

# ASH DIEBACK:

---

*an Action Plan Toolkit*

First published **February 2019**





# CONTENTS

<b>1. INTRODUCTION</b>	<b>3</b>		
An Ash Dieback Toolkit	4		
Why is a plan for ash dieback necessary?	6		
<b>2. THE TOOLKIT</b>	<b>9</b>		
<b>Part 1: Raising awareness</b>	10		
<b>Step 1: Learning about ash dieback</b>	11		
• What is ash dieback?	11		
• How to identify ash dieback	15		
• Where is ash dieback found?	16		
<b>Step 2: Assessing the impact on your organisation</b>	17		
• How many ash trees?	17		
• Collecting local ash tree data	18		
• Potential costs of ash dieback	20		
<b>Step 3: Making a case for an Ash Dieback Action Plan (ADAP)</b>	23		
• Corporate risk	23		
• Health and safety impacts	24		
• Economic impacts	24		
• Reputational damage	24		
• Environmental impacts	24		
<b>Summary:</b>			
<b>The need for an Ash Dieback Action Plan</b>	27		
<b>Part 2: Preparing an Ash Dieback Action Plan</b>	28		
• How to prepare an Ash Dieback Action Plan and what should be in it	28		
<b>Step 1: Compiling an assessment of ash trees</b>	29		
• Ash tree health	30		
• Basal lesions	32		
• Survey recommendations	33		
• Management implications of the Ash Health Class system	34		
		<b>Step 2: Engaging colleagues with ash dieback and the need for a plan</b>	35
		• Health and safety impacts	36
		• Economic impacts	36
		• Reputational impacts	36
		• Environmental impacts	36
		<b>Step 3: Creating an Ash Dieback Action Plan</b>	37
		• Recommended components of an Ash Dieback Action Plan	38
		<b>Step 4: Setting up an internal and/or external plan delivery group</b>	38
		• Existing ash dieback local authority plans	40
		<b>Part 3: How to take action and respond to ash dieback</b>	41
		<b>Action 1:</b> Developing a communications plan for internal and external audiences	41
		<b>Action 2:</b> Understanding biodiversity and ash loss	42
		<b>Action 3:</b> Developing a common position for ash dieback and current legal practices	43
		<b>Action 4:</b> Managing ash dieback in high-risk areas	43
		<b>Action 5:</b> Leaflet and bio-security toolkit/guidance	43
		<b>Action 6:</b> Volunteer recording of the decline in ash trees	44
		<b>Action 7:</b> Highway clearance	44
		<b>Part 4: Recovery and adaptation</b>	45
		Preparing and developing a tree strategy	47
		Recovery strategy	48
<b>3. CONCLUSIONS</b>	<b>50</b>		
<b>4. ACKNOWLEDGEMENTS</b>	<b>52</b>		
Acknowledgements, funding and disclaimer	53		
<b>5. FURTHER RESOURCES</b>	<b>54</b>		
Further ash dieback resources	55		



Section

# 1

## Introduction





# 1. Introduction

**Ash dieback, *Hymenoscyphus fraxineus* (also known as *Chalara fraxinea*), is the most significant tree disease to affect the UK since Dutch elm disease which was first recognised in the 1960s. It will lead to the decline and death of the majority of ash trees in Britain and has the potential to infect more than two billion ash trees<sup>1</sup> (over 1.8 billion saplings and seedlings to more than 150 million mature trees) across the country.**

Given that ash is widespread across our landscape, including alongside roads and streets, managing ash dieback will lead to a shift away from 'business as usual' towards new demands and priorities for resources. This Toolkit has been developed to assist Local Authorities and other regional bodies as they work proactively to manage the impacts of the disease on non-woodlands trees.

Since the arrival of ash dieback, The Tree Council has led widespread research into early responses and coping strategies of public landowners to this new disease. Inevitable increases in dangerous and dying ash trees will necessitate widespread removal for safety reasons. However, findings indicate that many Local Authorities and other agencies are not prepared for the scale of resources that will be needed to deal with the public safety issues arising from this tree disease. Nor are they prepared for the aftermath. Ash trees currently provide supporting, regulating, provisioning and cultural gains, including increased land values and public well-being. Planned replanting will be needed to recover the vital ecosystem service benefits of the removed ash trees. ➡



Group of ash trees infected with ash dieback © Jon Stokes



A strategic and co-ordinated local response is required to deal with the multiple issues that ash dieback presents. This Toolkit is designed to assist Local Authorities and other regional or local agencies to prepare an **Ash Dieback Action Plan** (ADAP) to respond to the problems that the affected trees will create.

This Toolkit contains resources and materials created by Local Authorities and other agencies as they prepared to manage the impacts of ash dieback. These examples are presented throughout the report. They are mostly works in progress and supplied with the generous agreement of the agencies and bodies who created them. We hope to receive feedback from others as they develop their own ADAPs. Through this process, ash dieback best practice will develop and as new materials or amendments to these examples become available, we will update this document.

This Toolkit is a step-by-step guide to producing an effective ADAP and includes examples from Local Authorities who are currently active in managing their ash trees. For an up-to-date list of all the resources referenced in this document, please visit [www.treecouncil.org.uk/Ash-Dieback](http://www.treecouncil.org.uk/Ash-Dieback)

### **The Toolkit comprises four parts:**

- **Part 1:** Raising awareness of ash dieback and the issues it may cause
  - **Part 2:** Preparing the ADAP
  - **Part 3:** How to take action and respond to ash dieback
  - **Part 4:** Recovery from ash dieback ➤
-



## WHY IS A PLAN FOR ASH DIEBACK NECESSARY?

**Ash dieback will lead to changes to our landscape and tree populations<sup>2</sup>, changes to biodiversity<sup>3</sup> and landscape character<sup>4</sup> and potentially increase effects such as flooding caused by the way water interacts with the environment<sup>5</sup>.**

The national cost of removing trees with ash dieback is difficult to calculate but the health and safety implications of affected roadside trees will require significant investment. For example, Kent County Council (KCC) has estimated that managing the decline of ash adjacent to Kent's roads and by-ways could eventually require safety interventions affecting some 500,000 individual trees<sup>6</sup>.

The scale of health and safety risks caused by ash dieback alone will mean that it will not be 'business as usual' for any organisation managing ash trees.

Tree failures could translate into an increase in the number of people harmed by trees and a potential increase in property claims. Organisations will need to review and, where necessary, make changes to tree safety management regimes and practices<sup>7</sup>.

Our research has found that Local Action Plans should be developed and implemented by agencies dealing with ash dieback. This recommendation was based upon discussions with Local Authorities who felt unprepared for the impacts of ash dieback. It is also based on research by the Food and Environment Research Agency (Fera Science Ltd)<sup>8</sup> on the management of Dutch elm disease, which caused the loss of 30 million trees. ➡

<sup>2</sup>See page 13 of: *Chalara in Non-Woodland Situations: Findings from a 2014 study*

<sup>3</sup>*Assessing and addressing the impacts of ash dieback on UK woodlands and trees of conservation importance*

<sup>4</sup>*Chalara in Non-Woodland Situations: Findings from a 2014 study*

<sup>5</sup>*The potential of tree and hedgerow planting to reduce the frequency and impact of flood events in the UK*

