

Ariel Kahrl, Ph.D.

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PROFESSIONAL APPOINTMENTS

2017-present Postdoctoral Researcher, Stockholm University
Supervisor: Dr. John Fitzpatrick
(*Parental leave: June 2019- August 2020*)

2010-2011 Faculty, Stuart Hall School
Science Teacher grades 8-12

EDUCATION

2011-2017 University of Virginia, Charlottesville, VA
Ph.D., Advisor: Dr. Robert Cox
Dissertation: The diversity, plasticity, and evolution of sperm morphology in *Anolis* lizards

2005-2009 Oberlin College, Oberlin, OH
B.A. Biology (*Honors*), minor Studio Art, Advisor: Dr. Angela Roles

FELLOWSHIPS, SCHOLARSHIPS, AND AWARDS

Grants and Fellowships

2017	Carl Tryggers Stiftelse Postdoctoral Fellowship (<i>declined</i>) <i>Carl Tryggers Stiftelse</i>	(\$62,000)
2015	Doctoral Dissertation Improvement Grant <i>National Science Foundation</i>	(\$20,475)
2015	E.E. Williams Award, Morphology and Systematics <i>Herpetologist's League</i>	(\$1,000)
2013	Theodore Roosevelt Memorial Grant <i>American Museum of Natural History</i>	(\$2,351)

Awards

2018	Andrew Flemming Prize, Top PhD dissertation in Biology <i>University of Virginia, Department of Biology</i>
2017	Edgar F. Shannon Award for "Best Graduating Doctoral Student" for the Graduate School of Arts and Sciences <i>The Z Society, University of Virginia</i>
2017	Raven Society Member <i>The Raven Society, University of Virginia</i>
2017	Finalist for Huey Award for Best Student Paper <i>Society for Integrative and Comparative Biology</i>
2015	Wake Award for Best Student Paper <i>Society for Integrative and Comparative Biology</i>
2012	GRFP Honorable Mention <i>National Science Foundation</i>
2009	Ernest Hatch Wilkins Memorial Prize <i>Department of Biology, Oberlin College</i>

2009	Hope Hibbard Memorial Scholarship in Biology <i>Department of Biology, Oberlin College</i>	(\$500)
2008	Norman H. Wright Prize in Biology <i>Department of Biology, Oberlin College</i>	(\$500)

