

**TREE HEALTH AND PLANT BIOSECURITY WORKSHOP**

**Wednesday, 16 February 2011 (10.00-16.30)**

**Royal Horseguards Hotel, 2 Whitehall Court, London SW1A 2EJ**

**Report of workshop**

## TREE HEALTH AND PLANT BIOSECURITY WORKSHOP

*This summary report includes points noted from the workshop discussions. It is intended as an informal aide memoire rather than a comprehensive record. It does not attempt to capture the detail of the wide-ranging debate, to reconcile views or to comment on the validity of the comments made by participants.*

### Introduction

1. The agenda for this meeting is at Annex 1 with the list of participants at Annex 2. Presentations and one page summary notes on key pests and pathogens will be available on the Forestry Commission website in due course.
2. Tim Rollinson and Bob Watson welcomed participants to the meeting, explaining that tree health and plant biosecurity was seen as a priority by the Secretary of State for Defra. Officials were in the process of drawing up an urgent action plan and were looking for a joined up and interdisciplinary approach. The action plan would be constructed around four themes – practical actions, import controls, public engagement and research. Participants were asked to help identify key issues and priorities in order to inform development of the plan. Tim Rollinson talked about a step change in our approach to dealing with tree diseases.

### Policy context

3. Wilma Harper and Martin Ward gave presentations on the policy context for the meeting. Wilma explained the scope of the Tree Health Strategy, its objective and approach (see attached). Martin described the international context to plant health, setting out the roles of the International Plant Protection Convention (IPPC), European and Mediterranean Plant Protection Organisation (EPPO), European Union (EU) and national bodies. He covered the Review of the EU Plant Health Regime and the UK approach to negotiations on any amendment to the Plant Health Directive.

### Situation reports

4. Situation reports on some key pests and diseases were presented by Peter Freer-Smith (Acute Oak Decline, Oak Processionary Moth, Red Band Needle Blight, Horse Chestnut Bleeding Canker, Pine Tree Lappet Moth) and David Slawson (*Phytophthora ramorum*). They outlined the current position, pace of change and challenges. One page notes for each organism were handed out at the meeting and are attached.

### Prioritising pests and diseases

5. Miles Parker introduced a risk assessment tool (D2R2) which has been developed for prioritising livestock diseases. The aim of using an animal rather than a plant tool was to get people thinking out of their normal thinking patterns. It was based on scoring impacts in five areas (public health, animal welfare, wider society, international trade, risk and mitigation). Participants were asked to consider the

prioritisation of plant pests and pathogens in the wider context of the full extent of their impacts.

6. Bob Watson then briefly described work he and Cranfield University were undertaking on developing a model for objectively allocating resources to different areas of Defra's activity, based on the economic, environmental, social/cultural and human health impacts in each area. Initial pilot work had focused on four key areas but this could be extended to plant health. This approach could identify if the level of resources allocated to plant health were proportionate with respect to Defra's strategic priorities. However, he stressed that currently there was no extra Defra funding available for tree health and plant biosecurity; careful reprioritisation of existing resources would be an essential first step.

7. Bob then outlined the aims for the two breakout groups which were going to discuss three of the components of the action plan (Group 1 on Import Control and Practical Actions; Group 2 on Public Engagement) and the post-lunch table rounds which would discuss Research Opportunities and Priorities.

### Breakout Groups

8. The two Breakout Groups then took place. Martin Ward and Roddie Burgess gave feedback from Group 1 on Import Control and Practical Actions respectively. David Slawson provided feedback from the Group 2 discussions on Public Engagement. Key points to emerge were:

#### Import Control

- Chips for wood energy are imported in large volumes and could represent a high risk during storage and currently include non-regulated wood, hence this trade may not be properly tracked.
- There are concerns about the effectiveness with which different Member States undertake pest/pathogen eradication campaigns and, consequently, their ability to ensure that initial outbreaks of quarantine organisms do not spread further, either naturally or through trade in infected material.
- Do we have sufficient capacity to cope with unknown/unidentified organisms?
- There is limited ability (and opportunity) to detect latent infection at the point of entry – what are the pros and cons of shifting resource to follow up inspections at growing sites.
- Where does plant health sit with respect to other Government priorities?
- The volume of plant trade is increasing. The size of specimen plants, including large rootballs of soil, is also increasing as we seek instant landscape creation.
- How big an opportunity is there to change the EU Plant Health Strategy?
- Is there opportunity for a closed border approach?
- What are the responsibilities of importers?
- If resources were made available more rapidly would the chance of success be increased (e.g. Pine Wood Nematode, where a lot of money has been spent but perhaps too late?).
- Issues over previously unknown pathogens – they may be time delays over adapting legislation. Our understanding of a new pathogen can be based on its

presence as an invasive, which can be very different to the way it behaves in its native environment.

