

Protecting Britain's Forest and Woodland Trees against Pests and Diseases – The Forestry Commission's Strategy

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Foreword by Tim Rollinson, Director-General of the Forestry Commission

Forest and woodland trees are a fundamental part of the British landscape. They enhance the landscape, they provide places for people to relax and recover from the stresses of modern life, they provide a safe haven for much of our rich biodiversity, and they provide employment and income to many rural communities. Urban trees are also an important feature of our towns and cities, softening the built environment and connecting people with nature.



Preserving their health and vitality is a critical priority for the Forestry Commission. This is an interim strategy, pending an integrated cross-government approach to biosecurity following the EU review of its plant health regime. It sets out clearly how we intend to deliver on this important responsibility. To achieve this we will be further building on our work with a range of partner organisations to deliver a coherent, co-ordinated approach. In addition, the Secretary of State has commissioned an Action Plan on tree health and plant biosecurity to drive this forward. This interim strategy is one part of how we will ensure a consistent approach to addressing these threats.

While it is not easy to predict changes to the impact of specific insect pests and tree diseases on woodlands, we do know that stressed trees are more susceptible to insect pests and diseases, and the majority of insect pests that currently affect UK forestry are likely to benefit from climate change as a result of increased activity and reduced winter mortality. We also know that trees in our towns and cities provide a pathway for new pests and diseases, especially if they are imported from other parts of the world.

Our tree health strategy operates at three levels. First, through our border controls, we do everything we can to prevent undesirable pests from entering the country. Second, and in the event of a new outbreak, we move as quickly as we can to eradicate the threat, and if this is not possible, to contain it. Finally, we may have to learn to live with the pest, and adapt our management to reduce the threat it presents.

We must all share the responsibility for ensuring our forest and woodland biosecurity. Pests do not respect boundaries, and trees are at threat, regardless of ownership. Everyone who uses forests needs to be aware of the risk that pests pose, and what they can do to minimise them. The millions of visitors to Britain's forests and woodlands each year can play their own part in acting as eyes and ears to support the professional forest managers.

Although the threats to our forests and woodlands seem greater now than at any time in the recent past, I am confident that this interim strategy provides us with a robust approach to addressing the challenges we will face in the future.

A handwritten signature in black ink that reads "Tim Rollinson". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

Definitions

Certain terms with specific meanings are used in plant health, and these are defined below. Where used for the first time in the text of this Strategy document they are shown in **bold**. With the exception of the term “pest”, which for the purpose of this document is to be taken to include any insect, fungal or bacterial agent which might compromise the health of trees, the others are taken from ISPM No. 5 “Glossary of Phytosanitary Terms” (FAO 2009), or the EU Plant Health Directive 2000/29/EC.

Introduction: the entry of a pest resulting in its establishment (ISPM 5).

Non-Quarantine Pest: a pest that is not a quarantine pest for an area (e.g. the spruce bark beetle (*Dendroctonus micans*)).

Pest Risk Analysis (PRA): the process of evaluating biological or other scientific and economic evidence to determine whether a pest should be regulated and the strength of any phytosanitary measures to be taken against it (ISPM 5).

Protected Zone: shall be considered to be a zone in the European Community in which one or more of the harmful organisms referred to in this Directive, which are established in one or more parts of the Community, are not endemic or established despite favourable conditions for them to establish themselves there, in which there is a danger that certain harmful organisms will establish, given propitious ecological conditions, for particular crops, despite the fact that these organisms are not endemic or established in the Community (Article 2(h) (abridged) Council Directive 2000/29/EC).

Quarantine pest: a pest of economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled (ISPM 5). (E.g. the eight-toothed European spruce bark beetle (*Ips typographus*)).

Regulated Non-Quarantine Pest: a non-quarantine pest, whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact, and which is therefore regulated within the territory of the importing contracting party (ISPM5). NB: this classification is deliberately confined to those pests which can only be spread through the movement of infected plants, including trees, and which either do not significantly affect any of the products they produce, such as fruit or timber, or cannot be spread by moving those products from one place to another (e.g. Red Band Needle Blight (*Dothistroma septosporum*)).

ISPM: International standards for phytosanitary measures.

