

COST Action FP 1103
Meeting with UK & IE Stakeholders
29th November 2013

Living with ash dieback in continental Europe: present situation, long-term experience and future perspectives



Held at the Linnean Society of London, 29/11/2013

Webcast at www.fraxback.eu

Opening address by Lord de Mauley, Parliamentary Under Secretary of State for Natural Environment and Science

About the FP1103 COST Action

Title: *Fraxinus* dieback in Europe: elaborating guidelines and strategies for sustainable management (FRAXBACK)

Duration: 2012-2016

Chair: Dr Rimvydas Vasaitis; rimvys.vasaitis@slu.se

Vice-chair: Dr Arnaud Dowkiw; arnaud.dowkiw@orleans.inra.fr

Rapporteur: Prof Kiril Sotirovski; kirils@sf.ukim.edu.mk

Participating countries: Austria, Denmark, Greece, Lithuania, Serbia, United Kingdom, Belgium, Estonia, Hungary, Netherlands, Slovenia, Bulgaria, Finland, Ireland, Norway, Spain, Croatia, France, Italy, Poland, Sweden, Czech Republic, Germany, Latvia, Romania, Switzerland.

Objectives: Currently, severe dieback of *Fraxinus* spp. is observed in most European countries. This is an emerging disease, which results in massive tree mortality, threatening the existence of *Fraxinus* over the continent. It is caused by *Hymenoscyphus pseudoalbidus*, an alien and invasive fungus, the origin of which remains unknown. Currently, many European countries have national research programs on *Fraxinus* dieback, focusing on numerous aspects of the biology and ecology of the disease, but the activities are scattered. The aim of the FRAXBACK is, through sharing and synthesis of available knowledge, to generate a comprehensive understanding of the *Fraxinus* dieback phenomenon, and to elaborate state of the art practical guidelines for sustainable management of *Fraxinus* in Europe. The Action will be implemented through innovative interdisciplinary approaches, and will include forest pathologists, tree breeders and silviculturists. Its deliverables are: i) guidelines for sustainable management of *Fraxinus* in Europe; ii) a European database for dieback-resistant *Fraxinus* genotypes/families/populations and established/planned progeny trials; iii) illustrated digests/leaflets/brochures on *Fraxinus* dieback; iv) disease distribution maps; v) a website; vi) a book. FRAXBACK is comprised of four Working Groups: WG1 Pathogen; WG2 Host; WG3 Silviculture; WG4 Dissemination and knowledge gaps. Its duration is 4 years, including two MC/WG meetings and four STSMs per year, and one international conference.

London meeting local organizer: Dr Richard Buggs, Queen Mary University of London; r.buggs@qmul.ac.uk; Tel. +44(0)2078828441

Meeting Programme

09:00 – 09:30; Arrival & seating (Linnean Society Meeting Room)

Session 1; Chair: Dr Richard Buggs

09:30 – 09:35; Dr Richard Buggs (UK): Opening remarks by local organizer

09:35 – 09:50; Lord de Mauley (UK): Opening Address

09:50 – 09:55; Dr Rimvys Vasaitis (Sweden): Ash dieback in Europe

09:55 – 10:15; Remis Bakys (Lithuania): Forest regeneration in long-term ash dieback sites subjected to Lithuania's policy of sanitary fellings

10:15 – 10:35; Dr Talis Gaitnieks (Latvia): Forest regeneration in long-term ash dieback sites left untouched under Latvia's policy of not felling

10:35 – 10:55; Dr Thomas Kirisits (Austria): Towards a deeper understanding of the disease cycle of ash dieback

10:55 – 11:15; Tea/coffee break (Linnean Society Library)

Session 2; Chair: Dr Rimvys Vasaitis

11:15 – 11:35; Dr Heinrich Lösing (Germany): Susceptibility of *Fraxinus* species against ash dieback caused by the fungus *Chalara fraxinea*

11:35 – 11:55; Prof Jens Peter Skovsgaard (Sweden): How does ash dieback influence silviculture? How can silviculture influence ash dieback?

