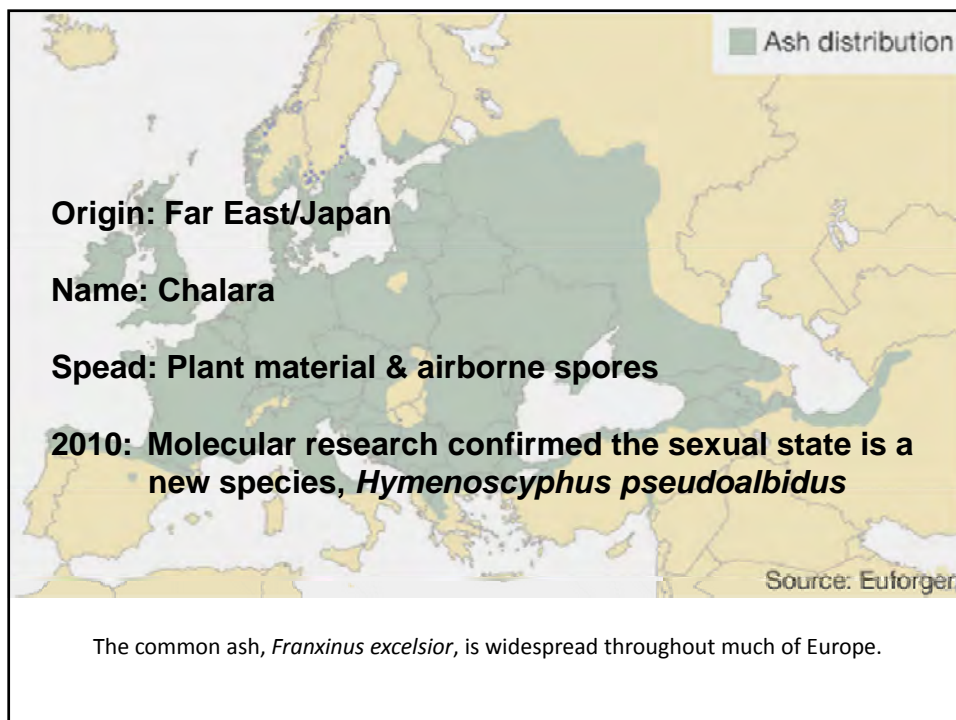


Chalara: On the front-line



Gary Battell
Suffolk County Council - Woodland Advisor
gary.battell@suffolk.gov.uk
T: 01473 264776



The Name

Chalara for the disease.

