

Department for Environment, Food and Rural Affairs

Interim Chalara Control Plan

6 December 2012

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Summary

This plan sets out actions to tackle *Chalara fraxinea* over the next few months.

The key actions are:

Objective 1 - reducing the rate of spread

- Maintain the ban on import and movement of ash trees
- Explore options for a targeted approach to management of infected trees by end March 2013
- Initiate research on spore production at infected sites
- Work with partners to publish targeted advice on movement of leaf litter

Objective 2 – developing resistance

- Work across Europe to share data and experience on resistance to Chalara
- Work with research councils and other bodies in the UK to identify and prioritise research needs on resistance and ensure those needs are met.

Objective 3 – encouraging citizen, landowner and industry engagement in surveillance, monitoring and action in tackling the problem

- Fund a pilot study to accelerate the development of the ObservaTREE, a tree health early warning system using volunteer groups
- Develop a plant health network of trained people to support official surveillance and detection
- Support work by industry groups to develop a charter mark for plants of UK origin
- Continue to work with the OPAL consortium to develop the OPAL survey on tree health for launch in May 2013
- Support a biosecurity themed show garden at next year's Chelsea Flower Show

Objective 4 – building resilience in woodland and associated industries

- Publish silvicultural guidance on adapting to Chalara
- Publish maps showing the distribution of important ash across Great Britain
- Work with the horticulture and nursery sectors on long-term resilience to the impact of Chalara and other plant health threats

Introduction

Chalara fraxinea, a fungal pathogen which causes dieback of ash trees, was discovered for the first time in Great Britain in a nursery in Buckinghamshire in February 2012. In October this year, it was also discovered in the wider environment in woodland in Norfolk.

The scientific advice is that it will not be possible to eradicate Chalara. However, this plan sets out initial targeted, science-based and proportionate action to control the disease and provides a framework for future action as our understanding of Chalara, and the costs and benefits of action develops.

Key facts about ash in Great Britain

- The Forestry Commission (FC) estimates that woodland ash trees cover 124,000 hectares in England (9.6% of total woodland) and 150,000 hectares in Great Britain (5% of total woodland). In addition, FC estimates 12 million ash trees outside of woods and forests. Ash coverage is more prevalent in the south east (in particular West Sussex, Hampshire) and in Hereford and Worcester. The highest percentage of ash in broadleaved woodland is in a belt through the midlands from Gloucestershire to Lincolnshire.
- Ash is one of the most common trees in hedgerows, parks and gardens and along the road and rail networks.
- The supply chain for ash is complex, involving nurseries, woodland managers, sawmillers, retailers and landscapers. There are estimated to be 60-80 enterprises in the nursery sector dealing in ash.
- Approximately half of ash saplings and young trees planted in the UK are imported. The annual value to UK importers of trading young ash trees is tentatively estimated at up to £300,000.
- There are 665 Sites of Special Scientific Interest in England where ash forms a major component and it is an important component of many other sites of high environmental value.
- Woodlands and trees generally provide a range of ecosystem services valuable to prosperity and wellbeing such as recreation, landscape, carbon sequestration, air pollution absorption and biodiversity.

Action to date

Following a rapid and extensive survey to establish the extent and distribution of the disease, on 9 November we announced initial actions to tackle the threat to ash trees from Chalara, drawing on scientific advice and the views of a wide range of stakeholders. These were:

1. Newly-planted diseased trees and diseased trees in nurseries will be traced and destroyed, as once young trees are infected they succumb quickly.
2. Mature trees will not currently be removed, as they are valuable to wildlife, take longer to die and can help us learn more about genetic strains that might be resistant to the disease. Infection does not occur directly from tree to tree.
3. Better understanding of the disease will be built through research and surveys, which will look not only for diseased trees but for those that show signs of resistance to Chalara, to help identify genetic strains resistant to the disease.
4. The search for the disease will include trees in towns and cities as well as the countryside, building partnerships with a range of organisations beyond Government.
5. Foresters, land managers, environmental groups and the public will be informed about how to identify diseased trees and those likely to be resistant to the disease, and know what to do if they find a diseased tree.

We committed to setting out further actions to control the disease, and this plan is intended to report on progress in delivering the initial actions and meet that commitment.

