

1. Content of the 'Topic Description' document

1.1. Topic area

Diagnostics, field detection, surveillance

1.2. Links to the Euphresco Strategic Research Agenda

The topic addresses the following objective(s) of the 2017-2022 Euphresco Strategic Research Agenda

- Objective 2017-R-1.1: to improve knowledge on the biology, epidemiology and ecology of priority invasive and (re)emerging pests
- Objective 2017-R-4.1: to validate risk-based sampling methodologies for phytosanitary inspections
- Objective 2017-R-5.2: to develop and validate high-throughput DNA extraction methods
- Objective 2017-R-6.1: to test and validate methods for in situ detection and identification of pests
- Objective 2017-C-3.1: to favour knowledge exchange and support common initiatives with relevant players

1.3. Topic title

Frass-based detection of wood boring pests (QFRASS)

1.4. Description of the problem the research should solve

Damage caused by many quarantine wood-boring beetles can go on unnoticed for some time when larvae live inside the host trees. Symptoms are visible only after continuous larval feeding or when adults emerge, which allows the detection of the infestation.

A common challenge in pest detection is that the likelihood of detection is decreased when the population densities are low, especially following an introduction or during the early phase of infestation. The lack of sensitive trapping tools and protocols adds further difficulties. During detection surveys and also while managing outbreaks, it can be beneficial to employ different types of strategies and diagnostic methods in order to increase likelihood of finding the pest.

A complementary approach to trapping is surveillance of trees in order to detect exit holes and/or larval tunnels and galleries that are indicative of the presence of a pest. When pest exit holes or larval tunnels/galleries are not very characteristic and larvae are no longer present in the tree, other traces of the pest such as frass can frequently be observed. In such scenarios, frass analysis that allows identification of the pest that excretes the frass would be a valuable decision support tool for risk managers and National Plant Protection Organizations. The three most species-rich families of wood-boring beetles are longhorn beetles (Coleoptera: Cerambycidae), weevils bark and beetles (Coleoptera: Curculionidae: Scolytinae, respectively), and metallic flat-headed borers (Buprestidae).

The project will aim to, amongst others:

1. provide an overview of all frass-based identification methods that are published or are being developed
2. sample frass and other reference material from targeted species
3. test, optimise, validate and verify existing frass-based morphological and molecular identification methods
4. develop novel identification protocols that can be used by (National Reference) laboratories
5. identify target species with emphasis to non-European Scolytinae

1.5. Description of the expected results

- Survey of current frass diagnostic methods available

- Validated diagnostic protocols for sample collection and diagnosis of pests using frass

1.6. Beneficiaries of this research product

The project activities and results will benefit to:

- National Plant Protection Services
- Inspection services
- National and EU policy makers
- EPPO and its members
- EFSA
- Plant scientific research community

1.7. Research funders and research contribution/ distribution

Funding organisation	Research activity and researchers involved
<p>1. Federal Public Service of Health, Food Chain Safety and Environment, Belgium</p> <p>Ria Nouwen ria.nouwen@health.fgov.be</p>	<p>Potential research activities: to be confirmed after national VP-selection & peer review.</p> <p>-Project coordination (unless another organisation wants to (co-)coordinate); -Contribution to tasks (1) to (4) mentioned in 1.4; -Focus on the following species: <i>Agilus planipennis</i> (Buprestidae) <i>Aromia bungii</i> (Cerambycidae) <i>Pityophthorus juglandis</i> (Scolytinae)</p> <p>Researchers involved: to be confirmed after national VP-selection</p>
<p>2. Department of Agriculture, Water and the Environment, Australia</p> <p>Keira Beattie PHSgovernancegroups@agriculture.gov.au</p>	<p>Research activities to be confirmed;</p> <p>Research contact person to be confirmed</p>
<p>3. Federal Ministry of Food and Agriculture, Germany</p> <p>Bettina Beerbaum bettina.beerbaum@bmel.bund.de</p> <p>Silke Steinmüller silke.steinmoeller@julius-kuehn.de</p>	<p>-Contribution to tasks (1) to (5) mentioned in 1.4;</p> <p>Contact person: Björn Hoppe E-mail address: Bjoern.hoppe@julius-kuehn.de</p>
<p>4. Ministry of Agriculture Forestry and Food, Slovenia</p> <p>Erika Oresek erika.oresek@gov.si</p>	<p>-Contribution to tasks (2) to (5) mentioned in 1.4;</p> <p>Contact person: Barbara Piškur E-mail address: barbara.piskur@gozdis.si</p>



	<p>Contact person: Maarten de Groot E-mail address: maarten.degroot@gozdis.si</p>
<p>5. Swedish board of Agriculture, Sweden</p> <p>Kristof Capieau Kristof.Capieau@jordbruksverket.se</p> <p>Sofia Windstam Sofia.Windstam@jordbruksverket.se</p>	<p>Linnaeus University: -Contribution to tasks (1) and (2) mentioned in 1.4;</p> <p>Contact person: Johanna Witzell E-mail address: johanna.witzell@lnu.se</p> <p>Swedish University of Agricultural Sciences -Contribution to tasks (1) to (4);</p> <p>Contact person: Donnie Peterson E-mail address: donnie.peterson@slu.se</p> <p>Contact person: Kateryna Davydenko E-mail address: kateryna.davydenko@slu.se</p>
<p>6. Federal Office for Agriculture, Switzerland</p> <p>Andreas von Felten andreas.vonfelten@blw.admin.ch</p>	<p>-Contribution to tasks (2) and (4) mentioned in 1.4;</p> <p>Contact person: Beat Ruffner E-mail address: beat.ruffner@wsl.ch</p> <p>Contact person: Simon Blaser E-mail address: simon.blaser@wsl.ch</p>
<p>7. Forest Research, United Kingdom</p> <p>Joan Webber joan.webber@forestresearch.gov.uk</p>	<p>-Observer;</p> <p>Contact person: Max Blake E-mail address: max.blake@forestresearch.gov.uk</p>
<p>8. Science and Advice for Scottish Agriculture, United Kingdom</p> <p>David Kenyon david.kenyon@sasa.gov.scot</p>	<p>-Contribution to tasks (1), (3) and (4) mentioned in 1.4; - Assuming specimens can be sourced contribute to development of new molecular assays if required</p> <p>Contact person: Katherine Lester E-mail address: Katherine.lester@sasa.gov.scot</p> <p>Contact person: Rebecca Cairns</p>

	E-mail address: Rebecca.cairns@sasa.gov.scot
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1.8. 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 that the topic is advertised outside the Euphresco network

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

1.9. Any other relevant information on content

None.

2. *Euphresco management aspects of the project*

2.1 Indication of the topic budget

Funding organisation	Mechanism	Total Budget
1. FPS (BE)	NC/VP	
2. DAWE (AU)	NC	
3. BMEL (DE)	NC	
4. MAFF (SI)	NC	
5. JV (SE)	NC	
6. FOAG (CH)	NC/VP	
7. FR (GB)	NC	
8. SASA (GB)	NC	

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

24 months

2.3 Identification of project coordinator

Has the research project coordinator been identified?

Yes

No, national call launched and proposal under evaluation

2.4 Any other relevant information on topic organisation and management

None.