

KATHERINE EISEN

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Education

PhD in Ecology and Evolutionary Biology

2020

Cornell University, Ithaca, NY, USA

Advisor: Dr. M. A. Geber

Committee Members: Dr. A. A. Agrawal, Dr. R. A. Raguso

Dissertation title: Species interactions affect the distribution and evolution of multiple floral traits in California native wildflowers

Bachelor of Arts in Environmental Studies, *magna cum laude* with Distinction

2012

Amherst College, Amherst, MA, USA

Advisor: Dr. J. S. Miller

Honors thesis: Forty-two years of forest measurements support the continuation of the Northeastern carbon sink

Professional Experience

NSF Postdoctoral Fellowship in Biology, Rules of Life track

2021-2024

Lund University, Lund, Sweden

Supervisors: Drs. Magne Friberg and Anna Runemark

Maternity Leave

Spring 2021

Research Associate

2012-2014

University of Guelph, Ontario, Canada

Caruso and Maherali Labs, Department of Integrative Biology

Peer-Reviewed Publications

11. **Eisen, K. E.**, Ma, R., and R. A. Raguso. **2022**. Among- and within-population variation in floral morphology and scent in a hawkmoth pollinated plant. *American Journal of Botany*: doi: 10.1002/ajb2.16030 **Special issue on “Approaches to the Study of Quantitative Fitness-Related Traits.”**
10. **Eisen, K. E.**, Geber, M. A., and R. A. Raguso. **2022**. Emission rates of species-specific volatiles vary across communities of *Clarkia* species: Evidence for multi-modal character displacement. *The American Naturalist* 199: 824-840. doi: 10.1086/715501
9. **Eisen, K. E.**, Siegmund, G.-F., Watson, M. A., and M. A. Geber. **2022**. Variation in the location and timing of experimental severing demonstrates that the persistent rhizome serves multiple functions in a clonal forest understory herb. *Functional Ecology* 36: 356-367. doi: 10.1111/1365-2435.13970
8. Godsoe, W., **Eisen, K. E.**, Sirianni, K., and D. Stanton. **2021**. Transmission bias’s fundamental role in biodiversity change. *Theoretical Ecology* 14: 367-379. doi: 10.1007/s12080-020-00478-3
7. **Eisen, K. E.**, Wruck, A.C., and M. A. Geber. **2020**. Floral density and co-occurring congeners alter patterns of selection in annual plant communities. *Evolution* 74: 1682-1698. doi: 10.1111/evo.13960; **digest covering this paper**, doi: 10.1111/evo.14055.
6. **Eisen, K. E.**, Campbell, D. R., Richards, E., and M. A. Geber. **2019**. Differences in flowering phenology are likely not the product of competition for pollination in *Clarkia* communities. *International Journal of Plant Sciences* 180: 974-986. doi: 10.1086/705607 **Special issue on floral trait evolution**
5. Caruso, C. M., **Eisen, K. E.**, Martin, R. A., and N. Sletvold. **2019**. A meta analysis of the agents of selection on floral traits. *Evolution* 73: 4-14. doi: 10.1111/evo.13639

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4. **Eisen, K. E.**, and M. A. Geber. **2018**. Ecological sorting and character displacement in communities of coexisting *Clarkia* species. *Journal of Evolutionary Biology* 31: 1440–1458. doi: 10.1111/jeb.13365
3. **Eisen, K. E.**, Case, A. L., and C. M. Caruso. **2017**. Variation in pollen presentation in *Lobelia siphilitica*. *International Journal of Plant Sciences* 178: 79–84. doi: 10.1086/688961 **Featured Cover Article**
2. Caruso, C. M., **Eisen, K. E.**, and A. L. Case. **2016**. A phylogenetic analysis of gynodioecy and its correlates in the flowering plants. *International Journal of Plant Sciences* 177: 115–121. doi: 10.1086/684260 **Featured Cover Article**
1. **Eisen, K.** and A. Barker Plotkin. **2015**. Forty years of forest measurements support steadily increasing aboveground biomass in a maturing, *Quercus*-dominant northeastern forest. *Journal of the Torrey Botanical Society* 142: 97–112. doi: 10.3159/TORREY-D-14-00027.1

Publications in Review

1. **Eisen, K. E.***, Powers, J. M.*, Raguso, R. A., and D. R. Campbell. An analytical pipeline to support robust research on the ecology, evolution, and function of floral volatiles. Submitted 29 July 2022 to *Frontiers in Ecology and Evolution*, Research Topic: “Methods in Chemical Ecology.” *Authors contributed equally.

