Tracking the distribution and identity of an aphid causing novel symptoms on *Buddleja* in the UK

Brough B[1], Stuart J[1], Greenslade A[2], Gladman A [3], Jones H[1]

[1] Royal Horticultural Society, RHS Garden Wisley, Woking, Surrey GU23 6QB, UK
[2] Rothamsted Research, West Common, Harpenden, AL5 2JQ, UK
[3] ADAS Sustainable Agricultural Systems, Boxworth, Battlegate Road, Boxworth, Cambridge, CB23 4NN, UK

Background

The Royal Horticultural Society's Gardening Advice Service first received reports of unusual distorted and discoloured growth on *Buddleja* in 2023, with 58 observations in a limited distribution in SE England. Aphids were isolated as the cause, and in 2024 67 observations encompassed a slightly broader geographic range (Figure 1). RHS entomologists worked with the Rothamsted Insect Survey to obtain a tentative identification of melon-cotton aphid (*Aphis gossypii*) from a sample of affected buddleja at RHS Garden Wisley.

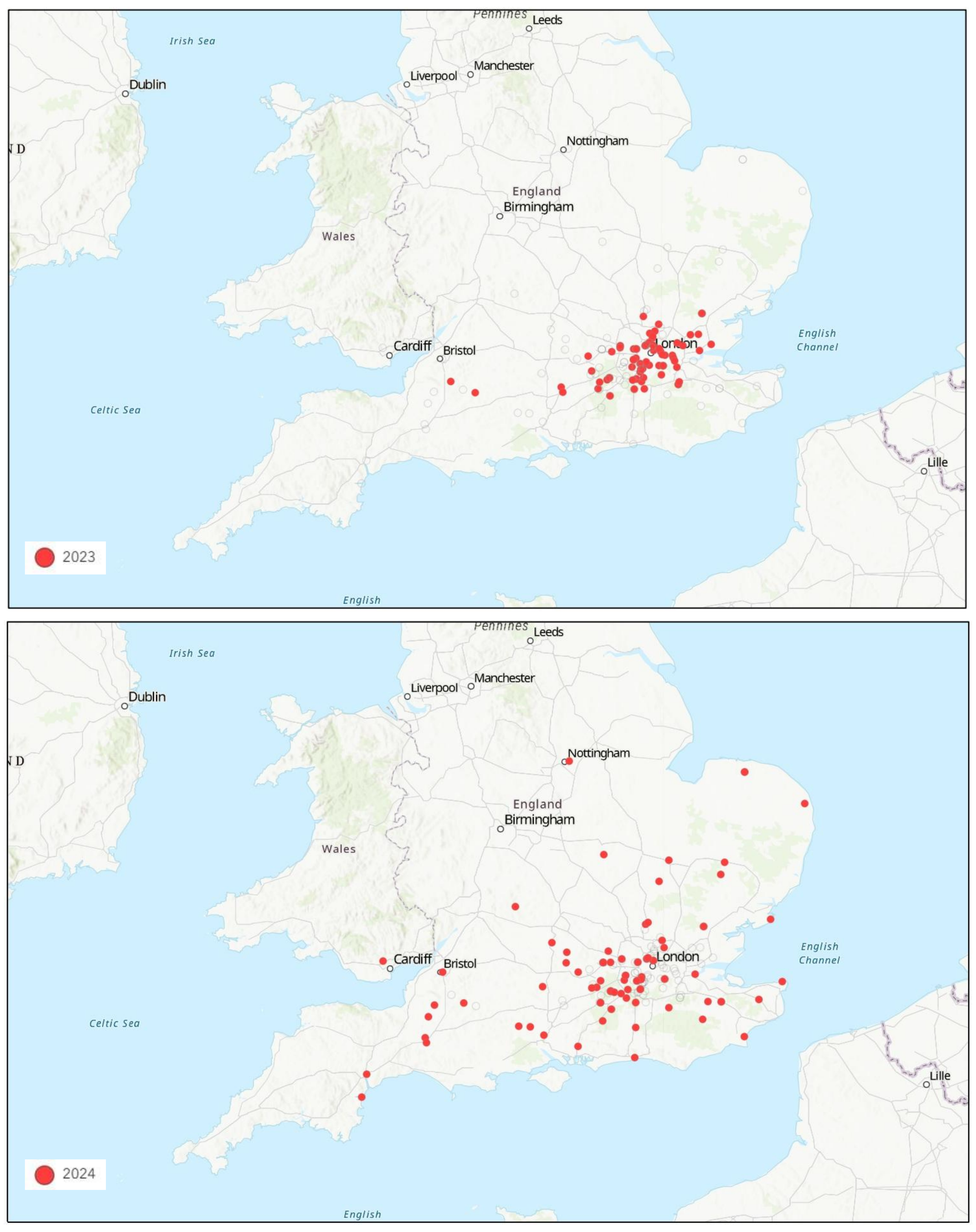

Figure 1: Locations of members submissions to the RHS Gardening advice service regarding aphids on buddleja across 2023 and 2024.

Methods

To track the distribution of this phenomenon and identify the aphid causing the novel symptoms, the RHS launched an online survey in May 2025. This was hosted in the Survey123 app in ArcGIS Online. This allows images to be incorporated into multiple choice questions to aid the recorder in selecting their answer to whether active aphid colonies are associated with the symptoms (Figure 2). It also has the facility for recorders to upload photographs for record verification. Finally it collects contact details and permission from the recorders, to allow follow-up requests for aphid samples.

Figure 2: The submissions process of the online survey on a mobile device and a call for submissions article published in The Garden Magazine, June 2025 pp17.

