

## KARLY HENRY REGAN

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### EDUCATION

- 2015 – 2019. **Ph.D.** Department of Entomology, The Pennsylvania State University, University Park, PA. Dissertation Title: “Arthropod Communities within a Reduced-Tillage Organic Systems Experiment”
- 2012 – 2015. **M.S.** Department of Plant Science, South Dakota State University, Brookings, SD. Thesis Title: “Effect of neonicotinoid insecticides on spider mite ecology”
- 2008 – 2012. **B.S.** Major in Biology, Minor in Women, Gender, and Sexuality Studies, University of Massachusetts, Amherst, MA. Undergraduate Thesis Title: “Secondary metabolites in floral nectar reduce parasite loads in bumble bees”

### PROFESSIONAL EXPERIENCE

- June 2019-present. Postdoctoral Associate, Department of Entomology, Cornell University. Research topic: Developing integrated pest management programs to control onion thrips, *Thrips tabaci*, in onion. Advisor: B. A. Nault.
- June 2015-May 2019. Graduate Research Assistant, Department of Entomology, Penn State University. Advisor: M. E. Barbercheck.
- Aug 2012 - May 2015. Graduate Research Assistant, Department of Plant Science, South Dakota State University Advisor: A. Szczepaniec.
- May 2010 - July 2012. Undergraduate Research Assistant, Insect Ecology and Evolution, Department of Plant, Soil, and Insect Science, University of Massachusetts. Advisor: L. S. Adler.
- February 2011 - July 2012. Laboratory technician, Bird Song Evolution, Department of Biology, University of Massachusetts. Supervisor: J. Podos.
- May 2011-July 2011. Laboratory technician, Natural History Collections, University of Massachusetts. Supervisor: K. Doyle.

### GRANTS

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|---|--------------------|
| <b>K. Regan (PI)</b>  | Dec 2018-June 2019 |
| PSU College of Agricultural Sciences  | \$3000             |
| A Bug’s Eye View: Using cameras to study predator-prey interactions between arthropods in the field |                    |
| <b>K. Regan (Coordinator) and M. Barbercheck (PI)</b>   | 2016-2018          |
| Northeast SARE Graduate Student Grant   | \$14,635           |
| Impacts of cover crops and tillage on predator-prey interactions within organic cropping systems    |                    |

**K. Regan (PI)** 2016-2017  
Sigma Xi: Grants in Aid of Research \$450  
Hunter and Hunted: Predator-Prey Interactions in Disturbed Habitats

**K. Henry (Co-PI) and A.S. Szczepaniec (Co-PI)** 2013-2014  
SDSU Center for Excellence in Drought Tolerance Research \$4000  
Interactions between neonicotinoid insecticides and drought stress in soybean (*Glycine max*) and consequences for unsusceptible pests

## **PUBLICATIONS**

### **Refereed Publications**

- Wulff, J. A., M. Kiani, **K. Regan**, M. D. Eubanks, and A. Szczepaniec. 2019. Neonicotinoid insecticides alter the transcriptome of soybean and decrease plant resistance. *Int. J. Mol. Sci.* 20: 783.  
<https://doi.org/10.3390/ijms20030783>
- Regan, K. H.**, D. Ordosch, K. D. Glover, K. J. Tilmon, A. Szczepaniec. 2017. Effects of a pyrethroid and two neonicotinoid insecticides on population dynamics of key pests of soybean and abundance of their natural enemies. *Crop Protection.* 98: 24-32.  
<http://dx.doi.org/10.1016/j.cropro.2017.03.004>
- Richardson, L.L., Adler, L.S., Leonard, A.S., Andicoechea, J., **Regan, K.H.**, Anthony, W., Manson, J.S., and Irwin, R.E. 2015. "Secondary metabolites in floral nectar reduce parasite infections in bumble bees" *Proc. R. Soc. B* 282: 20142471.  
<http://dx.doi.org/10.1098/rspb.2014.2471>

### **Manuscripts in Preparation**

*\*Full-text manuscripts available upon request*

- Rowen, E., **K. H. Regan**, M. E. Barbercheck, and J. F. Tooker. Tillage in agriculture: Is it beneficial or detrimental for invertebrate pest management? *Submitted to Agriculture, Ecosystems and Environment in August 2019.*
- Regan, K. H.**, C. A. M. Voortman, and M. E. Barbercheck. Prevalence of Early and Late Season Pest Damage in Cover Crop-Based Reduced-Tillage Organic Corn Systems.
- Regan, K. H.**, C. A. M. Voortman, and M. E. Barbercheck. Seedcorn Maggot Response to Planting Date, Cover Crops, and Tillage in Organic Cropping Systems.