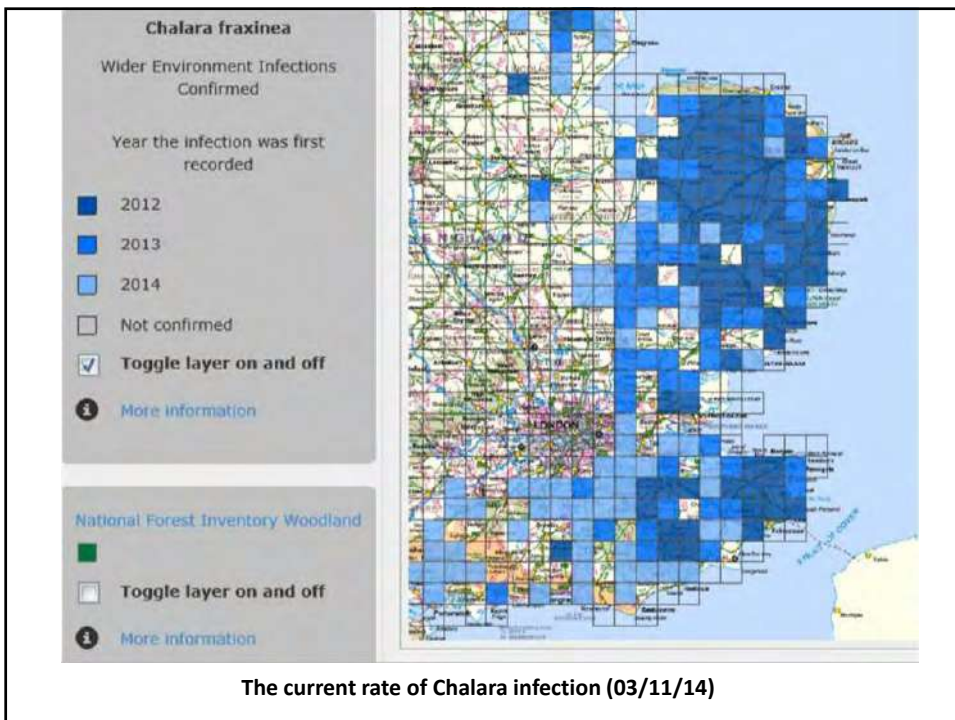
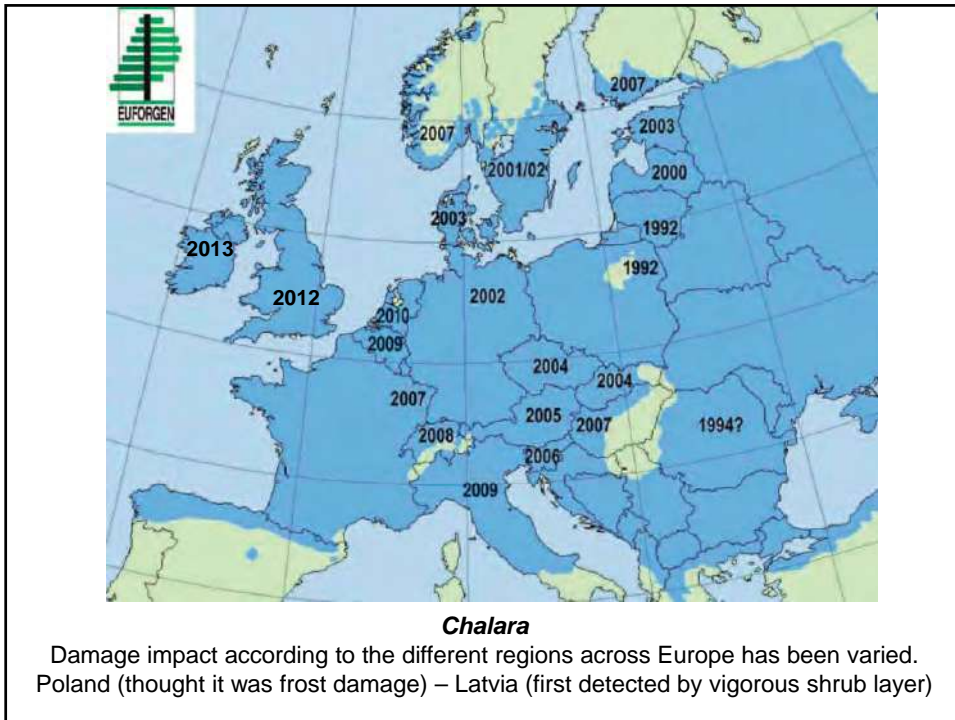
Chalara fraxinea for the fungus.

