

**Ashley Elias**  
Assistant Professor of Biology

Department of Biology  
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**Education**

PURDUE UNIVERSITY, West Lafayette, Indiana  
PhD Ecology and Evolutionary Biology, December 2014  
Advisor: Dr. Krista M. Nichols

UNIVERSITY OF FLORIDA, Gainesville, Florida  
BS Integrative Biology (minors: Anthropology and French), May 2008

**Professional Experience**

2019-present	<b>Assistant Professor of Biology</b> , Department of Biology, Missouri Western State University, Saint Joseph, MO.
2018-2019	<b>Assistant Professor of Biology</b> , College of Science and Health, Avila University, Kansas City, MO.
2016-2018	<b>NSF Postdoctoral Research Fellow</b> , Department of Biological Sciences, North Carolina State University, Raleigh, NC; Sponsoring Scientist: Dr. R. B. Roberts.
2015-2016	<b>Postdoctoral Research Scholar</b> , Department of Biological Sciences, North Carolina State University, Raleigh, NC; Supervisor: Dr. R. B. Roberts.
2015	<b>Adjunct Faculty</b> , Natural Science Department, Motlow College, Nashville, TN.
2013- 2014	<b>Teaching Assistant</b> , Department of Biological Sciences, Purdue University, West Lafayette, IN; supervisor: Dr. M. Browning.
2010-2013	<b>NSF Graduate Research Fellow</b> , Department of Biological Sciences, Purdue University, West Lafayette, IN; Ph.D. Advisor: Dr. K. M. Nichols.
2008-2010	<b>Purdue Doctoral Fellow</b> , Department of Biological Sciences, Purdue University, West Lafayette, IN; Ph.D. Advisor: Dr. K. M. Nichols.
2009-2011	<b>Teacher</b> for Super Saturday Program, Gifted Education Resource Institute, Purdue University, West Lafayette, IN.
2009-2010	<b>Teaching Assistant</b> , Department of Biological Sciences, Purdue University, West Lafayette, IN; supervisor: Dr. M., Browning.

- 2006-2008            **Research Assistant**, Zoology Department, University of Florida, Gainesville, FL; supervisor: H. Klug.
- 2007                    **Field Assistant**, Tvärminne Zoological Station, Finland.

### Teaching Experience

#### **Assistant Professor**, Missouri Western State University, Department of Biology

- BI250 *Anatomy and Physiology* (Spring 2020): Concepts of human structure and function and relationships of these concepts to cells, tissues, organs and systems.
- BI250 *Lab Anatomy and Physiology* (Fall 2019, Spring 2020): Concepts of human structure and function and relationships of these concepts to cells, tissues, organs and systems.
- BI411 *Developmental Biology* (Fall 2019): Examines the morphological changes and the genetic and molecular pathways involved in animal embryonic development. Three hours lecture and three hours lab.
- BI101 *Lab Principles of Biology* (Spring 2020): Introductory course on the principles of living phenomena intended for students not major in biology.

#### **Assistant Professor**, Avila University, College of Science and Health

- BI111 *General Biology: Cells & Genes* (Fall 2018, Spring 2019): A survey of cell theory (cellular structure and function) and gene theory (molecular genetics and Mendelian genetics) that illustrated the nature and limits of science and two of the fundamental concepts of the life sciences. Elements of evolutionary theory are discussed throughout the course with examples from all kingdoms.
- BI112 *General Biology: Ecology and Evolution* (Spring 2019): Examine the basic tenets of the theory of evolution and the extensive scientific evidence that supports the theory. A survey of the history of life, with special attention given to the origins and maintenance of biological diversity. Includes how evolutionary theory illuminates our understanding of ecology, the study of interactions between living organisms and their environment.
- BI112 *Lab General Biology: Ecology and Evolution* (Fall 2018, Spring 2019): Introduce students to method of experimental design, analysis, and communication of scientific information.
- BI318 *Genetics* (Fall 2018): Principles of hereditary nature, transmission, and function of genetic material; and genetics of populations. (integrated lab)
- BI310 *Evolution* (Spring 2019): A descriptive overview examining theories regarding processes by which life forms evolve, chemical evolution and origins of life, organismal evolution, and population genetics and dynamics.

#### **Adjunct Faculty**, Motlow College, Natural Science Department

AP100 *Human Anatomy and Physiology I* (Summer 2015): Lecture and laboratory sections covering the physical organization and physiological functions of the skeletal, muscular, nervous, integumentary and special sensing systems in the human body.

