After introductions from ICF Vice President David Henderson-Howat and Professor Julian Evans, OBE, who reminded us that we are in a period of great change for forestry when tree pests and diseases have been propelled into a position of national importance, there was a video address by Carl Sargeant, the Minister for Natural Resources in Wales. He stressed the importance of resilience in the face of climate change which is predicted, among other effects on forestry, to facilitate the arrival and spread of new pests and diseases. He also described the upcoming Well-being of Future Generations Bill in Wales, the first bill of its kind, which aims to safeguard the environment and economy, and appealed to conference attendees to help to work out how forestry can assist in meeting these objectives.

Sir Harry Studholme, the Chair of the Forestry Commission, directed the first session, which set the scene for the conference. The first speaker was Dr John Gibbs, OBE, who gave unique insights into the classic case study of Dutch elm disease in the UK. He described the complex story of how up to 30 million elm trees were lost to this disease, and how factors such as confusion over the identity of the fungus, changes to how it behaved, and multiple pathways of spread combined to thwart attempts to limit the damage. He proposed lessons to learn from 20th century fights against tree diseases: firstly, to be well armed with a range of expertise to allow swift action on the discovery of a new disease, and, secondly, to build public trust and cooperation by ‘telling it like it is’ and facing up to the problems without secrecy.

Professor James Brown of the John Innes Centre, Norwich, gave an address on the topic of the Tree Health and Plant Biosecurity Initiative. The first phase of the Initiative is capacity building, an effort to increase the numbers of tree health experts in the UK. This became a theme of the conference, with the call to improve on the numbers of tree pathologists (currently as low as seven in the UK) repeated by several speakers. The Initiative also facilitates research projects on tree health, and supports two specific projects on important groups of diseases; diseases of oak trees, and Phytophthora diseases. Professor Brown identified lessons from the agricultural sciences, advocating a strict biosecurity quarantine system to prevent introductions, and called for increased political will to make this happen. He warned against the dangers of monocultures facilitating disease spread, and wants to push for greater public appreciation of science in the use of genetic techniques such as genomics. Such techniques are used by the NORNEX consortium, which aims to increase understanding of Hymenoscyphus fraxineus, the causative agent of ash dieback disease, in order to predict the long-term effects of the disease on UK ash populations.

Dr David Humphreys, Open University, then spoke about the political outcomes of the ash dieback outbreak in the UK. The arrival of Hymenoscyphus fraxineus provoked the first meeting of the government’s crisis committee, Cobra, over a plant health issue since the Colorado beetle outbreak in the 1960s. It sparked a sudden increase in political interest in the problem of tree health; a Tree Health and Plant Biosecurity Task Force, chaired by Professor Chris Gilligan, was set up, leading to the appointment of the UK’s first Chief Plant Health Officer, Nicola Spence (who was sadly unable to attend the conference due to the pre-election pur-dah), and the development of the UK Plant Health Risk Register. This records known pests and diseases that may threaten UK plant species, and currently has more than 700 records. Pest Risk Analyses (PRAs) are carried out, which help to identify threats of particular concern and priority actions.

The discussion fielded questions on the best ways to manage sites with ash dieback. The general consensus, unless it is a safety issue, was not to fell infected trees as there may be some that demonstrate tolerance. A possible interaction with high deer abundance was also noted, with deer confounding problems of low regeneration levels.

The second session, chaired by Ceri Davies of Natural Resources Wales, was on learning from overseas experience, and had an emphasis on sharing expertise. The first talk, by Professor Mike Wingfield, President of the International Union of Forest Research Organisations (IUFRO), gave a global overview of the problem, stressing that new pest and pathogen epidemics will continue to emerge, and that not all of them will be predictable by a PRA-type approach. He termed these ‘unknown unknowns’ or ‘Black swan diseases’. Plantation forestry can negatively influence global tree health by facilitating novel host–disease associations and, when an epidemic takes off, providing a huge infection pressure that may allow diseases to switch into native trees. He introduced IUFRO as an important international tool encouraging collaborations to tackle this, and encouraged members of the audience to join and help bring about positive change.

Jim Zwack, from the Davey Tree Expert Company, and Catherine Ste-Marie of the Canadian Forest Service, then presented two case studies, on Emerald ash borer (EAB) in the USA and the Mountain pine beetle (MPB) outbreak in Canada. EAB, a beetle native to areas of Asia, was discovered in the USA in 2002. It has since killed tens of millions of ash trees and is still spreading, with projected financial impacts in the billions of dollars. A crucial lesson that needs to be learnt from this terrible outbreak is the need to be ready to act rapidly when the first infestation is found, and not be lulled into a false sense of security in the inevitable lag phase after the first discovery. MPB, by contrast, is native to western North America and until recently coexisted reasonably peacefully with Canada’s huge pine forests. However, over the past 20 years there has been a lack of
severe cold winter weather which historically controlled the MPB population and, coupled with fire management which allowed a huge susceptible host population to build up, this has caused an epidemic of MPB on a vast scale. Over 18 million hectares of pine forest have been destroyed by the beetle. Novel behaviours of native species is another example of the ‘unknown unknowns’ that are likely to become more frequent as the climate changes.