PUBLICATIONS * INDICATES UNDERGRADUATE CO-AUTHOR

18. **Kahrl, A.F.**, M.C. Kustra, A.M. Reedy, R. Bhave, H.A. Sears, D.A. Warner, and R.M. Cox. *Accepted*. Selection on sperm count but not sperm morphology or velocity in a wild population of *Anolis* lizards. Cells.
17. **Kahrl, A.F.**, R.R. Snook, J.L. Fitzpatrick. 2021. Fertilization mode drives sperm length evolution across the animal tree of life. *Nature Ecology and Evolution*. <https://doi.org/10.1038/s41559-021-01488-y>
[*Nature Ecology and Evolution News and Views*](#)
[*Nature Ecology and Evolution Behind the Paper*](#)
Media coverage: [Live Science](#), [BNR Radio](#), [Inverse](#), [UPI](#)
16. McDiarmid, C, R. Li, **A.F. Kahrl**, M. Rowe, S. Griffith. 2021. Sperm Sizer: a program to semi-automate the measurement of sperm length. *Behavioral Ecology and Sociobiology*. 75(5):1-8.
15. Martin, K.S.[§], **A.F. Kahrl**[§], B.M. Ivanov, M.A. Johnson. 2021. Use it and bruise it: copulation rates are associated with muscle inflammation across anole lizard species. *Journal of Zoology*. §=co-first authors
14. Reuland, C., B.M. Culbert, E.F. Isaksson, **A.F. Kahrl**, A. Devigili, J.L. Fitzpatrick. 2020. Male-male behavioral interactions drive social-dominance mediated differences in ejaculate traits. *Behavioral Ecology*. araa118.
13. Friesen, C. R., **A.F. Kahrl**, M. Olsson. 2020. Sperm competition in reptiles. *Philosophical Transactions B*. 375(1813): 20200079.
12. Ogden, H.J.P., R.A. de Boer, A. Devigili, C. Reuland, **A.F. Kahrl**, J.L. Fitzpatrick. 2020. Male mate choice for large gravid spots in a livebearing fish. *Behavioral Ecology*. arz156.
11. Kustra, M.C.* , **A.F. Kahrl**, A.M. Reedy, D.A. Warner, R.M. Cox. 2019. Sperm morphology and count vary with fine-scale changes in local density in a wild lizard population. *Oecologia*. 191 (3): 555-564. [Cover photo](#).
10. Reuland, C., B.M. Culbert, A. Devigili, **A.F. Kahrl**, J.L. Fitzpatrick. 2019. Contrasting female mate preferences for red coloration in a fish. *Current Zoology*. zoz052.
9. Rowley, A., L. Locatello, L., **A.F. Kahrl**, M. Rego, A. Boussard, E. Garza-Gisholt, R. M. Kempster, S. P. Collin, E. Giacomello, M. C. Follesa, C. Porcu, J. P. Evans, F. Hazin, F. Garcia-Gonzalez, T. Daly-Engel, C. Mazzoldi, J. L. Fitzpatrick. 2019. Sexual selection and the evolution of sperm morphology in sharks. *Journal of Evolutionary Biology*. 32(10): 1027-1035.
8. **Kahrl, A.F.**, M.A. Johnson, R.M. Cox. 2019. Rapid evolution of testis size relative to sperm morphology suggests that post-copulatory selection targets sperm number in *Anolis* lizards. *Journal of Evolutionary Biology*. 32(4): 302-309. [Cover photo](#).
7. **Kahrl, A.F.**, B.M. Ivanov, K.C. Wollenberg, M.A. Johnson. 2018. Ecomorphology within an ecomorph: Variation in morphology, ecology, and behavior within the *Anolis cybotes* species group. *Herpetologica*. 74 (1): 29-37.
6. **Kahrl, A.F.**, R.M. Cox. 2017. Consistent differences in sperm morphology and testis size between native and introduced populations of three *Anolis* lizard species. *Journal of Herpetology*. 51(4): 532-537.

5. Ren, T., **A.F. Kahrl**, M. Wu, R.M. Cox. 2016. Does adaptive radiation of a host lineage promote ecological diversity of its bacterial communities? A test using gut microbiota of Anolis lizards. *Molecular Ecology* 25. (19): 4793-4804
4. **Kahrl, A.F.**, C.L. Cox, R.M. Cox. 2016. Correlated evolution between targets of pre- and postcopulatory sexual selection across squamate reptiles. *Ecology and Evolution*. 6(18): 6452-6459
3. **Kahrl, A.F.**, R.M. Cox. 2015. Diet affects ejaculate traits in a lizard with condition-dependent fertilization success. *Behavioral Ecology*. arv105.
2. Cox, R.M., **A.F. Kahrl**. 2014. Sexual Selection and Sexual Dimorphism. Chapter 4 in: *Reproductive Biology and Phylogeny of Lizards and Tuatara*. (Eds. J. L. Rheubert, D. S. Siegel, S. E. Trauth and B. G. Jamieson). CRC Press.
1. **Kahrl, A.F.**, R.H. Laushman, and A.J. Roles. 2014. Evidence for multiple paternity in two species of Orconectes crayfish. *Canadian Journal of Zoology*. 92(11): 985-988.

SUBMITTED MANUSCRIPTS

- Fitzpatrick, J.L., **A.F. Kahrl**, R.R. Snook. *Submitted*. SpermTree, a species-level database of sperm morphology spanning the animal tree of life. *Scientific Data*.
- Fargevieille, A., A.M. Reedy, **A.F. Kahrl**, T.S. Mitchell, A.M. Durso, D.M. Delaney, P.R. Pearson, R.M. Cox, D. A. Warner. *In Review*. Propagule size and sex ratio influence colonisation dynamics after experimental introduction of a non-native lizard. *Journal of Animal Ecology*. Pre-print available [here](#).

