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Zachery D. Zbinden

22 October 2019

EDUCATION OVERVIEW

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

CURRENT PROJECTS

Project Leader | **Community Genomics of Ozark Fishes**

Multi-species population genetics to model variability in population connectivity

Research Assistant | **Landscape Genetics of Deer to predict CWD Spread**

Model effective migration and predict spread of Chronic Wasting Disease (AGFC)

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

PAST RESEARCH EXPERIENCE CONTINUED

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)

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 | Teaching Assistant | Univ. of Arkansas | Spring 2017, 2018
Upper-level seminar with emphasis on debate and argumentative essay writing

Principles of Biology | Lab Instructor | Univ. of Arkansas | Fall 2016, 2017
Introductory laboratory course for non-majors

Zoology | Lab Instructor | Univ. of Oklahoma | Spring 2016
Introduction to organisms and laboratory practice

Ichthyology | Lab Instructor | Univ. of Oklahoma-Fall 2015 | Univ. Arkansas-Spring 2019
Introduction to fish systematics, biology, and ecology

Quantitative Biology | Teaching Assistant | Univ. of Oklahoma | Spring 2015
Introductory statistics for Biology majors

Evolution, Ecology and Diversity | Lab Instructor | Univ. of Oklahoma | Spring 2014
Second semester, Introductory Biology laboratory course

Molecules, Cells and Physiology | Lab Instructor | Univ. of Oklahoma | Fall 2013, 2014
First semester, Introductory Biology laboratory course

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.
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. 2019. Temporal Dynamics of Stream Fish Assemblages and the Role of Spatial Scale in Quantifying Change. In review: *Ecology and Evolution*
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

GRANTS & AWARDS CONTINUED

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

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

\$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.

RELEVANT COURSEWORK

Bachelor of Science

Intro Biology I & II	Intro Chemistry I & II	Organic Chemistry I & II
Ecology	Limnology	Genetics
Animal Behavior	Intro Statistics	Evolution
Population Biology	Biochemistry	Ecology & Evolution Seminar

Master of Science

Quantitative Biology	Advanced Eco & Evo	Multivariate Analysis
Animal Communication	Programming in R	Fundamentals of GIS
Ecological Genetics		

Doctor of Philosophy

Evolutionary Ecology	Principles of Evolution	Programming for Biologists
Cluster Computing	Conservation Genetics	Molecular Phylogenetics

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