1 Why do we need to protect Britain's trees?

Britain's natural heritage is characterised by a vast range of trees, shrubs and plants, which over the centuries have added to the naturally occurring vegetation of these islands. Little remains of Britain's native woodland. What we have left is unique, precious and, partly because our native species may have little resistance to them, endangered by the threat of non-native **pests**.

The majority of Britain's conifer plantations consist of exotic species introduced in the 19th century. In most cases their natural pests are largely absent from Britain, and consequently the natural biological controls of these pests may also be absent. Thus, when new pests are introduced there is a greater risk that they may spread unchecked.

Climate change, with a trend towards warmer and wetter weather, may mean that certain pests that were introduced previously, but which have been contained by our climatic conditions, may be more likely to expand within GB. Equally, some native organisms not previously regarded as pests may also respond to changing climatic conditions and become damaging to their hosts, or invade new ones.

It is a matter of record that the trend in recent years has been for an increased frequency in the detection of new pests, with around a dozen in the first decade of the new millennium, as opposed to only a couple in the previous few years.

Britain uses a large amount of timber, paper, boards and other wood products each year, equivalent to about 50 million cubic metres of timber; about 80% of this has to be imported. We estimate that approximately 85% of our non-wood imports are accompanied by wood packaging material (WPM). WPM is known to be a high-risk pathway for the **introduction** of pests. Adequate import controls are therefore essential to prevent their introduction.

The love which Britons have for their parks and gardens has resulted in numerous species introductions over the years, which shows little sign of diminishing. Between 2000 and 2008 the value of imported plants rose from £197m to £340m. This has placed a major strain on the UK border control services. We recognise that this represents a major risk pathway for pests, but is outwith our capacity to control it. We maintain close working relationships with the other Plant Protection authorities in the UK in order to capitalise on our joint resources wherever it is possible to do so.

As well as a need to monitor trades in new commodities, and changing pest status in the countries with which we trade, there is an increasing recognition of the need to apply biosecurity precautions to prevent the accidental spread of pests, either through

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movement of infested material as part of daily forestry operations, or by visitors to woodlands or other areas, perhaps on contaminated footwear or vehicles.

Despite the best attempts to maintain secure biosecurity borders, pests have and will continue to find their way into Britain. Therefore, it is essential that we maintain ongoing research programmes to provide a robust evidence base for our approaches to dealing with these.

2 Scope of the Strategy

The Strategy's primary focus is the potential impact that pests may have on our woodland environment, our trees, and wood-using trade. It does not cover urban trees, although we recognise these as a significant risk factor – see section 3.3.

The strategy does not cover vertebrate pests such as deer or squirrels, or weeds, invasive higher plants and abiotic factors such as fire and air pollution. Nor does it deal with human or animal health issues arising from tree pests.

3 Factors likely to increase the risk posed by pests to Britain's trees

Globalisation and climate change are the factors most likely to influence the risk of introduction or emergence of pests.

In this context, facilitating trade and protecting plant health are not conflicting objectives, but must be regarded as a single objective - safe trade. Clearly globalisation and climate change will affect the risk of introduction and establishment of pests. Internationally agreed standards and national plans help to mitigate the risk, but our first line of defence will remain our system of border inspections. This provides a high level of protection while minimising the impact on trade.

3.1 Globalisation

Globalisation is breaking down bio-geographical boundaries: increasing volumes of goods, new trades, faster and more efficient transportation, and trade agreements are key components of this phenomenon.

Globally, National Plant Protection Organisations (NPPOs) recognise this threat and, thanks to persistent international efforts to address the threat from wood packaging, a converging international approach in which all wood packaging material worldwide is

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subject to prescribed universal measures to prevent pest transport has been agreed in an International Standard for Phytosanitary Measures, ISPM No. 15. Implementation of the procedures necessary to ensure that UK-manufactured wood packaging material meets this Standard is overseen by a joint FC/industry Advisory Council with representation from the Forest Service of the Northern Ireland Department for Agriculture & Rural Development.

3.2 Climate change

Although we consider climate change to be a secondary factor to globalisation in introducing new pests to Britain, its impact may make Britain a more attractive environment for pests that previously did not pose a threat. Similarly, non-native pests already present but not posing a significant threat may become a serious problem. In the absence of any real consensus it is prudent to be cautious.

