

# Kira McEntire, PhD

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## **Education**

University of Georgia (UGA)  
(Athens, GA)

**Ph.D. Wildlife Ecology**, 2018

Dissertation Title: Integration of behavior into biophysical models to estimate salamander sensitivity to climate and midstory forest management

*Interdisciplinary Certificate in University Teaching*

Southwestern University (SU)  
(Georgetown, TX)

**B.A. Biology and Environmental Studies** with honors,  
*magna cum laude*, 2013

Honors Thesis: Vulnerability analysis of the Georgetown Salamander (*Eurycea naufragia*) habitat using GIS software

## **Research Interests**

- Agent/Individual Based Modeling, behavioral ecology, herpetology, population ecology, biophysical ecology, amphibian ecology, conservation biology

## **Teaching and Mentoring Experience**

Faculty: Queens University of Charlotte

2020

Ecology

- Upper level biology with a lab, Online Writing for Biologists
- Upper level biology writing course, one section

Faculty: Trinity University

2020

Introductory Biology Lab (TU)

- Lower level biology lab, two sections, coordinated switch to online
- Lecture student coordinator; managed about 200 students grades and attendance, assisted with course materials

2019

Conservation Biology (TU)

- Upper level biology seminar course without a lab

2019

Cells and Cell Systems Lab (TU)

- Mid-level biology lab

2019

Experiential Learning in Ecology and Evolution (TU)

- Upper level biology course with a lab, focused on research methods

2019

Introductory Biology Lab (TU)

- Lower level biology lab, one section

2018

Animal Behavior (TU)

- Upper level biology course with a lab

Graduate Teaching

2018

Teaching Assistant (UGA)

- Served as the TA for two courses (Animal Behavior and Sustainability) through UGA Study Abroad in New Zealand and Australia. Responsibilities included: Assisting with lectures and activities and mentoring students
- 2017 Instructor for Agent Based Modeling (ABM) class (UGA)
  - Served as the primary instructor for an ABM course for graduate students in the School of Forestry. Responsibilities included: Lectures, creating or modifying assignments, and mentoring 7 students' individual projects
- 2017 Co-Instructor of record for Ecology class (UGA)
  - Co-taught ecology course for students in the School of Forestry. Responsibilities included: writing the syllabus, quizzes, and tests, teaching lectures and labs
- 2017-2018 Future Faculty Fellows Program (UGA)
  - Competitive professional development program
  - Organized teaching symposium for graduate students
  - Conducted Mid-Semester Formative Evaluations
- 2015 Teaching Assistant
  - Teaching Assistant for non-major course; responsibilities included creating testing material, grading, teaching 2 classes, and leading review sessions.
- 2013-2018 Outreach with the University of Georgia Herpetological Society
  - Taught the public, at various events, about herpetology including the difference between reptiles and amphibians and how snakes can be useful
- 2014-2018 Guest Instructor (UGA)
  - Fall 2013-2017: Natural Resources Interpretation: Guest lecture about herpetology outreach, invited back 4 times
  - Spring 2014-2016,2018: Herpetology: Taught graduate and undergraduate students how to use a dichotomous key, field techniques, and salamander identification
  - Fall 2016: Animal Behavior seminar: Guest lecture about individual based modeling
  - Fall 2015: Advanced Spatial modeling: Guest lecture about individual based modeling
  - Fall 2013: Ecology of Natural Resources: Guest lecture about Nutrient Cycling
- 2014-2018 Swing Dance Teacher
  - Taught monthly at local weekly swing dance event
- 2016-2018 Argentine Tango Teacher
  - Co-taught weekly lessons in social dance
- 2012 Undergraduate Teaching Assistant (SU)
  - Assisted with the astronomy class laboratory, primarily teaching students about the constellations and how to work telescopes

- Assisted with Open Observatory Nights, educating my peers and the public once a month about astronomy (October 2011-April 2013)
- 2012 Guest Lecturer (SU)
- Invited to give a guest lecture to the Intro to Animal Behavior class about research opportunities in biology with salamanders