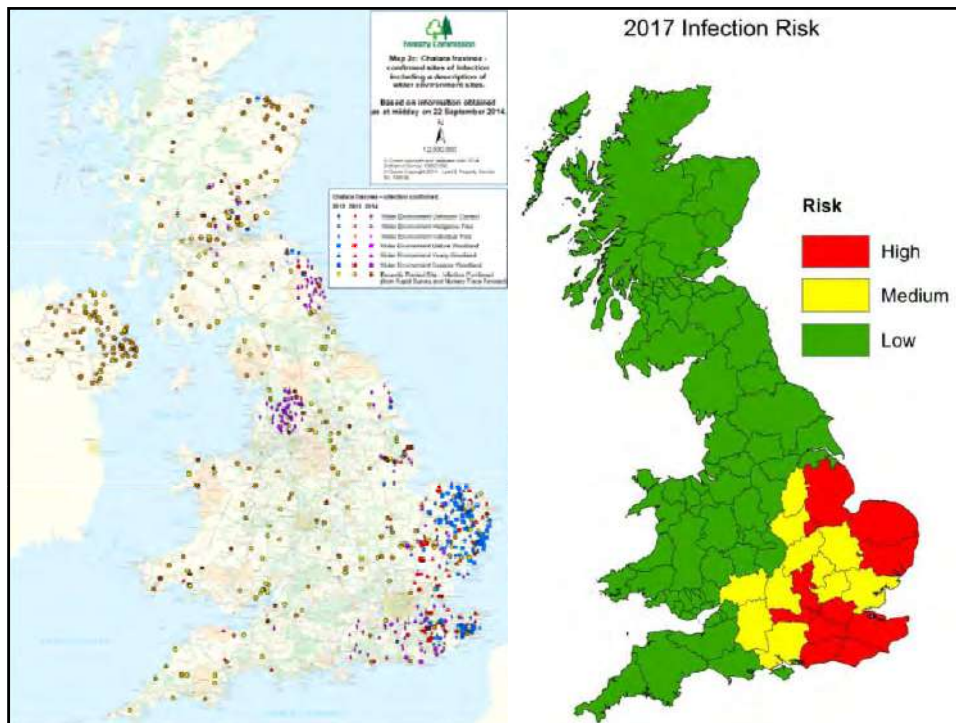
Where necessary, ***Hymenoscyphus pseudoalbidus*** for the reproductive phase).

For the moment Dr Joan Webber (Forest Research) reckons the jury is still out on the 'new' name for the fungus.

There appears to be variation among *Fraxinus* spp. in resistance or tolerance to *Chalara*

Highly susceptible	Common Ash <i>Fraxinus excelsior</i>
	Raywood <i>Fraxinus angustifolia</i>
	Black Ash <i>Fraxinus nigra</i>
Moderately susceptible	Manna Ash <i>Fraxinus ornus</i>
	Green or Red Ash <i>Fraxinus pennsylvanica</i>
Least susceptible	White or American Ash <i>Fraxinus americana</i>
	Manchurian Ash <i>Fraxinus mandschurica</i>





History, Current Situation

- No correlation with tree age, soil, moisture, environment, forest/urban/nursery/roadside.
- Causing tree death.
- Currently over most of Suffolk - worse in the north east Suffolk
- **Cannot get rid of it - We must live with it.**

Scale in Suffolk

- Ash was the second most widely planted tree in Suffolk.
- Most numerous tree species in hedgerows (18% - 71%).
- 50% of Suffolk hedgerows have 8 or more species.
- If the disease was to follow the rates in Denmark, where only 5%-10% of ash trees remain without symptoms, it would mean infection of millions of trees.
- This would be many times worse than the amount of elms lost to Dutch Elm Disease in the 1970s.
- In Suffolk Ash trees thrived as a result of Dutch Elm Disease.
- We have come complacent about the value of ash in all habitats.



Wilting leaf symptoms can be detected within two months of infection.

(Moderate confidence)

June - October



Wilting before blackening. This varies in severity. June - October



Leaves wilt and blacken. This varies in severity. June – October



A Character of Chalara is the lime green colour of the dead/dying stems or branches between the internodes - sometimes every other internode.
(planted, coppice and mature trees.)