3.3 Urban trees

Increasingly, pests are affecting urban trees, and while the Forestry Commission has only limited statutory competence in this area, it provides a disease and diagnostic advisory service through its Forest Research agency, which often deals with advice on urban tree biosecurity issues. We do this primarily because urban trees can act as a pathway for new pests, and their role in the spread of threats must be taken into consideration. It may provide an early warning of a new threat to the forestry environment.

At the present time the Plant Health Service, in the absence of any other body with statutory competence, is addressing a number of predominantly urban tree pests, such as Oak Processionary Moth and Horse Chestnut Bleeding Canker. These are demanding significant resources in time and research capacity. However, they are too important to ignore. Many of these issues are local in impact. The Forestry Commission can require local authorities to carry into effect any order under the Plant Health Act, and has used this power twice in the case of Dutch Elm Disease, and Watermark disease of willow. Local authorities are also required to comply with any notice served on them by the Forestry Commission using powers under the Plant Health (Forestry) order (See 4.2).

As urban trees represent such a critical pathway for pest introductions, a joined-up approach with local authorities is essential, and further use of these powers may be appropriate in the future.

We will work across central and local Government to address this in order to bridge the existing potentially dangerous gap in statutory cover between trees in the forest and those growing elsewhere. We shall continue to monitor urban

tree health, principally through the Tree Health Diagnostic & Advisory Service, while a more permanent solution, which may require an amendment to the primary legislation¹, is put in place.

4 Objectives

Our primary objective with regard to tree health, as emphasised in the Forestry Commission's (FC) mission statement, is to:

- preserve the health and vitality of our forests, trees and woodlands through strategies which exclude, detect and respond to existing and new pests, whether of native or exotic origin.

The tree health strategy also has a number of secondary objectives, namely to:

- ensure that our border controls are effective, and on the basis of available evidence, are proportionate to the risks posed by both known and unknown biosecurity threats;
- monitor for the presence of previously absent pests, or the spread of existing ones;
- provide a sound evidence base for GB and devolved administrations to develop policies which help to prevent, or reduce, the impact of pests;
- establish clear governance procedures to provide direction and accountability for dealing with existing and future pest outbreaks;
- encourage the adoption of sound biosecurity practice in a consistent way on both the public and private forest estate through general awareness raising to stimulate cultural and behavioural changes;
- support the co-ordination of activity between the FC, other agencies and stakeholders to prevent gaps in GB biosecurity coverage for our forests, trees, woodlands and the wider environment generally;
- secure sufficient resources to ensure that biosecurity is not compromised;
- provide effective communication channels to keep stakeholders and the general public informed about tree health issues, and support early identification of potential problems; and
- determine how to best address the risks posed to forest and woodland health from imported trees, including those intended for urban planting.

¹ The Plant Health Act 1967

5 Policy

Responsibility for the protection of forest trees and timber from attack by pests is delegated to the Forestry Commission Plant Health Service (PHS). This requires us to operate at both an international and national level within GB. Our Plant Health Service strategic operational plan is outlined in a separate document, which can be found on the Forestry Commission Plant Health Service's web pages www.forestry.gov.uk/planthealth.

5.1. International

The Head of Plant Health is responsible for developing strategies to deal with new threats and represents the UK's forestry interests on the EU Standing Committee on Plant Health, which is responsible for formulating the EU's Plant Health regime. In developing policy we must consider our international obligations under the Sanitary and Phytosanitary Agreement (SPS)², which is binding on all member countries of the World Trade Organisation and those in the International Plant Protection Convention (IPPC)³.

According to the rules of international trade, as set out in the SPS, any plant health measures which regulate imports must be technically justified. This is generally achieved through **Pest Risk Analysis**⁴ (PRA) prepared following the guidelines set out in the relevant International Standards for Phytosanitary Measures⁵, e.g. ISPM No. 2 "Guidelines for pest risk analysis", ISPM No. 11 "Pest Risk Analysis for quarantine pests, including analysis of environmental risks and living modified organisms", or ISPM 21 "Pest risk analysis for regulated non-quarantine pests". (See section 6.2.2 for further details).

The EU's Standing Committee on Plant Health determines which pests should be classified as **quarantine pests** or **regulated non-quarantine pests**, and the special requirements to be taken to prevent their introduction and spread. Member States are, however, free to take emergency measures while possible EU measures are being discussed.

