

Eric R. Scott, PhD

Postdoctoral Associate

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Education

- 2014–2020 **PhD**, *Tufts University*, Medford, MA.
- Indirect and interactive effects of climate and herbivory on tea metabolites and quality
 - PI: Colin Orians
- 2007–2010 **MS**, *University of Illinois at Urbana-Champaign*, Urbana, IL.
- Interactions between habitat and ungulate herbivory limit the spread of *Ipomopsis aggregata* (Polemoniaceae).
 - PI: Ken Paige
- 2002–2006 **B.A.**, *Whitman College*, Walla Walla, WA.
- Behavioral evidence for host-race formation in the gall midge *Dasineura folliculi* (Felt).

Research Experience

- 2020– **Postdoctoral associate**, *Bruna Lab*, University of Florida.
- Present
- Manage and integrate long-term datasets on precipitation and plant demography
 - Quantify drought frequency and severity at different scales
 - Use generalized additive models and two-dimensional splines to test for potentially lagged and non-linear effects of drought on vital rates
 - Use simulation models to understand effects of drought and fragmentation on population viability
- 2019–2020 **Graduate Research Assistant**, *Crone Lab*, Tufts University.
- Developed the R package *bumbl* which provides functions for modeling bumblebee colony growth.
- 2014–2020 **Graduate Researcher**, *Tufts University*, Medford, MA.
- Conducted collaborative, interdisciplinary research on the effects of climate change and insect herbivory on tea metabolites
 - Designed and carried out field, greenhouse, and lab experiments at the Tea Research Institute in Hangzhou, China and at Tufts University
 - Developed and validated a novel, high-throughput method for sampling plant volatiles in the field
 - Mentored undergraduate assistants in computational, lab, and field experiments
- 2017–2018 **NSF grant coordinator**, *Tufts University*, Medford, MA.
- Schedule and coordinate conference calls and meetings with collaborators
 - Maintain public-facing website for grant
 - Communicate research findings to general public via blog posts and social media

- 2010 **Research Assistant**, *Colorado Natural Heritage Program*, Fort Collins, CO.
- Worked as part of a team to survey remote wetlands throughout Colorado
 - Carried out soil and vegetation sampling protocols and plant identification in the field
- 2007–2010 **Graduate Researcher**, *UIUC*, Urbana, IL.
- Successfully completed research projects investigating the effects of soil nutrients and herbivory on compensatory growth and chemical defenses in a wildflower
 - Mentored undergraduate research assistants
- 2005 **Research Intern**, *Bucknell University*, Lewisburg, PA.
- Collaborated with post-doctoral researcher to design a pilot study investigating host-race formation in a gall midge
 - Designed and carried out field and lab experiments, analyzed data, and contributed to published manuscripts

Teaching Experience

- 2020 **Ecological Statistics and Data (Instructor of record)**, *Tufts University*, Medford, MA.
- Lectured on probability theory, generalized linear models, mixed effects models, and hierarchical models
 - Created assignments and assessments in R Markdown
 - Mentored a teaching assistant in charge of a lab section
- 2019 **Organisms and Populations (Lecture TA)**, *Tufts University*, Medford, MA.
- Captured video recordings of live lecture and uploaded to course management site
 - Created and evaluated student assessments
- 2016–2018 **Biostatistics (Recitation Instructor)**, *Tufts University*, Medford, MA.
- Served as a teaching assistant for three semesters, over which I transitioned the course from using SPSS to R for statistical analyses
 - Created curriculum for a required recitation to teach R for biostatistics (available on GitHub)
 - Created homework assignments using R Markdown documents
- 2015 **Organisms and Populations (Lab TA)**, *Tufts University*, Medford, MA.
- Mentored and managed undergraduate teaching assistants
 - Actively participated in course redesign
 - Facilitated case-study based learning through discussion and quantitative reasoning and guided students in designing their own experiments
- 2014 **Cells and Organisms (Lab TA)**, *Tufts University*, Medford, MA.
- Mentored and managed undergraduate teaching assistants
 - Created weekly quizzes to assess learning and preparation for lab
- 2011–2014 **General Biology I (Adjunct Faculty)**, *Front Range Community College*, Fort Collins, CO.
- Taught students with a wide variety of backgrounds and life goals introductory biology concepts in a guaranteed transfer credit course
 - Created and continuously revised my own curriculum and assessments and engaged in revising and creating laboratory exercises used by all introductory biology sections
 - Actively participated in professional development by attending workshops, meeting individually with an instructional coach, and maintaining an active dialogue with supervisors