**Guest Lecturer, North Carolina State University**

- AEC441 *Biology of Fishes*, Department of Applied Ecology (Fall 2016, Fall 2017): Sex Determining Mechanisms in Fishes.
- GN451 *Genome Science*, Department of Biological Sciences (Spring 2017, Spring 2018): Targeted Sequencing.

**Teaching Assistant, Purdue University, Department of Biological Sciences**

- BIOL110 *Fundamentals of Biology I* (Fall 2009): Introductory biology course focusing on diversity, ecology, evolution, and the development, structure, and function of organisms.
- BIOL111 *Fundamentals of Biology II* (Spring 2010, Fall 2013, Spring 2014, Fall 2014): Introductory biology course covering genetics, molecular biology, physiology and development.
- Responsible for recitation and laboratory sections, including: lecture preparation, grading, and guiding group activities and research papers.

**Undergraduate Student Research Mentor**

- North Carolina State University
  - Briana Williams (2017-2018)
  - Maggie Cline (2015-2018)
  - Adam Miranda (2015-2018)
  - Kaitlyn Barker (2015-2016) Barker Molecular Technologist, Labcorp
  - Jodie White (2015-2016) Johns Hopkins Bloomberg School of Public Health
- Purdue University
  - Gabrielle Shafer (2011-2013) Laboratory Technician, Purdue University
  - Jessica Monjaras (2011-2012) Indiana University School of Optometry
  - Heather Holzhauer (2009-2012) Veterinarian, Carolina Veterinary Specialists
  - Anthony Folck (2012) Indiana University School of Medicine
  - Madeline Sneddon (2010-2011) Science Dept Chair, Aqsa School
  - Katlin Stephani (2009-2011) Lab Safety Specialist, IUPUI
  - Katherine Effinger (2010-2011) Biologist, Dow AgroSciences
  - Ellie Flaherty (2010)
- University of Washington
  - Ke'ale Louie (2011) Oral Health Sciences PhD Student, University of Michigan

**Grants & Fellowships**

2018	W. M. Keck Center for Behavioral Biology Grant, NC State University ( <u>\$2,000</u> )
2016	National Science Foundation Postdoctoral Research Fellowship ( <u>\$138,000</u> )
2013	Travel Grant, Women In Science Program (WISP), Purdue University ( <u>\$500</u> )
2012	Travel Grant, Midwest Crossroads Alliance for Graduate Education and the Professoriate (AGEP), Purdue University ( <u>\$500</u> )

- 2011 Research Grant, Midwest Crossroads Alliance for Graduate Education and the Professoriate (AGEP), Purdue University (\$10,000)
- 2010-2013 National Science Foundation Graduate Research Fellowship (\$175,741)
- 2008-2010 Purdue Doctoral Fellowship, Graduate School, Purdue University (\$94,740)
- 2009 Purdue Graduate Fellowship Incentive Award (\$500)
- 2007 International Research Experience for Undergraduates Award, South East Alliance for Graduate Education and the Professoriate (SEAGEP), University of Florida (\$3,400)
- 2007-2008 University Scholars Award, University of Florida (\$3,000)

TOTAL (competitive grants and fellowships): \$927,881

### **Peer-Reviewed Publications** (\*undergraduate author)

- Chin-Baarstad, A., Klug, H, & Lindström, K. 2009. Should you eat your offspring before someone else does? Effect of an egg predator on filial cannibalism in the sand goby. Animal Behaviour. 78: 203-208.
- Elias, A., Thrower, F., and Nichols, K. M. 2018. Rainbow Trout Personality: Individual Behavioral Variation in Juvenile Rainbow Trout, *Oncorhynchus mykiss*. Behaviour. 155:205-230.
- Elias, A., Mackereth, R., McLaughlin, R., Wilson, C., and Nichols, K. M. 2018. Population structure and genomic variation of ecological life history diversity in wild-caught Lake Superior brook trout, *Salvelinus fontinalis*. Journal of Great Lakes Research. 44:6.
- Burford Reiskind, M.O., Reed, E.M., Elias, A., Giacomini, J.J., McNear, A.F., Nieuwsma, J., Parker, G.A., Roberts, R.B., Rossi, R.E., Stephenson, C.N., Stevens, J.L., and Williams, B.E.\* 2019. The genomics of invasion: characterization of red lionfish (*Pterois volitans*) populations from the native and introduced ranges. Biological Invasions. 21:2471
- Elias, A., Dumont, B. L., Coyle, K. P., White, J.\*, and R. B. Roberts. Low coverage genomic characterization of a nascent sex determination locus in the African cichlid *Metriaclima tarakiki*. (In preparation)
- Elias, A., Thrower, F., and Nichols, K. M. Differential Gene Expression of Behavioral Variation in the Brains of Juvenile Rainbow Trout, *Oncorhynchus mykiss*. (In preparation)