Any changes to the pest list, or the special requirements to be met before regulated plants, plant products or other objects may be landed, are set out in the EU Plant Health

² The Sanitary and Phytosanitary Agreement of the World Trade Organization www.wto.org

³ www.ippc.int

⁴ http://archives.eppo.org/EPPOStandards/PM5_PRA/pm5-01-e.doc

⁵ www.ippc.int/index.php

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Directive⁶, and these are usually triggered either by import interceptions of new pests by a Member State, or pest reports published by National Plant Protection Organisations around the world, as they are required to do under the terms of the IPPC.

Within the IPPC network, nine Regional Plant Protection Organizations have been set up, covering areas with similar climatic and other features. The UK and the EU are both part of the European and Mediterranean Plant Protection Organization (EPPO⁷). EPPO is an intergovernmental organisation responsible for European co-operation in plant health, and now has 50 members, covering almost all countries of the European and Mediterranean region. Its objectives are to protect plants, to develop international strategies against the introduction and spread of dangerous pests, and to promote safe and effective control methods. As a Regional Plant Protection Organization, EPPO also participates in global discussions on plant health organized by FAO and the IPPC Secretariat. Finally, EPPO has produced a large number of standards and publications on plant pests, phytosanitary regulations, PRAs and plant protection products, which can be found on their website.

To ensure the strategic interests of the GB forestry sector, we will continue to participate in a number of Technical and other Panels set up within the IPPC/EPPO framework and contribute to the preparation of those relevant to the forestry sector, either through direct representation or through the formal consultation procedures.

In addition, we will continue to monitor the pest alerts published at frequent intervals by EPPO and some other Regional Plant Protection Organizations as part of our horizon scanning process and, where appropriate, conduct PRAs in order to determine whether our import controls need to be adjusted, advising the European Commission and the member states accordingly.

5.2. National

Plant Health is a devolved matter. The forestry Ministers in Westminster, Edinburgh and Cardiff are currently content that we regulate in England, Scotland and Wales by single GB Orders. The principal Order is the Plant Health (Forestry) Order 2005⁸

To ensure national co-ordination the Forestry Commission has set up a GB Biosecurity Programme Board. The Board will oversee delivery of this Tree Health Strategy. It will

⁶ www.ec.europa.eu/..../index-en.htm

⁷ www.eppo.org

⁸ www.opsi.gov.uk/si/si2005/20052517.htm

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provide a strategic overview of the Forestry Commission's approach to plant health and biosecurity, to assist it in meeting its objectives.

Much of the regulation covering Plant Health is prescribed in the EU Plant Health Directive. This leaves us little opportunity to look for ways to reduce burdens on business. We are, nevertheless, committed to the principles of Better Regulation and seek to apply these in our negotiations in, for example, the EU Standing Committee on Plant Health, the principal body responsible for determining the content of the Directive. We have, for example, negotiated reduced frequencies of inspection for wood of maple originating in North America, and we have minimised the burden on businesses by making maximum use of the 'local market' exemption provisions concerning registration of traders and the use of plant passports for domestic movements of certain wood and wood products.

We have taken, and will continue to take, full advantage of the provision in the Plant Health Directive for **protected zone** designation through a programme of surveys to provide evidence of freedom from specific pests of concern which are known to occur elsewhere in the EU. This will enable us to continue to prescribe special conditions, e.g. bark-freedom of conifer wood, to ensure that host wood and wood products coming from other Member States, regardless of origin, does not present a risk of accidental introduction of pests.

For more detail on our regulatory effectiveness, see the Plant Health Service's operating plan 2010-2015.

6 Taking a strategic approach

6.1 Operational principles

Within this framework it is possible to identify some operational principles within which statutory plant health controls are designed and implemented against quarantine pests, and against new threats not yet analysed and listed as a quarantine pest. These are:

- 1 that action taken is proportionate to the risk posed;
- 2 that a rapid response to a new threat is the optimum approach for eradication;
- 3 that a precautionary approach shall be adopted until a more detailed risk analysis has been completed;
- 4 that any economic, social, or environmental impact, whether from a plant pest or from the control measures adopted, is minimised;
- 5 that trade is facilitated by ensuring that, where demanded, exports comply with the quarantine requirements of the importing country;

- 6 that control measures on imports and domestic movements are the minimum necessary to achieve plant health objectives;
- 7 that import inspections are carried out and clearance for compliant consignments given quickly;
- 8 that where any remedial action is required, this is explained to and agreed with those concerned, and applied in the least disruptive manner possible, commensurate with the risk involved;
- 9 that we are transparent in what we do and publish advice and guidance on our controls using web-based mediums; and
- 10 that, other than in cases of emergency responses, we consult with our stakeholders before making changes.

