

Justin P. Lawrence

Department of Biology
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Education

- 2018 University of Mississippi
 Ph.D. in Biology
 Advisor: Brice Noonan
 Impacts and Implications of Polytypism on the Evolution of Aposematic Coloration
- 2011 Michigan State University
 M.S. in Fisheries and Wildlife
 Co-Advisors: Gerald Urquhart and Kelly Millenbah
 The Diversity, Distribution, and Conservation of a Polymorphic Frog (Oophaga pumilio) in Western Panama
- 2006 Michigan State University
 B.S. in Zoology – Magna cum laude

Peer-Reviewed Publications

- Bosque, R.J., **J.P. Lawrence**, R. Buchholz, G.R. Colli, J. Heppard, and B.P. Noonan. 2018. Diversity of warning signal and social interaction influences the evolution of imperfect mimicry. Accepted at *Ecology and Evolution*.
- Lawrence, J.P.**, M. Mahony, and B.P. Noonan. 2018. Differential responses of avian and mammalian predators to phenotypic variation in Australian Brood Frogs. *PLoS ONE* 13 (4) e0195446.
- Lawrence, J.P.** and B.P. Noonan. 2018. Avian learning favors colorful, not luminous, signals. *PLoS ONE* 13 (3): e0194279.
- Lawrence, J.P.** 2017. *Hypsiboas cinerascens* predation. *Herpetological Review* 48 (2): 409.
- Lawrence, J.P.** 2017. Ineffectiveness of call surveys for estimating population size in a widespread Neotropical frog, *Oophaga pumilio*. *Journal of Herpetology* 51:52-57.
- Lawrence, J.P.** 2011. *Oophaga pumilio* (Strawberry Dart Frog) habitat use. *Herpetological Review* 42: 90.

In Review and In Prep

*Undergraduate Author

- Kelly, M.B.J.*, G. Taylor-Dalton*, **J.P. Lawrence**, P.G. Byrne, and K.D.L. Umbers. 2018. Warning colors, camouflage and decoys as tactics to enhance the survival of reintroduced southern corroboree frogs in the Australian Alps. In review at *Biological Conservation*.
- Lawrence, J.P.** 2018. Variable conservation of morphological features in a polytypic frog (*Oophaga pumilio*). In review at *PeerJ*.

- Lawrence, J.P.** 2018. Population estimates and spatial distributions of *Oophaga pumilio* in a forest edge landscape and implications for conservation. In review at *Phyllomedusa*.
- Lawrence, J.P.** and G.R. Urquhart. 2018. Demographic responses in a population of the Strawberry Poison Frog (*Oophaga pumilio*) after resource manipulations. *In prep.*
- Lawrence, J.P.**, B. Rojas, A. Fouquet, J. Mappes, A. Blanchette, R.A. Saporito, R.J. Bosque, E.A. Courtois, and B. Noonan. 2018. Weak warning signals can persist in the absence of gene flow. *In prep.*

Grants and Fellowships (\$45,025)

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| 2016 | Endeavour Research Fellowship, \$17910 |
| 2015 | North American Nature Photography Association College Scholarship, \$1000
National Science Foundation East Asia and Pacific Summer Institutes Fellowship, \$10965 |
| 2013 | Smithsonian Tropical Research Institute A. Stanley Rand Fellowship, \$3100
Society for the Study of Amphibians and Reptiles Grant in Herpetology, \$500
University of Mississippi Graduate Student Council Research Grant, \$1000 |
| 2012 | American Society of Ichthyologists and Herpetologists Gaige Award, \$500
University of Mississippi Summer Research Assistantship, \$2600 |
| 2011 | Michigan State University Graduate School Travel Funding Fellowship, \$350
Michigan State University Fisheries and Wildlife Graduate Student Organization Travel Fellowship, \$100 |
| 2010 | Michigan State University Graduate School Research Extension Fellowship, \$1000 |
| 2009 | Michigan State University College of Agriculture and Natural Resources Summer Research Fellowship, \$6000 |

Conference Talks

*Speaker

- Lawrence, J.P.***, B. Rojas, A. Fouquet, J. Mappes, A. Blanchette, R.A. Saporito, R.J. Bosque, and B. Noonan. Evolution and origin of polymorphism in aposematic species. Evolution 2017, Portland, Oregon.
- Lawrence, J.P.***, B. Rojas, A. Fouquet, R.J. Bosque, E.A. Courtois, J. Mappes, and B. Noonan. 2016. Aposematic signal optimization in a polytypic species. Australian Society of Herpetologists Meeting 2016, Launceston, Tasmania, Australia.
- Lawrence, J.P.***, B. Rojas, A. Fouquet, E.A. Courtois, J. Mappes, and B. Noonan. 2015. Directional Selection on Color in the Dyeing Poison Frog, *Dendrobates tinctorius*. Behaviour 2015, Cairns, Queensland, Australia.
- Lawrence, J.P.***, B. Rojas, A. Fouquet, E.A. Courtois, J. Mappes, and B. Noonan. 2014. Directional Selection on Color in the Dyeing Poison Frog, *Dendrobates tinctorius*. Evolution 2014, Raleigh, North Carolina.

