

CURRICULUM VITAE
September 2021

ZACHERY D. ZBINDEN

Distinguished Doctoral Fellow, Leggett Chancellor's Fellow, & PhD Candidate
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RESEARCH INTERESTS

community ecology, community genetics, comparative phylogenetics, conservation biology, evolutionary ecology, ichthyology, molecular ecology, riverscape ecology, spatial modelling

EDUCATION

Ph.D., Biology, University of Arkansas, Fayetteville, AR (exp) 2022
Committee: Adam Siepielski, Jeremy Beaulieu, Michael Douglas, Marlis Douglas (Chair)

M.S., Biology, University of Oklahoma, Norman, OK 2016
Committee: Caryn Vaughn, Edie Marsh-Matthews, William Matthews (Chair)

B.S., Ecology & Evolution, University of Pittsburgh, Pittsburgh, PA 2013

RESEARCH APPOINTMENTS

Graduate Research Assistant–Genomic Diversity in Smallmouth Bass 2021
PIs: Marlis Douglas & Michael Douglas (Univ. of Arkansas)

Graduate Research Assistant–Genetic Connectivity & Chronic Wasting Disease in Deer 2019-2020
PIs: Marlis Douglas & Michael Douglas (Univ. of Arkansas)

Project Leader–White River Fish Comparative Population Genetics 2017-2022
PIs: Marlis Douglas & Michael Douglas (Univ. of Arkansas)

Graduate Research Assistant–Population Genetics of Prairie Chub 2016
PI: Richard Broughton (Univ. of Oklahoma)

Graduate Research Assistant–Freshwater Mussel and Fish Community Interactions 2016
PI: Caryn Vaughn (Oklahoma Biological Survey)

Project Leader–Fish Survey of SE Oklahoma 2013-2016
PIs: William Matthews & Edie Marsh-Matthews (Univ. of Oklahoma)

Undergraduate Research Assistant–Ecotoxicology of wetland ecosystems 2011-2013
PI: Rick Relyea (Pymatuning Laboratory of Ecology, Univ. of Pittsburgh)

PEER-REVIEWED PUBLICATIONS

- 11) R.W. Nairn, W.J. Matthews, N.L. Shepherd, **Z.D. Zbinden**, A.D. Geheber. *In prep.* Success at a Superfund site: fish assemblages recover following legacy mining contaminant via passive wetland treatment in Tar Creek, Oklahoma.
- 10) **Z.D. Zbinden**, Chafin, T.K., M.R. Douglas, M.E. Douglas. *In prep.* Hybridization between fish species in nature: a multispecies population genomic examination.
- 9) **Z.D. Zbinden**, Chafin, T.K., M.R. Douglas B.T. Martin, C.M. Middaugh, C. Gray, J. Ballard, M.E. Douglas. *In prep.* Environmental factors shape patterns of population genetic divergence in white-tailed deer.
- 8) Regmi, B., M.R. Douglas, D.R. Edds, K. Wangchuk, C. Lu, G. Prasad Khanal, P. Norbu, S. Norbu, S. Dorji, S. Tshering, Z. Angel, T.K. Chafin, **Z.D. Zbinden**, M.E. Douglas. *In review.* Did the Himalayan uplift drive evolution of aquatic biodiversity across Asia? Snowtrout (Cyprinidae: *Shizothorax*) as a test case.
- 7) **Zbinden, Z.D.**, A.D. Geheber, R.J. Lehrter, W.J. Matthews. *In review.* Multifaceted assessment of stream fish alpha and beta diversity using spatial models.
- 6) **Zbinden, Z.D.**, A.D. Geheber, W.J. Matthews, E. Marsh-Matthews. *In press.* Fish communities, species of greatest conservation need, and potential protected areas in southeastern Oklahoma, 2014-2016. *Proceedings of the Oklahoma Academy of Science*.
- 5) Chafin, T.K., **Z.D. Zbinden**, M.R. Douglas B.T. Martin, C.M. Middaugh, C. Gray, J. Ballard, M.E. Douglas. 2021. Spatial population genetics in heavily managed species: separating patterns of historical translocation from contemporary gene flow in white-tailed deer. *Evolutionary Applications*, 14(6): 1673-1689. <https://doi.org/10.1111/eva.13233>
- 4) **Zbinden, Z.D.** 2021. A needle in the haystack? Applying species co-occurrence frameworks with fish assemblage data to identify species associations and sharpen ecological hypotheses. *Journal of Fish Biology*, 2021;00:1-13. <https://doi.org/10.1111/jfb.14752>
- 3) Chafin, T.K., M.R. Douglas, B.T. Martin, **Z.D. Zbinden**, C.M. Middaugh, J. Ballard, C. Gray, M.E. Douglas. 2020. Age structuring and spatial heterogeneity in prion protein gene (*PRNP*) polymorphism in Arkansas white-tailed deer. *Prion*, 14(1): 238-248. <https://doi.org/10.1080/19336896.2020.1832947>
- 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>
- 1) **Zbinden, Z.D.**, 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>

TECHNICAL REPORTS

- 2) Douglas, M.R., T.K. Chafin, **Z.D. Zbinden**, B.T. Martin, and M.E. Douglas. 2019. White-tailed deer in Arkansas: genetic connectivity and chronic wasting disease susceptibility. *Arkansas Game and Fish Commission Official Report*.
- 1) 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 Conservation Official Report*.

