

HANNA KAHL

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Notarization. I have read the following and certify that this *curriculum vitae* is a current and accurate statement of my educational and professional record.

Signature:  Date: 3/19/2018

1. EDUCATION:

Ph.D. Entomology *January 2018-present*

University of California-Davis, Davis, CA

Research topic: Furthering the understanding of damage by citrus fruit direct pests using ecoinformatics and field experiments

M.S. Entomology *September 2015-December 2017*

University of Maryland, College Park, MD

Thesis title: "Using a living mulch and wolf spiders to manage pest arthropods in cucumber"

Research topics: 1) Effects of red clover living mulch on arthropod herbivores, natural enemies, and yield in cucumber; 2) Consumptive and non-consumptive effects of wolf spiders on cucumber beetles; 3) Pollinator visitation to red clover flowers; 4) Effects of red clover living mulch on greenhouse gas emissions

University of Maryland, College Park, MD

B.A. Biology *January 2008-December 2011*

Whitman College, Walla Walla, WA

Senior thesis title: "Effects of Habitat Barriers on Song Sharing: Song Comparisons of Dickcissels (*Spiza americana*) near Reservoirs"

Study Abroad, Sustainable Development and Social Change *August 2010-December 2010*

School for International Training (SIT), Jaipur, Rajasthan, India

Project title: "A Case Study of Dairy on the village level in Haryana and Orissa"

2. RESEARCH AND WORK EXPERIENCE:

Graduate Research Assistant *September 2015-December 2017*

University of Maryland, Department of Entomology, College Park, MD

Research topic: Effects of plant diversification on beneficial arthropod communities and vegetable yield

Research objectives: Determine effects of red clover (*Trifolium pratense*) living mulch on diversity and abundance of pollinators, natural enemies, pests, and quality and yield of cucumbers

Thesis title: "Using a living mulch and wolf spiders to manage pest arthropods in cucumber"

Research Assistant *January 2015-June 2015*

Texas A&M University, Department of Entomology, Forensic Laboratory for Investigative Entomological Studies, College Station, TX

Focus topic: 1) Effects of vertebrate scavenging on necrophagous dipteran community structure and 2) Response of *Hermetia illucens* (black soldier fly) to different diets and volatile cues

Experience gained:

- Mentored teams of undergraduates on data collection, analysis, and interpretation of results
- Reared and maintained black soldier fly colonies that were used for several experiments

Technician *September 2014-June 2015*

Texas A&M University, Insect Collection, College Station, TX

Experience gained:

- Contributed to building a digital annotated bibliography and library of Neuropterida and created training manuals
- Prepared, pinned, took inventory for, displayed, sorted, maintained, and identified insect specimen

Field Biologist *September 2013-March 2014*

Pennsylvania State University, Aguadilla, Puerto Rico (field work)

Focus topic: Influence of avian seed dispersal on plant community structure

Experience gained:

CURRICULUM VITAE cont.

- Engineered pilot projects on insect pre-dispersal seed predation and identified larvae from forest fruit samples
- Distinguished and noted flora and fauna, especially birds, invertebrates, fruiting plants and seeds on the field

Intern *June 2010-December 2011*

Research Experience for Undergraduates: Ecology, Evolution, and Genomics of Grassland Organisms, Kansas State University, Manhattan, KS

Experience gained:

- Collaborated with research team to locate, catch, record, and band hundreds of birds.
- Devised new methods to analyze, interpret, and classify song patterns using Raven software, Google maps, and Excel.

Independent Study Project *December 2010*

SIT (School for International Training), Jaipur, Rajasthan, India

Experience gained:

- Conducted research on agricultural technology, cattle diseases, and other sustainable dairy development topics.
- Interviewed over 70 individuals including villagers, professors, non-profit workers, and milk co-operatives about dairy.

3. SCHOLARLY ACTIVITIES:

Extension Publications:

Kahl, H. and C. R. R. Hooks. 2015. Red Clover as Living Mulch: A Pollinator & Natural Enemy Haven. University of Maryland Extension Vegetable & Fruit Headline News 6(7) Special Research Edition: 4-6.

Talks, Abstracts and Other Professional Papers Presented:

Kahl, H. 2017. Using living mulch and wolf spiders to manage cucurbit pests in cucumber (Exit Seminar and Thesis Defense). Department of Entomology, University of Maryland, College Park, MD. 1 December.

Kahl, H. 2017. Research Update: Living Mulch for Cucumber Production. University of Maryland Entomology Department Retreat. Socio-environmental Synthesis Center (SESYNC), Annapolis, MD. 9 September.

Kahl, H. 2017. The effects of living mulch on arthropod communities. Maryland Entomological Society Meeting. University of Maryland-Baltimore County, Baltimore, MD. 17 February.

Kahl, H. and C.R.R. Hooks. 2017. Using red clover to improve insect management, yield and environmental quality in peppers and cucumbers. Mid-Atlantic fruit and vegetable convention. Proceedings for the vegetable, potato, greenhouse, small fruit and general sessions: 104-105. Hershey Lodge and Convention Center, Hershey, PA. 31 January- 2 February.

