

EVA K. FISCHER

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EDUCATION

Ph.D. Zoology	Department of Biology, Colorado State University Supervisor: Dr. Kim L. Hoke	2009 - 2015
Bachelor of Arts	College of Arts and Sciences, Cornell University Biology and French (double major)	2003 – 2007

PROFESSIONAL APPOINTMENTS

Assistant Professor	Department of Evolution, Ecology, and Behavior School of Integrative Biology Affiliate: Program in Evolution, Ecology, and Conservation; Program in Neuroscience; Carle R. Woese Institute for Genomic Biology; Center for Latin American and Caribbean Studies University of Illinois at Urbana Champaign	2020 – present
Postdoctoral Fellow	Department of Biology, Stanford University Supervisor: Dr. Lauren A. O’Connell	2017 - 2020
NSF Postdoctoral Fellow	Center for Systems Biology, Harvard University Supervisor: Dr. Lauren A. O’Connell	2015 - 2017

FELLOWSHIPS

Hanse-Wissenschaftskolleg Junior Fellow	2020
National Science Foundation Postdoctoral Research Fellowship in Biology (\$138,000)	2016
Laboratory Exchange Fellowship, NSF Research Coordination Network (\$3,500)	2014
National Science Foundation Graduate Research Fellowship (honorable mention)	2011

GRANTS

NIH MIRA (R35) “Genomic Mechanisms of Violent Juvenile Aggression” (\$1,250,000)	2022
Konishi Neuroethology Research Award (\$2,500)	2022
Provost’s Faculty Retreat Grant (\$4,000)	2022
NSF IOS “Mechanisms of Parental Care Between Sexes” (\$1,179,771)	2021
UIUC Research Board Grant (\$28,370)	2020
NSF Doctoral Dissertation Improvement Grant (\$19,273)	2013
Sigma Delta Epsilon Graduate Women in Science Research Grant (\$6,500)	2013
Sigma Xi Grants in Aid of Research (\$400)	2010, 2012
Society for the Study of Evolution Rosemary Grant Student Research Award (\$2,110)	2010

AWARDS & HONORS

Institute for Genomic Biology DEI Award	2023
Lincoln Excellence for Assistant Professors (LEAP) Scholar Award	2022

Sammy Kuo Prize in Neuroscience (semi-finalist)	2019
International Society for Neuroethology Young Investigator Award	2018
JB Johnston Club Thomas Karger Award for Excellence in Evolutionary Neuroscience	2015
Excellence in Graduate Student Teaching Award, CSU Biology Department	2015
Colorado State University Student Travel Award (\$600)	2012, 2013
Heiligenberg Student Travel Award, International Society for Neuroethology (\$700)	2011, 2013

