

## ANCIENT TREE FORUM (ATF) WORKING GROUP ON CHALARA ASH DIEBACK

### POSITION STATEMENT ON MANAGING THE THREAT TO ANCIENT & VETERAN ASH TREES FROM CHALARA ASH DIEBACK

#### THE DISEASE CONTEXT AND TERMINOLOGY

This disease is recognised by patterns of pathogen-induced leaf infection as foliar decline, loss and dieback in the crowns of ash trees that may eventually lead to tree death. The disease is referred to by Defra and the Forestry Commission as Chalara dieback of ash (*Chalara fraxinea*). For ease of communication, the ATF uses the same name for the disease, but we point out that the name of the fungus *Chalara fraxinea* refers to the asexual form of two distinct species. One of these is *Hymenoscyphus pseudoalbidus*, which has been identified as the causal agent of the current foliar dieback epidemic in European ash trees. The other is the indigenous fungus *H. albidus*<sup>1</sup>, a harmless endophyte.

The Chalara ash dieback pathogen is a relatively recent introduction from eastern Asia that has spread widely within Europe since 1992. Though the pathogen was only found to have infected UK native ash in 2012, its introduction probably occurred some years before. There is still much about the disease, its fungus-host relationship and how it fits into the ecosystem that is still unknown and being currently studied. It is thought that, while the more benign European *Hymenoscyphus albidus* coevolved with ash as part of its microflora, its genetically close Asian relative *H. pseudoalbidus* is a 'successful' invader as it out-competes the former, operating to become a virulent pathogen.

#### INTRODUCTION

In June 2013 the ATF set up a Working Group with the initial purpose of producing a Position Statement on this issue, one based on the ecosystem principles of the Ancient Tree Forum.

Our statement considers

- why it is necessary for the ATF to make its own statement about the position it holds
- what special expertise and knowledge the ATF should bring to the current understanding about this ash dieback epidemic and the importance of ancient trees when considering the effects of tree disease introductions and control

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<sup>1</sup> In this Position Statement, "Chalara ash dieback" refers to the disease caused by *Hymenoscyphus pseudoalbidus*, also named here as *Chalara (H. p)*, when commenting on both the disease and its environmental and ecological implications.



The ATF is responding to the recent phenomenon of Chalara ash dieback, a tree disease that has impacted upon the consciousness not only of those concerned professionally and technically with trees, but also on the political class of decision makers. This has brought about an unusual elevated level of awareness about biosecurity, particularly the urgent need to control disease spread within the UK.

There is a real fear that without appropriate input and influence science and policy may not move in the right direction, that decisions may be taken that could threaten the viability and resilience of our ancient and veteran ash trees today and in the future. The case of Dutch elm disease (DED), demonstrates the need for improving channels of communication between scientists and decision-makers. The alien aggressive form of the DED pathogen was not recognised as such until long after the early 1970s, when it began to devastate the UK elm population. Eventually, research revealed that it was distinct from the “non-aggressive” form that had been known in the UK for several decades previously. Tree disease specialists were aware of this lesson of a “wolf in sheep’s clothing” but were not in a position to make decision-makers aware of their concerns that Chalara (*H. p*) ash dieback was a case in parallel. But although the history of the DED pandemic provides important lessons about biosecurity, it provides virtually no information about the impacts upon the elm-related habitat, ecosystems and biological diversity.

While there is no knowledge of colonising elm-dependant species becoming extinct in Great Britain as a result of DED, the loss of our ash, when added to the loss of our elm, will probably overwhelm the survival capacity of species that have become marginally viable<sup>2</sup>.

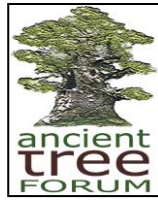
With DED in mind, the ATF considers it has a special role in respect of guiding awareness, decisions and policy to avoid similar consequences for the ash population, its habitat and dependent species. To this must be added our concerns at the potential loss of all the special irreplaceable values of ancient and veteran ash trees that occur mostly outside woodlands, their genetics, history, cultural and landscape contributions. In our view to date, these ecosystem interests and special values have been under-represented in published reports which, where influenced by market considerations, are weighted towards forestry, timber, horticulture, and replacement species. Even though there is also much emphasis on finding disease-resistant strains of ash, this does not offer a realistic prospect of protecting the special values associated with ancient and veteran ash trees.

## **SOIL, ECOLOGY, AND TREE HEALTH AND RESILIENCE**

Ecosystems are extremely hard to describe and virtually impossible to comprehensively define by virtue of their complex, ever-changing relationships, with their myriad of interacting species. Thus we can only speculate on the importance of the loss of a single species, especially when considering a large Keystone tree species such as an ash tree.

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<sup>2</sup> Ash, with its white-rotting characteristics, provides decaying woody habitats to a great many invertebrate species. Given that elm and ash are our major hedgerow trees and hedgerows are where most veteran examples occur, the loss of ash will impact upon the complexity and biological diversity supported by these tree species and it is hard to imagine what other tree species might be capable of filling the gap from such loss.