INVITED SEMINARS

- University of Basel, Basel, Switzerland, Current Topics in Zoology and Evolution. October 2021.
- The Natural History Museum, London, UK. Life Sciences seminar series. March 2019.
- Sheffield University, Sheffield, UK. Departmental seminar series. March 2019.
- Stockholm University, Stockholm, Sweden. Departmental seminar series. August 2016.
- Susquehanna University, Selinsgrove, USA. Departmental seminar series. February 2016.
- Trinity University, San Antonio, USA. Departmental seminar series. December 2015.
- Syracuse University, Syracuse, USA. Center for Reproductive Evolution seminar series. March 2015.

PRESENTATIONS * INDICATES UNDERGRADUATE CO-AUTHOR

- Kahrl, A.F.** 2021. The Rapid Evolution of the Sperm Midpiece Across the Animal Tree of Life. Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. Virtual meeting.
- Kahrl, A.F.** 2019. The Evolution of Sperm Size Across the Animal Tree of Life. Oral presentation as part of the Biology of Spermatozoa conference. Stockholm, Sweden.
- Kahrl, A.F.** 2019. Sperm Evolution Across the Animal Tree of Life. Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. San Francisco, CA.
- Kahrl, A.F.** 2018. Understanding the evolution of extreme variation in sperm morphology between snakes and lizards. Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. San Francisco, CA.
- Martin, K.S., **A. F. Kahrl**, B.M. Ivanov, M.A. Johnson. 2018. Copulation rates in anole lizards are correlated with muscle damage. Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. San Francisco, CA.
- Kustra, M.C.*, **A.F. Kahrl**, A.M. Reedy, R.M. Cox. 2018. Local density of conspecifics affects sperm phenotypes in wild *Anolis sagrei* lizards. Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. San Francisco, CA.

- Hall, H.R*., **A.F. Kahrl**, M.A. Johnson. 2018. The Evolution of Testis and Sperm Morphology in *Anolis* Lizards. Poster presentation as part of the Society of Integrative and Comparative Biology annual meeting. San Francisco, CA.
- Bhave, R.S., A.M. Reedy, H.A. Seears, **A.F. Kahrl**, R.M. Cox. 2018. Do back-pattern morphs in female brown anoles differ in morphology, behavior, and natural selection? Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. San Francisco, CA.
- Kahrl, A.F.** 2017. Understanding the evolution of extreme variation in sperm morphology between snakes and lizards. Oral presentation as part of the Evolution in Sweden conference. Stockholm, Sweden.
- Kustra, M.C.*., **A.F. Kahrl**, A.M. Reedy, R.M. Cox. 2017. Density dependence of sperm traits in a wild population of lizards. Poster presentation as part of the Katz undergraduate research symposium. Charlottesville, VA.
- Kahrl, A.F.**, R.M. Cox. 2017. Do pre- and postcopulatory selection shape the evolution of sperm morphology across *Anolis* lizards? Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. New Orleans, LA.
- Motamedi, V.F.*., **A.F. Kahrl**, R.M. Cox. 2016. "Variation in sperm morphology in *Anolis* lizards from the Dominican Republic" Poster presentation as part of the Katz undergraduate research symposium. Charlottesville, VA.
- Kahrl, A.F.**, R.M. Cox. 2016. "Variation in sperm morphology between native and introduced populations of three *Anolis* lizard species" Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. Portland, OR.
- Kahrl, A.F.**, R.M. Cox. 2015. "Factors shaping inter- and intraspecific variation in sperm morphology in lizards" Oral presentation as part of the Biology of Spermatozoa conference. Bakewell, UK.
- Kahrl, A.F.**, C.L. Cox, R.M. Cox. 2015. "Correlated evolution of proxies for pre- and postcopulatory sexual selection across squamate reptiles" Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. West Palm Beach, FL.
- Kahrl, A.F.**, R.M. Cox. 2014. "Diet affects ejaculate traits in a lizard with condition-dependent fertilization success" Oral presentation at the annual Evolution meeting. Raleigh, NC.
- Kahrl, A.F.**, R.M. Cox. 2014. "Diet affects ejaculate traits in a lizard with condition-dependent fertilization success" Oral presentation as part of the Society of Integrative and Comparative Biology annual meeting. Austin, TX.
- Kahrl, A.F.**, R.M. Cox. 2013. "Body condition affects ejaculate traits in a lizard with condition-dependent fertilization success" Oral presentation as part of the Southeastern Population Ecology and Evolutionary Genetics (SEPEEG) meeting. Pembroke, VA.
- Kahrl, A.F.**, Formica, V., Donald, H., Wice, E., and E.D. Brodie III. 2012. "Evidence for postcopulatory selection in the forked fungus beetle". Poster as part of the 1st Joint Congress on Evolutionary Biology. Ottawa, Canada.
- Kahrl, Ariel**. 2008. "Who's Your Crawdaddy? A Comparative Study of Mating Strategies in Three Native Species of *Orconectes* Crayfish." Oral presentation as part of the Oberlin College Biology Department Honors Candidate Presentations.