### **Undergraduates Mentored:**

#### Independent research projects:

##### *Trinity University*

2019-present **Caro Vela** Agent based modeling, snake color polymorphisms

2018-present **Morgan Thompson** Snake ecology and color polymorphisms

2018-2019 **Madison Poljan** Amphibian personalities

2018-2019 **Charles Sheppard** Horned Lizard population biology

2018-2019 **Sydney Cowell** Turtle ecology

2018 **My-Lan Le** –Broadening Participation Meeting Mentoring program at the Society for Integrative and Comparative Biology

#### Senior Theses Advised:

2018-2019 **Daisy Horr** – (co-advised) Ecology of color change in Anolis lizards (TU)

2015-2016 **Abigail Abouhamdan** – Modeling Anuran Site Occupancy of Stormwater Basins Versus Natural Wetlands in the Georgia Piedmont (UGA)

2015 **Michael Holden** – Dehydration Deficits and a Novel Method to Measure Them: *Plethodon shermani x teyahalee* (UGA)

2014 **Will Booker** – “Assessing the Causes, Consequences and Trade-offs Associated With Variation in Larval Growth Rates of Southern Leopard Frogs” (UGA)

#### REU Summer Students:

2017 **Kaitlyn Campbell** – Conducted study evaluating nematode presence in salamanders and snakes at the Coweeta Hydrologic Laboratory (Presented at Coweeta’s summer meeting, manuscript in prep); Currently a PhD Student at the University of South Dakota

2016 **Abigail Maddigan** – Conducted in-situ study of dehydration and rehydration rates of *Desmognathus ocoee* salamanders (Presented at Coweeta’s summer meeting, manuscript in prep); Currently a Field Technician and applying for graduate study

2016 **Sadie Roth** – Created field enclosures and conducted behavioral observations across a gradient of *Plethodon shermani x teyahalee* hybridization (Presented at Coweeta’s summer meeting); Currently a graduate student at TCU

2015 **Kerndja Bien-Aime** – Conducted diet sampling of *Plethodon* hybrid salamanders across a moisture gradient (Presented at Coweeta’s summer meeting); Currently a Field Technician.

### **Pedagogy Training**

2018-2020 Faculty Learning Community (Trinity)

Pedagogy workshops at Trinity:

## 2013-2016 Courses at UGA

- Course Design
- Cognition of Learning
- Teaching Practicum

## 2013-2017 Pedagogy workshops and lectures (UGA)

- Rising to the Challenge of Diversifying STEM Fields (Fall 2017)
- Evidence-based teaching: just the facts or thinking like scientists? (Fall 2017)
- Top 10 Tips for Transitioning from TA to Faculty (Fall 2017)
- Write More, Stress Less: Best Practices for Designing and Grading Writing Assignments. (Fall 2017)
- Persistent Student Tendencies to Memorize versus Abstract: Effects on Learning in Science Courses (Spring 2017)
- Varieties of A Superior Memory: The Study of People Who Deliberately Memorize (Fall 2016)
- Making It Stick: The Science of Successful Learning (Fall 2016)
- Get Students to Focus on Learning Instead of Grades: Metacognition Is Key! (Fall 2016)
- Metacognition Workshop with Sandra McGuire (Fall 2015)
- Motivating and Engaging Your Students: Strategies for Teaching from the Psychology of Learning (Fall 2015)
- Theater techniques in teaching (Fall 2015)
- Creative Thinking (Spring 2014)
- What Research Tells Us About How People Learn: Practical Implications for College Teaching (Fall 2014)
- How to Teach Today's Students (Fall 2013)
- Scholarship of teaching (Fall 2013)
- Trends and Challenges of Emerging Technologies (Fall 2013)
- Reacting to the Past: Beyond the Humanities (Fall 2013)
- Scientific Literacy for Daily Life (Fall 2013)
- Teaching and Assessing so Your Students Learn More: Maximizing Learning-Centered Pedagogy (Fall 2013)

## **Professional and Research Experience**

### ***Graduate and post-graduate***

#### 2018-2020 Started Lab at Trinity University

- Snake color polymorphisms and maintenance of diversity
- Juvenile horned lizard anti-predator behaviors and background matching
- Agent-based model about background matching in horned lizards
- Photo analysis of snake colors

#### 2018 Independent contract - ABM

- Built an agent-based model for researchers studying prescribed fire and turkey ecology across the southern US.