Our objectives for tackling Chalara are to:

- Reduce the rate of spread of the disease
- Develop resistance to the disease in the native ash tree population
- Encourage landowner, citizen and industry engagement in surveillance, monitoring and action in tackling the problem
- Build economic and environmental resilience in woodlands and in associated industries.

The evidence on Chalara has developed rapidly over the past few weeks, but there remain many uncertainties. The actions set out in this plan are based on our current state of knowledge and are intended to be reviewed and refreshed as that knowledge develops over the coming months.

Objective 1 – Reducing the rate of spread

Summary of key actions

To meet this objective we will:

- Review the ban on import and movement of ash trees by Spring 2013
- Explore options for a targeted approach to management of infected trees by end March 2013
- Initiate research on spore production at infected sites
- Work with partners to publish information and targeted advice for a range of audiences

The current scientific advice says it will not be possible to eradicate Chalara, nor are we yet able to quantify the effectiveness of action on rates of spread. However, the results of the surveillance exercise carried out in November shows that there may be some parts of the country where the prevalence of the disease is currently low. We have therefore considered a range of measures to slow the spread of the disease. The aim is to give us some time to investigate resistance to the disease and in particular to seek to protect sites of high environmental and amenity value for as long as possible.

Our knowledge about the spread of the disease is limited, and based largely on experience in other European countries where, for the most part, no action has been attempted to slow it. However, we have commissioned state-of-art modelling of the spread of the disease and its impact across Great Britain to help inform the emerging approach. We will continue to develop and refine these models as part of the evidence to inform decision-making.

Whilst any reduction in the rate of spread would bring wider benefits, we will need to consider any costs associated with action, and where they fall, and ensure that they are proportionate to what we can achieve.

Import and movement restrictions

Since 29 October 2012 there has been in place a ban on the import and movement of ash trees. We have considered whether it will be feasible to introduce protected zones which are free of the disease, and within which businesses can issue “plant passports” to free up trade in ash trees. Recent surveillance has revealed evidence of the disease across Great Britain, but it is not yet clear whether some areas will be able to demonstrate “disease free” or “low disease prevalence” status and therefore be in a position to resume trade in

ash trees. As our understanding of the distribution of the disease firms up, we will work with stakeholders to assess whether it will be possible to identify some areas which could be designated in this way, or where local movements could be permitted. As there is no current demand for ash planting there is no immediate call to resume the trade in ash trees.

As a consequence, the current ban on movements of ash trees in Great Britain will remain in place until we review this arrangement with the nursery and horticulture sectors in early spring 2013.

Action on infected trees

Our initial approach to controlling the spread of Chalara announced on 9 November was to:

- Continue to trace and destroy recently-planted ash trees (generally those planted in the last five years).
- To leave mature infected trees *in situ*, because they are likely to survive for some time and they are valuable for biodiversity.

We have reviewed this approach.

Infected trees in nurseries cannot be moved under the current restrictions and we will continue to trace these and require their destruction in the nurseries.

For recently-planted trees from potentially infected source, we will continue with the exercise to trace sites as an interim measure. We will continue to use our statutory control powers to contain recently-planted infected sites and to restrict the movement of infected material from the site. We will only require infected stock to be destroyed where it represents a significant threat of spreading the disease to uninfected ash trees.

However, we now understand that the complexity and the scale of this exercise means that it would take many months, if not years, to identify all the sites that could be affected. In some parts of the country, where the disease is already well-established in the natural environment, destroying young diseased trees is likely to provide little benefit. However, in other areas, where the disease is not yet present in the wider environment, action against diseased young trees could delay its incursion.

Further work is also required to fully understand the costs and effectiveness of focusing on the destruction of diseased young trees. Costs would, for instance, include costs for detection, surveillance, sampling, removal and disposal, and depend heavily on the number of sites involved. Benefits would consider economic, environmental and social issues.

We will undertake further work, with support from modelling, and an analysis of the costs and benefits, to fully understand where the decision to trace and destroy young trees will be most effective.

The modelling and analysis could also contribute to protecting sites of particular ecological, landscape, recreational or cultural value.

Over the next few months, we will work with stakeholders and experts to develop the evidence, including outputs from epidemiological models, and to consider the case for geographically targeted action against recently-planted trees. We will continue to work at pace on this issue so that, if the benefits of action outweigh the costs, we have time to act before the fungus releases its spores next summer.