Kahl, H. and C. R. R. Hooks. 2016. Effects of red clover living mulch on arthropod communities and cucurbit yield. Student Paper (Oral) Presentation Competition. International Congress of Entomology Meeting. Orlando, FL. 25-30 September.

Kahl, H. and C. Hooks. 2016. Effects of Red Clover as living mulch on insect communities and bell pepper yield. Student Paper (Oral) Presentation Competition. Northeastern Plant, Pest, and Soils Conference/Entomological Society of America-Eastern Branch. Philadelphia, PA. 3-7 January.

Kahl, H. and C. Hooks. 2015. Effects of red clover living mulch on arthropod communities and bell pepper yield. Student Paper (Oral) Presentation Competition. Entomological Society of America National Meeting. Minneapolis, MN. 15-18 November.

Fellowships, Awards, and Grants:

National Science Foundation Graduate Research Fellowship, Awarded *2017*

Student 15-minute Paper Competition, International Congress of Entomology, 1st place *2016*

University of Maryland Sustainability Fund, Co-PI. \$11,000 *2016*

National Science Foundation Graduate Research Fellowship Honorable Mention *2016*

Linnean Games (Arthropod Trivia), Entomology Society of America Eastern Branch Meeting, 2nd place *2016*

William O. Douglas Scholarship, Whitman College *2008-2012*

Workshops attended:

Ecological Society of America Annual Meeting. Baltimore, MD *August 2015*

- Simple App Creation for Ecologists Using MIT App Inventor (Workshop)
- Introduction to R for Ecologists (Workshop)

4. TEACHING EXPERIENCE:

Teacher's Assistant *Spring 2017*

University of Maryland, MD

CURRICULUM VITAE cont.

Class: Biology of Insects, BSCI337

- Designed and taught a new course curriculum that involves hands-on learning of entomological applications

Created POGIL Assignment on Pest Threshold Development *March 2016*

Integrated Pest Management Class, University of Maryland, MD

Teacher's Assistant *Spring 2016*

University of Maryland, MD

Class: The World of Biology, BSCI103

Teacher's Assistant *June 2014-August 2014*

University of Notre Dame Environmental Research Center-West, Charlo, MT

Class: Practicum in Field Environmental Biology

- Guided advanced undergraduate students in independent project design, data collection, analysis, and presentation.
- Prepared field and class materials for visiting lecturers; planned for field trips, and took inventory of the equipment.

Middle School Math Teacher *June 2012-June 2013*

TLBU (Transnational Law and Business University) Global School, Goyang, Gyeonggi, South Korea

Classes: Pre-algebra, Algebra, Geometry, Basic Pre-calculus, and English as a Second Language to Korean students

- Developed students' critical thinking skills resulting in test average increases of up to 18%.
- Transcended language barriers by teaching non-native English speakers math in English using activities and visual aids.

Teacher's Assistant *March 2011*

Whitman College Work-study Program, San Juan Islands, WA (field work)

Class: Marine Biology

5. MENTORING AND SUPERVISING:

Undergraduate and high school student interns:

Jenna Reimer, Geology, University of Maryland *May 2017-December 2017*

Anthony Combs, Ecology and Evolutionary Biology, University of Maryland *May 2017-September 2017*

Sarah Harrison, Education and Agricultural Science & Technology, University of Maryland *May 2017-September 2017*

Sonali Singh, Environmental Science & Policy, University of Maryland *May 2016-September 2016*

Elizabeth Starliper, Environmental Science, Shepherd University *May 2016-August 2016*

Jonathan Coplin, Environmental Science and Technology, University of Maryland & National Socio-Environmental Synthesis Center (SESYNC) *May 2015-August 2016*

Trang Le, Environmental Science and Technology, *May 2016-August 2016*

Tonle Bloomer, Bioengineering and Biomedical Engineering & SESYNC *June 2016-August 2016*

Belton DeLaine-Facey, Biology, University of Maryland *June 2016-August 2016*

Alek Berger, Biology, University of Maryland *September 2015-present*

Dyonna Chapman, Environmental Science, Shepherd University *Summer 2015*

Josh Hypes, Environmental Science, Shepherd University *Summer 2015*

Rachel Pierce, Environmental Science, Shepherd University *Summer 2015*

Michael Banfield, Forensic and Investigative Sciences, Texas A&M University *September 2015-June 2015*

Whitney West, Forensic and Investigative Sciences, Texas A&M University *September 2015-June 2015*

Jing Sheng Hing, University of Notre Dame Environmental Research Center-West *Summer 2014*

6. EXTENSION ACTIVITIES:

Field day instructor

Field days are outdoor meetings during which researchers communicate about agricultural research findings, techniques, or practices to growers and growers ask questions, share concerns, and provide insight. Demonstration plots that replicate aspects of field studies are often established, maintained, and displayed during these meetings.

Kahl, H., Leslie A., and C.R.R. Hooks. University of Maryland, AGNR Open House. Environmental Benefits of Cover Cropping. Central Maryland Research and Education Center, Clarksville, MD. 14 October 2017. (*Exhibition*).

