

Report on Phytothreats start-up meeting April 21st 2016

Held at

Forest Research Northern Research Station, Roslin, Midlothian, Scotland EH25 9SY

The aim of this meeting was to bring the whole project team together with a range of stakeholders to present the workpackage (WP) objectives, research approaches and programmes of work in order to generate shared understanding, discussion, commentary and advice. Action points arising from the meeting are highlighted in green.

There were 25 attendees at the meeting comprising the project science team, nursery stakeholder participants, representatives from policy and industry, and the THAPBI coordinator.

Project Overview

9.00-9.30: The meeting started with an overview of the Phytothreats project by Project Coordinator Sarah Green (Forest Research, FR). Sarah provided some general background on Phytophthoras, setting the scene with descriptions of five 'emerging' Phytophthoras now causing damage to trees in Britain, stressing the link with trade in terms of introduction and spread of these pathogens. She gave a brief description of the project WPs and objectives and finished with an overview of the day's agenda.

Introductions

09.30-10.00: Social scientist Mike Dunn (FR) led the 'ice breaker' session which involved 5 mins of getting to know your neighbour before having to stand up and introduce them to the room. It's amazing what some people collect for hobbies !.The session helped to set a relaxed and informal atmosphere for the rest of the meeting.

WP1 presentation

10.00-11.00: David Cooke (James Hutton Institute, JHI) outlined plans for WP1: *Phytophthora* diversity, distribution and management in UK nursery systems. Objective 1 of the WP is to use metabarcoding to analyse *Phytophthora* community structure in different nursery management systems and Objective 2 is a *Phytophthora* community modelling analysis. David outlined the proposed methods for sampling, with a brief account of sampling theory and bioinformatics and pointed out potential challenges and technical issues that need to be considered. David also gave a quick account of *Phytophthora* barcoding literature; for example a recent study of four Scottish streams found the DNA signals of 45 'species' of *Phytophthora*. This emphasized the need for a baseline of the 'background' level of Phytophthoras present in the wider UK environment. David's talk was followed by a discussion session which is summarized as follows;

- Vadim Saraev (Forest Research) asked how many nurseries would be surveyed, ie how would the project ensure that the sample size of nurseries was representative of the industry as a whole?. This prompted comment on ensuring that sampling was done across a broad range of nursery management practices. Currently the project has 8 partner nurseries signed up in Scotland and 4 in England & Wales. These probably represent the more pro-active nurseries in terms of willingness to manage disease. The challenge is to get those operating less optimal practice in terms of disease management.

- How to appeal to nurseries in order to get engagement?. Rodney Shearer (Alba Trees) commented that we are trying to change the mindset and create a positive ethos so nurseries should be positive.
- What happens if we find a Quarantine Pathogen (QP)?. This issue was making some nursery managers and particularly the traders (ie garden centres) reluctant to participate in the project. Sarah Green (FR) asked if the project could have exemption from the legal obligation to report QP to Plant Health and instead report findings back to the nursery and work with the nursery to manage the problem through the project. The return comment was that although a finding based on DNA data is not sufficient evidence in itself to justify statutory action, any finding would still need to be reported. We should be able to reassure nursery managers that there will be a delay between sampling and results coming out so it is unlikely that inspectors will be called to the nursery, especially when the finding has been in water and not associated with an actual diseased plant.
- It was asked whether we could define a 'threshold' signal of reportable *Phytophthora* in the sample. The data from each sample will be in the form of DNA sequences and are quantifiable to a certain extent (ie number of DNA sequence reads per species in the sample) so the answer was, yes, this could be possible ie we would only report on QP if there were at least 'x' number of DNA reads present ?.
- It was reiterated that statutory action only happens with symptoms and an isolate from statutory sampling. Kelvin Hughes (Animal and Plant Health Agency, APHA) stressed that the project cannot avoid the legal need to declare something and that plant passports and tracing plant histories may well result in international implications of detection. **It was however agreed that there could be some negotiation on this matter and Kelvin suggested that Plant Health Policy members of the Expert Advisory Panel need to discuss the issue of QP findings and report back to the WP1 team before nursery sampling starts.**
- Sarah Green (FR) and John Speirs (Scottish Government) made the point that other research projects are analysing *Phytophthora* diversity in soils and water in the wider environment in Britain (mainly Scotland at this stage) and that the data will link in very well with Phytothreats. Sarah also said that these other projects are detecting quarantine regulated *Phytophthoras* at various wider environment sites including those not reported to have had *Phytophthora* outbreaks so this raises importance of having 'negative controls' of non-nursery sites. This would allow nursery data on *Phytophthora* diversity to be viewed comparatively to a 'background' level of diversity in the wider environment.
- Sarah Green (FR) asked whether the big trader/distributors such as supermarket and garden centre chains are subject to the same Plant Health inspections as smaller businesses?. The answer from Kelvin Hughes and Jane Barbrook (both APHA) was yes, their distribution centres are inspected. **It would be useful to get these companies on board with the project.** Alice Snowdon (Cheviot Trees) commented that small nurseries can use the data to improve their businesses whereas large distributors may feel they have something to lose, but nothing to gain.
- Alice Snowdon (Cheviot Trees) asked how many quarantine *Phytophthora* species per plant/batch are usually found and how many plants for sale are found infected with quarantine *Phytophthora* pathogens per year?. Jane Barbrook (APHA) commented that this has improved from a few % to <1% now.