PUBLICATIONS

* undergraduate student co-author ** high school student co-author

- *Podraza ME, Moss JB, **Fischer EK** (*in review*). Evidence for individual vocal recognition in a pair bonding poison frog from no-choice and two-choice paradigms. *bioRxiv*.
- Soto KM, Hardin FO, *Alleyne HP, **Fischer EK** (*in review*). Individual behavioral variability across time and contexts in *Dendrobates tinctorius* poison frogs. *Behavioral Ecology & Sociobiology*.
- *Parrish TQ, **Fischer EK** (*in review*). Tap dancing frogs: Posterior toe-tapping and feeding behavior in *Dendrobates tinctorius*. *bioRxiv*.
- Westrick SE, Paitz RT, **Fischer EK** (*in review*). Why not both? A case study measuring cortisol and corticosterone in poison frogs. *bioRxiv*.
- Surber LS, *Oza SS, **Fischer EK** (*in revision*). Conspecific cues elicit distinct behavioural responses in cannibalistic poison frog tadpoles. *Animal Behavior*.
- *Terrill-Sondag EE, Stewart-Merrill TE, Drnevich J, Holmes JR, **Fischer EK**, Cáceres CE, Strickland LR (2023). Differential gene expression in response to fungal pathogen exposure in the aquatic invertebrate, *Daphnia dentifera*. *Ecology and Evolution*. 13(8): e10354.
- Fischer EK** (2023). Form, function, foam: Evolutionary ecology of anuran nests and nesting behaviour. *Philosophical Transactions of the Royal Society B* 378: 20220141.
- Moss JB, Tumulty JP, **Fischer EK** (2023). Evolution of acoustic signals associated with cooperative parental behavior in a poison frog. *PNAS*, e2218956120.
- Westrick SE, Moss JB, **Fischer EK** (2023). Who cares? An integrative approach to understanding the evolution of behavioural plasticity in parental care. *Animal Behaviour* 200: 225-236.
- Westrick SE, Laslo M, **Fischer EK** (2022). The Natural History of Model Organisms: The big potential of the small frog *Eleutherodactylus coqui*. *eLIFE* 11, e73401.
- Fischer EK**, Hauber ME, Bell AM (2021). Back to the basics? Transcriptomics offer integrative insights into the role of space, time and the environment for gene expression and behavior. *Biology Letters* 17(9): 20210293.
- Fischer EK**, Song Y, Hughes KA, Zhou W, Hoke KL (2021). Non-parallel transcriptional divergence during parallel adaptation. *Molecular Ecology* 30(6): 1516-1530.
- Fischer EK**, *Alvarez H, Lagerstrom KM, *McKinney JE, **Petrillo R, **Ellis G, O'Connell LA (2020). Neural correlates of winning and losing fights in poison frog tadpoles. *Physiology & Behavior*. 112973.
- Lynch KS, Louder MM, Friesen CN, **Fischer EK**, Xiang Angell, Steele A, Shalov J (2020). Examining the disconnect between prolactin and parental care in avian brood parasites. *Genes, Brains and Behavior*.
- Fischer EK**, O'Connell LA (2020). Hormonal and neural correlates of care in active versus observing poison frog parents. *Hormones & Behavior* 120: 104696.
- Fischer EK**, Roland AB, Moskowitz NA, Vidoudez C, Ranaivorazo N, Tapia EE, Trauger SA, Vences M, Coloma LA, O'Connell LA (2019). Mechanisms of convergent egg-provisioning in poison frogs. *Current Biology* 29(23): 4145.e3.
- Fischer EK**, Roland AB, Moskowitz NA, Tapia EE, Summers K, Coloma LA, O'Connell LA (2019). The neural basis of tadpole transport in poison frogs. *Proceedings of the Royal Society B* 286: 20191084.
- Fischer EK**, Nowicki JN, O'Connell LA (2019). Evolution of Affiliation: patterns of convergence from genomes to behaviour. *Philosophical Transactions of the Royal Society B* 374(1777): 20180242.