6.1.1 Non-quarantine pests

The ten principles above for quarantine pests should also apply to **non-quarantine** pests. For these pests, the principles are supported through the regular surveys of forest condition undertaken in the National Forest Inventory of Great Britain. In addition, guidance for Forestry Commission staff and private woodland owners will be provided by means of a Practice Note on Tree Health which will replace the existing guidance for FC staff⁹. We will encourage private forest owners to apply and support this general guidance through the publication of complementary Practice Notes providing advice and practical information for dealing with a range of unregulated pests. We believe this is essential in order to support our sustainable forestry objectives.

6.2 Risk Management Framework

To cost-effectively address the risks posed by pests without imposing unnecessary burdens on industry, we employ a risk-based approach. Our Risk Management Framework is based on Food & Agriculture Organization (FAO) recommendations set out in ISPMs. It consists of a collection of interdependent management objectives supported by a legislative foundation. The key elements are to:

- identify pests and/or pathways of quarantine concern;
- assess the risk, and determine appropriate strategies for management; and
- adapt to and manage the risk.

⁹ Operational Guidance Booklet 2 FC intranet: not in the public domain

6.2.1 Identifying pests and/or pathways of concern

Because Great Britain is a major trading nation, risks to our tree health are considered as being global. This is critically important to our major commercial tree species and many of our ornamental trees, most of which are not native, and do not have indigenous pests associated with them. Recent and dramatic increases in the volume of trade in, especially, ornamental and semi-mature plants has significantly increased the level of risk. In order to inform the strategic action required to address each pest threat, we need to understand the major risk pathways to new threats. There are a number of these.

- For many years, the Plant Health Service has maintained a robust approach to threats arising through the importation of wood and timber products. This now represents a low-level risk as long as current mechanisms remain in place. The likelihood of increased imports of biomass to fuel renewable energy projects may increase this risk, although this should be minimised with appropriate treatment.
- In recent years, the Service has been addressing the issue of dunnage, or wood packaging, which is being used with a wide range of non-wood products. This is often low-grade wood, and can present a higher level of risk than traditional wood products, because it often has accompanying bark. The Service is working closely with port authorities and importers to inspect suspect dunnage and require it to be treated or burnt if it represents a threat. The risk from this has been significantly reduced from most third countries due to the requirement introduced in 2005 that all wood packaging material entering the EU must be treated and marked in accordance with ISPM No. 15¹⁰. Currently, ISPM 15 requirements do not apply to wood packaging material moving within the EU (under review);
- Of greater concern is the threat posed by the increasing number and species of imported plants for nurseries and gardens. In England and Wales, the Food & Environment Research Agency (Fera) provides the inspection service for these imports through its Plant Health Service, while inspectors from the Rural Payments & Inspections Directorate (RPID) perform inspections in Scotland. Given the pressure on the service from increasing numbers of plant imports, we consider this to be a high-level risk.
- Visitors to the UK and returning tourists sometimes try to bring plants or seeds into the country from outside the EU. The Plant Health Service works closely with the UK Border Agency and HM Customs & Revenue under a formal Service Level Agreement to seek to ensure that the regulations prohibiting importation of these items are adhered to. Nevertheless, a risk is still present.

¹⁰ ISPM No 15 Guidelines for regulating wood packaging material in international trade: www.ippc.int

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- Within the UK, transmission by haulage lorries, light vehicles and the general public can represent a risk, particularly with fungal and bacterial pathogens. We are developing a series of biosecurity protocols to reduce this risk pathway through improved awareness and operational practice.

Annex 1 lists the pest threats we are currently aware of, with their regulatory status.

6.2.2 Assessing the risk and determining appropriate strategies for management

Through our programme of research procurement, we will maintain pest-specific research programmes into, for example, Red Band Needle Blight and Acute Oak Decline. The procurement process also seeks to ensure that funding is made available to improve our understanding of existing pests and to develop control strategies for managing them. In addition we shall also continue to maintain our more general programme of 'Advice and Support for Tree Health' to assist with horizon scanning and identifying pests which are not present but which pose a threat to trees in Great Britain. This may require the development of a Pest Risk Analysis for each one.