#### 2013- 2018 Ph.D. Student and Researcher, UGA (Athens, GA)

- Coordinated ongoing Capture-Mark-Recapture studies of hybrid Plethodon salamanders
  - Conducting visual encounter surveys and unmarked statistical analysis across an environmental gradient to look at salamander population and community dynamics in relation to rainfall
  - Collaborated with the US Forest Service and other researchers to test the effect of Rhododendron removal on local ecology; I looked at behavioral ecology and salamander population dynamics as part of the project.
  - Developed integrated biophysical and agent-based models predicting salamander activity under various environmental conditions
- 2018 Invited Seminar Speaker
- Trinity University, presented talk on salamander ecology and agent-based modeling on September 10, 2018
  - Georgia Southern University, presented general talk on salamander ecology and agent-based modeling on January 29, 2018

### ***Undergraduate***

- 2013 SWCA Environmental Consultants, Field Technician (Austin, TX)
- Helped conduct field surveys of the Georgetown Salamander (*Eurycea naufragia*) and Cave Crickets
- 2009-2013 Research Assistant, Southwestern University (Georgetown, TX)
- Helped conduct monthly surveys of the Georgetown Salamander (*Eurycea naufragia*)
  - Field work included traveling to two spring sites and monitoring salamander numbers and environmental qualities
  - Independent research projects exploring growth rates, reproduction, activity patterns, behavior, and microbial communities of the Georgetown Salamander
  - Summer Employee- created a database of the springs in Williamson county, updated and managed databases
  - Summer Employee- managed data, worked on a manuscript, measured morphometric data, and created outreach materials
- 2013 City of Austin, Environmental Scientist Intern (Austin, TX)
- Independent research project and field research on the movement and population dynamics of the Jollyville Plateau salamander (*Eurycea tonkawae*)
  - Use Wild ID software for identification of individual salamanders
- 2012 Texas Parks and Wildlife, Texas Natural Diversity Database Intern (Austin, TX)
- Go through herpetology paper files and develop reference records for the database
  - Go through box turtle occurrence data: enter encounters, map location, and enter tabular data
- 2010-2012 Course Based Research, Southwestern University (Georgetown, TX)

- Conducted a meta-analysis of coral reef calcification rates under different climate change scenarios
- Conducted a small scale field experiment on companion planting in the community garden
- Participated in coral and reef fish field work through the School for Field Studies (Turks and Caicos Islands)
- Participated in several small field-based projects about Plethodontid salamanders through the Highlands Biological Station
- Grew cancer cells in culture, extracted DNA, optimized for PCR, and ran PCR

## **Publications**

### ***Articles***

Sullivan, D.J., **K.D. McEntire**, B.S. Cohen, B.A. Collier, and M.J. Chamberlain. 2020. Spatial scale and shape of prescribed fires influence use by wild turkeys. *Journal of Wildlife Management*. 84(8): 1570-1577

Jagadish, A., P. Dwivedi, **K.D. McEntire**, and M. Chandar. 2019. Agent-based modeling of “cleaner” cookstove adoption and woodfuel use: An integrative empirical approach. *Forest Policy and Economics*. 106.