- Lynch KS, O'Connell LA, Louder MIM, Balakrishnan CN, **Fischer EK** (2019). Understanding the loss of maternal care in avian brood parasites using preoptic area transcriptome comparisons in brood parasitic and non-parasitic blackbirds. *Genes Genomes Genetics* 9(4): 1075-1084.
- Moskowitz NM, Roland AB, **Fischer EK**, Ranaivorazo N, Vidoudez C, Aguilar MT, Caldera SM, Chea J, Cristus MG, Crowdis JP, DeMessie B, Desjardins-Park CR, Effenberger AH, Flores F, Giles M, He EY, Izmaylov, NS, Lee CC, Pagel NA, Phu KK, Rosen LU, Seda DA, Shen Y, Vargas S, Murray AW, Abebe E, Trauger SA, Donoso DA, Vences M, O'Connell LA (2018). Seasonal changes in diet and toxicity in the Climbing Mantella frog (*Mantella laevis*). *PLoS ONE* 13(12): e0207940. [work conducted as part of an HHMI funded interdisciplinary STEM course for undergraduates]
- Northcutt AJ, **Fischer EK**, Puhl JC, Mesce KA, Schulz DJ (2018). An annotated CNS transcriptome of the medicinal leech, *Hirudo verbena*: de novo sequencing to characterize genes associated with nervous system activity. *PLoS ONE* 13(7): e0201206.
- Fischer EK**, Westrick SE, *Hartsough L, Hoke KL (2018). Differences in neural activity, but not behavior, across social contexts in guppies, *Poecilia reticulata*. *Behavioral Ecology and Sociobiology* 72: 131.
- Fischer EK** & O'Connell LA (2018). Spotlight: Circuit architecture underlying distinct components of parental care. *Trends in Neurosciences* 41(6): 334-336.
- Hoke KL, Hughes KA, **Fischer EK**, Ghalambor CK (2018). Untangling the role of selection and drift in population divergence via transcriptional network simulations: Extended analysis of Ghalambor et al. (2015). *bioRxiv* 277830.
- Ghalambor CK, Hoke KL, Ruell EW, **Fischer EK**, Reznick DN, Hughes KA (2018). Brief communication arising: Ghalambor et al. reply. *Nature* 555(7698): 688.
- Fischer EK** & O'Connell LA (2017). Modification of feeding circuits in the evolution of social behavior. *Journal of Experimental Biology* 220: 92-102.
- Fischer EK**, Ghalambor CK, Hoke KL (2016). Can a network approach resolve how adaptive vs nonadaptive plasticity impacts evolutionary trajectories? *Integrative and Comparative Biology* 56(5): 877-888.
- Fischer EK**, Ghalambor CK, Hoke KL (2016). Plasticity and evolution in correlated suites of traits. *Journal of Evolutionary Biology* 29: 991-1002.
- Fischer EK** (2016). Flexibility and constraints in the evolution of gene expression and behavior. *Brain, Behavior, and Evolution* 87:1-3.
- Ghalambor CK, Hoke KL, Ruell EW, **Fischer EK**, Reznick DN, Hughes KA (2015). Non-adaptive plasticity potentiates rapid adaptive evolution of gene expression in nature. *Nature* 525: 372-375.
- Fischer EK**, *Schwartz AJ, Hoke KL, Soares D (2015). Social context modulates predator evasion strategy in guppies. *Ethology* 121(4): 364-371.
- Fischer EK**, Harris RM, Hofmann HA, Hoke KL (2014). Predator exposure alters stress physiology in guppies across timescales. *Hormones & Behavior* 65(2): 165-172.
- Fischer EK**, Soares D, *Archer KR, Ghalambor CK, Hoke KL (2013). Genetically and environmentally mediated divergence in lateral line morphology in the Trinidadian guppy (*Poecilia reticulata*). *Journal of Experimental Biology* 216: 3132-3142.
- Wall VL, **Fischer EK**, Bland ST (2012). Isolation rearing attenuates social interaction-induced expression of immediate early gene protein products in the medial prefrontal cortex of male and female rats. *Physiology & Behavior* 107(3): 440-450.

PROFESSIONAL PRESENTATIONS

Invited Seminars

Department of Biological Sciences, University of Pittsburgh. Pittsburgh, PA USA	2023
Ecology and Evolutionary Biology, University of Michigan. Ann Arbor, MI USA	2023
Department of Neurobiology and Behavior, Cornell University. Ithaca, NY USA	2022
Department of Biology, Indiana University. Bloomington, IN USA	2022
International Frontiers in Social Evolution (FINE) Seminar Series (virtual)	2022