Pest Risk Analysis (PRA) is the process used to determine whether an organism is a potential Quarantine Pest or a Regulated Non-Quarantine Pest. PRA ranges from, at its simplest, expert judgement to, at its most complicated, a full cost-benefit analysis. Because commissioning a new, thorough PRA is expensive, we work with our international colleagues to make use of PRAs, where available, which have been produced elsewhere, perhaps with modification to reflect any special conditions which might apply in GB. However, we have developed a number of PRAs including, recently, one for Red Band Needle Bight (*Dothistroma septosporum*), which we will use to influence the development and implementation of appropriate regulatory controls to protect against the risks from this pest

6.2.2.1 Contingency plans

To ensure the best chance of successful eradication it is important to be able to respond to the appearance of any new pest quickly. To enable this, we have developed a generic contingency plan (See Annex 2). Having a contingency plan ready will help to reduce the risk of failure, especially where a number of different parties are involved. In many cases, other government departments, local government authorities, industry sectors and other commercial bodies are likely to become involved with us to help develop and deliver effective pest management programmes. Our generic Contingency Plan is supplemented by a suite of pest-specific Contingency Plans for all of the pests listed in

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the Schedules to the Plant Health (Forestry) Order 2005, which have been based wherever possible on PRAs prepared either by Forest Research or published by EPPO.

6.2.3 Excluding or managing the risk

The Service uses a combination of regulation and surveillance to minimise the threats from new pests. Management activities are based on a three-tier approach to reflect the three main areas of activity. These are:

- prevention of entry;
- action on detection of a new pest; and
- adaptation and mitigation.

6.2.3.1 Preventing entry

The underlying premise is that prevention is better than cure. There are two main options available to us to achieve this. The first is regulation, through our statutory powers exercised by the Forestry Commission Plant Health Service. The second is surveillance through a combination of approaches. Inspections at ports and docks form part of this, but we also rely on well sited and clear information to enlist the support of stakeholders and the general public in helping to enforce our biosecurity borders.

6.2.3.1.1 Regulation

The majority of pests are not subject to statutory regulation, either because they are too well-established and too widespread to be controlled, or the cost of eradication would exceed the level of damage that can be expected. These are categorised as non-quarantine pests and will generally be subject to some control as part of normal forest management operations. Those which do merit statutory intervention fall into one of two other categories; quarantine pests (listed in Schedules 1 and 2 of the Plant Health (Forestry) Order 2005) and regulated non-quarantine pests. Currently, there are no regulated non-quarantine forestry pests listed in either the EU's Plant Health Directive or The Plant Health (Forestry) Order 2005.

Regulatory frameworks based on PRA have been developed. In some cases, where PRA shows the risk cannot be managed by specifying and enforcing import requirements, plants or plant products may be prohibited. For most plant and plant product material, however, specific entry requirements have been prescribed. These place legal obligations on importers to ensure that the material they import is free from quarantine and regulated non-quarantine pests, either by sourcing them from an area known to be free

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of the relevant pest, or through the application of a specific treatment, for example heat treatment or kiln-drying. These requirements are set out in Council Directive 2000/29/EC and implemented in Great Britain by The Plant Health (Forestry) Order 2005. Requirements may be based on guidelines set out in FAO International Standards for Phytosanitary Measures, for example, ISPM No.15 in respect of wood packaging material used in trade.

Action to exclude, contain or eradicate quarantine pests is co-ordinated across the European Union through Council Directive 2000/29/EC (as amended) or other Decisions or Regulations specific to certain pests subject to temporary emergency measures. Where a member State detects the presence of a previously unknown pest it may take immediate emergency measures pending consideration of EU-wide provisions. The Plant Health (Forestry) Order 2005 implements these controls within Great Britain.

We will continue to monitor the health of our trees and woodlands through surveys. We will continue to 'horizon scan' for new and emerging threats identified overseas. Whenever we detect new pests we will take emergency action to protect against further introduction and to aim to eradicate these, wherever possible. Whenever we identify a potential new threat through the PRA process we will take emergency action to protect against introduction.

