

CURRICULUM VITAE
September 2021

ZACHERY D. ZBINDEN

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

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

EDUCATION

2022 (exp.) Ph.D. in Biology, University of Arkansas, Fayetteville, AR. Advisor: Dr. Marlis R. Douglas
2016 M.S. in Biology, University of Oklahoma, Norman, OK. Advisor: Dr. William J. Matthews
2013 B.S. in Ecology & Evolution, University of Pittsburgh, Pittsburgh, PA

RESEARCH APPOINTMENTS

2021– Graduate Research Assistant: Genomic diversity & phylogeography of 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 Lead: Multispecies comparative population genomics of stream fish
PIs: Marlis Douglas & Michael Douglas, UA
2016 Graduate Research Assistant: Population genetics of vulnerable 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 Lead: Fish survey of SE Oklahoma—species of greatest conservation concern
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.* 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	Kevin L. Hollar, Honors Student Biological Sciences, UA
2018–2020	Mackenzie L. Reed, Honors Student Biological Sciences, UA
2019–2020	Mason N. Flurry, Undergraduate Student Biological Sciences, UA
2017–2019	McKenna K. George, Honors Student Biological Sciences, UA
2014–2016	Richard J. Lehrter II, 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 st 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. Michael Douglas	Professor & Endowed Chair, Univ. of Arkansas	med1@uark.edu
Dr. Jeremy Beaulieu	Associate Professor, Univ. of Arkansas	jmbeauli@uark.edu
Dr. Adam Siepielski	Associate Professor, Univ. of Arkansas	amsiepie@uark.edu