- Jill Thompson (THAPBI Coordinator, Centre for Ecology and Hydrology, CEH) commented that we should be aware of which stakeholders are also being contacted by other THAPBI projects in order to avoid 'stakeholder fatigue'.
- Jon Knight (Agriculture and Horticulture Development Board, AHDB) asked whether we are contacting ALL nurseries and suggested the AHDB list could be used to raise awareness of the project.

WP2 presentation

11.30-12.30: Mariella Marzano (FR) presented the work plan for WP2: Feasibility analyses and development of 'best practice' criteria. This work is split into three parts; i) a social analysis of nursery best practice, ii) a cost-benefit analysis of best practice, and iii) developing best practice criteria to underpin guidelines for accreditation. Important to the research will be effective stakeholder mapping and understanding existing values, experiences and practices, and attitudes towards accreditation through a minimum of 20 interviews (of different stakeholders) per year. The cost-benefit analysis will involve nursery and consumer surveys to assess cost of implementation of different disease management measures and willingness to pay for accredited stock. There will be exploratory scaling up of survey values to a national level. The analysis will also enumerate the impacts of failure to adopt best practices. An Ethics Committee has been established to review the social science methods and a first meeting (a few weeks ago) has approved the approaches to be used. This committee will reconvene every six months. Anonymization of data will be crucial. The subsequent discussion raised the following points:

- Participant observation will be important and it would be a good idea for social science team members to visit nurseries and work alongside staff for a day.
- The surveys will focus on disease management generally, with *Phytophthora* a component of that.
- There must be good communication between WP1 and WP2. Mariella should be kept informed as to when WP1 team visit nurseries so WP2 can come along on same day.
- Rodney Shearer (Alba Trees) noted that Plant Health legislation means that each nursery has a nominated person for plant health so that is probably the best contact for WP2.
- Kelvin Hughes (APHA) said that a public survey of attitudes is best if done early on in the project as a subsequent survey can follow up at the project end to see if there has been a change in public attitude. Can Plant Health improve because it is not needed (due to improved buying behaviour?) rather than policy folk putting up more rules?.
- Richard McIntosh (DEFRA) asked whether the social science surveys would question about *Phytophthora* specifically or general disease management? – Answer was both.
- Jon Knight (AHDB) asked what was meant by 'consumer' since volumes (in terms of plant movement) are important. Thus it will be key to get landscapers into the survey of attitudes. These consumers are more price sensitive and less questioning than the public?. Jon made the point that the British Association of Landscape Institutes (BALI) would be a good contact point - e.g trees for HS2 – people are planning now. This was endorsed by John Speirs (Scottish Government Plant Health), yes,

landscapers are important. Also the Woodland Trust who have pledged for 6 million trees in 2016. John Speirs offered to pass on BALI contact. Jill Thompson (CEH) is talking to Woodland Trust in Oak project in May if we need connections. Thus the surveys may need to distinguish between 'domestic' consumers and 'landscaping' consumers.