June – September + Good winter identification



Leaves wilt and blacken. This varies in severity. June - October



TM 1899 7287

Black and wilted leaves on the trees
October – November 2014



TM 1899 7287

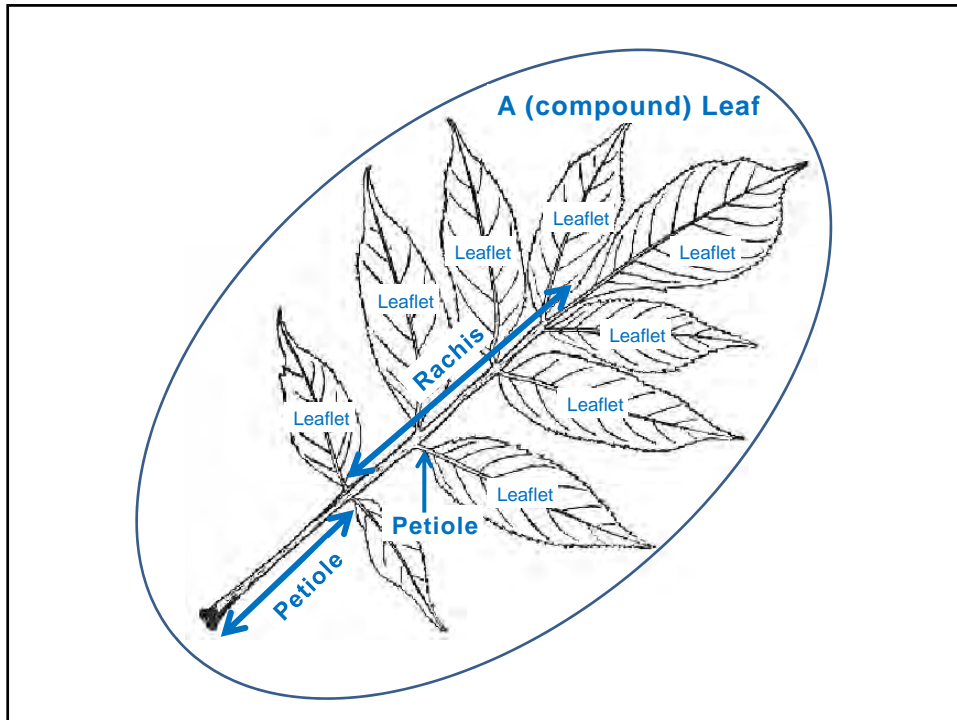
Black and wilted fallen leaves fallen leaved hung-up on a Field maple
October - November 2014



Leaves wilt. June - September



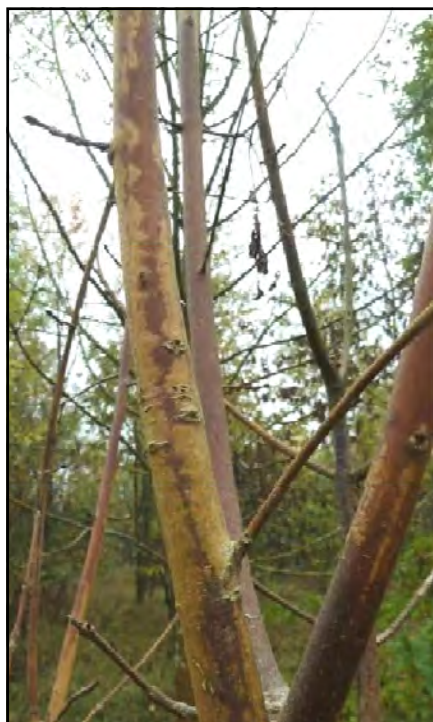
Infected compound leaves fall early. June - November



The 3mm–5mm fungi (fruiting bodies) appear on the previous years Rachis . July - September



The 3mm-5mm fungi (fruiting bodies) appear on the previous years Rachis. July - September



The necroses is mostly very extended between internodes.

The host ash tree is not able to react and compartmentalise the fungal attack.

August – October + Winter identification



These necroses are mostly very extended between and beyond internodes. The necroses is not strictly bordered by healthy tissue.

The host Ash is not able to immediately react and compartmentalise effectively to block the fungus between the branch and stem.

The fungal attack prospers as infection occurs during the dormant stage of the ash tree cycle. The barrier zone starts develop when the cambium starts to grow in the next spring.

August – October + Winter identification



Diamond bark necroses develops from the branch and into the main stem.

The diamond necroses is an indicator that there is deeper internal infection and tissue damage has gone beyond the branch protection zone.

*August – October + Winter Identification
(Not so common in 2013 & 2014)*



Diamond bark necroses two years after the diamond necroses developed.



Ash trees have great healing properties. The necrotic lesion can develop into a canker with the growth of woundwood (A localised dead area with a definite border).

The amount of rot behind each wound is varies widely.