Trees are a major support system for the vast array of other species both visible and invisible, above and below ground in tree-ed landscapes (including wood-pastures, parkland, infield trees<sup>3</sup>, hedgerows and woodland). For example, mycorrhizal fungi are virtually essential to all plant life and, in the case of ash their associations are generally considered primarily endomycorrhizal. However, these are also considered impossible to identify as individual species.

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

- the possible losses, not only of the tree, but the interacting associated flora and fauna communities, including microorganisms, must be taken into account when considering actions
- when devising research, the ash tree as habitat, its soil microbiology, and the interactions of Chalara ash dieback with foliar endophytes should be coherently considered and explored
- account should be taken of possible differences in the mycorrhizal associations of individual ash trees (and of ash populations) with and without symptoms of Chalara ash dieback
- in addition to the above recommendation, populations of endophytes in infected shoots and non-infected shoots should be investigated
- as it is known that endophytes produce substances (metabolites) that appear to inhibit the development of *H. pseudoalbidus*, research should be commissioned in order to investigate the potential for disease suppression, based on these findings
- soil bioassays and soil chemistry status (taking account of macro- and micro-nutrient status) should be conducted in the course of all research on ash tree declines and losses, in order to find potential relationships between site factors and resilience potential
- research into the survival and development of the pathogen in leaf litter should be developed in order to provide domestic tree owners, managers and practitioners with soundly based and practical advice on managing this material as a potential means of reducing the infection exposure of the highest-value trees
- research should be directed to understanding the implications for ancient and veteran ash trees of mortality rates and recovery potential.
- research should be targeted to understand the influence of pollarding and coppicing on the disease in order to identify the pros and cons of this practice for affected trees

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<sup>3</sup> Such as the abundant Cotswold and Lake District ash pollards.



## **EUROPEAN CONTEXT – TRANSNATIONAL LEARNING FROM KNOWLEDGE AND EXPERTISE**

The threat and serious implications of increasing numbers and cumulative effects of tree diseases should continue to be given high level attention by all governments, allowing suitable mechanisms and resources for protecting our UK tree resource to be put in place.

Chalara ash dieback was first identified as a problem in Poland in the late 1990s. The Ancient Tree Forum considers that it is vital that the UK continues to engage in the already established networks across Europe working on Chalara including FRAXBACK.

The UK cannot tackle this problem in isolation and it is vital that it learns from the work and experience already gained from many other countries in Europe. This is essential for the effective investment of resources, for optimum benefits to be obtained and for our ancient and veteran tree ash resource to be conserved.

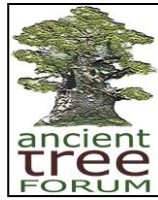
The Ancient Tree Forum believes that European collaboration is vital to ensure the necessary advance warning of any future potential diseases which may be on the horizon.

## **THE FUNDAMENTAL IMPORTANCE OF CONTROLLING IMPORTATION OF ALIEN PESTS AND PATHOGENS INTO THE UK**

We welcome the compilation of the Plant Health Risk Register in order to assess the risks posed by particular alien pests and pathogens.

In addition we believe that:

- the plant health risks currently facing the UK's trees are so severe as to warrant over-arching measures for risk management, based on the urgent need to control high-risk pathways of introduction of numerous pests and pathogens
- measures that control high-pathogen risk pathways should apply to any pathway that carries a significant probability of bringing one or more high-risk pests or pathogens into contact with any important population of trees in the UK
- a policy of tackling pathways on the basis of pest-specific data would be broadly compatible with the revised (2013) framework of plant health regulation in the EU
- in the light of recent experience with Chalara ash dieback, it is essential that decision-makers obtain better access to the expertise of specialists in tree pathology , entomology and soil microbiology, with world-class, research-based skills
- there is a need to review the relevant lines of communication and to develop policies that provide incentives for tree biosecurity research, and to ensure that public funding supports career progression and development in these fields



- there is a need not only to protect our trees from alien pests and pathogens but also to safeguard the genetic resources of tree populations under imminent threat, especially those of ancient trees. Thus, while welcoming the evaluation of ash tree provenances for resistance to ash dieback, we see a need for a much wider programme of collecting and storing ash germ plasm, consisting of seed and also of ash buds for cryopreservation

## ARBORICULTURE AND TREE MANAGEMENT

Ancient and veteran trees are particularly important for their high environmental, ecological, cultural and landscape values, both rural and urban. Most of these high value trees occur outside woodlands. They are also a potential source of resilient material for the breeding of a new generation of Chalara (*H. p*)-resistant ash.

