

CURRICULUM VITAE
MAY 2022

ZACHERY D. ZBINDEN

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RESEARCH INTERESTS

biogeography, community ecology, conservation genetics, comparative phylogeography, ichthyology, molecular ecology, riverscape community genetics, riverscape ecology, spatial modeling

EDUCATION

2022 Ph.D. in Biology, University of Arkansas, Fayetteville, AR.
2016 M.S. in Biology, University of Oklahoma, Norman, OK.
2013 B.S. in Ecology and Evolution, University of Pittsburgh, Pittsburgh, PA

PROFESSIONAL HISTORY

2017-2022 Graduate Research Assistant, Conservation and Molecular Ecology Lab, U. of Arkansas
2016-2021 Graduate Teaching Assistant, Dept. of Biological Sciences, University of Arkansas
2015-2016 Graduate Research Assistant, Dept. of Biology, University of Oklahoma
2013-2016 Graduate Teaching Assistant, Dept. of Biology, University of Oklahoma
2011-2013 Undergraduate Research Assistant, Pymatuning Lab of Ecology, Univ. of Pittsburgh

PEER-REVIEWED PUBLICATIONS

7. **Zbinden, Z.D.**, A.D. Geheber, R.J. Lehrter, and W.J. Matthews. 2022. Multifaceted assessment of stream fish alpha and beta diversity using spatial models. *Hydrobiologia*, 849: 1795-1820. <https://doi.org/10.1007/s10750-022-04824-w>
6. **Zbinden, Z.D.** 2022. 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*, 100(2): 339-351. <https://doi.org/10.1111/jfb.14752>

5. **Zbinden, Z.D.**, A.D. Geheber, W.J. Matthews, and E. Marsh-Matthews. 2022. Fish communities, species of greatest conservation need, and potential protected areas in southeastern Oklahoma, 2014-2016. *Proceedings of the Oklahoma Academy of Science*, 101: 14-32. <https://ojs.library.okstate.edu/osu/index.php/OAS/article/view/8468>
4. Chafin, T.K., **Z.D. Zbinden**, M.R. Douglas, B.T. Martin, C.M. Middaugh, C. Gray, J. Ballard, and 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>
3. Chafin, T.K., M.R. Douglas, B.T. Martin, **Z.D. Zbinden**, C.M. Middaugh, J. Ballard, C. Gray, and 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.**, 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>

Manuscripts Submitted/In-preparation (available upon request)

6. Wangchuk, K., **Z.D. Zbinden**, S. Tshering. Fish species richness and its relationship with elevation in the eastern Himalayas of Bhutan. In preparation.
5. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, and M.E. Douglas. Traits and relatedness associated with variability of genetic diversity among freshwater fish species of the Ozarks. In preparation.
4. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, and M.E. Douglas. Riverscape community genomics: Intraspecific genetic structure driven by common processes. In preparation.
3. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, and M.E. Douglas. A community genomics approach to natural hybridization. In review.
2. Regmi, B., M.R. Douglas, D.R. Edds, K. Wangchuk, ChangLu, G.P. Khanal, P. Norbu, S. Norbu, S. Dorji, S. Tshering, Z. Angel, T.K. Chafin, **Z.D. Zbinden**, and M.E. Douglas. Did the Himalayan uplift drive evolution of aquatic biodiversity across Asia? Snowtrout (Cyprinidae: *Shizothorax*) as a test case. In review.

1. Shepherd, N.L., W.J. Matthews, A.D. Geheber, **Z.D. Zbinden**, C.M. Tobler, E. Marsh-Matthews, and R.W. Nairn. Re-establishment of fish communities following implementation of ecologically engineered passive treatment systems to remediate mine drainage. In review.

