

# MEGAN E. KOBIELA

University of Nebraska – Lincoln

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## EDUCATION

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- Ph.D. Ecology, Evolution, & Behavior (EEB)** September 2019  
University of Minnesota (UMN), St. Paul, Minnesota
- M.S. Biology** May 2013  
College of William & Mary (W&M), Williamsburg, Virginia
- B.S. Biology**, Echols Scholar and College Science Scholar May 2010  
University of Virginia (UVA), Charlottesville, Virginia

## RESEARCH POSITIONS

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- Postdoctoral Fellow**, University of Nebraska – Lincoln, Advisor: Kristi Montooth 2019 – present  
Physiology and evolution of novel toxin tolerance in butterflies and *Drosophila*
- Ph.D. Student**, University of Minnesota, Advisor: Emilie Snell-Rood 2013 – 2019  
Impacts of anthropogenic change on evolution, plasticity, and behavior in butterflies
- Research Technician**, University of Virginia, Advisor: Edmund Brodie III 2012 – 2013  
Evolutionary history of tetrodotoxin resistance in snake sodium channels
- M.S. Student**, College of William & Mary, Advisors: John Swaddle & Daniel Cristol 2010 – 2012  
Ecotoxicology of mercury pollution in birds, with a focus on behavior
- Research Technician**, Old Dominion University, Advisor: Patrick Hatcher summers 2008 – 2010  
Environmental chemistry, with a focus on the fate of proteins in aquatic systems
- Undergraduate Student**, University of Virginia, Advisor: Edmund Brodie III 2008 – 2010  
Quantitative genetics of adaptive radiation in *Anolis* lizards

## PEER-REVIEWED PUBLICATIONS

[Google Scholar Profile](#)

underline denotes undergraduate co-author who I directly mentored

15. **Kobiela, M.E.**, N.E. Goldsmith, E.C. Snell-Rood. Effects of road salt on butterfly life history and potential for adaptation to high sodium levels. Accepted pending revision, *Ecology & Evolution*.
14. **Kobiela, M.E.**, E.C. Snell-Rood. 2020. Genetic variation influences neonicotinoid tolerance in three butterfly species. *Environmental Toxicology & Chemistry*, 39: 2228-2236.
13. Shephard, A.M., T.S. Mitchell, S.B. Henry, K.S. Oberhauser, **M.E. Kobiela**, E.C. Snell-Rood. 2020. Assessing zinc tolerance in two butterfly species: consequences for conservation in polluted environments. *Insect Conservation and Diversity*. 13: 201-210.
12. Sikkink, K.L., R. Hostager, **M.E. Kobiela**, N. Fremling, K. Johnston, A. Zambre, E.C. Snell-Rood. 2020. Tolerance of novel toxins through generalized mechanisms: simulating gradual host shifts of butterflies. *The American Naturalist*, 195: 485-503.