### Practical Actions

- Members States have the right under EU legislation to take emergency action, pending decisions on risk management at the EU level.
- There appears to be a gap between Departmental responsibilities in relation to urban trees and their plant biosecurity impact.
- Principle of the polluter pays – who is the polluter? Policies should ensure there is an incentive to disclose the presence of pest or pathogen.
- Reiteration of the risks and issues of dealing with previously unknown pests and pathogens.
- Concerns over the ‘one size fits all’ approach to compensation. The situation where action that has wider public benefit is required as a result of a pest or pathogen arriving at premises through no fault of the owner (wider environment infection) is different to the situation where a business has brought in infection as a result of its own activities (ornamental trade infection).
- Concern over the adequacy of resources within agencies to respond to increased numbers reports of suspect findings from partners and stakeholders.

### Public Engagement

- There is considerable public interest in trees at the moment (e.g. from the International Year of the Forest and the Public Forest Estate Consultation) so it is the right time to build on this and raise awareness of tree health and biosecurity.
- There are a number of existing working groups involving stakeholders; we need to consider how better to co-ordinate their activities and bring them together into a single coherent structure.
- There is a need to undertake a more comprehensive stakeholder mapping exercise.
- The phrase “public engagement” is a bit narrow. There are lots of professionals and semi-professionals across sectors who could act as educated eyes and ears, opinion formers and enactors. The wider public does have a role in regards to imports and purchasing practices – the challenge is to change behavior. We need to avoid a ‘them’ and ‘us’ attitude.
- We should try to use positive not negative messages. Not everyone understands the term “biosecurity”. A phrase like “healthy gardens, healthy trees, healthy people!” would be more engaging.
- Need to think about future generations. There has been some work done with Lantra, but we should think more laterally about using the national curriculum.
- Build on existing social/public research evidence.

### Research

10. Three short introductory talks on research themes were given by Chris Gilligan (modeling/epidemiology), Rick Mumford (surveillance, detection and diagnosis) and Joan Webber (prevention and control). Participants were then asked to conduct table discussions on the opportunities for research. In addition they were asked to consider whether the Animal Health D2R2 model presented earlier by Miles

Parker could be used as a template for prioritising actions on plant pests and diseases and explore potential partnership opportunities.

11. The following key points emerged from the table discussions:

*Aetiology, pest and disease organism biology, epidemiology*

- Models were generally seen as playing an important role as a tool to support decision making (e.g. to underpin cost-benefit analysis), tailor the control effort for specific pests/pathogens and to indicate evidence gaps. More investment in creating a generation of generic models was suggested.
- Concerns were raised about how the models should be used and the nature and provision of expert advice that goes with them in supporting decision making. Who acted as the interlocutors between the research modelers and the policy makers and operational staff in order to ensure that the models are used effectively and correctly and that their limitations are understood?
- There should be external and independent expert review of models.
- Lack of sufficient data to use in modeling was raised.
- Data collection was often difficult because of the need to take immediate containment/eradication action on the ground. There were also concerns about access to private sector data.
- Data were seen as particularly lacking on levels of infection, dispersal processes, inoculum pressures, effects of climate change and unusual weather events, land use and ownership, host distribution, genetic diversity, socio-economic parameters. Data on pests and pathogens should draw on knowledge about them from their areas of origin.
- A more multi- and inter-disciplinary approach is needed. There were concerns about the lack of social science and economic input into models and indeed, wider policy making. In particular, there was a need to ensure that stakeholders and policy makers were engaged at all stages from the construction of the model through to the interpretation of outputs.
- More effort was needed to bring together and integrate land use and vegetation data from a wide variety of local and national sources linked to more use of remote sensing techniques. Models could usefully be linked to GIS and ecosystem services models.
- Improvements could be made from co-ordinated data collection and warehousing across a range of organisations. Effective data management and quality assurance were perceived as being low on the priority list and need to be strengthened.

- We need to understand more about resilience in natural and semi-natural plant/tree communities.

