



Chalara in Non-Woodland Situations

Findings from a 2014 study

undertaken by

The Tree Council

on behalf of the

Department for Environment, Food and Rural Affairs

The Tree Council

February 2015

Index	Page no.
1) Executive Summary	4
• <i>National Action Plan</i>	4
2) Project Background	8
3) Chalara in non-woodland trees	9
• <i>Comparisons with Dutch Elm Disease</i>	9
• <i>Key issues for Chalara</i>	10
4) The scale of non-woodland ash	11
5) Preparations for the impacts of Chalara	15
• <i>Kent</i>	16
• <i>West Sussex</i>	17
• <i>Nottinghamshire</i>	17
• <i>Suffolk</i>	17
• <i>Network Rail</i>	19
• <i>Devon</i>	20
• <i>Parish volunteers</i>	20
• <i>Local Action Plan</i>	22
6) Habitat issues resulting from Chalara	25
• <i>Hedges</i>	25
• <i>Ancient & Veteran ash trees</i>	30
• <i>Urban ash trees</i>	31
• <i>Tree safety</i>	34
7) Mainland Europe data	37
• <i>Collar rot</i>	37
• <i>Carbon shock</i>	39
• <i>Ash varieties</i>	41
• <i>Ancient & Veteran ash trees</i>	42
• <i>Urban ash trees</i>	42
• <i>Replacement planting</i>	43
8) The potential costs of Chalara in non-woodland ash	44
9) Publications and information	48
10) Summary of recommendations	52
11) Schedule of Appendices	54

1. Executive Summary

1.1 Purpose of Study

During 2014, The Tree Council was asked by Defra to ‘investigate non-woodland ash numbers and the potential impacts that may occur as a result of the spread of Chalara / Ash Dieback’.

1.2 Research

The Tree Council organised **ten specific non-woodland ash meetings** (Appendix 1) as part of the study, **with 195 tree professionals, plus 12 events for over 550 parish and community group volunteers**. The Tree Council also gave presentations at two international conferences in Poland and Sweden to gather information about the management issues already identified for non- woodland ash and Chalara in mainland Europe. In addition **key staff from our 180 Tree Council member organisations** were also **involved in surveys in 2013/14/15, interviews and discussions**. Finally, additional pilot studies were undertaken with Devon County Council, Suffolk County Council and West Sussex County Council.

1.3 Scale of non-woodland ash

The data that exists on the numbers of non-woodland ash is patchy and as a result it is extremely difficult to provide a reliable estimate of the number of non-woodland ash trees. The Tree Council estimates there to be **27.2 - 60 million non-woodland ash with a stem diameter at breast height greater than 4 centimetres plus over 400 million seedlings and saplings**.

1.4 Potential impacts of Chalara on non-woodland ash

Our research has shown that as these large numbers of non-woodland ash trees decline or die, **health and safety issues will arise from trees by road, rail and in public space** (6.4.4) in addition to a potential **increased risk of flooding** (6.2.3) and **changes to landscape and loss of biodiversity** (6.2.2). With the current patchy ash data, it is not possible to calculate the full national cost; we have nonetheless included some indicative costs where available (8.1).

1.5 Comparisons with Dutch Elm disease

Published research on Dutch Elm disease (3.1), shows that when a tree disease moves from being in the ‘**control stage**’ (where attempts are made to eradicate it) to a ‘**management stage**’ (dealing with the issues that arise from the disease), this management falls on **local authorities, local agencies, charities and landowners**. However due to varying budgets and levels of knowledge of disease management at local levels, **national government has a vital role** in providing best practice and guidance.

1.6 Local Action Planning

Chalara has now reached the ‘management stage’ and this report suggests that local agencies are **unprepared for the spread of Chalara** (5.1). Therefore the Tree Council has developed a **template Local Action Plan** (5.3) to provide a framework for local authorities within which they will be able to **develop relevant strategy** in readiness for the arrival of Chalara.

1.7 National Action Plan

Central government support will be essential (3.1) to enable local authorities to deal with Chalara effectively. Therefore we have proposed to develop an action **plan for central government**(1.9).

1.8 National preparation

No plan can remain comprehensive and this framework will need to be kept under review, adapted and extended as Chalara spreads. However, we believe that it captures the main issues that arise from our study, and if used alongside the Local Action Plan (5.3), will improve the national preparation for the impacts Chalara will have on non-woodland ash.

1.9 Proposed Action Plan for central government

1.9.1 **Assume that Chalara in non-woodland trees will pose serious national issues** (1.4) that will often be dealt with by local authorities and agencies (2.1).

1.9.2 **Work closely with organisations** that operate in the non-woodland sector and **recognise** that they are **diverse** and operate *with varying levels of knowledge and priorities* (3.1).

1.9.3 **Identify national and local organisation ‘Champions’** (3.1) **to develop best practice and share it through Local Action Plans** (5.3).

1.9.4 **Promote the development of Local Action Plans** as a useful tool to prepare for and deal with the arrival of Chalara (5.3). Keep the Local Action Plan framework updated as new best practice becomes available (1.9.8). **Support the National Tree Safety Group** in continuing to review and update best practice regarding the health and safety risks from Chalara (see 6.4.5).

1.9.5 **Undertake a national resilience assessment review of the impact of Chalara on key services.** This will build upon the Transport Resilience Review 2014 (6.4.4) and **ensure contingency plans dealing with Chalara and its impact are developed** (6.4.4.c). This should include (but is not restricted to) infrastructure organisations such as:

- **electricity services** e.g. National Grid and regional electric companies;
- **transport infrastructure providers:** Network Rail, highways agencies and highways authorities.

1.9.6 **Engage all relevant departments of central government in the development of proposals for management of Chalara and non-woodland trees** e.g. Department of Communities and Local Government (DCLG), Department of Culture, Media and Sport (DCMS), Department of Energy and Climate Change (DECC), Department for Environment, Food and Rural Affairs (Defra), Department for Transport (DfT) and the Treasury. There will be costs associated with dealing with non-woodland Chalara across Government and all agencies need to understand the potential impacts, so that suitable budget planning can be undertaken (8.1).

1.9.7 **Provide targeted information that will be the key to successful management of Chalara locally.** (Currently the non-woodland sector state that they have not been provided with the information they need to play their part (9.3)). This will include the following actions:

- I. **develop an internal communications plan** about Chalara and non-woodland issues for all relevant national government and Non Departmental Public Bodies staff (e.g. Defra, DCLG, DfT, Forestry Commission (FC), Environment Agency (EA)). Although a tree disease, the practical ramifications of Chalara will be felt by many agencies and the potential scale of the issue needs to be understood by government;

- II. **develop an external communication plan** about Chalara and non-woodland trees. This needs to be through channels that national and local agencies use and has to be communicated to them directly. Relying on local staff to seek out information will often only happen when Chalara is already a problem (9.8);
- III. **target Chalara information at senior management** of local organisations, to ensure there is an understanding of Chalara at all levels within local agencies (9.11);
- IV. use the current Chalara data to keep local agencies informed of the spread and impact of Chalara.

1.9.8 **Develop and promote best practice for Chalara and non-woodland trees** through Local Action Plans (5.3) including:

- i. **making available a standard specification for surveying trees**, so that future tree data can be compared (4.4) and **offering best practice examples of targeted data gathering** ensuring that data is gathered using the same specification (4.4.6) for both local and national recording (5.2.6 and 5.2.7);
- ii. **developing and refining citizen science training and survey practice**, to allow targeted surveys to be undertaken cost-effectively and to answer specific management questions raised by Chalara (this will also have value in addressing other tree diseases) (5.2.7);
- iii. promoting **further use of 'i-Tree'** (<http://www.itreetools.org>) in UK towns and cities, to produce data which can be used to assess not only the numbers of ash trees in a town or city, but also the ecosystem services implications of losing ash trees (Appendix 2: 3.2.2, 3.2.3, 3.2.4 and 3.2.5);
- iv. **guidance on practical management issues** including a non-woodland ash 'Question and Answer' set which deals with the main issues for Chalara in non-woodland situations.(9.8);
- v. **working with existing training bodies and agencies** to develop national training options focused on ash tree management including **training of highway inspectors** to identify Chalara problems (6.4.6c).
- vi. **recommending Chalara biosecurity guidance in non-woodland situations** (e.g. Appendix 7);
- vii. **proposing trading standards and best practice on dealing with rogue tree surgeons** (Appendix 4b).

1.9.9 **Initiate research into unanswered questions about Chalara** including:

- i. **the speed of decline of large trees with Chalara**, so that a better sense of the timescale of decline of individual trees can be determined (6.4.5);
- ii. **the potential impact of Chalara on water catchments** (6.2.3);
- iii. **the impact on the hedgerow tree population dynamics of Chalara** and the associated impact on wildlife due to loss of habitat (6.2.2);
- iv. **alternative species to replace ash, in non-woodland situations** (6.2.2g);

1.9.10 **Consider funding opportunities to incentivise tree planting and landscape restoration to mitigate the impacts of non-woodland Chalara.** This could include:

- i. **using agri-environment grants to their full potential to alleviate Chalara impact**, by targeting replanting of hedges and wood pasture with alternative species even before Chalara has arrived. One priority should be water catchment areas with high density of ash (6.2.3);
- ii. **commissioning a scoping study to determine the necessary resourcing to develop a national ash tree replacement fund** (6.2.5) as happened with Task Force Trees following the 1987 and 1990 storms.

1.9.11 **Undertake a review of and amend (when necessary) existing policy, strategies and practices** including:

- i. **felling licenses** (6.2.4);
- ii. **the use of evidence from the UK Plant Health Risk Register to inform external risk assessments**, such as those used by the Resilience Forums (5.2.2 e);
- iii. **promote the National Tree Safety Group guidance** and Chalara supplement as part of good practice (6.4.6);
- iv. **engage with Department of Communities and Local Government to review Tree Preservation Orders (TPOs) and development sites** in relation to Chalara(6.4.3).

2. Project background

2.1 The fungus *Hymenoscyphus fraxineus* [synonym – *Hymenoscyphus pseudoalbidus* (anamorph - *Chalara fraxinea*)] arrived from Asia into Europe during the 1990's. This invasive fungus causes the death or dieback of *Fraxinus excelsior* trees and other *Fraxinus* species. **For simplicity, this report will refer to Chalara or ash dieback**, as these are the two most widely used descriptions for the fungus and its effect on ash. The English name – ash – is also used throughout the report for *Fraxinus excelsior*.

2.2 Ash dieback was first recognized in the UK in 2012. This led to the Chalara Management Plan, published by Defra in March 2013. The management plan '*focused heavily on tackling Chalara in woodland settings. Ash is a native tree found naturally or planted in the countryside, in fields and hedges, on the sides of roads and railway lines, and also in urban parks, gardens and streets. We recognise the importance of addressing the impact of Chalara on those sites and the next phase of our work with stakeholders in the year ahead will examine the best ways of doing that.* ([Defra's Chalara Management Plan 2013](#))

2.3 The Tree Council research, undertaken throughout 2014, was set the following objectives:

- i. To establish where possible, the scale of non-woodland ash trees present in the landscape (section 4);
- ii. To examine the environmental, legal and practical problems that will result from Chalara impacting non-woodland ash (section 5 and 6);
- iii. To discover what is known in mainland Europe about ash dieback in non-woodland trees (section 7);
- iv. To examine the potential costs of Chalara in non-woodland ash (section 8).

2.4 For the purposes of this report 'non-woodland ash' is defined as ash trees that fall outside the scope of the Forestry Commission's National Forest Inventory for woodlands larger than 0.5ha.

2.5 We have used the models predicting Chalara spread and infection levels that were produced by [Defra and Cambridge University](#). These suggest that by 2017, ash trees over large areas of the south and east of the country will be infected by Chalara (3.1). Therefore, for the purposes of this study, we have assumed that Chalara is likely to have a significant impact on the health of large numbers of ash trees in the UK.

2.6 The Tree Council has based this report on a literature review, plus a series of workshops, surveys and discussions on **Chalara in non-woodland situations** held during 2014. 195 tree professionals took part in ten specific non-woodland ash meetings (Appendix 1) organised as part of the study, in addition to 12 events for over 550 parish and community group volunteers. A full list of the organisations consulted can be found in Appendix 1. The Tree Council also gave presentations at two international conferences, in Poland and Sweden, to gather information about the management issues identified for non-woodland ash and Chalara in mainland Europe.

2.7 Key staff from our 180 Tree Council member organisations, local authority officers from planning, landscape and tree teams and key individuals working independently and within commercial, charity and government organisations in the tree sector were also canvassed in surveys during 2013/14/15, in interviews, and in discussions. Finally, additional research was undertaken with Devon County Council, Suffolk County Council and West Sussex County Council.

2.8 In this report, *direct quotes from the surveys, reports and papers are in italics*. Sections **in bold** have been highlighted by The Tree Council to draw attention to particularly pertinent facts.

3. Chalara in non-woodland trees

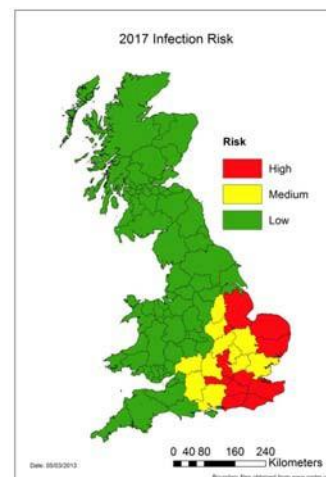
3.1 Comparisons with Dutch elm disease

Dutch elm disease killed 30 million largely non-woodland trees in hedges and fields across Britain (Potter et al. 2010). The Tree Council believes that **Dutch elm disease provides useful lessons** for tackling the impacts that are likely to occur as a result of Chalara. This is because Dutch Elm Disease was a landscape scale tree disease, that affected Elms which were largely growing in non-woodland situations such as hedges and fields, urban and peri-urban areas.