6.2.3.1.2 Surveillance

A network of surveillance plots has been established throughout Great Britain. These are sited at forest locations, where possible close to ports, as well as at sawmills and other wood-processing facilities. These are primarily targeting those pests established elsewhere in the EU, but which are known not to occur here and against which we maintain our EU Protected Zone status.

We will continue to maintain and monitor these sites to provide an early indication of new pests.

6.2.3.2 Action on Detection of a New Pest

6.2.3.2.1 Eradication

When a potentially serious pest is detected the Head of Plant Health will implement either our Generic Contingency Plan or a pest-specific one, if available and the pest has been identified. This decision will be influenced by the result of a summary PRA prepared by Forest Research. An Outbreak Management Team with representation from stakeholder groups will be convened and pest management and communications strategies adopted and implemented without delay. Our aim will be to eradicate the pest

wherever this is feasible. Responsibility for setting up the outbreak management team will lie with the Head of Plant Health.

6.2.3.2.2 Containment

Where PRA shows that action is necessary, but that eradication is not feasible, or where earlier eradication attempts have failed, a plan for containment will be implemented. This will be co-ordinated through the pest outbreak management team, and the Biosecurity Programme Board will maintain a watching brief and provide advice if required. We will monitor the success or otherwise of pest eradication programmes and will develop appropriate exit strategies, including pest containment provisions.

6.2.4 Adaptation and mitigation – newly established pests

This will represent the point at which we believe that the pest has become so well-established that eradication is no longer possible. We also recognise that climate change may influence the conditions under which previously benign pests are able to develop and thrive. As an illustration, existing insects, such as *Elatobium abietinum*, the Spruce aphid, may begin to pose a more serious threat in the future, requiring management intervention.

There are a variety of ways in which this stage can be managed. Among these are:

- good biosecurity practices to help to slow down the future spread of the pest;
- research to:
 - identify and support the adoption of different silvicultural methods;
 - develop and support the adoption of new working practices;
 - allow more-resistant species to be planted; and
 - introduce biological predators, such as *Rhizophagus grandis* in the case of *Dendroctonus micans*.

The adoption of robust biosecurity measures will help to minimise the risk from these threats, and should be complemented by constant vigilance to enable early detection of potential problems. These steps will facilitate early and appropriate responses to minimise potential impacts.

The Forestry Commission will continue to fund research into understanding and addressing new and existing threats, but liability for control will lie with forest owners.

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However, to support owners, the Forestry Commission will provide advice and information, generally through the publication of Practice Notes.

6.3 Managing for resilience – species choice

Since the mid-1970s, the standardisation of species choice in British forestry has led to a concentration upon a limited number of species. Recent increases in the number of introduced pests and diseases affecting our trees and forests, and projected impacts of climate change, have created a need to consider a wider portfolio of species as a component of management strategies aimed at adapting our forests and woodland for the future.

In particular, we need to:

- identify contingency species and resistant genotypes that can substitute for species affected by current or future outbreaks of pests and diseases;
- diversify species composition and stand structures to increase the resilience of forests; and
- begin testing a wider range of species and provenances likely to be more suited to the projected climate of the future.

However, testing and introduction of new species must be informed by appropriate biosecurity policies to assess risks and avoid inadvertent introduction of further pest and diseases issues.

7 Communication

The Biosecurity Programme Board will oversee the development of a communication plan for pests. We will aim to target our communications to the right audiences, at the right time, to engage and secure their collaboration in dealing with new and emerging threats.

In association with Forest Research, we will work with stakeholders to disseminate plant health information by running awareness and training programmes and by publishing Pest Alerts, Plant Health Newsletters and Practice Notes on the Forestry Commission website

8 Liaison

For control and management of pests to be effective, it is vital that we maintain close relationships across departments to ensure a joined-up approach. The outbreak of *Phytophthora ramorum* in Wales and the south west of England has shown how important it is for government, at UK and devolved levels, to pool resources and expertise.

The action plan, currently being developed by the Forestry Commission and Defra, will ensure that tree health is considered in the wider context of plant health and biosecurity. This will improve co-operation between government departments across Britain, and provide a seamless service to prevent any gaps in coverage.

Similarly, the co-operation of the forest industry is a vital component of any strategy to eradicate, contain, or manage a pest.

We will ensure that we keep industry representatives fully informed about the progress of pest outbreaks, and engage them in finding and deploying appropriate solutions.