

Jessica A. Rick

ASSISTANT PROFESSOR, UNIVERSITY OF ARIZONA

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Education

University of Wyoming

Laramie, WY

PHD ECOLOGY

Aug 2016 - May 2022

- Advisor: Dr. Catherine Wagner
- Dissertation: *Population and phylogenomic investigations into Lake Tanganyika's pelagic fishes*

University of Minnesota

Duluth, MN

MS INTEGRATED BIOSCIENCES

Aug 2013 - Dec 2015

- Co-Advisors: Dr. Jared Strasburg, Dr. Ron Moen
- Thesis: *Genetic diversity, structure, and hybridization in a harvested gray wolf (*Canis lupus*) population in Minnesota*

University of Arizona

Tucson, AZ

BS BIOLOGY (ORGANISMAL BIOLOGY) WITH HONORS, *Magna Cum Laude*

Aug 2008 - Aug 2013

- Minors in French, Chemistry
- Research advisor: Dr. Bruce Tabashnik
- Honors thesis: *Integrity of preserved pink bollworm (*Pectinophora gossypiella*) samples for DNA analysis*

Professional Experience

- 2023–Pres **Assistant Professor**, University of Arizona, Tucson, AZ
- 2022–2023 **NSF Postdoctoral Research Fellow in Biology**, Cornell University, Ithaca, NY
- 2021–2022 **Visiting Research Scientist**, Center for Advanced Systems Understanding, Görlitz, Germany
- 2021 **Barkhurst Graduate Fellow**, Office of Graduate Education, University of Wyoming
- 2020–2021 **Data Science Graduate Research Fellow**, University of Wyoming Data Science Center
- 2016–2020 **Graduate Teaching & Research Assistant**, Dept. Botany & LIFE Program, University of Wyoming
- 2018–2019 **NASA Space Grant Graduate Research Fellow**, University of Wyoming
- 2016 **Biological Technician (Wildlife)**, United States Forest Service, Leavenworth, WA
- 2015 **Learning Innovations Teaching Fellow**, University of Minnesota
- 2013–2015 **Graduate Teaching & Research Assistant**, Dept. Biology, University of Minnesota- Duluth
- 2011–2013 **Undergraduate Research Assistant**, Dept. Entomology, University of Arizona
- 2009–2013 **Summer Wilderness Trip Leader**, YMCA Camp Widjiwagan, Ely, MN
- 2008–2010 **Outdoor Trip Leader**, Outdoor Adventures (Campus Recreation), University of Arizona, Tucson, AZ
- 2008, 2011 **Undergraduate Research Assistant**, Dept. Veterinary Sciences, University of Minnesota

Publications

PEER REVIEWED († equal contribution)

Combrink, LL, WC Rosenthal, LJ Boyle, **JA Rick**, EG Mandeville, AC Krist, AW Walters, CE Wagner. 2023. Parallel Shifts in Trout Feeding Morphology Suggest Rapid Adaptation to Alpine Lake Environments. *Evolution*, 77(7): 1522–1538. <https://doi.org/10.1093/evolut/qp4d059>

Rick, JA†, J Junker†, PB McIntyre, I Kimirei, EA Sweke, JB Mosille, C Dinkel, S Mwaiko, O Seehausen, CE Wagner. 2022. The genetic population structure of Lake Tanganyika's *Lates* species flock, an endemic radiation of pelagic top predators. *Journal of Heredity*, 113(2): 145–159. <https://doi.org/10.1093/jhered/esab072>.

Klobucar, SL, **JA Rick**, EG Mandeville, CE Wagner, P Budy. 2021. The morphological and genetic diversity of Arctic char (*Salvelinus alpinus*) populations in foothill lakes of Arctic Alaska. *Ecology and Evolution*, 11: 3040–3057. <https://doi.org/10.1002/ece3.8033>.

