

Thaddeus Roderic McRae

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POSITIONS

Associate Professor of Biology – Natural Sciences and Mathematics Department, Lee University, Cleveland, Tennessee (2017-present)
Assistant Professor of Biology – Natural Sciences Department, Broward College, Broward County, Florida (2012-2017)
Adjunct Assistant Professor – Department of Biology, University of Miami, Coral Gables, Florida (2012-2017)
Instructor and Graduate Teaching Assistant, University of Miami, Coral Gables, Florida (2005-2012)
Science and Math Teacher, North Hills Classical Academy, Grand Rapids, Michigan (2004-2005)
Assistant Director, Golden Eagle Wildlife Camps, Cornerstone University, Grand Rapids, Michigan (2003)
Instructor, Golden Eagle Wildlife Camps, Cornerstone University, Grand Rapids, Michigan (2001-2002)
Instructor and Teaching Assistant, Cornerstone University, 1997-2003

EDUCATION

Ph.D. – Biology, University of Miami, Coral Gables, Florida (2012)
B.A. – Biology, Cornerstone University, Grand Rapids, Michigan (2001)

AWARDS & FUNDING

Endowed Teaching Chair finalist (2016) – Broward College, Coconut Creek, Florida
Classroom Research Award (2013) – Broward College, Coconut Creek, Florida
Best Talk Award (2012) 3rd Annual Graduate Symposium – Department of Biology, University of Miami, Coral Gables, Florida
Tosney Summer Research Support Award (2011) – Department of Biology, University of Miami, Coral Gables, Florida – \$3000
Best Poster Award (2011) – 2nd Annual Graduate Symposium – Department of Biology, University of Miami, Coral Gables, Florida
Summer Graduate Research Fellowship (2010) – College of Arts and Sciences, University of Miami, Coral Gables, Florida – \$5000
Outstanding Teaching Assistant Award (2010) – Department of Biology, University of Miami, Coral Gables, Florida
Kushlan Graduate Research Support Fund (2009) – Department of Biology, University of Miami, Coral Gables, Florida – \$3200
Outstanding Teaching Assistant Award (2009) – Department of Biology, University of Miami, Coral Gables, Florida
Outstanding Teaching Assistant Award (2008) – Department of Biology, University of Miami, Coral Gables, Florida
Savage Graduate Research Support Fund (2006) – Department of Biology, University of Miami, Coral Gables, Florida – \$500
Math and Science Divisional Award (2001) – Cornerstone University, Grand Rapids, Michigan

PUBLICATIONS

McRae, T. R., & S.M. Green. 2017. Vocalizations associated with predator-type do not elicit predator-specific escape responses in grey squirrels. *Behaviour*. DOI: 10.1163/1568539X-00003454

- McRae, T.R., S.M. Green. 2015. Gray squirrel alarm call composition differs in response to simulated aerial versus terrestrial predator attacks. *Ethology Ecology & Evolution*. DOI: 10.1080/03949370.2015.1087433
- McRae, T.R., S.M. Green. 2014. Joint tail and vocal alarm signals of gray squirrels (*Sciurus carolinensis*) exhibit better association with threats than either modality alone. *Behaviour* 151(10):1433-1452. DOI: 10.1163/1568539X-00003194
- Simmons, B., T.R. McRae. 2014. Hidden Markov models of eastern gray squirrel (*Sciurus carolinensis*) alarm calls. *Adaptive Behavior* 22(3):180-188. DOI: 10.1177/1059712314529981

RESEARCH INTERESTS

behavioral ecology; animal communication; multimodal signals; alarm signals; courtship displays

INVITED SEMINARS

University of Florida Tropical Research and Education Center, Homestead, Florida (2013)
Department of Biological and Environmental Sciences, Troy University, Troy, Alabama (2012)
Winter Science Seminar Series, Biological Sciences Department, Broward College, Davie, Florida (2012)

