Parry Macdonald Kietzman

Research Associate · School of Plant and Environmental Sciences

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Education

University of California at Riverside — *Riverside, California*
PhD Entomology — *2015*

Wheaton College — *Wheaton, Illinois*
BS Biology — *Dec. 2009*

Professional Experience

2020-pres **Research Associate**, Virginia Tech School of Plant and Environmental Sciences
2017-2020 **Education Program Director and Research Entomologist**, Appalachian Beekeeping Collective
2019-2020 **Lab Manager and Postdoctoral Researcher**, Virginia Tech Department of Entomology
2015-2017 **Postdoctoral Researcher**, North Carolina State University Department of Entomology
2010-2015 **Graduate Student Researcher**, UC Riverside Department of Entomology

Research Interests

Sustainable Agriculture | Conservation | Ecology | Pollinators | Plant-Insect Ecosystems | Behavioral Ecology

Research Experience

Virginia Tech - School of Plant and Environmental Sciences — *Blacksburg, VA*
PI: Dr. Benjamin F. Tracy — *Oct. 2020 - Present*
- Bee-friendly beef: landscape restoration in cattle pastures for pollinator conservation. Interdisciplinary collaboration.

Virginia Tech - Department of Entomology — *Blacksburg, VA*
PI: Dr. Roger Schürch — *Jul. 2019-Oct. 2020*
- Near-field sound detection in honey bee communication. Interdisciplinary project to use sounds emitted by honey bees while communicating as a tool for conservation biology and agricultural systems.

Appalachian Beekeeping Collective — *Hinton, WV*
Collaboration with Dr. Margarita Lopez-Uribe and Dr. Robyn Underwood — *Jan. 2018-Oct. 2020*
- Comparison of management systems in beekeeping. Large-scale side-by-side comparison of different beekeeping management systems. Collaboration with researchers at Penn State University.

North Carolina State University - Department of Entomology — *Raleigh, NC*
PI: Dr. David Tarpy — *Nov. 2015-Mar. 2017*
- High throughput quantitative PCR to screen for honey bee viruses from a nationwide sample set and statistical analysis to find synergies among colony viral infections.

University of California at Riverside - Department of Entomology — *Riverside, CA*
PI: Dr. Hollis Woodard — *Jul. 2015-Oct.2015*
- Bumble bee (*Bombus impatiens*) nutritional physiology. Reared bumble bees and maintained a multifactorial diet treatment program.

University of California at Riverside - Department of Entomology *Riverside, CA*

Advisor: Dr. P. Kirk Visscher *Aug. 2010-May 2015*

- Honey bee group decision-making, communication, and behavioral ecology. Graduate studies.

Rocky Mountain Biological Laboratory *Gothic, CO*

Advisor: Dr. Graham Pyke *Summer 2009*

- Foraging behavior and ecology of *Bombus spp.* on vertical inflorescences. NSF REU project.

Wheaton College - Department of Biology *Wheaton, IL*

Advisor: Dr. Nadine Rorem *Jan. 2007-Dec. 2009*

- Effects of the invasive hydroid, *Cordylophora caspia*, on native food webs. Performed microdissection, identified zooplankton prey, collected specimens in the field, and designed feeding behavior experiments.

Publications

Journal Editing

2023: Guest editor for special issue of *Insectes Sociaux*: Successes and challenges in social insect conservation.

Peer-Reviewed Articles

Kietzman, P.M, O'Rourke, M., and Tracy, B.F. Bee-friendly beef: Diversified pastures offer restored habitat to native pollinators. IN REVIEW: Agriculture, Ecosystems, and Environment.

Larcom, R., **Kietzman, P.M.**, O'Rourke, M., and Tracy, B.F. Do pastures diversified with native wildflowers benefit honey bees (*Apis mellifera*)? Hive attributes and pollen analysis. IN REVIEW: Agriculture, Ecosystems, and Environment.

Underwood, R.M., Lawrence, B., Turley, N.E., Cambron-Kopco, L.D., **Kietzman, P.**, Traver, B.E., and López-Uribe, M.M. 2023. A longitudinal experiment demonstrates that honey bee colonies managed organically are as healthy and productive as those managed conventionally. Scientific Reports 13, 6072. doi:10.1038/s41598-023-32824-w.

Ohlinger, B.D., Schürch, R., Durzi, S., **Kietzman, P.M.**, Silliman, M.R., and Couvillon, M.J. 2022. Honey bees (Hymenoptera: Apidae) decrease foraging but not recruitment after neonicotinoid exposure. Journal of Insect Science 22.

Kietzman, P.M., and Visscher, P.K. 2020. The influence of available comb storage space on the performance of honey bee communication signals that regulate foraging. Apidologie. doi:10.1007/s13592-020-00803-z.

Kietzman, P.M. and Visscher, P.K. 2019. Follower position does not affect waggle dance information transfer. Psyche. doi:10.1155/2019/4939120.