After this somewhat disheartening session, there was a request from the floor to describe some success stories to give some hope! It was explained (both then and later in the conference) that there have been many success stories, but they are far less visible and easy to quantify than the failures. There was also a call during the discussion for global initiatives to tackle problems in a way that makes biogeographical sense, rather than having initiatives that stop at each country border.

For the final session of the day, chaired by Professor James Pendlebury from Forest Research, we heard four different perspectives on risk. Professor David Ball, Middlesex University, described different types of risks and decision making, including the ALARP principle, which aims to implement risk controls where the cost to society of not acting is greater than the cost of the control. In order to make that judgement wisely, we need to provide policy makers with as much information on potential consequences and costs of tree health issues as possible. From Phil Cottle of Pardus Underwriting Ltd we heard an insurer’s view on pest and disease risk. The way insurers develop policies can change people’s behaviours; for instance, some insurance companies in China will not pay out for death of trees due to pests or diseases, but will cover treatment costs if the outbreak starts within the policy period. This provides an incentive to find and deal with outbreaks as quickly as possible. Susan Davies, University of Edinburgh, then presented a model that is being developed to provide a standardised rating of UK tree pest and disease risk. Susan’s team have developed a replicable methodology to quantify risks to each tree species from pests and diseases. Key current threats that have emerged from this process are threats to ash and birch trees.

Lastly, Matt Hommel from Christie-Elite Nurseries spoke about the nursery industry’s perspective on tree health risks. He argued that market stability is critical for the resilience of nursery businesses. Since it takes several years to grow material for sale, and whenever demand outstrips supply buyers simply source stock from abroad, increased stability would also make a major contribution to improving biosecurity in the UK.

The conference dinner was held at Thistle Cardiff, the Parc Hotel, at which Sir Harry Studholme and Dr David Humphreys were awarded Honorary Fellowship of the Institute, and Sasha Laing MICFor and Claire Wightman MICFor received their Distinction certificates from the 2014 Professional Membership Entry (PME) exams. We were then treated to a fantastic after-dinner talk by James Astill, the Political Editor of the Economist, on two of his great passions, forests and cricket, and how a country’s attitudes towards these two things can give a deeper insight into the politics of the country.

After setting out the scale of the problems of tree pests and diseases on the first day, the second day shifted towards looking for solutions. Jo O’Hara, Head of Forestry Commission Scotland, lightened the mood with a highly enjoyable talk on the current levels of resilience in the UK forestry sector. She gave a ‘school report’ on several key factors that could be improved to promote resilience. Forestry scored an A for ‘Noticing Problems’, in recognition of the large amount of effort that ensures that good data on tree health is available. On ‘Caring’ about the problems, however, she scored us only a C. Clearly, people within the sector care deeply, but Jo O’Hara suggested that foresters could be doing more to promote awareness among the general public. Due to the real problem, the lack of available expertise, Jo scored forestry a B in ‘Understanding’, and only a C+ for ‘Responding’ – not due to lack of a response, but because there is insufficient leadership and expertise driving the responses. Jo sees organisations such as the ICF as a potential future source of leadership.

Professor Tariq Butt of Swansea University then gave us an in depth account of research into using funnel control agents against insect pests. These agents have various advantages over conventional chemical treatments: they are specific to particular insect pests, making them environmentally friendly and safer for humans, and they are useful for tackling pesticide resistance. These methods are showing great potential for tackling insect pests, especially when combined with nematode treatments, very low-level chemical treatments to stress the pests, or repellents/attractants to reduce the need to treat large areas.

This was followed by a talk on global policy improvements by Martin Ward, Director General of the European and Mediterranean Plant Protection Organisation (EPPO). Martin Ward described the problems faced by policy makers tackling pests and diseases, including familiar problems such as limited resources, barriers to collaboration and technical challenges, and also other difficulties such as reluctance to report diseases. He also stressed the importance of quantifying and promoting successes (such as the apparent eradication of the Kent outbreak of Asian longhorn beetle in 2012), as these justify continued funding. He also echoed earlier calls for increased collaborations and a more precautionary approach to...
The second session of the day focused on practical responses to outbreaks in the field. Dr Joan Webber of Forest Research described how genetics have revolutionised detection of diseases, making it quicker and more accurate; but also gave a strong case for simpler measures and the need to follow best practice for biosecurity, such as cleaning boots after visiting sites. She also explained the importance of continuing to take precautions after a disease has been found, as secondary introductions boost the genetic diversity of disease organisms and often contribute to making them much larger problems.