CONTRIBUTED TALKS

Refuge-seeking behavior of gray squirrels (*Sciurus carolinensis*) differs by threat type. 2014. International Society for Behavioral Ecology Conference, New York, New York

Predator-specificity of eastern gray squirrel alarm signals differs across sensory modalities. 2012. Ecological Society of America 97th Annual Meeting, Portland, Oregon

Look and Listen: Predator-specificity of eastern gray squirrel alarm signals differs across sensory modalities. 2011. Animal Behavior Society 49th Annual Meeting, Albuquerque, New Mexico

POSTER PRESENTATIONS

Gray squirrel alarm calls associated with predator type elicit a different escape response than simulated attacks by either predator type. 2018. Ecological Society of America 103rd Annual Meeting, New Orleans, Louisiana

Concrete walls efficiently transmit a jumping spider's vibrational communication, so avoiding predation pressure does not limit signaling success. 2016. Ecological Society of America 101st Annual Meeting, Ft. Lauderdale, Florida, with undergraduate John Wiltshire

Tail signals in eastern gray squirrels include both generic and predator-specific alarms. 2011. Ecological Society of America 96th Annual Meeting, Austin, Texas

Tail signals in eastern gray squirrels include both generic and predator-specific alarms. 2011. Behavior 2011: Joint meeting of the Animal Behavior Society & International Ethological Conference, Bloomington, Indiana

RESEARCH MENTORING – UNDERGRADUATE STUDENTS

Vanessa Montoya, Broward College undergraduate research (spring 2017)
Alex Guzman, Broward College undergraduate research (spring 2017)
Scarlett Rocha, Broward College undergraduate research (spring 2017)
William G., Broward College undergraduate research (fall 2016-spring 2017)
Emily Hahm, University of Miami undergraduate research (spring 2016-fall 2016)
Shiv Makavana, University of Miami undergraduate research (fall 2015-summer 2016)
Jenny Arena, Broward College undergraduate research (spring 2016)
John Davidian, Broward College undergraduate research (spring 2016)
Nick Maniscalco, Broward College undergraduate research (spring 2016)
Jon Weiss, Broward College undergraduate research (fall 2015)
Pranay Imandi, University of Miami undergraduate research (fall 2015)

John Wiltshire, University of Miami undergraduate research (summer 2014-spring 2015)
 Jarryd Colazzo, University of Miami undergraduate research (spring 2014-fall 2014)
 Tatiana Eaves, Broward College undergraduate research (spring 2014)
 Blake Simmons, University of Miami undergraduate research (spring 2013-fall 2013)
 Mariah Landry, University of Miami undergraduate research (fall 2012-summer 2013)
 Cristhian Barrios, University of Miami undergraduate research (fall 2012)
 Stephanie Mlacker, University of Miami undergraduate research (winter 2011-summer 2012)
 Amanda Wood, University of Miami undergraduate research (spring 2012)
 Stephanie Diaz, NIH Bridges to the Baccalaureate, University of Miami, Coral Gables, Florida (summer 2011-spring 2012)
 Henry Potter, University of Miami undergraduate research (fall 2011)
 Jeffery Knight, University of Miami undergraduate research (spring 2010-spring 2012)
 Saiham Emran, University of Miami undergraduate research (summer 2011-fall 2011)
 KC McGaughey, University of Miami undergraduate research (summer 2010-summer 2011)
 Yiwen Ji, University of Miami undergraduate research (summer 2010-summer 2011)
 Doyin Akinwale, University of Miami undergraduate research (summer 2010-spring 2011)
 Carmen Morales, University of Miami undergraduate research (summer 2010-fall 2010)
 Andrew Fried, University of Miami undergraduate research (spring 2010)
 Justin DiDonato, University of Miami undergraduate research (spring 2010)
 Vincent Guarino, University of Miami undergraduate research (spring 2010)