**McEntire, K.D.** and J.C. Maerz. 2019. Integrating ecophysiological and agent-based models to simulate how behavior moderates salamander sensitivity to climate. *Frontiers in Ecology and Evolution*. 7 :1-22

**McEntire, K.D.** 2016. Arboreal Ecology of Plethodontidae: A Review. *Copeia*. 2016(1): 124-131

Bendik, N., **K. D. McEntire**, and B. N. Sissel. 2016. Movement and Occurrence Dynamics of a Federally Threatened Salamander: Evaluating the Adequacy of Critical Habitat. *PeerJ* 4:e1718

Cote, G.\* , S. Getty\*, A. Vokoun\*, S. Carmichael\*, H. Hunt\*, N. Letton\*, **K. D. McEntire**, J. A. Wooten, and C. D. Camp (2015) A Test of Scent-trailing as a Contributing Factor in the Facultatively Arboreal Behaviour of the Redback Salamander (*Plethodon cinereus*). *Amphibia-Reptilia*. 37(1) 111-116.

Pierce, B.A., **K.D. McEntire**, and A. Wall. 2014 Population Size, Movement, and Reproduction of the Georgetown Salamander, *Eurycea naufragia*. *Herpetological Conservation and Biology*. 9(1) 137-145.

\*indicates undergraduate author

### ***Natural History Notes***

Hudson, B. and **K. D. McEntire**. 2015. *Ambystoma talpoideum*: Geographic Distribution. *Herpetological Review*. 46 (4) 595

**McEntire, K.D.** and B.A. Pierce. 2015. *Eurycea naufragia*: Behavior. *Herpetological Review*. 46(3) 409

**McEntire, K.**, T.W. Pierson, and J.C. Maerz. 2014. *Eurycea cirrigera*: Paedogenesis. *Herpetological Review*. 45(3) 473

### **Scientific Reports**

Pierce, B.A. and **K.D. McEntire**. 2013. Ecological studies of the Georgetown salamander (*Eurycea naufragia*) at two sites in Williamson County, Texas, Year 3, August 2012 - July 2013. Report to the Williamson County Conservation Foundation, Southwestern University, Georgetown, Texas. September 15, 2013. 21 pp.

### **Articles In Review/Prep**

Horr, D.M.\*, A.A. Payne\*, **K.D. McEntire**, and M.A. Johnson. *In Review*. Sexual Dimorphism in Dynamic Body Color Change in the Green Anole Lizard. *Behavioral Ecology*.

**McEntire, K.D.**, J.S. Howard, and J.D. Maerz. *In Review*. Plant climbing by salamanders predicted by air to ground temperature differential effects on evaporative water loss: A test of a model hypothesis. *Journal of Herpetology*.

### **Selected Conference Presentations**

Thompson, M.L., and K.D. McEntire. Geographic distribution and description of color patterns in Western Ribbon snakes (*Thamnophis proximus*) in Texas. Texas Conservation Symposium. January 9-10, 2020

McEntire, K.D., Vela, S., Thompson, M.L., and Baum, A. Do I Match? Exploring Self-Awareness of Color for Background Matching in Texas Horned Lizards. Society for Integrative and Comparative Biology. January 3-7, 2020

McEntire, K.D., Vela, S., Thompson, M.L., and Baum, A. Do I Match? Exploring Self-Awareness of Color for Background Matching in Texas Horned Lizards. Texas Herpetological Society. November 9-11, 2019

McEntire, K.D. , J.C. Maerz, and J.S. Howard. Plant climbing by salamanders as a compensatory behavior in relation to climate. Society for Integrative and Comparative Biology. January 3-7, 2019

Williams, K.Z. and K.D. McEntire. Fitting the Pieces Together: Using a jigsaw classroom to engage students in online learning. University System of Georgia Teaching and Learning Conference: Best Practices for Promoting Engaged Student Learning. April 6-8, 2018.

McEntire, K.D. , J.C. Maerz, and J.S. Howard. Integrating modeling and fieldwork to explore how behavior moderates salamander sensitivity to climate. Society for Integrative and Comparative Biology. January 3-7, 2018

McEntire, K.D. and A. Burrow. Exploring the influence of values and experience in translating learning strategies and active learning to STEM classrooms. Innovations in Teaching Conference, UGA, October 20, 2017

McEntire, K.D. and J. C. Maerz. Integrating biophysical and individual based models to simulate how habitat structure and behavior moderate salamander sensitivity to climate. Oral Presentation. Joint Meeting of Herpetology and Ichthyology. July 12-16, 2017.