GENERAL AUDIENCE ARTICLES (NOT PEER-REVIEWED)

- 1) **Zbinden, Z.D.** 2021. With great diversity comes great responsibility: what we can do to better archive the rich biodiversity of Arkansas. *University of Arkansas Museum Campus Contributors*. <https://uamuseum.uark.edu/with-great-diversity-comes-great-responsibility/>

PRESENTATIONS

- 8) **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, M.E. Douglas. 2020. A comparative population genetic approach for testing traits associated with variation in population connectivity across species in the White River Basin. Southern Division American Fisheries Society, Little Rock, AR.
- 7) **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, M.E. Douglas. 2019. Community genomics of stream fish: multi-species, comparative population genetics spanning the White River Basin. American Fisheries Society, Reno, NV.
- 6) **Zbinden, Z.D.** 2019. Spatiotemporal dynamics of stream fish assemblages over four decades. American Fisheries Society, Reno, NV.
- 5) **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, AR.
- 3) **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.
- 2) **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, OK.
- 1) **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.

TEACHING APPOINTMENTS

Conservation Genetics–Computer Lab Instructor, Univ. of Arkansas	2020
Global Change Biology–Recitation Leader, Univ. of Arkansas	2017, '18
Principles of Biology–Lab Instructor, Univ. of Arkansas	2016, '17, '20
Zoology–Lab Instructor, Univ. of Oklahoma	2016
Ichthyology–Lab Instructor, Univ. Oklahoma/Univ. of Arkansas	2015, '19, '21
Quantitative Biology–Teaching Assistant, University of Oklahoma	2015
Evolution, Ecology and Diversity–Lab Instructor, University of Oklahoma	2014
Molecules, Cells and Physiology–Lab Instructor, University of Oklahoma	2013, '14

UNDERGRADUATE STUDENTS MENTORED

Kevin Hollar, honors thesis: Population structure of rainbow darter (*Etheostoma caeruleum*)
 Mackenzie Reed, honors thesis: Population genetics of common Ozark minnows
 Mason Flurry, undergraduate intern
 McKenna George, honors thesis: Phylogeography of Ozark darters

FELLOWSHIPS, GRANTS & AWARDS

Leggett Chancellor's Fellowship (\$48,000) Univ. of Arkansas Graduate College	2020
Jimmie Pigg Student Achievement Award (\$275) American Fisheries Society	2020
G.T. Johnson Memorial Scholarship (\$2,300) Univ. of Arkansas, Dept. Biology	2017
Distinguished Doctoral Fellowship (\$88,000) Univ. of Arkansas Graduate College	2016
Teaching Excellence Award (\$500) Univ. of Oklahoma, Dept. Biology	2016
L.G. Hill Graduate Excellence Award (\$500) Univ. of Oklahoma, Dept. Biology	2015
L.G. Hill Graduate Excellence Award (\$500) Univ. of Oklahoma, Dept. Biology	2014
HHMI Research Fellowship (\$5,000), Univ. of Pittsburgh, Dept. Biology	2012

PROFESSIONAL SERVICE

Committee for Graduate Studies, Univ. of Arkansas, Dept. Biology	2020
Museum Advisory Council, Univ. of Arkansas	2020-2021
Fundraising sub-committee Chair, Museum Advisory Council, Univ. of Arkansas	2020-2021
Founder and President of Ecology Club, Univ. of Pittsburgh	2012-2013
Reviewer for: <i>Biological Conservation</i> , <i>Diversity & Distributions</i> , <i>Ecology & Evolution</i> , <i>Journal of Biogeography</i> , <i>PLOS One</i> , <i>Southwestern Naturalist</i>	

PROFESSIONAL SOCIETIES

Ecological Society of America
 Society for Conservation Biology
 The American Society of Naturalists

Society for the Study of Evolution
American Fisheries Society
American Society of Ichthyologists & Herpetologists

REFERENCES

Dr. Marlis Douglas	Professor & Endowed Chair, Univ. of Arkansas	mrd1@uark.edu
Dr. William Matthews	Professor Emeritus, Univ. of Oklahoma	wmatthews@ou.edu
Dr. Jeremy Beaulieu	Associate Professor, Univ. of Arkansas	jmbeauli@uark.edu
Dr. Adam Siepielski	Associate Professor, Univ. of Arkansas	amsiepie@uark.edu
Dr. Michael Douglas	Professor & Endowed Chair, Univ. of Arkansas	med1@uark.edu