- Mariella's original thoughts were to speak only to British organisations/contacts but after discussion it was agreed some European organisations would be beneficial to the project. Therefore European contacts will be investigated. Alice Snowdon (Cheviot Trees) suggested that the European Forest Nursery organisation (EFNI) would be a good contact. EFNI deal in bare root trees.
- Rodney Shearer (Alba Trees) suggested talking to those setting the rules in the plant trade. For example a clause in contracts is needed to say plants should be provided by accredited supply when supplying grant-aided forest schemes. He commented that HS2 will most likely be supplied by plant traders rather than nursery propagators due the way the whole planning has been run.
- John Morgan (Forestry Commission Plant Health, FCPH) asked whether the consumer survey will aim to catch all markets – forest sector or horticulture? Will the two streams be considered separately?. The answer was that it would need to consider both and build both in.
- Jon Knight (AHDB) asked if we could ask major wholesale traders (Aldi, B&Q, Dobbies) if they think they can sell a pricier product?. If they say yes will they pass the benefit on to the grower? They may not and that's a problem for producers.
- Sarah Green (FR) asked what does grown in Britain mean?. Cuttings can be grown in Britain but probably imported (e.g. Poinsettia) – look at web site (Growninbritain) or homegrown scheme for clarification.
- Alexandra Schlenzig (Science and Advice for Scottish Agriculture, SASA) commented that accreditation will need to be generic and not aiming for "Phytophthora free". Rodney Shearer (Alba Trees) reiterated this as we cannot say nurseries are "disease free" – "disease not found" is more realistic. The aim of the accreditation scheme is for more effective disease management not eradication.
- A comment on fungicide use led to a private discussion within the Cheviot Trees team – they do use fungicides incorporated into compost some but products have been taken off the market. Also, legislation is more complex as the old rules about agricultural fungicides being approved automatically for non-food horticulture use have changed and there is now a cost to get approval for horticultural use – AHDB are involved in this.

WP3 presentation

13.00-14.00: Beth Purse and Dan Chapman (CEH) presented an overview of the programme of work for WP3: Global *Phytophthora* risks to the UK. The presentation was split into three parts as follows:

WP 3.1 Trade pathways and risks of introduction: Dan Chapman (CEH) has been working with EPPO on plant pest pathways and predictions of high risk pathways. He presented on

connectivity networks between countries based on trade – import vs export matrix and the link with climate similarities and *Phytophthora* presence/absence data. GDP of a country in the network is also important (as a proxy for effort into biosecurity). The best model uses climate-weighted connectivity through multiple pathways. Host breadth increases invasiveness of pests and pathogens in general – but in this project this will be related specifically to *Phytophthora*. Trade pathways will be ranked, linked to ecological traits of *Phytophthora* and risk of a pathogen being introduced modelled based on position in transport networks and source intersection. This project will refine the temporal resolution of arrival and spread, incorporating air transport and more pathogen traits in the analysis.

WP 3.2 Risk of establishment and spread: This work will identify *Phytophthora* spp. with the greatest capacity for establishment and spread under UK conditions. Models range from statistical inferences on observations to detailed models based on organism traits. However pathogen spread varies with invasion stage/extent and pathogen biology might not be well known. The project needs good global incidence data on *Phytophthora* species from other sources to make more detailed niche maps. Pathogen niches in the UK will be mapped and best-performing modelling methods applied to 40 focal *Phytophthora* species to predict invasiveness a) can do this by overlapping information on environment in one country compared to that in other countries, b) for more detailed mapping can use *Phytophthora* biological trait data and specific modelling against climate. Survival traits are also important, ie chlamydospores vs oospores. David Cooke (JHI) commented that dead wood is not a substrate for *Phytophthora* survival. Ten focal species will be identified for the modelling (from the UK Plant Health Risk Register). After validation with these species a further 25-30 species outside Europe will be identified for application. Pathogens from agricultural crops will be excluded. Data will be sourced from EPPO, CABI, GBIF, DAISIE and PhytophthoraDB.