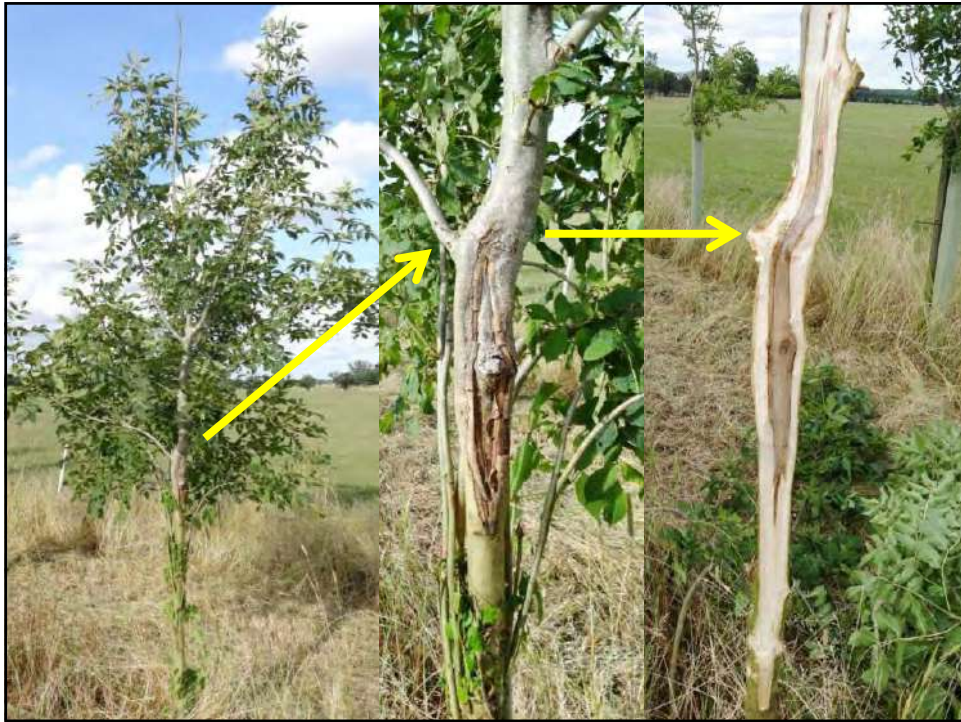


The fungi is extremely aggressive. In young trees & coppice - they are unable to react and create a barrier zone effectively & quick enough to block the internal movement of the fungal infection.



Outer bark necroses does not indicate the whole extension of the damage.

The infection is located in the centre of the necrotic area (Its travel varies).

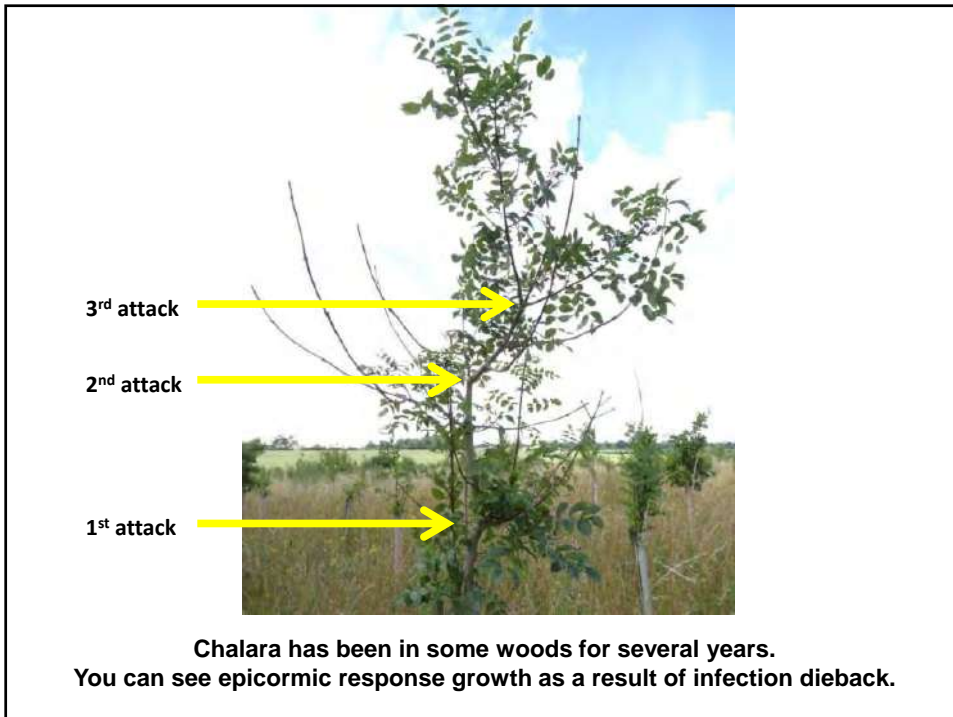


After infection of leaves and petioles the fungus enters at first into the inner parts of the shoots/twigs using the pith like a highway in the longitudinal direction and then spreading further.