3.1.1 A review of the management of Dutch Elm disease by Fera (Appendix 14) has **lessons for the current management of Chalara**. The following principles are drawn from that review:

- i. **the devolution of control** to local authorities and other organisations means the **priority and funding allocated to disease management can vary** across geographic and administrative areas through time, but overall coordination must be held by central government to maintain pest and invasive species management as a local strategic priority, by providing a clear framework to operate in;
- ii. local authorities have **varying levels of knowledge and priorities** and **management is influenced by available budget**;
- iii. **organisational champions** and a **coordinating body** are required;
- iv. **sufficient financial and human resources** are needed;
- v. **data** has to be **available and accessible** to all those involved in tree management;
- vi. **citizen science could help** with baseline data collection about the status of ash;
- vii. there is a **need for more education and public engagement** to provide underlying backing for management options and funding.

3.1.2 The Chalara spread models (see Defra's Chalara Management Plan April 2013) suggest that the disease is likely to have arrived on the wind, with high to medium risks of infection across the south east of the UK by 2017. Therefore **almost at the outset**, the Chalara outbreak **stopped being a control issue** (where attempts are made to eradicate it), and **became one of mitigation and management** (dealing with the issues that arise from the disease), **placing the management of non-woodland trees affected by Chalara, with local authorities, private landowners and agencies**.



3.1.3 Fera's review (3.1.1) shows that the **links between central government to local authorities and agencies are crucial** in ensuring that tree disease management is successfully undertaken. However, in our Member surveys and discussions during 2014, concern has been expressed that **central government 'has not provided local government with either targeted information or support'** to help them deal with Chalara in non-woodland situations. There is also *'the feeling that central government has not understood the valuable role that local authorities can play in helping with this threat to the UK's ash trees'* (quotes from Tree Council survey 2014).

3.1.4 In areas affected by Chalara, local authority tree officers report that there has been an **absence of clear, appropriate information on managing the impact of Chalara in non-**

woodland situations, which has resulted in a **lack of consistency** between local authorities in their approach to dealing with the problems of Chalara. The available information focuses primarily on woodland management and is therefore often not appropriate for local authority tree officers.

3.2 Key issues for Chalara

As Chalara in non-woodland situations is often going to be managed by private landowners, local agencies and private home-owners, The Tree Council held a member symposium attended by over 70 delegates (July 2014) to identify key issues for managing Chalara in non-woodland trees (Appendix 3). As part of the event, **key Chalara issues were identified and rated** with a score derived from the **significance** of the issue and the **likelihood** of the issue becoming a problem to an organisation: a score of 100 indicating the most significant. The main concerns are detailed below.

3.2.1 Knowledge gaps:

- lack of detailed and up-to-date information on their own ash stocks (score 100);
- lack of national guidance to help plan the response to Chalara (score 100);
- severe skills gaps in technical tree management of diseased ash and collecting tree data (score 100);
- lack of information regarding Chalara and potential spread and infectious potential in the non-woodland ash population (score 90);
- lack of targeted management guidance (score 85).

3.2.2 Landscape and environmental impacts:

- the decline of ash habitats as trees decline or die, such as hedgerows (score 100);
- lack of guidance on replacement strategies or species choice (score 80);
- availability of grant to replace non-woodland trees (score 85);
- loss or degradation, of ash trees themselves (including ancient trees – score 80);
- the potential for significant changes in land-use with higher levels of building development as ash trees decline (score 81).

3.2.3 Safety matters:

- lack of data for health and safety management (score 100);
- the need for increased tree inspections (score 90);
- lack of: skilled staff to identify problem trees (score 90), contractors to remove trees (score 81) and resources (score 90).

3.2.4 Legislation and statutory responsibility:

- the lack of a statutory role and resources for local authorities in dealing with Chalara (score 100);
- the potential fragility of existing tree legislation with particularly reference to Tree Preservation Orders and Felling licences (score 80).

3.2.5 Communications issues:

- the lack of national public communication about Chalara and non-woodland trees (score 100);
- the need to engage with landowners (score 90);
- lack of information about bio-security in non-woodland settings (score 70).

In 2014, The Tree Council investigated many of these issues to determine potential solutions and the resultant findings form the basis of this report.

4. The scale of non-woodland ash in the UK

4.1. Introduction

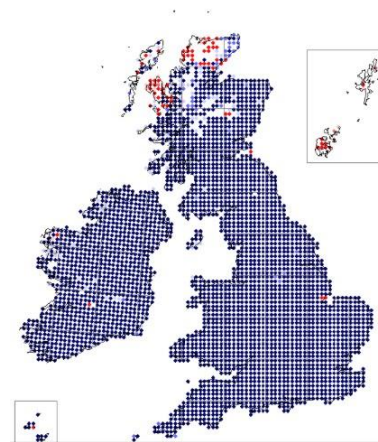
4.1.1 It has been reported in the media that there are 80 million ash trees in the UK. The earliest media references we can find to '80 million ash trees' are in articles about Chalara from June 2012 citing 'government officials'. This number was then quoted by the Secretary of State for Environment, Food and Rural Affairs on Channel 4 on 25 October 2012 and has been cited since.

4.1.2 The late Professor Oliver Rackham, in his book 'The Ash Tree' (2014) states – 'There are nearly as many ash trees in Britain as there are people' which statement he then scrutinizes, thus: '– but what does that statement mean. Like most statistics, it is hedged about with problems of definition (how big does a little ash tree have to get before it is counted?). The internet has plenty of official figures of ash, but not knowing exactly what they mean I shall not make much use of them'.

4.1.3 This report brings together evidence from a diverse range of sources, each with its own reporting parameters. Inevitably, this rules out any merging of the findings without creating significant uncertainties (see Appendix 2). As Professor Rackham concluded, the number of ash trees in Britain is consequently difficult to estimate. Therefore, the figures quoted below should be taken as indicative of the number of non-woodland ash trees rather than a more scientifically defined estimate.

4.2 General background

4.2.1 The Atlas of the British Flora shows that ash is native in almost every 10km square in the UK except for Shetland, Orkney, the Hebrides, Caithness and Sutherland, plus areas in the central and northern Highlands although it has been planted in many of these places. Ash tolerates a wide range of soils, climates and altitudes (growing up to 4500 feet in Switzerland, where Chalara was also present – *personal observation Tree Council 2014*).



[Online Atlas of the British Flora](#): (blue = native; red = planted)

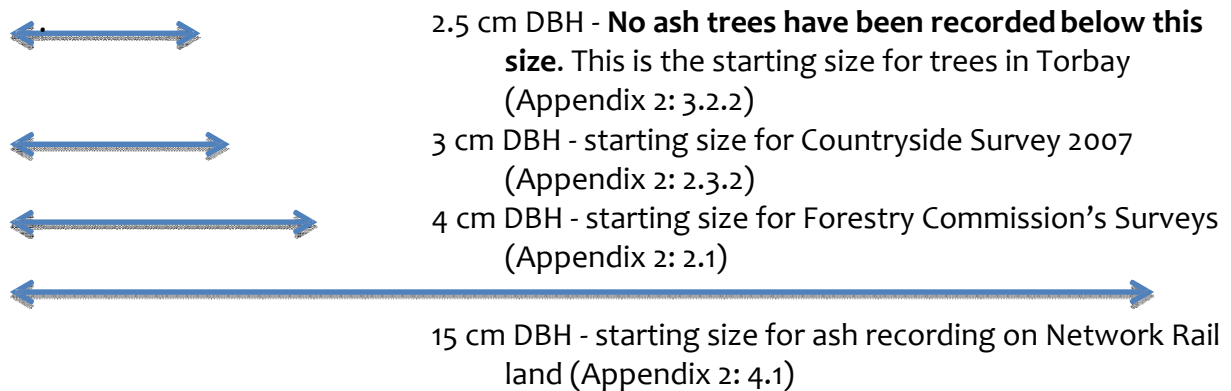
4.2.2 UK data shows that non-woodland ash is principally found in woodlands, hedgerows, plantations, parklands and wood pasture. An excellent colonist, ash is also found in a wide variety of urban spaces including schools, public open spaces, churchyards, nature reserves and private gardens.

4.2.3 Ash has also become established widely through planting or natural spread in our transportation and infrastructure networks and can be found:

- in roadside plantations; along the railways; along roadsides and footpaths and is widely planted on mineral and waste sites as buffer strips to reduce noise or wind;
- planted as screening around developments and highways; planted in car parks; used as street trees; planted on housing association land and around airports.

4.3 Key data findings

4.3.1 Data on the numbers of non-woodland ash trees across the UK is available from a wide variety of sources (Appendix 2). However, the data sources use widely different parameters for recording ash tree information, particularly the starting girth at which a tree is recorded which ranges from 2.5 centimeters DBH in an i-Tree study in Torbay (Appendix 2: 3.2.2) to 15 centimetres DBH in ash data collected by Network Rail (Appendix 2: 4.1).



4.3.2 These data sets can therefore only provide an **estimate for the minimum number of non-woodland ash trees**. For example Network Rail's land will have many ash trees that were not recorded because they are below their minimum 15 cm DBH threshold, whilst trees below 15cm DBH were recorded in Torbay and elsewhere.

4.3.3 With the existing data sets it would currently be **impossible to produce an accurate national figure** for the number of non-woodland ash trees that includes all sizes of tree. However we have set out the key pieces of evidence that begin to build a picture of the distribution and abundance of non-woodland ash (Appendix 2).

4.3.4 Our estimates suggest that in the countryside:

- There are **17 - 34 million ash trees** (with a stem diameter at breast height (dbh) of 4 cm) in **small (<0.5ha) woodlands** in the UK, **plus over 400 million smaller ash seedlings and saplings**.
- There are an estimated **5.4 - 19.7 million ash** in in 98,900 km of **ash-dominated hedgerows** in the UK.
- There are also an estimated **1.2 - 2.3 million individual ash trees in the countryside outside of woodlands**

In the **urban environment**:

- we estimate that there are an estimated **3.6 - 4 million urban ash trees in the UK** (4.1% of the 89 million urban trees).
- A sample of a limited number of cities suggests that there is considerable variation between cities in both the absolute and relative number of ash.

Regarding **transportation corridors**:

- The Highways Agency estimated that there are **at least 4 million ash trees next to their road Network**.
- Network Rail estimated that there are **400,000 ash trees** with a stem dbh of 15 cm **adjacent to the rail network**.

4.3.5 However, it should be noted that as the data is derived from a variety of sources, trees could have been counted more than once.

4.4 Conclusion

- 4.4.1 Having reviewed the available data, the Tree Council suggests that there are **27.2 – 60 million ash trees in non-woodland situations** (greater than 4cm diameter at breast height (DBH ¹)) (4.3) compared to **125.9 million in British woodlands** with an area larger than 0.5 ha, with potentially **2 billion saplings and seedlings in woodlands and non-woodland situations** in the UK (Appendix 2: 2.1 and 2.3). **These numbers suggest that there are more ash trees in the UK than the 80 million quoted in the media.**
- 4.4.2 **As many of these non-woodland trees are in highly visible habitats** like hedges, roadside plantations and private gardens, **the impact of Chalara may be particularly noticeable in non-woodland trees.**
- 4.4.3 The Tree Council **questions the value of attempting to refine the total national estimate** any further. However there may be significant value in **refining ash numbers related to specific management objectives** – e.g. ensuring ash trees are safe adjacent to the highway (5.2.6; 5.2.7; Appendix 2a). Therefore **we recommend that any future non-woodland ash surveys are focused on targeted data collection, to deal with specific management issues.**
- 4.4.4 Arising from this recommendation (4.4.3), during 2014 the Tree Council investigated **targeted data collection, on ash that might cause safety problems.** These studies have yielded useful results (5.2.6 and 5.2.7), suggesting that there are **12 ash per km of A road in Devon (5.2.6c) and an average of 81 large non-woodland ash per parish in the south east (5.2.7e).**
- 4.4.5 Although we believe the methods referred to in 4.4.4 require some further modifications before they can be rolled out to other areas, we **recommend additional work should be undertaken to develop the methods** further as they could provide alternative mechanisms for collecting targeted data.
- 4.4.6 Having investigated the various data sources for this study, one anomaly thrown up has been the **lack of uniformity in definitions of a tree** (by stem DBH) and **surveying criteria.** In the interests of consistency for any future government funded research, and to provide guidance for any local surveys being undertaken, we **recommend that Government agencies, involved in the collection of tree data:**
- i. **explore whether a new standard national specification for surveying trees** can be developed and
 - ii. **standardise the definition of a tree (by stem DBH).**

¹ Diameter breast height (DBH) is a standard measure taken at 1.3 metres above the ground

5. Preparations for the impacts of Chalara

5.1 Background

- 5.1.1 The Dutch elm research (3.1) showed that *the **responsibility for management of tree diseases often falls on local authorities and other local agencies*** and that they have *varying levels of knowledge and priorities and management influenced by available budgets.*
- 5.1.2 Therefore, in the Tree Council member surveys (2013 and 14), we asked our members whether their organisations had *‘suitable plans / policies that will enable your organisation to deal with the arrival of Chalara?’* In 2013 the ‘Yes’ response was 37%. By 2014 that figure had risen to 40%. In both years, however, 90% responded ‘No’ when asked if they had calculated the cost of Chalara to their organisation. This gives rise to doubt that some of these plans will be suitable for dealing with Chalara, as without knowing what the likely costs will be, it is difficult to plan effectively.
- 5.1.3 At many of the workshops organised by The Tree Council in 2014, officers stated that they felt **unprepared to deal with the impact of Chalara**, due to the **lack of material suitable for the non-woodland sector**. This lack of information, combined with a decline in media activity (5.2.2) about the disease, has led officers in areas not yet affected by Chalara to adopt a ‘let’s wait and see’ strategy.
- 5.1.4 To inform this study, during 2014 The Tree Council worked with a series of County Councils with the intention of **building a template ‘local action plan for non-woodland Chalara’**. These case studies and the resultant action plan are set out in this section.
- 5.1.5 In January 2015, The Tree Council also ran a Chalara preparation workshop for 40 tree professionals in Surrey. Those present were asked the same question: “Does your organisation have suitable plans to deal with the arrival of Chalara?” In this audience only 12.5% felt they were organisationally prepared, and just 6% had given thought to the management costs. Additionally, few surveys of ash in the county had been undertaken. As Chalara is now to be found in the east of Surrey, this lack of preparation could result in practical and policy problems that will be exacerbated by a lack of available resources to deal with challenges arising from Chalara infection.
- 5.1.6 As a direct result of our workshop, the Surrey Tree Officers group plan to organise a Surrey-wide **Chalara Working Group** to:
- **prepare a county strategy;**
 - develop mechanisms to **collect necessary ash data** (see 5.2.7 f);
 - **write and distribute briefing papers** on the potential impacts and costs of Chalara for their local authority Members and senior staff;
 - **provide collective guidance** for Surrey websites to ensure their content, references and links are up to date;
 - use the materials gathered by the Tree Council to **prepare information for their communities.**

The Tree Council evidence demonstrates that **detailed planning work** of this sort **with local authorities and other local agencies is important in preparing for the spread of Chalara**. Our research indicates that **this level of planning is not currently happening**.