Bell, H.C., **Kietzman, P.M.**, and Nieh, J.C. 2019. The complex world of honey bee vibrational signaling: A response to Ramsey et al. doi:10.13140/RG.2.2.28012.82562.

Kietzman, P.M., Lalor, J.K, and Visscher, P.K. 2017. Stop signaling by foragers not encountering danger at a food source. Insectes Sociaux 64: 307.

Kietzman, P.M., and Visscher, P.K. 2015. The anti-waggle dance: use of the stop signal as negative feedback. Frontiers in Ecology and Evolution 3:14. doi:10.3389/fevo.2015.00014.

Articles for the Popular Press

Kietzman, P.M.. 2022. Bee-friendly beef: bringing back pollinator habitat through landscape rehabilitation. The Beekeepers Quarterly 149: 16-18.

Kietzman, P.M. 2021. Bee-friendly beef: rehabilitating cattle pastures to increase pollinator habitat. Natural History of Ecological Restoration. https://mbgecologicalrestoration.wordpress.com/category/restoring-natural-capital/

Kietzman, P.M, O'Rourke, M., and Tracy, B.F. 2020. Establishing Pollinator Refuges in Pastureland. Agrilinks. https://www.agrilinks.org/post/establishing-pollinator-refuges-pastureland/

Stupiski, D. S., Heywood, K., **Kietzman, P.M.**, and Underwood, R. 2020. Thermography and Beekeeping. American Bee Journal 160: 319.

Macdonald, A.P. 2005. So…how do you do this? Bee Culture. October: 35-6.

In the Pipeline

Pollinator prevalence in wildflower-enhanced versus tall fescue pastures.

Presentations

Invited Talks

2019. *The anti-waggle dance: use of the stop signal in swarming and foraging colonies*. Invited talk: Department of Agriculture Seminar, Central State University, Wilberforce, OH.

2017. *Exploring the anti-waggle dance: identification of the stop signal and its use in foraging colonies*. Invited talk: Department of Entomology Seminar Series, Virginia Tech, Blacksburg, VA.

2016. *Use of the stop signal in swarming and foraging honey bee colonies*. Invited talk: Department of Entomology Seminar Series, North Carolina State University, Raleigh, NC.

2015. *Modelo win-win agrario. Estructura productiva de California e interrelación entre los sectores citrícola, de frutos secos y apícola.* . Invited talk: Las Abejas Son la Solución, Eurosemillas, Valencia, Spain.

Extension Talks

Kietzman, P.M. August 2023. Diversified pastures offer habitat to pollinators. The Smithsonian Conservation Biology Institute's Virginia Working Landscapes Field Day.

Kietzman, P.M. July 2023. Diversified pastures offer habitat to pollinators. University of Tennessee Field Day.

Kietzman, P.M. August 2018. Sustainable beekeeping parts I and II. Featured speaker: West Virginia Beekeepers Association Fall Meeting.

Kietzman, P.M. March 2018. Recognition of honey bee viruses and disease; Preventing viruses and diseases. Featured speaker: West Virginia Beekeepers Association Spring Meeting.

Kietzman, P.M. January 2018. Introduction to honey bee viruses. Invited speaker: Honey Bee Expo, West Virginia.

Kietzman, P.M. January 2018. Evolution of social behavior. Invited speaker: West Virginia Queen Producers.

Conference Presentations

López-Uribe, M. Underwood, R., Travers, B., and **Kietzman, P. (presenting author)**. 2019. A side-by-side comparison of honey bee health in colonies kept using conventional, organic, and chemical free management systems. Entomological Society of America Eastern Branch Meeting, Blacksburg, VA.

Kietzman, P.M. 2016. Identification of stop signaling in foraging honey bee (Apis mellifera L.) colonies. International Congress of Entomology, Orlando, FL.

Kietzman, P.M. 2014. Do honey bees know when they're out of storage space? Graduate Student 10 Minute Paper Competition, Annual Meeting, Entomological Society of America, Portland, OR.

Kietzman, P.M. 2013. Do honey bees know when they're out of storage space? Graduate Student 10 Minute Paper Competition, Annual Meeting, Entomological Society of America, Austin, TX.

Kietzman, P.M. 2013. Does follower position matter to waggle dance information transfer? Pacific Branch Annual Meeting, Entomological Society of America, Tahoe, NV (poster).

Kietzman, P.M. 2012. Does follower position matter to waggle dance information transfer? North American Breakout Session, International Union for the Study of Social Insects, Greensboro, NC (poster).

Rorem, N., Berg, M., Duggan, M., **Macdonald, A.P.**, and Mindrebo, E. 2009. Distribution and diet of the invasive Ponto-Caspian hydroid, Cordylophora caspia in southern Lake Michigan: Potential effects on fish prey availability. North American Benthological Society Annual Meeting. Grand Rapids, MI (poster).