### **Extension Publications**

- Schmidt, E., **K. Regan**, and M. Barbercheck. 2017. Seedcorn maggot as a pest of corn and other large seeded crops. Penn State Extension Fact Sheet.  
<http://ento.psu.edu/extension/factsheets/seedcorn-maggot>

## **TEACHING**

Fall 2018. Instructor, Science Outreach and Communication (SC 497A), Penn State University, University Park, PA  
Fall 2017. Guest Lecturer, Organic Integrated Pest Management (AGECO 144), Penn State University, University Park, PA  
Fall 2016. Guest Lecturer, “Creating and Using Insect Collections” and “Careers for Entomologists,” Penns Valley Area High School, Spring Mills, PA  
Fall 2016. Workshop Leader, “Insects 101”, New and Beginning High School Agriculture Teachers In-Service Day, hosted by Department of Agricultural and Extension Education, Penn State University, University Park, PA  
Spring 2016. Teaching Assistant, Field Crops Entomology (ENT 316), Department of Entomology, Penn State University, University Park, PA  
Spring 2016. Teaching Assistant and Laboratory Instructor, Introduction to Entomology (ENT 313), Department of Entomology, Penn State University, University Park, PA  
Fall 2015. Teaching Assistant, Insect Connection (ENT 202), Department of Entomology, Penn State University, University Park, PA  
Fall 2013. Teaching Assistant and Laboratory Instructor, Insect Biology (PS 305), Department of Plant Science, South Dakota State University, Brookings, SD

## **PRESENTATIONS**

### Invited Presentations

February 2019. “Arthropod Communities within a Reduced-Tillage Organic Systems Experiment” **K. Regan**. Entomology Department, New Jersey Agricultural Research Station, Rutgers University, Bridgeton, NJ.  
January 2019. “Arthropod Communities within a Reduced-Tillage Organic Systems Experiment” **K. Regan**. Entomology Department, Cornell AgriTech, Geneva, NY.  
April 2018. “Arthropod Response to Cover Crop-Based Organic Cropping Systems” **K. Regan**. Plant-Insect Group Seminar Series, Entomology Department, Cornell University, Ithaca, NY.

### Research Presentations

November 2019. “Evaluating fertilizer rates and insecticide application frequency for management of onion thrips (*Thrips tabaci*) on onion.” K. H. Regan and B. A. Nault. Oral Presentation, Entomological Society of America, St. Louis, MO.  
November 2018. “Effects of Reduced-Tillage Organic Cropping Systems on Arthropod Predators.” **K. Regan**, C. Voortman, and M. Barbercheck. Student Paper Competition, Entomological Society of America, Vancouver, BC.  
May 2018. “Insect Response to Organic Cover Crop-Based Reduced Tillage Cropping Systems.” **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Penn State University Life Science Symposium, State College, PA  
March 2018. “Effects of Organic Reduced-Tillage Cropping Systems on Epigeal Predators.” **K. Regan**, C. Mullen, and M. Barbercheck. Student Paper Competition, Eastern Branch of the Entomological Society of America, Annapolis, MD.

- February 2018. "Insect Response to Organic Cover Crop-Based Reduced Tillage Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Pennsylvania Association for Sustainable Agriculture Annual Conference, State College, PA.
- November 2017. "Arthropod Response to Cover Crop-Based Reduced Tillage Organic Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Student Paper Competition, Entomological Society of America, Denver, CO.
- June 2017. "Arthropod Response to Cover Crop-Based Reduced Tillage Organic Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Penn State University Life Science Symposium, State College, PA
- March 2017. "Arthropod Response to Cover Crop-Based Reduced Tillage Organic Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Sustainable Cropping Systems Symposium, University Park, PA.
- March 2017. "Arthropod Response to Cover Crop-Based Reduced Tillage Organic Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Behavioral Ecology and Experimental Methods Workshop, University Park, PA.
- March 2017. "Arthropod Response to Cover Crop-Based Reduced Tillage Organic Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Student Paper Competition, Eastern Branch of the Entomological Society of America, Newport, RI.
- June 2016. "Damage and Damage-Control: Invertebrates within Sustainable Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Penn State University Life Science Symposium, State College, PA
- April 2016. "Damage and Damage-Control: Invertebrates within Sustainable Cropping Systems." **K. Regan**, C. Mullen, and M. Barbercheck. Poster Presentation, Sustainable Cropping Systems Symposium, The Pennsylvania State University, State College, PA.
- November 2014. "Effect of neonicotinoid seed treatments and drought stress on abundance of spider mites on soybean plants," **K. Regan** and A. Szczepaniec. Student Paper Competition, Entomological Society of America National Meeting, Portland, OR
- March 2014. "Effect of neonicotinoid insecticides on spider mites," **K. Henry** and A. Szczepaniec. Student Poster Competition, North Central Branch of the Ecological Society of America, Des Moines, IA
- November 2013. "Effect of neonicotinoid insecticides on spider mites," **K. Henry** and A. Szczepaniec. Poster Presentation, Entomological Society of America National Meeting, Austin, TX