5.2 Dealing with Chalara locally

The widespread nature of Chalara in Kent resulted in Kent County Council declaring Chalara a 'major incident' in 2012 (Appendix 4 and 5.2.1). No other local authority has taken this step at the time of writing.

Some local authorities and agencies have begun to prepare for the impacts of Chalara and during 2014 The Tree Council worked with six on particular elements of their groundwork. Based on this, **we have authored a series of case studies** (including Kent), **which deal with non-woodland Chalara management responses locally:**

- **Kent County Council** – Local Action Plan (5.2.1)
- **West Sussex County Council** – Engaging local stakeholders (5.2.2)
- **Nottinghamshire County Council** – An assessment of the threat (5.2.3)
- **Suffolk County Council** – Public information (5.2.4)
- **Network Rail** – staff information (5.2.5)
- **Devon County Council** – Highway data collection (5.2.6)
- **West Sussex County Council** – Community data gathering (5.2.7)

We believe these case studies provide useful information which will enable the production of a uniform basis for local non-woodland Chalara Plans (5.3).

5.2.1 Chalara in Kent – An Action Plan (Appendix 4)

a) Chalara was discovered in Kent in October 2012 and in November 2012 Kent County Council (KCC) agreed, with partners, to declare the Chalara outbreak a major incident in compliance with the Civil Contingencies Act (CCA) 2004 (part 1) definition of an emergency as: *'An event or situation which threatens serious damage to the environment of a place in the United Kingdom' which threatens 'Disruption or destruction of plant life or animal life'*.

b) A Strategic Co-ordinating Group (SCG) was convened and a multi-agency strategy for managing the response in Kent was created, resulting in a Local Action Plan (below) to deliver the strategy. The multi-agency strategic aim was to *'work in partnership to protect the environment, by containing the outbreak, limiting the spread and mitigating its potential wider consequences'*.

c) The **Local Action Plan** contained the following key targets (Appendix 4):

- **Effective multi-agency Command, Control & Co-ordination** structure;
- **Bio-security tool-kit** / guidance for containing the level of ash dieback spread within the county (Appendix 4a);
- **Measured, cost-effective systems** for ongoing monitoring and assessment of ash dieback spread;
- Ensure **baseline asset and tree safety audit data** for ash on public land informing the identification of required staffing / contractor / financial resources;
- Planning and delivery of **multi-agency tree health awareness training events**, addressing identification and bio-security;
- **Public information signs produced** and installed at entrances and on notice boards at publicly accessible sites supporting ash;

- **Advocacy of a tree strategy** for Kent and Medway, incorporating re-planting, natural regeneration and dead wood retention (saproxylic wildlife) policies;
- **Monitor and address financial recovery implications** of outbreak.

d) During 2014 the focus of Kent's response to ash dieback was the **enhancement of local bio-security measures**, which brings benefits for wider tree health. This has involved **publication of stakeholder guidance, delivery of training events and identification of repositories for potentially infected leaf litter, brush and timber** where ash is already infected by the pathogen.

5.2.2 West Sussex – engaging local stakeholders (Appendix 5)

a) **Ash dieback is currently not widely found in West Sussex** but is increasing (five known sites at end of 2013, 17 at end of 2014). During 2014, the County Council (WSCC) began its preparations for the spread of the disease. **Ash accounts for 20.8% of all trees within West Sussex** and therefore the likely **impact on the county's landscape is high**.

b) In March 2014, **WSCC established an internal Chalara steering group** and the threat posed by Chalara was raised with the relevant senior officers and group director. To undertake effective action with external partners, **WSCC decided to work through the Sussex Resilience Forum (SRF)** – an existing group designed to deal with county wide emergency issues that are risk assessed on a scale of 1 to 5, where 5 indicates highest risk of a 'catastrophic event'. To enable Chalara to be tackled by the Forum, a risk rating for Chalara was required. Information was assembled during the summer of 2014 and in September 2014 the **SRF gave Chalara a likelihood rating of 3 and an impact rating of 2**. This is an average score from a series of potential impacts, the most significant of which was an assessment of 4 for the likely economic impact, which was calculated as being between £1 million and £10 million.

c) Having acquired a Chalara threat rating, the SRF will **address the risks posed by Chalara** as part of its 2015 work programme. The SRF recommendation includes that the tactical lead for Chalara will sit under the SRF's Weather & Environment Group.

d) At February 2015, a **West Sussex local action plan** is in draft for the WSCC steering group using the Tree Council model (4.53), before being sent to the SRF. WSCC are working with The Tree Council to produce a **comprehensive guidance document for landowners and parish councils** plus a **'toolkit' for The Tree Council's volunteer Tree Wardens** to allow them to survey ash in their communities and report their findings.

e) Reports from WSCC are that there is a **mismatch between the top risk rating of 5 within the Resilience Forum's county-wide risk analysis and the top risk rating of the UK Plant Health Risk Register**. Their concern is that the Resilience Forum uses a different set of parameters to assess risk, and are unused to assessing the risks posed by plant health. **The Tree Council recommends that Defra should explore how others (e.g. Resilience Forums) can use the evidence from the UK Plant Health Risk Register**.

5.2.3 Nottinghamshire County Council – raising the issue (Appendix 6)

a) **Following concerns about the threat Chalara could pose to the highways of Nottinghamshire**, the County Council Tree Officer undertook **an assessment of the**

risks of Chalara and presented this to the Council's Members outlining the threat and actions required. This case study is drawn from that report and from discussions with Nottinghamshire County Council.

b) Nottinghamshire County Council (NCC) have assessed that the implications for Chalara fraxinea are significant within the County boundary as **ash trees are the dominant hedgerow boundary tree throughout the County**, having replaced Elm in this role, and multiples of self-set and planted Ash dominate hedgerows and rural verges.

c) **The county has identified the major risks associated with regard to dead/ hazardous trees.** This can be broken down into: the public highway; schools and education sites; property sites / holdings with high public usage i.e. libraries, social service centres, country parks and green estates; property sites with low public usage i.e. disposal sites, farms and land holdings.

d) Currently the Forestry and Arboricultural section comprises four full time staff dealing with all county council tree related matters county wide. The current **team strength will need to be augmented for at least a period of 3 to 5 years** to bring the matter under control.

e) In terms of Highway trees an estimation based on the percentage of total tree stock being ash equates to **approximately 30,000 trees**. At current pricing and including traffic management to make safe the highway ash tree stock, a **minimum cost in the region of £500,000 over the first season** of extensive decline followed by a reduced amount over the following years is required.

f) The Elected Members of Nottinghamshire County Council approved a **£500,000 enhanced budget** in October 2014.

5.2.4 Suffolk County Council – information for the public (Appendix 7)

a) From 2012, Suffolk County Council has monitored the Chalara situation and shared findings with partners on a national and local level. A short review of the impact of Chalara in Suffolk over the last three years follows:

- **in 2012 Chalara was widespread in many new planting sites.** Symptoms were visible on 5 to 15 year old planted stock. Chalara was found in a few sites with naturally regenerating ash. **Mature trees were declining, but this went largely un-noticed**, as there were no visible symptoms.
- **in 2013 the general health of many trees appeared to improve.** However **mature ash trees continued to decline in 2013** but were **not showing strong visual Chalara characteristics** that were seen in 5 to 15 year old planted stock in 2012.
- **2014 was a bad year.** Many **trees up to forty years old had less than 30% leaf cover.** Increasing numbers of these **trees began to die**, estimated at approximately **5% of the population.** The **diameter and quantity of deadwood** in the upper branches had **increased dramatically** over the last 12 months. Sporulation rates of Chalara were found to be very high at the FERA research plot at Pound Farm, Framlingham.

b) **Health and Safety issues relating to deadwood** were becoming a **land management issue** by 2014. It was recognized at an early stage that **most ash**

dieback will occur on privately owned land and that therefore it was **crucial to engage** and work with partner organisations **to inform landowners and managers about Chalara**.

c) The East Anglian Tree and Landscape Officers' Group (EATaLOG) and Suffolk County Council therefore took the opportunity to use the expertise of its members **to produce an Ash Dieback Toolkit** (Appendix 7). A Tree and Landscape Officer at North Norfolk District Council and a Woodland Officer at Suffolk County Council worked together to produce this toolkit, designed to give current advice, information and links on:

- *Urban & suburban Ash trees - arboricultural considerations;*
- *Ash protected by tree preservation orders (TPOs) and conservation areas (CAs);*
- *Ash trees on development sites;*
- *Ash trees on and adjacent to highways and footpaths;*
- *Ash trees in parks, public open spaces and heritage sites;*
- *Ash trees on private property (not woodland or protected by a TPO or CA);*
- *Ancient, veteran and heritage trees;*
- *Biodiversity & European Protected Species (EPS);*
- *Biosecurity;*
- *General advice for contractors applicable to any site;*
- *Infected areas;*
- *Woodland management;*
- *Alternative species.*

d) The **Ash Dieback Toolkit** also includes a **tree survey** that **assists decision making** for landowners and managers of ash trees with ash dieback.

e) During 2014 Suffolk County Council have **organised events** to **explain the current Chalara situation**, give an **outlook for the year ahead** and to **guide people through the Ash Dieback Toolkit**.

f) The Suffolk future work programme will include:

- **Undertaking annual monitoring** of ash dieback;
- **Updating partners** about any change to ash trees as result of Chalara;
- **Updating the Ash Dieback Toolkit;**
- **Updating** the Suffolk County Council website **ash dieback page;**
- **Organising a Chalara training event** for Suffolk Highways.

5.2.5 Network Rail – staff information (Appendix 8)

a) The political interest and extensive media coverage that was associated with the initial reports of Chalara in Britain meant that it was imperative that Network Rail personnel were provided with the most **up to date guidance** on how to manage suspected infections.

b) Initial guidance was obtained from Forestry Commission publications but the unique nature of vegetation management demands alongside the rail network identified a number of issues that required **specific literature to be produced**, particularly regarding the constraints associated with disposal.

c) As a result, particular **advice and guidance was sought from The Tree Council**, including up to date imagery of infection characteristics including lesions. Given the season (winter 2012), it was decided to produce a **winter id guide** to provide to personnel who may be undertaking inspections of the infrastructure or those carrying out vegetation operations. Included in the guidance were details on the **disinfecting requirements** together with the contact details of Network Rail's own specialist **24/7 national 'clean-up' contractors** (Appendix 8a).

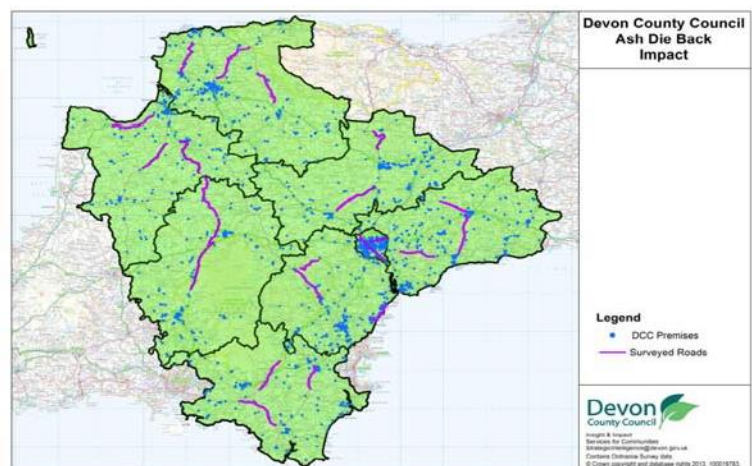
d) In 2014 an updated guidance note containing **images to aid identification when trees were in leaf** was produced, again with input and guidance from The Tree Council. This is being **updated in 2015 with information to aid Chalara identification in large trees** (Appendix 13).

5.2.6 Devon County Council – Chalara safety data (Appendix 2a)

a) Ash trees adjacent to the highway or in council owned land could become a problem if they die and fall into the highway or onto public space. During the summer of 2014, Devon County Council staff therefore collected **data to determine the potential number of highway trees within the county**.

b) **In total, 440 kilometres of Devon roads were surveyed**, by recording trees on 30 kilometres of A roads in each of Devon's eight district council areas. The 30 kilometres per district were

divided into three ten-kilometre sections, taking in the coast, high ground, farmland and moors to give a good geographical and environmental cross section of each district. In addition to the survey of the A roads, trees were then counted on other classes of road, by using videos produced for highways assessment. 10km of class B, C and unclassified



road were counted in each district, again counting both highways and private trees.

c) No distinction was made between woodland and non-woodland trees – all ash trees were counted if they were adjacent to the highway. **An estimated 447,639 ash trees in Devon are within falling distance of the highway**. The number of highway ash varied considerably around the county from Exeter with 325 trees to East Devon with 103,644. The results also show that there are **on average 12 trees per kilometre on A roads, 21 per kilometre on B roads and 36 per kilometre on C roads**.

d) This survey has therefore provided Devon County with an invaluable **management tool** – estimating the **scale of the problem**; highlighting areas of the county with **high ash tree density** and identifying the need to **focus on all road**

types to keep the county's roads clear.