RESEARCH MENTORING – STUDENT POSTER PRESENTATIONS

Grosman, W.J and T.R. McRae. Effects of age on circadian rhythms in the jumping spider *Menemerus bivittatus*. 2017 Life Sciences South Florida Undergraduate Research Symposium
 Diaz, S. and T.R. McRae. Environmental factors affecting group sizes of *Sciurus carolinensis*. 2011 Annual Biomedical Research Conference for Minority Students, St. Louis, Missouri

TEACHING EXPERIENCE

Natural Sciences and Mathematics Department, Lee University, Cleveland Tennessee

Principles of Biology I, BIOL109
 Principles of Biology I Lab, BIOL109
 Environmental Science, BIOL104
 Environmental Science Lab, BIOL104L

Natural Sciences Department, Broward College, Coconut Creek, Florida

General Biology, BSC1005	Introduction to Biology 2 Lab, BSC2011L
General Biology Lab, BSC1005L	Botany, BOT2010
Introduction to Biology 1, BSC2010	Botany Lab, BOT2010L
Introduction to Biology 1 Lab, BSC2010L	Directed Independent Research, BSC2910
Introduction to Biology 2, BSC2011	

Department of Biology, University of Miami, Coral Gables, Florida

General Biology Lab, BIL 150	Readings in Animal Behavior BIL 371
Evolution and Biodiversity Lab, BIL 160	Invasive Vertebrates of South Florida, BIL 374
Ecology Lab, BIL 236	Projects in Animal Behavior, BIL 495
Ecology Lab, BIL 331	

Teaching Assistant, Biology Department, Cornerstone University, Grand Rapids, Michigan

Introductory Biology	Zoology
Botany	Vertebrate Zoology
Field Ecology	Ornithology
Genetics Lab	

OUTREACH

MAST Academy high school internship mentor (2013-2014)

Provided research training and experience for a local high school student (summer 2012)

National Geographic Society and National Park Service – Biscayne 24-Hour BioBlitz – Demonstrated mammal trapping methods to the public and assisted with wildlife surveys on Elliott Key (2010)

PRESS COVERAGE AND INTERVIEWS

Which Are Smarter, Red Squirrels or Gray Squirrels? Science Weighs In. NationalGeographic.com. (2018)
<https://news.nationalgeographic.com/2018/02/gray-red-squirrel-smarter-intelligence-animals/>

Squirrels Are Hardwired to 'Dance' When a Car's Coming. Howstuffworks.com (2017)

<https://animals.howstuffworks.com/mammals/squirrels-are-hardwired-to-dance-when-cars-coming.htm>

Squirrel Terror, Daily Planet, Discovery Channel Canada (2015)

<http://www.discovery.ca/Video?vid=535370>

Predicting the predator threatening a squirrel by analyzing its sounds and tail movements, ScienceDaily (2014) <http://www.sciencedaily.com/releases/2014/10/141021125943.htm>

Squirrel Alarm Calls Are Surprisingly Complex, Mary Bates, Zoologic, WIRED Science Blogs (2014)

<http://www.wired.com/2014/06/squirrel-alarm-calls-are-surprisingly-complex/>

PROFESSIONAL SERVICE

Title III Committee, NASCM Department, Lee University (2018)

Reviewer for Behaviour (2018)

Judge for Alpha Chi Academic Showcase, Lee University (2018)

Poster symposium Committee, NASCM Department, Lee University (2017-2018)

Judge – Life Sciences South Florida Undergraduate Research Symposium (2017)

Reviewer for American Midland Naturalist (2017)

Community College Undergraduate Research Initiative (CCURI) - Broward College team (2016-2017)

Reviewer for Behavioral Ecology (2016)

Poster Judge – Life Sciences South Florida STEM Undergraduate Research Symposium (2016)

Honors Committee, Broward College (2015-2016)

Classroom Research Award Committee, Broward College (2014-2016)

Classroom Research Award Committee, Broward College (2014-2016)

Professional Development Presenter, Technologies to Increase Student Success – Broward College (2015)

North Campus Honors Committee – Broward College (2013-2015)

