

CURRICULUM VITAE
MARCH 2022

ZACHERY D. ZBINDEN

Leggett Chancellor's Fellow & Ph.D. Candidate
Department of Biological Sciences, University of Arkansas
Science and Engineering Hall – 850 W. Dickson St., Room 601, Fayetteville, AR 72701
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RESEARCH INTERESTS

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

EDUCATION

- 2022 (exp.) 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*, Early access. <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 (available upon request)

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

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 (Virtual).
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 (Virtual).

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. (Virtual).
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

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| 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

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| 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

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| 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

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| 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

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| 2020 | Jimmie Pigg Student Achievement Award, S. Div. American Fisheries Society, \$250 |
| 2017 | G.T. Johnson Memorial Scholarship Outstanding 1 st 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

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| 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
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Dr. Jeremy M. Beaulieu Ph.D. Committee member
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