

# 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).

## Teaching Experience

- 2020 **Ecological Statistics and Data (Instructor of record)**, *Tufts University*, Medford, MA.
- Developed curriculum to teach probability theory, generalized linear models, mixed effects models, and hierarchical models using ecological examples
  - 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.
- Created and evaluated student assessments
  - Ran course management site including management of live and recorded video lectures
- 2016–2018 **Biostatistics (Recitation Instructor)**, *Tufts University*, Medford, MA.
- Created original curriculum and assessments for a required recitation to teach R for biostatistics (available on GitHub)
- 2015 **Organisms and Populations (Lab TA)**, *Tufts University*, Medford, MA.
- Actively participated in redesigning course to focus on case-studies, quantitative reasoning, and CUREs
  - Mentored and managed undergraduate teaching assistants
- 2014 **Cells and Organisms (Lab TA)**, *Tufts University*, Medford, MA.
- Created weekly quizzes to assess learning and preparation for lab
  - Mentored and managed undergraduate teaching assistants

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

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.

#### [Training and Professional Development](#)

May 2021 Virtual Field Course working group. [brunalab.org/virtualfieldcourse](https://brunalab.org/virtualfieldcourse)

May 2021 Addressing Inclusion, Diversity, Equity and Justice in STEM Teaching. University of Florida

Mar 2021 Cultural Competence, Crucial Conversations (C4) & Equity. University of Florida

Nov 2020 Brain, Bias, Being Anti-Racism Workshop. Tufts University

Oct 2020 Setting Student Expectations Through an Effective Course Syllabus. University of Florida

Aug 2020 Anti-Racist Theory & Teaching Practice. University of Florida

- 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

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## Research Experience

- 2020– **Postdoctoral associate**, *Bruna Lab*, University of Florida.
- Present
- Manage and integrate long-term datasets on precipitation and plant demography
  - Served as primary mentor for two REU students
  - 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
  - Mentored undergraduate assistants in computational, lab, and field experiments
  - Developed international collaborations
- 2017–2018 **NSF grant coordinator**, *Tufts University*, Medford, MA.
- Scheduled and coordinated conference calls and meetings with collaborators
  - Maintained public-facing website for grant
  - Communicated 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

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## Grants

- Mar 2021 **NSF REU Supplement (co-authored with E. Bruna)**.
- \$7,200
- 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

- 2021 **Foretelling the flex—vertebral shape predicts behavior and ecology of fishes**, *CM Donatelli, AS Roberts, E Scott, K DeSmith, D Summers, L Abu-Bader, ...*, Integrative and Comparative Biology.
- 2021 **Using the right tool for the job: the difference between unsupervised and supervised analyses of multivariate ecological data**, *ER Scott, EE Crone*, Oecologia.

- 2021 **Differing non-linear, lagged effects of temperature and precipitation on an insect herbivore and its host plant**, *ER Scott, JP Wei, X Li, WY Han, CM Orians*, Ecological Entomology.
- 2020 **Webchem: An R Package to retrieve chemical information from the web**, *E Szöcs, T Stirling, ER Scott, A Scharmüller, RB Schäfer*, J. Stat. Softw.
- 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, SB 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

- 2021 **bumbl: Tools for modeling bumblebee colony growth**, *ER Scott, E Crone*, <https://cran.r-project.org/package=bumbl>.  
● Author and maintainer
- 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
- 2018 **holodeck: A tidy interface for simulating multivariate data**, *ER Scott*, <https://cran.r-project.org/web/packages/holodeck/>.  
● Author and maintainer

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#### Presentations

##### Research Talks

- Mar 2021 **Impacts of insect herbivory on tea quality: strategies for a changing climate**, *University of Florida Entomology and Nematology Department Seminar*, University of Florida.
- Aug 2020 **Introduction to webchem**, *European Chemicals Agency*.
- 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

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### Outreach

2015–2016, **Scientist Pen-Pal**, *Letters to a Prescientist*.

- 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

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### Service

- Review Editor for Plant Metabolism and Chemodiversity section of *Frontiers in Plant Science*

#### Manuscript Reviews

- Agronomy (1)
- Journal of Chemical Ecology (1)



- Ecological Entomology (3)
  - International Journal of Climatology (2)
  - Oecologia (1)
  - Frontiers in Cellular and Infection Microbiology (1)
    - 2020– Secretary and co-founder. UFPDA (UF Postdoc Association)
    - Present
    - 2015–2016 President. Tufts BUGS (Biology Union of Graduate Students)
    - 2009–2010 Outreach and policy committee. UIUC Graduate Students in Ecology and Evolutionary Biology (GEEB)
    - 2008–2009 Graduate student symposium food committee chair. UIUC Graduate Students in Ecology and Evolutionary Biology (GEEB)
- [Presented Workshops](#)
- Jan 2018 R Notebooks: Richly annotate your statistical analyses and produce dynamic reports. Workshop
  - Jan 2009 Using RSS feeds to stay up-to-date in ecology/Using Papers to organize your literature. GEEB Workshop