WP 3.3 Horizon scanning for emerging pathogens – scoping knowledge gaps: Mariella Marzano presented this section, the aim of which is to understand patterns of human movement and how pathogens are transferred to the UK. The focus will be on tourism and other recreational pathways. Mariella raised the question of how to find out who is coming to the UK for recreational purposes and what could they be bringing in terms of plant/soil material?. This work needs data on person and plant movement. Could the project use data from border security?. Priority should be given to known *Phytophthora* source regions. David Cooke (JHI) commented that visitor books in guest houses might be a useful source of information.

The potential policy impacts of WP3 include contributions to the UK Plant Health Risk Register, global ecological trait databases, publication of habitat/climate suitability maps for pathogens.

The following general discussion/action points were made:

- David Cooke made an action point to speak to Dan, Beth and Ana about the *Phytophthora* species list details. David agreed to drop his species description literature collection of pdfs on Huddle.
- It was noted that some databases (ie CABI) have dubious entries with questionable provenance, ie identification of *P. kernoviae* in New Zealand: a post-hoc identification by sequencing of a culture collection.
- We need to be aware that plants do move WITHIN Europe and that may not show on the import-export databases.
- Open-source flight information may be helpful.

- Mariella Marzano asked whether the plant passporting scheme can be used to track movement of plants within Europe – the answer was yes, to some extent.
- Paul Sharp (University of Edinburgh, UoE) asked how many *Phytophthora* species are there and will we be able to spot the next ‘new’ species?. The answer was that there are likely to be many as yet unknown species globally and therefore prediction is a major challenge. Ana Perez-Sierra (FR) commented that SE Asia is thought to be a ‘hotspot’ in *Phytophthora* diversity and the EU POnTE project has scientists currently conducting *Phytophthora* surveys in Asian countries such as Vietnam (and potentially Japan).
- Jane Barbrook (APHA) commented that we should not forget that data exist from previous projects on modelling on nursery movements and hubs. Also that LWEC Phase 2 project has host-pathogen interaction modelling, including CLIMEX.
- A question was raised as to how to cope with plant imports via internet purchases? Kelvin Hughes (APHA) said that Plant Health have a relationship with internet companies and also deal with Royal Mail and East Midlands airports to check consignments. It was also noted that total volumes of plant material moving in this way is small compared to other trade pathways.
- John Speirs commented that the Scottish Government is commissioning a new project in month or so that will track *Phytophthora* species in key environments across Scotland. Again, data from current metabarcoding projects studying *Phytophthoras* in the wider environment will be useful for WP3 models.

WP4 presentation

14.00-15.00: Paul Sharp (UoE) and Leighton Pritchard (JHI) presented the overview of WP4: Predicting risk by analysis of *Phytophthora* genome evolution. This WP will start in April 2017 and will run for two years. Paul provided a general introduction to molecular genetics using data from a range of organisms to explain how DNA sequences can yield useful information on evolutionary processes leading to (for example) woody host adaptation, including the role of horizontal gene transfer. Paul also provided an overview of complications in DNA analyses due to hybridisation and horizontal gene transfer. This project will look at genes gained and lost across the *Phytophthora* population using approaches similar to those used to analyse genes associated with infection of woody hosts in *Pseudomonas syringae*. Leighton Pritchard presented on currently available *Phytophthora* genome data, describing the usefulness of different genome databases. Most *Phytophthora* genomes are in the size range of 30-50 Mb, although *P. infestans* genome is 130 Mb. The following discussion points were raised;

- Sarah Green (FR) said that money had been budgeted within the project to target sequence three *Phytophthora* species. Which species should these be? (to be decided). Sequencing of these three genomes should be done this year so that data are ready for the UoE PDRA to start April 2017.
- Beth Purse (CEH) asked whether genome size is related to adaptability?. Leighton Pritchard (JHI) said ‘possibly’ and would pass genome size data on to Beth.
- Sarah Green (FR) commented that the *Phytophthora austrocedri* genome is currently being sequenced – it appears to be large (around 120Mb).