11:55 – 12:15; Dr Berthold Metzler (Germany): Ash dieback in South West Germany and guidelines for management practices

12:15 – 12:35; Prof Erik D. Kjaer (Denmark): Natural variation in resistance can prove an important part of

the long-term solution to the *Chalara* dieback crisis

12:35 – 12:55; Prof Jan Stenlid (Sweden): Lessons from ash dieback on unbalanced interplay between host trees and pathogens

12:55 – 14:00 Sandwich Lunch (Linnean Society Library)

Session 3; Chair: Dr Arnaud Dowkiw

14:00 – 14:20; Dr Marco Pautasso (Switzerland): Ash dieback as a conservation biology challenge

14:20 – 14:40; Vikki Bengtsson (Sweden): The impact of ash dieback on veteran and pollarded trees in Southwestern Sweden

14:40 – 15:00; Prof Halvor Solheim (Norway): Development of ash dieback in Norway 2008-2013: monitoring the disease and spore spread

15:00 – 15:15; Dr Anne Chandelier (Belgium): *Chalara* dieback of ash: monitoring of airborne inoculum

15:15 – 15:30; Dr Barbara Schulz (Germany): Can endophytic fungi be used for bio-control of ash dieback?

15:30 – 15:50; Tea/coffee break (Linnean Society Library)

Session 4; Chair: Dr Barbara Schulz

15:50 – 16:10; Dr Arnaud Dowkiw (France): The situation with ash dieback in France and spatio-temporal disease progress in a 19-year-old stand

16:10 – 16:25; Dr Gerry Douglas (Ireland): Responses to emerging ash dieback at its current frontiers in Ireland

16:25 – 16:35; Prof Chris Gilligan (UK): Epidemiology of ash dieback in the UK

16:35 – 16:45; Dr Joan Webber (UK): Research on Ash dieback by Forest Research

- 16:45 – 16:55; Dr Diane Saunders (UK): The NORNEX research consortium
- 16:55 – 17:05; Prof Steve Woodward (UK): Defocusing from dieback: the Emerald Ash Borer is heading our way
- 17:05 – 17:10; Dr Richard Buggs (UK): The British Ash Genome Project and closing remarks
- 17:10 – 18:00; Reception (Linnean Society Library)

Speaker Biographies

Dr Remigijus Bakys has been a chief expert at the Lithuanian State Forest Service since 2007. He received his MSc in forestry at the Lithuanian University of Agriculture (2001) and PhD in forest pathology at the Swedish University of Agricultural Sciences (2013). He is involved in research activities dealing with investigations on *Chalara* dieback of ash, and selection and breeding of resistance to ash dieback in common ash (*Fraxinus excelsior*).

Vikki Bengtsson has a first class honours degree in environmental biology from the University of Essex and has worked professionally with nature conservation since 1992. Since 2003 she has worked for Pro Natura as a freelance ecologist in Sweden. Before that she worked in England for the City of London at Ashted Common and Burnham Beeches and latterly as Property Manager for the National Trust at Hatfield Forest Nature Reserve. Vikki has primarily worked with issues surrounding the survey, protection and practical management of wood-pastures and ancient trees. She has also been responsible for a number of courses and training days both in Sweden and England regarding the management and wildlife significance of ancient and veteran trees. She is a trustee of the Ancient Tree Forum and a contributing author to the new publication "Ancient and other veteran trees: further guidance on management" (Lonsdale (ed), 2013).

Dr Richard Buggs is Senior Lecturer in Evolution and Ecology at Queen Mary University of London. He is currently leading the British Ash Genome Project, funded by NERC, which is releasing data at www.ashgenome.org. His research group also works on the genomics and conservation of birch species in the UK, for which he was awarded a NERC Fellowship from 2010-2013. He was a postdoc with Doug and Pam Soltis at the University of Florida, working on polyploid genome evolution. His DPhil research at Oxford University was on the evolutionary ecology of annual mercury in Iberia. He graduated from Cambridge University in 2000 with a first in Plant Sciences. He is a Fellow of the Linnean Society.

Dr Anne Chandelier is head of the laboratory of mycology at the Walloon Agricultural Research Centre (Belgium). She received her MSc in Plant Pathology from the Gembloux Agricultural University

(Belgium) in 1991. She performed her PhD on DNA rearrangement associated with somatic embryogenesis of Norway spruce between 1991 and 1995. Then she joined the AFOCEL Company (France) specializing in forest biotechnology. From 1997 to 2000, she worked as research assistant at the Plant Pathology Unit of the Gembloux Agricultural University on the development of molecular kits for the detection of plant pathogens infecting potatoes (viruses and bacteria). In 2000 she moved to her current post. She is involved in research activities dealing with the diagnostic of fungal and *Phytophthora* diseases in forest trees using molecular and microbiological methods. Her activities also include the survey of emergent or regulated fungal pathogens in forest ecosystems and training in forest pathology for forest managers. At the national level, she collaborates with the Walloon Health Forest Service and her lab is part of the Belgian Reference Laboratories for the detection of regulated fungi. At the international level, she is Member of the European Mycological Network (EMN) and Member of the EPPO panel on diagnostic protocols for regulated fungi.

