

Zachery D. Zbinden

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22 October 2019

EDUCATION OVERVIEW

University of Arkansas	PhD, Biology , 2016 to present Dr. Marlis R. Douglas
University of Oklahoma	MSc, Biology , 2016 Dr. William J. Matthews
University of Pittsburgh	BSc, Ecology and Evolution , 2013 Dr. Rick A. Relyea

CURRENT PROJECTS

Project Leader Community Genomics of Ozark Fishes	Comparative population genetics and modelling variability in population connectivity
Research Assistant Landscape Genetics of Deer to predict Chronic Wasting Disease Spread	Modelling the spread of CWD using landscape genetics to inform resistance surfaces
Research Assistant Population Genetics of Invasive Brown Tree Snake	Estimate parental offspring relationships following species suppression (USGS)
Collaborator Phylogenetics of Ozark darters	Using ultra-conserved elements to better resolve phylogenetic relationships
Collaborator Ecology and phylogeography of Himalayan fish of Bhutan	Provide expertise in the field in Bhutan, the laboratory, and with statistical analyses

PAST RESEARCH EXPERIENCE

Research Assistant Univ. of Oklahoma Dr. Richard Broughton Summer 2016	Led field expeditions to collect Prairie Chub for population genetic analysis
Research Assistant Oklahoma Biological Survey Dr. Caryn Vaughn Summer 2016	Fish biologist for NSF-funded project examining relationship between fish and mussels
Project Leader Univ. of Oklahoma Dr. William J. Matthews Aug. 2013 to Aug. 2016	Fish collecting and environmental surveys at 160 locations across three river drainages (ODWC)

CONTINUED

Research Assistant | Sam Noble Museum of Natural History | Dr. Edie Marsh-Matthews | July 2013
Collaboration with Great Plains Landscape Conservation Cooperative to assess historical and contemporary populations of Arkansas River Shiner

Lab Technician | Univ. of Pittsburgh | Dr. Vernon Twombly | Sept. 2012 to June 2013
Lab maintenance, cleaning, and organization, DNA extraction, reagent prep

Research Assistant | Pymatuning Laboratory of Ecology | Dr. Rick Relyea | May 2011 to Aug. 2013
Sampled aquatic invertebrates and amphibians, assisted with toxicology experiments

TEACHING EXPERIENCE

Global Change Biology | Discussion Section Leader | Univ. of Arkansas | Spring 2017, 2018
Upper-level seminar with emphasis on debate and argumentative essay writing.
Duties: moderating discussion, essay critique and grading.

Principles of Biology | Lab Instructor | Univ. of Arkansas | Fall 2016, 2017
Introductory laboratory course for non-majors.
Duties: lectures, monitoring lab activities, grading, exam design.

Zoology | Lab Instructor | Univ. of Oklahoma | Spring 2016
Introduction to organisms and laboratory practice.
Duties: lectures, monitoring experimental design, grading, quiz design.

Ichthyology | Lab Instructor | Univ. of Oklahoma-Fall 2015 | Univ. Arkansas-Spring 2019
Introduction to fish systematics, biology, and ecology.
Duties: curriculum design, lectures, monitoring lab activities, exam design, grading.

Quantitative Biology | Teaching Assistant | Univ. of Oklahoma | Spring 2015
Introductory statistics for Biology majors.
Duties: grading, homework design, led computer lab activities.

Evolution, Ecology and Diversity | Lab Instructor | Univ. of Oklahoma | Spring 2014
Second semester, Introductory Biology laboratory course.
Duties: lectures, monitoring lab activities, grading.

Molecules, Cells and Physiology | Lab Instructor | Univ. of Oklahoma | Fall 2013, 2014
First semester, Introductory Biology laboratory course.
Duties: lectures, monitoring lab activities, grading.

MENTORING EXPERIENCE

McKenna George | Honors Thesis Student | Phylogeography of Ozark darters

Mackenzie Reed | Honors Thesis Student | Phylogeography of common Ozark minnows

Mason Flurry | Lab Volunteer | Population genetics of *Luxilus spp.* in the White River drainage

Kevin Hollar | Honors Thesis Student | Demographic History of White River Stream Fish

SCHOLARLY CONTRIBUTION

Professional Societies:

American Fisheries Society

American Society of Ichthyologists & Herpetologists

Peer review:

The Southwestern Naturalist – since 2015

PLOS One – since 2016

Journal of Biogeography – since 2019

Communications:

1. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, M.E. Douglas. 2019. Community genomics of stream fish: a framework for multi-species, comparative population genetics spanning the White River Basin. – American Fisheries Society, Reno, NV.
2. **Zbinden, Z.D.** 2019. Spatiotemporal dynamics of stream fish assemblages over four decades. – American Fisheries Society, Reno, NV.
3. **Zbinden, Z.D. et al.** 2018. DNA barcoding the Himalayan torrent ichthyofauna of Bhutan. – International Mahseer Conference, Paro, Bhutan
4. **Zbinden, Z.D.** 2018. Micro- and macroevolutionary consequences of dispersal differential among species. –EEB Seminar, University of Arkansas, Fayetteville
5. **Zbinden, Z.D.** and W.J. Matthews. 2017. Beta diversity of stream fish assemblages: partitioning variation between environmental and spatial factors. – Joint Meeting of Ichthyologists and Herpetologists, Austin, TX.
6. **Zbinden, Z.D.**, W.J. Matthews, and E. Marsh-Matthews. 2016. A comparison of fish community structure between Clear Boggy and Muddy Boggy Creeks. – Oklahoma Natural Resource Conference, Oklahoma City, Oklahoma.

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7. **Zbinden, Z.D.**, A. Geheber, W.J. Matthews, and E. Marsh-Matthews. 2015. A contemporary fish survey of the Muddy Boggy Drainage, Southeast Oklahoma, USA. – Joint Meeting of Ichthyologists and Herpetologists, Reno, NV.

Peer-reviewed Publications:

1. **Zbinden, Z.D.** 2020. A Temporal investigation of probabilistic associations among headwater fish species and the role of niche differentiation. *In prep.*
2. **Zbinden, Z.D.** 2020. Temporal dynamics of stream fish assemblages and the role of spatial scale in quantifying change. *Ecology and Evolution*, 10(2): 952-961. <https://doi.org/10.1002/ece3.5954>
3. **Zbinden, Z.D.** and W.J. Matthews. 2017. Beta diversity of stream fish assemblages: partitioning variation between environmental and spatial factors. *Freshwater Biology*, 62(8): 1460-1471. <https://doi.org/10.1111/fwb.12960>

Official Reports:

1. Douglas, M.R., T.K. Chafin, B.T. Martin, **Z.D. Zbinden**, and M.E. Douglas. 2019. White-tailed deer in Arkansas: genetic connectivity and chronic wasting disease susceptibility. *Arkansas Game and Fish Commission Official Report*.
2. Matthews, W.J., E. Marsh-Matthews, and **Z.D. Zbinden**. 2016. Survey of Clear Boggy, Muddy Boggy, Kiamichi and Little River drainages in Oklahoma to determine current distribution and status of fish species of greatest conservation need and potential change in fish communities. *Oklahoma Department of Wildlife-State Wildlife Grant Official Report*.

GRANTS & AWARDS

\$1,000—Doctoral Student Travel Grant, Univ. of Arkansas Graduate College, 2019

\$1,000—Doctoral Student Travel Grant, Univ. of Arkansas Graduate College, 2018

\$1,300—G.T. Johnson Memorial Scholarship in Biological Sciences, Univ. of Arkansas, 2017

\$1,000—Doctoral Student Travel Grant, Univ. of Arkansas Graduate College, 2017

\$88,000—Distinguished Doctoral Fellowship, Univ. of Arkansas Graduate College, 2016-2020.

\$500—Teaching Excellence Award, Univ. of Oklahoma, Dept. of Biology, 2016.

CONTINUED

\$500—L.G. Hill Graduate Excellence Award, Univ. of Oklahoma, Dept. of Biology, 2015.

\$375—L.G. Hill Graduate Excellence Award, Univ. of Oklahoma, Dept. of Biology, 2014.

\$5,000— HHMI Undergraduate Research Fellowship, Univ. of Pittsburgh, Dept. of Biology, 2012.

SERVICE

Committee for Graduate Studies member, Dept. of Biology, Univ. Arkansas, 2020.

REFERENCES

Dr. Marlis Douglas	Professor, University of Arkansas	mrd1@uark.edu
Dr. William Matthews	Emeritus, University of Oklahoma	wmatthews@ou.edu
Dr. Michael Douglas	Professor, University of Arkansas	med1@uark.edu
Dr. Jeremy Beaulieu	Assistant Professor, Univ. Arkansas	jmbeauli@uark.edu
Dr. Adam Siepielski	Associate Professor, Univ. Arkansas	amsiepie@uark.edu
Dr. Rick Relyea	Professor, Rensselaer Poly. Inst.	relyer@rpi.edu