- 2010 **Environmental Biology (Discussion TA)**, *UIUC*, Urbana, IL.
- Encouraged students from a wide range of backgrounds to think critically about important environmental issues
- 2007–2009 **Organismal and Evolutionary Biology (Lab TA)**, *UIUC*, Urbana, IL.
- Worked with diverse populations as part of the Merit program for high achieving students from under-served groups
 - Received a Teaching Excellence Award from the School of Integrative Biology in March 2009
- [Guest Lectures](#)
- May 2020 **Tea chemistry, the environment, and health**, *Medicinal Plants*, Tufts ExCollege.
- Oct 2019 **Paired t-tests**, *Biostatistics*, Tufts University.
- Feb 2019 **Lessons from fieldwork experiences**, *Intro to environmental fieldwork*, Tufts University.
- Dec 2018 **Lessons from fieldwork experiences**, *Intro to environmental fieldwork*, Tufts University.
- Oct 2018 **Tea sustainability in a changing climate**, *Sustainability in Action*, Tufts University.
- Apr 2018 **Tea chemistry, the environment, and health**, *Medicinal Plants*, Tufts ExCollege.

Grants

- Nov 2019 **R Consortium Infrastructure Steering Committee Grant**.
- \$6,000
- Jan 2016 **Tufts Institute for the Environment Fellowship**.
- \$4,975.00
- Mar 2009 **Program in Ecology, Evolution, and Conservation Biology Research Grant**.
- \$850.00
- Mar 2009 **Francis M. and Harlie M. Clark Research Support Grant**.
- \$2,500.00
- Mar 2008 **Francis M. and Harlie M. Clark Research Support Grant**.
- \$2,500.00
- Mar 2008 **Program in Ecology, Evolution, and Conservation Biology Research Grant**.
- \$850.00

Awards and Honors

- Nov 2019 First place in section for student talks. Entomological Society of America
- Mar 2019 Finalist for Outstanding Contributions to Undergraduate Education Award. Graduate School of Arts and Sciences
- Mar 2019 First place in Tufts Graduate Research Symposium 15 minute talk category. Graduate School of Arts and Sciences
- Nov 2018 First place in section for student talks. Entomological Society of America
- Feb 2017 First place in Tufts Graduate Research Symposium 5 minute talk category. Graduate School of Arts and Sciences
- Feb 2016 Second place in Tufts Graduate Research Symposium 15 minute talk category. Graduate School of Arts and Sciences
- Mar 2009 Teaching Excellence award. UIUC School of Integrative Biology
- May 2006 Cynthia Lechner Biology Award. Whitman College
- Mar 2006 First place in M.S. graduate student poster competition. Entomological Society of America, Pacific Branch
- Nov 2005 Superior Poster Presenter. Sigma Xi

Publications

* indicates undergraduate mentee author

- 2020 **webchem: An R Package to Retrieve Chemical Information from the Web**, *E Szöcs, T Stirling, ER Scott, A Scharmüller, RB Schäfer*, Journal of Statistical Software.
- 2020 **Changes in tea plant secondary metabolite profiles as a function of leafhopper density and damage**, *ER Scott, X Li, JP Wei, N Kfoury, J Morimoto, MM Guo*, A Agyei*, ...*, Frontiers in plant science.
- 2019 **Interactive effects of drought severity and simulated herbivory on tea (*Camellia sinensis*) volatile and non-volatile metabolites**, *ER Scott, X Li, N Kfoury, J Morimoto, WY Han, S Ahmed, SB Cash, ...*, Environmental and Experimental Botany.
- 2019 **Combined impacts of prolonged drought and warming on plant size and foliar chemistry**, *CM Orians, R Schweiger, JS Dukes, ER Scott, C Müller*, Annals of botany.
- 2019 **Plant-Climate Interaction Effects: Changes in the Relative Distribution and Concentration of the Volatile Tea Leaf Metabolome in 2014-2016**, *N Kfoury, ER Scott, CM Orians, S Ahmed, S Cash, T Griffin, C Matyas, ...*, Frontiers in plant science.