11. Mitchell, T.S., A.M. Shephard, C.L. Kalinowski, **M.E. Kobiela**, E.C. Snell-Rood. 2019. Butterflies do not alter oviposition or larval foraging in response to anthropogenic increases in sodium. *Animal Behaviour*, 154: 121-129.
10. Espeset, A., **M.E. Kobiela**, K.L. Sikkink, T. Pan, C. Roy, E.C. Snell-Rood. 2019. Anthropogenic increases in nutrients alter sexual selection dynamics: a case study in butterflies. *Behavioral Ecology*, 30: 598-608.
9. **Kobiela, M.E.** & E.C. Snell-Rood. 2018. Nickel exposure has complex transgenerational effects in a butterfly. *Integrative and Comparative Biology*, 58: 1008-1017.
8. McGlothlin, J.W., **M.E. Kobiela**, H.L. Vasaly, L. Mahler, J.J. Kolbe, J.B. Losos, E.D. Brodie III. 2018. Adaptive radiation along a deeply conserved genetic line of least resistance in *Anolis* lizards. *Evolution Letters*, 2: 310-322.
7. Snell-Rood, E.C., **M.E. Kobiela**, K.L. Sikkink, A.M. Shepard. 2018. Mechanisms of plastic rescue in novel environments. *Annual Review of Ecology, Evolution, and Systematics*, 49: 331–354.
6. Sikkink, K.L., **M.E. Kobiela**, E.C. Snell-Rood. 2017. Genomic adaptation to agricultural environments: cabbage white butterflies (*Pieris rapae*) as a case study. *BMC Genomics*, 18: 412.
5. Philips, K.H., **M.E. Kobiela**, E.C. Snell-Rood. 2017. Developmental lead exposure has mixed effects on butterfly cognitive processes. *Animal Cognition*, 20: 87-96.
4. McGlothlin, J. W., **M.E. Kobiela**, C. R. Feldman, T. A. Castoe, S. L. Geffeney, C. T. Hanifin, G. Toledo, F. J. Vonk, M. K. Richardson E. D. Brodie, Jr., M. E. Pfrender, E. D. Brodie, III. 2016. Historical contingency in a multigene family facilitates adaptive evolution of toxin resistance. *Current Biology*, 26: 1616-1621.
3. **Kobiela, M.E.**, D.A. Cristol, J.P. Swaddle. 2015. Risk-taking behaviours in zebra finches affected by mercury exposure. *Animal Behaviour*. 103: 153-160.
2. McKee, G.A., **M.E. Kobiela**, P.G. Hatcher. 2014. Effect of Michael Adduction on peptide preservation in natural waters. *Environmental Science Processes & Impacts*. 16: 2087–2097.
1. Liu, Z., **M.E. Kobiela**, G.A. McKee, T. Tang, C. Lee, M.R. Mulholland, P.G. Hatcher. 2010. The effect of chemical structure on the hydrolysis of tetrapeptides along a river-to-ocean transect: AVFA and SWGA. *Marine Chemistry*. 119: 108-120.

#### **MANUSCRIPTS IN REVIEW**

Abderemane-Ali, F., N.D. Rossen, **M.E. Kobiela**, R.A. Craig II, C.E. Garrison, L.A. O’Connell, J. Du Bois, J.P. Dumbacher, D.L. Minor Jr. Sodium channel mutations do not govern batrachotoxin autoresistance in poison birds and frogs. In review at *PLOS Biology*, available on [bioRxiv](https://doi.org/10.1101/2020.03.10.387441).

#### **MANUSCRIPTS IN PREPARATION** (drafts available upon request)

**Kobiela, M.E.**, K. Johnston, M. Marckel, R.J. Screaton, E.C. Snell-Rood. Anthropogenic increases in sodium alter life history and stress tolerance in monarch butterflies.

**Kobiela, M.E.**, A. Zambre, E.C. Snell-Rood, A.A. Agrawal. Effect of sodium on monarch butterfly chemical defenses and coloration.

McGlothlin, J.W., **M.E. Kobiela**, H.L. Vasaly, J.J. Kolbe, J.B. Losos, E.D. Brodie III. Conservation and convergence of genetic architecture in the adaptive radiation of *Anolis* lizards.

## **OTHER CONTRIBUTED PUBLICATIONS**

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Snell-Rood, E.C. & **M.E. Kobiela**. 2020. How will organisms respond to novel environments? Moving beyond climate change. In *Unsolved Problems in Ecology*, ed. by A. Dobson, D. Tilman, and R. Holt. Princeton University Press.

**Kobiela, M.E.** 2010. Genetic basis for sexual dimorphism in the lizard *Anolis sagrei*. *The Oculus: Proceedings of Universitas 21 Undergraduate Research Conference*. 2: 80-83.