Did this sample first become infected in this sample approximately 4 yrs ago - autumn 2009?



Many planted ash trees have either lost up to 90% of the leaf or have died. 2014



Chalara has been in some woods for several years. You can see epicormic response growth as a result of infection dieback.

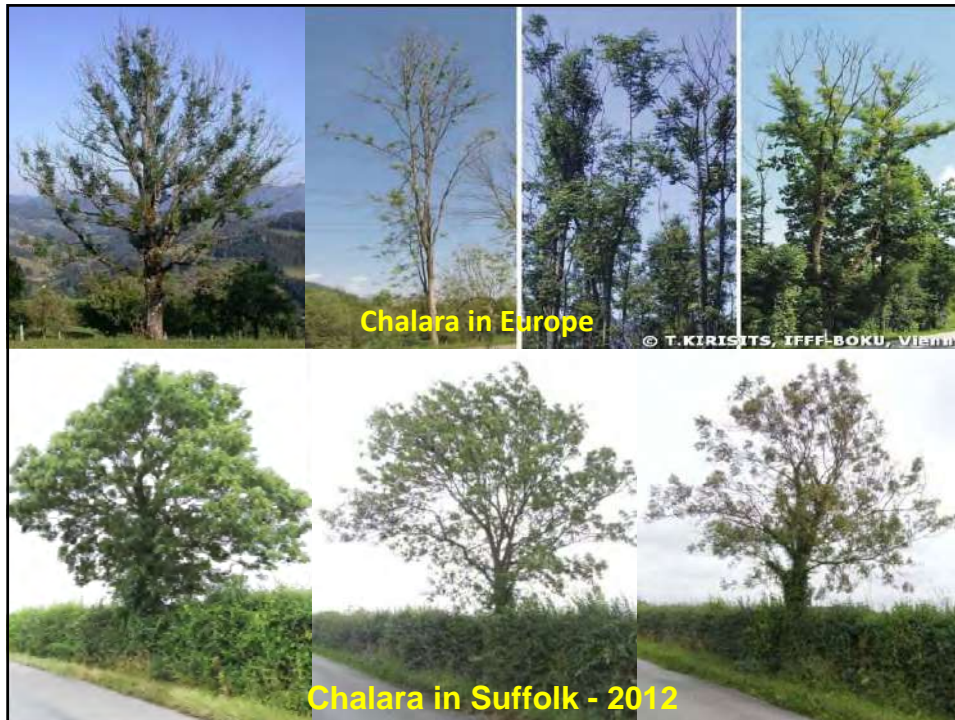


Ash trees have shown resilience, but in many cases Chalara kills the regrowth in the following year.

2012 Summary

Widespread in many new planting sites. Symptoms were very visual and it seemed they were linked to the time of year.

Chalara was found in a few sites with natural regenerating Ash. Pole-stage and mature trees were declining, but this largely went unnoticed.



2013

General health of many trees improved. Pole-stage and mature trees with Chalara deteriorated at an alarming rate in 2013. Was it due to Chalara?

Chalara was in our pole-stage and mature ash tree stock in Suffolk and that these trees were starting to suffer from increasing dieback.

Chalara infection in our pole-stage trees appeared to be in small clusters throughout the county. Pole-stage and mature trees were not showing strong Chalara characteristics that was seen in the 5-15 year old planted stock in 2012.