- 2018 **Exogenous melatonin alleviates cold stress by promoting antioxidant defense and redox homeostasis in *Camellia sinensis* L.**, *X Li, JP Wei, ER Scott, JW Liu, S Guo, Y Li, L Zhang, WY Han*, *Molecules*.
- 2018 **Striking changes in tea metabolites due to elevational effects**, *N Kfoury, J Morimoto, A Kern, ER Scott, CM Orians, S Ahmed, T Griffin, ...*, *Food chemistry*.
- 2018 **Differential changes in tea quality as influenced by insect herbivory**, *ER Scott, CM Orians*, *Stress physiology of tea in the face of climate change*.
- 2017 **Direct contact sorptive extraction: a robust method for sampling plant volatiles in the field**, *N Kfoury, E Scott, C Orians, A Robbat Jr*, *Journal of agricultural and food chemistry*.
- 2009 **Behavioural, ecological and genetic evidence confirm the occurrence of host-associated differentiation in goldenrod gall-midges**, *N Dorchin, ER Scott, CE Clarkin, MP Luongo, S Jordan, WG Abrahamson*, *Journal of Evolutionary Biology*.
- 2007 **Taxonomy, Life History, and Population Sex Ratios of North American *Dasineura* (Diptera: Cecidomyiidae) on Goldenrods (Asteraceae)**, *N Dorchin, CE Clarkin, ER Scott, MP Luongo, WG Abrahamson*, *Annals of the Entomological Society of America*.
- 2006 **First Record of *Macrolabis* (Diptera: Cecidomyiidae) in America: A New Inquiline Species from *Dasineura folliculi* Galls on Goldenrods**, *N Dorchin, ER Scott, WG Abrahamson*, *Annals of the Entomological Society of America*.
- 2006 **Behavioral Evidence for Host-race Formation in the Gall-midge *Dasineura Folliculi* (Felt)**, *ER Scott*, Whitman College.

Software

- 2020 **webchem: retrieve chemical information from the web**, *E Szöcs, D Muench, J Ranke, ER Scott, J Stanstrup, R Allaway, Tamas Stirling*, <https://cran.r-project.org/web/packages/webchem/>.
 ○ Contributor and maintainer
- 2019 **bumbl: Tools for modeling bumblebee colony growth**, *ER Scott, E Crone*, <https://github.com/Aariq/bumbl>.
 ○ Author and maintainer

- 2018 **holodeck: A tidy interface for simulating multivariate data**, *ER Scott*,
<https://cran.r-project.org/web/packages/holodeck/>.
○ Author and maintainer

Presentations

Research Talks

- Aug 2020 **Using the right tool for the job: Understanding the difference between unsupervised and supervised analyses of multivariate ecological data**, *Ecological Society of America*.
- Nov 2019 **Non-linear effects of tea green leafhopper (*Empoasca onukii*) density on tea (*Camellia sinensis*) secondary metabolites and implications for tea quality.**, *Entomological Society of America Joint Meeting*, Saint Louis, MO.
○ First place in section (P-IE Chemical Ecology)
- Nov 2019 **Effects of Climate Change on Tea Quality**, *Biology Seminar*, University of Massachusetts, Dartmouth.
- May 2019 **Can a leafhopper rescue tea from climate change?**, *The Cambridge Entomological Club*, Cambridge.
- Mar 2019 **Can pests rescue tea quality from climate change?**, *Gervay-Hague Lab Group Meeting*, UC Davis.
- Mar 2019 **Multivariate Statistics for Ecology and Baked Goods**, *Tufts Graduate Student Symposium*, Tufts University.
○ First place in 15 min talk category
- Nov 2018 **The importance of insect herbivore density to induced metabolite blends in tea plants (*Camellia sinensis*) and implications for tea quality**, *Entomological Society of America Joint Meeting*, Vancouver, BC.
○ First place in section (P-IE turf and horticulture)
- Jul 2018 **Can pests rescue tea quality from climate change?**, *Chinese Academy of Agricultural Science Tea Research Institute (TRI CAAS) Seminar Series*, Hangzhou, China.
- Mar 2018 **Combined effects of drought and herbivory on tea metabolites**, *Biology Department Seminar*, Tufts University.
- Mar 2017 **A novel, high-throughput method for sampling volatiles in the field.**, *Entomological Society of America Eastern Branch Meeting*, Newport, RI.