Lawrence, J.P.* 2011. The Diversity, Distribution, and Conservation of a Polymorphic Frog (*Oophaga pumilio*) in Western Panama. Michigan Amphibian and Reptile Research Symposium, Central Michigan University.

Lawrence, J.P.* 2010. Conservation of a Polymorphic Frog. Michigan Amphibian and Reptile Research Symposium, University of Michigan – Flint.

Lawrence, J.P.* 2010. Conservation of a Polymorphic Frog in Western Panama. Michigan State University Fisheries and Wildlife GSO Symposium. Michigan State University.

Lawrence, J.P.* 2009. Conservation of a Polymorphic Frog. Michigan Amphibian and Reptile Research Symposium. Michigan State University.

Poster Presentations

*Presenter

Lawrence, J.P.*, M. Mahony, and B.P. Noonan. 2018. Differential responses of avian and mammalian predators to phenotypic variation in Australian Brood Frogs. Early Career Scientists Symposium. Ann Arbor, Michigan.

Kelly, M.B.J.*, G. Taylor-Dalton, **J.P. Lawrence**, P.G. Byrne, and K.D.L. Umbers. 2016. Does the spectacular colouration protect the Southern Corroboree Frog, *Pseudophryne corroboree*, from predation? Australasian Society for the Study of Animal Behaviour Meeting. Katoomba, New South Wales, Australia.

Lawrence, J.P.*, B. Rojas, A. Fouquet, E.A. Courtois, J. Mappes, and B. Noonan. 2014. Directional Selection in the Dyeing Poison Frog (*Dendrobates tinctorius*). University of Mississippi Graduate Research Symposium. Oxford, Mississippi.

Lawrence, J.P.* and G.R. Urquhart. 2011. Population Demographic Changes Due to Addition of Artificial Rearing Sites in the Strawberry Poison Dart Frog (*Oophaga pumilio*). Joint Meeting of Ichthyologists and Herpetologists. Minneapolis, Minnesota.

Lawrence, J.P.* 2009. Conservation of a Polymorphic Frog (Dendrobatidae: *Oophaga pumilio*) in Western Panama. Michigan State University Fisheries and Wildlife GSO Symposium. East Lansing, Michigan.

Awards and Honors

2018 Science Communication Workshop Award Recipient
International Wildlife Film Festival, Missoula, Montana

2017 Hamilton Symposium Award Finalist
Evolution 2017 Conference
Graduate Student Achievement Award
University of Mississippi

2016 Runner-up for Talk Given by PhD Student
2016 Australian Society of Herpetologists Meeting

2014 First Place Poster
University of Mississippi Research Symposium

Teaching Experience

University of Mississippi

- 2011-2018 *Lab Coordinator, Genetics (BISC 336) – 2 Semesters*
Created lab modules, exams, quizzes, syllabi, and assignments for ~430 students while supervising 5 graduate teaching assistants. Designed bacording lab to explore concepts of sequencing and phylogenetic trees.
- Teaching Assistant, Genetics (BISC 336) – 10 Semesters*
Sophomore-Junior level course teaching Mendelian, Molecular, and Population genetics.
- Teaching Assistant, Biological Science I Laboratory (BISC 161) – 1 Semester*
Freshmen level course for introductory biology including statistics, ecology, and genetics. Created presentations and graded material.

Michigan State University

- 2005-2012 *Course Instructor, Environmental Studies in Costa Rica (NSC 475, NSC 491, ZOL 490, ZOL 494) – 2 Programs*
Junior-Senior level study abroad program that covered tropical ecology and biodiversity and the environmental issues facing tropical countries with a particular focus on Costa Rica. Created syllabus and graded material.
- Course Instructor, Wild Borneo! Biodiversity in Southeast Asia (NSC 490, NSC 491) – 1 Program*
Junior-Senior level study abroad program that covered tropical ecology and biodiversity of southeast Asia, focusing on Borneo. Responsible for creating syllabus and graded material.
- Teaching Assistant, Wild Borneo! Biodiversity in Southeast Asia (NSC 490, NSC 491) – 1 Program*
Junior-Senior level study abroad program that covered tropical ecology and biodiversity of southeast Asia, focusing on Borneo.
- Teaching Assistant, Environmental Studies in Costa Rica (NSC 490, NSC 491) – 2 Programs*
Junior-Senior level study abroad program that covered tropical ecology and biodiversity and the environmental issues facing tropical countries with a particular focus on Costa Rica.
- Teaching Assistant, Tropical Biodiversity and Conservation in Panama (LB 493) – 2 Programs*
Upperclassmen study abroad program that used scientific observation to teach tropical biology in lowland tropical rainforest and high elevation cloud forest.
- Teaching Assistant, Biology of Amphibians and Reptiles (ZOL 384) – 4 Semesters*
Junior-Senior level course for biology of amphibians and reptiles, which included taxonomy, evolutionary history, and species identification.
- Teaching Assistant, Introductory Biology (LB 144) – 7 Semesters*
Freshmen level course for introductory biology including ecology, genetics, evolution, and comparative biology.