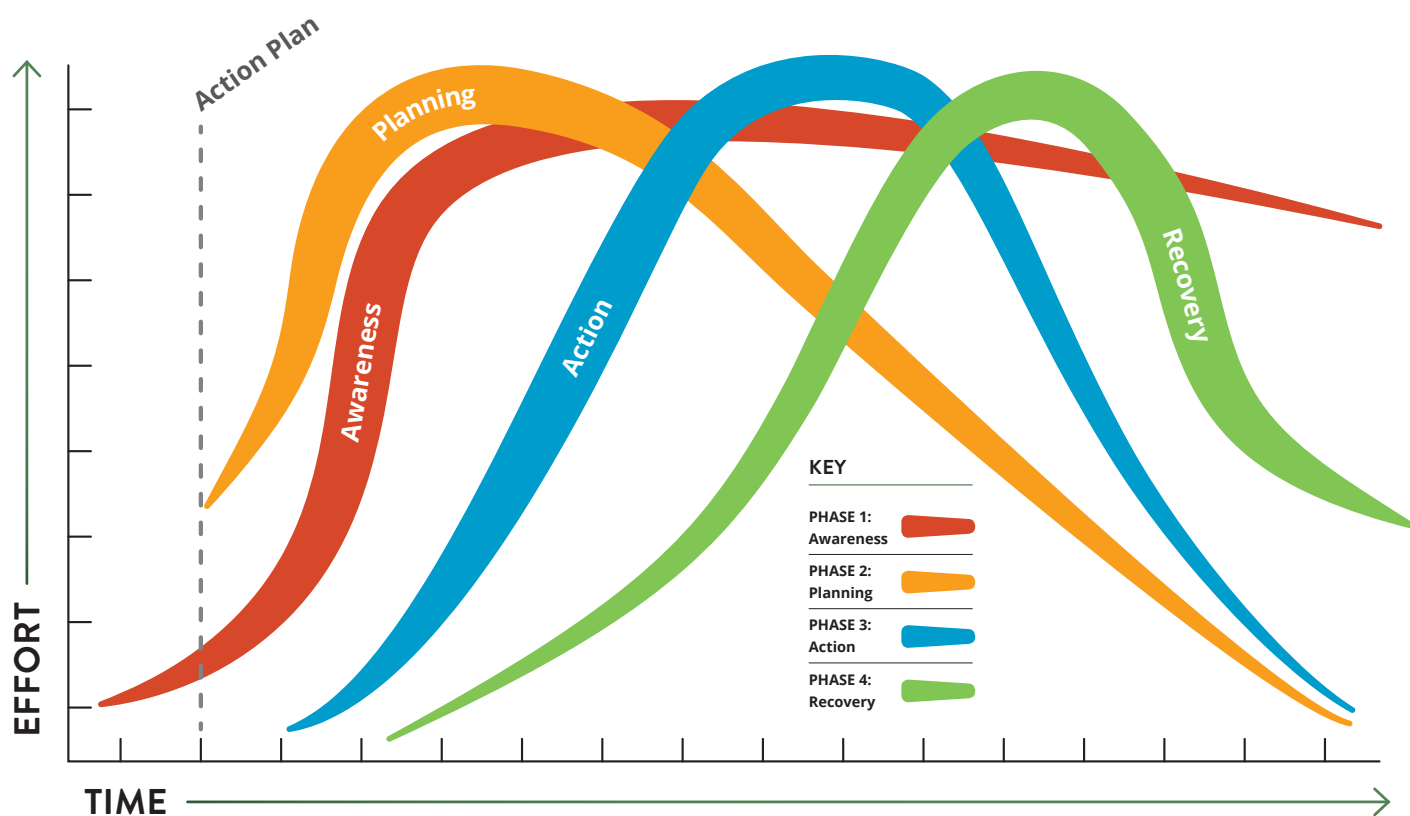
<sup>6</sup>KCC personal communication

<sup>7</sup>NTSG Statement January 2015

<sup>8</sup>*Dutch Elm Disease management in East Sussex. Lessons for other tree health management schemes.* Fera Science Ltd (2013).



**Figure 1** shows the four key parts of a response to a potential or current tree pest or disease. It is based upon the widely used protocols of Emergency Planners and was the basis of the Kent response to ash dieback. ➔



**Figure 1: Phases of management of a tree pest or disease**



### **The elements in this model are:**

- **Awareness/anticipation:** raising awareness about ash dieback and the issues it may cause and realising that work needs to be undertaken to understand and deal with the problem.
- **Planning/assessment:** preparing and developing an ADAP to help manage the problems caused by the ash dieback.
- **Action/response to ash dieback:** undertaking actions (e.g. felling trees) to remedy the problems faced due to ash dieback.
- **Adaptation and recovery from ash dieback:** landscape restoration in the wake of ash dieback, an essential element of any emergency process.

These four elements comprise the basis for an ADAP. One vital element of the Awareness curve is the requirement to devise a Communications Plan – see **Part 3 (Action 1) of the Toolkit on page 41**.

### **The ADAP Toolkit aims to:**

- increase understanding of the implications of ash dieback
- provide a local/regional framework for preparing an ADAP
- work at the county level, but be adaptable to any scale
- focus around the tactical issues that an organisation may face but incorporates the need to deal with the strategic impact of tree pest and disease on the wider treescape.

We are early in our understanding of the best approaches for dealing with ash dieback. As understanding deepens, the Toolkit will be updated and expanded. It is based around work being undertaken by several Local Authorities at the forefront of dealing with ash dieback infection and provides examples of the processes they have taken to gain the required resources to begin remedial work. ❌

---



Section

# 2

## The Toolkit







## The Toolkit

### PART 1: RAISING AWARENESS

**To make the case for organisational time and resources to be spent on developing an Ash Dieback Action Plan (ADAP), it is necessary for each interested body to understand the potential impacts on its organisation or area.**

---

Based upon the literature and actions of a number of Local Agencies, a logical, consistent and robust response to ash dieback should be built on the following steps:

- **Step 1: Learning about ash dieback** and deciding if it presents a risk to an organisation and its practices/procedures. This includes understanding the disease, how to identify it and where it is found.
  - **Step 2: Assessing the scale of the impact** on the organisation (e.g. understanding how many ash trees are in your area/you own or manage). This includes how to collect data and estimate the number of ash trees and the potential costs of the problem.
  - **Step 3: Making the case to managers/budget holders for an ADAP** to be created to deal with the problems that will be caused. This includes assessing corporate risk. ➤
-



## Step 1: Learning about ash dieback

### WHAT IS ASH DIEBACK?

Ash dieback, sometimes known as *Chalara*, affects ash and other *Fraxinus* species of trees and is caused by a fungal pathogen.

The fungus, *Hymenoscyphus fraxineus* (also known as *Chalara fraxinea*), arrived from Asia to Europe during the 1990s and spread rapidly across Europe. Although the first official record in Britain was in 2012, evidence<sup>9</sup> now suggests it arrived here earlier, with analysis demonstrating trees dying from the fungus in 2004.

This invasive fungus causes a range of symptoms from foliar leaf spots to branch dieback to the death of *Fraxinus excelsior* (ash) trees and some other *Fraxinus* species. Once infected, most trees will die. A few ash trees may survive the infection because of genetic factors which give them tolerance to the disease. In non-woodland situations, the percentage of the UK's ash trees that are likely to be tolerant to the fungus is uncertain. In woodlands, evidence in December 2018 suggests mortality rates may be between 70% and 85%. Evidence from Europe suggests that around 10% of trees were found to be moderately tolerant to the disease, with 1-2% having high levels of tolerance. The environment also has a role in how trees decline from ash dieback, with trees growing outside of optimal conditions declining more quickly.

The precise speed of decline of any individual tree is currently impossible to predict and will be influenced by other factors including soil type, soil moisture levels and topography. ➡



Ash leaves wilting due to ash dieback © Jon Stokes



A roadside ash in **Ash Health Class 4** © Jon Stokes



As one example, the photographs in **Figure 2** show the change in one tree in Devon over one season (photographs taken 06/07/16 and 07/07/17). The pictures show a 10%-15% decline in the canopy in a single season, and anecdotal reports from areas of the UK currently infected by ash dieback support this as a typical rate of decline. However, some individual trees (depending on their health and condition) can decline much more rapidly and will need to be monitored. Some mature ash trees with ash dieback can die more rapidly if other pathogens like honey fungus (*Armillaria*) are also present.

Infection mostly occurs through sexually produced ascospores landing on leaves, but infection can also occur at the base of trunks (the root collar), probably entering the tree through lenticels. ➡



Images from left: © Rob Wolton, Jon Stokes

**Figure 2: Change in one tree over one season**



The wind-borne ascospores are produced from fruiting bodies (small white mushrooms) on the central stem (the rachis) of last year's fallen ash leaves (**see Figure 3**).



© Jon Stokes

**Figure 3: Fruiting bodies on the central stem of last year's leaves**

As it grows, the fungus destroys the infected tree's phloem and xylem, which results in the tree being unable to move water and nutrients around its structure. This lack of water and nutrient movement will cause the branches of the tree to fail and the tree 'dies back', hence the name. Repeated loss of nutrition and water, the depletion of energy reserves because of the lack of leaves, and the invasion of secondary root killing pathogens (e.g. *Armillaria*), causes the tree to become brittle, lose branches and eventually succumb to the disease. ➔



Where basal lesions are observed (**see Figure 4**) these can develop into a butt or root rot and the affected trees can become unstable and dangerous very quickly. The rot is usually associated with other secondary pathogens such as honey fungus and can occur without any obvious dieback symptoms in the canopy. This makes identifying 'dangerous' ash trees considerably harder. Basal lesions have been seen extensively across Europe and seem to be associated with areas of dense ash populations, and therefore spore load, where infection has been present for a long time. In particular, wet woodlands seem to be at highest risk from this form of infection in Europe but further evidence is needed to assess the UK context. For more detailed information on the biology of ash dieback [see this research by the Forestry Commission](#). ➔



© Jo Clark: Future Trees Trust

**Figure 4: Basal lesions on an ash tree**



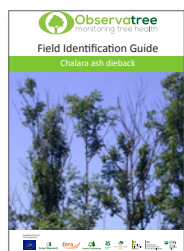
## HOW TO IDENTIFY ASH DIEBACK

Recognising the visual symptoms of ash dieback is essential to assess the current health of the ash tree population – a necessary step to understanding the severity of the disease in an area. To help with identification, there are a variety of online resources available.

Examples include:



- [The Forestry Commission dieback identification advice](#)



- [The Observatree ash dieback identification guide](#)



- [The Tree Council ash dieback symptoms guide](#)



- [The Tree Council guide to symptoms in large trees](#)

The disease can affect ash trees of all shapes and size. While the symptoms are easily visible in young trees, they are often harder to recognise in more mature trees (see **Box Six on page 30**). ➡



## WHERE IS ASH DIEBACK FOUND?

Ash dieback was first recorded at a nursery in Buckinghamshire in February 2012. This was followed by the identification of the infection of a new planting in a car park in Leicestershire in May, and subsequently on young trees in Ashwellthorpe Woods in Norfolk in the autumn of the same year.

By May 2018, this fungal disease was found widely throughout the UK and it is now evident in 44.8% of UK 10km squares and in nearly two-thirds of England's 10km squares. **You can see an interactive distribution map of ash dieback [here](#) courtesy of Fera Science Ltd.**

However, the fungus may actually occur over more of the UK than has been officially reported, as the symptoms can be difficult to detect, especially in large trees. Just because an area of the UK may not currently be shown on the maps to have ash dieback, it does not mean it is not there. **If you suspect ash dieback in a 10km grid square then this should be reported through [Tree Alert](#).**

The official maps also only show presence and absence of the fungus and not the levels of infection in any area. Therefore, it is essential that land managers monitor the locations and spread of the disease in any locale (see **page 18** 'collecting local ash tree data') as it is important to understand the levels of infection in an area. ➔

---



Dying ash trees in Ashwellthorpe Woods in 2017 © Jon Stokes



## Step 2: Assessing the impact on your organisation

### HOW MANY ASH TREES?

To understand the scale of the potential impact of ash dieback on your organisation, it is necessary to gather all available data to estimate how many ash trees are in an area and/or are managed by the organisation.