5.2.7 Volunteer parish based safety survey (Appendix 2b)

- a) In the absence of highway tree data at a parish level, the Tree Council mobilised local participants in its UK network of 8,000 parish based volunteer Tree Wardens, whose role is to conserve and protect trees in their local communities, to undertake a **pilot survey** of non-woodland ash trees in public spaces.
- b) The study was carried out in collaboration with **11 parishes across five counties** in the south-east of the country using a methodology created by the West Sussex Tree Wardens (Appendix 2b). One aim of this research was to determine the feasibility of producing **community compiled data**, to help inform local officials of the scale of the ash tree population adjacent to a highway, footpath or public space. The other was to produce a dataset of ash adjacent to public spaces from these 11 sample parishes.
- c) During the autumn of 2014, Tree Wardens in **Berkshire, Hampshire, Kent, Surrey and West Sussex** were provided with basic training and asked to record trees in three stem diameter categories (Small – up to 75mm; Medium - 75 – 250mm and Large – greater than 250 mm) within falling distance of highways, footpaths and other public spaces in the parish.

d) The results are shown below:

		Numbers of ash trees by size			
Parish	Region	Small	Medium	Large	Total ash trees
Barkham	Berkshire	253	119	131	503
Emsworth	Hampshire	98	194	194	486
Crockenhill	Kent	20	100	31	151
Hackington	Kent	405	388	555	1,348
Bookham	Surrey	32	76	29	137
Lingfield	Surrey	49	174	43	266
Nutfield	Surrey	156	281	97	534
Redhill	Surrey	150	345	47	542
Witley & Milford	Surrey	170	151	60	381
Selsey	West Sussex	323	112	22	457
Ticehurst	East Sussex	139	223	156	518

- e) **Across the eleven parishes, the average number of large trees near to a public highway or footpath was 124.** This figure includes the large number of large trees in Hackington in Kent. In this parish, the main footpath runs alongside ash woodland and therefore the Tree Warden included all the trees in the wood that could hit the path. Whilst valid from a safety perspective, reported findings in this parish have increased the average number of non-woodland trees. Therefore, if we excluded Hackington from the analysis below the results for the remaining ten parishes can be summarised as:
the average number of large non-woodland ash trees is 81 (ranging from 22 – 194);
the average number of medium sized ash trees across the remaining 10 parishes was 177 (with a range from 76 – 388).

f) What the pilot has shown is that:

- **useful data on ash tree numbers can be collected by volunteers but a clear brief and data collection methodology is needed;**
- **there are several hundred large and medium sized ash trees within falling distance of roads and footpaths in all of these parishes** in the south east;
- using the five Surrey parishes as an example, **ash hotspots can be created** e.g. Nutfield and Redhill which have 534 and 542 trees respectively, compared with Bookham which has only 137. This may allow for **resource targeting** as the disease begins to spread – something being further explored by the Surrey Tree Officers as part of their planning (5.1.6).

g) Some further work on the methodology and data analysis is required before this pilot survey is suitable to be rolled out more widely and this will require adequate funding. **The Tree Council recommends developing the survey methodology further to provide local authorities with an alternative method of obtaining ash data.**

5.3 The proposed Local Action Plan

Building on the county case studies and work at The Tree Council's Member Forum in July 2014 (3.2), The Tree Council drafted a **guide to dealing with non-woodland Chalara at a county or district level**. Although designed for Chalara, it could be used for any tree disease. However, although drawn from current local authority experience, The Tree Council recommends that **it is a framework that should be adapted as new information arises**. The plan will be most effective if it is **supplemented with best practice guidance as it emerges**.

The Tree Council's framework guidance in developing a local action plan for non-woodland Chalara is set out below:

5.3.1 **Assess whether Chalara will be a problem in your area and plan for it.** To help the process it would be worth considering various scenarios such as 'What will happen if 25% / 50% / 75% of ash in the area is in decline as a result of Chalara in the next 5 years?'

5.3.2 **Identify key staff to lead the Chalara action plan process** and ensure actions derived from the plan are implemented.

5.3.3 **Identify key threats to your organisation/ area that might arise as a result of the spread of Chalara** e.g.

- health and safety risks including highway trees, those over public rights of way or trees in public spaces;
- threats to the local landscape character or biodiversity of town and countryside;
- practical management issues including applications to fell trees or rogue traders;
- reduced ecosystem services;
- increased pollution or flooding as a result of ash tree decline;
- reduced shading and cooling in hot weather
- changes in landscape character.

5.3.4 **Determine the scale of the problem:**

- compile existing data in your organisation and identify data gaps;
- identify additional data held by partner organisations;
- if necessary undertake targeted surveys to identify numbers of ash trees at risk (5.3.6);
- consider using volunteers e.g. Tree Wardens to help with data collection.

5.3.5 **Identify threats to effective Chalara management options** and attempt to define potential requirements e.g.

- suitable policies (5.3.10);
- budget (5.3.6);
- communication strategy (5.3.12);
- trained staff or contractors to undertake management work;
- management strategy to deal with rogue traders undertaking poor tree work;
- biosecurity policy.

5.3.6 **Identify additional budget spend that might arise as a result of Chalara** e.g.

- additional survey work;
- additional management costs;
- dealing with increased public reaction – e.g. requests to fell, TPO requests;
- additional staff costs;
- additional costs due to landscape restoration.

5.3.7 **Seek engagement from your organisation** e.g.

- add Chalara to organisational risk register and review regularly;
- prepare briefing papers (use information derived from 5.3.3 to 5.3.6);
- hold briefing meetings for upper management and colleagues (use information derived from 5.3.3 to 5.3.6);
- brief local authority members.

5.3.8 **Establish suitable internal and external partnerships and work with key partners** (e.g. County Councils, Districts Councils, agencies, charities) **to deal with the issues that arise from Chalara** e.g.

- set up an internal steering group and/or
- establish command and control partnerships and/or
- link to existing working partnerships e.g. Resilience Forums and/or
- establish county working party.

5.3.9 **Agree strategic response to Chalara, e.g. Kent's** - *work in partnership to protect the environment, by containing the outbreak, limiting the spread and mitigating its potential wider consequences*

5.3.10 **Monitor, review, create or amend** (if necessary) **existing strategies and practices** e.g.

- highway survey and felling procedures;
- frequency of tree inspections (may need to be increased as Chalara spreads);
- landscape restoration strategies;
- planning policies regarding TPOs and development sites;

- biosecurity strategy;
- deadwood policies;
- landscape character assessments and policies
- replanting programme.

5.3.11 Develop internal communications plan including relevant training programmes for staff.

5.3.12 Develop external communications plan including public information and media messages.

5.3.13 Monitor the spread of Chalara and keep the Local Action Plan under annual review.

5.3.14 Once the disease begins to spread:

- Key staff lead the action plan process, undertaking necessary actions (5.3.2);
- Ensure strategic objectives (5.3.9) are adhered to;
- Ensure data collection has provided answers (5.3.4). If data is not available seek indicative numbers from partner agencies;
- Ensure budget holders are regularly apprised of the risks and costs (5.3.6);
- Meet regularly with internal staff and external partners (5.3.7 and 5.3.8);
- Use revised strategies and practices and ensure they are reviewed and updated (5.3.10);
- Share best practice with partners and other bodies.

6. Habitat issues resulting from Chalara

6.1 Introduction

The non-woodland ash data (section 3) suggests that there are millions of ash trees in hedges and in the urban environment. To explore the implications, The Tree Council held discussions during 2014 with Hedgeline (the UK expert group for Hedges), the Landscape Institute and the Municipal Tree Officers Association about these two significant habitats. The results of these discussions are presented here.

6.2 Ash in hedgerows

6.2.1 Loss of hedge trees and changes to landscape character

a) The loss of many trees in the wide range of habitats where ash can be found, mean that there will be landscape changes at both the macro and micro level. From changes to an individual garden or streetscape, to the loss of swathes of hedgerow trees or small copses, the impact of the disease will be clearly evident across the country.

b) This is demonstrated in the Natural Character Area descriptions of England, where 40% of the 159 local descriptions specifically reference non-woodland ash, hedgerow trees or parkland as defining features of the landscape (Appendix 9).

c) This **loss of the hedgerow ash** populations will arguably have the **most significant landscape impact**, because landscapes with many hedgerow trees can give the impression of being well wooded, even though in reality there are relatively few trees. Even the loss of a few ash could have dramatic consequences.



The Cotswolds:
hedgerow ash dominates the landscape

6.2.2 Hedgerow trees

a) **Ash is the commonest hedgerow tree**, with an estimated **5.4 - 19.7 million non-woodland ash hedge trees in 98,900 km of ash-dominated hedgerow** (Appendix 2: 2.4.1) and an unknown number of trees in the remaining 715,259 kilometers of UK hedgerow. The effect of Chalara will be seen in large areas of the countryside. The key issues for hedgerow ash are:

- the loss of hedgerow biodiversity (6.2.2b – g);
- the loss of ecological services that hedge trees provide (6.2.3);
- legal issues for hedge trees (6.2.4);
- funding the repair and restoration of the hedgerow landscape (6.2.5).

b) Research suggests that **in hedges, large trees matter for their structural presence; microclimate; shelter; and shade, rather than the particular species providing a specific food source** (Forest Research Report - Code BD2111). Therefore the species of tree is not the critical factor, but simply that a mature tree should exist (except for some lichen communities where ash is the favoured host). It is inevitable therefore, **as ash is the commonest hedgerow tree many of which are mature, that a wide-scale loss of ash will cause a decrease in the ecological value of Britain's hedgerows.**

c) Replacement of mature ash within hedgerows may come from several sources:

- **natural replacement** – the main natural successor to ash often being sycamore;
- **changes in farm management practice** – farmers and landowners can be encouraged to leave selected saplings to grow through the hedge into mature hedgerow trees;
- **replacement planting** – to ensure the 'right trees' succeeds ash.

d) If new trees are planted in hedgerows, active decisions must be made by the planter about which species to use. Research in woodlands has shown that **'good' replacements for ash include alder, aspen, beech, lime, oak, rowan, sycamore and walnut** (Mirchell 2014).

e) Since the species of tree is generally not critical for hedgerow biodiversity (Forest Research Report - Code BD2111), it may be possible to **use a range of species, increasing the resilience of the landscape** to other pests and diseases. If ash is to be replaced within the main hedgerow structure rather than being grown through to become a mature hedgerow trees, then this can be achieved by using shrubby species like hawthorn, hazel or wild plum.

f) Discussions with experts in hedgerow management from the National Hedgelaying Society suggest that certain tree species should be avoided due to their potential impact on hedgerow management. They suggest trees that should be avoided include those that:

- cast heavy shade (which will suppress the growth of the shrubby hedgerow species);
- aggressively seed or sucker into the hedge;
- freely shed branches or are brittle.

g) Choosing a species to replace ash will also depend on the management objectives of the land owner or manager, soil type, water availability and other environmental factors. The list of alternative species that has been explored so far largely focuses on woodland and native species but a wider study is needed. **The Tree Council therefore recommends more research on alternative species, focusing not only on their biodiversity value, but also on their suitability for other habitats and their potential financial values.**

6.2.3 Hedgerow ecological services that may be affected as hedgerow ash trees decline

a) A report by Wolton et al (2014) reviews data on the ecosystem services of hedges. The report shows that strong evidence exists that:

- i. **individual hedges (and other forms of buffer strip) along contours or fringing water courses have the potential to reduce the volume of water reaching streams and rivers;**

- ii. **buffer strips and hedges can be effective at preventing nutrients and other pollutants from reaching water bodies**, particularly if placed along contours or beside water bodies;
- iii. **hedges can reduce soil loss from fields** through intercepting water-borne sediment and reducing surface flow rate;
- iv. **hedges are important** in agricultural landscapes **for the existence of healthy and diverse pollinator populations**;
- v. **hedges managed as windbreaks or shelter belts can improve crop yields**;
- vi. **as hedges store more carbon than cropped land**: they have a role in climate change mitigation.

b) Many of these hedgerow ecological services may be reduced by the decline of hedgerow ash.

c) A preliminary study in the Nant Pontbren catchment in mid-Wales investigated the impact of planting trees on water runoff and discovered that **planting native trees (mainly birch and alder but with some blackthorn, oak and ash) increased water infiltration rates by up to 60 times**, compared to adjacent grazed pasture, even with trees only six or seven years old (Carroll et al 2004). These 6 – 7 year old trees would be below the 2.5cm dbh minimum for tree recording (set out in 4.3), and these trees would therefore be classified as saplings and seedlings.

d) If the Pontbren results are replicated in other catchments, then the decline or death of ash trees in a water catchment may increase the likelihood of water running off an area. **The Tree Council recommends that research is essential to identify the impact of Chalara on water catchments** and that, where necessary, consideration should be given to **strategic replanting of alternate species to reduce the potential for flooding (6.2.2d and 6.2.2g)**.