Dr Talis Gaitnieks is head of the laboratory of forest mycology and plant pathology at the Latvian State Forest Research Institute "Silava" (Latvia). He received his doctoral degree at the Forest Research Institute in Moscow in 1991. Since 1993 he has been senior researcher in LSFRI "Silava". His current research activities include silvicultural control of *Heterobasidion annosum* and the biology of *Phlebiopsis gigantea*.

Professor Chris Gilligan is Head of the Epidemiology and Modelling Group at the Department of Plant Sciences, University of Cambridge. He is Chair of the Science Advisory Council: Department for Environment, Food and Rural Affairs (Defra) and Chair of the UK Tree Health and Plant Biosecurity Taskforce. He is a trustee of the Natural History Museum, London. He was Head of the School of Biological Sciences, University of Cambridge from 2009-2013. His current research is focused on establishing and testing a theoretical framework that identifies the mechanisms that control invasion, persistence, scaling and variability of epidemics within changing agricultural and natural landscapes. Applications range from large-scale pandemics (ash dieback, sudden oak death, citrus canker, African cassava mosaic virus), through pesticide resistance and genetical control, to biocontrol in sustainable agricultural systems,

and to the design of intervention strategies for exotic pathogen threats to the UK.

Dr Gerry Douglas is Principal Research Officer in Teagasc, The Agriculture and Food Development Authority of Ireland. His main interest is in genetic improvement of broadleaves, their genetic characterisation and in developing methods for large scale vegetative propagation of ash, sycamore and wild cherry and in generating seed orchards and selected clonal lines. He has been the coordinator of several EC research projects, a partner in others and in bilateral projects with the UK. His interest in ash includes selecting and breeding for resistance to *Chalara fraxinea* and he is on the management committee of FRAXBACK.

Dr Arnaud Dowkiw is a tree geneticist and breeder. He has been in charge of the French national ash breeding program since 2012. He has been studying the genetics of rust resistance in poplars for 13 years, and thus he is aware of the difficulty of selecting for durable disease resistance in trees. He is vice-chair of the FRAXBACK cost action and webmaster of the www.fraxback.com website.

Dr Thomas Kirisits is Senior Lecturer and Senior Scientist at the University of Natural Resources and Life Sciences, Vienna (BOKU) in Austria. He has a broad interest in forest pathology and forest research in general. Since 2007 ash dieback has been his main research topic, and since 2008 he has been leading a national project on the disease funded by Austrian sources ("Lebensministerium", governments of the Austrian provinces, the MA 49 of the Vienna City Administration, the ÖBf AG and the foundation "120 Jahre Universität für Bodenkultur"). He also guides research on ash dieback as part of the European Union funded project ISEFOR ("Increasing sustainability of European forests: modelling for security against invasive pests and pathogens under climate change", FP7/2007–2013, KBBE 2009-3, grant agreement no. 245268), which is coordinated by Prof Steve Woodward. Thomas is one of the deputy leaders of Working Group 2 (Host) of FRAXBACK.

Professor Erik Dahl Kjaer is head of the research group on forest genetics and diversity (University of Copenhagen). He holds an MSc in Forestry (1989) and a DSc in sustainable management of Forest

genetic resources (1999). Before joining the University as full professor in 2001, Erik worked for The Danish Nature Agency as an expert with responsibility of tree breeding and gene conservation of Danish woody plant species, and later with similar aspects on tropical trees species as senior advisor at Danida Forest Seed Centre in Humlebæk (Denmark). Part of his work in the 1990s involved establishment of several trials on Ash in Denmark. Erik's present research focus is on population genetics and aspects of domestication. An important part is this is the development of genetic management and domestication practices in the face of climate change. Since 2007, this work has included studies on genetic variation in susceptibility of common ash against *Hymenoscyphus pseudoalbidus*. Beside scientific papers, his group has contributed to seminars and published a number of short communications to Danish stakeholders and public media regarding the disease. Based on findings since 2007, his group has been involved in development of a breeding program together with private and public forests managers. So far, this has led to identification and propagation of 130 outstandingly healthy ash trees selected across the Denmark. Erik is member of the Danish committee for approval of forest tree seed sources, and chairs the national advisory committee on forest reproductive material

Dr Heinrich Lösing is head of the advisory and research center for hardy nursery stock in northern Germany (Versuchs- und Beratungsring Baumschulen e.V. Schleswig-Holstein) dealing with about 325 growers and over 5000 ha of nursery production. His research has dealt with weed control, biological nematode control, pests and diseases on trees shrubs and conifers since 1986. He trained at research stations and nurseries in the Netherlands, England, Japan and the USA. He has been involved in different European working groups and books on problems with hardy nursery stock.

