

CURRICULUM VITAE  
September 2021

**ZACHERY D. ZBINDEN**

Leggett Chancellor's Fellow & PhD Candidate  
Department of Biological Sciences, University of Arkansas

Science and Engineering Hall - 850 W. Dickson St., Room 601, Fayetteville, AR 72701  
zdzbinde@uark.edu • <https://zdzbinden.github.io>

**RESEARCH INTERESTS**

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

**EDUCATION**

2022 (exp) Ph.D., Biology, University of Arkansas, Fayetteville, AR  
2016 M.S., Biology, University of Oklahoma, Norman, OK  
2013 B.S., Ecology & Evolution, University of Pittsburgh, Pittsburgh, PA

**RESEARCH APPOINTMENTS**

2021- Graduate Research Assistant–Genomic Diversity in Smallmouth Bass  
PIs: Marlis Douglas & Michael Douglas, UA  
2019-2020 Graduate Research Assistant–Genetic Connectivity & Chronic Wasting Disease in Deer  
PIs: Marlis Douglas & Michael Douglas, UA  
2017- Project Leader–White River Fish Comparative Population Genetics  
PIs: Marlis Douglas & Michael Douglas, UA  
2016 Graduate Research Assistant–Population Genetics of Prairie Chub  
PI: Richard Broughton, OU  
2016 Graduate Research Assistant–Freshwater Mussel and Fish Community Interactions  
PI: Caryn Vaughn, OU Biological Survey  
2013-2016 Project Leader–Fish Survey of Southeastern Oklahoma (SWG)  
PIs: William Matthews & Edie Marsh-Matthews, OU  
2011-2013 Undergraduate Research Assistant–Ecotoxicology of wetland ecosystems  
PI: Rick Relyea, Pymatuning Laboratory of Ecology, Pitt

## 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. *Invited for resubmission.* Multifaceted assessment of stream fish alpha and beta diversity using spatial models. *Hydrobiologia*.
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

9. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, M.E. Douglas. *Upcoming 2021*. Hybridization between fish species in nature: A multispecies population genomic examination. American Fisheries Society, Baltimore, MD.
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

### *University of Arkansas*

2020	Conservation Genetics–Computer Lab Instructor (senior/graduate level)
2019-2021	Ichthyology–Lab Instructor (senior/graduate level)
2017-2018	Global Change Biology–Recitation Leader (senior level)
2016-2020	Principles of Biology–Lab Instructor (freshman level, non-majors)

### *University of Oklahoma*

2016	Zoology–Lab Instructor (freshman level, non-majors)
2015	Ichthyology–Lab Instructor (senior/graduate level)
2015	Quantitative Biology–Teaching Assistant (junior/senior level)
2014	Evolution, Ecology and Diversity–Lab Instructor (freshman/sophomore level)
2013-2014	Molecules, Cells and Physiology–Lab Instructor (freshman/sophomore level)

## MENTORED UNDERGRADUATES

2019-2021	<i>Kevin L. Hollar</i> , Honors Student Biological Sciences, UA
2018-2020	<i>Mackenzie L. Reed</i> , Honors Student Biological Sciences, UA
2019-2020	<i>Mason N. Flurry</i> , Undergraduate Student Biological Sciences, UA
2017-2019	<i>McKenna K. George</i> , Honors Student Biological Sciences, UA
2014-2016	<i>Richard J. Lehrter II</i> , Undergraduate Student Biological Sciences, OU

## FELLOWSHIPS & GRANTS

2020-2024	Leggett Chancellor's Fellowship, Arkansas Game and Fish Commission, \$48,000
2016-2020	Distinguished Doctoral Fellowship, UA, \$88,000
2012-2013	Howard Hughes Medical Institute Undergraduate Research Fellowship, Pitt, \$5,000

## AWARDS & HONORS

2020	Jimmie Pigg Student Achievement Award, S. Div. American Fisheries Society, \$1,500
2017	G.T. Johnson Memorial Scholarship Outstanding 1 <sup>st</sup> Year Student, UA, \$2,300
2016	Teaching Excellence Award, OU, \$500
2015	L.G. Hill Graduate Excellence Award, OU, \$500
2014	L.G. Hill Graduate Excellence Award, OU, \$500

## PROFESSIONAL SERVICE

2020-2021     Museum Advisory Council, UA  
2020-2021     Fundraising sub-committee Chair, Museum Advisory Council, UA  
2020             Committee for Graduate Studies, UA, Dept. Biology  
2012-2013     Founder and President of Ecology Club, Pitt

## MANUSCRIPT REVIEW

*Biological Conservation, Diversity & Distributions, Ecology & Evolution, Journal of Biogeography, PLOS One, The Southwestern Naturalist*

## PROFESSIONAL SOCIETIES

*American Fisheries Society* (National, Southern Division, Arkansas, Genetics Section)  
*American Society of Ichthyologists & Herpetologists*  
*Ecological Society of America*  
*Society for Conservation Biology*  
*Society for the Study of Evolution*  
*The American Society of Naturalists*

## 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	jmbaulli@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