Fiona MacNeill

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Personal Statement:

My dissertation work focuses on several large plant genera and how they maintain species diversity. I will work on plants in temperate and tropical regions to ask how interactions with herbivorous insects and fungal pathogens can change a plant defensive traits and influence divergences in a lineage. I will use advanced chemical analysis as well as traditional field-practices such as identification with dichotomous keys to identify experimental species.

Research Interests

- Chemical Ecology
- Plant insect interactions
  - Insect herbivory and host-plant acceptance
  - Plant chemistry and fitness traits
  - Pollinator services

Education

University of Texas at Austin 2019-present (PhD)

- PhD student in Ecology, Evolution, and Behavior
- Work ongoing in Austin and Panama through the Smithsonian Tropical Research Institute (STRI)

Cornell University 2015-2019 (B.S.)

- Bachelor of science in Entomology with Distinction in Research
- GPA: 3.453

Research Experience

November 2016- May 2019 Research Assistant Thaler Lab, Cornell University

- Scientific research in predator prey interactions and colony care for Colorado potato

beetles and a generalist stink bug predator, *podisus maculiventris*

- ❖ Designed and carried out an independent research project looking at how manipulating beetle sensory structures through antennal ablations can affect behavioral response to predator scent. This project was completed as an undergraduate thesis.
  - ➢ Data collection and analysis using ImageJ and Rstudio
  - ➢ Creating synthetic pheromone blend with wet chemistry
  - ➢ Colony maintenance for multiple species of insects

May-August 2018 & 2019, Research Assistant and Assistant project manager
Adler Lab, UMass Amherst

- ❖ Worked as a research assistant and later as an assistant project manager on a field project asking how pollinator body size and floral morphology across different species of flowers can affect transmission of a gut pathogen for the common Eastern bumblebee *Bombus Impatiens*.
  - ➢ Overseeing field teams research
  - ➢ Dissecting bumblebees gut tissue
  - ➢ Manipulating floral traits/ inflorescence structure
  - ➢ Creating inoculum to manually transmit infection
  - ➢ Colony care for bumblebees
  - ➢ Foraging behavioral observations
  - ➢ Cell counts of the gut pathogen *Crithidia* under a microscope

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Outreach and Work Experience

- ❖ **Insectapalooza 2015, 2016, 2018**
  - ➢ Participated in Cornell University's public insect fair, talking about insects and nature and handling live insects with people of all ages.

- ❖ **New York State Fair 2016**
  - ➢ One day Arachnid diversity/ Insect education booth, worked showing people of all ages insects and talking about spiders and other arachnids.

- **Expand Your Horizons 2017, 2018**
  - One day volunteer event, having conversations with middle school girls about STEM fields and showing research specimens from entomology labs.

June-August 2017 Hitchcock Center for the Environment Nature Summer Camp

- Camp counsellor position
  - Lead outdoor field trips and nature/science related activities, including education about insects and other wildlife. Worked with children from 11-13 as both a leader and in supporting roles for other counsellors.

Summers 2011-2016 The Farm Education Collaborative Camp

- Four years as a CIT, two of which were in a supervisor position
- One year as Assistant/Co-counselor in a small classroom setting
  - Five years working at the Farm Education Collaborative predominantly with children between 3-11, teaching about nature and agriculture. I lead many activities, designed activities, and held collaborative meetings with other employees.

2007- Present Williamsburg Blacksmiths
metalworker

- Extensive experience in metal working and building, using power tools and machinery. This background has been used before to help fabricate items for research experiments.

Teaching Experience

- Teaching assistant in Seed Plant Physiology lab at UT Austin (BIO122L) September-December 2019
  - Oversaw lab sections, assisted students in improving microscopy skills, performing experiments, and using a spectrophotometer.

Relevant Skills

- Colony care for bumblebees, spiders, Colorado potato beetles, stink bugs, crickets,

and cockroaches

- ❖ Using a dichotomous key
- ❖ Insect pinning/ preservation
- ❖ Creating synthetic pheromone
- ❖ Dissection
  - ➢ Practice with Colorado potato beetle, bumblebees, and *podisus maculiventris*
- ❖ Antennal ablations
- ❖ R-Studio statistical analysis
- ❖ Image J and ocean optics as data collection software
- ❖ Experienced with a wide range of power tools, including welding