McEntire, K.D. and J. C. Maerz. How habitat structure and behavior moderate salamander sensitivity to climate. Oral Presentation. Warnell Graduate Student Symposium. February 9-10, 2017

McEntire, K.D. and J. C. Maerz. How habitat structure and behavior moderate salamander sensitivity to climate. Oral Presentation. Society for Integrative and Comparative Biology. January 4-8, 2017

McEntire, K.D. To climb or not to climb? A integrative individual-based biophysical model suggests facultative arboreality in salamanders may be linked to temperature across season and habitat type. Oral Presentation. Ecological Society of America. August 7-12, 2016.

McEntire, K.D. Estimating Salamander Activity Time Using Individual Based Biophysical Models. Oral Presentation. Warnell Graduate Student Symposium. January 21-22, 2016

McEntire, K.D. Estimating Salamander Activity Time Using Individual Based Biophysical Models. Oral Presentation. Society for Integrative and Comparative Biology. January 4-7, 2016

McEntire, K.D. Estimating Salamander Activity Time Using Individual Based Biophysical Models. Oral Presentation. Ecological Society of America. August 9-14, 2015

McEntire, K.D. Estimating Salamander Activity Time Using Individual Based Biophysical Models. Oral Presentation. Southeastern Ecology and Evolution Conference. March 13-15, 2015

McEntire, K.D. and M. Gonzalez. Cutaneous Microbial Diversity of Two Populations of *Eurycea naufragia*. Poster Presentation. Joint Meeting of Herpetology and Ichthyology. July 30-August 3, 2014.



McEntire, K.D. and M. Gonzalez. Cutaneous Microbial Diversity of Two Populations of *Eurycea naufragia*. Poster Presentation. 6<sup>th</sup> Conference on the Biology of Plethodontid Salamanders. May 18-20, 2014.

McEntire, K.D. and J.C. Maerz. Shifting Vegetation Patterns as Drivers of Behavior and Demographic Responses of Salamanders to Land Use Change. Oral Presentation: Proposal. Warnell Graduate Student Symposium. February 20, 2014.

McEntire, K.D., B. Sissel, and N. Bendik. Movement Patterns of the Jollyville Plateau Salamander (*Eurycea tonkawae*) Near Lanier Spring in Bull Creek, Travis Co., Texas. Oral Presentation. Joint Meeting of Herpetology and Ichthyology. July 10-16, 2013.

McEntire, K.D. and B.A. Pierce. Nocturnal or Diurnal? Day and Night Activity Patterns of the Georgetown Salamander (*Eurycea naufragia*) . Oral Presentation. Student Works Symposium, Southwestern University, Georgetown, Texas. April 9, 2013

McEntire, K.D. Vulnerability analysis of the Georgetown Salamander (*Eurycea naufragia*) habitat using GIS software. Oral Presentation. Student Works Symposium, Southwestern University, Georgetown, Texas. April 9, 2013

McEntire, K.D. and B.A. Pierce. Nocturnal or Diurnal? Day and Night Activity Patterns of the Georgetown Salamander (*Eurycea naufragia*) . Oral Presentation ( *1st place*). Texas Academy of Sciences, Kerrville, Texas. February 28- March 2, 2013.

Pierce, B., K. McEntire, A. Wall, and J. Harren. Population size, movement, and reproduction of the Georgetown salamander, *Eurycea naufragia*, a species of conservation concern in central Texas. Poster Presentation. World Congress of Herpetology. August 9-13, 2012

McEntire, K., A. Wall, and B. Pierce. Reproductive timing of *Eurycea naufragia* at two spring sites. Poster Presentation. Ecological Society of America. August 5-10, 2012

McEntire, K., A. Wall, and B. Pierce. Reproductive timing of *Eurycea naufragia* at two spring sites. Oral Presentation. EuryceAlliance. May 25, 2012

McEntire, K., A. Wall, and B. Pierce. Reproductive timing of *Eurycea naufragia* at two spring sites. Oral Presentation. Student Works Symposium, Southwestern University, Georgetown, Texas. April 4, 2012.

