

# Eric R. Scott, PhD

*Postdoctoral Associate*

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Updated 2021-07-29

## 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 integral projection 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**.
- \$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 **Scott, E R; Uriarte, María; Bruna, Emilio M.**, *Delayed Effects of Climate on Vital Rates Lead to Demographic Divergence in Amazonian Forest Fragments*, bioRxiv. <http://doi.org/10.1101/2021.06.28.450186>.
- 2021 **Donatelli, C M; Roberts, A S; Scott, E R; DeSmith, K; Summers, D; Abu-Bader, L; Baxter, D; Standen, E M; Porter, M E; Summers, A P; Tytell, E D**, *Foretelling the Flex—Vertebral Shape Predicts Behavior and Ecology of Fishes*, Integrative and Comparative Biology. <http://doi.org/10/gkf9ck>.

- 2021 **Scott, E R; Crone, E E**, *Using the Right Tool for the Job: The Difference between Unsupervised and Supervised Analyses of Multivariate Ecological Data*, Oecologia. <http://doi.org/10.1007/s00442-020-04848-w>.
- 2021 **Scott, Eric R.; Wei, Ji-Peng; Li, Xin; Han, Wen-Yan; Orians, Colin M.**, *Differing Non-Linear, Lagged Effects of Temperature and Precipitation on an Insect Herbivore and Its Host Plant*, Ecological Entomology. <http://doi.org/10.1111/een.13023>.
- 2020 **Scott, E R; Li, X; Wei, J-P; Kfoury, N; Morimoto, J; \*Guo, M-M; \*Agyei, A; Robbat, A; Ahmed, S; Cash, S B.; Griffin, T S; Stepp, J R; Han, W-Y; Orians, C M**, *Changes in Tea Plant Secondary Metabolite Profiles as a Function of Leafhopper Density and Damage*, Frontiers in Plant Science. <http://doi.org/10.3389/FPLS.2020.00636>.
- 2020 **Szöcs, E; Stirling, T; Scott, E R; Scharmüller, A; Schäfer, R B**, *Webchem: An R Package to Retrieve Chemical Information from the Web*, Journal of Statistical Software. <http://doi.org/10.18637/jss.v093.i13>.
- 2019 **Kfoury, N; Scott, E R; Orians, C M; Ahmed, S; Cash, S B; Griffin, T; Matyas, C; Stepp, J R; Han, W-Y; Xue, D-Y; Long, C-L; Robbat, A**, *Plant-Climate Interaction Effects: Changes in the Relative Distribution and Concentration of the Volatile Tea Leaf Metabolome in 2014–2016*, Frontiers in Plant Science. <http://doi.org/10.3389/fpls.2019.01518>.
- 2019 **Orians, C M; Schweiger, R; Dukes, J S; Scott, E R; Müller, C**, *Combined Impacts of Prolonged Drought and Warming on Plant Size and Foliar Chemistry*, Annals of Botany. <http://doi.org/10.1093/aob/mcz004>.
- 2019 **Scott, E R; Li, X; Kfoury, N; Morimoto, J; Han, W-Y; Ahmed, S; Cash, S B; Griffin, T S; Stepp, J R; Robbat, A; Orians, C M**, *Interactive Effects of Drought Severity and Simulated Herbivory on Tea (Camellia sinensis) Volatile and Non-Volatile Metabolites*, Environmental and Experimental Botany. <http://doi.org/10.1016/j.envexpbot.2018.10.025>.
- 2018 **Kfoury, N; Morimoto, J; Kern, A; Scott, E R; Orians, C M; Ahmed, S; Griffin, T; Cash, S B; Stepp, J R; Xue, D-Y; Long, C-L; Robbat, A**, *Striking Changes in Tea Metabolites Due to Elevational Effects*, Food Chemistry. <http://doi.org/10.1016/j.foodchem.2018.05.040>.

- 2018 **Li, X; Wei, J-P; Scott, E R; Liu, J-W; Guo, S; Li, Y; Zhang, .; Han, W-Y**, *Exogenous Melatonin Alleviates Cold Stress by Promoting Antioxidant Defense and Redox Homeostasis in Camellia sinensis L.*, *Molecules*. <http://doi.org/10.3390/molecules23010165>.
- 2018 **Scott, E R; Orians, C M**, *Differential Changes in Tea Quality as Influenced by Insect Herbivory*, *Stress Physiology of Tea in the Face of Climate Change*. [http://doi.org/10.1007/978-981-13-2140-5\\_10](http://doi.org/10.1007/978-981-13-2140-5_10).
- 2017 **Kfoury, N; Scott, E R; Orians, C M; Robbat, A**, *Direct Contact Sorptive Extraction: A Robust Method for Sampling Plant Volatiles in the Field*, *Journal of Agricultural and Food Chemistry*. <http://doi.org/10.1021/acs.jafc.7b02847>.
- 2009 **Dorchin, N; Scott, E R; Clarkin, C E; Luongo, M P; Jordan, S; Abrahamson, W G**, *Behavioural, Ecological and Genetic Evidence Confirm the Occurrence of Host-Associated Differentiation in Goldenrod Gall-Midges.*, *Journal of evolutionary biology*. <http://doi.org/10.1111/j.1420-9101.2009.01696.x>.
- 2007 **Dorchin, N; Clarkin, C E; Scott, E R; Luongo, M P; Abrahamson, W G**, *Taxonomy, Life History, and Population Sex Ratios of North American Dasineura (Diptera : Cecidomyiidae) on Goldenrods (Asteraceae)*, *Annals of the Entomological Society of America*. [http://doi.org/10.1603/0013-8746\(2007\)100\[539:TLHAPS\]2.0.CO;2](http://doi.org/10.1603/0013-8746(2007)100[539:TLHAPS]2.0.CO;2).
- 2006 **Dorchin, N; Scott, E R; Abrahamson, W G**, *First Record of Macrolabis (Diptera : Cecidomyiidae) in America: A New Inquiline Species from Dasineura folliculi Galls on Goldenrods*, *Annals of the Entomological Society of America*. [http://doi.org/10.1603/0013-8746\(2006\)99\[656:FROMDC\]2.0.CO;2](http://doi.org/10.1603/0013-8746(2006)99[656:FROMDC]2.0.CO;2).

## 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*.
- 2018–2021 ● 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