Department of Biology, Utah State University. Logan, UT USA	2022
Institute for Genome Biology Faculty Spotlight. University of Illinois, Urbana, IL USA	2022
MEEGene Seminar Series. Forschungsmuseum Koenig. Leibniz Association, Germany	2021
Program in Evolution, Ecology, and Conservation. University of Illinois, Urbana, IL USA	2020
Institute of Biology, University of Oldenburg. Oldenburg, Germany	2020
Department of Biology, University of Montana. Missoula, MT USA	2019
Museum of Vertebrate Zoology, University of California Berkeley. Berkeley, CA USA	2019
Department of Biology, California State University. Northridge, CA USA	2019
Janelia Research Campus. Ashburn, VA USA	2018
California Academy of Sciences. San Francisco, CA USA	2018
Department of Biology, Wooster College. Wooster, OH USA	2018
Department of Biology, East Carolina University. Greenville, NC USA	2017
Museum of Comparative Zoology. Harvard University. Cambridge, MA USA	2016

Conference Talks

Society for Neuroscience Annual Meeting. Washington DC USA	2023
Gordon Conference in Neuroethology. Mount Snow, VT USA	2023
Winter Animal Behavior Conference. Steamboat Spring, CO USA	2022
AsiaEvo Conference. Tokyo, Japan (<i>virtual</i>)	2021
Society for Integrative and Comparative Biology. Austin, TX USA	2020
German Zoological Foundation Conference. Jena, Germany	2019
Gordon Research Conference for Neuroethology. Mount Snow, VT USA	2019
Society for the Study of Evolution. Montpellier, France	2018
International Congress for Neuroethology. Brisbane, Australia	2018
Herpetology Satellite, International Congress for Neuroethology. Brisbane, Australia	2018
Society for Integrative and Comparative Biology. San Francisco, CA USA	2018
Society for Integrative and Comparative Biology. New Orleans, LA USA	2017
Society for the Study of Evolution. Austin, TX USA	2016
Amphibian Satellite, International Congress for Neuroethology. Montevideo, Uruguay	2016
JB Johnston Club Meeting for Evolutionary Neuroscience Meeting. Chicago, IL USA	2015
Gordon Research Seminar for Neuroethology. Lucca, Italy	2015

Poster Presentations

Gordon Research Conference for Neuroethology. Mount Snow, VT USA	2019
Gordon Research Conference for Neuroethology. Les Diablerets, Switzerland	2017
International Congress for Neuroethology. Montevideo, Uruguay	2016
International Congress for Neuroethology. Sapporo, Japan	2014
Gordon Research Conference for Neuroethology. Mount Snow, VT USA	2013
Animal Behavior Society Annual Meeting. Boulder, CO USA	2013
Front Range Neuroscience Conference. Fort Collins, CO USA	2012
International Congress for Neuroethology. College Park, MD USA	2012
Gordon Research Conference for Neuroethology. Stonehill College, MA USA	2011
Front Range Neuroscience Conference. Fort Collins, CO USA	2010
International Congress for Neuroethology. Salamanca, Spain	2010

TEACHING EXPERIENCE

Instructor	IB270: Evolution of Molecules and Cells Integrative Biology Honors Program University of Illinois at Urbana-Champaign, IL USA	2020 - present
Co-Instructor	IB546: Diversity, Equity, & Inclusion in Mentoring	2023

	University of Illinois at Urbana-Champaign, IL USA	
Instructor	Neural Systems and Behavior Marine Biological Laboratory, Woods Hole, MA USA	2016, 2017
Co-Instructor	Bioinformatics Workshop Universidad de la República de Uruguay, Montevideo, Uruguay	2016
Co-Instructor	Behavioral Genetics Colorado State University, Fort Collins, CO USA	2011, 2014

TRAINING & MENTORING

Postdoctoral Fellows – University of Illinois

Sarah McKay Strobel (2022-present) *co-advised with Dr. Molly C Womack	"Testing rules of life for trade-offs in developmental and cognitive systems"
Tina Barbasch (2021-present) *co-advised with Dr. Alison M Bell	"Mechanisms and evolution of decision-making under conflict"
Jen Moss (2021-present)	"Mechanisms of behavioral sex-reversal across an evolutionary transition in parental care mode"
Sarah Westrick (2020–present)	"Neuroendocrine Mechanisms of Individual Variation in Paternal Behavior"