6.2.4 Legal issues for hedge trees

a) **Felling licences may become an issue** in the future if landowners want **to remove ash trees as a result of Chalara**. Under the Forestry Act 1967 (as amended) landowners or managers require permission from the Forestry Commission to fell growing trees (Section 9(1) of the Forestry Act 1967) – although there is an exemption (Section 9 (3b) of the Forestry Act) that up to 5 cubic metres may be felled on a property each calendar quarter, providing that no more than 2 cubic metres are sold (5 cubic metres might mean 5 or 6 large ash trees – Tree Council interpretation).

b) There are also additional exemptions that are relevant to Chalara and non-woodland trees, including that trees can be removed:

- i. *if when measured at a height of 1.3 metres from the ground they have a diameter 8 centimetres or less (Section 9(2) of the Forestry Act);*
- ii. *for work carried out by certain providers of gas, electricity and water services and which is essential for the provision of these services (Section 9(4c) of the Forestry Act);*
- iii. *for felling that is necessary for the prevention of danger or the prevention or abatement of a nuisance (eg. which may involve threat of danger to a third party) (Section 9(4) of the Forestry Act).*

c) This last exemption could be challenging as Chalara spreads, for as stated in '[Tree Felling – Getting Permission](#)':

'This exemption will only apply if there is a real rather than a perceived danger. We [The Forestry Commission] may be able to give you advice that would minimise the danger without felling the trees. We [FC] strongly recommend that you contact us if you are considering felling a tree or trees in these circumstances. You may be prosecuted for illegal felling if it is shown that the tree did not present a real or immediate danger.'

d) This poses the questions 'When is an ash with Chalara a 'real or immediate danger?' and 'Who will decide?' Section 9(1) of the Forestry Act also states that a Felling Licence is necessary for 'growing trees', raising a further series of questions:

- **is an ash tree suffering from Chalara, 'growing' or 'not growing' and who decides?**
- **will land managers dealing with trees that are suffering from Chalara seek felling licences?**
- **It is unclear to The Tree Council whether the Forestry Commission could cope with the increased demand and whether the Forestry Commission would prosecute land managers seeking felling licences?**

e) When Dutch elm disease spread around the country, it was decided that an additional exemption was necessary to handle the inevitable rise in Felling Licence applications. Therefore an exemption was created: (SI1979/792 Reg. 4(4)): *'the felling of any tree of the genus Ulmus which is affected by the disease in elms caused by the fungus Ceratocystis ulmi and commonly known as Dutch elm disease to such an extent that the greater part of the crown of the tree is dead;'*

f) Although felling licenses are not only an issue for hedgerow or non-woodland ash trees, the large numbers of ash in hedgerows along roadsides may result in a large number of 'non-woodland' applications to fell ash. Although this may be covered in some instances by exemption 9(4) (of the Forestry Act), **The Tree Council recommends that Defra / Forestry Commission should establish a 'task and finish group' to review felling licence practice in light of the potential issues caused by Chalara**, and then take suitable action which **may** include the development of an ash exemption. This **must**, however, be an inclusive group as alongside the very real concerns about health and safety, there are also equally serious concerns for the protection of hedgerow tree populations and their associated wildlife, where the relaxation of felling licences could have damaging impacts on biodiversity and landscape character.

6.2.5 Hedgerow tree restoration

a) Before the Chalara outbreak in the UK, Forest Research (FR) calculated that 30,000 new hedgerow trees were needed each year to maintain the current hedgerow tree population (Forest Research Report - Code BD2111). The impact of Chalara will be to increase this 30,000 target significantly and therefore our hedgerow tree population is under extreme threat. **To fully understand the impacts on the hedge tree population, the model created by FR should be revised to include the impact of Chalara.**

b) Despite agri-environment incentives in the Environmental Stewardship package (EC23/OC23) targeted at increasing the number of hedgerow trees, only half this target is currently being achieved (Forest Research Report - Code BD2111). Therefore as the necessary number of new hedgerow trees is not being recruited into the agricultural landscape, the current agri-environment scheme does not appear to be

providing adequate incentives to landowners.

c) In the new Countryside Stewardship grant, the successor scheme to Environmental Stewardship, the management options contained (February 2015) the following items of relevance to hedgerow ash trees:

- hedge management – option BE3;
- hedge planting – option BN11;
- hedge gapping-up – option BN7;
- hedgerow tree planting – option TE1.

d) Wolton et al (2014) makes the following recommendations for Countryside Stewardship:

- *To maximise the effectiveness of hedges at reducing flood risk, priority should be given to creating and restoring hedges that contour slopes and especially to those that fringe valley bottoms or watercourses.*
- *Even small gaps in contouring hedges or those that border watercourses can greatly reduce the effectiveness of such hedges in hindering storm water, so priority should be given to restoring these. Gaps can channel water, enhancing erosion and soil loss.*

e) The Tree Council believes that Wolton’s recommendations should be implemented, and that Countryside Stewardship funding should be actively targeted at areas where the loss of hedgerow ash could increase the risk of flooding e.g. upland catchments.

f) It will also be essential to ensure that any available grants that could be used for hedgerow ash replacement in the Countryside Stewardship package are reviewed regularly, to ensure that the grant is being taken up and used effectively.

g) Ash replacement for landscape, social and biodiversity reason in other non-woodland habitats, particularly urban areas, could also be considered. It was proposed during the Hedgeline meeting in October 2014 that Defra initiate a **‘National Ash Tree Replacement Fund’ and a public campaign** [e.g. ‘Plant a Tree in ‘73’]. **The Tree Council recommends commissioning a scoping study to determine the scale, benefits, support and necessary resourcing for such a fund.**

h) The Tree Council recommends all farm advisors and ecologists are trained on Chalara and other tree pests and diseases, to ensure that farmers and land managers are receiving the best advice. **Hedgeline could play an important role in developing advice sheets that deal with key questions** but will need support to allow for the production, promotion and dissemination of any materials, whether paper or electronic.

6.3 Ancient & Veteran ash trees

6.3.1 **The management of ancient and veteran ash trees and wood pasture**, in particular the methods to manage and retain old trees for as long as possible, **was raised during the study by the Ancient Tree Initiative**. Data from Wokingham (Appendix 2: 3.2.6) and the Ancient Tree Initiative (Appendix 2: 3.3) show that **ash trees may account for 3 - 6% of the ancient tree population**. These trees are **vital for biodiversity and potential ecological resilience (see 6.3.3)**.

- 6.3.2 The Ancient Tree Inventory dataset (Appendix 2: 3.3), shows Britain has recorded circa 9,591 ancient ash trees, indicating that the UK has an important collection of ancient ash trees.
- 6.3.3 A Tree Council book ‘Ancient and other veteran trees: further guidance on management’ published on behalf of the Ancient Tree Forum includes extensive techniques for the management of ancient trees. The Tree Council recommends that this text should be widely promoted to ensure understanding of ancient tree management core principles.
- 6.3.4 During 2014 the Ancient Tree Forum produced a ‘Position statement on managing the threat to our ancient ash trees from ash dieback’ (full text, Appendix 10). This position statement affirms that:

The Ancient Tree Forum [ATF] believes that, as yet, ecological considerations have not been adequately brought into discussions about the resilience of [ancient] trees and their associated ecosystems to the disease [Chalara]. Being aware of these complex ecosystems, especially in relation to aging processes in trees, the ATF believes that:

- i. **the possible losses not only of the tree but the interacting associated flora and fauna communities including microorganisms must be taken into account when considering actions;***
- ii. when devising research, **the ash tree as habitat, its soil microbiology, and the role of endophytes** should be coherently considered and explored;*
- iii. knowledge of the presence or otherwise of **mycorrhizal associations should be established** in sites with European ash dieback- and dieback-free sites and between disease-affected and non-affected trees within sites;*
- iv. In addition to the above recommendation **populations of endophytes in infected shoots and non-infected shoots should be investigated;***
- v. As it is known that **endophytes produce substances** (metabolites) that appear to inhibit the development of Chalara, research should be commissioned in order to **investigate the potential for disease suppression**, based on these findings;*
- vi. **soil bioassays and soil chemistry** status (taking account of macro- and micro-nutrient status) should be an essential part of research strategies into ash tree declines and losses, and resilience potential in the immediate future;*
- vii. research into the **survival and development of the pathogen in leaf litter** should be developed in order to provide domestic tree owners, managers and practitioners with soundly based and practical advice on managing this material as a potential means of reducing the infection exposure of the highest-value trees;*
- viii. research should be directed to **understanding the implications for ancient and veteran ash trees of mortality rates** and recovery potential;*
- ix. research should be **targeted to understand the influence of pollarding and coppicing** on the disease in order to identify the pros and cons of this practice for affected trees.*

*[Ash] **trees will remain valuable even following their death**, especially where ancient, due to their scarcity and high habitat values for associated species of fungi, lichens and saproxylic invertebrates, including many that are rare or endangered and occur only where such trees have been continuously present for many centuries.*

The ATF believes that **landowners and managers should be encouraged** and assisted by grants / incentives to defray additional costs to adopt a holistic approach that includes:

- i. **retention of standing dead trees** within the landscape **wherever feasible**;
- ii. **avoiding pruning**, including the removal of dead wood, **unless necessary on grounds of genuine safety** (to prevent either unacceptable public risk or catastrophic failure threatening the tree's habitat value);
- iii. **seeking advice** from appropriately qualified and experienced professionals, with knowledge of conservation tree management, where this is not available in-house, in order to avoid inappropriate or unnecessary work and the consequent expenditure;
- iv. **reducing the risk of spread in vulnerable populations** that include important ancient or veteran ash trees, where feasible removing their leaf litter after leaf fall and disposing on-site by strictly controlled burning, burial or buried composting;
- v. **removing under-storey and other nearby young ash** that is highly susceptible material and a spore source.

6.3.5 The Tree Council recommends that further work should be undertaken with the Ancient Tree Forum and other stakeholders to produce national guidance for the management of ancient ash trees as they become infected with Chalara (see also 7.7.5 and 7.7.6).

6.4 Urban non-woodland ash

6.4.1 Tree Preservation Orders

- a) The available data suggests that **4.1% of urban trees are ash, approximately 3.6 - 4 million trees** (Appendix 2: 3.1).
- b) They are vital elements of the urban ecosystem and in the iTree study in Torbay, ash (Appendix 2: 3.2.2) was assessed as being the most important tree in the urban forest because it contributed the largest leaf area.
- c) In January 2013, we asked local authority members of The Tree Council whether the Chalara outbreak was adversely impacting non-woodland ash trees with the question **'Have you been receiving requests to fell mature ash for reasons related to Chalara over the last 12 months?'** **27.4% of the local authorities (of a sample of 106) said 'Yes'**.
- d) When we asked the same question in **January 2014 the results were slightly lower with 25.6% of the respondents answering 'Yes'**. **By January 2015, the percentage had fallen to only 10%**.
- e) This reduction in felling requests is explained by tree officers who stated that **'When a tree disease is in the media we are 'flooded' by requests to fell trees'**. It was also stated that **'As the media have largely ignored Chalara in 2013 and 14, the levels of public concern have dropped and requests to fell have correspondingly fallen'** (Tree Council survey 2015).
- f) However, as the disease begins to be more widely felt, officers are expecting levels to rise again as evidenced in the following sample quotes from our 2014 survey:
 - *the public seem to think that councils will now fell any ash tree whether diseased or not;*
 - *some see it as an opportunity to get a tree removed;*
 - *misinformation from unscrupulous contractors may lead to increased ash felling;*
 - *we will get Tree Preservation Order requests to fell because it's 'only an ash tree and they are all going to die.'*

g) **Concerns about mis-information** has led **Kent County Council to produce guidance through their Trading Standards teams** (in co-operation with the arboriculture profession) to address risks from ‘rogue tree surgeons’ profiteering from the Chalara outbreak (Appendix 4b). Guidance to deal with this situation **will need to be undertaken by all local authorities as Chalara spreads.**

h) To protect trees in towns and cities, a local authority can make a Tree Preservation Order (TPO) in respect of a tree considered to enhance amenity value in the surrounding area. Concerns were expressed in all Tree Council surveys and at the member forum (3.2) that **‘the Tree Preservation Order system will be put under pressure by Chalara’**, with local authority officers having to respond to more enquiries about removing ash, putting a strain on the existing system.

i) At an event organized as part of this research for the Municipal Tree Officers Association, 35 officers were asked the question **‘Should a tree be allowed to be felled, because it is ash and might get Chalara?’**, the answer to which was **unanimously ‘No’**. The officers then suggested that:

- *Normal TPO procedures should continue, irrespective of species;*
- *placing pre-emptive TPO’s on ash, to retain the space for trees that ash currently occupies may be a strategy worth considering;*
- *the statement in Defra’s Chalara’s Management Plan (2013) that ‘The Government will not, in general, be encouraging the felling of mature ash trees in either urban or rural situations’ was a useful defence of ash on development sites;*
- *Current safety inspection regimes/ cycles may not be suitable (many being every 5 years) something that will need to be reviewed, as Chalara spreads, probably resulting in more frequent inspections. Clarification of suitable inspection regimes will need circulating;*
- *As ash trees begin to decline, existing resources will be diverted into dealing with ash issues and other urban tree issues will suffer.*

j) **If a TPO tree is removed, then a planning authority can enforce the replacement of the tree**, but there is uncertainty about which tree species should replace ash in urban settings. **There is also a concern amongst the local authorities officers involved in this research that they do not have the resources to enforce the replacements** and that *‘once the tree is gone, it is gone forever’* (Tree Council Survey 2014).

6.4.2 Development sites

Concerns that the potential decline of ash trees will allow development on otherwise tree filled spaces was also widely expressed in the Tree Council 2013 and 14 surveys. The following are a sample of the concerns:

- *As a Local Planning Authority Tree Officer, I have had enquiries on why retain and/or protect (by TPO) mature ash trees as these are likely to get infected, thus these trees shouldn't be a constraint in the planning system for new development;*
- *There is potential for significant losses of ash trees to be used as a foothold for development proposals where previously ash trees that were present would have required those proposals to take these into account;*

- What is the impact of Ash Dieback on BS5837² and the ability or otherwise of a developer to get planning permission if the ash is diseased, or may become so?
- I anticipate developers claiming that we should not protect ash trees as they are likely to die anyway.

6.4.3 The Tree Council believes that **guidance from central government is needed** on the potential impacts of Chalara on both TPOs and the planning system and The Tree Council therefore **recommends that Defra and the Department of Communities and Local Government should work together** to produce guidance for local authority tree and planning officers and for landowners and developers.