For infected mature trees we will require no action in most cases. We will initiate research at some of these sites to assess spore production under different management regimes and use that to enhance our understanding of how the disease spreads. However, there may be some instances where there is a strong rationale for felling mature trees to slow the spread of Chalara, for example if they are isolated trees a long way from other areas of infection, or to protect valuable sites and where they have no outstanding socio-environmental value in their own right. **As part of the modelling work described above, we will consider whether a similar geographically differentiated approach to mature trees would be beneficial.**

Targeted advice and guidance

The main pathway for transition of Chalara over the winter is through movement of leaf litter. We have worked with partners to produce advice targeted at different audiences with the aim of reducing this risk. This includes:

- Detailed advice to local authorities on the disposal and composting of ash leaves which has been developed in consultation with the Environment Agency, the Food and Environment Research Agency, the Forestry Commission. This was published online on 28 November (www.forestry.gov.uk/forestry/infd-92gjvb);
- Chalara advisory signs for woodland visitors have been published in downloadable form on the Forestry Commission website, for use in affected areas and also for more general use (www.forestry.gov.uk/forestry/INFD-8ZZJPN).
- The Highways Agency and Network Rail have worked closely with the Forestry Commission to develop guidance for staff working on their networks about the handling and disposal of ash material.
- To mark The Tree Council's National Tree Week, a series of very simple, sharable digital postcards have been produced for wide distribution on Defra's and partner organisations' social media channels. The postcards are targeted at five different groups of people: cyclists, gardeners, horse riders, walkers and families and provide easy-to-follow advice on how to avoid transmitting ash leaf litter between sites.
- We have provided advice for a National Trust-funded poster on general plant biosecurity for those who work in forests and woodlands. This will be launched by National Trust and Woodland Trust in December.

We will continue to update information and guidance as necessary and consider the need for additional advice on issues such as safety arising from the impact of Chalara.

Objective 2 – Developing resistance

Summary of key actions

To meet this objective we will:

- Work across Europe to share data and experience on resistance to Chalara
- Work with research councils and other bodies to identify and prioritise research needs on resistance and ensure those needs are met.

Our best hope of securing the future of the British ash tree lies with understanding the genetic variability in ash and identifying resistance to Chalara. This may take several years.

A number of countries affected by Chalara have reported ash trees displaying partial resistance to the disease. Although the proportion of such trees is low (it is estimated that 1% show less than 10% infection rates), these reports provide evidence of the potential for long-term natural selection producing offspring with increased resistance to dieback. Crossbreeding may accelerate the production of more resistant ash species. Chalara experts from 30 countries across Europe (including the UK) met in Vilnius for the FRAXBACK conference on 13-14 November to discuss the health status of their ash, on-going research projects and significant results as well as research needs.

An ongoing Danish study tested 39 lines of common ash, *Fraxinus excelsior*. Field trials conducted over three years showed that a small percentage of lines maintained crown health and exhibited low levels of symptoms, showing considerable resistance to infection by *Chalara fraxinea*. Importantly, the study also demonstrated that this trait is highly heritable (i.e. it can be passed on between generations). Further studies published in February this year provide evidence that the healthiest lines inhibited direct growth of the fungus rather than tolerating or modifying the toxic metabolites and that resistance appears to be due to a suite of genes rather than a single gene. This latter point is important because the disease resistance is less likely to break down due to genetic change in *Chalara fraxinea*. These studies further our understanding of host/pathogen interactions and are vital to inform breeding programmes. They also highlight the importance of identifying, marking and preserving the healthiest ash trees in infected areas. Breeding programmes for Chalara resistance will need to take account of effects on resistance to other pests and diseases.

Genetic resistance research will focus on identifying the genes involved in conveying tolerance to disease. There are several UK bodies including universities, research institutes and government agencies that have the capability to carry out such research. Defra's Chief Scientific Adviser, Professor Ian Boyd, is convening a scientific workshop in London on 13 December to further define and prioritise

research needs for Chalara. The workshop will focus on identifying and breeding for resistance and ensuring that research needs are being met.