The ATF endorses the current DEFRA and Forestry Commission provision of guidance with some reservations and believes that there should be:

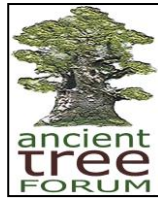
- a presumption against the felling of ancient, veteran or mature ash trees, whether or not they are infected with Chalara (*H. p*) and that this should apply with equal weight for all land owners
- all public bodies should adopt the above presumption against felling across all of their functions (e.g. with regard to TPOs, Conservation Areas and planning controls, management of highway and other public space trees, felling licences), as should railway line and overhead cable utility management companies
- appropriate current guidance for tree protection, pruning or felling consents should be widely disseminated as well as guidance on the need to take a balanced and proportionate approach to the real risks posed by trees to people and property<sup>4</sup>
- as a far as practicable, research should be undertaken on decay progression and its impact on safety to inform decisions on retention of infected and dead ash trees

Current information indicates that mature infected ash may take many years to die and the trees will remain valuable even following their death. This is especially the case where the trees are ancient, due to their scarcity and high habitat values for associated species. These comprise: fungi, lichens and saproxylic invertebrates, including many that are rare or endangered<sup>5</sup> and which occur only where such trees have been continuously present for many centuries.

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<sup>4</sup> see National Tree Safety Group (NTSG) (2011) *Common Sense Risk Management of Trees*

<sup>5</sup> Ash is a key white-rotting tree species providing habitats for a large number of saproxylic invertebrates (including the Violet Click Beetle (*Limoniscus violaceus*), Red-winged Cardinal Click Beetle (*Ampedus rufipennis*), the click *Megapenthes lugens*, red-necked click (*Ischnodes sanguinicollis*)), all of which are Section 41 species, under the Natural Environment and Rural Communities (NERC) Act 2006.



- The ATF believes that landowners and managers should be encouraged and assisted by grants / incentives to defray additional costs to adopt a holistic approach that includes: retention of standing dead trees within the landscape wherever feasible, especially mature and veteran trees
- avoiding pruning, including the removal of dead wood, unless necessary on grounds of genuine safety (to prevent either unacceptable public risk or catastrophic failure threatening the tree's habitat value)
- seeking advice from appropriately qualified and experienced professionals, with knowledge of conservation tree management, where this is not available in-house, in order to avoid inappropriate or unnecessary work and the consequent expenditure
- reducing the risk of spread in vulnerable populations that include important ancient or veteran ash trees, where feasible removing their leaf litter after leaf fall and disposing on-site by strictly controlled burning, burial or buried composting<sup>6</sup>
- Removing under-storey and other nearby young ash that is highly susceptible material and a spore source

## GOVERNMENT AND LOCAL AUTHORITY RESPONSIBILITIES

DEFRA has sought to estimate the social, environmental and commercial value to the nation of ash at a figure of between £94 -146 million (DEFRA/Forestry Commission 2014b). The Defra report (2014b) recognises that there are elements of value that cannot be monetised which makes this estimate a minimum value, one that barely touches upon the costs resulting from impacts upon the ecosystem and its functioning. Given this recognition by government of at least this value, the ATF consider that the case has been made for sustaining a high level of investment in minimising the risk of loss and mitigating the impacts.

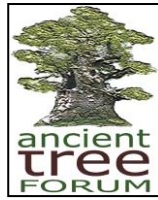
The current greatest threats to the UK's urban and rural trees are from biosecurity threats, particularly those arising from imports of diseases as a result of the globalisation of trade.

In this sense there is a strong case that importing ash (and other genera of trees native to the UK) is not only high-risk for the indigenous tree population, it is also nonsensical given the economic, social and human health consequences from the potential loss of many millions of trees, perhaps even with the entire loss of species. Current inspection and proposals for limited quarantine measures are inadequate to control the risks.

The short termism that, in austere times, budgets must suffer needs to be challenged as the UK population and business are sustained by the health, well-being and ecosystem processes provided by trees. As the most ancient of these may hold the key to future resilience there needs to be

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<sup>6</sup> It is important to note that many invertebrate species overwinter amongst the leaf litter, so that removing leaf litter is also a threat to such organisms. However, the greater risk from losing our ash trees and their related habitat requires taking realistic measures to control the disease.



appropriate investment in their conservation as well as securing the sustainability of tree populations at a local, regional and national level.

While the Forestry Commission performs the function of the plant health authority with respect to trees, it is local authorities who have responsibilities for immense numbers of trees, including those currently or potentially affected by Chalara (*H. p*), including urban forests and many thousands of miles of highway. In addition to their regulatory functions with respect to planning, TPOs and Conservation Areas, local authorities perform front-line functions in dealing with Chalara (*H. p*) and other tree biosecurity matters that affect owners in urban and rural areas. They play a key part in the implementation of policies and strategies together with disseminating advice. To do this effectively they need to have the necessary expertise and be adequately resourced and be able to take necessary action to secure the future well-being of the tree population.

We believe that it is imperative that

- in addition to the fight to control Chalara (*H. p*) and other introduced pathogens, in parallel the most important action is to ensure that the NEXT pathogen does not arrive
- sustained funding commensurate with the potential environmental and economic losses is required for research programmes
- in addition to the above, local authority tree budgets to support and enhance tree health, resilience and biosecurity should be set up, ring fenced and protected
- there should be no presumption of removal of healthy ash trees protected by Tree Preservation Orders or situated in conservation areas or on potential development sites, simply because of the presence of Chalara (*H. p*) in the UK ash tree population

#### CONTRIBUTORS TO THE CHALARA ASH DIEBACK WORKING GROUP:

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