6.4.4 Risks of trees to the transport networks

a) In July 2014 the Department for Transport published the [Transport Resilience Review: A review of the resilience of the transport network to extreme weather events](#)

This review stated that:

- i. **There are 183,300 miles of roads in England managed by 152 local highway authorities. The sheer scale of this network, the very different types of road covered, from major 'A' roads to minor country lanes, across very different geographical areas, and the wide range of type and capacity of the responsible authorities poses a big challenge.** [See Devon's reviews of the numbers of ash trees on the different classes of road – 5.2.6].
- ii. Over the years **the Highway Agency and its predecessor authorities have planted large numbers of trees alongside the highway** [c. 45% of which have been ash – see Appendix 2: 4.1]. **Trees have become a significant hazard on the rail network, because of decades of relative neglect, and it will be important that the Highway Agency does not allow this to happen on the Strategic Road Network.**
- iii. Many [highway] authorities reported the large numbers of tree incidents they dealt with over the [13/14] winter. **Devon and Hampshire reported that, over the winter, they had to deal with 1,340 and 1,000 fallen trees respectively, whilst East Sussex reported that in one 12 hour period, it had to deal with 200 fallen trees.**
- iv. Network Rail estimate they have a total of 2.5 million line side trees with a trunk diameter of 150mm or more. **16% of the tree population is ash which is at risk of infection from ash dieback disease as it spreads from the South East. The risk from such infected trees needs to be closely monitored** [included by Network Rail as a result of work by The Tree Council with Network Rail on Chalara – see Appendix 2: 4.1].
- v. A common theme for both road and rail networks is **the impact that neighbouring property owners can have on the resilience of a route when they fail to adequately discharge their responsibilities as landowners. Trees from neighbouring land blown over in high winds are a frequent cause of disruption, blocking roads and rail lines.**
- vi. A further hazard from high winds is **the risk of debris and particularly of trees being blown over and obstructing roads.**
- vii. The report recommends that all transport operators should have contingency plans for extreme weather, developed and exercised with their principal partners in the industry (e.g. airports with airlines).

b) The Transport Resilience Review report set out the **significant risks and hazards to the transport infrastructure arising, directly and indirectly, from severe and unusual weather conditions, including the threat posed by trees.** Since the related impact of

² British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations

Chalara on the ash population was not then widely understood, this review was undertaken without the associated increased risks being fully explored.

c) The Tree Council therefore recommends that **Defra and Department for Transport update the Transport Resilience Review, and incorporate the increasing hazards and risks that will stem from Chalara**. They must then ensure that, as with weather resilience, **all relevant transport operators have contingency plans to deal with the impact of Chalara on trees close to transport links**.

6.4.5 Tree Safety

a) In the Tree Council surveys and at the member forum (3.2), **tree safety in context with Chalara** was raised as **one of seven concerns that achieved the maximum ranking**. In affected areas, some **authorities have already begun to change the practical management of their tree stock** because of Chalara. In Kent, inspections of highway trees have been added during the summer months when ash should be in leaf, allowing easier diagnosis of problems in roadside trees.

b) Concerns were also widely expressed over the *'cost impacts on managing the ash tree population for risk'* and there are widespread concerns that *'current budgets are entirely inadequate to deal with the spread of the disease'* (from the 2013 Member Survey).

c) The risk assessment and **safety of trees on private land is the responsibility of the land owner** under the Occupiers Liability Act 1984. Highway Authorities (either the Highways Agency or a local authority) and local authorities have powers under the Miscellaneous Provisions Act 1976 and the Highways Act 1980 to require owners of private trees to make safe dangerous trees in the interests of public safety.

d) All respondents in the Tree Council surveys who work in tree safety had read the 2011 National Tree Safety Group (NTSG³) Guidance. The Guidance Note *'Common Sense risk management of trees: Guidance on trees and public safety in the UK for owners, managers and advisers'* is the key reference for managers of trees who are responsible for tree safety issues.

e) As part of this study, **The Tree Council assembled the NTSG on 22nd October 2014, to discuss the issues for tree safety that arise as a result of Chalara** and whether the guidance contained in this 'Common Sense' publication was still fit for purpose in light of Chalara. In addition to eleven of the core NTSG member organisations were present plus three tree safety consultants were in attendance.

f) At the meeting, concern was expressed that **the impact of Chalara was proving more rapid and widespread than anticipated** (see 5.2.4a), with healthy looking ash trees shedding branches within 18 months and Chalara spreading into other UK regions (e.g. north west) far in advance of predicted rates. Concern was also expressed over the lack of information about the timescales for wood structure degradation, as much of the available evidence is anecdotal (both from UK and Europe) with few established facts. It was also noted that **although the current risk**

³ NTSG is the tree sector expert group for issues of tree safety and management and consists of 20 members representing: Professional tree bodies; Tree owners and managers; Organisations with heritage and/or conservation interests and Risk Research consultants.

from falling trees and branches in the UK is small, Chalara will increase this, which may alter the public's perception of tree safety. The group noted that an increase in branch fall rate of only 10-20% could signal an increase in risk, and that this would be greatest along roadsides.

g) The current Defra **advice to retain ash trees in the landscape to allow natural genetic resistance to emerge** was discussed, and it was considered that this practice might be **undesirable in public places and along roadsides where mature ash trees may present a high safety risk**. Although anecdotally ash trees tend to fail more quickly than other tree species, **clarification of ash attrition rates will be essential** to ensure appropriate responses and advice. **The rate of tree death from disease is dependent on many factors**, including hydrology, topography and genetics. The NTSG therefore believes **it is vital to better understand these variables, before altering current safety guidance**.

h) The Group agreed that they should recommend to Defra and the Devolved Administrations that since current **Chalara data is not sufficient to produce the most effective and accurate tree safety guidance, further urgent research and clarification is essential** particularly on population dynamics of ash and causes of ash tree failure.

6.4.6 Recommendations for NTSG supplementary guidance

a) The group believes the NTSG guidance document does not require modification to take account of Chalara, as **the fundamental NTSG principles set out in the guidance are still valid and flexibility was inbuilt**. It was however felt that **pro-active communication of the guidance principles to land managers** should be undertaken as part of central government's communication strategy for the disease.

b) **Without supplementary guidance from central government regarding ash management**, there was concern that land managers **may increase the rate of ash removal, regardless of infection levels**. Therefore the Tree Council worked with the NTSG to produce an **NTSG supplementary Chalara guidance note** (Appendix 11).

c) The related issue of training Local Authority inspectors was raised and the **development of additional appropriate training for drive-by inspections** was proposed as a potential future task for the NTSG.

6.4.7 Chalara and Tree Safety summary

- i. The fundamental principles of the **NTSG guidance are still valid**;
- ii. **The processes within NTSG guidance allow for flexibility** and are therefore functional;
- iii. The NTSG has developed **supplementary guidance for areas where ash tree health is an active issue** (Appendix 11);
- iv. The NTSG has concerns that **current ash and Chalara data is insufficient**, therefore **further research** and clarification on issues, such as **population dynamics of ash, causes of ash tree failure and epidemiology of Chalara are urgent and essential**;
- v. Central government should also **increase research into why and how trees fail**, to enable planning for risk assessments and branch fall;
- vi. Finally, **any Chalara specific safety issues identified must be cross-checked with the Devolved Administrations in Wales and Scotland**, prior to further recommendations or supplementary guidance being published.

7. Mainland Europe data on Chalara in non-woodland trees

7.1 Within the study, The Tree Council sought information on experiences with Chalara in non-woodland trees on mainland Europe. We **reviewed the existing literature, attended three conferences**, [[London](#) (November 2013), [Sweden](#) (June 2014), Poland (September 2014)] and **held discussions with researchers and tree professionals** to learn from their experience.

7.2 **One of the greatest concerns in the UK for non-woodland ash trees is the increased potential for health and safety risks from ash falling or shedding limbs** (6.4.5;f). One of the main causes of tree failure from Chalara in Europe is collar rot. In 7.3, we set out our main findings.

7.3 Large tree decline due to Collar Rot

7.3.1 Collar Rot

a) Generally, **collar rot occurs when a fungus attacks the tree trunk's thickest part** (the "collar" above the roots), where the end of the stem makes contact with the soil. Dr. Berthold Metzler (Germany) presented a paper on 'Ash dieback in South West Germany' at the London 2013 conference. In his presentation he reported that:

- **a 'new issue', collar rot, first appeared in Germany in 2011;**
- **collar rot drives the mortality of larger ash trees** in Germany, especially on wet sites;
- **80% of collar rot in large ash trees in Germany are associated with an additional fungi – Armillaria;**
- **in Germany, it now appears that Chalara may also be a primary agent of collar rot;**
- **if Armillaria is present, the tree dies rapidly**, topples or breaks, particularly on wet sites. *If a tree is suffering with collar rot, bark beetles can become widely established* [Note: **No definition of the word 'rapidly' was given**];
- **collar rot can also appear in trees which otherwise appear resistant**, although there is currently uncertainty as to the cause, which may be Armillaria or Chalara itself;
- **tree safety is now of great concern in Germany**, with the current view that:
 - **removal of highly susceptible ashes** [should be undertaken] before big limbs begin to rot and cause a hazard;
 - **severe problems** [of tree mortality] **can occur on wet sites due to collar rot;**
 - **in public green space, tree surgery in highly susceptible trees is largely useless** [and felling is the best solution].

b) At the London conference Dr Thomas Kirisits (Austria) also reported that:

- **Collar rot usually appears after several years.** As the Chalara fungus colonises an area, infection level increases, then spore load increases and after a few years collar rot symptoms appear.

c) Collar rot was also reported at the FRAXBACK conference in Vilnius in 2012. The following was reported in [papers](#) from the meeting:

- **Basal lesions on larger stems associated with infection by Chalara fraxinea have now been seen in a number of different countries** (France & Austria in particular). These are not associated with young shoots sprouting from the bases of declining stems but **appear to have resulted from direct penetration of the pathogen into the bark at or near ground level** (possibly through lenticels). It appears to be a phenomenon which becomes manifest only when levels of infection are high.

d) In a review of Chalara, Gross et al. (2014) reported the following:

- Severely affected trees respond to branch dieback by the formation of epicormic shoots. **If such shoots develop at the stem base, they are perfect entry points for new infections and the tree can die rapidly.** It has been suspected that, under moist conditions at the stem base, lenticels or small wounds can also act as entry points, but definite proof for this is lacking.
- **The pathogen [Chalara] can also colonize parts of the root system, but the roots of severely infected trees are prone to attack by opportunistic fungi (e.g. *Armillaria spp.*), which accelerates tree death.** Predisposed trees are also attacked above ground by bark beetles and numerous opportunistic fungi.
- In host tissues weakened or killed by the pathogen [Chalara], endophytic and opportunistic fungi develop very quickly. **The root system of affected trees is also attacked by opportunistic fungi, e.g. *Armillaria spp.*, which considerably accelerates ash tree death.** (Molecular Plant Pathology 15:5–21)

e) Rasmus (2013) reported that:

- Beside ordinary ash dieback symptoms, collar rots have been reported on declining ashes as an additional problem of increasing severity;
- Collar rot prevalence ranged from 19 to 59 % between study sites;
- Collar rots were more abundant on trees of severe ash dieback intensity, but could also be detected on 15 % of otherwise healthy trees;
- Mycelium from collar rots could be identified as most likely belonging to *Armillaria gallica*. (*European Journal of Forest Research* 132:865–876.)

7.3.2 **The impact of collar rot on Chalara-infected trees is not widely known in the UK.** The European data suggests that **it could have a serious impact on the speed of decline of large ash trees** as the number of trees infected, increases in the UK. The Tree Council has **first-hand evidence that some ash trees in east Kent are already exhibiting symptoms** which appear very similar to those described in Europe as ‘collar rot’. Trees were found in 2013 in east Kent in woodland on Forestry Commission land (see picture, right). **These trees should be monitored to record the speed of their decline.**



7.3.3 At the Swedish conference in June 2014 **leading members of the International Society of Arborists**, were asked by The Tree Council how they ‘managed ash trees in European public spaces that were suffering from Chalara?’ They could not refer us to any published data (other than that outlined above), but **anecdotal evidence and practice was that large trees were usually removed within 2 - 3 years of Chalara infection being noticed.** This was at least in part, because ‘there was a public perception that the tree had started to look unsafe and therefore had to be removed.’

7.4 The recommendations in the Chalara supplement to the NTSG guidance (Appendix 11) states that landowners or land managers should adapt their tree management regime for Chalara, which could include:

- **carrying out more frequent inspections** of affected or potentially affected trees in high use zones, such as alongside roads;
- **changing the season of inspection** to one where the symptoms of the disease or pest are more evident;
- **reviewing existing inspection zones** and creating additional zones to account for the level of disease-affected trees at risk of infection in areas of high use;
- **taking account of the impact of the pest or disease on the structural integrity** of the trees and managing risks to public safety accordingly;
- **implementing reasonable risk assessment** that takes account of the speed and progression at which a disease or pest impacts upon the structural integrity of the tree and prioritising remedial actions accordingly.

7.5 As Chalara spreads, **the effects of collar rot are likely to increase the speed of decline of large non-woodland trees** in the UK. The timescale in Defra’s statement in the 2013 Chalara Management Plan that ‘The full impact of Chalara will not be seen for at least a decade as infected mature trees will continue to survive for several years’ will need to be reviewed if it is found that the disease has been in the UK for longer than has been suspected. **The Tree Council therefore recommends that future statements on mature trees do not include any timescales for decline of mature trees until more evidence is available, and they should incorporate the suggestions from the NTSG guidance (7.4).**

7.6 Ash Varieties

7.6.1 At the London conference in 2013, Dr Heinrich Lösing from Germany spoke about ongoing research into the susceptibility of ash species to Chalara. He suggested that work undertaken in a German nursery has shown that **under experimental conditions there are differences in the susceptibility of ash species and varieties**. For example, Fraxinus excelsior var. Pendula and Var. Jaspidea are very susceptible to Chalara, whilst Var. Altena is less susceptible. Tests were also undertaken on a range of Fraxinus species, the results of which are in the table below.