Book Reviews and Digests

3. **Eisen, K. E.** **2018**. Digest: A new approach to an old question: using experimental evolution to investigate the evolution of generalized pollination. *Evolution* 72: 2825–2827.
2. **Eisen, K. E.** **2017**. Digest: Trait variation in *Mimulus* provides new evidence for the joint action of ecological sorting and character displacement. *Evolution* 71: 1425–1427.
1. Petipas, R. H.* and **K. E. Eisen.*** **2016**. The Roots and Shoots of Plant Evolutionary Ecology. A review of G. P. Cheplick 2015. *Approaches to Plant Evolutionary Ecology*. *Trends in Ecology & Evolution* 31: 409–410. *Authors contributed equally.

Teaching Experience

Teaching Associate Evolution for non-majors online (BioEE 1180), Cornell University	Summer 2020
Module Developer & Guest Instructor Evolution for non-majors (BioEE 1180), Cornell University	Fall 2019
Guest Lecturer Chemical Ecology (BioEE 3690), Cornell University	Spring 2019
Teaching Assistant Chemical Ecology (BioEE 3690), Cornell University	Spring 2019
Teaching Assistant Introduction to Evolutionary Biology & Diversity (BioEE 1780), Cornell University	Fall 2015, Fall 2018

Fellowships and Awards

Postdoctoral Fellowship in Biology, Rules of Life track National Science Foundation	2021–2024
Outstanding Graduate Teaching Assistant Cornell University Department of Ecology and Evolutionary Biology	Spring 2020
Ed Ricketts Student Talk Award American Society of Naturalists Stand-Alone Meeting, Pacific Grove, CA	January 2018

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Paul Fellowship for Study and Research in Absentia Cornell University Department of Ecology and Evolutionary Biology;	Spring 2016
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Graduate Research Fellowship National Science Foundation	2015-2020
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Lloyd I. Rosenblum Memorial Fund for Graduate Study Amherst College	2014-2017
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Presidential Life Sciences Fellowship Cornell University	2014-2015
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External Grants

Swedish Phytogeographical Society Research Scholarship Swedish Phytogeographical Society	2022
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Erik Philip-Sörensens research grant Erik Philip-Sörensens stiftelse	2021
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Fysiografen Research Grant Royal Physiographic Society of Lund	2021
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Fysiografen Travel Grant Royal Physiographic Society of Lund	2021
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43rd Symposium Travel Grant New Phytologist Trust	2019
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Graduate Student Research Fellowships, First Prize Torrey Botanical Society	2017
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Lewis and Clark Fund for Exploration and Field Research American Philosophical Society	2017
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Rosemary Grant Award for Graduate Student Research Society for the Study of Evolution	2015
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Graduate Student Research Award Botanical Society of America	2015
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Cornell University Grants

Sustainable Biodiversity Fund (Atkinson Center for a Sustainable Future)	2017
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Research Travel Grant (Graduate School)	2017
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Betty Miller Francis ‘47 Fund (E&EB Department)	2016
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Sigma Xi Grant in Aid of Research, Cornell Chapter Award	2015, 2018
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Conference Travel Grant , (Graduate School)	2015, 2017, 2018, 2019
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Paul P. Feeny and Richard B. Root Funds (E&EB Department)	2015, 2016, 2017
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Andrew W. Mellon Student Research Grant (CALS)	2015, 2016, 2018
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Orenstein Fund (E&EB Department)	2015
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Invited & Selected Presentations

Department of Ecology & Evolution University of Chicago, Chicago, IL	October 2021
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Departmental Seminar. Drivers of variation in floral traits: from species interactions to molecular mechanisms.

Biology Department

October 2021

University of Turku, Turku, Finland

Departmental Seminar. Drivers of variation in floral traits: from species interactions to molecular mechanisms.

Biodiversity, Earth & Environmental Science Department

March 2020

Drexel University, Philadelphia, PA

Invited oral presentation to Graduate Student Seminar Series. Ecological and evolutionary interactions between pollinator-sharing plants.

Academy Research Seminar

March 2020

Academy of Natural Sciences, Philadelphia, PA

Invited oral presentation. Character displacement across multiple phenotypic axes in *Clarkia*.

43rd New Phytologist Symposium

July 2019

Zurich, Switzerland

Selected oral presentation & poster presentation. Emission rates of species-specific volatiles change across communities of *Clarkia* species: Evidence for character displacement in floral scent.

II Joint Congress on Evolutionary Biology

August 2018

Montpellier, France

Selected oral presentation. Does sharing pollinators affect floral trait evolution? Stories from the *Clarkia* system.