## **FELLOWSHIPS & AWARDS**

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### **External**

**2019** Society for Integrative & Comparative Biology, Division of Ecology & Evolution  
*Finalist for Best Student Paper (Huey Award)*

### **University of Minnesota**

**2018-2019** Doctoral Dissertation Fellowship (UMN-wide, stipend for one year)

**2018** Richard and Judi Huempfer Research Fund Fellowship (summer stipend)

**2017** Elmer C. Birney Fellowship (summer stipend for top research proposal in EEB)  
Natural Resources Association of Graduate Students symposium - 3<sup>rd</sup> place talk

## **EXTERNAL RESEARCH & TRAVEL GRANTS**

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**2018** Xerces Society Dewind Award for Lepidoptera Research and Conservation (\$3,750)

**2014** Society for the Study of Evolution Graduate Research Excellence Grant (\$2,162)  
American Ornithologists' Union Wetmore Research Award (\$2,185)  
American Genetic Association Symposium student travel grant (\$400)

**2012** North American Ornithological Conference student travel grant (\$300)

## **INSTITUTIONAL RESEARCH & TRAVEL GRANTS**

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### **University of Minnesota**

**2018** Bell Museum James W. Wilkie Fund Natural History Award (\$2500)  
EEB Dept. summer research grant (\$1500)  
EEB Dept. travel grant (\$900)

**2017** EEB Dept. summer research grant (\$2000)

**2016** Graduate School Endowed Fellowship – Alexander & Lydia Anderson Grant (\$2970)  
Dayton Bell Museum Fund Fellowship (\$1165)  
EEB Dept. summer research grant (\$2000)  
EEB Dept. travel grant (\$1000)

- Microbial and Plant Genomics Institute travel grant (\$400)
- 2015** Dayton Bell Museum Fund Fellowship (\$1300)  
 EEB Dept. summer research grant (\$2000)  
 Council of Graduate Students travel grant (\$900)  
 Microbial and Plant Genomics Institute travel grant (\$800)  
 EEB Dept. travel grant (\$1000)  
 Graduate & Professional Student Assembly travel grant (\$250)
- 2014** EEB Dept. summer research grant (\$2000)  
 EEB Dept. travel grant (\$1000)  
 Graduate & Professional Student Assembly travel grant (\$200)  
 Howard Hughes Medical Institute undergraduate mentoring grant (\$2100)

**College of William & Mary**

- 2012** Graduate Student Association Research Grant (\$300)  
 Student Activities Travel Grant (\$200)  
 Graduate Student Association Travel Grant (\$200)
- 2011** Graduate Student Association Research Grant (\$300)  
 Student Activities Travel Grant (\$200)  
 Graduate Student Association Travel Grant (\$200)  
 Williamsburg Bird Club (\$500)  
 Charles Center Research Grant (\$175)

**INVITED SEMINARS**

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- 2019** University of St. Thomas (Minnesota), Dept. of Biology

**CONFERENCE PRESENTATIONS (first author, national meetings only)**

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**Invited Symposium Talks**

- 2019** Animal Behavior Society, Chicago, IL. “Animal Behavior on an Urbanized Planet”

**Contributed Talks**

- 2021** Society for Integrative & Comparative Biology, virtual
- 2019** Society for the Study of Evolution, Providence, RI  
 Society for Integrative & Comparative Biology, Tampa, FL
- 2018** International Society for Behavioral Ecology, Minneapolis, MN
- 2017** Society for the Study of Evolution, Portland, OR  
 Society for Integrative & Comparative Biology, New Orleans, LA
- 2015** Entomological Society of America, Minneapolis, MN  
 Society for the Study of Evolution, Sao Paulo, Brazil  
 Animal Behavior Society, Anchorage, AK
- 2013** Wilson Ornithological Society, Williamsburg, VA
- 2012** North American Ornithological Conference, Vancouver, BC, Canada

## **CONFERENCE POSTERS (as presenting author, national meetings)**

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- 2018** Joint Congress on Evolutionary Biology, Montpellier, France  
**2015** Society for the Study of Evolution, Sao Paulo, Brazil  
**2014** American Genetic Association, Seattle, WA  
Society for the Study of Evolution, Raleigh, NC  
**2011** Animal Behavior Society, Bloomington, IN

## **UNDERGRADUATE MENTORING**

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Conferences below names indicate that student presented a poster where I was co-author.