### Surveillance, detection and diagnosis

- There was a need to have a clear surveillance strategy in place with improved co-ordination and collaboration across plant health sectors to optimise use of limited human and capital resources. There was scope for more international co-operation on surveillance and for an enhanced role for industry.
- For forestry scale surveillance, site access is an issue as many areas are privately owned. There was a need for greater application of remote sensing techniques such as aerial surveying of canopy health. Use of spectral signatures, radar, Unmanned Aerial Vehicles (UAVs) and sniffer technology can help in the detection of hosts as well as diseases.
- Improved use of existing environmental sampling networks (e.g. pollen trapping and other air sampling networks).
- There is scope for training in pest and pathogen awareness for semi-professionals and volunteers in order to help increase the monitoring effort.
- Many new technologies are now routinely being used in plant health diagnostics although this does not seem to be widely known beyond the regulatory services. Further developments need to be focused on detection and diagnosis of new threats rather than known ones for which methods already exist, although the identification of a new organism does not in itself provide information on whether it presents a significant threat.
- Modern metagenomic approaches such as Next Generation Sequencing (NGS) can be powerful tools for rapidly identifying both known and unknown causal agents from samples, particularly if they are not easily cultured in a laboratory.
- New technology should be field-based rather than laboratory-based wherever possible in order to increase speed of turnaround of sample analyses. The need should drive the technology rather than vice-versa and should not rely on ever more expensive machinery unless it can be demonstrated to provide real operational savings. It is perhaps better to concentrate limited funds on improving current techniques rather than continually adding new ones.
- Possible sources of new technology ideas included the security and telecommunications industries.
- For some high risk pest and pathogen groups (eg *Phytophthora*) we require generic rather than species-based diagnostic techniques.

- Could we use sentinel plants (which are particularly susceptible to certain diseases) to improve our ability to detect outbreaks more rapidly after initial infection?
- Concerns were expressed about the erosion of taxonomic expertise both in the UK and elsewhere; traditional systematic methods still underpinned much of our diagnostic and detection activities.
- We need to join up our pest and pathogen data systems across Government, Universities, industry and the third sector much more effectively and provide increased access to the public and researchers.

### Prevention and control (including treatment)

- The best form of prevention is to reduce risks at the borders (e.g. through reducing amount of imports, increasing inspection levels and/or not allowing in large specimens). However, such changes could have significant political and trade implications. Although removing the personal baggage concession was favoured by many participants others questioned whether it really was a serious source of risks and what the economic evidence was to support removal. Could we learn from the approach to border controls in, for example, New Zealand and Australia?
- We need to focus more on pathways of risk rather than on individual organisms.
- More interdisciplinary research needed to be carried out into the socio-economic drivers behind “problem behaviour” and how to change it. For example, how can we incentivise nurserymen/landowners/merchants to take biosecurity more seriously and to look for and report pest problems? Given compensation is unlikely could a “Red Tractor” type scheme work.
- Should we be transferring more of the cost of plant health controls to importers (e.g. through a plant health tax or by charging them for a full risk assessment for bringing in larger plants) – the polluter pays principle.
- More resource and expertise needs to be directed at effective stakeholder engagement through communication, knowledge transfer and data exchange.
- Landowners need timely, good and practical advice on control and management options. However, there is little commercial gain in growing trees so they will be reluctant to pay for expensive containment and eradication activities that mainly benefit wider society.
- Need to develop methods to value forests and woodlands, taking more than just commercial value into account.
- More research was needed into the resilience of trees to pests and pathogens and how we can retain the genetic diversity of our forests and woodlands. Does

breeding for resistance have a role to play? How do we manage introduced pests and pathogens where eradication is not feasible and we have to live with them?

- Frequently, control and management options are initiated on the basis of limited evidence. They need to be adapted as the evidence base improves during containment and eradication programmes. The programmes also need to be properly evaluated and the efficacy of treatments and controls determined in order to inform future management strategies.
- We need to develop more biological control agents, particularly by looking for natural enemies to introduced pests and pathogens in their centres of origin (e.g. mycoviruses for fungal pathogens).
- Potentially fruitful areas for research mentioned included lure/kill and sterilisation/mating competition approaches for insect pests and improved disinfectant treatments for treatment.
- A case was made for more longitudinal research, particularly using trial areas to generate information on how specific pests and pathogens spread.
- Research should focus on management outcomes. It also should take into account management for the future such as replanting advice.
- Could we improve our ability to contain and eradicate new outbreaks through having rapid response “SWAT” teams that can be rapidly mobilised and deployed?