Objective 3 – Encouraging citizen, landowner and industry engagement in surveillance, monitoring and action in tackling the problem

Summary of key actions:

To meet this objective we will:

- Fund a pilot project to accelerate the development of the ObservaTREE, a tree health early warning system using volunteer groups
- Develop a plant health network of trained people to support ongoing official surveillance and detection for Chalara and other pests and diseases
- Continue to work with the OPAL consortium to develop the OPAL survey on tree health for launch in May 2013
- Support work by industry groups to develop a charter mark for plants of UK origin
- Support a biosecurity themed show garden at next year's Chelsea Flower Show

The work we have done to date on Chalara has shown the important role that landowners, voluntary organisations and the general public play in supporting ongoing official surveillance by helping to identify plant diseases and pests. A number of organisations such as the Country Land and Business Association and the Woodland Trust played a valuable role in the rapid surveillance exercise in early November, and members of the public were also able to report suspected infections for the first time using the University of East Anglia's AshTag app. Building on this citizen surveillance, the Forestry Commission has developed a web reporting form and accompanying mobile application to rationalise the diverse reporting mechanisms and link directly to its national plant health database.

Over the next few months, we will introduce a number of additional measures to provide stakeholders and the wider public with the tools to report a range of threats to plant health to the plant health authorities.

Targeted advice and guidance

We will continue to work with a range of partners to ensure that evidence based, up-to-date advice is available to all those with a part to play in tackling threats to plant and tree health. Some of the action we have taken to do that for Chalara is set out under Objective 1 of this plan.

Partnership working with stakeholders

We will continue to work with stakeholders to develop policy on Chalara. A core group of stakeholders has been established and has already met several times to give advice and, in conjunction with officials, develop policy recommendations in response to Chalara. This group includes representatives of landowners, the forestry and horticulture sectors, environmental organisations, and local government. This group has contributed to the development of this control plan and will continue to work with us as policy on Chalara evolves.

Developing citizen science and interactive mapping

Defra will fund a pilot project this financial year to accelerate development of ObservaTREE - a Forest Research-led bid for EU Life+ funding to develop an integrated Tree Health Early Warning System using volunteer groups. The pilot project will focus on establishment and testing of Information Communications Technology infrastructure and developing a cadre of champions, who are linked to the communications network.

This study is linked to the EUPHRESKO International Plant Sentinel Network, which will provide a wider international element and additional early warning. Defra will present data and information on the Chalara outbreak using a range of communication and technology channels including mapped information.

Develop a plant health network of trained people to support official surveillance and detection

Fera has been working with the parks and gardens sector on a “train the trainers” initiative aimed at equipping those who train people working in the sector to spot plant pests and diseases. We will build on this and work with the Forestry Commission to extend this concept to provide an “early warning network” for tree pests and diseases. This network could include a group of competent and trained stakeholders to operate a network of between 10-20 Genie LAMP assay machines to diagnose Chalara and other diseases.

Support for volunteer naturalists monitoring species associated with ash

The Joint Nature Conservation Committee (JNCC) and the Centre for Ecology and Hydrology will provide an effective web-based recording form for volunteer naturalists to assist in monitoring the species associated with ash trees and the impacts upon these due to Chalara. This will also be able to pass on records to the Forestry Commission plant health database.

OPAL (Open air Laboratories citizen science project) 2013 survey on tree health

Defra, Fera and Forest Research will continue to work with the OPAL consortium to develop the OPAL survey on tree health to be launched in May 2013. Included in the survey will be an activity to survey ash trees for pests and pathogens, including Chalara. Although the survey is currently planned for England only, work is underway with the Scottish and Welsh Governments to extend it to Great Britain

Industry-led Charter Mark

Some sectors have already begun to look at how they can support consumers to make informed choices when buying trees and plants. Over the next few months, we will work with the industry to build on initial work of the Institute of Chartered Foresters and CONFOR nursery group to develop a “charter mark” for plants of UK origin. This will include looking at the scope to extend the scheme through the Horticultural Trades Association to ornamental nursery stock plants.

Support a biosecurity themed show garden at next year’s Chelsea Flower Show

On 29 November the Royal Horticultural Society announced that Fera’s biosecurity-themed show garden “Stop the Spread” had been accepted for the RHS Centenary Chelsea Flower Show in May 2013. Working with the award-winning designer, Jo Thompson, Fera and partners including the National Trust, will oversee the design, build and delivery in show week 21-25 May 2013.

Defra and Forestry Commission will provide full support to develop the high profile media campaign to accompany the garden.