It has been estimated that there are more than two billion ash trees in the UK, a figure that includes all trees from seedlings through to mature trees.<sup>10</sup> Of these, 125.9 million are trees located in woods and another 27.2–60 million trees (using the same definition) are situated in non-woodland areas. This is according to the Forestry Commission definition of a ‘tree’ as having a stem greater than 4cm diameter at 1.3 metres above the ground.<sup>11</sup>

In the urban environment:

- **It is estimated that there are four million urban ash trees in the UK, 4.1% of the total 89 million urban trees**
- **Highways England estimates that there are at least four million ash trees next to their road network**
- **Network Rail estimates there are 400,000 large ash trees adjacent to the rail network.**

Further details on the number of ash trees in Britain can be found in [\*\*Ash Dieback in Non-Woodland Situations\*\*](#).

These ash tree numbers simply provide national context and cannot give a picture of the local situation. The specific impact of ash dieback will depend upon the number and distribution of ash in any given area.

A further set of data was produced by the Centre for Ecology and Hydrology (CEH) who in 2012 used the Countryside Survey Dataset to produce a map (**Figure 5**) which showed the density of ash around the UK. 



For further details of this work see this [update](#) from CEH, and the [full report](#).

To understand the local impact of ash dieback, an assessment of the ash population and its distribution is required. To achieve this, organisations need to collate all locally available information on ash and also potentially undertake some specific local ash tree data gathering.

### COLLECTING LOCAL ASH TREE DATA

The best starting point is to assemble all the existing local ash data from any source, such as the Forestry Commission's National Inventory of Woodland and Trees, Local Authority Tree Preservation Orders or Public Realm Tree Surveys, Ancient Tree Hunt data or records from the local Biodiversity Record Centre. In Herefordshire, the authority aimed to investigate those ash trees adjacent to the highway or on council-owned land which could cause a problem if they died or fell on to the highway or a public space. During the summer of 2016, Herefordshire Council staff collected data to determine the potential number of ash trees within the county (see **Box 1** for their review and the sources of information used). ➡

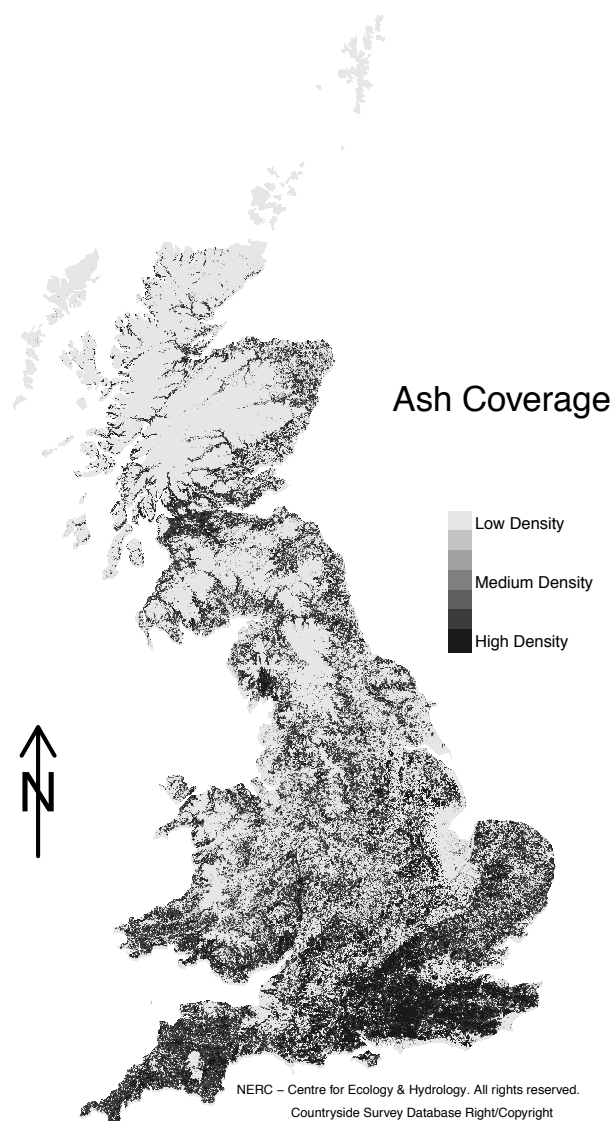


Figure 5: Ash coverage map



## BOX 1 Herefordshire ash assessment

During the summer of 2016, Herefordshire Council staff collected data to determine the potential number of ash trees within the county. There were no dedicated staff or financial resources allocated to this process and all data accessed was freely available, or available internally within the authority. Time to collate the information was estimated at 18 hours spread across several months and required extensive local knowledge.

### FINDINGS INCLUDE:

- Ash is an abundant tree in Herefordshire featuring highly along linear features such as hedges, roads, railways and riversides.
- Best available figures suggest there are now in excess of 500,000 full grown or nearly mature ash trees outside woodlands in the county; ash is the most numerous hedgerow tree and provides more than 50% of the non-woodland tree canopy cover of the county.
- Ash-dominated woodland covers more than 6,500 hectares (more than 25%) of all broadleaved woodland in Herefordshire (National Inventory of Woodland and Trees [Hereford & Worcester], Forestry Commission, 2003 – data 1997). Ash is also present within urban areas: council-managed public open space contains more than 2,600 mature ash. Herefordshire is in the top 10 counties for the percentage of its coverage which comprises ash canopy in woodland.
- The Woodland Trust Ancient Tree Inventory lists 8,328 “ancient, veteran or notable” ash trees in England with more than 6% (531) in Herefordshire (correct as at 25/11/2016).
- The biodiversity value of ash as a host species is extensive: over the past 10 years there are 451 records held by the Herefordshire Biological Records Centre (HBRC)<sup>12</sup> for species on this ‘red’ list (data supplied November 2016).
- It is estimated that there are in excess of 120,000 ash trees growing beside Herefordshire’s more than 3,250km of public roads and an equal or even greater number potentially impacting the 3,360km of public rights of way in the county. This is based on data extrapolated from highway surveys in Devon and Norfolk.
- Ash species are included in the descriptions of 79% of the council’s registered Tree Preservation Orders.

Herefordshire Council Public Realm Tree Safety Surveys 2010 and 2012

For further details [see the full assessment here](#).



Once any existing data has been drawn together, it is highly likely that additional data will be needed. This can be collected via targeted surveys focused on ash. However, experience suggests that these surveys are usually commissioned as part of the development of an Action Plan rather than at this initial stage. Further details are presented in **Box 7 on page 31**.

### POTENTIAL COSTS OF ASH DIEBACK

Once there is an estimate of the number of ash trees in an area the next step is to calculate the potential budgetary costs to the organisation. Scenario planning can aid this process – for example, asking questions like:

- *What would be the impact on expenditure and risk if 60%/75%/90% of ash trees in the area are in decline/dead because of ash dieback in the next 5–10 years?*
- *What resources are required if a high number become dangerous in a single season?*

---

**When estimating the resources required you should ensure that your costings cover:**

- |   |   |
|---|---|
| • additional survey work  | • staff time to deal with requests to fell ash trees that have TPOs                                 |
| • additional practical tree management costs e.g. felling dangerous trees                 | • additional costs of any replacement planting that may be undertaken                               |
| • additional staff time to work with private owners to ensure dangerous trees are removed | • other additional staff or consultant costs  |
| • staff time to deal with increased public reaction e.g. requests to fell                 | • additional communications and consultation needed to explain ash dieback to relevant stakeholders |
- 

Not all of these will be appropriate in all circumstances. This exercise has been undertaken by one County Council and their first estimates can be seen in Box 2. Calculations were also undertaken by a Borough Council to estimate their potential costs when ash dieback hit their trees; this can be seen in Box 3. Unlike the County Council figures, the Borough figures do not include the replacement of any private trees but are focused around those owned or managed by the Council. ➡

---



## BOX 2 County Council assessment of budget implications

### Basic statistics:

**6,020**

ash trees recorded on adopted **highway verges**

**120,000**

estimated number of ash trees in **private ownership and within falling distance of the highway**

**1,546**

ash trees recorded in **school grounds**

**5,968**

estimated number of recorded **woodland ash adjacent to public areas**

**83%** of the recorded ash trees are 6 metres plus in size  
(the size that requires work to be undertaken to remove safety risks)

### Cost implications of removal:

**Assumption:** **75%** mortality rate with **£400** average cost of removal (excluding inspection)

**Adopted highway verges:** **83%** of 6,020 trees x 75% mortality rate @ £400 each = **£1,499,000**

**Private ownership adjacent to highway:** **83%** of 120,000 trees x 75% mortality rate @ £400 each = **£29,880,000**

**School grounds:** **83%** of 1,546 trees x 75% mortality rate @ £400 each = **£385,000**

**Woodland adjacent to public areas:** **83%** of 5,968 trees x 75% mortality rate @ £400 each = **£1,468,000**

### Tree planting to address loss:

Based on a Free Tree Scheme for 83,127 trees lost on local authority owned land and adjacent to the highway, @ £15 per tree = **£1,246,905**

**Total potential costs at 75% mortality = £34,478,905**  
(10% change in mortality equates to +/- £6.7m)



### BOX 3 Borough Council assessment of budget implications

This Borough has a mixture of *Fraxinus* species in their area but by far the most predominant is *Fraxinus excelsior*, with 1,115 ash trees under their management, which represents 7.5% of their managed tree stock.

Their tree population of *Fraxinus excelsior* comprises: 665 trees with a stem diameter up to 30cms; 413 trees with a stem diameter 30 to 60cms; 37 trees with a stem diameter 60 to 90cms.

