

## 1. Content of the 'Topic Description' document

### 1.1. Topic area

Tree pests.

### 1.2. Topic title

Tree Borers: risk assessment, risk management and preparedness for emerald ash borer and bronze birch borer.

### 1.3. Description of the problem the research should solve

This project will focus on the two tree pests (*Agrilus* species): the emerald ash borer, *Agrilus planipennis* (EAB) and the bronze birch borer, *Agrilus anxius* (BBB). It will address key questions and gaps in our knowledge on the pests' biology, control (including firewood risks and treatments and biological control agents), modelling and economics. The main objective is to provide research outputs to underpin contingency planning, policy development and policy communication through assessment of the entry, establishment and spread, impact and risk management of the pests. The key overall question that the research should address is: 'How can we best prepare for and manage the risks and impacts of EAB and BBB?'

The specific questions that might be considered within this include:

- What are the potential risks and impacts and main pathways for movement of the pests and how can we better protect against the risk of introduction?
- What are the rates of natural spread and can we improve prediction of spread?
- How can we improve early detection?
- How can we develop or improve cost-effective management and control approaches and tools (including biological control)?
- How can we best communicate and implement policy and engage with stakeholders (including policy makers, woodland owners and managers, academia and the public, importers and the wider nursery industry)?

In each case, the starting point is to identify the state of knowledge internationally and with specific reference to European conditions and identify and prioritise knowledge gaps.

The project will draw on expertise in countries already dealing with either EAB or BBB (e.g. China (native zone for the pest), Russia and USA (invaded zones for the pest) for EAB) it will analyse their management approaches and their effectiveness as well as assess the impact of the cumulative effects of tree pests and diseases. The project outputs will inform policy-making at national and EU levels and will draw on lessons learnt from other similar pest introductions (e.g. red palm weevil, Asian longhorn beetle etc.) and have links to, or build on:

**WOODCHIPS:** a Euphresco-facilitated joint Danish-UK project focusing on the risks associated with the import/export of woodchips.

**PERMIT:** was an EU-funded interdisciplinary COST Action project focusing on reducing the risks associated with pathways for movement of forest pests.

**PALM PROTECT:** was an EU-funded interdisciplinary research project focusing on reducing the impacts of the red palm weevil.

**ISEFOR:** an EU-funded interdisciplinary project aiming to increase the sustainability of European forests

**PRATIQUE:** was an EU-funded project to enhance pest risk analysis techniques.

**International Plant Sentinel Network (IPSN):** an EUPHRESCO project promoting the use of sentinel plants in botanic gardens and other plant collections as early warning systems for new pests and pathogens.

**GLOBAL WARNING:** a new EU-funded COST Action focusing on the potential roles of sentinel plants in improving pest detection in international trade

**Nationally-funded research projects:** which will be mapped early in the project.

**Pest risk analyses:** especially in relation to addressing evidence gaps and uncertainties. Defra's Future Proofing Plant Health project will shortly be providing an 'issues tree' for both EAB and BBB that this project can draw upon.

#### 1.4. Description of the expected results

The output of this project will fit within the following two categories:

- Evidence supporting policy and inspectorates (EU and national), regulation and risk management (exclusion/prevention/detection/management)
- Improved tools and approaches to predict spread and impact. Support decisions on policy and management options, including models, cost-benefit analysis, control methods and detection methods.

#### 1.5. Beneficiaries of this research product

The project will benefit to:

- National and EU policy makers
- National Plant Protection Services, especially inspectorates, risk managers and evidence and analysis specialists
- EPPO and its members
- Industry and other stakeholders - NGOs, forest managers, parks and gardens managers, general public, etc.

#### 1.6. Euphresco members with proposal for content contribution/ distribution

The project is set out in five workpackages and that all partners contribute.

##### **Workpackage 1 – Review evidence gaps relating to improved understanding of risks, impacts and how to mitigate them**

Review and map current research/evidence and expertise.

Review management approaches and their effectiveness, including biological control options

Identify and prioritise research and evidence needs (e.g. by analysis of existing state of the art and via a question-response tree) in the context of available funding and complementary on-going work.

Explore the potential risks and impacts and investigate how we can better protect against the risk of introduction on the main pathways and manage/adapt to these pests if they become established.

Consider cumulative impacts of tree pests and diseases (e.g. Chalara and EAB).

##### **Workpackage 2 – Spread prediction**

Provide models to better predict (1) their rates of natural spread and (2) the cost-effectiveness of eradication, containment and management approaches under different scenarios.

##### **Workpackage 3 – Detection**

Review current detection techniques and determine best options for further development to improve early and accurate detection.