Visitors: ~200

Kahl, H., Leslie, A., and C.R.R. Hooks. University of Maryland, AGNR, Late Summer Twilight Vegetable Meeting Tour. Sustainable weed management, red clover, pollinators and greenhouse gas emissions. Wye Research and Education Center. Queenstown, MD. 23 August 2017.

CURRICULUM VITAE cont.

- Kahl, H.,** Leslie, A., and C.R.R. Hooks. University of Maryland, College of Agriculture and Natural Resources (AGNR) Open House. Effect of red clover living mulch on cucumber beetles. Central Maryland Research and Education Center, Clarksville, MD. 8 October 2016. (*Poster Presentation*)
- Kahl, H.** and C.R.R. Hooks. University of Maryland, AGNR, Sustainable Agriculture & Organic Twilight Meeting Tour. Using red clover to reduce greenhouse gas emissions and enhance pollinators in cucurbits. Central Maryland Research and Education Center, Upper Marlboro, MD. 11 August 2016.
- Kahl, H.,** Hunt, L.G., and C.R.R. Hooks. University of Maryland, AGNR, Late Summer Horticultural Crops Educational Twilight Tour. Some Ecosystem Benefits of Organic IPM and Plant Diversification. Wye Research and Education Center. Queenstown, MD. 9 September 2015.
- Kahl, H.,** Rosario-Lebron, A., and C.R.R. Hooks. University of Maryland, AGNR, Horticultural Crops Twilight Meeting Tour. Cover crops and pest management. Western Maryland Research and Education Center. Keedysville, MD. 19 August 2015.
- Kahl, H.,** Rosario-Lebron, A., and C.R.R. Hooks. University of Maryland, AGNR, Organic Field Day. Some Ecosystem Benefits of Organic IPM and Plant Diversification. Central Maryland Research and Education Center (CMREC). Upper Marlboro, MD. 13 August 2015.
- Hooks, C.R.R. and **H. Kahl.** University of Maryland, AGNR, Crops Twilight Tour. Benefits of Crop Diversification. CMREC. Upper Marlboro, MD. 6 August 2015.

Invited talks

- Kahl, H.** and C.R.R. Hooks. 2017. The effects of living mulch on arthropod communities. Eastern Shore Vegetable Meeting. Cambridge, MD. 7 February. Attendance: 50
- Hooks, C.R.R. and **H. Kahl.** 2017. Using red clover mulch to improve insect management, yield and environmental quality in peppers and cucumbers. Symposium title: General Vegetables. Mid-Atlantic Fruit and Vegetable Convention, Hershey Lodge and Convention Center, Hershey, PA. 31 January – 2 February. Attendance: 120
- Kahl, H.** and C.R.R. Hooks. 2016. Effects of living mulches on pollinators and other beneficial insects. The use of cover crops to attract pollinators and other beneficial arthropods. Maryland Organic Food & Farming Association. Annapolis, MD. 20 February.

Online web application

Fey, D., Fitzpatrick, I., Kumar, S., Banerjee, A., **Kahl, H.** 2017. “Entogronomy” (online extension website, alpha version); <https://entogronomy.com/>

7. SERVICE:

University

Mentorship team. Girls Outdoor Adventure in Leadership and Science (GOALS), UC Davis Chapter *March 2018-present*
Meeting Coordinator. University of Maryland Sustainable Agriculture Research and Discussion Group *Spring 2016*

Other non-university commitments or volunteer services

Secretary and Website Manager. Ecological Society of America Agroecology Section *September 2016-present*
Editor. The Phaëton (Maryland Entomological Society Newsletter). *November 2015-January 2018*

- Edit (confirm information, grammar, and spelling) and compile articles
- Write announcements, supplemental information, and articles
- Maintain records of members and past issues

Volunteer-4th and 5th Grade. Sienna School. Silver Spring, MD *October, 2016-December, 2017*

- Taught about basic insect orders
- Guided students on interactive activities in basic insect identification

Volunteer-Insect Zoo. Maryland Day, University of Maryland, MD *30 April, 2016 and 29 April, 2017*

Volunteer-Entomological Society of America Booth, International Congress of Entomology Meeting. Orlando, FL *30 September 2016*

Volunteer-University of Maryland Insect Booth, Howard County STEM Festival. Howard Community College, Columbia, MD. *5 June 2016*

Participated in facilitating hands-on learning about insects on display for the community and answered questions
Volunteer-Information Desk. Ecological Society of America Annual Meeting. Baltimore, MD *9-14 August 2015*

Volunteer. Stephen Matter’s lab, University of Cincinnati *April 2014*

Pinned and catalogued moths

8. CERTIFICATE: TESOL teaching certificate *March 2012*

CURRICULUM VITAE cont.

9. OTHER SKILLS:

Programming and software: experienced in Google Earth, Garmin software, “R”, beginning Python, beginning SAS, beginning MIT App Inventor, beginning Canoco, and beginning JMP

Language skills: Korean, Japanese, Hindi, and Spanish

10. SCIENTIFIC SOCIETY MEMBERSHPS: Sigma Xi, Ecological Society of America, Entomological Society of America, Maryland Entomological Society