Using their figures to remove these trees would cost an additional:

**60% loss** Remove and stump grind = **£140,299**

**75% loss** Remove and stump grind = **£158,168**

**90% loss** Remove and stump grind = **£176,037**

In addition, there would be an increase of 254% in the current safety inspection costs.

The replacement costs for the ash trees would range from

**£117,075** (60% loss) to **£175,612** (90% loss)



In both Local Authorities and other agencies, the costs of removal and replacement have been looked at. In the County example, where there are potentially many more trees to replant but a smaller cost per tree (£15) the removal/replacement spending ratio is weighted heavily toward the costs of removal.

However, in the Borough example the costs of £175 per tree (larger trees being planted in more urban environments) push the removal/replanting ratio much closer to parity.

Once the first estimates on ash trees numbers and the potential costs that come with ash dieback have been collated, the information will form the basis for the next step of the process – making a case for an ADAP.

### **Step 3: Making a case for an Ash Dieback Action Plan (ADAP)**

---

To make the case for an ADAP, it's important to consider not only the potential practical costs that may occur for the organisation (see Step 2 above), but also the risks posed to the organisation as identified in the corporate risk register. Reviewing both together allows a determination of whether ash dieback presents a risk to the organisation's operations.

#### **CORPORATE RISK**

In our discussions with Local Authorities, the potential impacts of dying and dangerous trees as a result of ash dieback have always been accepted as posing a significant corporate risk. Creating an Action Plan to manage these risks has been recognised as the simplest way to ensure an organisation can effectively combat ash dieback and the problems it brings. ➤

---



The following are examples of how ash dieback may impact a corporate risk assessment:

### HEALTH AND SAFETY IMPACTS

- Potential for death or injury as a result of ash dieback related accidents, both to professionals working on trees and to the general public
- Increased health and safety issues due to declining ash trees on roads, owned and managed land such as in county parks, housing estates, schools, cycleways, bridle paths and footpaths
- Risks to statutory functions or service delivery such as retaining safe schools, public open spaces or highways
- Risks to staff and user community from trees on adjacent land falling into your estate
- Risks from falling ash to your infrastructure such as fencing, signs, equipment stores.

### ECONOMIC IMPACTS

- Increased liabilities in cases of death or injury as a result of ash dieback related incidents
- Inadequate staffing levels and the ability (or inability) to undertake the work required resulting in increased costs to recruit and retain the necessary staff
- Increased expenditure from direct and indirect cost due to ash dieback e.g. additional staff and management activities, and the impacts this may have on other services and budgets
- Additional costs of the disposal of waste products from felled ash entering the waste management system
- Increasing prices as a result of market competition for a limited pool of skilled tree contractors
- Increased direct/indirect costs due to increased flood risk resulting from changes in the way water may be held back by tree roots, or absorbed into the soil, or taken up by ash trees
- Costs of replanting needed to retain ecosystem services provided by ash e.g. flood reduction, urban shading, carbon storage and habitat for biodiversity
- Increased liabilities as a result of risks to adjacent land and 'third party' property from your trees falling/shedding branches
- Drop in market prices for ash wood products due to excess ash on the market.

### REPUTATIONAL DAMAGE

- Potential for disruption as a result of ash dieback management e.g. widespread road closures to deal with potentially dangerous trees
- Political and reputational risks as a result of negative press over ash dieback management and public outrage and/or anxiety
- Potentially strained relationships with land owners and managers as ash dieback spreads and increased costs fall on the private owners.

### ENVIRONMENTAL IMPACTS

- Landscape changes with impacts on tourism and recreational opportunities
- Losses to ecosystem services such as reductions in air quality, potential for increased flooding, biodiversity losses, increases in noise levels adjacent to roads, losses of visual screens
- Risks to protected species/sites through alteration of habitat structure, stability and composition e.g. loss of bat breeding/feeding sites
- Losses of carbon storage and sequestration
- Loss of biodiversity from the decline or extinction of species which are largely or entirely dependent upon ash. ➔




























## BOX 4 Pest and disease triage and risk registers

To enable ash dieback to be added to their emerging corporate risk register, West Sussex County Council developed and are trialling a 'triage' system to assess the risk posed by any pest or disease.

During 2017, they used the 'triage system' to demonstrate the potential impacts of ash dieback and to justify the resources needed to develop an ADAP. The suggested process is as follows:


- *Relevant officers are alerted to a new pest/disease threat by Defra and its agencies*
- *The impact of the pest or disease is 'triaged' against the risks identified in the West Sussex Community Risk Assessment and organisational risk register which include the following:*
  - **Resource risk:** loss of environment value, such as ecosystem services at a habitat scale, and economic value in the shape of budget, staff, direct and indirect costs
  - **Risk to statutory duties/functions/service delivery:** as highway authority (including public rights of way) and as landowner: schools, other properties and landholding
  - **Political/reputational risk:** public outrage/public anxiety
  - **Health and safety risk:** fatalities/casualties/social disruption.

Risks are categorised against each item in the risk register as follows: LOW:  MEDIUM:  HIGH: 

LIKELIHOOD						
IMPACT		1 – Very Unlikely	2 – Unlikely	3 – Possible	4 – Likely	5 – Certain
	1 – Insignificant					
	2 – Minor					
	3 – Moderate					
	4 – Significant					
	5 – Catastrophic					

The rankings of each item are taken independently (not aggregated or averaged), and the highest-ranking impact determines the 'triage' outcome below. This allows the County Council to respond to the pest or disease appropriately. The 'triage' pathway includes the following options:

1. **If the impact of the pest or disease is insignificant to minor (1 or 2 in the table) to the organisation or area, the pest/disease should be reviewed at least annually to ensure no change. If the national threat (as defined by Defra) posed by the pest or disease is changed within the year, then the pest/disease should be re-triaged.**
2. **If the impact is moderate (3 in the table), information about the pest/disease should be monitored regularly. If the pest/disease is present in the area, then monitoring of the extent/impact may need to be undertaken. If the national threat posed by the pest or disease (as defined by Defra) is changed, then the pest/disease should be re-triaged.**
3. **If the impact on the organisation is significant or catastrophic (4 or 5 in the table) – then the organisation should prepare and enact a Pest or Disease Local Action Plan.**

During its development, it became clear that it could also be applied to any pest/disease. For further details on West Sussex's process framework for decisions on priorities for action [see here.](#) 



West Sussex's pest and disease triage is influenced by the Sussex Resilience Forum's Community Risk Assessment ([see here](#)). Using these thresholds and the available information on the pest/disease, the County Council has been able to make a comparable assessment of the likely impact of ash dieback on the various elements of the County's risk framework. This has resulted in the production of a local plant health risk register based on the [UK Plant Health Risk Register](#). This is a live document to monitor and record the threats. Ash dieback registered several 'significant' impacts against their risk register and therefore warranted an Action Plan, which is currently being developed.

Every organisation will have different elements and thresholds for its risk register but using this approach may help in establishing the need for an ADAP. ➔



## Summary: The need for an Ash Dieback Action Plan

Proactive management of trees and risks is more cost effective than reactive management, and to proactively manage ash dieback, you need to communicate that:

- **There will be dead/dying ash trees:** the spread of ash dieback will cause a significant proportion of all ash trees to decline or die. This will financially and practically impact every organisation responsible for vegetation management.
- **There is only a short period for preparation:** death of mature trees may happen after only a few years of infection, so an organisation may not have long to prepare for the impacts of ash dieback and its additional costs.
- **The scale of the impact must be assessed:** the scale of the problems posed by ash dieback is likely to be significantly greater than the impact of Dutch elm disease (as there are at least twice the number of ash trees in public spaces as there were elm trees). This includes the additional costs attached to managing the decline of ash. Being reactive to the problem is likely to be more expensive than planning your response through an Action Plan.
- **It will impact corporate risk:** ash dieback will impact corporate risk registers particularly in respect of risks to statutory functions or service delivery, increased potential for deaths or injuries, budget impacts, risks to infrastructure, increased liabilities, risks to staff and 'user' communities, as well as political and reputational risks.
- **There will need to be changes in management practices:** changes to tree management practices will be necessary as ash dieback spreads.
- **Working with others for efficient joint responses:** the response to ash dieback needs to be planned, to avoid working in silos and conflicting with other local policies such as landscape and biodiversity policies.
- **Communication and collaboration is key:** a plan will provide better opportunities for communication and discussion and provide opportunities for agencies to work strategically together to share costs and responsibilities. ➔



### It is vital to understand that ash dieback will not be 'business as usual'.

Ash dieback is either already in an area or is likely to be in the next few years with potentially serious practical and financial impacts to many areas and organisations. Therefore, to manage ash dieback effectively a collective, co-ordinated approach across organisations and areas is recommended.



## PART 2: PREPARING AN ASH DIEBACK ACTION PLAN

### HOW TO PREPARE AN ASH DIEBACK ACTION PLAN (ADAP) AND WHAT SHOULD BE IN IT

The development of an ADAP requires a number of different approaches depending on available staff and resources. The length of time to produce a Plan will also vary depending on the complexity of the organisation/area and the resources available to undertake the work.

Experience over the last four years has shown that the preparation of a fully functioning Plan may take anything from three to four months to over a year.

**Table 1** shows the process that you are likely to undertake as you prepare and then deliver an ADAP, including an estimate of the timescale it may take to achieve the task, based on experience. Many of these stages can be run simultaneously. ➤

TOTAL TIME	
ACTIONS	Step 1: compile an assessment of your ash trees and their health
	3–6 months (average)
	Step 2: set up cross-organisational meetings on ash dieback
	1 month
	Step 3: prepare the Plan
	3 months to 1 year
	Step 4: set up an internal and/or external steering group to deliver the Plan
	3 months to 1 year

Table 1: Estimated total time for preparing an ADAP



## Step 1: Compiling an assessment of ash trees

Undertake an initial desktop exercise of the available information about the ash tree population as described in **Box 1**.

