

# The Assessment of the Potential of the Psyllid *Trioza anthrisci* to Vector '*Candidatus Liberibacter solanacearum*' (Lso) in Scotland

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## Introduction

The phloem-limited bacterium '*Candidatus Liberibacter solanacearum*' (Lso) is associated with disease in Apiaceous and Solanaceous hosts; particularly carrot and potato. Lso is vectored by psyllids (Hemiptera: Psylloidea). Recently, Lso has been recorded in the UK in psyllid species not previously known to harbour the bacterium. Amongst these the species of most concern currently is *Trioza anthrisci*, which harbours the carrot-associated Lso "haplotype C" and feeds on Apicaceous hosts such as *Anthriscus sylvestris* (cow parsley). The potential for *T. anthrisci* to spread Lso in carrot- and potato-growing areas is unknown. This project aimed to further our knowledge of the distribution of this potential pest.

## Acknowledgements

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## Objectives

- To examine the distribution of *Trioza anthrisci* across Scotland in relation to carrot and potato growing areas
- To deliver a psyllid identification workshop to Plant Health Centre (PHC) stakeholders to share expertise
- To secure a live colony of *Trioza anthrisci* for Lso transmission studies and host plant choice bioassays

## Project outcomes

- From 13 field sites surveyed throughout July-September by SASA, Forest Research and James Hutton Institute; *Trioza anthrisci* were only found in one location near Elgin (Fig. 1).
- *T. anthrisci* was caught via sweep net on carrot plants throughout August.
- Individuals caught in Elgin were introduced to *Anthriscus sylvestris* plants and a live colony is currently on its 3<sup>rd</sup> generation in the insectaries at SASA (Fig. 2).
- This live colony of *T. anthrisci* will be used for transmission studies of Lso to carrot, potato and other important crops.
- The carrot-associated Lso haplotype C was present in 100% of adult *T. anthrisci* that were tested ( $n=16$ ).
- Preliminary studies suggest that *T. anthrisci* can transmit haplotype C to *A. sylvestris* and cause symptoms similar to those found in carrot (Fig. 3).
- We now have a better understanding of the geographic location of *T. anthrisci* and when and where to sample to collect live individuals. This will aid in the set-up of further cultured colonies during the upcoming field season.
- The Psyllid ID Workshop was held at SASA on 22-23 January 2019, with attendees from FR, JHI and SASA (Fig. 4). Training expertise was provided by SASA staff and David Ouvrard from Natural History Museum. This enabled knowledge exchange between the stakeholders and gave attendees the chance to develop skills that will be needed in the event of an Lso outbreak in the UK.
- This PHC collaboration was beneficial as it allowed a larger area to be more intensively surveyed than would be possible for one partner alone.

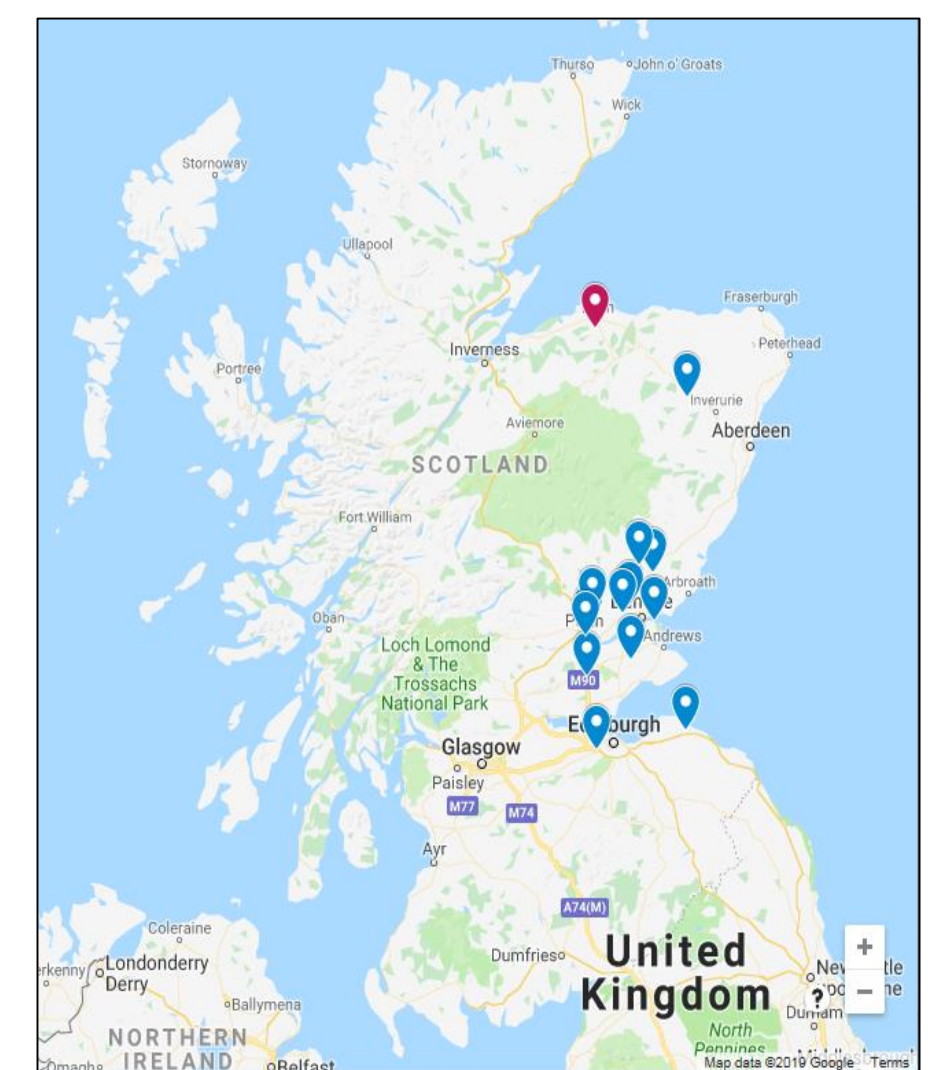


Fig. 1 Map of sites sampled for the presence of *T. anthrisci* July-September 2018 (red=positive)



Fig. 2 Adult *Trioza anthrisci* ♀ from SASA insectary colony with egg attached to leaf surface inlaid (top left).



Fig. 3 Possible symptoms caused by Lso in leaves of *Anthriscus sylvestris* infested with *T. anthrisci*



Fig. 4 Attendees and instructors from the Psyllid Identification Workshop 22-23<sup>rd</sup> January 2019

## Key messages

- *Trioza anthrisci* may pose a threat to carrot and potato growers due to its potential ability to transmit pathogenic Lso haplotypes.
- *Trioza anthrisci* seems to have a restricted range in Scotland found only in the north around Elgin, an important potato seed growing area.
- Further work needs to be done to understand the host plant preference, feeding habits and ability of *Trioza anthrisci* to transmit Lso to potato and other plants of economic importance.