- Alston, JM[†], **JA Rick**[†]. 2021. A beginner's guide to conducting reproducible research in ecology, evolution, and conservation. *Bulletin of the Ecological Society of America*, 102(2): 1-14.
- Junker, J[†], **JA Rick**[†], PB McIntyre, I Kimirei, E Sweke, JB Mosille, B Wehrli, C Dinkel, S Mwaiko, O Seehausen, CE Wagner. 2020. Sex differentiation and chromosomal inversions lead to diversity in Lake Tanganyika sardines. *Molecular Ecology*, 29: 3277-3298. <https://doi.org/10.1111/mec.15559>.
- Russell, JM, P Barker, A Cohen, S Ivory, I Kimirei, and 82 other authors including **JA Rick**. 2020. ICDP workshop on the Lake Tanganyika Scientific Drilling Project: a late Miocene–present record of climate, rifting, and ecosystem evolution from the world's oldest tropical lake. *Scientific Drilling*, 27: 53-60. <https://doi.org/10.5194/sd-27-53-2020>.
- Rick, JA**, RA Moen, JD Erb, JL Strasburg. 2017. Population structure and effective gene flow in a newly harvested gray wolf (*Canis lupus*) population. *Conservation Genetics*, 18(5): 1091-1104. <https://doi.org/10.1007/s10592-017-0961-7>.
- Alston, JM, JE Millard, **JA Rick**, BW Husby, LA Mundy. 2017. Observations of noteworthy Northern Spotted Owl (*Strix occidentalis caurina*) nesting behaviors. *Canadian Field Naturalist*, 131:225-227. <http://dx.doi.org/10.22621/cfn.v131i3.1874>.

PRE-PRINTS & IN REVIEW

- Rick, JA**, CD Brock, AL Lewanski, J Golcher-Benavides, CE Wagner. Reference genome choice and filtering pipeline jointly influence phylogenetic analyses. *In review at Systematic Biology*. Available on *bioRxiv* at <https://doi.org/10.1101/2022.03.10.483737>.
- Lewanski, AL, J Golcher-Benavides, **JA Rick**, CE Wagner. Variable hybridization between two Lake Tanganyikan cichlid species in recent secondary contact. *In revision at Molecular Ecology*.

NON-PEER REVIEWED

- Rick, JA**. Jan 2022. *Behind the Science: Genomic investigations of big fish in a really big lake*. Blog post: The American Genetics Association Blog. <https://blog.theaga.org/behind-the-science-genomic-investigations-of-big-fish-in-a-really-big-lake/>
- Rick, JA**. May 2020. *Revealing ancient hybridization's role in diversification*. Blog post: The American Genetics Association Blog. <http://blog.theaga.org/revealing-ancient-hybridizations-role-in-diversification/>
- Rick, JA**. Nov 2018. *Visualizing science: Comics make the -omics more accessible*. Blog post: Engage Laramie Science. <https://engagelaramie.science.blog/2018/11/20/visualizing-science-comics-make-the-omics-more-accessible/>

Awards, Fellowships, & Grants

SELECTED FELLOWSHIPS AND RESEARCH GRANTS

- 2022–2024 **Postdoctoral Research Fellowship in Biology**, National Science Foundation
 2021 **Carlton R. Barkhurst Fellowship**, UW Office of Graduate Education
- 2020–2021 **Data Science Graduate Research Fellowship**, UW Data Science Center
 2020 **Doctoral Augmentation Grant**, UW Office of Graduate Education
Evolutionary, Ecological, and Conservation Genomics Research Award, Am Genetic Assn
- 2019 **Frederic E. Clements Scholarship in Ecology**, Univ of Wyoming Graduate Education
Aven Nelson Fellowship in Systematic Botany, UW Department of Botany
- 2018–2019 **Graduate Research Fellowship**, UW NASA Space Grant Consortium
 2018 **Aven Nelson Fellowship in Systematic Botany**, UW Department of Botany
Women in Conservation Biology, Ecology, and Evolution Fellowship, Univ of Wyoming