12. In relation to how to prioritise action against pests and pathogens most tables felt that the Animal Health D2R2 model (see paragraph 5) had significant limitations when applied to plant health. Many participants felt that there were major differences between animal health (diseases were generally well known and geographically homogenous in impact, livestock were in more highly managed and controlled environments and relatively short lived) and plant health (large numbers of undescribed or poorly known threats, often occurring in natural and less managed environments, large geographic variations in host-pest interactions and often involving long lived plants which could not readily be replaced). There were other concerns about the weighting of the different factors and how the model would cope with insufficient data (e.g. on pathogen spread and biology, host distribution, asymptomatic infection, areas of geographic risk, impact of climate change, socio-economic impacts). There were also questions about how such a prioritisation model sat alongside the internationally agreed Pest Risk Assessment processes that are currently used, although it was accepted that these were by no means perfect.

13. In general there were concerns that there was an overall lack of a comprehensive plant health strategy which encompassed trees as well as other plants. Some participants felt that such a strategy should include work on immediate responses to major diseases (usually regarded as Acute Oak Decline, *Phytophthora ramorum*, Red Band Needle Blight, Pine Tree Lappet Moth and Oak Processionary

Moth) as well as more strategic (generic) research and horizon scanning. There was clear frustration amongst some stakeholders about our inability to effectively counter what they regarded as major threats.

14. Other general points to emerge:

- The need to consider affordability.
- An emphasis on the need to increase our early detection ability, particularly in relation to previously unknown pests and pathogens.
- The need to broaden our understanding of the social benefits of healthy plants, particularly public health benefits. Other key social scientific research needs that were identified included a better analysis of stakeholders, what motivated them and how best to communicate with them; how to mobilise non-expert stakeholders, how we can we more effectively use or adapt current governance structures to address tree health problems and how the balance of responsibilities between Government and other stakeholders fits into the current big society agenda.
  - a general perception that the level of resources allocated to plant (including tree) health issues was disproportionately low compared to that spent on some other major areas of Defra responsibility (e.g. animal health, flooding).

15. At the end of the meeting Bob Watson and Tim Rollinson thanked participants for their constructive and challenging input which would now be used to help draw up the action plan.

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**AGENDA**

<b>Time</b>	<b>Sessions</b>	<b>Leads</b>
09:30	<i>Registration and tea/coffee</i>	
	<i>CHAIR – Tim Rollinson, Forestry Commission</i>	
10:00	Welcome and introduction to the workshop	Tim Rollinson and Bob Watson
10:10	Policy context for tree health and plant biosecurity <ul style="list-style-type: none"> <li>• Introduction to issues and the policy landscape</li> <li>• Comments and Q&amp;A</li> </ul>	Wilma Harper and Martin Ward
10:30	Situation reports – outlining the current situation, pace of change and challenges <ul style="list-style-type: none"> <li>• <i>Phytophthora</i></li> <li>• Other key tree pests and diseases</li> <li>• Comments and Q&amp;A</li> </ul>	David Slawson and Peter Freer-Smith
11:10	Prioritising pests and diseases <ul style="list-style-type: none"> <li>• Risk assessment to help focus the discussion on top priorities</li> <li>• Comments and Q&amp;A</li> </ul>	Miles Parker
11:45	Components of an action plan <ul style="list-style-type: none"> <li>• Aims for breakout groups and discussions on research and cross-cutting themes</li> </ul>	Bob Watson
11:50	<i>Tea/Coffee</i>	
12:00	<u>Breakout Group 1:</u> Import Control and Practical Actions <ul style="list-style-type: none"> <li>• The structure for import control and key areas likely to change following the EU-wide review, and exploring ideas for practical actions to help strengthen our hand in protecting tree health</li> </ul> <u>Breakout Group 2:</u> Public engagement <ul style="list-style-type: none"> <li>• Ways to engage the public and stakeholders to: be aware of plant pest and disease threats; change behaviour to reduce risks of introducing and spreading pests and diseases, and; take measures</li> </ul>	Martin Ward and Roddie Burgess  David Slawson

	to reduce the damage from pests and diseases.	
12:45	Feedback from Groups 1 and 2	Martin Ward, Roddie Burgess and David Slawson
13:00	<i>Lunch</i>	
	<i>CHAIR – Bob Watson, Defra</i>	
13:30	<p><u>Plenary Group 3: Research opportunities and priorities</u> Round-table discussions on opportunities and priorities for action, addressing the three research themes and cross-cutting issues in turn:</p> <ul style="list-style-type: none"> <li>i) Aetiology, pest and disease organism biology and epidemiology</li> <li>ii) Surveillance, detection and diagnosis</li> <li>iii) Prevention and control (including treatment)</li> <li>iv) Cross-cutting partnership opportunities</li> </ul> <p><i>(Tea/Coffee available from 15:00)</i></p>	<p>Miles Parker</p> <p>Chris Gilligan</p> <p>Rick Mumford Joan Webber</p>
16:00	<p>Action planning</p> <ul style="list-style-type: none"> <li>• Issues and preliminary conclusions</li> <li>• Institutional response options</li> <li>• Next steps</li> </ul>	Bob Watson and Tim Rollinson
16:30	<i>Close</i>	