Objective 4 – Building resilience in woodland and associated industries

Summary of key actions

To meet this objective we will:

- Publish silvicultural guidance on adapting to Chalara
- Publish maps showing the distribution of important ash across Great Britain
- Work with the horticulture and nursery sectors on long-term resilience to the impact of Chalara and other plant health threats

The impact of Chalara will not be seen immediately as infected trees will continue to survive for a number of years. However, managing our trees and woodlands, whether for timber production, for their biodiversity and landscape benefits or for access and recreation, is a long term endeavour. That means we need to start taking action now to adapt to the impact of Chalara and minimise its impact on our economy and environment. In developing our approach, we will review and learn from approaches taken by other European countries with longer experience of adapting to Chalara.

The forestry and wood products sectors

Ash is not one of the major timbers sold and processed in Great Britain. Of 2.665 million hectares of forest land, just under 5% comprises ash and many woodlands with ash are not currently managed for timber. The limited evidence available suggests that timber degrade caused by Chalara is likely to occur a minimum of four years after infection and may be longer. Thus there is no need for woodland managers to rush to market, with the likely impact of doing so being a significant price reduction if large volumes were to come on stream.

The impact of Chalara on the forestry industry as a whole is likely to be very small, though will be locally important. Some smaller merchants and craftsmen who rely on ash may also see some adverse effect. The premature disappearance of this resource will have a significant local effect upon the fledgling wood fuel supply chain and a very significant effect upon owners who were relying on their ash woodlands for a long term supply of feedstock to newly installed biomass boilers. These impacts should be mitigated in the longer term by the use of other species, or imports of wood based biofuels.

We recognise that some woodland owners will be concerned about the impact of Chalara on grant payments made to support the establishment of new woodland. Our initial

assessment is that where trees die as a result of Chalara, and that prevents full establishment of new woodland, repayment of grant funding will not be required.

Devolved administrations in each country will work with stakeholders in the forestry and wood products sectors to identify the most appropriate management strategies to help owners and managers to mitigate the worst impacts of Chalara, and ensure the future resilience of these important rural businesses.

Nursery and horticulture sectors

The impact of Chalara on those nurseries growing ash trees is significant. The Horticultural Trades Association (HTA) estimates that some £2.5 million stock of ash trees are currently held in UK nurseries. This is either unsaleable, due to the lack of demand, or must be destroyed because of disease. The HTA also estimates that 95% of ash growers would be negatively affected by Chalara with 58% expecting cash flow problems as a result, 87% expecting a reduction on business profitability, and 8% facing the prospect of going out of business.

As this plan develops over the coming months, we will work closely with the horticultural and nursery sectors to consider the resilience of those sectors and what action the sector and Government should take to ensure that trade in plants and trees does not expose us to unacceptable risks of new pests and pathogens.

This will include a review of policy measures that influence forest planting grants and planting decisions to identify mechanisms that minimise threats from imported plant material and maximises opportunities for stock to be grown domestically.

Ecological resilience and biodiversity

Although the timber value of ash is small, its ecological value is significant. It is an important feature of many Special Areas of Conservation, Sites of Special Scientific Interest and supports a range of ecologically important flora and fauna. **The evidence suggests that the impact of Chalara on biodiversity and ecosystems will not be rapid but we will continue to work with environmental groups to better understand that over the coming months.** In support of that, the JNCC is leading work to map high value sites of ash planting to inform national and local decision-making. The results of their work are set out in Annex B of this plan.

Over the coming months, we will also consider the impact of Chalara on non-woodland trees, working with statutory bodies such as local authorities, the Highways Agency and Network Rail and others to better understand the impact of Chalara on urban and other non-woodland settings.

A range of silvicultural guidance has been rapidly developed by the Forestry Commission in consultation with stakeholders and will be available on the Forestry

Commission website from 7 December. This is designed to aid tree and woodland owners and managers to make decisions in the light of Chalara. It includes advice on when to fell, alternative species and silvicultural systems, and ongoing management guidance. It also includes advice on biodiversity and the management of single trees We will keep this under review as our understanding of Chalara increases.

Forward look – next steps on Chalara and wider plant health policy

Alongside this control plan for Chalara, the interim report of the independent Task Force on Tree Health and Plant Biosecurity convened by Professor Ian Boyd has been published today. This report makes a number of recommendations about how wider threats to tree health can be tackled. We will be considering those recommendations over the next three months as the Task Force continues its work.