Where data is limited, some targeted data collection is likely to be necessary. This might cover items such as high-risk location ash numbers, age classes, geographical hotspots of ash and, where possible, an assessment of their health.

As an example, during the summer of 2014, Devon County Council staff collected data from across the county to determine the potential number of highway trees within the county (see **Box 5**). ➔

### BOX 5 Devon County Council Highway Survey

In summer 2014, a total of 440km of Devon roads were surveyed. This comprised trees on 30km of A-roads (divided into three 10km sections) in each of Devon's eight district council areas. The survey took in the coast, high ground, farmland and moors to give a good geographical and environmental cross-section of each district.

Trees on other road classes were counted using videos produced for highways assessment. Ten kilometres of class B, C and unclassified road were counted in each district, again counting both highways and private trees.

All ash trees (public and private) that were within falling distance of the highway were counted. Two age classes were recorded: under and over forty years. Extrapolation from this data suggested that in Devon there were an estimated 447,639 ash trees within falling distance of the highway. For further details [see here](#).



## ASH TREE HEALTH

During the development of this Toolkit it became clear that when gathering data on an ash tree population, it is sensible to assess the current state of ash tree health at the same time.

It can be difficult to identify the symptoms of ash dieback in larger trees. During 2014, Suffolk County Council developed a system to describe the health of an ash tree using a four-part categorisation focused on the state of the ash tree's canopy as a proxy for overall health (see Box 6).

It is important to note that poor condition of the canopy might not be a result of ash dieback. Other problems such as drought stress, root problems or even wood pigeon damage can cause the ash tree canopy to decline. In addition, surveys of the tree canopy, will not reveal other signs of infection such as basal lesions. However, in the absence of other easy-to-recognise characteristics in large trees, canopy cover is a useful proxy for health and is relatively easy to assess. ➔

### BOX 6 Suffolk County Council Ash Health Assessment System

In Suffolk, the canopies of the ash trees are scored, assessing the percentage of the crown that remains. Using this four-category framework allows a tree to be assigned to a health category, which informs subsequent potential action. The four categories are:

- **100%–75% remaining canopy**
- **50%–25% remaining canopy**
- **75%–50% remaining canopy**
- **25%–0% remaining canopy**

For further details [see here](#) which includes the four reference photographs which are benchmarks for the percentage of the canopy remaining (also shown below).



All images © Gary Battell



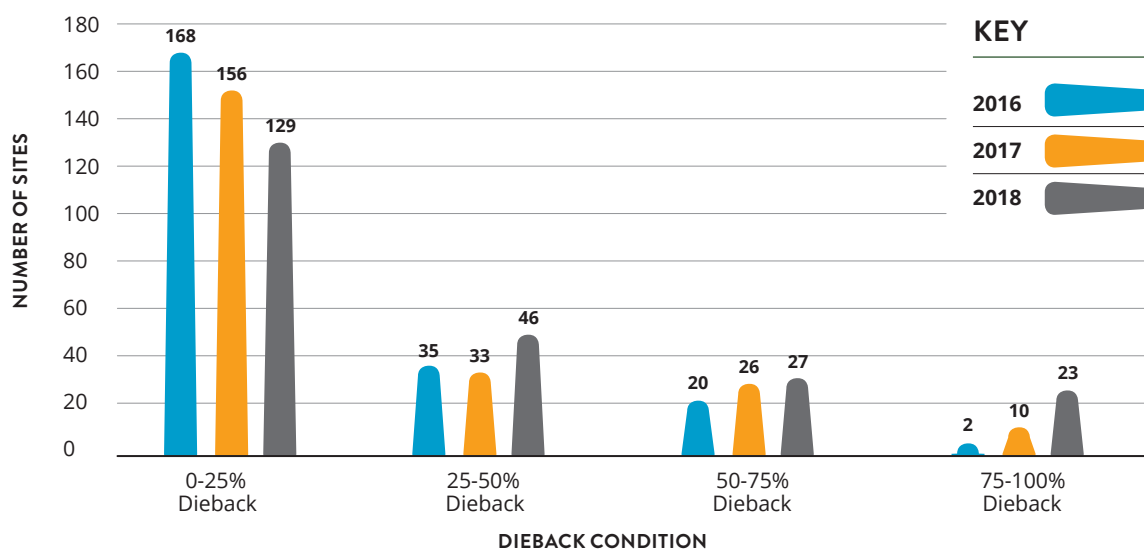
During 2016, 2017 and 2018 Norfolk County Council undertook a sample survey of the number of highway ash trees and adapted the Suffolk system for assessing ash tree health, adding two extra classes. During their survey, they recorded ash tree health in the [four-category Suffolk system](#) and added 100% healthy and 100% dead trees which shows the percentage of crown remaining. The summary of the health data is shown in **Box 7**. ➔

## BOX 7 Norfolk County Council (NCC) Highway Ash Survey

In 2016 and 17 NCC surveyed all ash trees within falling distance of A, B and some minor roads representing 20% of NCC's road network. Over 30,000 trees were assessed. Statistical analysis (Fera Science Ltd) indicates an estimated ash population within falling distance of the highway of between 155,700 and 180,100 trees. Around 12% of surveyed trees are owned by NCC and approximately 5% require felling at this time.

To establish year on year change 225 sites with 3,005 trees were assessed from 2016 to 2018. The following graph combines the 0% and 100% observations and shows the decline of healthy ash trees (0-25%), the increase in unhealthy (75-100%) and the uncertainty of transition phase (25-75%). NCC are using this evidence base for decision making.

### Highways Ash Tree Condition 2016 vs 2017 vs 2018



**i** See Norfolk's [Survey methodology used, the survey form,](#) and [ADB information, procedure and photo guide.](#)



## BASAL LESIONS

The impacts of basal lesions due to ash dieback are not yet understood. Both the ash dieback pathogen and secondary pathogens have been found to cause these basal lesions to develop into root and butt rot. It is thought that the basal lesions occur when the fungus infects through the lenticels on the stem of the tree when the infection pressure is high. Reports from Europe, reported at the London FRAXBACK conference in 2012, suggest that:

- **Basal lesions and the subsequent root and butt rots drive mortality of larger ash trees in many areas, especially on wet woodland sites**
- **Basal lesions are often associated with an additional secondary pathogen – *Armillaria* sp. however the ash dieback fungus can also be a primary agent of the lesion**
- **When secondary pathogens are present, the tree can die rapidly, topple or break, particularly on wet sites where ash dieback has been present for a long time**
- **If a tree is suffering with basal lesions and root and butt rots, bark beetles can become widely established**
- **Basal lesions and the subsequent root and butt rots can destabilise trees before the canopy has begun to decline.**

Early identification of basal lesions can be difficult. Those conducting surveys or inspections should look for discrete lesions forming a triangle at the base of the tree. These can become bigger and more advanced as the infection progresses. As our understanding of this issue improves, guidance may change, but currently it seems prudent that any detailed inspections of ash trees should check for basal lesions, and if recorded, appropriate tree safety work should be undertaken. ➡



© Jon Stokes



## SURVEY RECOMMENDATIONS

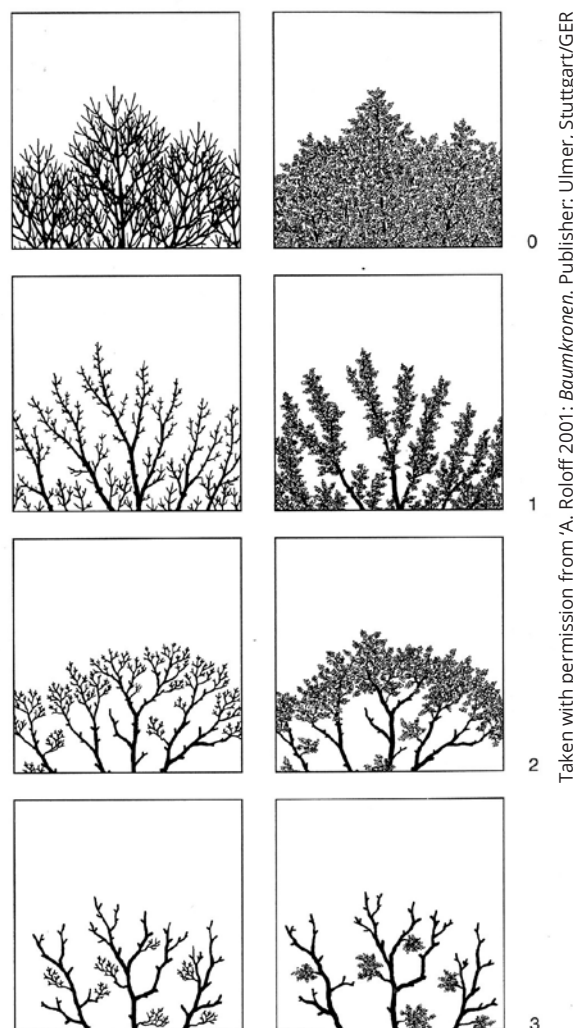
We are now recommending nationally that these four Health Classes are used in any future surveys. Thus, each surveyed ash tree should be assigned to one of the following four Ash Health Classes:

- **Ash Health Class 1** – 100%–75% remaining canopy
- **Ash Health Class 2** – 75%–50% remaining canopy
- **Ash Health Class 3** – 50%–25% remaining canopy
- **Ash Health Class 4** – 25%–0% remaining canopy

The Suffolk version is directly comparable with work undertaken on tree vitality from Roloff (2001)<sup>13</sup> which will allow comparison of UK data with that from Europe if accurate records are kept.

Combining surveying tree numbers and making an assessment of their health is an effective use of resources. This will allow organisations to understand both the abundance of ash and their current state of health.

