

# KATHERINE EISEN

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## Education

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### 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

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### 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

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11. **Eisen, K. E.**, Ma, R., and R. A. Raguso. Among- and within-population variation in floral morphology and scent in a hawkmoth pollinated plant. Accepted (26 May 2022), American Journal of Botany, contributed to a special issue on “Approaches to the Study of Quantitative Fitness-Related Traits.”
10. **Eisen, K. E.**, Siegmund, G.-F., Watson, M. A., and M. A. Geber. **2021**. 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 doi: 10.1111/1365-2435.13970
9. **Eisen, K. E.**, Geber, M. A., and R. A. Raguso. **2021**. Emission rates of species-specific volatiles vary across communities of *Clarkia* species: Evidence for multi-modal character displacement. The American Naturalist doi: 10.1086/715501
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.
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. **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.
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.

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. **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. **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.

## Book Reviews and Digests

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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

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

## Fellowships and Awards

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<b>Postdoctoral Fellowship in Biology, Rules of Life track</b> National Science Foundation	<b>2021–2024</b>
<b>Outstanding Graduate Teaching Assistant</b> Cornell University Department of Ecology and Evolutionary Biology	<b>Spring 2020</b>
<b>Ed Ricketts Student Talk Award</b> American Society of Naturalists Stand-Alone Meeting, Pacific Grove, CA	<b>January 2018</b>
<b>Paul Fellowship for Study and Research in Absentia</b> Cornell University Department of Ecology and Evolutionary Biology;	<b>Spring 2016</b>
<b>Graduate Research Fellowship</b> National Science Foundation	<b>2015–2020</b>
<b>Lloyd I. Rosenblum Memorial Fund for Graduate Study</b> Amherst College	<b>2014–2017</b>
<b>Presidential Life Sciences Fellowship</b> Cornell University	<b>2014–2015</b>

## External Grants

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

## Cornell University Grants

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

## Invited & Selected Presentations

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<b>Department of Ecology &amp; Evolution</b> University of Chicago, Chicago, IL Departmental Seminar. Drivers of variation in floral traits: from species interactions to molecular mechanisms.	<b>October 2021</b>
<b>Biology Department</b> University of Turku, Turku, Finland Departmental Seminar. Drivers of variation in floral traits: from species interactions to molecular mechanisms.	<b>October 2021</b>
<b>Biodiversity, Earth &amp; Environmental Science Department</b> Drexel University, Philadelphia, PA Invited oral presentation to Graduate Student Seminar Series. Ecological and evolutionary interactions between pollinator-sharing plants.	<b>March 2020</b>

**Academy Research Seminar** **March 2020**  
Academy of Natural Sciences, Philadelphia, PA  
Invited oral presentation. Character displacement across multiple phenotypic axes in *Clarkia*.

**43<sup>rd</sup> 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)

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**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

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**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

**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**

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**Reviewer** (42 total manuscripts): Evolution (10); American Journal of Botany (5); Oecologia (5); Journal of Ecology (4); Annals of Botany (2); Biological Invasions (2); Functional Ecology (2); International Journal of Plant Sciences (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**, *ECR*<sup>2</sup> 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**

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**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.

**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**