Lord de Mauley is Parliamentary Under Secretary at the Department for Environment, Food and Rural Affairs (Defra), responsible for natural environment and science and research. He was appointed in September 2012. Prior to that he had been a government whip in the House of Lords since the Coalition came to office in May 2010, and before that an opposition whip since 2005. While a whip he served also as a parliamentary spokesman on treasury, business, welfare

and other matters. Brought up on a farm, Rupert de Mauley qualified as a chartered accountant, then worked as an investment banker in the City and the Far East in the 1980s and 1990s and ran an IT services company from 1999 to 2006. He served as a TA soldier from 1975, commanding his regiment from 2003 until retirement in 2005. Outside Parliament he runs a forestry business from his farm on the Oxfordshire/Gloucestershire border.

Dr Berthold Metzler is research scientist at the Forest Research Centre of Baden-Wuerttemberg/Freiburg, Germany (FVA). He received his PhD in 1984 at University of Tuebingen in Botany/Mycology, after studies on the ultrastructure of plant-parasite-interactions and of conidiogenesis in plant-parasitic fungi. After a post-doc project on the function of ectomycorrhizae of forest trees in acidic substrates, he got his first permanent position in 1987 at the Federal Biological Research Institute for Agriculture and Forestry (BBA/now JKI) in Berlin as mycologist and plant pathologist. As one remarkable outcome of a soil biology project, two new basidiomycetous genera, *Rhynochgastrema* and *Cystobasidiopsis* were described by him and coauthors. In 1991 he joined FVA as a forest pathologist, performing research projects and providing advice for forest practitioners. He qualified in 2008 for habilitation and lecturer status at the University of Freiburg for his work on “Forest pathological contributions on the maintenance of wood quality of standing trees and cut timber”. He contributes to sessions of the German Society of Plant Protection and Plant Health (DPG) as well as to the working group “Root and butt rots of forest trees” of the International Union of Forestry Research Organisations (IUFRO).

Dr Marco Pautasso is a postdoc in forest pathology and dendrology at ETH Zurich, Switzerland, where he graduated in 2002. He received a PhD in macroecology at the University of Sheffield (2005) and then worked at Imperial College, the London Metropolitan University, the European Food Safety Authority, the University of Cambridge and CNRS, Montpellier, in projects on network epidemiology, plant health, climate change and biodiversity conservation.

Dr Diane Saunders is a Research Fellow at The Sainsbury Laboratory, Norwich Research Park, Norwich, UK. Dr. Saunders received her BSc degree from Exeter University where she continued

her studies to PhD level in the pioneering laboratory of Prof. Nick Talbot studying the genetic mechanisms that regulate plant pathogen development. After receiving her PhD in 2009 she joined Prof. Sophien Kamoun's group at The Sainsbury laboratory to continue to pursue her interest in the molecular mechanisms that underpin plant-pathogen interactions. Her impact on the field of molecular plant pathology is noticeable by excellent publications she has produced in a relatively short time. She continues to develop a multi-disciplinary approach to her research, integrating molecular genetics, microbiology, cell biology, biochemistry, genomics and data mining. In addition, she worked on three of the most important plant diseases in the world: rice blast, potato late blight, and cereal rusts. Dr. Saunders received the prestigious Leverhulme Fellowship in 2011 to support her career transition to rust pathosystems, an emerging field that has only recently moved to the genomics era. Dr. Saunders has brought the concepts of pathogenicity effectors and related ideas to impact in this field. Dr. Saunders was also one of the first responders in the UK to the outbreak of *Chalara* dieback of Ash, contributing to a better understanding of the causal agent, *Chalara fraxinea*.

Dr Barbara Schulz has been working as a mycologist and plant pathologist, primarily at the Institute of Microbiology, Technical University of Braunschweig, Germany, since 1986, doing research, but also teaching phycology, mycology, plant pathology and symbiotic interactions. Her fields of interest have concentrated on fungal secondary metabolites and the interactions of fungal endophytes with their hosts, and also included projects on biocontrol, marine mycology, and fungal diseases of plants. In the last five years, her group has primarily investigated the pathology of *Hymenoscyphus pseudoalbidus* and possible methods to control the disease. She is a deputy leader of Working Group 1, pathogen, of the COST FP1103 Action.