**Many Ash trees continued to decline and were showing very subtle characteristics of Chalara infection.
2013**



**Many Ash trees were suffering from increasing tip dieback
2013**



With a zoom lens it is easy to see if Ash trees are suffering from leaf wilt and blackening leaves. Sometimes you can only see a few infected leaves on a tree. 2013



Early symptoms in mature trees can be found in young growth at the base of the tree. Here you can see the lime green colour dead/dying stems between the internodes and lesions



Lesions can sometimes be found on the petiole



**Lesions can sometimes be found on the petiole
along with wilting and blackening leaflets**



Lesions can sometimes be found on the stem and underside of branches



**2014
In Suffolk many trees now have
between 30% & 50% leaf cover.**



2014
In Suffolk Ash trees are dying
from Chalara and not by
secondary infection.



Before undertaking any work on trees, it is important to get the appropriate permissions (a Felling Licence from the Forestry Commission and TPO and Conservation area permission from your local council Tree Officer. The Chalara Action Kit gives further advice.



2014
Although many Ash trees may have the very earliest symptoms of Chalara, it is important not to pre-empt the felling of Ash trees that might have a high degree of natural resilience.



2014
Ash trees in hedgerows are infected with Chalara. Increasing numbers are now dying.

TM 1651 6743 - 2014



2014
Ash trees in hedgerows are infected with Chalara.
Increasing numbers are now dying.



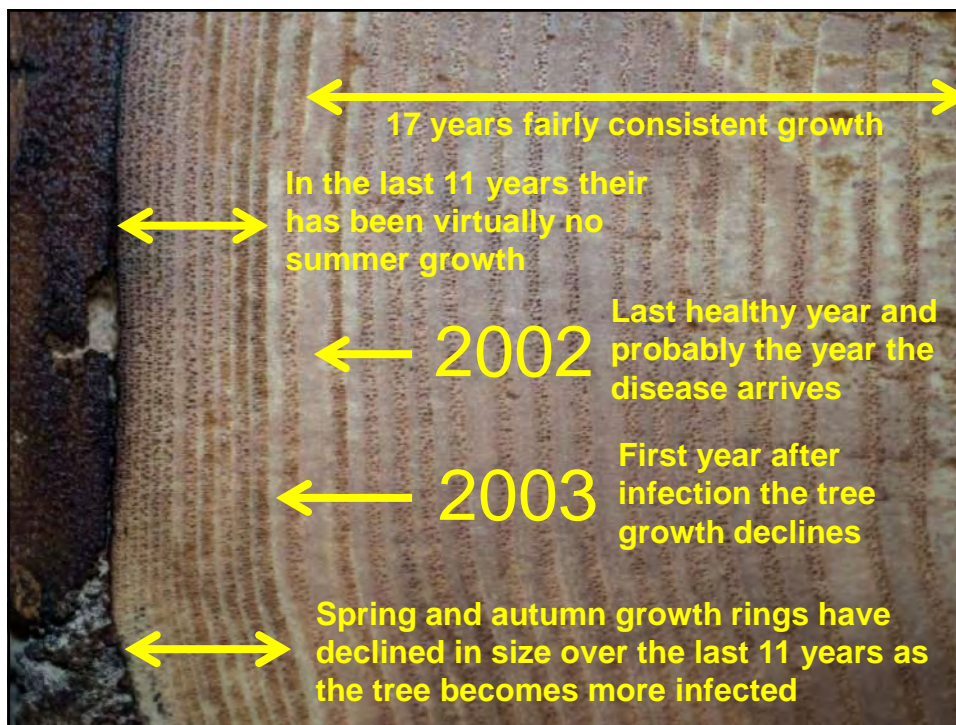
2014
The dieback in hedgerow Ash is starting to pose management
issues. The Chalara Action Kit gives management advice.



The dieback in hedgerow Ash is starting to pose management issues. The Chalara Action Kit gives management advice. 2014



This tree was felled in October 2014 and the tree rings were analysed...




2014 Summary

- It's been a very bad year. Severe dieback with little evidence of secondary infection.
- 60-70% of Ash tree have 30%-50% leaf cover.
- 20-30% of Ash trees have 50%-75% leaf cover.
- Less than 10% have 100% leaf cover.
- Less than 10% are 100% dead.
- Pole-stage trees are declining/dying fastest (15-40 years old)
- The diameter and amount of the deadwood has increased dramatically over the last 12 months.
- Most trees declining between 10% -30% year.
Some improve by 5%-10%.
- Sporulation rates of the fungi have been very high this year.

