

REPHRAME KICK-OFF MEETING FUNCHAL, MADEIRA

1 & 2 April 2011

Minutes and notes from meeting

1. Welcome and introduction of beneficiaries

Hugh Evans welcomed the participants and all introduced themselves in a tour de table. The full list of participants will be circulated.

2. Coordinator's remarks on the purpose of the work and the structure of the meeting

The purpose of the project was described with particular reference to the very specific call text and the need to produce advice and practical outcomes that will be of value in developing future strategies against PWN and its vectors.

3. Administrative details for the contract, including development of a Consortium Agreement, financial arrangements and compliance with FP7 procedures and rules

The administrative details were described by use of a summary presentation provided by Inés T. Marín Moreno, who is the Scientific Officer for REPHRAME. This presentation will be circulated.

Priority will be given to the Consortium Agreement and also rapid signature of the Grant Agreement once this is issued by the European Commission. All lead beneficiaries were encouraged to familiarise themselves with the rules and regulations of FP7.

4. Work programme related topics:

Presentations for each Work Package by WP leaders:

PDF versions of each presentation will be provided once all are received by the Coordinator.

WP 1: Management and coordination – Hugh Evans (covered in item 3)

WP 2: Behaviour and dynamics of PWN in infested trees – Manuel Mota

Manuel Mota: Presentation on the main topics in WP2, including cross links to Chinese and Japanese research initiatives.

Alain Roques: Presentation on new methods developed by Chinese beneficiary. Simple tube capture method for nematodes and compounds produced by nematodes, including those for production of dauer larvae.

Christian Tomiczek: Presentation on use of dogs to detect beetle presence in attacked trees. Work based on detection of *Anoplophora* spp.

WP 3: Assessing phenology and dispersal capacities of PWN vectors – Edmundo Sousa

Pedro Naves: Presentation on work on vectors. Highlighted the four main tasks in the WP.

Juan Pajares: Described experiments with mark-release-recapture in Spain. Release, then four concentric rings of funnel traps. 172 beetles were released and recaptures 23%. One beetle captured 1.5 km from release point. Repeated with wider grid (200 m intervals). Recaptured 113 out of 350 beetles. Up to 716 m dispersal.

WP 4: Development of new methods for monitoring and control of *Monochamus* spp and PWN – Juan Pajares

Juan Pajares: Presentation on WP4. Developments in pheromone trapping and refinement of long-distance and trail pheromones.

WP 5: Determine risk of non-vector spread of PWN through various pathways to healthy forests – Thomas Schroeder

Thomas Schroeder: Outline of reasons for this particular WP, arising from EPPO PRA uncertainty, ISPM15 revision, wood chip imports for energy, bark from PT to MS. EU Commission need the results. Assessment of new work done in Portugal is required to evolve the work packages.

Philippe Castagnone: added further information on the use of molecular analysis to track invasion routes through Europe, including whether there are single or multiple arrivals of PWN. Will use polymorphic microsatellite markers as basis for approximate Bayesian computation analysis. There is already good development on this using high-throughput microsatellite isolation using next-generation pyrosequencing.

It is essential to have access to all possible PWN sources, including those in Spain, plus North America, China, Japan, etc.

WP 6: Host tree resistance to PWN and its vectors for future planting – Edmundo Sousa

Rita Costa and Isabel Carrasquinho: presented on behalf of INRB. Various genetic sources of SP, *P. pinaster* and *P. pinea*. Inoculation and evaluation under controlled conditions. Will use genomic tools to identify any resistance genes present, with the data been analysed relative to phenotypes. Similar approaches will be used to assess susceptibility to *Monochamus*. For the latter, there will be strong linkage to WP4.

WP 7: Prediction of pine wilt expression across eco-climatic zones, taking account of latency – Alain Roques and Philippe Castagnone

Christelle Robinet: Summarised the elements of both the Process and dispersal models and this was discussed with ideas for further development immediately apparent.

WP 8: EU and international cooperation and collaboration – Manuel Mota

Outline of the various elements needed to ensure effective collaboration.