Professor Jens Peter Skovsgaard has been Professor of Silviculture at Swedish University of Agricultural Sciences since 2009. He gained his DSc in Silviculture in 1997. He was previously Professor of Forest Production and Modelling at University of Copenhagen 2001-09, Research Director of Forestry at the Danish Ministry of the Environment 1995-2000, Forest Manager at different locations 1985-86 and 1989-94, Research Scientist at the Royal Veterinary and Agricultural University in Copenhagen 1987-88. He

has been IUFRO Executive Board member and Deputy Coordinator of Silviculture since 2006.

Dr Halvor Solheim is Senior Scientist at Norwegian Forest and Landscape Institute and professor in forest pathology at Norwegian University of Life Sciences, both in Ås, Norway. He performed his PhD on blue-stain fungi associated with bark beetles, which also was the subject of his postdoc in British Columbia, Canada. His current research activities deal, among others things, with diseases caused by invasive species like ash dieback and *Dothistroma* needle blight on pines and root rot mainly caused by *Heterobasidion* and *Armillaria* species.

Professor Jan Stenlid is at the Department of Forest Mycology and Pathology, Swedish University of Agricultural Sciences. He sits on the UK's BBSRC/Defra Ash Dieback Research Oversight Group. His research interests include: Infection biology of forest pathogens including molecular mechanisms and species specificity, Systematics and molecular identification of wood inhabiting fungi, Biodiversity, succession and interactions of fungi, Forest and ecosystem management, Population biology and population genetics of fungi, Fungal genomics, and invasive species in forest ecosystems His research has been externally funded through grants with a turnover of ca. 4 million SEK annually for the last 10 years. He currently leads a research group of approximately 18 researchers.

Dr Rimvys Vasaitis is associate professor and extension forest pathologist based at the Department of Forest Mycology and Pathology, Swedish University of Agricultural Sciences. He is the Chair and grant-holder of the COST FP1103 Action "Fraxinus dieback in Europe: elaborating guidelines and strategies for sustainable management" (FRAXBACK). His current research activities deal with tree diseases caused by invasive alien fungi (ash dieback and Dutch elm disease) and root rots (*Heterobasidion* and *Armillaria*), with a particular focus on disease management.

Dr Joan Webber is Principal Pathologist and Head of Tree Health in the Centre for Ecosystems, Society and Biosecurity, which is part of Forest Research. A senior research scientist employed by the Forestry Commission since 1989 and based at the Alice Holt research station of Forest Research (FR), Joan became Principal

Pathologist for FR in 2000, and head of Tree Health in 2011. She has a 30 year international track record of research and collaboration on pathogens of forest and woodland trees, their population biology and epidemiology, and the use and deployment of biological control agents in the management of tree diseases. Over the past ten years her particular area of work has been on alien invasive pathogens including *Phytophthora* and most recently *Chalara* dieback of ash. Her research focuses on the threat they pose and their potential long-term impact on trees and forest ecosystems following introduction.

Professor Stephen Woodward is based in the Institute of Biological and Environmental Sciences at The University of Aberdeen. He has been working on tree health for 30 years, firstly on root disease biology, but more recently turning his attention to the problems posed to our forests, woodlands and urban trees by alien invasive pests and pathogens. He has led 6 EU-funded research projects, and is currently coordinator of ISEFOR “Increasing sustainability of European forests: modelling for security against invasive pests and pathogens under climate change”. From 2008-2012, he was chair of the COST Action on *Phytophthora* in European Forests and Woodlands, and currently serves on the management committees of the COST Actions focused on *Dothistroma* needle blight and management of the plants for planting pathway (PERMIT). He was a member of the Tree Health and Plant Biosecurity Task Force, and currently works on the Scottish Tree Health Action Group. His primary interests lie in how trees respond to infection, with a view to finding provenances, and individual genotypes that may be less susceptible to pathogens and which therefore could be used in the repopulation of some of our forests and woodlands in the face of attack by alien invasive pathogens.



The
LINNEAN
SOCIETY
of London

The Linnean Society is a forum for natural history founded in 1788. It is named after the great Swedish scientist Carl Linneaus (1707-1788) whose library and collections have been in the keeping of the Society since 1829. It was at a meeting of the Linnean Society in 1858 that papers from Charles Darwin and Alfred Russel Wallace outlining the theory of evolution by natural selection were first presented.

The Linnean Society is one of five Learned Societies housed around the courtyard of Burlington House, Piccadilly. The Society moved into the original Burlington House in 1857 and into its current rooms in November 1873.

The Society's Fellowship is international, and its Fellows are drawn from all walks of life, ranging from leading professional scientists to amateur naturalists. The Society welcomes everyone interested in natural history, in all its subject areas.