- 2017 **Dean's Scholar Award**, UW College of Arts and Sciences
Graduate Student Research Award, Society of Systematic Biologists
Aven Nelson Fellowship in Systematic Botany, UW Department of Botany
W.G. and R. Solheim Memorial Scholarship in Botany, UW Department of Botany
Graduate Student Research Grant, Wyoming Biodiversity Institute
Systematics Fund Award, Society for Freshwater Science
Nielson Scholarship for International Fieldwork, UW Center for Global Studies
- 2016 **Sequencing and Bioinformatic Analysis Grant**, Wyoming INBRE Bioinformatics Core
- 2015 **Learning Innovations Graduate Teaching Fellowship**, University of Minnesota
- 2008–2013 **National Merit Tuition Scholarship**, University of Arizona

AWARDS AND HONORS

- 2021 **Best Student Talk Award**, UW Program in Ecology Symposium
- 2020 **Outstanding Teaching Assistant Award**, UW Botany Department
- 2019 **Travel Award**, UW Botany Department
- 2019 **Travel Award**, UW Program in Ecology
- 2017 **Travel Award**, UW Botany Department
- 2017 **Travel for Training Grant**, Wyoming INBRE Bioinformatics Core
- 2015 **Outstanding Graduate Teaching Assistant**, University of Minnesota- Duluth
- 2015 **Student Travel Grant**, The Wildlife Society
- 2015 **Student Travel Award**, UMD Swenson College of Science and Engineering
- 2015 **Student Travel Grant**, Integrated Biosciences Graduate Program
- 2011 **Study Abroad Travel Grant**, University of Arizona
- 2009–2011 **Hope I. Jones Scholarship**, UA College of Agriculture and Life Sciences
- 2008 **National Merit Commended Scholar**, National Merit Scholarship Corporation

Selected Presentations _____

INVITED TALKS

Spring 2018. *Lake Tanganyika's fishery: A critical natural resource for East Africa*. Invited talk: Wyoming Goes Global Event presented by the UW Center for Global Studies, Laramie, WY.

GUEST LECTURES

Fall 2019. *Sexual selection and the crazy things evolution thinks of*. Guest Lecture, LIFE3500 Evolutionary Biology, Univ of Wyoming.

Fall 2019. *The role of genetic drift in evolution*. Guest Lecture, LIFE3500 Evolutionary Biology, Univ of Wyoming.

Spring 2018. *Shifting Baselines, IUCN, and Lake Victoria's Nile Perch*. Guest Lecture, First Year Seminar Course, Univ of Wyoming.

Fall 2017,2018,2019. *Evolution in the Fossil Record*. Online Guest Lecture, LIFE3500 Evolutionary Biology, Univ of Wyoming.

CONTRIBUTED PRESENTATIONS

Rick, JA, CD Brock, AL Lewanski, J Golcher Benavides, CE Wagner. 2021. Reference genome choice and filtering pipeline jointly influence phylogenetic analyses. Poster presentation: Evolution Meeting, Albuquerque, NM.

Rick, JA, CE Wagner. 2021. Extensive admixture in the history of Lake Tanganyika's predatory species flock. Oral presentation: Evolution Meeting, Virtual.

Rick, JA, CE Wagner. 2021. Extensive admixture in the history of Lake Tanganyika's predatory species flock. Oral presentation (3 Minute Thesis): 10th Annual Program in Ecology Symposium, Laramie, WY (Virtual).