In the meantime, however, we recognise the need to bring plant health policy closer to the heart of Government. To support that, from 31 December 2012, the plant health policy team currently located in Fera will transfer to Defra. The UK Chief Plant Health Officer will also transfer to Defra from the same date. As plant health is a devolved matter, the policy team and the Chief Plant Health Officer will work closely with the devolved administrations in Scotland, Wales and Northern Ireland.

This is an interim plan for tackling Chalara. Some aspects of our response to the disease will evolve as the evidence develops. We will continue to work with stakeholders over the next few months, and will publish an updated plan by the end of March 2013.

Annex A

An overview of the value of ash trees

The science tells us that it will not be possible to eradicate Chalara, but targeted, evidence-based and proportionate action that can reduce and delay the spread of the disease could offer value for money, for taxpayers and society at large. Whilst any reduction in the rate of spread would bring wider benefits, we shall need to consider any costs associated with action, both public and private sector (which can often be implicit), and ensure that these are proportionate to what we think they can achieve. Achieving plant biosecurity also depends on engaging stakeholders from an early stage in the development and co-design of solutions.

The following summarises key evidence relating to the wider social, economic and environmental value of ash trees. Confidence ratings are given (see end box).

- Forestry Commission estimates that woodland ash trees cover 124,000 hectares in England (9.6% of total woodland) and 150,000 hectares in Great Britain (5% of total woodland).¹ In addition, FC estimates 12 million ash trees outside of woods and forests. Ash coverage is more prevalent in the south east England (in particular West Sussex, Hampshire) and in Hereford and Worcester). The highest percentage of ash in broadleaved woodland is in a belt through the midlands from Gloucestershire to Lincolnshire. (Source – Forestry Commission 2012) [*Confidence Rating (CR) medium*].
- The supply chain for ash is complex, involving nurseries, woodland managers, sawmillers, retailers and landscapers. There are estimated to be 60-80 enterprises in the nursery sector dealing in ash. (Source – Horticultural Trades Association 2012) [*CR medium*]
- A preliminary indicative estimate of the Gross Value Added of ash-specific commercial activity based on broader ONS data is £15-20m p.a. [*CR low*]. Ash accounted for 8% of all hardwood going to UK sawmills and 0.2% of all sawn wood (which is mainly softwood). (Source – ONS, Forestry Commission 2004, 2011) [*CR medium*].

¹ Note that these figures will be superseded by new official National Forest Inventory statistics as well as Countryside Survey statistics that are scheduled for publication by Forestry Commission and the Centre for Ecology and Hydrology on 21 December 2012 which will cover all major broadleaved species in outline and ash in some detail.

- Approximately half of ash saplings and young trees planted in the UK are imported. The annual value to UK importers of trading young ash trees is tentatively estimated at up to £300,000. (Source – Forestry Commission 2012, Defra estimates) [*CR low*]
- Woodlands and trees generally provide a range of ecosystem services valuable to prosperity and societal wellbeing such as recreation, landscape, carbon sequestration, air pollution absorption and biodiversity. These are partially estimated at around £1.2bn p.a, [*CR medium*] and a first approximation of the ash contribution to this estimate is £75-120m p.a. [*CR low*]. This estimate excludes important biodiversity, cultural, heritage and symbolic “non-use” values associated with trees generally which cannot be quantified but should be integrated. (Source – based on Forestry Commission 2003 research, Defra estimates)
- There are 665 Sites of Special Scientific Interest in England where ash forms a major component. See annex on ecological value of ash. (Source – JNCC, 2012) [*CR medium*]
- Over 350 million visits were made to woodlands in 2011 in England alone (Source – Natural England, 2011) [*CR high*]

Reducing the rate of spread of Chalara would, in broad terms, reduce the losses to the socio-economic and environment values described above, although by how much would depend upon a range of assumptions, including upon the spread of the disease, around which there is currently significant uncertainty. Simply for purposes of illustration, a 1 percentage point reduction in the annual rate of spread over 25 years is estimated to generate public welfare benefits of £40-130 m over that 25-year period. However, these are only broad-brush estimates and the actual effectiveness of action and benefits would be realised at regional scale [*CR low*].

Confidence Ratings

Data has been sourced from different organisations / publications. In order to help the reader understand the data presented a confidence rating has been applied where appropriate.

