**State-wide survey of bumble bee distribution and habitat use**

**Contact Person:** Dr. Karen Goodell, EEOB, Goodell.18@osu.edu

**Project Description:** Bumble bees contribute to Ohio’s economic success and natural resources as pollinators of crops and wildflowers. In recent years several bumble bee species have declined dramatically, including the rusty patched bumble bee (Bombus affinis), which was placed on the federal endangered species list in 2017. The primary goal of this study is to determine the distribution of B. affinis and another species of concern, B. terricola, in Ohio and to document their habitat use and food plants. Secondarily, we are investigating how the amount, quality, and distribution of foraging habitat across the landscape affects bumble bee species diversity and abundance, in order to recommend management practices that will help prevent the decline of species that are currently widespread and abundant. The “Bee Team,” as we call ourselves, is made up of researchers from Dr. Goodell’s lab at OSU and from Dr. Mitchell’s lab at the University of Akron. Teams composed of graduate and undergraduate students from these labs surveyed bees in 130 wildflower meadows in 46 Ohio counties during summer 2017. In 2018 we will expand our survey into under-sampled areas of the state. At each site, a team of observers (who have been trained in bee and wildflower identification) records bee visits to flowers for 1.5 hours. We also count all open flowers in a 100m² area to measure the abundance and diversity of flower resources available for bees at each location.

**Position Description:** In the average work week (M-F), 3-4 days will be spent in the field observing and recording bee visits to flowers, and typically one day will be spent in the lab entering data (weather depending) and doing other records keeping tasks. Hours per week will depend on weather. Bee surveys are best done on warm sunny days with little wind. On field days, team members typically meet in a common location and carpool to the day’s study sites, which can sometimes be as far as 2 hours away since this is a statewide survey. Bee and flower surveys take about 2-3 hours per site to complete. Therefore, we sample 2-4 sites per day depending on the weather and the sites’ proximity to each other and to Columbus (resulting in 8-10 hour field days). Each intern will be assigned field equipment for the duration of the summer that he/she will be responsible for keeping track of and in good condition, including: hard hat, safety vest, clip board, and data sheets.

To recap from above, basic duties of a member of the “Bee Team” include:

- bumble bee and wildflower identification to species (which we can teach you)
- observing and recording bee visits to flowers
- photographing bees and flowers
- counting flowers in a designated area
- keeping track of data sheets
- entering data in Microsoft Excel
- using BuckeyeBox, Google Earth, and other technology (like a Xerox machine) to keep records of sampling sites visited and manage data

**Time Commitment:** Summer 2018, with the potential for lab work into the Fall semester 2018. Ideally, our training and field work will begin in mid-May and go until mid-August. Approximately 30 hours per week from Monday – Friday, weather depending. To be discussed and determined ahead of time during the interview between Dr. Goodell and the student. Days off for vacations, job interviews, etc. are flexible within reason, but we cannot accommodate students with time intensive summer classes.
Year/ Skill Requirements:

Required

- legible handwriting
- promptness and reliability (ability to show up on time to the meeting location each day)
- good attention to details and organizational skills
- familiarity with Microsoft Excel
- own transportation to a common meeting point or to field sites as needed
- flexibility, because field work is unpredictable by nature
- not taking summer classes during daylight hours or holding other jobs M-F
- able to work as a team and individually to follow detailed instructions
- maintains highest level of integrity and ethical standards regarding data collection
- students of all years/ranks eligible, preference given to sophomores and juniors over seniors (because of the potential for their continued work in the lab in future years)
- must not be allergic to bee stings, grass, or sunlight! (no, seriously)

Preferred, but not required:

- Biology; Zoology; Entomology; Forestry, Fish and Wildlife; ENR; or EEOB majors students
- prior knowledge of insect and/or plant identification
- familiarity with ArcGIS or similar map-making software

Compensation: Students will be working for an hourly rate of $12 per hour. Travel time to the first field site of the day and home from the last not included in paid hours.

What is the application deadline?

Apply on or before 1 March 2018 at 5:00pm. Interviews will begin the first week of March.

How/who should interested applicants contact?

Dr. Karen Goodell, Goodell.18@osu.edu

What information should applicants provide?

Applicants should provide:

- Cover letter
- Resume
- A copy of his/her current advising report (unofficial transcript available from Buckeyelink)

Additional information:

We are interested in hiring 3-4 assistants to work out of the OSU Columbus campus with Dr. Goodell and her grad student team leaders. In addition, we are looking for one student who plans to live in NE Ohio next summer (especially in Geauga County) and can work with a post-doc researcher on this project who is based in Chardon, OH.