

Nottingham BBSRC DLA Programme : Harnessing genomics, ecology, and behavioural data to unravel flea acquisition pathways in UK companion animals (CASE project)

University of Nottingham, School of Veterinary Medicine and Science

Start date September 2026

About

Thanks to £14m of funding awarded by the Biotechnology and Biological Sciences Research Council (BBSRC), the University of Nottingham and Nottingham Trent in partnership with the National Biofilms Innovation Centre (NBIC) are offering fully funded innovative four-year cohort-based training in frontier science.

Postgraduate researchers will be recruited to a research cluster within each of the [overarching research areas](#):

- Alternative and Emerging Protein sources for Sustainable food and feed (Sustainable Agriculture and Food Security) - Cluster lead [Professor John Brameld](#)
- RIC@N-DLA: Multiscale RNA Science from mechanisms to applications (Bioscience for Human Health) – Cluster lead [Dr Federico Daja-Bailador](#)
- Future Genomes Across Life – Engineering biology for sustainability and innovation (Biotechnology for Sustainable Growth) – Cluster lead [Professor Thorsten Allers](#)

Project description

We invite applications for a BBSRC fully funded CASE studentship to harness genomics, ecology, and behavioural data to unravel flea acquisition pathways in UK companion animals. This sits under our Biotechnology for Sustainable Growth theme and is offered through partnership with the European Scientific Counsel Companion Animal Parasites (ESCCAP) UK & Ireland.

Flea infestation is one of the most common parasitic problems affecting millions of the UK cats and dogs, causing serious health problems, and significant impact of animal welfare, with flea treatments representing a substantial and growing economic burden for pet owners and veterinary businesses. Beyond direct costs, environmental considerations are becoming increasingly relevant for some flea control products, particularly regarding the potential for chemical residues to enter aquatic systems through runoff.

This issue has attracted national attention as a priority for sustainable pest management, with key regulatory and veterinary organisations and public health agencies increasingly emphasising the need to reduce environmental impact while maintaining effective parasite control. Fleas are also vectors for many zoonotic pathogens, including *Bartonella* and *Rickettsia*, posing risks to human health.

Despite the scale of the challenge, a critical knowledge gap remains unresolved: how, where, and from whom do cats and dogs actually acquire flea infestations? Understanding flea acquisition pathways, whether from other infested pets, wildlife reservoirs, or environmental hotspots, is fundamental to designing more sustainable, effective, and targeted control strategies. This is increasingly urgent in the context of climate change, which may alter flea

population ecology, wildlife–pet interactions, and seasonal transmission patterns. To date, no UK study has combined genomic analysis of flea populations with local ecological sampling and owner behaviour data to map flea movement between wildlife, feral animals, and pets. Doing so would provide a transformative evidence base for improving veterinary practice and public health.

Why choose this project?

This project will provide the successful candidate with interdisciplinary training across genomics, veterinary parasitology, epidemiology, and field ecology. They will gain hands-on experience in flea sampling from pets, wildlife, and feral animals; DNA extraction and genomic library preparation; bioinformatic analysis of population structure and gene flow; and the design and analysis of behavioural and ecological surveys. Additional training in statistical modelling, GIS mapping, and data integration will equip the student with a robust and transferable research skillset relevant to One Health, parasitology, and wildlife–domestic animal interface studies.

The student will also benefit from extensive engagement with stakeholders across veterinary practice, wildlife conservation groups, feral cat welfare organisations, veterinary authorities, and the companion animal industry. Through recruitment of veterinary clients, collaboration with wildlife networks, and dissemination of findings to practitioners and policy audiences, the student will develop strong communication, collaboration, and knowledge-exchange skills. This diverse stakeholder environment will support the student's professional development and enhance the impact and visibility of their research output.

For informal enquiries about the project please contact [Professor Hany Elsheikha](#)

Requirements

Applications are invited from candidates with backgrounds in Bioscience, Biochemistry, Microbiology, Biotechnology, Chemistry, Chemical/Biochemical/Process Engineering, Environmental Science, Pharmacy, Computer Science, Maths or related disciplines who have/expect to graduate with a first/upper-second UK honours degree, or equivalent qualifications gained outside the UK.

Applications are also welcome from candidates with a 2:2 undergraduate degree or lower, who hold a Masters degree in a relevant area or three or more years of full-time work experience relevant to your undergraduate degree, or to the PhD projects you are applying for.

Funding details

Funding is available for four years from October 2026. The award covers tuition fees at the UK rate, plus an annual stipend. The UK Research and Innovation (UKRI) stipend is tax free and was set at £20,780 for 2025/26 entry.

UK and International candidates are eligible to apply.