Graduate Students – University of Illinois

Katharina Soto (MS, 2021-present)	"Survival of the boldest? The role of behavior in invasive species expansion"
Emily Terrill (MS, 2021-present)	"Mechanistic co-option of water balance in the evolution of parental care"
Lisa Surber (PhD, 2020–present)	"Patterns and mechanisms of phenotypic plasticity in larval anurans"

Graduate Student Committees – University of Illinois

Colby Behrens (PhD, UIUC, 2020 - present) • Usan Dan (PhD, UIUC, 2021 - present) • Facundo Fernandez-Duque (PhD, UIUC, 2021 - present) • Meghan Maciejewski (PhD, UIUC, 2021 - present) • Gio Madrigal (PhD, UIUC, 2022 - present) • Simran Singh (PhD, UIUC, 2022- present) • Abbi Turner (PhD, UIUC, 2020 - present)

Undergraduate Honors Theses – University of Illinois

Harmen Alleyne (2020-2023)	"Frog behavioral blues: How morph color affects behavior in <i>Dendrobates tinctorius</i> poison frogs"
Eric Arredondo (2021-2022) *co-advised	"Neural activity associated with aggression in male stickleback"
Thomas Parrish (2021-2023)	"Tap dancing in poison frogs: How posterior toe tapping relates to hunting in <i>Dendrobates tinctorius</i> "
Molly Podraza (2021-2023)	"Do monogamous poison frogs prefer the calls of their mates over those of strangers?"
Abigail Rich (2021-2022) *co-advised	"Analysis of <i>MEG3</i> haplotypes influencing tame and aggressive behavior in red fox populations"

Undergraduate Students – University of Illinois

Harmen Alleyne (2020-2023) • Eric Arredondo (2021-2022) • Destini Coleman (2022-2023) • Amari Houston (2023-present) • Sasha Hirschberg (2023-present) • Lucas Jimenez (2023-present) • Lauren Lindstrom (2023-present) • Olivia Marsden (2022-present) • Samta Oza (2021) • Thomas Parrish (2021-2023) • Isabel Parrales (2022-present) • Molly Podraza (2021-2023) • Sarah Ruby Porth (2022) • Abigail Rich (2021-2022) • Halle Santiago (2021–2023) • Savannah Shelton (2022-2023) • Abigail Stevenson (2022-present) • Isabella Strohmeier (2022-present)

Undergraduate Students – Stanford University

Harmony Alvarez (2012-2020) • Christopher Jackson (2019) • Sarah Luddington (2019)

Undergraduate Students – Colorado State University

Scott Abela (2010-2011) • Katbeth Archer (2010-2011) • Nichole Benton (2009-2010) • Hannah Buchek (2010-2013) • Hilary Burr (2009-2010) • Maimona Fadlelmula (2014-2015) • Lauren Hartsough (2014-2015) • Emma Lloyd (2014-2015) • Rachel Mansfield (2014) • Mikaila Medinger (2013-2014) • Thomas Morrison (2013-2014) • Haley Peterson (2010-2013) • Maggie Sinner (2015) • Sean Streich (2009-2012) • Colin Wakeham (2014)

High School Students

Gwen Ellis (2017) • Mary Erb (2017) • Amanda Field (2014) • Narinka Guichette (2016) • Randi Petrillo (2017)

PUBLIC ENGAGEMENT & SCIENCE COMMUNICATION***Research Internships***

Ignited Research Internships for Teachers. Stanford University, Stanford, CA USA	2019
Biology Summer Research Program. Stanford University, Stanford, CA USA	2018, 2019
Froggers Research Internships. Harvard University, Cambridge, MA USA	2017
Science Club for Girls Internships. Harvard University, Cambridge, MA USA	2015, 2016
PaCE High School Internships. Colorado State University, Fort Collins, CO USA	2014