Any subsequent surveys should then be used to monitor changes between Health Classes over time. This will allow a greater understanding of the spread and speed of impact of ash dieback. Monitoring over time is also essential as reports show that in some years trees may recover canopy condition, especially during hot and dry summers when the weather is not ideal for fungal sporulation. However, overall the tree's health will still be declining due to the infection in the wood. So, it is essential that even if recovery is noted, surveying does not stop. ➡



**Figure 5: *Fraxinus* Vitality Classes**  
**Pictures 1 & 2 are European Vitality Class 0 which in the UK is equivalent to Health Class 1.**  
**Pictures 3 & 4 = Health Class 2.**  
**Pictures 5 & 6 = Health Class 3.**  
**Pictures 7 & 8 = Health Class 4.**




## MANAGEMENT IMPLICATIONS OF THE ASH HEALTH CLASS SYSTEM

Along with providing a method for recording the state of health of ash trees, the Ash Health Class system provides a framework for discussion about the management practices that will be needed to manage the decline in ash for public safety. As an example, Suffolk's four reference pictures were shown to 120 Local Authority tree officers. They were asked for their management decisions based around the reference images. Their responses were:

	Inspect in line with tree management policies	Increased inspection and possible work	Detailed and specialist inspection and/or work	Fell or remove
Ash Health Class 1	100%			
Ash Health Class 2	95%	5%		
Ash Health Class 3	5%	85%	10%	
Ash Health Class 4			80%	20%

**Table 2: Management response to canopy decline**

This data suggests that as the decline in an ash tree's health becomes more visually apparent, then management decisions and practices on that tree alter. Assessing and monitoring changes in your ash population's health is therefore vital in assessing the current and future scale of management issues organisations face.

To assist staff with management decisions following a survey, Norfolk County developed a Highway Inspection Flowchart, which can be [seen here](#). 



**Step 2:****Engaging colleagues with ash dieback and the need for a plan**

Once local tree data has been gathered and used to update financial models (see **Box 2 on page 21**), a cross-organisational meeting(s) on ash dieback should be set up to bring the issues to the attention of colleagues and management – see **Box 8** from Leicestershire. ▶

**BOX 8 Leicestershire County Council engagement with colleagues**

During the summer of 2017, ash dieback and its implications was considered by Leicestershire County Council's Environment and Transport Departmental Management Team. Representatives from Finance, Property Services, Insurance, the Transformation Unit and Human Resources were also in attendance to understand the wider implications for the Council. As a result of this meeting, ash dieback was escalated to the Corporate Management Team and was added to the Council's corporate risk register. A cross-departmental project team was set up to develop the Council's response to ash dieback.

This team produced their Ash Dieback Action Plan in July 2018 ([see Plan](#)), with over £5 million being set aside to deal with ash dieback in the county. The Plan was approved at a full Council meeting in July 2018 and a recording is available on [YouTube](#) (item on ash dieback begins at 1 hour 35 minutes).



The purpose of this engagement is to seek managerial support to produce the ADAP and to move to the next stage in the process – developing the ADAP itself.

During these meetings you will need to explore the organisational risks outlined on **page 24** on health and safety, economic, reputational, and environmental impacts. In discussions with Directors of Local Authorities during the development of this Toolkit, concerns about the impacts of ash dieback differed between organisations, but consistently highly rated concerns were:

### 1. Health and safety impacts

- Potential for death or injury as a result of ash dieback related accidents
- Increased health and safety issues as a result of declining ash trees on roads, owned and managed land such as in county parks, housing estates, schools, cycleways, bridle paths and footpaths

### 2. Economic impacts

- Increased liabilities in cases of death or injury as a result of ash dieback related incidents
- Inadequate staffing levels to undertake the work required resulting in increased costs to recruit and retain the necessary staff
- Increased direct and indirect costs caused by ash dieback such as additional staff, additional management activities and the impacts this may have on other services and budgets

### 3. Reputational impacts

- Political and reputational risks as a result of negative press and/or public criticism of ash dieback management
- Potentially strained relationships with land owners and managers as ash dieback spreads and increased costs fall on the private owners

### 4. Environmental impacts

- Landscape changes with impacts on tourism and recreational opportunities. ➤



Following on from this meeting you may also need to:

- **seek political support for the ADAP**
- **designate an ADAP champion or advocate- preferably a Councillor, Committee Chair or Council Leader, Director or senior manager.**

We have found during the development of this Toolkit that it is extremely helpful to gain political support at the earliest stage for the organisation's plans for ash dieback. This political support is usually vital to ensure resources and officer time. Suitable briefing of local politicians on ash dieback will therefore be necessary; see Norfolk County Council's Committee report on ash dieback, dated [September 2016](#), [October 2016](#), and [November 2017](#).

Formal adoption of the ADAP may also be needed, which may involve:

- **ratification by Cabinet or relevant Committee**
- **publication on the Council's website**
- **integration into and referenced by other Council policy documents e.g. Local Biodiversity Plans or Landscape Plans**
- **development of any frameworks or Supplementary Planning Documents.**

### **Step 3: Creating an Ash Dieback Action Plan**

Once managerial support exists for creating an ADAP, organisations need to allocate staff time and/or resources to develop the ADAP. **To assist in the creation of the ADAP, we have produced a template which can be [downloaded here](#) with suggestions for structure and content.**

Within this, each organisation can tailor the template as needed. ➡

---



## RECOMMENDED COMPONENTS OF AN ASH DIEBACK ACTION PLAN

The exact nature of an ADAP will depend upon the needs of the organisation and the issues it faces. As more Plans are produced, the template plan will be refined. A summary of components is listed below:

- **An executive summary of the ADAP**
- **ADAP: priorities, outcomes and outputs**
- **About ash dieback: biology, spread and potential impact**
- **Benefits of ash trees and woodlands**
- **Management advice: options for managing ash dieback**
- **The potential impacts of ash dieback in your area including:**
  - Landscape and biodiversity
  - Local landowners, land managers and homeowners
  - Local utilities and infrastructure organisations
- **Recovery from the impacts of ash dieback**
  - rebuilding a resilient treescape
- **Potential impacts of ash dieback on the work of your organisation and other organisations in your area**
  - Health and safety impacts
  - Economic impacts
  - Reputational impacts
  - Environmental impacts
- **The Delivery Plan including: priority actions, estimated costs, lead delivery partners and development of new approaches to tree management, for example the potential use of tree shears.**

### Step 4: Setting up an internal and/or external plan delivery group

Once the Plan is developed and agreed, set up an internal and/or external steering group to work on delivering the Plan. This could be achieved by establishing a new working party (see Box 9). ➡



## BOX 9 Devon Ash Dieback Resilience Forum

Following the publication of the [Devon Ash Dieback Action Plan](#), the Devon Ash Dieback Resilience Forum was created to oversee implementation.

The objectives for the Forum were to:

- **Provide a stronger approach to dealing with ash dieback**
- **Provide consistency**
- **Avoid duplication/wasted resources**
- **Allow better knowledge-sharing with all ash dieback stakeholders.**

Following the first meeting in July 2016, the group's [aims were agreed](#).

Sub-groups were established to deliver collective action on the following areas:

- **Ash Dieback Risk Management**
- **Ash Dieback Environmental Impact Reduction**
- **Communications.**

The Forum includes:

**Arboricultural Association; AONB Devon; Clinton Devon Estates; Country Landowners Association; Dartmoor National Park; Devon Biodiversity Records Centre; Devon County Council; Devon Hedge Group; Devon Highways; Devon Living Churchyards; Devon Wildlife Trust; East Devon District Council; Exmoor National Park; Forestry Commission; FWAG SW; Kier Highways for HE; National Trust; National Farmers Union; Natural England; Network Rail; North Devon District Council; North Devon Biosphere Reserve; Plymouth City Council; RSPB; Teignbridge District Council; The Tree Council; Torbay Coast and Countryside Service; Torbay Council; Treeconomics; Western Power Distribution; Woodland Trust**

A recognisable brand identity was designed so that all communications with stakeholders could be seen to come from a unified source. This [letterhead](#) was agreed in October 2016 to allow Forum members to communicate with outside stakeholders.

The development of the Devon Ash Dieback Resilience Forum has facilitated a co-ordinated approach to managing ash dieback in Devon, ensuring that the preparations for dealing with ash dieback have been consistent between agencies, avoiding duplication or wasted resources.

Devon have looked at the long-term impact of ash dieback on the county and have introduced a three-to-one replacement of ash trees, planting three for every mature tree.

Resources that the group have created include:

- [A guide to protecting species and habitats when dealing with ash dieback](#)
- [Ash dieback website structure](#)

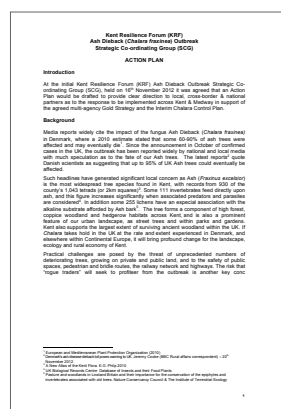


## EXISTING ASH DIEBACK LOCAL AUTHORITY PLANS

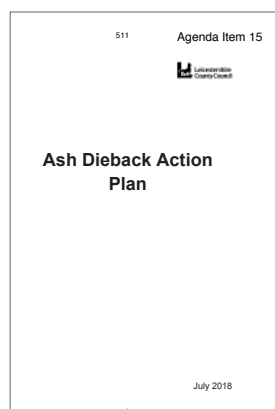
To our knowledge, versions of ADAPs have been developed in the counties of [Devon](#), [Kent](#), and [Leicestershire](#). They are also being developed in East Sussex, Norfolk, Cornwall, Suffolk and West Sussex. As further plans become available, this section will be expanded. ➡



Devon



Kent



Leicestershire



## PART 3: HOW TO TAKE ACTION AND RESPOND TO ASH DIEBACK

**Once an Ash Dieback Action Plan (ADAP) has been developed, the response to ash dieback will move into the Action phase of Figure 1 (page 7), where the focus will be around activity (e.g. felling trees) to remedy the problems faced because of ash dieback.**

---


During this phase of ash dieback (see **Figure 1**), which is likely to last for many years, specific management options will change and best practice will be developed and modified. Through this Toolkit we will distribute updated examples and developed best practice as it appears.

