



ONE Planet Undergraduate Research Experience Placement (REP) Scheme

Placement title: Bees and Balsam – are the invaders stealing our pollinators...?

One Planet Research Theme:

Climate & Climate Change | Earth System Processes | Anthropocene | Environmental Informatics

Supervisor: Dr Rinke Vinkenoog

School/Department: Applied Sciences

University: Northumbria University

Placement Description:

Himalayan Balsam (*Impatiens glandulifera*) is a successful invasive plant that has spread over large parts of the British Isles. It is very attractive to many flower-visiting insects, to the extent that it may even outcompete native flowers and agricultural crops for pollinators (NERC Strategy: Biodiverse Agriculture). Our earlier studies have shown that Balsam is visited by a range of pollinators. From mid-August onwards, honey bees are the main visitors: they forage on Balsam in large numbers. Beekeepers see them returning to the hives as “ghost bees”, covered in white Balsam pollen. However, when we analyse honey from hives in areas rich in Balsam we find that Balsam pollen is underrepresented. In this project you will investigate the importance of Balsam for insect pollinators and the potential for it to be detrimental to the pollination services of the wider landscape. There is also the potential to explore the macronutrient contents of the pollen to further understand this anthropogenic ecosystem. Our objectives are: 1. Quantify the **importance of Himalayan Balsam for honey bees**, and 2. Determine **what happens to Himalayan Balsam pollen**.

| Timescale: | wk 1 | wk 2 | wk 3 | wk 4 | wk 5 | wk 6 |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Field work | ***** | ***** | ***** | ***** | ***** | ***** |
| Pollen analysis training | ***** | | | | | |
| Pollen analysis | | ***** | ***** | ***** | ***** | ***** |
| Bee dissection training | | ***** | | | | |
| Bee dissection | | | ***** | ***** | ***** | ***** |
| Data analysis and report | | | | ***** | ***** | ***** |

Itemised Budget for the Project:

Student salary: £3,357 - Travel to field sites: £200 - Lab consumables: £300 - Total budget: £3,857

Prerequisites:

A background in a science subject is essential. You should be comfortable with fieldwork, lab work and insect dissections. Knowledge of biological systems, pollination ecology or palynology would be advantageous, but not essential. Full training will be provided.

For more information, please contact rinke.vinkenoog@northumbria.ac.uk