

Title: PHC2018/04 - Identify the presence of potential insect vectors of *Xylella fastidiosa* in Scotland

Background: *Xylella fastidiosa* is a bacterial plant pathogen that can cause disease in a broad range of hosts, including *Polygala myrtifolia*, *Olea europaea*, *Rosmarinus Officinalis*, *Lavandula sp.*, *Prunus sp.* and *Nerium oleander*. Disease symptoms include leaf scorch, wilting of foliage, dieback and plant death. *Xylella fastidiosa* was first detected in Europe in 2013 in Puglia in Italy and was identified as subspecies *pauca* which has gone on to devastate olive plantations in this region. There are currently major *Xylella* outbreaks in Southern France, including Corsica, Italy, mainland Spain and the Balearic Islands. The bacteria are transmitted by xylem feeding insects from the *Cercopidae* family, which include froghoppers and spittlebugs.

There are several species of insects that could vector *Xylella fastidiosa* in the UK including the meadow spittlebug (*Philaenus spumarius*), which is very common in Scotland. An outbreak of *Xylella* in Scotland would have serious impacts on the affected grower/nursery and any other host plant-related activities/business within a 5km buffer zone. Therefore, in order to establish the potential for these bacteria to spread, should they be introduced, it is important to identify and get an understanding of the abundance of potential *Xylella* vectors in Scotland. The WrEN project (<http://www.wren-project.com/>), presents a unique opportunity to make use of existing insect collections to map the occurrence of potential *Xylella* vectors within agricultural woodlands across Scotland. Since 2013, partners on the WrEN project have surveyed over 130 secondary and ancient woodland sites for habitat and wildlife in two regions of mainland Britain. To date, over 1100 species have been recorded from a wide range of taxa. Vegetation structure has been characterised at all sites including information on tree species richness, tree density and size, understorey and canopy cover. In addition, the surrounding landscape has been mapped at a range of spatial scales up to 3 km from each site.

Impact: This project will contribute to Scottish Government's preparedness measures for the possible arrival of *Xylella fastidiosa* by identifying and mapping the distribution of potential vectors of *Xylella* in Scotland.

Objectives and research required for this call: The objectives of the research are to:

1. Identify the presence and distribution of xylem feeding insects that could potentially serve as vectors of *Xylella fastidiosa*

Further characterise invertebrate samples collected *en masse* from WrEN woodlands using morphological or DNA based identification approaches to understand more about the presence, distribution, abundance and requirements of sap feeding insects, the main vectors of *Xylella*.

2. Produce a vector distribution map

Map the distribution and relative abundance of all identified species and using statistical analyses examine the extent to which the occurrence of potential vectors relates to characteristics of the woodland and surrounding landscape.

3. Upskill relevant personnel in spittlebug identification.

Outputs required:

The outputs of the study will include:

- A report that covers the information as set out in the objectives
- 1-2 page policy summary
- Morphological identification of xylem feeding insects that could potentially serve as vectors of *Xylella* in Scotland
- Map of the distribution and relative abundance of all identified species and analysis on how occurrence of the species relates to surrounding landscape
- A workshop to upskill entomologists in spittle bug identification

Indicative key dates:

- Deadline for notes of interest: 27th September 2018
- Project start: 1st November 2018
- Overview of plans and project start-up meeting with PHC Directorate: by end November 2018
- Completed discussion paper and summary: 28th February 2019
- Meeting with Scottish stakeholders: by 31st March 2019

Date all work needs to be completed by: 28th February 2018

Project type: Call down - collaborative

Maximum funding available (including overheads and VAT, where applicable): indicative value £35,000