Guest Course Lectures

Pollinators in agriculture. Summer 2023. Virginia Governor's School for Agriculture.

Fact or fiction about honey bees and an update on bee health. Computational Entomology for REU students. Summer 2017. Invited by Dr. Aviva Goldmann, lead instructor. University of California at Riverside.

Use of the stop signal by honey bees in swarms and foraging colonies. ENTM 162: Insect Behavior. Fall 2013. Invited by Dr. Ring Cardé, lead instructor. University of California at Riverside.

Interpretation of the waggle dance and how bees use plane-polarized light to navigate. ENTM 162: Insect Behavior. Fall 2014. Invited by Dr. Ring Cardé, lead instructor. University of California at Riverside.

Teaching Experience

Fall 2023	**ALS3404: Ecological Agriculture**, Instructor of Record	*Virginia Tech*
Fall 2022	**ALS3404: Ecological Agriculture**, Co-Instructor	*Virginia Tech*
Fall 2021	**ALS3404: Ecological Agriculture**, Co-Instructor	*Virginia Tech*
Fall 2016	**ENTM162: Insect Behavior**, Teaching Assistant	*UC Riverside*
Spring 2013	**ENTM20: Bees and Beekeeping**, Teaching Assistant	*UC Riverside*
Spring 2012	**ENTM20: Bees and Beekeeping**, Teaching Assistant	*UC Riverside*

Other Teaching

2017-2020	**Beekeeping Instruction**, As Head Educator, developed and taught introductory, intermediate, and advanced beekeeping courses serving over 400 participants in West Virginia and Virginia. Led team of educators and coordinated mentoring program for trainee beekeepers using honey production as a source of income.	*Appalachian Beekeeping Collective*

Mentoring

2023-pres.	**Lauryn Jansen**, Undergraduate Research Assistant, Virginia Tech
2022-2023.	**Sarah Superata**, Independent Study Research, Virginia Tech
2019	**Kayla Heywood**, Senior Capstone, Co-author, Virginia Tech
2016-2017	**Christopher Juberg**, Undergraduate Research Assistant, North Carolina State University
2014	**Anna Zakarian**, Undergraduate Research Assistant, UC Riverside
2012-2013	**Jacqueline Lalor**, Undergraduate Research Assistant, Co-author, UC Riverside
2010	**Mariam Shafik**, Undergraduate Research Assistant, UC Riverside

Awards, Fellowships, & Grants

2023	**Research Grant, Composting With Black Soldier Fly**, Virginia Agricultural Council	*$ 7,022*
2021	**Research Grant**, Project Apis m. and The National Honey Board	*$ 3,632*
2016	**Outstanding Faculty Research Award**, NCSU College of Agriculture and Life Sciences	*$ 5,000*
2016	**Travel Grant**, W.M. Keck Center for Behavioral Biology (NCSU)	
2010-2015	**Chancellor's Distingquished Fellowship**, UC Riverside	
2013	**Linnaean Games National Champion Team**, Entomological Society of America	
2012	**Travel Grant**, International Union for the Study of Social Insects	
2009	**Departmental Honors in Biology**, Wheaton College	
2009	**Cum Laude**, Wheaton College	
2009	**NSF REU at Rocky Mountain Biological Laboratory**, National Science Foundation	
2009	**Beaver-Schmale Award for Excellence in Research**, Wheaton College	
2006-2009	**Sallberg Memorial Scholarship for Academic Merit**, Wheaton College	
2006-2009	**President's Award Scholarship**, Wheaton College	

Outreach & Professional Development

Professional Development

2023	**NSF CAREER Grant Workshop**, Attendee

Service and Outreach

2022-pres.	**Mid-Atlantic Apiculture Research and Extension Consortium**, Member, Fact Sheet Author
2022-pres.	**Virginia Tech Bee Campus USA**, Member of Standing Committee
2021-pres.	**Virginia Tech School of Plant and Environmental Sciences**, Academic Advisor
2021	**Beezantium Exhibit by Kossmanndejong**, Provided footage of bee communication signals
2021	**SPES Graduate Student Poster Competition**, Judge
2020-pres.	**beesandbeef.spes.vt.edu**, Designer and Webmaster
2019	**Commonwealth of VA Campaign Charity Fundraiser**, Representative, Dept. of Entomology
2016	**North Carolina State Fair**, Judge, Bee Products and Beehives
2015	**Riverside Unified School Disctrict**, Judge, Science Fair
2014-2015	**UC Riverside New Faculty Search Committee**, Graduate student representative
2014	**UC Riverside Department of Entomology**, Outreach Coordinator
2011-2012	**UC Riverside Graduate Student Association**, Academic Affairs Officer
2008-2009	**Wheaton College Biology Club**, Founder and President
2008-2009	**Wheaton College Biology Student Advisory Council**, Student Representative

Peer Review

Apidologie

Professional Memberships

Entomological Society of America
International Union for the Study of Social Insects
American Association of Professional Apiculturists