TEACHING AND MENTORING

Faculty - Stuart Hall School, Staunton, VA

2010-2011 Faculty – Honors Physics, Physical Science, 8th Grade Biology, Algebra 1
 Coach for Varsity Boys and Varsity Girls Soccer
 Instructor for Swing Dance Club

Instructor - Oberlin College EXCO (Experimental College)

2007-2008 Scientific Illustration (Spring 2007, Fall 2007, Spring 2008, Fall 2008)
Co-designed course focused on teaching the history and goals of scientific illustration, as well as mentoring and training students to accurately depict scientific specimen

Instructor – Stockholm University

2021 Mate Choice (graduate-level course)
Co-taught with several faculty. Led hybrid in-person and virtual journal discussions through the course.

Guest Lecturing

2020 Stockholm University – Phylogenetic Comparative Methods

Teaching Assistant - University of Virginia

2016 **Genetics** (BIOL3010)
Led 3 flipped-classroom discussion sections, wrote and graded exam questions

2014 **Animal Behavior** (BIOL4270)
Led 2 lab sections, gave several lectures on animal behavior and biostatistics, wrote and graded lab assignments, graded exams

2014 **Infectious Disease** (BIOL3090)
Led 3 flipped-classroom discussion sections, graded discussion assignments, wrote and graded exam questions

2013 **Human Anatomy and Physiology** (BIOL3559)
Designed labs each week, wrote and graded exams, graded lab tests and quizzes.

2013 **Microbiology** (BIOL 3120)
Assisted in developing interactive activities and exam materials for large lecture course, wrote and graded exams, lead weekly review sessions

2012 **Functional Morphology of Vertebrates** (BIOL 3400)
Led 3 lab sections, wrote and graded lab quizzes, helped to write and graded exams.

2012 **Introduction to Biology** (BIOL 2020)
Assisted in developing interactive activities and exam materials for large lecture course, wrote and graded exams, lead weekly review sessions

Mentored Research Students

*indicates students who have received small research grants

2017-2018 Hannah Ogden, *Male mate choice for large gravid spots in a livebearing fish*
2016-2018 Matthew Kustra, *Density-dependence of sperm morphology in Anolis sagrei*
2015-2018 Hannah Hall, *Sexual size dimorphism, testis morphology and sperm development*
2015-2016 Lauren Finks, *Age-structure of sperm traits in Anolis sagrei*
2015-2016 Vida Motamedi, *Variation in sperm morphology in Dominican anoles*
2014-2016 Frank Song Jr., *Condition dependence of sperm morphology in lizards*
2014-2015 Elizabeth Luebbert, *Body condition and its effects on postcopulatory traits* *
2014-2015 Elena Thompson, *Variation in sperm morphology in Puerto Rican anoles*
2013-2014 Laura Zemanian, *Variation in sperm morphology in Bahamian anoles* *
2013-2014 Andrea Goldstein, *Variation in sperm morphology in Anolis sagrei*
2012-2014 Kamala Ganesh, *Functional morphology of sperm morphology*
2012-2013 Kaitlin Alford, *Microsatellite development and paternity analysis in wild anoles*