Sections		
Fraxinus	Melioides	Ornus
F. augustifolia	F. americana	F. bungeana
F. excelsior	F. caroliniana	F. ornus
F. mandshurica	F. latifolia	F. sieboldiana
F. platypoda	F. pennsylvanica	F. texensis
	F. velutina	

Red = infected, Green = not infected, Black = no results yet.

7.6.2 This research suggests that some ash species may show resistance to Chalara which introduces **the possibility that using some ornamental ash species** may allow some of the characteristics of Common Ash to be retained in a treescape, particularly urban areas. **It is important to note that this research was discussed in 2013 and our knowledge of the susceptibility of different species and varieties will change as further research is undertaken.**

7.7 Ancient & Veteran Ash in Sweden

7.7.1 At the London 2013 conference, Vikki Bengtsson (Sweden) spoke about ‘**the impact of ash dieback on veteran and pollarded trees in South-Western Sweden**’. She reported that:

- the Swedish dataset consists of c. 350,000 records of which 46,158 are ash trees. Of these, 7,338 ash trees are over 1m in diameter;
- studying old ash pollards, **mortality rates from 2009 – 2011 were 1.4% per annum**. Between 2011 and 2013 this had increased to 2.1% although this is lower than mortality rates in other ash tree populations;
- there was a significant relationship **between health and girth in 2013**. The larger girth trees were less affected, whilst no tree under 140cm girth was healthy.

7.7.2 During 2014, The Tree Council discussed further the lessons from Sweden for managing veteran ash pollards and coppice. In Sweden, **ash pollards in a management cycle** (in Sweden, cut every five years or so) **are currently being continued**, although the cutting of trees on a single site is being phased so that not all trees are cut in the same year. Regular cutting is being continued, even if the trees show signs of ash dieback; this should be seen in the context that **farmers receive supplements for pollarding trees** in a cycle in Sweden, and **if they stop cutting, they are penalised**.

7.7.3 Vikki Bengtsson suggests that **it may be worth pollarding young ash trees**, as pollards seem to be less affected by Chalara than non-pollards. However, there is wide variation in the susceptibility of pollarded trees.

7.7.4 Vikki Bengtsson reported to us at the end of 2014 that ‘*There is of course a risk that **pollarded ash in a management cycle may die of ash dieback**, but this is likely to happen anyway whether the tree is pollarded or not. There may be a small possibility that the disease can be “cut” away in the process of pollarding, although the disease often has moved much further along the branches than where there are symptoms. However, we do not really have clear ideas about **why our veterans are dying more slowly than younger trees**. One reason could be that **old pollards generally have a more complex stem structure** with separate functional units, making the movement of the fungus more difficult or it may be a question of time, **larger trees taking longer to die**. It may also be because an entry port for the disease also appears to be at the base of the trunk and the thickness of the bark on older trees hinders this entry point. The **veterans may also have a more complex endophytic flora** which may also make the competitive environment for the fungus more challenging.*’

7.7.5 The current management policy in Sweden is that: **no restoration tree surgery on ancient pollards/coppice stools, or other veteran trees in general, should happen unless they pose an acute risk either of collapse or there is a safety issue.**

7.7.6 **The Tree Council recommends that this should also be the management policy advice in the UK for ancient trees**, as this builds upon the suggestion made by the Ancient Tree Forum (6.3.4) that **pruning should be avoided unless necessary on grounds of genuine safety** (to prevent either unacceptable public risk or catastrophic failure threatening the tree’s habitat value)

7.8 Urban Ash

- 7.8.1 During field outings in Copenhagen in June 2014, tree managers for both Stockholm and Copenhagen made interesting but subjective observations: **that *Chalara* had made it to the edge of both cities, but not made major in-roads into the heart of the city's ash populations.** Discussion for this centered on **the ability of the fungus to colonise in relatively dry urban environments where leaves are often removed before the fungus has a chance to sporulate.** The **low proportion of ash** in the city treescape may also be a factor.
- 7.8.2 Unfortunately we have been **unable to locate any published data to support these observations,** but they do introduce the prospect that **if the fungus cannot colonise urban ash trees** as easily as in the wider countryside, with an estimated population of 3.5 million urban ash trees, Britain's **cities may become important strongholds** for conservation of the ash. Perversely, it is in these very places that the **potential health and safety risks will be considered to be high.** The Tree Council recommends that **research is initiated to monitor the spread of *Chalara* in Britain's city treescapes, and that the management emphasis for urban ash should be on retention of mature ash trees, whenever safe to do so.**

7.9 Replacement planting

- 7.9.1 Research in the US led to the 1990 publication of a tree planting strategy that has become known as **the Santamour Rule.** This relates to keeping a population of trees resilient, by ensuring that no one species becomes over-dominant in a population. The Rule states that there should be **'No more than 10% of a species, no more than 20% of a genus, no more than 30% of a family'** ([Trees for Urban Planting](#)).
- 7.9.2 The rule was **created initially for arboreta, then expanded to street trees** but has **now been widely adopted in the US and elsewhere for urban treescapes and populations of trees** (<http://www.sciencedirect.com/science/article/pii/S1618866714000387>).
- 7.9.3 The Tree Council recommends that **if new trees are to be planted to replace ash, the resilience of the landscape to another pest or disease must be considered, and strategies such as the Santamour rule could be explored** to ensure that the new planting improves landscape resilience.

8. The potential costs of Chalara in non-woodland ash

8.1 Background

8.1.1 The widespread nature of non-woodland ash means that **the costs of dealing with Chalara will impact many individuals and organisation across the UK**. There will be cost implications at all levels from individual garden owners who have to manage the decline of a single ash tree, to organisations managing major elements of national infrastructure such as roads and railway.

8.1.2 **It has not been possible to make a comprehensive assessment of the potential costs of Chalara**, as the absence or patchy nature of ash data (section 4) has made it impossible to estimate a national outlay. The cost of managing a diseased tree will be dependent upon its size and location and uncertainty also remains over the severity of the impact on mature trees.

8.1.3 Despite these difficulties, using the data that is available some indicative orders of cost are set out in the following sections and some examples are worked up where the cost has been estimated.

8.2 Dangerous trees

8.2.1 Some elements of cost are relatively simple to ascertain. For instance, it is possible to put a price on removing a large declining ash tree.

8.2.2 It might cost **£300 - £600 to fell and remove an easily accessible large tree in a private garden in rural Britain**. However, if the tree is adjacent to a street or other public place in a busy urban area, the costs would rise, since the removal of the tree would be more complicated due to increased health and safety risk management requirements. This might then push upwards from £1,000 depending on location and complexity.

8.2.3 **Managing the decline of garden trees will fall to property owners** who may not be able to meet the expense of tree work or removal. They may have no alternative but to live with a declining tree, regardless of whether it is dangerous and will face difficulty in the event that they are instructed to remove it by a highway authority (6.4.5c and 8.3.6).

8.3 The road network

8.3.1 There are **183,300 miles of roads in England managed by 152 local highway authorities**, (Transport Resilience Review; 6.4.4) which differ widely in their ability and capacity to effectively manage vegetation adjacent to their road networks. There are also 72,000 km of ash dominate hedgerow.

8.3.2 In the survey data obtained from Kent County Council, **20,000 ash** that may need maintenance were identified on their highways and land. At a median cost for maintenance interventions on their own trees calculated **at £800 per tree**, the County Council could therefore face a **cost of £16 million to make safe** its own tree stock (Kent CC. pers. comm. and see Appendix 2: 3.2.7).

8.3.3 These costs will vary between Counties and another County Council provided The Tree Council with the following breakdown for the cost of removal of a tree:
Removal of a mature ash in highway verge (without significant site constraints), using current contract rates:

Felling – 4 men x 6 hours = £924

Stump grinding (diam. 1-1.5m) = £ 154

Total - £ 1,078

8.3.4 The highway data from Devon (5.2.6) suggests that on the basis of an £800 median cost per tree, **the removal of all ash trees adjacent to the highway** could potentially be **£9,600 per kilometre on A road and £16,800 per kilometre on B roads.**

8.3.5 **Local authorities have powers under the Miscellaneous Provisions Act 1976 and Section 154 of the Highways Act 1980 to require owners of private trees to make safe, dangerous trees** in the interests of public safety. **This places the onus on the landowner, as referenced in 8.2.3, who will be expected to pay for the work to be undertaken.**

8.3.6 **However where a landowner is required to make a dangerous tree safe, but fails to carry out the necessary work, the Highway Authority may undertake the work itself and recover reasonable costs from the landowner.** Currently, this rarely happens as the process of reclaiming the money from the landowner is often more costly than paying for the work directly (pers. comm. senior Highway Authorities staff).

8.3.7 **The scale of costs to keep highways safe, is likely to cause the Highways Agency and local Highways Authorities to re-assess their current working practices and look to reclaim more of the costs from landowners.** This was set out clearly in the Nottinghamshire paper to the council members (5.2.3):

- *This would place the Authority in the position of requiring landowners to make safe their trees through the use of Section 154 Highway Act 1980. Previous experience indicates that utilising statutory powers causes significant hostility and discord between the Authority and the tree owners concerned. This would also create potential problems for the Authority to encourage replacement tree planting to occur.*
- *The Authority decides that in such situations, the logistics of serving multiple notices is unnecessarily bureaucratic, time consuming and costly to administer and views that any tree within falling distance of the Highway that poses a significant threat should be made safe at no cost to landowners so that only truly necessary works are carried out. The trees could then be recorded and monitored to ensure safety until the next phase of the tree mortality spiral takes effect. This could then be augmented potentially by grant aiding replacement planting at as early a time as possible.*
- *Additional funding would be required whatever direction is taken to adequately respond to the liability that standing dead / infected trees will pose as a result of Chalara.*

8.3.8 **The Tree Council recommends that best practice for highway tree management and Chalara should be developed** by a task and finish working party of the Highways agencies/ authority, landowners organisations such as the Country Landowners Association and National Farmers Union, The Tree Council and its member organisations, plus other relevant agencies or organisations. This should then be

disseminated as part of the Local Action Plan (5.3).

8.4 The rail network

8.4.1 Network Rail have reported to The Tree Council that: *The cost of vegetation operations is dictated by the type of work being carried out (felling, pruning, etc.), the number of trees involved, the access to the worksite and the type of railway involved (e.g. electrified, numerous tracks, etc.). Taking this into consideration means that it can cost up to £1,000 per tree.*

8.4.2 With an estimated 400,000 ash trees growing on Network Rail-owned land (Appendix 2: 4.1), and at an upper estimated figure of £1,000 for the management of a tree (8.4.1), the organisation could face considerable costs in managing diseased ash on their land.

8.5 The electricity network

8.5.1 The Transport Resilience Review (6.4.4) noted that: *the electricity distribution industry is planning to spend £70 million in the period 2015-19 on clearing trees at risk of bringing its power lines down, as part of its own climate change resilience programme. This is on top of the £422 million that it will spend in the same period on vegetation management for safety purposes, but which inherently provides a level of resilience.* This funding level was established before the impact of Chalara had been assessed, and although some of his funding may contribute to Chalara management it may not be sufficient to manage the impacts.

8.5.2 During the course of the study, The Tree Council met with the Utility Arborist Group to identify potential additional costs from Chalara to the electricity sector. At the **point of the meeting, little data was held on ash numbers** adjacent the electricity network. **The Tree Council recommends that work is needed by the electricity sector to identify the scale of risk** to this part of the national infrastructure.

8.6 Infrastructure services review of Chalara

In light of the potential costs to the road (8.3.8), railway (8.4.2) and electricity (8.5.1) networks **The Tree Council recommends that a Chalara-related resilience review of national infrastructure networks should be undertaken.** This should build upon the Transport Resilience Review 2014 (6.4.4) and **ensure that contingency plans are created by these sectors to deal with Chalara and its impact.** This should include (but is not restricted to):

- **electricity services** e.g. National Grid and regional electric companies;
- **the transport infrastructure:** Network Rail; Highways Authority and highways agencies.

8.7 Wider countryside

8.7.1 The costs associated with the management of declining ash in the wider countryside are extremely difficult to calculate. **Safety issues will always be a priority.** However, if an ash tree in a hedgerow between two fields dies and the landowner considers there to be no risk, then the ash tree may be left to decline over time. Therefore much of the costs in the wider countryside will be associated with replacement planting, and are likely to fall on agri-environment payments and replanting grants (6.2.5).

8.7.4 During the study it was proposed that a **'National Ash Tree Replacement Fund'** should be created (6.2.5g). As part of the development of this Fund, **The Tree Council recommends a review of previous large-scale tree planting grant schemes like the**

recent 2010 Big Tree Plant and the Task Force Trees initiative of the 1990's, to ensure that any future funding is well targeted and properly used and after-care and survival of the trees is prioritised.

9. Publications and information

9.1 The wide spread of non-woodland ash means that the problems associated with Chalara will be experienced by many sections of the community who may not be used to dealing with tree problems. **The Tree Council recommends that information about managing Chalara in non-woodland situations must be developed, targeted and disseminated to the right audiences, in the right way.** Currently the available information largely focuses on woodland situations rather than issues related to the management of individual trees.