Reviewer for Behavioral Ecology (2014)

Reviewer for Wildlife in Practice (2014)

Professional Development Day presenter with Dr. David Perdian, Cell Phones as Clickers – Broward College (2014)

Reviewer for The Southeastern Naturalist (2012)

President, Biology Graduate Students Association – Department of Biology, University of Miami, Coral Gables, Florida (2011-2012)

Poster judge, 3rd Annual Graduate Symposium – Department of Biology, University of Miami, Coral Gables, Florida (2012)

Vice President, Biology Graduate Students Association – Department of Biology, University of Miami, Coral Gables, Florida (2010-2011)

Graduate Academic Affairs Committee – Department of Biology, University of Miami, Coral Gables, Florida (2007-2009)

Substantially rewrote curriculum for Ecology Laboratory – Department of Biology, University of Miami, Coral Gables, Florida (2008-2010)

Designed and taught an undergraduate course on invasive vertebrates with fellow graduate student Dennis Wasko – Department of Biology, University of Miami, Coral Gables, Florida (2008)

CERTIFICATIONS

Chemical Immobilization of Animals Certification, Safe-Capture International (2006)
Naturalist Certificate, Au Sable Institute of Environmental Studies, Mancelona, Michigan (2003)

PROFESSIONAL DEVELOPMENT

Incorporating Environmental DNA (eDNA) into a Project – workshop at ESA meeting (2018)
Data Visualization Using R and ggplot – workshop at ESA meeting (2016)
Working with Time Series Data in Text Formats in R, run by NEON and Data Carpentry – workshop at ESA meeting (2016)
How to Set Up Automated Sensors Arrays for Measuring Micro-Environmental Characteristics and Synthesize to Larger Scales – workshop at ESA meeting (2016)
QEP Emerging Scholar – Broward College (2015-2016)
New and Continuing National Science Foundation Funding Opportunities for Students, Teachers, Postdocs, and Researchers – workshop at ESA meeting in Austin, Texas (2011)
Funding Challenges and Opportunities for Ecological Research at Undergraduate Institutions – workshop at ESA meeting in Austin, Texas (2011)
Career Skills Workshop: Survival Skills for Scientists II – Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, Miami, Florida (2011)
Career Skills Workshop: Survival Skills for Scientists – Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, Miami, Florida (2007)

RECENT MEETINGS

Ecological Society of America 103rd Annual Meeting, August 5-10, 2018, New Orleans, Louisiana
Ecological Society of America 101st Annual Meeting, August 6-12, 2016, Ft. Lauderdale, Florida
Fairchild Tropical Biology Symposium, February 22, 2015, Fairchild Tropical Botanic Garden, Coral Gables, Florida
International Society for Behavioral Ecology, July 31-August 5, 2014, New York, New York
Fairchild Symposium on Tropical Biology, January 12, 2014, Fairchild Tropical Botanic Garden, Coral Gables, Florida
Animal Behavior Society 50th Annual Meeting, July 28-August 1, 2013, Boulder, Colorado
Fairchild Symposium on Tropical Biology, December 2, 2012, Fairchild Tropical Botanic Garden, Coral Gables, Florida
Ecological Society of America 97th Annual Meeting, August 5-10, 2012, Portland, Oregon
Animal Behavior Society 49th Annual Meeting, June 10-14, 2012, Albuquerque, New Mexico
Fairchild Symposium on Tropical Biology, February 18, 2012, Fairchild Tropical Botanic Garden, Coral Gables, Florida
Ecological Society of America 96th Annual Meeting, August 7-12, 2011, Austin, Texas
Behavior 2011, Joint meeting of the Animal Behavior Society & International Ethological Conference, July 25-30, 2011, Bloomington, Indiana

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science (2008-2018)
Animal Behavior Society (2008-present)
Ecological Society of America (2011-present)
International Society for Behavioral Ecology (2011-present)
Sigma Xi (2011-present)