K-12

Frogs in Class. Champaign-Urbana, IL USA	2020 – present
University High School STEM Club for Girls. Urbana, IL USA	2023
Froggers School Program. Stanford, CA USA	2017 – 2019
Neuroethology Summer Course. Harvard University, Cambridge, MA USA	2017
Froggers School Program. Cambridge, MA USA	2015 – 2017
Guppy Kit Project. Manhattan Middle School, Boulder, CO USA	2010 – 2014
Math, Science & Technology Day. Colorado State University, Fort Collins, CO USA	2013
Green Day. Bacon Elementary, Fort Collins, CO USA	2013
High School STEM Day. Colorado State University, Fort Collins, CO USA	2012
Girls in STEM Day. Colorado State University, Fort Collins, CO USA	2011

General Public

Natural Areas Study Group – guest lecture. Urbana, IL USA	2023
Frogs Around Town – Library visits. Champaign, Urbana, & Mahomet, IL USA	2023
Osher Life-long Learning Institute (OLLI). Champaign, IL USA	2022
American Frog Day. Chicago, IL USA	2022
Amphibian Day. Scovill Zoo, Decatur, IL USA	2022
Summer Science Camps. Anita Purves Nature Center, Urbana, IL USA	2022
Science Café. Institute for Genome Biology, Urbana, IL USA	2022
Genome Day. Urbana, IL USA	2021, 2022
NightLife. California Academy of Sciences, San Francisco, CA USA	2018

Bay Area Science Festival. San Francisco, CA USA

2017

SERVICE & PROFESSIONAL ACTIVITIES

Departmental Service

SIB DEI Taskforce. 2023 – present.
 EEB/SIB Awards Committee. 2021.
 EEB Graduate Admissions Committee. 2020.
 Undergraduate Distinction Committee. 2020.

University of Illinois Service

“Genomics and YOU” Course Organizer. IGB & Osher Life-long Learning Institute. 2022.
 PEEC Awards Selection Committee. 2022.
 Undergraduate Neuroscience Society Guest Lecture. 2022.
 Neuroscience Program Admissions Committee. 2020.

Professional Service

Elected Council Member. International Society for Neuroethology. 2022 – present.
 Professional Mentoring Program. International Society for Neuroethology. 2020 – present.

Professional Development

Academic Leadership and Management Institute. University of Illinois Urbana-Champaign. 2023.
 Group Dynamics Workshop. University of Illinois Urbana-Champaign. 2022.
 Faculty Success Program. National Center for Faculty Development & Diversity. 2021.
 Summer Teaching Institute. University of Illinois Urbana-Champaign. 2020, 2022.

Conference Organizer

Gordon Research Conference for Neuroethology. TBD. Summer 2027.
 Gordon Research Seminar for Neuroethology. Les Diablerets, Switzerland. June 2017.

Editorial Board Member

Brain, Behavior, and Evolution. 2015 – 2019.

Manuscript Review

Acta Ethologica • The American Naturalist • Behavioral and Brain Sciences • Behavioral Brain Research •
 Biological Journal of the Linnean Society • Current Biology • Ethology • Genes, Brains, and Behavior •
 Integrative and Comparative Biology • Hormones & Behavior • The Journal of Experimental Biology •
 Genome Biology and Evolution • Molecular Ecology • Nature Communications • Neuroscience •
 Phyllomedusa • PlosONE • Proceedings of the Royal Society B • Science

Grant Review

Konrad Lorenz Institute • NSF Integrative Organismal Systems • NSF Postdoctoral Research Fellowships in
 Biology • UK Natural Environment Research Council

Society Member

Animal Behavior Society • American Association for the Advancement of Science • International Society
 for Neuroethology • JB Johnston Club for Evolutionary Neuroscience • Society for Integrative and
 Comparative Biology • Society for the Study of Evolution