### Extension Presentations

- August 2019. "Combing Cultural and Chemical Tactics to Manage Onion Thrips." Elba Muck Twilight Meeting, Cornell Vegetable Program, Elba, NY.

August 2019. "Effects of Reduced Tillage on Beneficial Arthropods." Soil Health Workshop, Empire Farm Days, Seneca Falls, NY.

October 2018. "Who's in a corn field?" Invited speaker for Science Brew, geared toward the general public and hosted monthly by the Penn State Science Policy Society, Bellefonte, PA

September 2018. "Insect Management in a Reduced-Tillage Organic Systems Experiment." ROSE Field Tour for visiting Khazak farmers and agricultural consultants, Russell E. Larson Agricultural Research Center, Rock Springs, PA

August 2018. Workshop leader, Integrated Pest Management Workshop, Penn State Student Farm, State College, PA

May 2018. "Who's in a corn field?" Rock Springs Annual Orientation to the Farm. Rock Springs, PA

August 2017. Workshop co-leader, Soil Health and Integrated Pest Management Workshop, Penn State Student Farm, State College, PA

June 2017. "Pest Management Strategies in Organic Row Crops: how do tillage and cover crops play a role?" PSU Field and Forage Extension Team In-Service Day, Rock Springs, PA

June 2017. "Arthropod Response to Reduced-Tillage Organic Systems." ROSE Field Tour for visiting Argentinian farmers and agricultural consultants, Russell E. Larson Agricultural Research Center, Rock Springs, PA

July 2017. Soil Biology and Health Workshop, Annual Agronomy Diagnostic Clinic, Rock Springs, PA

May 2017. "Arthropod Sampling Methods in Organic Row Crops" Rock Springs Annual Orientation to the Farm. Rock Springs, PA

June 2016. "Arthropod Response to Reduced-Tillage Organic Systems." ROSE Field Tour for visiting Argentinian farmers and agricultural consultants, Rock Springs, PA

May 2016. "Arthropod Response to Reduced-Tillage Organic Systems" Rock Springs Annual Orientation to the Farm. Rock Springs, PA

### **AWARDS AND HONORS**

November 2018. Graduate Student Travel Award (\$500), College of Agricultural Sciences, Pennsylvania State University.

August 2018. Paul R. Heller Memorial Award (\$504). College of Agricultural Sciences, Pennsylvania State University.

May 2017. William Yendol Memorial Research Fund Travel Award (\$470). Department of Entomology, Pennsylvania State University.

March 2017. Member of 1<sup>st</sup> Place Linnaean Games Team, Eastern Branch of the Entomological Society of America, Newport, RI.

### **PROFESSIONAL SOCIETY MEMBERSHIPS**

International Organization for Biological Control (2013-present)  
Entomological Society of America (2013-present)  
Graduate Women in Science (2017-present)

## **PROFESSIONAL SERVICE**

Reviewer of 1 manuscript from Basic and Applied Ecology (2018) and 2 from Environmental Entomology (2019)  
Camp Director, Bug Camp for Kids, Department of Entomology, Penn State University, University Park, PA. (June 2018)  
Secretary, Entomology Graduate Student Association, Pennsylvania State University, University Park, PA (June 2017-May 2018)  
Insect Zoo Caretaker and Curator, Entomology Graduate Student Association, Pennsylvania State University, University Park, PA (March 2016-June 2017)  
Secretary, Graduate Women in Science, State College Chapter (May 2017-present)  
Member of Science on Tap planning committee, Science Policy Society, Pennsylvania State University, University Park, PA. Assisted with organization and planning of monthly lecture series to connect scientists and the public. (February 2017-October 2018)  
Webmaster, Science Policy Society, Pennsylvania State University, University Park, PA (Aug 2019-May 2019)  
Public Relations Chair, Plant Science Graduate Student Association, South Dakota State University, Brookings, SD (Jan 2014-Dec 2014)

