



Industrial CASE Studentship Advertisement – 2023-24

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Project Title:	Investigating the habitat and ecological role of <i>Culicoides</i> midges

Brief description of project:

Culicoides biting midges act as vectors for livestock and human diseases, and are widespread and abundant across much of the world. In northern Europe, some species of *Culicoides* transmit the livestock viruses bluetongue and Schmallenberg. Control options for these diseases include reducing vector populations, for example by removing preferred breeding habitats on farms or adult resting areas. However, there is currently little data available to inform these strategies on the immature stages of *Culicoides* midges, their breeding habitats, their ecological role in nature as adults and larvae, and the habitats and microhabitats that they use.

The student will explore a range of methods to determine adult midge resting habitats and non-biting activities, including through the development of novel sticky traps. Immunological methods of mark and recapture will be used to determine the habitat types frequented by adult midges of different species. Dispersal of *Culicoides* from these habitats will be investigated using light traps. The student will also explore the role that *Culicoides* play in pollination, using experiments with colony-reared midges, in combination with field collections of adult *Culicoides* midges which will be screened for plant pollen DNA.

The student will have the opportunity to lead on the development of a novel trap design for *Culicoides* or another vector group of concern through a placement with the industry partner, ProScience Ltd.

Attributes of suitable applicants:

- A background and training in ecology, biology or entomology.
- Excellent attention to detail, including the ability to learn morphological identification skills of midges (all training will be provided).
- Experience with molecular techniques, including traditional PCR methods.
- Ability to communicate with a range of stakeholders, including liaison with farmers.
- A multidisciplinary skillset, combining field work, laboratory and innovation skills.



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Funding notes:

This project is funded for four years by the Biotechnology and Biological Sciences Research Council UKRI-BBSRC. UKRI-BBSRC eligibility criteria apply (<https://www.ukri.org/files/funding/ukri-training-grant-terms-and-conditions-guidance-pdf/>). Successful students will receive a stipend of no less than the standard UKRI stipend rate, currently set at £18,622 per year, which will usually be supplemented by the industrial partner

This project is supported through the Oxford Interdisciplinary Bioscience Doctoral Training Partnership (DTP) studentship programme. The student recruited to this project will join a cohort of students enrolled in the DTP's interdisciplinary training programme, and will participate in the training and networking opportunities available through the DTP. For further details, please visit www.biodtp.ox.ac.uk. The DTP and its associated partner organisations aim to create a community that is innovative, inclusive and collaborative, in which everyone feels valued, respected, and supported, and we encourage applications from a diverse range of qualified applicants.