1. *CR High*: Based on significant evidence (e.g. recent survey, statistically sound using up to date methods, HMRC data, current industry practices; published in peer reviewed papers; recent qualitative research (interviews, focus groups etc) with sound methodology that includes results from a number of studies in different locations with different types of people that report similar findings)
2. *CR Medium*: Based on incomplete or dated evidence (e.g. an estimate based on old survey data, trade association estimates, a survey result which may not be entirely representative of the whole; qualitative research from one or two case studies; published in only one or two peer reviewed papers; published in grey literature).
3. *CR Low*: Based on speculative or incomplete evidence (e.g. rough estimate from a single expert, or industry body lacking supporting analysis, or early result based on fast developing situation on ground, not published in peer reviewed papers, qualitative research that involves a single case or does not provide details of the sample studied or method used).

Annex B

The Distribution of Important Ash in Great Britain

Introduction

This document sets out how the location of important ash can be determined from available data sets across GB.

Several sources of data have been used to build up a picture, since there is no one data set that clearly identifies all woodland in which ash is a significant and ecologically important component, or all ash within the agricultural landscape as a hedgerow plant and tree.

The data sets have been pulled together quickly with the assistance of the country conservation agencies and other organisations. The resulting map is the first attempt to characterise the location and distribution of important ash in the landscape.

Its overall quality is moderate. Individual data sets are known to contain low rates of false positives and false negatives or only detect part of the ash resource, as detailed at <http://jncc.defra.gov.uk/chalara>. Modelled species data sets are used to provide a cross check to the other datasets, but the species data sets have a fairly low resolution. In combination, the data sets produce a picture that is robust for GB and regional scale analysis. An accurate local picture would require substantially more work, and it is probable that additional data sets will emerge that can improve the GB scale picture.

Additional work is needed to build a picture of important ash in Northern Ireland using the data sets available for Northern Ireland.

What is important Ash?

This document has made the assumption that important ash locations are where ash is a significant and hard to replace or re-create semi-natural feature with a strong role in ecosystem functioning.

These locations were identified as follows:

- Special Areas of Conservation where ash is a significant component of a notified Habitats Directive habitat feature.
- Sites of Special Scientific Interest where ash is a significant component of the site including sites where it is a notified feature
- Ancient woodland (continuously wooded since at least 1600) where ash is a significant component.