## **CERTIFICATIONS**

Teaching with Technology. Office of Teaching and Learning with Technology, The Pennsylvania State University. Issued November 2016  
Graduate School Teaching Certificate. Graduate School and Schreyer Institute for Teaching Excellence, The Pennsylvania State University. Issued August 2018

## **MEDIA COVERAGE**

Interview with Kraft, L. J. "Extension Unplugged: Communicating entomology to Amish and Mennonite communities in Pennsylvania." *Entomology Today* 18 Dec 2018. Available from:  
<https://entomologytoday.org/2018/12/18/extension-unplugged-communicating-entomology-amish-mennonite-plain-communities-pennsylvania/>

## **OUTREACH**

October 2019. Insectapalooza, Department of Entomology, Cornell University, Ithaca, NY.  
September 2018. Haunted Soil Tunnel, Great Insect Fair, Department of Entomology, Penn State University, University Park, PA. I helped design a canvas tunnel for kids to crawl through that featured paintings of soil invertebrates in realistic habitats. We also had an information booth educating attendees about common invertebrates found in the soil.  
June 2018. Bug Camp for Kids, Department of Entomology, Penn State University, University Park, PA. I led activities during a terrestrial ecology-themed day to learn about adaptations of insects and how they shape interactions between predators and their prey.

- April 2018. Girl Scout Workshop, Penn State University, University Park, PA. I assisted the State College Chapter of Graduate Women in Science with organizing this workshop geared towards registered girl scouts and other girls ages 10-14 in Pennsylvania to learn about scientific topics and potential careers in science they can pursue.
- April 2018. Penn State University Earth Day Festival, University Park, PA. As part of an "Ask a Scientist" booth, I demonstrated how entomologists study insects in different ecosystems, including agricultural systems. I also used live beetles to highlight decomposers as a particularly useful group to the recycling theme present throughout the festival.
- April 2018. State College Area School District After-school Program, Ferguson Township Elementary School, Pine Grove Mills, PA. As part of a guided after school program covering types of insects, the habitats they live in, and food they eat, I demonstrated types and benefits of decomposers.
- December and November 2017. Exploration U, Bellefonte Area High School, Bellefonte, PA and Bald Eagle Area High School, Milesburg, PA. As part of a Science Outreach and Communication Course (SC 497), I designed and implemented an activity highlighting the effects of urbanization on local wildlife, using this as a way of demonstrating ecological concepts such as specialization of food resources and habitat needs.
- March 2017. Exploration U, State College Area High School. With Graduate Women in Science, State College Chapter, I helped demonstrate chemistry-themed activities using available household ingredients.
- January 2017. Expanding Your Horizons, Eberly College of Science, Pennsylvania State University. I helped run a booth advertising the State College Chapter of Graduate Women in Science, including a demonstration of live insects to show possible career options women can pursue through graduate education.
- October 2016. Girl Scout Workshop, Graduate Women in Science, Pennsylvania State University. I assisted with a half-day workshop for girl scout troops in PA to introduce them to available scientific careers and provide informal mentoring to any interested in pursuing science
- May 2016. Integrated Pest Management lesson, Ferguson Township Elementary School, Pine Grove Mills, PA. I taught a brief lesson to 1<sup>st</sup> and 2<sup>nd</sup> grade classes on integrated pest management using activities and live specimens as examples.
- December 2015. Exploration U, Bellefonte Area High School, Bellefonte, PA. I demonstrated insect diversity and ecology, including games, activities, and live specimens
- October 2015. Port Matilda Fall Festival, Port Matilda Elementary School, Port Matilda, PA. I demonstrated insect diversity and ecology to attendees using live specimens.
- May 2015. Insect Demonstration Day, A2Z Science and Learning Store, Northampton MA. I demonstrated insect diversity and ecology, including games, activities, and live specimens.

May 2013 & 2014. Earth Day Festival, Brookings, SD. I demonstrated insect diversity and ecology to attendees using live specimens.

April 2014. Naturalist Merit Badge, Girl Scouts of the USA, Brookings, SD. I taught two local Girl Scout troops about insects to help them earn their Naturalist Merit Badge, using a combination of presentations, preserved specimens, live specimens, and outdoor sampling methods.

October 2012. Insect Education for Elementary Schools, Medary Elementary School, Brookings, SD. I taught 1st grade students the basics of insect and arachnid morphology and insect life cycles. Demonstrated diversity of insects using live specimens.

October 2012. Science Night at the Brookings Public Library, Brookings, SD. I demonstrated insect diversity and ecology to attendees using live specimens.