These samples will be used for morphological and DNA identification. To encourage submissions to survey, a call for participation was publicised in The Garden magazine which has a potential readership of ~600,000 RHS members (Figure 2). Potential recorders were directed to a webpage which outlined the background and linked to the survey itself, the webpage subsequently received 44,000 engagements in the month of June. The call was also covered in web articles by The Guardian and The Telegraph.

Results

The survey launch has coincided with a year of high aphid activity, and over eight thousand reports have been received between May and August 2025. These indicate that the aphid presence and symptoms on buddleja is now very widely distributed in the UK (Figure 3). Following the launch in May there were many reports of active aphid colonies, accompanied with host plant symptoms. From mid-July a decrease in submissions was noted, with symptom reports continuing but active aphid colonies rarely present. This matched trends in 2023/24. Further work in Autumn 2025 will confirm the identity of the aphid, using 17 geographically distinct aphid samples requested from survey participants. Further data exploration will be carried out for insights into its biology and spread.

Discussion

We have effectively used an online survey platform to survey the distribution of this novel insect-plant interaction on *Buddleja*. The survey platform functionality allowed us to record sighting details and have images uploaded both for verification and to facilitate follow up sample requests for records that met the necessary criteria. This has provided specimens from across the UK from which morphological and genetic identification can be carried out. The utility of this survey, along with a high prevalence of aphids during 2025 meant a large amount of data was gathered, demonstrating widespread distribution of the phenomenon. Survey data also indicates that the aphids die-out or disperse to other hosts after mid summer. However, the data is limited by the effect of initial survey launch timing and media publications in relation to actual temporal distribution. Future work with gathered samples aims to confirm the species identification and has the potential to explore the spread dynamics.

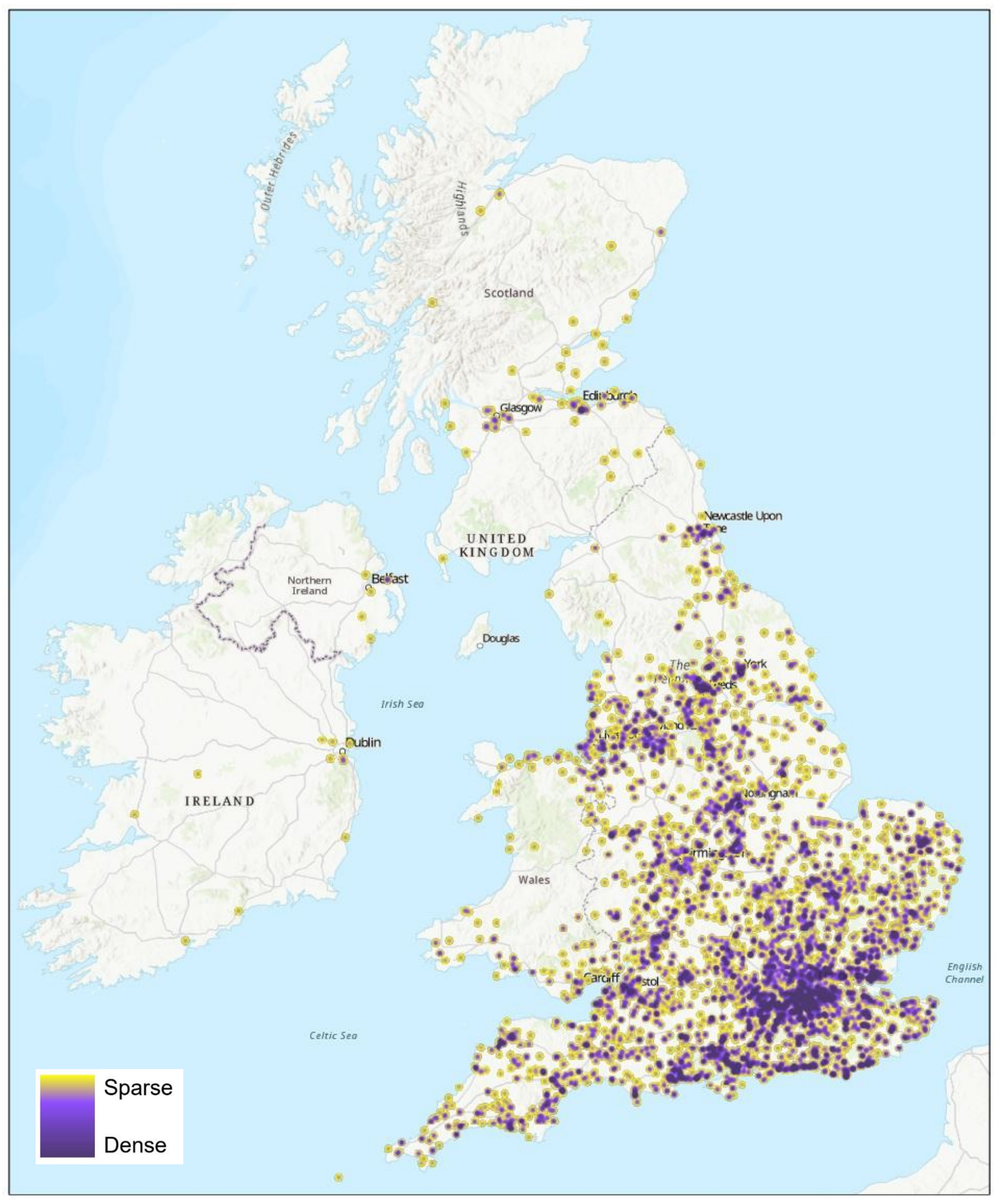

Figure 3: A heat map of survey submissions between May and August 2025.

Acknowledgements

The authors would like to acknowledge the valued assistance of the staff and survey contributors involved in this project.