce risk to healthy larch in the area.

4.3 *P. ramorum* Management Zone (MZ)

Purpose:
The removal of all larch over time.

Action	Responsible	Start	Due	Desired Outcome
Demonstrate the strategy to remove all larch within the MZ covered by existing Management Plans	Land owners	At review and mid-term review	At 5 or 10 years from approval date	The removal of all larch over the period of a management plan.
Where management plans do not exist, SPHNs may be used if required	SF Conservancy			SPHNs will not be used unless change in pathogen behaviour is observed or suspected, especially in terms of host species.

4.4 Options for proactive larch felling available in RRZ and MZ

Forest Plan holders, to review their plans, with strategic cooperation from SF, with the aim of removing all larch as soon as is possible within SF forest plan guidelines and UKFS
Tolerance table as laid out in Appendix 3 lays out some of the options available in the RRZ and MZ.

5. Review of progress

Deliverables (SPHN compliance reporting and survey outputs): Annually by end March.

Policy review or confirmation (SF Head of Tree Health to lead review of the existing zone boundary between RRZ and PAZ, to be completed once all areas of the PAZ have been covered by early season surveys): Annually with consultation with the sub group of STHAG and published outcome by end July. If further significant spread is detected or a change in scientific advice emerges then the action plan can be reviewed earlier.

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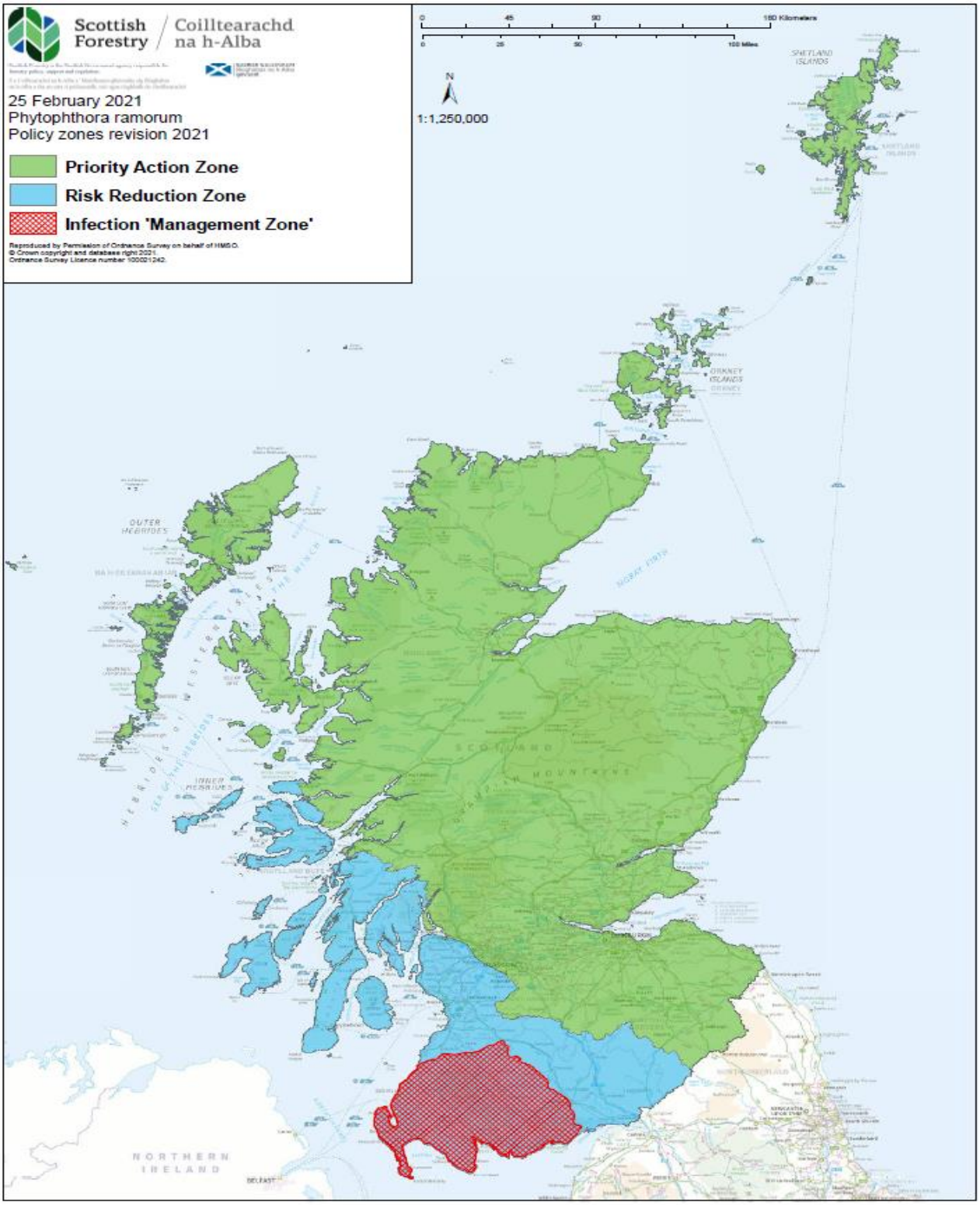
Appendix 1 – Zone maps

Map of the policy zones for *P. ramorum* on larch in Scotland.
A more detailed map can be accessed via the Scottish Forestry map viewer.



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Appendix 2 – Q&A

Link to Frequently Asked Questions here.

Appendix 3 – Tolerance Table

Table of working tolerances specific to larch and available for all approved Forest Plans in the Risk Reduction Zone (RRZ) – including the MZ in order to help reduce sporulation of *Phytophthora ramorum* on larch spp.

Approval process	Adjustment to felling period	Timing of restocking and species component	Felling of larch within a mixed coupe	Changes to road lines
SF approval normally not required	Fell date for phase 2 can be moved forward where larch comprises 50% or more of the coupe species component.	Changes to restocking proposal that exclude larch and closely related species in the same genus e.g. Sitka and Norway spruce. Up to 3 planting seasons after felling.		
Approval normally by exchange of letters and map	Felling moved between phases 1 and 2 where larch comprises less than 50% of the coupe species component.	Changes to restocking proposals that include larch or closely related species in the same genus, e.g. Sitka and Norway Spruce. Between 3 and 5 planting seasons after felling.	Areas of pure larch up to 20% of coupe area within phase 1 and 2 can be felled to remove the sporulating host, with restocking deferred until the rest of the crop is felled. Where the larch constitutes more than 20% of the coupe component, then the whole coupe must be felled and restocked together.	New road lines (subject to EIA screening opinion) or tracks within existing approved plans necessary to allow the extraction of larch material. Where necessary Prior Approval should be dealt with directly with the relevant Planning Authority.
Approval by formal plan amendment is required	Advance felling into current or 2nd phase for pre-emptive larch removal.			Where a new public highway entrance or exit is required. Where necessary Prior Approval should be dealt with directly with the relevant Regional Council.

NB: Larch felled in the autumn and winter, when the presence of *P. ramorum* cannot be assessed visually must be treated as infected and will therefore require a movement licence. When carrying out operations where the clearance has not been on the Public Register or through the consultation procedure it is important that due diligence is undertaken to identify sites that will require to be protected.
SPHNs will still be issued and should be complied with accordingly. This tolerance table is offered to assist in the pre-emptive early removal of the host species.