We encourage any organisation to contact us to provide feedback or examples of alternative practices.

### **ACTION 1 – DEVELOPING A COMMUNICATIONS PLAN FOR INTERNAL AND EXTERNAL AUDIENCES**

A complex range of internal and external stakeholders need to be involved in order to effectively address ash dieback.

A communications plan will ensure all partners have the information they need to be effective. Your communications plan should identify all internal and external stakeholders, what they need to know and how they will be kept informed.

The Landscape and Ecological Resilience Group (LERG) of the Devon Ash Dieback Resilience Forum has developed a communications strategy which identifies how the different partner organisation should communicate with relevant stakeholders across key parts of the response – from how to recognise and respond to ash dieback, to inspiring action from the wider community, to growing knowledge about the disease through information sharing. You can view the document [here](#). 

---



## ACTION 2 – UNDERSTANDING BIODIVERSITY AND ASH LOSS

Ash trees support a large number of other species. A list of 955 species that use ash trees has been collated, of which 45 are obligate on ash, i.e. are only known to occur on ash trees and 62 are highly associated with ash (rarely found on trees other than ash). This list of these species can be found in an Excel spreadsheet called AshEcol which is available:

**[NECR151 edition 1 - A spreadsheet of ash-associated biodiversity.](#)**

If a species rarely uses trees other than ash then it's population may decline if ash trees decline. However, for species that use other tree species in addition to ash it may be possible to continue to support their populations. An assessment has been made of each of the 955 ash-associated species and whether they would or would not use each of 48 other tree species. This information is also available in AshEcol.

To help woodland managers of ash trees, a 5-step procedure has been developed to aid them in identifying how to change the management of their woodlands to support ash-associated biodiversity in the face of a decline in ash trees.

This 5-step procedure is outlined in: **[NECR151 edition 1 - A spreadsheet of ash-associated biodiversity: Instructions.](#)**

This procedure was followed at 15 case study sites across the whole of the UK. Each case study is available for **[download here.](#)** ➔

---



### ACTION 3 – DEVELOPING A COMMON POSITION FOR ASH DIEBACK AND CURRENT LEGAL PRACTICES

There is a desire among many Local Authorities and other agencies to develop a collective approach to dealing with ash dieback, to ensure that common 'best practice' is shared and undertaken. The Kent Tree Officers' group prepared a paper which sets out the collective working practice of Kent tree officers in relation to ash dieback. They have shown that it is possible to reach a common working practice within a county and this provides a basis for discussion within other Local Authority groups.

The full document can be [downloaded here](#).

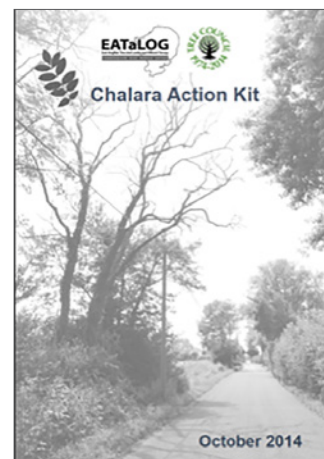


Figure 7: Suffolk Ash Dieback Toolkit

### ACTION 4 – MANAGING ASH DIEBACK IN HIGH-RISK AREAS

As part of the work of the Devon Ash Dieback Resilience Forum, a matrix was developed of the management options for ash trees in high-risk areas affected by ash dieback. This model incorporates the four Ash Tree Health Classes (as set out in **Box 5**) and Devon's proposed management reactions to each. This can be [downloaded here](#).



Figure 8: Kent Ash Dieback Toolkit

### ACTION 5 – LEAFLET AND BIO-SECURITY TOOLKIT/GUIDANCE

As ash dieback spread in Kent (see **Figure 7**) and Suffolk (see **Figure 8**), public-facing guidance was developed. These two documents are examples of materials produced about ash dieback for local communities. It should be noted that these leaflets were produced in the early years of ash dieback and information and recommendations may have changed as the understanding of ash dieback has developed.

The Forestry Commission has also produced more guidance on [managing ash dieback in woodlands](#) ➔



## ACTION 6 – VOLUNTEER RECORDING OF THE DECLINE IN ASH TREES

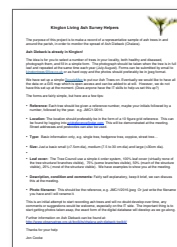
In Herefordshire, The Tree Council piloted work with local Tree Wardens to develop a method for recording and monitoring the decline of individual ash trees.

As the speed of change between Health Class has obvious management implications, this is an area of work that The Tree Council is still developing with Fera Science Ltd.

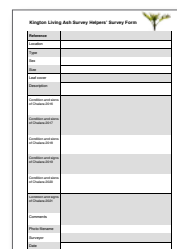
These two documents outline the procedure that has been developed in Herefordshire:

- [Herefordshire survey outline letter](#)
- [Herefordshire survey recording form](#)

If your authority/agency would like to explore this further, please contact [Jon.Stokes@treecouncil.org.uk](mailto:Jon.Stokes@treecouncil.org.uk).



Herefordshire survey outline letter



Herefordshire survey recording form

## ACTION 7 – HIGHWAY CLEARANCE

In Devon, the first co-ordinated felling of highway ash trees took place around Bickleigh following ash dieback during February 2018. Over three days, 60 ash trees were removed due to safety concerns resulting from ash dieback in the area. During this task, up to nine tree surgeons worked simultaneously, with extensive road closures for the duration of the work. Additionally, private owners adjacent to the road were offered the opportunity to have their trees removed during the task at a cost. A presentation from the Highway Operation Manager on 'Managing Devon's Trees in practice' can be found [here](#) with details of lessons learnt on slide 16. ➡



## PART 4: RECOVERY AND ADAPTATION

**The aim of the recovery phase should be to create a treescape resilient to any future pest and disease issues. As ash dieback develops there will be a need to produce not only a tactical response to the Action phase (Figure 1 on page 7) but also a strategic response to wider treescape issues during the adaptation and recovery phase.**

This local strategic planning should incorporate the concepts set out in Defra's [\*\*Tree Health Resilience Strategy\*\*](#) (published May 2018).

The strategy focuses on delivering three outcomes to build resilience – (1) resistance, (2) response and recovery, and (3) adaptation. The strategy sets out plans to reduce the risk of pest and disease threats occurring, and strengthening the resilience of our trees to withstand threats. The focus is on working to improve the extent, condition, diversity and connectivity of our trees, woods and forests, and enhance protection to minimise the risk of new threats occurring. The strategy promotes four environmental goals to build resilience: ➤

<b>ENVIRONMENTAL GOAL 1: Extent</b>	increasing tree cover
<b>ENVIRONMENTAL GOAL 2: Connectivity</b>	enhancing the linear forest and matrix of trees within other habitat settings
<b>ENVIRONMENTAL GOAL 3: Diversity</b>	increasing the genetic and structural diversity of our treescape
<b>ENVIRONMENTAL GOAL 4: Condition</b>	healthier trees and more dynamic woodlands



These are issues that are relevant at both national and local levels, and as ash dieback spreads, it will become increasingly important for managers of trees to develop a local tree strategy for their future treescape. General guidance produced by the London Tree and Woodland Framework on producing a tree strategy can be seen [here](#).

However, a 2016 survey of 181 tree professionals (Defra Future Proofing Plant Health research) who collectively managed around nine million trees found that almost half of respondents had no form of tree strategy, with Local Authorities being the least likely to have one (only 38%). The survey also indicated that even when a Tree Strategy has been produced by Local Authorities, who managed two-thirds of the nine million trees, 29% have not been reviewed in the last three years and 17% have never been reviewed at all.

This absence of a current Tree Strategy is usually due either to a lack of budget to create one, or a lack of organisational will. Findings during the development of this Toolkit show that organisations dealing with ash dieback have needed to develop/refine existing Tree Strategies to be proactive in managing ash dieback, particularly in relation to plans for the Recovery phase. This is a fast-changing area of work that The Tree Council are investigating further. ➔

---



## PREPARING AND DEVELOPING A TREE STRATEGY

In Kent, Suffolk and Norfolk, ash dieback has resulted in the need to create a tree strategy, to enable decisions to be considered in the wider context of the future of the landscape/treescape. In Kent, the development of a tree strategy was included in the first draft of the Ash Dieback Action Plan (ADAP) – [see here](#) and **Box 10**. ➔

### BOX 10 Kent Tree Strategy Development

2016 saw preliminary scoping work for a Kent Tree Strategy, which has now been formalised as an agreed action within the multi-agency Kent Environment Strategy Implementation Plan 2017. The Kent Resilience Forum Ash Dieback Strategic Co-ordinating Group now has lead responsibility for delivery of the tree strategy within the Implementation Plan. A framework for the Kent Tree Strategy was agreed and baseline data established (2017), with the final document programmed for completion within the 2019/20 financial year. The Tree Strategy will provide:

- **a blueprint and tool for planners, land managers and other public, private and voluntary sector stakeholders to safeguard and expand Kent's tree and woodland cover**
- **a greater understanding and utilisation of the environmental services delivered by trees and woodland.**

It is envisaged that the document will be adopted as a Supplementary Planning Document expanding upon policies contained within existing local planning policy.




