

PhD position

Ecological factors driving flower constancy and dietary diversity in social bees

Application deadline: **13 January 2025**

Background

We invite applications for a 4-year PhD project ([standard UKRI stipend](#)) to investigate the impacts of ecological factors on flower constancy. This opportunity is part of the [GW4+](#) Doctoral Training Program.

Flower constancy can reduce foraging efficiency as bees skip rewarding flowers¹ and potentially leads to a narrow diet², which can impair bee health. With changing climates and habitat alterations leading to changing bee foraging landscapes, this project aims to study how environmental change impacts flower constancy. Understanding how, for example, increasing ambient temperatures, flower spatial distribution and floral features affect flower constancy will help us understand how bee nutrition and plant fitness are impacted by ecological factors that modify floral choice. The project studies flower constancy and colony diet diversity in social bees (honeybees, bumblebees and stingless bees) using (1) artificial flower arrays, (2) semi-natural setups using purchased flowers, (3) in wild flowers in natural settings and (4) agent-based computer simulations.

The specific questions will be developed collaboratively with the student. Possible questions could be how local climate, flower composition and floral features affect flower constancy, bee diet and plant-pollinator interactions.

Team and research environment

The supervisory team includes [Dr. Christoph Grüter](#) (University of Bristol), [Dr. Natalie Hempel de Ibarra](#) (University of Exeter) and [Dr. Sean Rands](#) (University of Bristol).

The successful applicant will join an international and interactive scientific environment with access to state-of-the-art [facilities](#).

How to apply: Follow the link [Start your application | Study at Bristol | University of Bristol](#) and select the programme "Biological Sciences (PhD)". For informal enquiries, please contact Dr. Christoph Grüter (c.grueter@bristol.ac.uk).

References

1. Hayes, L., and Grüter, C. (2023). When should bees be flower constant? An agent-based model highlights the importance of social information and foraging conditions. *Journal of Animal Ecology* 92, 580–593.
2. Grüter, C., Segers, F.H.I.D., and Hayes, L. (2024). Extensive loss of forage diversity in social bees due to flower constancy in simulated environments. *Proceedings of the Royal Society B: Biological Sciences* *in press*.