Professional Development

2014-2016 Tomorrow's Professor Today Participant, UVa's Center for Teaching Excellence
Professional development program designed for graduate students who are focused on improving their teaching abilities.

2015, 2016 Innovations in Pedagogy Summit
A three-day conference and workshop aimed at improving our understanding and implementation of current pedagogical techniques.

2015 Developing Learner-Centered Syllabi
Attended a workshop that focused on building a learner-centered course from the start of the syllabus design.

Non-Academic Teaching

2018-present Socialdansutkottet (Swedish Swing Society) Dance Instructor
Taught beginner and intermediate level classes for all ages

2016-2017 SwingCville Teaching Coordinator
Set weekly class schedules, organized and taught teaching workshops

2012-2017 SwingCville Dance Instructor
Taught beginner and intermediate level classes for all ages

PROFESSIONAL SERVICE AND OUTREACH

Professional Service

2020-present Postdoctoral Representative for the Lärarkollegiet (Teachers) committee
I am a voice for the postdocs in the Zoology department teaching meetings.

2017-2020 Student and Postdoc Representative, Division of Ecology and Evolution, SICB
I organized professional development workshops for students and postdocs at the annual SICB meetings.

2018-2019 Judge for SICB DEE Best Student Talk and Poster Competition

2015-2016 Student Representative, Biology Department's Faculty Graduate Committee
I was a voice for the graduate students during UVa faculty graduate committee meetings.

2014-2015 Co-President, UVa Biology Graduate Student and Postdoctoral Assoc.
Led a career development workshop, coordinated GSPA invited speakers, and raised money for, and distributed travel awards to graduate students.

Manuscript reviewer for: The American Naturalist, Journal of Evolutionary Biology, Behavioral Ecology, Ecology and Evolution, Evolution, Current Zoology, Evolution Letters, Southwestern Naturalist, Herpetological Review, Biological Journal of the Linnean Society

Outreach

2020-present DataClassroom Scientist
I teach middle and high school teachers basic statistics and help them use the software DataClassroom with their science classes.

2015- 2017 Evolution Education Scientist
Assisted the Evolution Education team and the teacher fellows in designing and carrying out research in the field and back in their classrooms.

2014-2015 Darwin Day Organizer, Biology Department, University of Virginia
I led the advertising for our department's celebration of Darwin's birthday, which was an open house that was free and open to the public.

2014-present STEM Outreach in Middle and High School classrooms
I use Skype to interact with high school classrooms in VA and OH while my collaborators and I are in the field. I also facilitate middle and high school class field trips to our lab.

Affiliations

2013-present Society for Integrative and Comparative Biology
2012-present Society for the Study of Evolution
2017-present Society for the Study of Reptiles and Amphibians
2013-present Herpetologist's League

PUBLISHED SCIENTIFIC ILLUSTRATIONS

Formica, V., H. Donald, H. Marti, Z. Irgebay, and E.D. Brodie III. 2020. Social network position experiences more variable selection than weaponry in wild subpopulations of forked fungus beetles. *Journal of Animal Ecology*. doi: 10.1111/1365-2656.13322

Benowitz, K.M., E.D. Brodie and V.A. Formica. 2012. Morphological Correlates of a Combat Performance Trait in the Forked Fungus Beetle, *Bolitotherus cornutus*. *PLoS ONE* 7:e42738.

REFERENCES

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