Dr Neil Strong followed with a fascinating insight into how Network Rail manages tree health in their 360km² estate. This is a serious public safety issue, as fallen trees of 15 centimetre diameter or greater can derail a train. The challenge of maintaining safety is growing as the frequency of severe weather and pest and disease outbreaks increase; there are 400,000 potentially dangerous ash trees on the network, which are now threatened by ash dieback. Network Rail carries out annual tree risk assessments and is also investing in new technologies such as Lidar. It hopes to use the increasing challenges as an opportunity to build collaborations with groups such as the Forestry Commission to improve monitoring and biodiversity outcomes.

Dr Bill Mason, Forest Research, spoke next on forest management for resilience. He argued that most foresters accept that diversification is necessary for improving resilience; but when, where and with what to diversify is less understood. He presented two case studies to show the processes behind making these complex decisions, and stressed the importance of having detailed knowledge of your site to identify specific vulnerabilities. He identified heavy thinning, which promotes stand size diversity and reduces tree stress levels, as another helpful method for increasing resilience, for instance, to drought stress.

The discussion for this session focused on the importance of defining the type of resilience you are interested in creating (for example, ecological vs financial resilience). Joan Webber also pointed out that regional context matters when discussing the impacts of pests and diseases; in the UK we have relatively little forest, which is therefore very precious to us, so even diseases with relatively limited impacts become significant.

The final session concentrated on messages for government and the profession. Dr Clive Potter of Imperial College, London, presented social aspects of tree health issues, arguing that a key objective is to ensure that the public is well informed about risks to tree health: a risk-aware consumer may be willing to pay a premium for ‘clean’ UK-grown plants; a risk-aware citizen should be able to drive political change and hold policy makers to account. The baseline of public knowledge is low, but interest can spike dramatically as seen with the ash dieback crisis, which, interestingly, seems to have sparked interest in plant diseases more generally, although perhaps without fostering much long term increase in knowledge. Research ought to help improve communications to the public through understanding their responses better.

Ben Gunneberg of the Programme for the Endorsement of Forest Certification (PEFC) then spoke about implications of pests and diseases on forest certification, and the role that certification can play in helping fight the problem. 10% of the world’s forests are currently PEFC certified, providing robust performance standards that are nationally appropriate, scientific and holistic, and communicating these standards to the public. The international requirements include periodic monitoring and encouraging diversity in species, genetics and structures. These requirements are then adapted to each local situation, allowing dialogues to take place to try to improve decision-making.

Picking up again on the theme of the lack of available expertise on forest pathology, Professor Simon Leather of Harper Adams University then spoke on the educational needs of the forestry profession. To be able to make informed decisions on pests and diseases, foresters need to have a grasp of basic insect and fungal taxonomy, as well as practical experience in recognising symptoms. Of the few remaining forestry courses in the UK, most have limited and some have no practical work or specialist staff to teach forest protection; problems which urgently need to be addressed. Forestry professionals, meanwhile, need to make sure that they keep up to date with recognising pests and diseases. Simon Leather recommended setting aside specific forest health days for this.

To close the conference, Steve Connor, CEO of Creative Concern, gave a masterclass in communication with his presentation on improving public awareness. In a highly entertaining and enlightening talk, he described how attempts to communicate with the public over matters of public good have a serious challenge to cut through the 3,000 adverts the average person is exposed to daily. Things that can help are creativity in adverts, using common names rather than Latin, using YouTube and social media, and framing issues in terms of intrinsic values (ie, things that people care about for their own sake, as opposed to extrinsic values such as money), which is particularly effective in campaigns for public good. He explained how the media hype around ash dieback gave the public little information on things they could do to help, leaving them none the wiser on issues such as biosecurity. Such media messages need rationalising if they are to make a positive contribution. However, forests do have major traction with the public, as was demonstrated by the huge campaign to stop the sell-off of the public forests. This is a great head start for anyone trying to engage the public on issues of tree health.

David Henderson-Howat, the newly elected President of the ICF, closed the conference with a promise that PDFs of all the speakers’ talks would be made available on the ICF website. He thanked the speakers, chairs and sponsors, and especially Allison Lock and the staff at the ICF for organising a fantastic two days. His final request was a plea to the delegates to help spread the messages of the conference, and do their bit towards increasing public awareness.