### **University of Nebraska, Lincoln**

+ recipient of Undergraduate Creative Activities and Research Experience competitive stipend

- +Alexus Hansen Spring 2020 – present  
+Samuel Kline Spring 2020 – present  
Miranda Shreves Spring 2020  
Kennedy Whiting Fall 2020 – present

### **University of Minnesota**

+ recipient of Undergraduate Research Opportunities Program competitive stipend and research grant

\* part of the HHMI program to involve new transfer students in research

- \*Aisha Anjum Spring & Fall 2015  
Tessa Day Fall 2016 – Spring 2017  
Alyssa Froslic Summer & Fall 2015  
+Carolyn Kalinowski Spring 2015 – Spring 2018  
International Society for Behavioral Ecology 2018  
Paul Kastenbauer Fall 2014 – Spring 2015  
Emily Marlette Fall 2016  
Cali Andrea McGauley Fall 2017 – Spring 2018  
Vy Nguyen Summer 2017  
Tiffany Pan Summer 2015 – Spring 2016  
Animal Behavior Society 2016  
+Kinsey Phillips Fall 2014 – Spring 2016  
\*Hayden Roos Spring 2015  
+Ali Sakher Summer 2016 – Spring 2018  
Ross Sreaton Summer 2016, Summer & Fall 2017  
Henri Swanson Spring 2017  
Laura Wagner Summer 2017 – Spring 2018

### **College of William & Mary**

- Mary Greathouse Fall 2011 – Spring 2012  
Wilson Ornithological Society 2013  
Gregory Tito Fall 2010 – Fall 2011

## **TEACHING EXPERIENCE**

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### **Guest Lecturer, University of Nebraska**

Four lectures for Fundamentals of Biology (LIFE 120) Spr. 2020

### **Teaching Assistant, University of Minnesota**

Instructor for Ornithology laboratory (EEB 4134) Spr. 2017

Instructor for Animal Behavior laboratory (EEB 3412) Spr. 2015; Spr. 2016

Instructor for Foundations of Biology Part II Laboratory (BIOL 2004) Spr. 2014

Instructor for Foundations of Biology Part I Laboratory (BIOL 2002) Fall 2013

### **Teaching Assistant, William & Mary**

Lecture T.A. for Evolution of Organisms (BIOL 312) Spr. 2012; Fall 2011; Spr. 2011

Lecture T.A. for Introduction to Biostatistics (BIOL 404) Spr. 2012; Spr. 2011

Instructor for Zoology Laboratory (BIOL 302) Fall 2011; Fall 2010

### **Guest Lecturer, William & Mary**

Evolution of Organisms (BIOL 312) 2012; 2011

## **SOCIETY SERVICE**

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### **Society for the Study of Evolution**

Chair of Graduate Student Advisory Council (GSAC) 2017

Member of Graduate Student Advisory Council Fall 2015 – 2018

As a member of the Council, I personally initiated and organized student-faculty and postdoc networking lunches at the annual Evolution conference (500+ attendees over 2 meetings). I also started a mentoring program to bring local college undergraduates to the conference (first year: Portland 2017, 6 students). During my term, I helped GSAC organize Women in Science and Diversity in Science events and advocated for 1) the formation of an SSE Diversity Committee, 2) a professional skills workshop grant program, 3) giving feedback to students who submit grants to the society, and 4) giving two members of GSAC official votes on the SSE council.