- Dan asked if the extent of horizontal gene transfer could be predicted from genome size and Leighton's answer to this was 'yes, perhaps'.
- Sarah Green (FR) also commented on a paper published showing how *P. ramorum* (for example) has likely acquired infection genes from other oomycetes and fungal species by horizontal gene transfer [Richards, T.A. et al. (2011) Horizontal gene transfer facilitated the evolution of plant parasitic mechanisms in the oomycetes. Proc. Natl. Acad. Sci. USA 108: 15258-15263].

Stakeholder perspectives

15.10-15-50: Stakeholder perspectives were given by plant nursery participants Alan Harrison (Forestry Commission), Alice Snowden (Cheviot Trees) and Rodney Shearer (Alba Trees).

Alan Harrison is head of the forest tree and seed supply for the Forestry Commission's (FC) National Forest Estate plantings. He manages three forest nurseries at Newton, Wykeham and Delamere, growing 23 million trees, buying in 5.6 million. The FC does not buy trees from outside the UK but some of the suppliers may do. Overall they supply ~ 12K Ha planting each year. The main species is Sitka spruce which is grown in the ground or in cells in contact with soil. Approximately 12% of the stock are broadleaf spp. grown as bare root and in cells. Alan commented that they have much greater species diversity in their stock compared with 10 years ago, mainly due to the wish to diversify forests and in response to climate change forecasts. Lodgepole pine is back in favour, for example, and some of the new species are Taxus, Tsuga, Thuja, Chamaecyparis, Eucalyptus, Cedrus, Juniperus. Some of these are 'newcomers' and we know less about how they will behave in Britain.

Some of the issues raised by Alan included importation – are visual checks sufficient?. Should we quarantine them?. Also, do their existing nursery practices (ie growing directly in soil) make infection more or less likely?. Essentially the nursery wants a better appreciation of risk and what they can do about it. For example what are the risks of further host jumps in *Phytophthora*?, what is the risk of mutation causing increased virulence?.

Alice Snowden gave a run through of Cheviot Trees production systems with photos. They are a forest nursery, growing cell-grown stock in polytunnels with approximately 25% of stock going to FC under contract. Broadleaves go to FC and some to foresters under grants. They also grow some Christmas trees. The stock is sold at 1-2 yrs old, mostly 1yr old. All stock is raised above ground over Mypex with mist irrigation indoors. The water source is borehole including one from gravel under a river bed. Water drains from beneath/edge of beds. Trays are always washed after use in cold water (this water would be a good sampling point), however, the nursery is considering changing this and would like to know whether it is worth the effort.

Newly sown crops can suffer from damping off. They have also had cases of patch dying of conifers, hawthorn and privet. Samples of diseased stock get sent to a laboratory for testing. Generally the lab reports show many species of potential pathogen organisms – they cannot tell the nursery which is primary. Diseased saleable plants with blackened stems and top wilt are nearly always diagnosed as *Phytophthora*. This is normally addressed through changes to irrigation. Sometimes conifers are found to be positive for *Phytophthora* – and treated with fungicides. Impact of *Phytophthora* currently means changes in species stocked (ie they no longer grow larch and are cautious about Juniper).

The nursery considers that involvement in this study could be risky, but they hope not. They are looking for guidance on best practice. Alice was interested to know more about the

Australian nursery accreditation scheme and how it works. In terms of management practice, Alice wondered if the project could test irrigation water sitting in tanks in winter for *Phytophthoras*. Alice also wondered whether cell density in trays was important in terms of increasing ventilation (less humidity for infections) and how long to allow tree collars to dry between watering to lower risk of infections. Apparently there are very few fungicide options on the market. A phosphite-based compound was reportedly very effective but was taken off the market.

- Ana Perez-Sierra (FR) commented that trays are very important in *Phytophthora* transfer in nurseries and that steaming is the most effective cleaning method. Often the trays cannot be cleaned even with bleach.
- Kelvin Hughes (APHA) commented that compost/growing medium also has an important role in *Phytophthora* management.