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

15. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, and M.E. Douglas. Upcoming. Riverscape community genomics: Intraspecific genetic structure driven by common processes. American Fisheries Society, Spokane, WA.
14. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, and M.E. Douglas. 2021. Hybridization between fish species in nature: a multispecies population genomic examination. American Fisheries Society, Baltimore, MD.
13. Chafin T.K., **Z.D. Zbinden**, M.R. Douglas, B.T. Martin, C.M. Middaugh, J.R., Ballard, and M.E. Douglas. 2021. "Knowing where you've been:" Genetic signatures of historic translocation in contemporary white-tailed deer. 44th Annual Meeting, Southeast Deer Group (virtual).
12. Douglas, M.R., T.K. Chafin, **Z.D. Zbinden**, B.T. Martin, C.M. Middaugh, J.R., Ballard, and M.E. Douglas. 2021. Prion protein gene variation reveals age structure and spatial heterogeneity in Arkansas white-tailed deer. 44th Annual Meeting, Southeast Deer Group (virtual).
11. Douglas, M.E., M.R. Douglas, T.K. Chafin, **Z.D. Zbinden**, B.T. Martin, C.M. Middaugh, and J.R. Ballard. 2021. Genetic signatures of historic translocation in contemporary North American

white-tailed deer. 150th Jubilee Conference, Kovalevsky Institute, Biology of the Southern Seas, Sevastopol, Crimea.

10. Chafin T.K., **Z.D. Zbinden**, M.R. Douglas, B.T. Martin, C.M. Middaugh, J.R., Ballard, and M.E. Douglas. 2021. Genetic tools for invasive species management: Identifying translocation source and subsequent dispersals. 6th International Symposium: "Alien Species in the Holarctic," Borok, Russia.
9. Douglas, M.E., M.R. Douglas, B. Regmi, D.R. Edds, K. Wangchuk, ChangLu, S. Dorji, G.P. Khanal, P. Norbu, S. Norbu, S. Tshering, Z. Angel, T.K. Chafin, and **Z.D. Zbinden**. 2021. The Himalayan uplift and the evolution of aquatic biodiversity across Asia: Snowtrout (Cyprininae: *Schizothorax*) as a test case. 6th Annual Research Symposium, Bhutan Ecological Society, Thimphu, Bhutan.
8. **Zbinden, Z.D.**, M.R. Douglas, T.K. Chafin, and 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, and 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.D. 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, Univ. of Arkansas
- 2018–2020 Mackenzie L. Reed, Honors Student Biological Sciences, Univ. of Arkansas
- 2019–2020 Mason N. Flurry, Undergraduate Student Biological Sciences, Univ. of Arkansas
- 2017–2019 McKenna K. George, Honors Student Biological Sciences, Univ. of Arkansas
- 2014–2016 Richard J. Lehrter II, Undergraduate Student Biological Sciences, Univ. of Oklahoma

FELLOWSHIPS & GRANTS

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

AWARDS & HONORS

- 2022 Nominated to serve on Board of Governors, American Soc. Ichthyologists and Herpetologists
- 2020 Jimmie Pigg Student Achievement Award, S. Div. American Fisheries Society, \$250
- 2017 G.T. Johnson Memorial Scholarship Outstanding 1st Year Student, Univ. of Arkansas, \$2,300
- 2016 Teaching Excellence Award, Univ. of Oklahoma, \$500
- 2015 L.G. Hill Graduate Excellence Award, Univ. of Oklahoma, \$500
- 2014 L.G. Hill Graduate Excellence Award, Univ. of Oklahoma, \$500

SERVICE

2022	Judge, Undergraduate Research Competition, Univ. of Arkansas
2021-2022	Planning Committee, Univ. of Arkansas, Dept. Biological Sciences
2020-2021	Museum Advisory Council, Univ. of Arkansas
2020-2021	Fundraising Committee Chair, Museum Advisory Council, Univ. of Arkansas
2020-2021	Graduate Studies Committee, Univ. of Arkansas, Dept. Biological Sciences
2012-2013	Founder and President of Ecology Club, Univ. of Pittsburgh

MANUSCRIPT REVIEW

Biological Conservation (1), *Diversity & Distributions* (1), *Ecology & Evolution* (1), *Journal of Biogeography* (1), *PLOS One* (7), *The Southwestern Naturalist* (1)

PROFESSIONAL SOCIETIES

American Fisheries Society (National, Southern Division, Genetics Section, Arkansas Chapter)
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 R. Douglas	Ph.D. Advisor Professor & Endowed Chair, University of Arkansas mrd1@uark.edu
Dr. William J. Matthews	M.S. Advisor Professor Emeritus, University of Oklahoma wmatthews@ou.edu
Dr. Michael E. Douglas	Ph.D. Advisor Professor & Endowed Chair, University of Arkansas med1@uark.edu
Dr. Jeremy M. Beaulieu	Ph.D. Committee member Associate Professor, University of Arkansas jmbeauli@uark.edu