### **International Society for Behavioral Ecology**

Social media committee, in charge of running the meeting's Twitter account 2018

### **Minnesota Academy of Sciences**

Coordinator for judges & scoring at Winchell Undergraduate Research Symposium 2016

**Wilson Ornithological Society** annual meeting student host 2013

**Animal Behavior Society** annual meeting student host 2010

## **DEPARTMENT & UNIVERSITY SERVICE**

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### **University of Minnesota**

Coordinator for department's annual student-invited seminar speaker 2015-2018

Faculty meeting representative 2014-2015

Behavior Group weekly meeting coordinator 2014-2015

Friday Noon Seminar organizer 2013-2015

## College of William & Mary

### Faculty Search Committee

Chair of graduate committee

2012

Graduate committee member

2011

W&M Graduate Research Symposium Committee

2010-2012

## **PROFESSIONAL REVIEWING**

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### **Journals**

*Biology Letters (1), Ecology & Evolution (1), Environment International (1), Evolutionary Applications (1), Oikos (1), PLOS One (1), Scientific Reports (1)*

### **Grants and Fellowships**

SSE Graduate Research Excellence Grant

2020

UMN Undergraduate Research Opportunities Program research funding

2015; 2016

W&M Graduate Student Association conference funding

2011

## **OUTREACH**

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**Contributor**, Life in the City blog on urban evolution

2019 – present

4 articles, [www.urbanevolution-litc.com](http://www.urbanevolution-litc.com)

**UMN Market Science**, St. Paul Midtown Farmer's Market

2019

Booth with butterfly information and activities, reaching ~200 people

### **Jackson Middle School "Introduction to Field Biology" at Cedar Creek LTER**

Organizing committee, 100 students over two full days

2015 & 2016

Co-led development of a program to actively involve students in the scientific process, from developing a question with a graduate student mentor before arriving on site, to collecting data in the field, to analyzing and reporting their results

Assistant for 35 students on an overnight Bio Blitz trip

2014

### **Butterfly Outreach at the Minnesota State Fair**

annually, 2014-2018

Booth with butterfly information and activities, reaching ~300 people

### **Insect Fair hosted by the Monarch Lab at UMN**

Leader for a breakout session on DNA extraction

2017

Interviewer for middle school science projects

annually, 2014-2016

### **Animal Behavior Society Meeting Outreach Fair**

2015

### **UMN Bell Museum Saturday with a Scientist**

2015

Co-led K-8 program, "Toxins and Venoms and Poisons, Oh my!" 50 students + families

### **Teaching SMART (Science, Math, and Research Technology), UMN**

2013-2015

Developed or assisted with 3 science lessons at underserved elementary schools, reaching ~20 students each lesson

### **Virginia Master Naturalists**

2011-2013

Member of state-sponsored group of volunteer educators and environmental stewards

## **PROFESSIONAL DEVELOPMENT**

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### **Center for the Integration of Research, Teaching and Learning (UNL and nationwide)**

Providing Effective Feedback on Writing Assignments February 2020  
UNL Spring Teaching & Learning Symposium February 2020  
Introduction to Evidence-Based Undergraduate STEM Teaching (8-week course) Fall 2019

**Developing Intercultural Competence, UMN Boreas Workshop** March 2019

### **Evolutionary Quantitative Genetics Tutorial** August 2016

Invited, weeklong workshop on quantitative genetics and phylogenetic comparative methods hosted by the National Institute for Mathematical and Biological Synthesis (NIMBios)

### **University of Minnesota Department of Ecology, Evolution, Behavior Ethics Seminars**

Anonymity and Preprints in Scientific Peer Review, March 2019  
Ethics of Authorship, April 2018  
The 'Course Deficit Model': Teaching for More Equitable STEM Education, March 2018  
The Ethics of Paywalls, February 2016  
Relationships in the Academic and Research Community, April 2015  
Authorship and Scientific Misconduct, October 2014  
Peer Review, March 2014  
Academic Misconduct, March 2014  
Creating an Inclusive Environment for Diverse Graduate Students, February 2014