Mentor Experience

André Smith – University of Mississippi (2017 – present). Dietary specialization in the Dyeing Poison Frog (*Dendrobates tinctorius*). University of Mississippi Track-1 Summer Research Fellowship. Currently an undergraduate.

Alex Oliveri – University of Mississippi (2018 – present). Predator learning of automimicry signals. Currently an undergraduate.

Peter Andes – University of Mississippi (2017 – present). Invertebrate response to alkaloid toxins in the Dyeing Poison Frog (*Dendrobates tinctorius*). 2018 graduate, pursuing graduate schools.

Matthew McPherson – University of Mississippi (2018 – present). Predator learning of automimicry signals. Currently an undergraduate.

Matthew Amann – University of Mississippi (2015 – 2016). Toxin variation in the Dyeing Poison Frog (*Dendrobates tinctorius*). 2017 graduate.

Winston Wolters – University of Mississippi (2015 – 2016). Toxin variation in the Dyeing Poison Frog (*Dendrobates tinctorius*). 2016 graduate.

Michael Kelly – Western Sydney University (2016). Conservation of the southern corroboree frog (*Pseudophryne corroboree*). 2016 graduate, current masters student at University of Sydney.

Griffin Taylor-Dalton – Western Sydney University (2016). Conservation of the southern corroboree frog (*Pseudophryne corroboree*). 2017 graduate.

John Constan – Michigan State University (2013). Predator responses to known and novel phenotypes in the Dyeing Poison Frog (*Dendrobates tinctorius*). 2013 graduate, currently pursuing medical degree at Michigan State University.

Tim Muhich – Michigan State University (2011 – 2013). Demographic responses to resource manipulations in the Strawberry Poison Frog (*Oophaga pumilio*). 2012 graduate, currently teaching high school.

Keith Erickson – Michigan State University (2010). Population dynamics of the Strawberry Poison Frog (*Oophaga pumilio*). 2012 graduate of Arapahoe Community College.

Isaac Standish – Michigan State University (2010). Population dynamics of the Strawberry Poison Frog (*Oophaga pumilio*). 2011 B.S. graduate and 2016 Ph.D. graduate from Michigan State University.

Guest Lectures

2018	<i>Population and Evolutionary Genetics</i> Genetics (BISC 336), University of Mississippi
2011	<i>Introduction to Ecology and Biomes</i> Introductory Biology (LB 144), Michigan State University
2010	<i>Neotropical Herpetofauna Trends and Threats</i> Biology of Amphibians and Reptiles (ZOL 384), Michigan State University
2009	<i>Neotropical Herpetofauna Trends and Threats</i> Biology of Amphibians and Reptiles (ZOL 384), Michigan State University

Conservation Biology and Restoration Ecology
Introductory Biology (LB 144), Michigan State University

Threats to Amphibian Diversity
Introductory Biology (LB 144), Michigan State University

2008 *Neotropical Herpetofauna Trends and Threats*
Biology of Amphibians and Reptiles (ZOL 384), Michigan State University

2007 *Neotropical Herpetofauna Trends and Threats*
Biology of Amphibians and Reptiles (ZOL 384), Michigan State University

Service and Outreach

Outreach Presentations *Tracking Snow*. 2018. Science communication film for the U.S. Forest Service and the International Wildlife Film Festival. Missoula, Montana.

Meet Your Neighbours Photography Techniques. 2017. North American Nature Photography Association High School Scholarship Program. Great Smoky Mountains National Park, Tennessee.

The Overlooked Majority: Highlighting Salamander Diversity in the U.S. 2017. North American Nature Photography Association Summit, Jacksonville, Florida.

Conservation of a Polymorphic Frog. 2010. Smithsonian Tropical Research Institute, Bocas del Toro, Panama.

Conservation of a Polymorphic Frog. 2009. Smithsonian Tropical Research Institute, Bocas del Toro, Panama.

Amphibian Conservation: The Global Amphibian Crisis. 2008. Potter Park Zoo, Lansing, Michigan.

Reviewer Amphibia-Reptilia (1), Copeia (1), Evolution (1), Herpetological Conservation and Biology (1), Hydrobiologia (1)

Professional Organizations

Australian Society of Herpetologists
American Society of Ichthyologists and
Herpetologists
Herpetologists' League

Society for the Study of Evolution
Society for the Study of Amphibians and
Reptiles

References

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PhD Advisor

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Masters Advisor

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Australian mentor for Endeavour Fellowship

Bibiana Rojas
Centre of Excellence in Biological
Interactions
University of Jyväskylä, Finland
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Collaborator with *D. tinctorius* projects