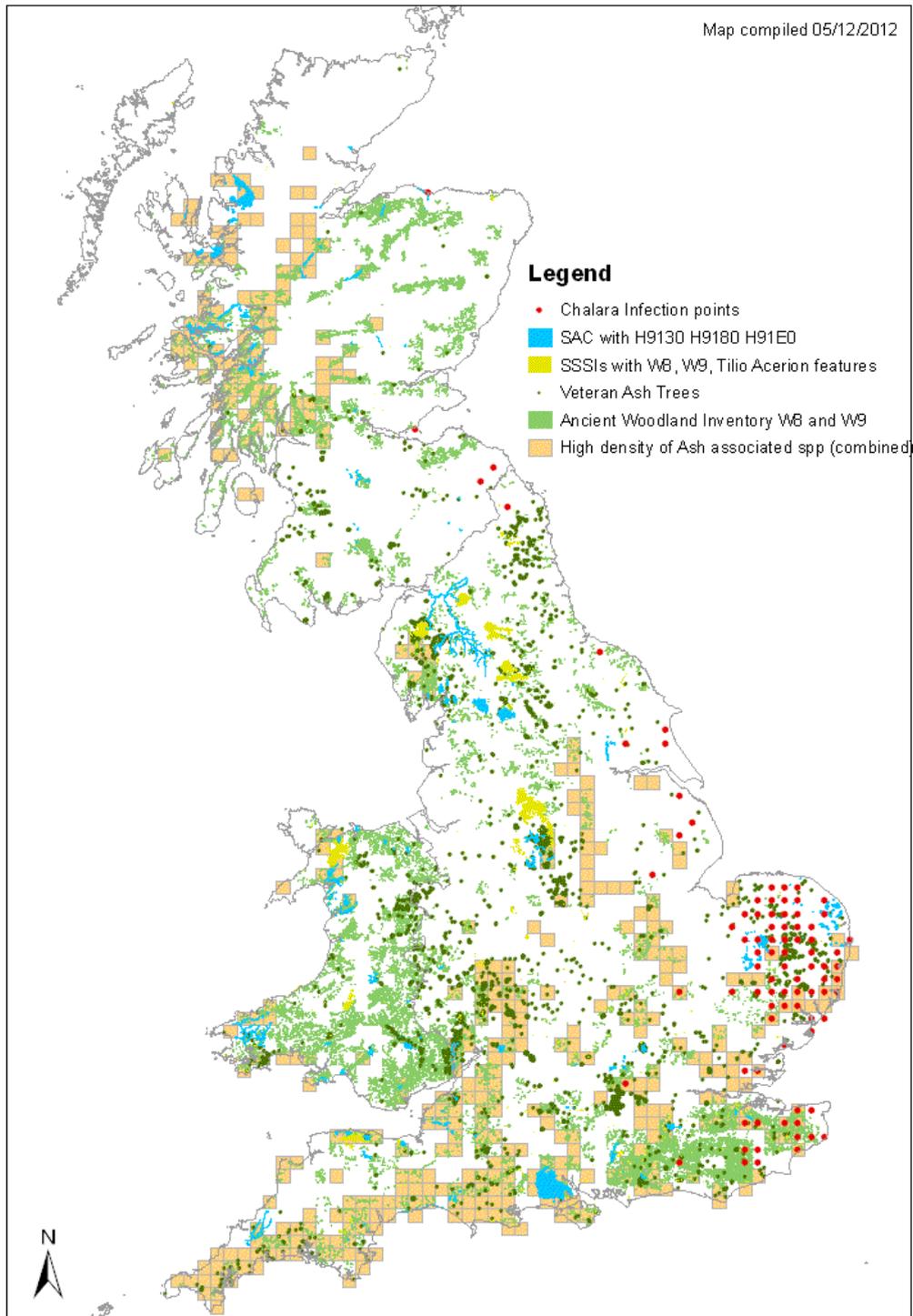
- Veteran ash trees (trees in middle or late stages of life providing a diversity of habitat related to their structure and rot status) which can occur within woods but also in agricultural, park and urban landscapes where they can provide connectivity.
- Ash supporting a high proportion of the species that exclusively or significantly depend on ash as a host, substrate or food source.

Cultural and aesthetic values have not been considered, but will have many overlaps with these locations.

- In identifying the important components of ash in GB woodlands and the wider landscape it is important to consider the combination of data layers rather than individual layers as:
- Whilst SACs are a key conservation priority, much of GB's mixed woodland is not classified as a habitat of European community interest and so cannot be considered for SAC status.
- SSSIs do address an important sample of semi natural mixed woodland but the bulk falls outside designation. Mapping of Ancient Woodland picks up much of this undesignated resource which is the subject of restoration and ecosystem services targets in country biodiversity strategies.
- Large ash in hedgerows, fields and parkland is shown by sampling to be a major component of trees in landscape which collectively have role in connectivity, but there are no currently available data sets to map it effectively. The veteran trees database is a significant start.
- Looking at the species dependent on ash provides an alternative to the mapping of woods and trees for locating and identifying important ash.

There is not a separate layer for habitats in legislative lists as of principal importance for the conservation of biodiversity (often referred to as 'priority' habitats) within which ash forms a significant component. The data layers that are included should provide the best available indication of sites and areas where ash forms a significant component of these habitats. Relevant habitats include upland mixed ash woodlands, lowland mixed deciduous woodlands, hedgerows, upland oak woodlands, wet woodlands, and wood pasture and parkland.

Proposed Map of Important Ash Locations



The map is available as a GIS data set to allow it to be viewed at much smaller scales. The component data sets are also available to be plotted individually.

Provisional implications of the Important Ash Locations map

Important ash occurs in pockets of woodland, as part of major landscape areas such as the Forest of Dean, and as trees in the landscape, across much of the GB. The density of locations is quite high.

There are no strategic gaps in the distribution of important ash locations that suggest they can be isolated at a regional scale. There appears to be greater distance between important ash locations in some of Scotland when compared to the distribution across the rest of GB.

Important Ash Locations are defined fairly precisely in the available data sets (as mapped areas, or precise points for Veteran Trees). This detail would allow Important Ash Locations to provide useful information to aid the application of any management approach to Chalara, particularly where the management is designed to optimise retaining ecological functioning and value, once a location is infected.

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