When ash dieback broke out in Suffolk in 2012, the County Council produced an informal Cabinet paper to highlight the public safety, economic and environmental risks posed by Chalara. They then realised that ash dieback highlighted the need for a countywide tree policy that would need to be adopted by Suffolk County as well as the districts and boroughs.

As of winter 2018, the Suffolk Tree Policy is at the consultation stage and it is hoped the Suffolk Tree Policy will go to Cabinet for a decision in 2019.

## RECOVERY STRATEGY

As the widespread impacts of ash dieback start to take their toll, in addition to short-term tactics that deal with ash loss, it will be vital to consider longer-term recovery planning and how to safeguard Britain's precious treescapes for generations to come. We will need resilient planting and visionary thinking, as well as Action Plans to deal with the immediate threats to each community.

In Devon, the Resilience Forum subgroup on Landscape and Ecological Resilience has undertaken a review of ash in the Devon landscape and has developed some key messages and principles for landscape, wildlife and natural capital maintenance and restoration.

They state that "the loss of ash is likely, due to its sheer abundance, to impact heavily on landscape quality, wildlife dependent on trees, the volume of storm run-off and the summer temperatures of cities and towns. Its loss will also have an impact on soil composition, specialist lichen communities and broadleaved timber products in woodlands." 

---



They have developed **eight key principles for replacing lost ash trees:**

1. **Act now to minimise the landscape impact of ash tree loss – start promoting new trees and taking better care of existing trees.**
2. **Use the 3/2/1/ formula: at least 3 new trees for loss of a large tree, 2 for a medium tree and 1 tree for a small tree.**
3. **Promote natural regeneration wherever possible, particularly in woodlands.**
4. **Grow the right trees in the right places in the right ways, and give them the right aftercare.**
5. **Encourage a diverse range of trees to develop a resilient landscape. (No one species alone can substitute ash. However, aspen, alder, field maple, sycamore, birch, rowan and disease-resistant elm, along with native oaks, have some similar traits.)**
6. **When choosing species, consider local factors such as what trees are characteristic of the area, soil type, management requirements, local stresses, etc.**
7. **For wildlife, landscape and woodfuel, choose native species, or those well established in the British Isles such as sycamore, wild pear, crab apple or white willow. In urban areas it is more acceptable to use species from other parts of the world.**
8. **Reduce the risks of introducing new diseases by only planting trees sourced and grown (UKSG) in Britain.**

The Forum has also produced a number of useful guidance notes which can be read below: 





Section

# 3

## Conclusions





## 3.

## Conclusions

---


**Only seven years after its official identification in the UK, ash dieback has already started having significant impacts on the country's treescape. Although it is still too early to understand whether any trees will prove to be resistant to the fungus, the stark reality is that over 90% of the 2 billion ash trees across the UK are likely to be infected in the years to come.**

---

The risks that dead and diseased ash trees pose to human health and safety, together with the significant economic and environmental impacts, mean that it is vital to accept that ash dieback cannot be treated as 'business as usual' by anyone who manages trees or the landscape.

As a nation we cannot afford to be passive and let ash dieback run its course without careful thought, vision and proactive intervention. The stakes are too high. This four-part Toolkit aims to offer a structured, tried and tested Action Plan framework to tackle the challenge.

The Tree Council believes that ash dieback also presents an opportunity to develop new resilient treescapes throughout the UK. Currently, fewer than one third of Local Authorities have active tree strategies. However, the development of Resilience Forums consisting of local environmental and tree organisations will create well-placed groups to support Local Authorities to develop detailed tree strategies once the response to ash dieback is under way. The Tree Council's network of volunteer Tree Wardens is also well placed to help Local Authority tree officers monitor and replant over the coming months and years.

Communication, collaboration and active engagement with local communities will be key to the success of managing ash dieback. We believe the valuable resource provided by the new Resilience Forums and the Tree Wardens should be nurtured and encouraged, to address the challenges of ash dieback and work together to develop tree strategies for the future. 

---



Section

# 4

## Acknowledgements:

Acknowledgements,  
funding and disclaimer







## Acknowledgements, funding and disclaimer

---


**This report has been developed and published by The Tree Council and Fera Science Ltd, but would not have been possible without the input of many Local Authorities and other agencies. The Tree Council would like to thank all the people who have taken time to contribute facts, figures and opinions.**

---

These include staff and voluntary members of:

- Devon Ash Dieback Resilience Forum
- Devon Hedge Group
- Devon County Council
- Fareham Borough Council
- Fera Science Ltd  
(Food and Environment Research Agency)
- Forestry Commission
- Forest Research
- Hampshire Tree Officer Group
- Herefordshire Biological Records Centre
- Herefordshire Council
- Kent County Council
- Kent Tree Officer Group
- Leicestershire County Council
- Norfolk County Council
- Suffolk County Council
- Sussex Resilience Forum
- West Sussex County Council
- West Sussex Tree Officer Group

This report has been undertaken in partnership with Fera Science Ltd and draws on funding provided by the Department of Environment, Food and Rural Affairs.

The data in this document are solely the view of the author and contributors. The Toolkit is a continually evolving resource and the authors do not accept any liability for any loss incurred as a result of relying on its contents. To see a selection of resources provided by The Tree Council and some Local Authorities, [\*\*visit our website.\*\*](#) 

---



Section

# 5

## Further resources:

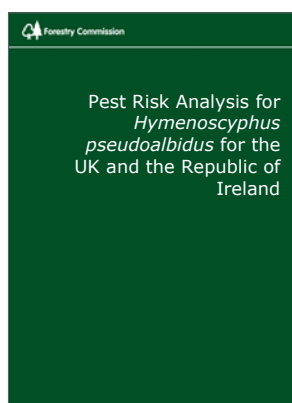
Ash dieback references  
(in order of publication date)





## 5.

## Further ash dieback resources (in order of publication date)



### PEST RISK ANALYSIS FOR *HYMENOSCYPHUS PSEUDOALBIDUS* (ANAMORPH *CHALARA FRAXINEA*) FOR THE UK AND THE REPUBLIC OF IRELAND (MAY 2013)

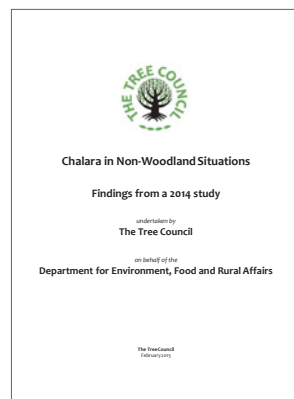
Published by the Forestry Commission, this was the first major review of ash dieback and the impacts that it may cause. Note: This was produced before the name of the fungus was changed to *Hymenoscyphus fraxineus*. It can be [downloaded here](#).



### THE POTENTIAL ECOLOGICAL IMPACT OF ASH DIEBACK IN THE UK (JUNE 2014)

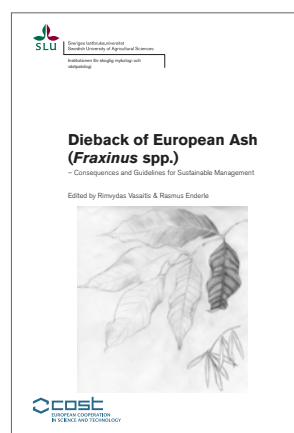
Published by the Joint Nature Conservation Committee (JNCC) (issue no. 483), this is a technical report aimed at those involved in tree and woodland management for biodiversity and nature conservation. The report will be of particular value for those considering long-term options for building resilience in woodlands and encouraging adaptation to support biodiversity during the transition as and when ash dieback takes effect. A detailed and useful guide to the research, which can be [downloaded here](#). ➔





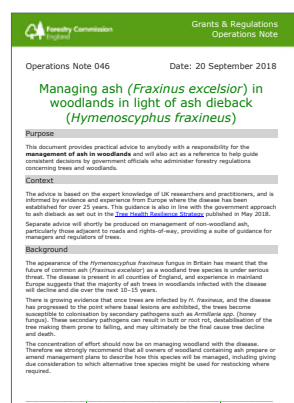
## CHALARA IN NON-WOODLAND TREES (FEBRUARY 2015)

A report produced for Defra by The Tree Council outlining the issues that ash dieback may cause in non-woodland situations. It can be [downloaded here](#).




## DIEBACK OF EUROPEAN ASH (*FRAXINUS SPP.*) – CONSEQUENCES AND GUIDELINES FOR SUSTAINABLE MANAGEMENT (2017)

Edited by Rimvydas Vasaitis & Rasmus Enderle, this publication is a summary of research undertaken as part of the FRAXBACK European funded project into ash dieback. A detailed and useful guide to the research, which can be [downloaded here](#).



## FORESTRY COMMISSION OPS NOTE 046: MANAGING ASH (*FRAXINUS EXCELSIOR*) IN WOODLANDS IN LIGHT OF ASH DIEBACK (*HYMENOSCYPHUS FRAXINEUS*) (SEPTEMBER 2018)

This document provides practical advice to anybody with a responsibility for the management of ash in woodlands and will also act as a reference to help guide consistent decisions by government officials who administer forestry regulations concerning trees and woodlands. It can be [downloaded here](#). 



# ASH DIEBACK:

*an Action Plan Toolkit*

First published **February 2019**

The Tree Council  
4 Dock Offices  
Surrey Quays Road  
London SE16 2XU

[www.treecouncil.org.uk](http://www.treecouncil.org.uk)  
[info@treecouncil.org.uk](mailto:info@treecouncil.org.uk)

020 7407 9992

Registered charity number 279000

Citation: Stokes, J., and Jones, G. (2019).

**Ash Dieback: An Action Plan Toolkit.**

Tree Council Publication. Tree Council, London. 57pp.

**Keywords:** Ash Dieback; toolkit; local authorities; Tree Council

