barbarasmithmail@gmail.com 07557425453 3 July 2019

# CALLING FOR PIONEER BEEKEEPERS FOR THE POLL2POLL PROJECT!

## We are looking for help from beekeepers in postcodes DE75 7, DE11 9, NG10 5, WS15 2, who would be willing to help with a pilot project to investigate the impact of air pollution on bees

### What would we like to do?

We would like to collect bees from hives in these postcodes and use proteomics (an advanced molecular technique) to determine whether the bees health is affected by particulate matter in air pollution. We know we can detect particulate matter on bee bodies and that it can also be detected in hive products.

### What do we need?

We need beekeepers who would be willing to donate 30 bees from a hive – foragers who are returning to the hive. We will carry out proteomics on these individuals. We also need 15 ml of honey, 15ml of bee bread and a small amount of wax. We will use the latter to look at air pollution residues, to corroborate the national air pollution data.

Ideally we would like to collect bees from **5 hives** at each location and if those 5 hives were managed by a single beekeeper that would be even better, as then we can eliminate beekeeper practice from our variables!

These postcodes represent four sites, two each in areas of high and low air pollution, as measured by national data. However, in other ways they are very similar, they have similar temperature ranges and rainfall and also similar habitat (measured by national vegetation classification).

Honeybees suffer from multiple stressors that we know about, such as poor forage availability or pesticides, but we don't know if being in areas of high air pollution could contribute to honeybee physical processes. This is a pilot project. If we find something significant we would like to do a countrywide study and do more work to understand our honeybees are affected by this critical issue.

### *Who are we?*

We are researchers who would be very grateful for your help! Dr. Barbara Smith is Associate Professor at the Centre for Agroecology, Water and Resilience at Coventry University. She is a field ecologist who works on pollination and biodiversity in agricultural systems. Dr. Priyadarshini Chakrabarti is Research Associate at the Honey Bee Lab at Oregon State University, where she works on honeybee health and nutrition. Together we have done work that shows that pesticides can affect honeybee enzyme response and ability to detect scent and vision. We have a small research grant from the British Ecological Society to begin this exciting work and see what the effect of air pollution might be.

### How would data be collected?

We would send participating beekeepers a small pack of sample tubes and storage bags and ask you to collect the bees and keep the bees frozen until we can collect them from you. The tubes will be used for the bee bread and honey. We would collect this within days at your convenience.

## Want to get involved? We would love to hear from you!

The phone number to call is:

07557425453

The email to use is:
barbarasmithmail@gmail.com

**When would we like to collect?**

We would like to collect by the end of July. Preferably we would coordinate so that everyone collected their bees on the same day so we can remove variation from our sample collection.

**What happens then?**

The bees will be packed and sent in dry ice to the Honey Bee lab at Oregon State University where the analyses will be carried out.

**What we do after the bees have been collected?**

We would send you the results for your hives and also the general report. In the general report all data will be anonymous so that all data is confidential. We would be very pleased to keep in touch with beekeepers who are interested and continue to collaborate if we are able to obtain further funding.