Elias, A., and R. B. Roberts. Sequence and evolution of two nascent sex chromosomes in a single species, *Astatotilapia burtoni*. (In preparation)

### **Honors & Awards**

2017 Best Poster: W. M. Keck Center for Behavioral Biology Symposium  
2016 National Science Foundation Postdoctoral Research Fellow  
2010-2013 National Science Foundation Graduate Research Fellow  
2008-2010 Purdue Doctoral Fellow  
2008 NSF Graduate Research Fellowship Honorable Mention

### **Academic Presentations (lead author)**

**Invited Seminar:** Elias, A. Characterization of Multiple Loci in a Complex Sex Determination System (Talk)

Molecular Biosciences Interest Group, Kennesaw State University, November 2017

Elias, A., Dumont, B.L., Coyle, K.P.\*\* , White, J. \*, Roberts, N.B., and Roberts, R.B. Genomic Survey of Sex Determination Systems in Cichlids Reveals an Evolutionary Hot-Spot (Poster)  
Population, Evolutionary, & Quantitative Genetics Conference, Madison, WI, May 2018

Postdoctoral Research Symposium, NC State University, May 2018

Elias, A. The genetic basis of sex determination in fishes (Talk)

Pop Talks, NC State University, March 2018

Elias, A. Phenotypic Versus Genotypic Sex: Characterization of Multiple Loci in a Complex Sex Determination System (Talk)

Genetics Program Fall Retreat, NC State University, August 2017

Evolution Conference, Portland, OR, June 2017

Elias, A. Phenotypic Versus Genotypic Sex: Characterization of Multiple Loci in a Complex Sex Determination System (Poster)

WM Keck Center for Behavioral Biology Symposium, NC State University, April 2017

Chin-Baarstad, A. Associated Behavioral, Genetic, and Gene Expression Variation with Alternative Life History Tactics in Salmonid Fishers. (Talk)

NOAA, Northwest Fisheries Science Center, January 2015

Chin-Baarstad, A., Thrower, F., & Nichols, K. Individual behavioral variation in juvenile rainbow trout, *Oncorhynchus mykiss*. (Talk)

Animal Behavior Society Meeting, University of Colorado, July 2013

Chin-Baarstad, A., Thrower, F., & Nichols, K. Individual behavioral variation in juvenile rainbow trout, *Oncorhynchus mykiss*. (Poster)

Animal Behavior Society Meeting, University of New Mexico, June 2012

Chin-Baarstad, A., Thrower, F., & Nichols, K. Individual variation for aggression in juvenile rainbow trout (*Oncorhynchus mykiss*). (Poster)

Gordon Research Conference: Genes & Behavior, Galveston, TX, March 2012

Chin-Baarstad, A., Thrower, F., & Nichols, K. Behavioral variation within and between juvenile *Oncorhynchus mykiss*: a rainbow of behaviors. (Poster)

Biological Sciences Retreat, Plymouth, IN, November 2011

Chin-Baarstad, A. Behavioral and Genetic Diversity Among Ecotypes of Lake Superior Brook Trout. (Talk)

Biology Graduate Research in Progress Seminar, Purdue University, April 2010

Chin-Baarstad, A., Klug, H., & Lindström, K. Should you eat your young before someone else does? Effect of Predator Presence on Filial Cannibalism in the Sand Goby. (Poster)

16<sup>th</sup> Annual Animal Behavior Conference, Indiana University, April 2009

Department of Zoology Undergraduate Symposium, University of Florida, April 2008

### **Co-authored Academic Presentations**

(presenting author; \*undergraduate & \*\*graduate student)

Peterson, E.\*\*, Elias, A., Lamm, M., and R.B. Roberts. Developmental Impacts of Polygenic Sex Determination in a Cichlid Fish. (Poster)

International Symposium on Vertebrate Sex Determination, Hawaii, April 2018

Triangle Zebrafish Symposium, Duke University, May 2018

Lamm, M., Elias, A., Peterson, E. \*\*, Gentry, L. \*, and R.B. Roberts. Uncovering Genetic Mechanisms Controlling Sex in an African Cichlid with Polygenic Sex Determination. (Poster)

Triangle Zebrafish Symposium, Duke University, May 2018

Peterson, E.\*\*, Elias, A., and R.B. Roberts. Polygenic Sex Determination in *Astatotilapia burtoni*. (Poster)