Consider any need for laboratory and field-based molecular diagnostics (e.g. LAMP), use of attractant lures (plant volatiles or potential pheromones) and use of sniffer dogs.

##### **Workpackage 4 – Management**

Identify, assess and develop or improve cost-effective management and control approaches and tools (including biological control).

Consider running bio-economic modelling related to outbreak management and looking into longer-term control methods which might include natural predators/BCAs and resistance breeding.

##### **Workpackage 5 – Engagement**

Explore policy communication and implementation methods and consider ways to best engage with stakeholders on policy options in advance of pest introductions (including policy

makers, woodland owners and managers, academia and the public, importers and the wider nursery industry).

Member	Proposed research component
<p>1. Department for Environment, Food &amp; Rural Affairs, Great Britain</p> <p>Elsbeth Steel <a href="mailto:elsbeth.steel@defra.gsi.gov.uk">elsbeth.steel@defra.gsi.gov.uk</a></p>	<p>-Participate in all 5 workpackages, lead workpackage 1 and potentially others</p> <p>Contact person: Hugh Evans <a href="mailto:hugh.evans@forestry.gsi.gov.uk">hugh.evans@forestry.gsi.gov.uk</a></p>
<p>2. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, Austria</p> <p>Elfriede Fuhrmann <a href="mailto:Elfriede.fuhrmann@bmlfuw.gv.at">Elfriede.fuhrmann@bmlfuw.gv.at</a></p>	<p>-Review evidence gaps. -Detection: training of detection dogs on EAB. This will be followed by testing sensitivity and specificity towards EAB scents to give a good basis for evaluating the feasibility of the method. Moreover, EAB dogs would be available in case of new EAB introductions and survey activities. - Contribute to reviews. - Transfer of knowledge, training and education.</p> <p>Contact person: Gernot Hoch <a href="mailto:gernot.hoch@bfw.gv.at">gernot.hoch@bfw.gv.at</a></p>
<p>3. Department of Agriculture Food and the Marine, Ireland</p> <p>James Choiseul <a href="mailto:james.choiseul@agriculture.gov.ie">james.choiseul@agriculture.gov.ie</a></p>	<p>-Participate in all 5 workpackages</p> <p>Contact person: Gerry Douglas <a href="mailto:gerry.douglas@teagasc.ie">gerry.douglas@teagasc.ie</a></p> <p>Contact person: Rachel Wisdom <a href="mailto:rachel.wisdom@agriculture.gov.ie">rachel.wisdom@agriculture.gov.ie</a></p>
<p>4. Nederlandse Voedsel-en Warenautoriteit, The Netherlands</p> <p>Martijn Schenk <a href="mailto:M.Schenk1@nvwa.nl">M.Schenk1@nvwa.nl</a></p>	<p>-Participate in all 5 workpackages</p> <p>Contact person: Antoon Loomans <a href="mailto:a.j.m.loomans@nvwa.nl">a.j.m.loomans@nvwa.nl</a></p>

### 1.7. Research project partnership outside Euphresco

Euphresco funding ensures a certain level of transnational collaboration among Euphresco member countries. It is possible, if the funding consortium is interested, to contact funding organisations or research groups outside the geographical area covered by Euphresco members. The Euphresco coordinator could advertise the research topic in order to have an enlarged collaboration. If funders are interested in this possibility, please check the case below:

The funding consortium of the topic mentioned in section 1.2 requires to advertise the topic outside the Euphresco network

Information to sharpen the profile of sought partners could be useful (but not mandatory): country/region (if there are preferences), skills/expertise required, etc.

### 1.8. Any other relevant information on content

The project consortium would specifically like to approach potential collaborators in China, Russia and North America (Canada and USA) to assess prospects of joint work. There would



also be value in collaborating with the COST Action Global Warning which includes the named pests in its terms of reference.

## 2. Euphresco management aspects of the project

### 2.1. Indication of the topic budget

Member <sup>a</sup>	Mechanism <sup>b</sup>	Total Budget <sup>c</sup>
1. DEFRA (GB)	NC	€ 240.000
2. BMLFUW (AT)	Virtual pot	€ 49.000
3. DAFM (IE)	NC	€ 6.000
4. NVWA (NL)	NC	€ 18.000
Total		€ 313.000

### 2.2. Expected duration of the project (only for non-competitive topics)

36 months.

**Any other relevant information on topic organisation and management**

<sup>a</sup> First member is project coordinator. A minimum of two partners are necessary for each proposal. Add lines as needed.

<sup>b</sup> Please indicate the preferred mechanism (e.g. real pot RP; virtual pot VP; non-competitive NC), or several mechanisms if there is flexibility.

<sup>c</sup> Optional, as this amount can still change in the next phase. In-kind contribution should also be indicated in this column.