Rodney Shearer presented on Alba Trees, who grow 11 million cell-grown trees (no bare root). The nursery doesn't buy in anything and nothing comes from the EU. They have recently acquired a tree nursery in Czech Republic as an export agent. In Scotland the nursery has two sites about 800m apart. One site has greenhouses and propagation, and the second site is a farm which does the growing-on. The nursery has the potential to produce 14 million trees if the market was there. Red-band needle blight has reduced the pine stock requirement; apparently there are further restrictions on movement of pine in Britain due to the presence of a unique southern strain of the pathogen not present in Scotland. The nursery has reverted to using disposable trays for susceptible crops because of disease risk, but this causes much plastic waste. They do not use compost, as tends to be from municipal waste and is not uniform. Instead they use a peat based non-sterile product from peat bogs which is tested for *Phytophthoras* and eelworm. Rodney did express concern about the application of notifiable diseases and exclusion zones, citing an experience the nursery had with fireblight on hawthorn. Alba Trees used to grow mainly native species but now also stock more alternative conifers. Rodney cautioned on the risks involved as we don't understand enough about their biology. Alba are not scared to have project scientists visit as they want to know what *Phytophthoras* they have in order to reduce risk. The nursery wants stability and they need to know the balance of risk and species.

Policy and industry perspectives

15.50-16.45: Members of the Expert Advisory Panel gave their talks from policy/industry perspectives.

Kelvin Hughes, Chief Plant Health and Seeds Inspector, APHA; APHA have 190 staff and cover 30 UK border inspection points. There is 18h/day, 365 days/yr cover at major points of entry. They do passenger baggage checks too and general surveillance. APHA do Plant Health diagnosis with R&D done by FERA. Traditional techniques for diagnosis dominate, although they are now promoting the use of on-site molecular diagnostic instruments (ie Genie machines) for tests applicable to specific pathogens.

The UK is responsible for 1/3 of EU notifications and the current main Plant Health issues are *Epitrix* and *Xylella*. Kelvin stressed the importance of collecting plant passporting information during project sampling. It is important that the project works with PHSI in sampling although each inspector's time is chargeable and project scientists need to beware that APHA staff cannot spend extra time at nurseries without explaining to owners why.

APHA can provide information on how to package and send project nursery samples up. We also need to make sure that project involvement does not affect APHA's ISO9000 accreditation.

John Speirs Senior Policy Advisor, Scottish Government;

The Scottish Government has roles from policy to inspectorate and scientific support (through SASA). Though Plant Health is devolved, in general, Plant Health links are strong across the UK. John Speirs is Chair of the Scottish *Phytophthora* steering group too. A Plant Health Strategy for Scotland was published earlier this year

<http://www.gov.scot/Publications/2016/03/7136>

John stressed the importance of the project managing its message to industry so that it is viewed positively. John also mentioned the possibility of new EU legislation meaning that nurseries with an 'action plan' may not be inspected so frequently.

Richard McIntosh Assistant Chief Plant Health Officer, DEFRA;

Richard is head of the Plant Health Risk and Horizon Scanning team and provides direct support to Nicola Spence, Chief Plant Health Officer as well as scientific and technical training to DEFRA, FERA etc. Richard provided information on the Plant Health Risk Group (PHRG) which meets every 6 months to assess UK wide positions on specific pest issues, including horticultural pest and pathogen problems. The group monitors interception data from the UK and abroad and decides which organisms to place on the UK risk register. Pest Risk Analyses are then commissioned followed by a 12-week consultation period. Recommendations for action are then made to the Chief Plant Health Officer and escalated to ministers where necessary. Currently about 10 species are added to the risk register each month. Richard listed some of the actions required for the 15 *Phytophthora* species currently on the risk register (11 present in the UK – 4 widespread and 5 more limited in distribution). Richard stated that some challenges to the project include how to prioritise species as threats, dealing with the 'unknowns', and the need to offer practical and proportional guidance. In order to secure nursery participation, stakeholders need to know what's in it for them.

- Sarah Green (FR) asked what does it mean if a *Phytophthora* is on the risk register?. The answer was that species may be on the register as Regulated or Unregulated. Regulated species are under specific regulations and any species considered a low risk are Unregulated. Since the risk register has come into operation more and more species have been added each year. At present all species on the risk register remain on the register even if no longer considered to be a risk.