9.2 During 2014, a Tree Warden undertook an MSc study on Chalara in Kent (Tugwell 2014). As part of this study a survey was undertaken with 78 members of the general public. The key findings were that:

- i. **the general public had an awareness and interest in countryside conservation** (100%)[of those surveyed] *and in the main utilize green spaces more than once per month (92%);*
- ii. **Although some communication regarding Chalara in the UK has reached the general masses** (19% had not heard of ash dieback), *and 49% of people surveyed felt that more information should be made available to help improve and to aid public understanding of this disease;*
- iii. **78% of those surveyed ‘agreed’ to ‘strongly agreed’ that information should be more widely distributed to the general public via local councils and the media, implying communication strategies need to be improved;**
- iv. *based on the information and evidence gained throughout the research it is apparent that the general public, do lack knowledge surrounding the disease Chalara fraxinea.*

9.3 The Tree Council member survey in 2014 also revealed **that 46% of professionals felt that they did not have sufficient information to manage the impact of Chalara.** They specifically requested information that was targeted for use by members of the public, *as many ailing ash will be the responsibility of people who are unused to dealing with the impact of disease on their trees (Tree Council Survey quote 2014).*

9.4 Although information on Chalara in woodland is available on the **Forestry Commission website**, this is **not where many managers of non-woodland trees or the public seek out information.** At one volunteer event in Reading during July 2014, the 50 volunteers present (Appendix 12) were asked:

- Do you know what to look for in terms of signs of Ash dieback? No - 90%
- Would you visit the Forestry Commission website for information? Yes - 10%
- Would you visit the local authority website? Yes - 100%
- Would you expect the Council’s Tree Officer to provide advice? Yes - 100%

9.5 The volunteers at the event also stated that: *good targeted information is needed to heighten awareness of the spread of Ash dieback and other diseases. This information should be available through the Local Authority.*

9.6 The problem of where to seek out information on tree diseases in the non-woodland sector was compounded by the fact that **the organisation that many local agencies used as their reference point, The Tree Advice Trust, closed** during 2013 having struggled to generate sufficient income from either charitable or earned sources. This suggests that **although there is a need for expert advice, the market is not willing, or able, to pay what it costs.** The Tree Council recommends that **a single point of information**, responsible for producing material

suitable for the local government and arboricultural sector, **is urgently needed and will need central government funding**. For example, The Tree Advice Trust used to send out a ‘Tree Damage Alert’ whenever there were major tree disease issues, but this service ceased when the organisation shut down.

9.7 In Kent, Suffolk and West Sussex, as shown in the case studies (5.2.1, 5.2.2 and 5.2.4), **information provision was an integral part of their local Chalara management plans**. Because these counties are at the forefront of Chalara, they **each had to independently research and prepare their own information**. To avoid unnecessary replication of effort, **The Tree Council recommends that one set of national guidance should be developed and updated when appropriate**. This should then be made available in a format that is suitable for local agencies to use and adapt. Local agencies need to know where to **find the information and how up to date** it is so that they can **adapt it for local use** whenever they need it.

9.8 The Tree Council recommends that a national communication strategy on Chalara and non-woodland trees should provide:

- i. **A national ‘one stop shop’ for non-woodland Chalara information**. This is probably most efficiently produced as **information on a website**.
- ii. This has to be held by an agency/ organisation that **local agencies will use**, who will become the replacement for The Tree Advice Trust
- iii. This information should be **updated as new information becomes available** and any **new information needs to be sent to local bodies directly**, so that they do not have to seek out information
- iv. Information on the website must be available for **use by local agencies to repackage for local websites and leaflets**
- v. There should be a **public element to the website**, but **also a resource section, specifically targeted at local authorities and agencies** which should include (but is not restricted to):
 - template leaflets and other resources for local adaptation
 - local survey information
 - case studies
 - best practice examples
 - health and safety information

9.9 Drawing on the **information produced in Kent and Suffolk** and after **discussions with the 500 volunteers** at the **twelve events** organised by The Tree Council **during 2014**, we believe that the structure set out in **9.10**, when completed, would provide **answers to the majority of the questions** that are currently being posed about Chalara and non-woodland trees. This should form an integral part of the website proposed in **9.8**. **The Tree Council recommends that all these questions need to be answered, reviewed and repackaged in context with the findings of this report**. New questions will arise and new information will also need to be shared as the disease spreads. Continual development of any information resource will be essential if it is to remain fit for purpose.

9.10 Frequently asked questions produced from the activities outlined in 9.9:

9.10.1 General queries

- i. How important are ash trees in Britain and what are their benefits?
- ii. What are the key facts about ash dieback?
- iii. What is the prognosis for survival following infection?
- iv. I own ash trees - how can I help?

9.10.2 Detection of Chalara

- i. How do I detect Chalara?
- ii. How long does it take from initial infection to detection of symptoms?
- iii. How should I report suspected cases?
- iv. How can I tell if a tree is resistant to infection?
- v. Do I tell the land/householder that their trees have ash dieback?
- vi. Should I notify the public of infections?
- vii. What does ash dieback decline look like in the canopy?
- viii. How do I identify the disease in mature trees?

9.10.3 Management of Urban & Suburban Ash

- i. What approach should I take to managing ash trees infected with Chalara in urban areas?
- ii. How do I protect the ash tree in my garden?
- iii. Does pollarding and other tree surgery increase susceptibility to Chalara?
- iv. Should mature trees be felled if they do not appear to be unsafe?
- v. What happens if my ash tree is protected by tree preservation orders (TPOs) or is in a conservation area (CAs)?
- vi. How should I deal with waste ash material such as ash leaves and saplings?
- vii. Do I need a felling license?
- viii. How will parish councils be affected by Chalara?
- ix. What should happen to ash trees on development sites?
 - x. What should be done with ash trees adjacent to the highway/ footpath/ playground?
- xi. What are the risks of Chalara to health and safety?
- xii. What if there are priority or protected species on my site?
- xiii. What is the prognosis for survival following infection?
- xiv. How long does it take from initial infection to limb failure?
- xv. Are there other remedial works other than felling, e.g. fungicide spraying, coppicing, pollarding?
- xvi. How should ancient, veteran and heritage ash trees be managed?
- xvii. What are the impacts of this disease on biodiversity and European Protected Species?
- xviii. What is good biosecurity for non-woodland ash?
- xix. What alternative species are suitable for replanting?

9.10.4 Hedgerow ash

- i. Do hedgerows potentially make it easier for Chalara to move around and spread?
- ii. Can the disease transfer along watercourses and linear infrastructure?
- iii. How should I deal with infected trees in hedgerows?
- iv. Should infected ash shrubs be removed from a hedge?
- v. How should I deal with mature ash trees in a hedge containing infected shrubs?
- vi. What do I do about trimming ash hedges?
- vii. What impact does trimming of hedgerows with ash shrubs have on the spread of Chalara?
- viii. Can the risk of spreading Chalara be limited if hedges are trimmed outside of the main

risk period?

- ix. What other measures can hedge trimmers take to reduce risk of spreading Chalara?
- x. Does pollarding and other tree surgery increase susceptibility to Chalara?
- xi. How do I manage the risk from dead and dying trees to the public?
- xii. What should be done about ash trees on and adjacent to highways?
- xiii. How should I deal with waste ash material from hedgerows and hedge trees?
- xiv. Can I dispose of leaf litter and arisings from ash shrubs in hedge if mature ash trees are also present?
- xv. What if there are priority or protected species on my site?
- xvi. If ash dieback damages the hedge will it impact on my agri-environment agreement?
- xvii. What impact does not trimming my ash dominated hedge have on my agri-environment agreement/cross compliance?
- xviii. How can I protect individual mature hedgerow ash critical for the survival of certain rare BAP lichens?
- xix. Should I still plant ash as a hedgerow tree or is another species more suitable?
- xx. What other species can I plant in my hedgerow instead of ash?
- xxi. Where should I source trees?
- xxii. Is it worth encouraging ash regeneration in hedgerows?
- xxiii. Can we use agri-environment money to help to restore the hedge tree population as Chalara spreads?
- xxiv. What other funding is available to replace ash hedge tree and hedgerow plants?

9.10.5 Surveying local trees to help with Chalara management

- i. What local surveys are being undertaken?
- ii. How can I get involved in local surveys?

9.11 Availability of information

9.11.1 **The lack of understanding of this tree disease** and its potential impact for non-woodland trees **is not confined to the public**. There is currently little useful information available on related Chalara issues for local authority officers and therefore **briefings for local politicians vary in both accuracy and complexity**. One suggestion made during the study was that **as national politicians were briefed on tree diseases, mechanisms should be in put in place that enabled this information to be cascaded to local authorities**.

9.11.2 **The Tree Council recommends that central government should improve the flow of information from central government to local government and develops a briefing system that puts tree disease information into the hands of local authorities for elected members and senior officers.**

10. Summary of Tree Council Recommendations

10.1 The Tree Council's recommendations on the scale of non-woodland ash distribution are that:

- i. no further attempt should be made to define the national population of non-woodland trees (4.4.3) and any future non-woodland ash surveys should be focused on targeted data collection, to deal with specific management issues (4.4.5)
- ii. the community Chalara survey methodology should be explored further to assess whether this methodology will provide local authorities with a cost effective method of obtaining ash data (5.2.7g)
- iii. a national standard specification for surveying trees (4.4.6) that includes a standard definition of a tree by stem DBH (4.4.6) should be instigated

10.2 The Tree Council's habitat recommendations are that:

- i. research is essential to assess the impact of Chalara on water catchments (6.2.3c)
- ii. Countryside Stewardship funding should be actively targeted at areas where the loss of hedgerow ash could increase the risk of flooding e.g. upland catchments (6.2.5e)
- iii. a scoping study to determine the scale, benefits, support and necessary funding for a National Ash Tree Replacement Fund should be commissioned (6.2.5g)
- iv. a review of previous large-scale tree planting grant schemes like the Big Tree Plant (2010-15) and the Task Force Trees initiative of the 1990's, should be undertaken to ensure that any future funding is well targeted and properly used and after-care and survival of the trees is prioritised (8.7.4)
- v. if new trees are to be planted to replace ash, the resilience of the landscape to another pest or disease must be considered, and that strategies such as the Santamour rule should be explored to ensure that the new planting improves landscape resilience (7.9.3).

10.3 The Tree Council's management recommendations are that:

- i. Local Action Plans should be developed and implemented by agencies dealing with Chalara (5.3)
- ii. Defra should explore how others (e.g. local resilience forums) can use the evidence from the the UK Plant Health Risk Register and other risk assessments to inform local resilience forums (5.2.2g)
- iii. best practice for highway tree management and Chalara must be developed by a task and finish working party (8.3.8)
- iv. the electricity sector needs to identify the scale of risk to this part of the national infrastructure (8.5.2) to effectively plan for system resilience
- v. a Chalara resilience review of all national networks should be undertaken, building on the Transport Resilience Review 2014 (6.4.4) and ensuring that contingency plans are created to deal with Chalara and its impact. (8.6.1)
- vi. further work should be undertaken with stakeholders to produce national guidance for the management of ash trees as they become infected with Chalara (6.3.4)

10.4 The Tree Council's safety recommendations are that:

- i. further research and clarification is needed to determine the causes and timescale of ash tree failure (6.4.5h and 6.4.7)

- ii. **pro-active communication of the National Tree Safety Group guidance to land managers should be undertaken as part of the communication strategy for Chalara (6.4.6a) and the development of additional appropriate training for drive-by highway inspections of Chalara should be undertaken (6.4.6c)**
- iii. **future statements on mature trees should not include any timescales for decline of mature trees until further evidence is available and should incorporate the suggestions from the NTSG guidance (7.5)**

10.5 The Tree Council's legal recommendations are that:

- i. **a 'task and finish group' should be established to review felling licence practice in light of the potential issues caused by Chalara (6.2.4f)**
- ii. **central government should produce Chalara guidance for local authority tree and planning officers and for landowners and developers (6.4.3)**
- iii. **central government should update the Transport Resilience Review, and incorporate the increasing hazards and risks that will stem from Chalara (6.4.4c)**

10.6 The Tree Council's other recommendations are that:

- i. **a national communication strategy on Chalara and non-woodland trees should be developed (9.8) and should include one set of national guidance on Chalara and non-woodland trees (9.7) which can be modified locally**
- ii. **a programme of national and regional events for local agencies, community groups and parish councils must be mounted to promote Local Action Plans (5.3), community data collection (5.2.6, 5.2.7) and best practice for the management of Chalara locally**
- iii. **a national 'one stop shop' for non-woodland Chalara information should be established as a matter of urgency; this information would benefit from availability on a website, held by an agency/organisation that local agencies will use (9.8)**
- iv. **the flow of information from central government to local government needs to be improved including developing a briefing system that puts tree disease information into the hands of local authorities including elected members and senior officers. (9.11)**
- v. **a national communication strategy on Chalara and non-woodland trees should provide (9.8):**
 - **Information on a dedicated website that must be available for use by local agencies to adapt for local websites and leaflets**
 - **a public element to the website, but also a resource section, specifically targeted at local authorities and agencies which should include (but is not restricted to):**
 - **template leaflets and other resources for local adaptation**
 - **local survey information**
 - **case studies**
 - **best practice examples**
 - **health and safety information**
 - **regular updating as new information becomes available and any new information needs to be sent to local bodies directly, as were the Tree Damage Alerts from the Tree Advice Trust, so that they do not have to seek out information.**

11. List of Appendices

<i>Appendix 1</i>	Organisations involved in this Study
<i>Appendix 2</i>	Non-woodland Ash Data
<i>Appendix 2a</i>	Devon Highway Survey
<i>Appendix 2b</i>	Volunteer Non-woodland Ash Survey Method
<i>Appendix 3</i>	Tree Council Member Forum
<i>Appendix 4 (part 1 and 2)</i>	Kent Local Action Plan
<i>Appendix 4a</i>	Kent Ash Dieback Guidance
<i>Appendix 4b</i>	Trading Standards Notice on Rogue Tree Surgeons
<i>Appendix 5</i>	Sussex Resilience Forum
<i>Appendix 6</i>	Nottinghamshire County Council Briefing Paper
<i>Appendix 7</i>	Suffolk Chalara Action Toolkit
<i>Appendix 8</i>	Network Rail Staff Briefing 1
<i>Appendix 8a</i>	Network Rail Staff Briefing 2
<i>Appendix 9</i>	Chalara and Landscape Character
<i>Appendix 10</i>	Ancient Tree Forum Chalara Statement
<i>Appendix 11</i>	National Tree Safety Group Chalara Note
<i>Appendix 12</i>	Reading Tree Warden Chalara Note
<i>Appendix 13</i>	Chalara and Larger Trees
<i>Appendix 14</i>	Bibliography and References