WP 9: Synthesis and development of PWN Tool Kit for monitoring and management of PWN – Hugh Evans

At this early stage in the project, the contents of the PWN Tool Kit are not yet developed. This will evolve as the project proceeds.

WP 10: Stakeholder Engagement & Dissemination – Hugh Evans

As in WP9, there will be further work on this WP once the project commences and the website is developed, etc.

5. Timing and resource requirements of work in Year 1 arising from presentations by WP Leaders; general discussion and development of GANTT chart

The Consortium worked in two groups, one dealing with the vector and the other with the nematode. Findings will be transmitted via protocols between beneficiaries.

Manuel Mota summarised the work of the nematode group:

WP2 – task 2.3 relating to movement of nematodes within the tree. Need to look at previous data carefully to guide new work. Age of tree may influence the movement of the nematodes; this needs to be standardised in any experimental work. Will use standard histological approaches, bearing in mind technical constraints to dealing with different ages of trees. Speed of movement of nematodes can be high within trees. Also learn from sampling methods developed in Riskburs, etc. In relation to efficacy, need to examine the EU PWN Sampling Protocol and test in the field, accounting for whether in a wilt expression area or not.

Any products associated with the nematode also need to be included.

Early detection and trapping methods for the nematodes (Task 2.4). Testing of the Chinese methods needs to be assessed in the field. Proposal to use a masters student to do this, based on training of person in China. Apparently, the protein coat on the nematode cuticle is 9x thicker inside the tree versus open laboratory-reared nematodes (Christer Magnusson will provide more information on this). DNA direct detection methods will be carried out in Portugal and France.

WP5 included work based on genetic markers developed in INRA.

Methods for field assessment of non-vector transmission were discussed in a smaller group. Thomas Schroeder presented data on inoculated wood, where there was a relatively localised reproduction of PWN with low transfer along the length of the piece.

WP6 on resistance. Pathogenicity tests will be done by INRB. There is interest in *Picea abies* and *Abies* spp. in relation to risks for northern countries. There will be a range of tree ages and provenances in the inoculation experiments. Nematode isolates need to be standardised.

There will be a need to carry out the resistance tests to *Monochamus* on the same material if possible. INRA have a wide range of *P. pinaster* provenances to add to those from INRB. The question of 'resistance' or 'tolerance' was also discussed. Within Portugal, there is interest in clones of *P. pinaster* that appear to have survived the PWN pressure.

Edmundo Sousa reported on discussions in the vector group.

WP2: Agreement to use standardised protocols as much as possible to enable comparisons across different regions, etc. Vector behaviour with and without PWN will be studied. General biological characteristics will be investigated for several species of *Monochamus*.

Flight characteristics over the lifetime of the vector will require detailed study of initial versus later dispersal. Suggestions were made that initial flight was long-distance with no attraction to lures, whereas attraction to lures begins at around 2 weeks post emergence. This needs detailed investigation using a range of techniques.

WP4: testing of improved pheromones with standardisation of parameters, including trap design, etc. Further work on assessment of volatiles given off during maturation feeding was also included. Refinements to trap design and placement were also discussed. The use of the commercial lure needs to be assessed to see if it is possible to obtain discounted prices (Juan Pajares to investigate). A similar approach is needed for commercially available traps.

Process model to be run for Madeira. This will be done as soon as the modeller is appointed for B1.

6. **Consortium Website:** discussion on content and development

The initial web pages will be developed by the Coordinator, with some input from Prof David Hall (B2). Once the initial pages are live, beneficiaries will contribute further material, links, etc.

7. Any Other Business

8. Date and location of next full meeting

After some debate, it was felt that the next full meeting should be just before preparation of the mid-term report (18 months from start of the project). Venue and precise timing will be developed by email and Doodle.

Arising from the WP discussions, it was agreed that frequent meetings between beneficiaries to develop specific work tasks should be developed so that progress and evolution of the full work programme remains dynamic and interactive. All Management Committee members will be kept informed of the purpose and outcome of these *ad hoc* meetings.