- Feb 2017 **Can insect damage improve tea quality in a changing climate?**, *Tufts Graduate Student Symposium*, Tufts University.
 ○ First place in 5 minute talk category
- Feb 2016 **A New Method For Sampling Plant Volatiles in the Field**, *Tufts Graduate Student Symposium*, Tufts University.
 ○ Second place in 15 min category
- Jan 2016 **Sampling Plant Volatiles in the Field: An Alternative to Dynamic Headspace Sampling**, *Gordon Research Seminar: Plant Volatiles*, Ventura, CA.
- Nov 2015 **An Alternative Method for Sampling Plant Volatiles.**, *Biology Department Seminar*, Tufts University.
- Apr 2006 **How gall makers enslave plants to build homes.**, *Whitman College Undergraduate Conference*, Walla Walla, WA.

Posters

- Nov 2018 **Interactive effects of drought and herbivory on tea (*Camellia sinensis*) volatile and non-volatile metabolites**, *Entomological Society of America Joint Meeting*, Vancouver, BC.
- Aug 2017 **Generating and analyzing metabolomic data from tea plant volatiles.**, *Data Intensive Studies Center (DISC) Symposium*, Tufts University.
- Feb 2016 **Sampling Plant Volatiles in the Field: An Alternative to Dynamic Headspace Sampling**, *Gordon Research Conference: Plant Volatiles*, Ventura, CA.
- Mar 2006 **Behavioral evidence for host race formation in a gall midge**, *Entomological Society of America Pacific Branch Annual Meeting*, Kehei, HI.
 ○ First place in M.S. graduate student poster competition
- Nov 2005 **Behavioral evidence for host race formation in a gall midge**, *Sigma Xi Annual Meeting and Student Research Conference*, Seattle, WA.
 ○ Superior Poster Presenter award

Outreach

- 2015–2016, **Scientist Pen-Pal**, *Letters to a Prescientist*.
- 2018–2020 ○ Scientist pen-pal paired with a middle-school pre-scientist
- Fall 2019 **#TeaScienceTuesday**, Instagram.
 ○ A social media campaign where I live-streamed a short discussion about an aspect of tea science
- 11/20/19 **The Chemistry of Tea**, *The London Tea Room*, Saint Louis, MO.
 ○ Class for general public on tea science

- 9/27/19 **The Chemistry of Tea**, *Mem Tea*, Somerville, MA.
 ○ Class for general public on tea science
- 4/26/17 **Bug-Bitten Tea**, *Pint of Science*, Cambridge, MA.
 ○ An informal talk to the public about my research at a local pub

Service

Manuscript Reviews

- Agronomy (1)
 - Journal of Chemical Ecology (1)
 - Ecological Entomology (3)
 - International Journal of Climatology (1)
 - Oecologia (1)
- 2015–2016 **President**, *Tufts BUGS (Biology Union of Graduate Students)*, Medford, MA.
 ○ Provided active leadership at meetings.
 ○ Encouraged continued interaction between members between meetings
 ○ Prepared a budget and submitted funding requests
- 2009–2010 **Outreach and policy committee**, *UIUC Graduate Students in Ecology and Evolutionary Biology (GEEB)*, Champaign, IL.
 ○ Act as liaison to other ecology and conservation related clubs on campus.
 ○ Keep club members informed of ecology related events on campus.
 ○ Solicit advice to other ecology related clubs.
- 2008–2009 **Graduate student symposium food committee chair**, *UIUC Graduate Students in Ecology and Evolutionary Biology (GEEB)*, Champaign, IL.
 ○ Assist in organizing the PEEC symposium.
 ○ Plan and provide breakfast and mid-morning snack for attendees of the symposium
 ○ Communicate with PEEC treasurer on matters of budget.
- 2020– **Founding member**, *UFPDA (UF Postdoc Association)*, University of Florida.
 Present ○ Worked with a team to create a chapter of the National Postdoctoral Association at University of Florida

Presented Workshops

- Jan 2018 **R Notebooks: Richly annotate your statistical analyses and produce dynamic reports**, *Workshop*, Tufts University.
- Jan 2009 **Using RSS feeds to stay up-to-date in ecology/Using Papers to organize your literature.**, *GEEB Workshop*, UIUC.

Professional Development

- Mar 2019 Optimizing Your Mentoring Relationship. Tufts University
- Jan 2018 Best practices for productive writing. Tufts University
- Sep 2015 Grant Writing: Finding Funding. Tufts University
- Sep 2013 Working with Student-Veterans: Strategies and Guidance for Creating Veteran-Supportive Classrooms. Front Range Community College
- Sep 2012 How to get students to “eat the textbook”. Front Range Community College

Oct 2008 Taking Charge: Strategies for Success in Graduate School. University of Illinois
at Urbana-Champaign