Contributed Presentation (since 2014)

Scandinavian Association of Pollination Ecologists (SCAPE), Warsaw, Poland

October 2021

Oral presentation. The repeatability of floral scent across a geographic mosaic of coevolution in *Oenothera cespitosa* ssp. *marginata*.

American Society of Naturalists, Pacific Grove, CA

January 2020

Oral presentation. Are changes in flower size associated with changes in plant size and physiology?

Evolution, Providence, RI

June 2019

Oral presentation. Emission rates of species-specific volatiles change across communities of *Clarkia* species: Evidence for character displacement in floral scent.

American Society of Naturalists, Pacific Grove, CA

January 2018

Oral presentation. Does sharing pollinators affect floral trait evolution? Stories from the *Clarkia* system.

Ecological Society of America, Portland, OR

August 2017

Oral presentation. Ecological sorting and character displacement in communities of pollinator-sharing *Clarkia* species.

Botany, Edmonton, AB, Canada

July 2015

Oral presentation. Sources of variation in pollen dispensing schedules of *Lobelia siphilitica*.

Evolution, Raleigh, NC

June 2014

Oral presentation. A phylogenetic analysis of gynodioecy and its correlates in the flowering plants.

Outreach & Mentoring Activities

Diversity Preview Weekend

2017-2020

Cornell University

- Coordinated participants' housing, ran workshop on NSF GRFP, provided feedback on personal statements.

Scientist Mentor Fellow

2016-2018

Digging Deeper Project, PlantingScience

- Attended pedagogical training session with secondary-school teachers; worked intensively with teachers on program implementation

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Undergraduate mentoring & supervising

2015-2020

Cornell University

- Supervised and mentored two students conducting independent research projects and one work-study student.

Master Plant Science Team Member

2015-2016

PlantingScience

- Served as a classroom liaison between teachers and scientist mentors

Instructor

2014-2015

Graduate Student School Outreach Program (GRASSHOPR), Cornell University

- Designed and taught short course on biodiversity to a fourth-grade class

Volunteer Educator

2012-2014

Let's Talk Science, University of Guelph

- Presented interactive activities on a range of STEM topics to classrooms and community groups

Undergraduate mentoring & supervising

2012-2014

University of Guelph

- Supervised eight work study students and mentored two honors thesis students.

Professional Activities

Reviewer (44 total manuscripts): Evolution (10); American Journal of Botany (6); Oecologia (5); Journal of Ecology (4); International Journal of Plant Sciences (3); Annals of Botany (2); Biological Invasions (2); Functional Ecology (2); New Phytologist (2); Evolutionary Ecology (1); Frontiers in Plant Science (1); Journal of Plant Ecology (1); Journal of Plant Research (1); Nordic Journal of Botany (1); Plant Ecology & Diversity (1); Proceedings B (1); Trees (1)

Graduate Student Representative, faculty search in Organismal Biology, Cornell University (2019-2020)

Contributed Symposium Organizer, ESEB 2022 Congress, Prague, Czech Republic

Meeting Organizer, *ECR²* Online 2020; Cornell Ecology and Evolutionary Biology December Symposium (2015, 2016, 2017); Ontario Ecology, Ethology, and Evolution Colloquium (2014)

Vice Chair, American Society of Naturalists Diversity Committee (2022)

Reviewer, American Society of Naturalists Student Research Award (2022)

Member, American Society of Naturalists Diversity Committee (2019-2021)

Member, American Society of Naturalists Graduate Council (2019-2022)

Member, Botanical Society of America; California Botanical Society; California Native Plants Society; Ecological Society of America; Sigma Xi; American Society of Naturalists; Society for the Study of Evolution; Torrey Botanical Society

Special Skills & Training

Writing 7101: Writing in the Majors Seminar

Spring 2019

Cornell University

- Received training on teaching writing; discussed challenges associated with working with student writing.

GET SET Certificate in “Understanding Undergraduate Learners”

2018

Center for Teaching Innovation, Cornell University

- Participated in a series of workshops on fostering inclusivity and diversity in the classroom, facilitating effective discussions, and how to support struggling students.

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Colman Leadership Program

Cornell University

January 2018

Leadership Development for Life Scientists (ALS 5100)

Cornell University

Spring 2017

Geometric Morphometrics in R

Transmitting Science, Barcelona, Spain

Instructor: Dr. Julien Claude, Assistant Professor, ISEM, France

Spring 2016

Scientific Communication Workshop (COMM 5660)

Cornell University

Fall 2015