2015 Prediction

It is likely to be a lot worse next year. More pole-stage trees dying. The amount and diameter of deadwood in Ash trees will increase and this will create increasing H&S and tree management issues.

Chalara fraxinea Communication Day





Friday 10th January 2014
10:00 - 13:00
Horringer Community Centre
IP29 5RU

Jointly organised by
The Norfolk & Suffolk Woodland Working Group
&
EATaLOG

Chalara ash dieback workshop

Lawshall village hall, Bury St Edmunds, Suffolk
Wednesday June 18th, 9.30am – 4pm

Do you want to know more about the recovery from ash dieback?
Do you know how to deal with ash dieback on your land?

This free workshop will bring together managers of ash research sites, concerned land-owners and managers of woodlands experiencing or threatened by Chalara ash dieback. The aim is to share information and experience and to renew partnerships in ash genetics and tree improvement research.

Speakers at the workshop will be:-





- Dr Jo Clark – The Future Trees Trust ash improvement programme and the Living Ash Project.
- Ted Wilson – The biology of Chalara fraxinea, identification and reporting of infected ash trees.
- Dr Ian Bancroft – The genetics of ash and current research on markers for disease resistance.
- Dr Gabriel Hemery – Getting people involved! The AshTag citizen science project.
- Ted Wilson – Silviculture and management of ash – best practice advice for woodland managers.

After lunch, we will visit two local woodlands to see Chalara ash dieback – Fritty Wood, a mature woodland and Gulesen Wood, a young woodland where ash dieback was first reported in Suffolk.

Numbers are limited, so to reserve your place at this important event, contact Tim Rowland on 01233 883264 or e-mail him at Tim.Rowland@Suffnet.co.uk

The Living Ash Project is a DEFRA-funded five-year project to identify resilient ash trees and to develop techniques to rapidly reproduce them. Learn more about the Living Ash Project at www.livingashproject.org.uk

This workshop is kindly supported by Suffolk County Council. The Living Ash Project partners are:-

Since 2012 Suffolk County Council has worked in partnership to



100%
Healthy Crown

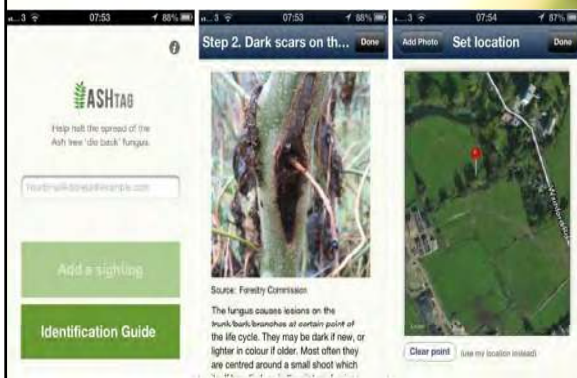






0%
Healthy
Crown

'Ashtag' technology launched to monitor the spread of devastating disease
October 2012



www.livingashproject.org.uk

Please Help

- Get a free ash tagging pack
- Select your trees – healthy OR diseased – tag them
- Report annually



www.livingashproject.org.uk

Urban and landscape trees

Don't Panic

- No need for pre-emptive action on healthy Ash trees.
- Be prepared to manage the decline.
- Monitor and preserve tolerance.
- Adapt to change.

Woodland

Don't Panic

- **Continue planned work.**
- **Consider pre-emptive action where you have large diameter good quality Ash trees.**
- **Be prepared to manage the decline.**
- **Monitor and preserve tolerance.**
- **Adapt to change using nature and locally indigenous species first.**

Summary

- **Ash Dieback; it's here and it's a management issue now.**
- **It is a disease management issue.**
- **We have a responsibility to manage trees that are becoming unsafe.**
- **It is about the logistics of removing risk safely and cost effectively.**
- **It is important to work with landowners & partners now ~ Many thanks**
- **We will be dealing with many thousands of trees.**
- **Government fund for restocking is required.**
- **Pragmatic approach to ash tree management.**
- **Do not fell healthy trees = Tree tolerance research is important.**
- **We must not create work or timber market overload.**
- **We need to manage the decline and restock where appropriate.**

Chalara: On the front-line



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