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**LIST OF PARTICIPANTS**

<b>Name</b>	<b>Organisation</b>	<b>Table</b>	<b>Breakout Group</b>
Adebowale, Tayo	Forestry Commission	7	2
Annett, Peter	Department for Communities and Local Government	2	2
Barkham, Mary	Living With Environmental Change (LWEC)	5	1
Brasier, Clive	Forest Research	6	1
Brown, Anna	Forest Research	2	2
Burgess, Roddie	Forestry Commission	8	1
Caspari, Conrad	CEASC	3	1
Coppock, Roger	Forestry Commission	9	2
Crews, Helen	Food and Environment Research Agency	1	1
Dancy, James	Government Office for Science	9	1
Dandy, Norman	Forest Research	4	2
David, John	Royal Horticultural Society	3	2
Davidson, Ian	Department for Environment, Food and Rural Affairs	5	2
Denman, Sandra	Forest Research	4	1
Evans, Hugh	Forest Research	1	1
Freer Smith, Peter	Forestry Commission and Forest Research	7	1
Garson, Peter	Forestry Commission	3	2
Gilligan, Chris	University of Cambridge	4	1
Goodwin, Peter	Woodland Heritage	3	2
Harding, Debbie	Biotechnology and Biological Sciences Research Council	8	2
Harper, Wilma	Forestry Commission	4	1
Harrington, Tony	Food and Environment Research Agency	9	2
Harrison, Caroline	Confederation of Forest Industries (UK) Ltd (ConFor)	7	2
Harrison, Christine	Royal Botanic Gardens, Kew	2	2
Heuch, Jon	Arboricultural Association	2	2
Hopper, Stephen	Royal Botanic Gardens, Kew	7	2
Hunter, Stephen	Consultant	8	1
Ingram, David	ESRC Genomics Forum; Edinburgh University; and Lancaster Environment Centre, Lancaster University	7	2
Inman, Alan	Food and Environment Research Agency (Fera)	3	1
Jackson, John	Royal Forestry Society	6	2
Jeger, Michael	Imperial College	8	2

Jones, Ben	Forestry Commission	5	2
Jones, Jon Owen	Forestry Commission	5	1
Leather, Simon	Imperial College	1	1
Lucas, John	Rothamsted Research	2	1
MacLeod, Hamish	Forestry Commission	6	n/a
Maxwell, Simon	Department for Environment, Food and Rural Affairs	6	2
McVey, Jen	Forestry Commission	1	2
Mole, Sharon	UK Borders Agency	4	1
Moore, Roger	Forest Research	8	2
Mumford, John	Imperial College	6	2
Mumford, Rick	Food and Environment Research Agency	4	2
Parker, Miles	Department for Environment, Food and Rural Affairs	3	2
Pittini, Michele	Department for Environment, Food and Rural Affairs	7	1
Popple, Sue	Department for Environment, Food and Rural Affairs	6	1
Potter, Clive	Imperial College	5	1
Redstone, Sara	Royal Botanic Gardens, Kew	8	n/a
Redwood, Greg	Royal Botanic Gardens, Kew	1	1
Richards, Geraint	Duchy of Cornwall	1	1
Rollinson, Tim	Forestry Commission	2	2
Seville, Mike	Country Landowners Association	8	1
Sharkey, Andrew	Woodland Trust	4	2
Slawson, David	Food and Environment Research Agency	2	2
Smith, Andrew	Forestry Commission	6	1
Stokes, Jon	Tree Council	9	2
Straw, Nigel	Forest Research	9	1
Vannini, Andrea	University of Tuscia	9	1
Walters, Keith	Food and Environment Research Agency	7	2
Ward, Martin	Food and Environment Research Agency	5	1
Warhurst, Pam	Forestry Commission	3	n/a
Watson, Bob	Department for Environment, Food and Rural Affairs	1	1
Webber, Joan	Forest Research	2	2
Wilding, John	Clinton Devon Estates	2	2
Williams, Martin	Welsh Assembly Government	9	1
Wright, Ian	National Trust	7	2
<b>Other attendees</b>			
Costigan, Peter	Department for Environment, Food and Rural Affairs	-	-
<b>Organising team</b>			
Betja, Justine	Department for Environment, Food and Rural Affairs	-	-
Garretty, Cathy	Department for Environment, Food and Rural Affairs	-	-