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Eric R. Scott

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–Present **Postdoctoral researcher**, *Bruna Lab*, University of Florida.
- 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

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, A Robbat, ...*, 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

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, 2018–2020 **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*, Sommerville, 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)

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.

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