McEntire, K., A. Wall, and B. Pierce. Reproductive timing of *Eurycea naufragia* at two spring sites. Oral Presentation. Texas Academy of Sciences, Alpine, Texas. March 2-4, 2012.

McEntire, K., A. Wall, and B. Pierce. Population size and movement of the Georgetown Salamander (*Eurycea naufragia*). Oral Presentation. Student Works Symposium, Southwestern University, Georgetown, Texas. March 28, 2011

## **Honors, Leadership Roles, and Grants**

### ***Honors***

- 2018 Outstanding Teaching Assistant Award  
2017-2018 Future Faculty Fellows Program  
2014 Warnell Graduate Student Symposium, 3<sup>rd</sup> place Oral Presentation (Athens, GA)  
2013 Phi Beta Kappa  
Vicente D. Villa Student of the Year Award in Ecology and Evolutionary Biology (Southwestern University)  
Jan C. Dawson Award in Environmental Studies (Southwestern University)  
Senior Leadership Award (Southwestern University)  
Texas Academy of Science, Collegiate Academy Oral Presentation Award, 1<sup>st</sup> place (Kerrville, TX)  
2012 Alpha Chi  
2009-2013 Dean's List (Southwestern University)

### ***Leadership Roles and Service***

- Reviewer for 16 manuscripts for peer reviewed publications  
2019 Weaving the Future of Animal Behavior  
2017-2018 Teaching Effectiveness Committee Graduate student representative  
2014-2018 UGA Tango Club President (UGA)  
2014-2015 Swing Dance Club at UGA President (UGA)  
2012-2013 Alpha Chi President, Alpha chapter (Southwestern University)  
2011-2013 Organizer of Empty Bowls project (Southwestern University)  
2011-2013 King Creativity Fund Committee member (Southwestern University)  
2010-2012 Student Co-Chair of Talloires Committee (Southwestern University)

### ***Grants***

- 2019 Barton Springs Salamander Conservation Fund (Applied)  
2019 Travel Grant from the Teaching Collaborative at Trinity University (\$600)  
2016-2017 Competitive Travel Grants from the Graduate School at UGA (\$225, \$250, \$275)  
2013- 2015 Graduate School Fellowship  
2012 Student Environmental Engagement and Development grant (Southwestern University)
  - Successfully authored proposal for \$400 to enhance the diversity of the Southwestern Community Garden
  - Taught fellow garden participants about the importance of companion planting

2011-2012 King Creativity Fund (Southwestern University)
  - Successfully authored proposal for \$200 to create a recycled ceramic materials mural in the environmental studies lounge (approximately 6 ft by 3 ft)
  - Presented results to a group of about 100 members of the Southwestern University community

2010-2011 King Creativity Fund (Southwestern University)

- Successfully authored proposal for \$4,000 to determine the most energy and cost efficient solar array for a LED light system in a small theater
- Research analysis on compiled data on solar energy production and irradiance levels
- Presented results to a group of about 100 members of the Southwestern University community

### **Diversity Training**

2019-2020 PRAXIS: a continuous social justice learning community

2017 Diversity in the Classroom

- Online course through Center for the Integration of Research, Teaching, and Learning (CIRTL)

2017-2018 Diversity workshops and lectures (UGA)

- Rising to the Challenge of Diversifying STEM Fields (Fall 2017)
- Inclusive Teaching (Dec 2017) (CIRTL)
- Diversity through Dance (Nov 2017)
- Safe Space training (Spring 2018)
- An LGBTQ Primer, Inclusive Community (Spring 2018)

### **Professional Society Memberships**

American Society of Ichthyologists and Herpetologists, Ecological Society of America, Society for Integrative and Comparative Biology, American Association for the Advancement of Science, Animal Behavior Society