Evolution Conference, Portland, OR, June 2017

NC State Genetics Program Fall Retreat, NC State University, August 2017

Coyle, K.P., Cass, A.N., Roberts, N.B., Cicocotto, P., Elias, A., and R.B. Roberts. A Novel Genetic Model of Dietary Response and Host-Microbiota Interactions. (Poster)  
Beckmann Symposium, Irvine, CA, August 2016

Peterson, E.\*\*, Elias, A., Roberts, N., and Roberts, R. Polygenic Sex Determination in *Astatotilapia burtoni*. (Poster)  
Genetics Program Fall Retreat, NC State University, August 2016

Louie, Ke'ale\*, Thrower, F., and Chin-Baarstad, A. The Trans-Generational Effects of Anadromy on the Behavioral Tendencies of Steelhead Trout. (Talk)  
NOAA Hollings Science and Education Symposium, 2011

### **Service and Outreach**

**Reviewer for:** Proceedings of the Royal Society B, Behavioral Ecology and Sociobiology, Naturwissenschaften

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| 2018         | Volunteer, 28 <sup>th</sup> Annual Science and Mathematics Challenge for Young Women, Avila University                        |
| 2016-2018    | Mentor for the Kenan Fellows Program for Teacher Leadership, NC State University (2 high school science teachers)             |
| 2015-2018    | Member of Postdoctoral Association, NC State University   |
| 2009-present | Mentor for students applying to the NSF GRFP  |
| 2017         | Panelist for Fall Professional Development Institute of the Kenan Fellows Program, Raleigh, NC                                |
| 2017         | Judge for North Carolina State 4-H Fisheries and Aquatic Resources Presentations, Raleigh, NC                                 |
| 2017         | Judge for Postdoctoral Research Symposium, NC State University  |
| 2017         | Volunteer, Darwin Day, NC Museum of Natural Resources<br>Developed and presented an interactive exhibit about fish adaptation |
| 2016-2017    | Communications Director, Postdoctoral Association, NCSU<br>Member of Diversity Committee                                      |
| 2016         | Member of Search Committee, Graduate School, NC State University  |

2016	Judge for Postdoctoral Research Symposium, NC State University
2016	Volunteer, State of the Sciences: Museum Takeover Developed and presented an interactive exhibit about fish adaptation
2016	Volunteer, Darwin Day, NC Museum of Natural Resources Developed and presented an interactive exhibit about fish adaptation
2015	Contributor to The Signal, newsletter for the W. M. Keck Center for Behavioral Biology, NC State University "Tongue-eating Isopods at the Keck Center." (vol. 17, no. 3)
2015	Volunteer at the Nashville Zoo at Grassmere
2011-2013	Biology Graduate Student Representative for the Graduate Women in Science Program, Purdue University
2013	Judge for Science Fair at Battle Ground Elementary School
2013	Presenter at NSF workshop, Purdue University
2010-2011	Member of the Biology Graduate Student Council, Purdue University Ecology, Evolution, and Population Biology Representative Biology Graduate Student Retreat Planner
2008-2014	Member of Women in Science Program, Purdue University
2009-2011	Member of Purdue Women's Network, Purdue University
2009	Panelist for NSF Student Fellows Discussion, Purdue University

### **Professional Development Workshops**

Fundamentals of Teaching Excellence Workshop, Kansas City	Sept 2018
New Faculty Forum, Madison, WI	May 2018
Recognizing Imposter Syndrome & What Faculty Can Do About It, NC State Univ.	Feb 2018
Diversity in STEM Symposium, NC State University	Feb 2018
Mock Interviews for Postdoctoral Researchers, NC State University	Nov 2017
Writing Workshop, NC State University	Aug 2017
Conflict Resolution and Managing Difficult Conversations, NC State University	Sept 2016
NGS: Analyzing Next-Generation Sequence Data, W.K. Kellogg Biological Station	Aug 2016
Ingenuity Pathways Analysis (IPA) training, NC State University	May 2016
Introduction to Leadership Development Series NC State University	Sept 2015
Social and Behavioral Responsible Conduct of Research, Purdue University	June 2013
Improving Research Communication with Improv Series, Purdue University	Oct-Nov 2012
Introduction to R for Natural Resource Professionals, Toronto, Ontario	May 2010



Responsible Conduct of Research: Ethical Writing, Purdue University  
Responsible Conduct of Research: Research Integrity, Purdue University

Oct 2008  
Sept 2008

**Professional Affiliations**

Genetics Society of America  
Society for the Study of Evolution  
Animal Behavior Society  
International Association for Great Lakes Research  
Toastmasters International