Jon Knight; Head of Research and KT, ADHB

Jon is the Head of Crop Health and Protection at ADHB which is part of DEFRA. It is a levy-raising board and a non-departmental Government Body. Its purpose is to provide independent, evidence-based information and tools for growth and sustainability. 9% of its income (ie about 700k of a total income of £7.2M) comes from the Hardy Nursery Stock sector – 12% of that is from tree production. *Phytophthoras* cross several sectors of ADHB so is of much interest to them. Jon can help with project in terms of providing stakeholder contacts as he has a list of 600-700 Hardy Nursery Stock sector levy payers. Jon's presentation summarised the value of the different sectors of the UK horticulture and landscaping industries including the value placed on tourist visits to UK parks and gardens, the amount (£1.4 bn) spent by tourists in gardens, the £2 bn value of UK flower/plant production, and 300k people employed in horticulture and landscaping in the UK. He also mentioned the Ornamental Horticulture Roundtable Action Plan as being of interest to the project <https://www.rhs.org.uk/about-the-rhs/pdfs/about-the-rhs/mission-and->

[strategy/ornamental-horticulture-roundtable-action-plan](#) which includes Plant Health as a focus.

WP5: Project communication and interaction

16.40-17.00: [Sarah Green](#) presented on WP5, the integration and communication platform for the project. This is a network to promote information exchange and interdisciplinary practice within the project team. The project uses Huddle to share information and for project/task management. The project board will meet monthly or every two months by phone and the whole project team will meet twice a year. There will also be annual Science-Policy-Practitioner Network (SPPN) workshops involving project scientists, industry and consumer representatives, policy makers, and other interest groups. This year's SPPN workshop will focus on scene setting and building relationships. The one to be held in the final year will focus on scoping the further development of an accreditation scheme (the goal of the project). By this stage in the meeting the discussion was brief!;

- Proposed that the next project team meeting is held at Sand Hutton, York, in early October 2016 with a visit to a local plant nursery in the afternoon. The spring 2017 meeting could be held at JHI in Dundee with visit to sequencing labs in the afternoon. **Dates and places will be investigated.**
- It was suggested that the project should have a presence at the National Plant Show, Stoneleigh June 21/22 <http://www.nationalplantshow.co.uk/> in order to advertise the project to traders, but that this event is too soon for this year's project SPPN workshop.
- It would be best to combine the SPPN workshop this year with the autumn project team meeting at Sand Hutton and have a two day event.
- Other events which would be useful in terms of reaching out to stakeholders include the Four Oaks Trade Show <http://www.fouroaks-tradeshow.com/> 6th-7th September in Cheshire and GroSouth <http://www.grosouth.co.uk/> 9th November in Chichester this year
- Who to invite to the SPPN ?. Please email suggestions to Sarah Green (FR). Attendees should also include landscapers and conservation groups.

Attendees

Project Research Team

Sarah Green, Forest Research

Ana Pérez-Sierra, Forest Research

Béatrice Henricot, Forest Research

Mariella Marzano, Forest Research

Mike Dunn, Forest Research

Vadim Saraev, Forest Research

David Cooke, James Hutton Institute

Leighton Pritchard, James Hutton Institute

Bethan Purse, NERC Centre for Ecology & Hydrology

Daniel Chapman, NERC Centre for Ecology & Hydrology

Paul Sharp, Institute of Evolutionary Biology, University of Edinburgh

Tim Pettitt, University of Worcester

Alexandra Schlenzig, Science and Advice for Scottish Agriculture

Jane Barbrook, Animal and Plant Health Agency

Colin Price, Free-lance Academic Services

Plant nursery participants

Alan Harrison, Head of Plant and Seed Supply, Forestry Commission,

Rodney Shearer, Alba Trees

Alice Snowden, Cheviot Trees

Alexandra Andow, Cheviot Trees

Expert Advisory Panel

John Morgan, Head of Plant Health, Forestry Commission,

John Speirs, Senior Policy Advisor, Scottish Government

Kelvin Hughes, Chief Plant Health and Seeds Inspector, Animal and Plant Health Agency

Richard McIntosh, Assistant Chief Plant Health Officer, Defra

Jon Knight, Head of Research and KT, Agriculture & Horticulture Development Board

Also;

Jill Thompson, THAPBI Coordinator, Centre for Ecology and Hydrology