- Rick, JA**, CE Wagner. 2019. Evolutionary history of Lake Tanganyika's *Lates* (Nile perch) species. Oral presentation: Evolution Meeting, Providence, RI.
- Rick, JA**, CD Brock, CE Wagner. 2019. Reference genome choice and filtering pipeline jointly impact phylogenetic analyses. Poster presentation: Evolution Meeting, Providence, RI.
- Rick, JA**. 2019. Uncovering clues about pelagic fish evolution in Lake Tanganyika. Lightning talk: Lake Tanganyika Drilling Project Workshop, Dar es Salaam, Tanzania.
- Rick, JA**. 2018. Evolutionary consequences of demographic history in *Lates* fishes: Insights from the whole genome perspective. Poster: VII Annual Program in Ecology Symposium, Laramie, WY.
- Rick, JA**. 2017. Big fish, big data: Studying the evolution of Lake Tanganyika's *Lates* radiation. Lightning talk: UW Department of Botany, Laramie, WY.
- Rick, JA**. 2017. Evolution and the environment in Lake Tanganyika's *Lates* radiation. Oral presentation: Guild of Rocky Mountain Ecologists and Evolutionary Biologists (GREEBS) Annual Meeting, Nederland, CO.
- Rick, JA**. 2017. Genetic consequences of anthropogenic harvest in a newly harvested gray wolf (*Canis lupus*) population. Oral presentation: VI Annual Program in Ecology Symposium, Laramie, WY.
- Rick, JA**. 2015. Population genetic diversity, structure, and hybridization in the Minnesota wolf population. Departmental seminar: UMD Department of Biology, Duluth, MN.
- Rick, JA**, RA Moen, JD Erb, JL Strasburg. 2015. Temporal changes in the population genetic structure of a newly harvested social carnivore in Minnesota. Oral presentation: 2nd Annual Midwest Population Genetics Conference, Ann Arbor, MI.

Teaching Experience

- Computational Biology**, Teaching Assistant (Sp 2018, Sp 2020).
Evolutionary Biology, Teaching Assistant (Fall 2016, Fall 2019).
Animal Biology Laboratory, Teaching Assistant (Sp 2017).
Ecology Laboratory, Teaching Assistant (Fall 2014, Fall 2015).
Scientific Writing Seminar, Teaching Fellow (Sp/Summer 2015).
Genetics Laboratory, Teaching Assistant (Fall 2013, Sp 2014).

Service & Professional Development

SERVICE AND OUTREACH

- 2019–pres **Overleaf Advisor Programme**, Advisor
 2019–2021 **UW Ecology Graduate Student Association**, Faculty Representative
 2020–2021 **UW Ecology Graduate Student Association**, Mentor-Mentee Organizing Committee
 2020 **UW Botany Department**, Search Committee Graduate Student Rep
 2020 **PIE Remote Workshop Series: Intro to LaTeX and Overleaf**, Instructor
 2018, 2019 **TAFIRI Workshop in R (Kigoma, Tanzania)**, Lead Instructor
 2016–2017 **UW Ecology Graduate Student Association**, Symposium Organizing Committee
 2015 **Northeast Minnesota Regional Science Fair**, Judge in Animal Sciences
 2014–2015 **University of Minnesota Duluth UROP Program**, Mentor
 2014 **UMD Department of Biology Welcome Week**, Group Leader
 2014 **UMD Biology Club**, Invited Graduate Student Panelist
 2013 **Lakeview Christian Academy Middle and High School Science Fair**, Judge

DEVELOPMENT

Learning Actively Mentoring Program (LAMP) Fellow (2021–2022), an immersive year-long mentoring and professional development program through the UW Science Initiative for faculty and graduate students with an emphasis on how to adopt active learning strategies in STEM classrooms. Throughout the program, fellows develop instructional strategies that are implemented in their classrooms, assess the impacts of these strategies on student learning, and develop a teaching philosophy statement.

Certification in Teaching and Learning (2018–2022), a self-paced program through the UW Ellbogen Center for Teaching and Learning, intended to expose participants to the theory and practices of effective teaching and learning, including using innovative technologies, designing courses around active learning, creating effective assessments, and establishing inclusive classroom spaces. My focus areas for the certification are *active learning* and *communication pedagogies*.

Integrating Critical Thinking into the Classroom (Spring 2020), a four-session learning community for instructors facilitated by the UW Ellbogen Center for Teaching and Learning. Sessions involved reading and discussing *Foundations for Critical Thinking* (Bers et al. 2015).

Certificate in Scholarly Writing Practices (Spring 2020), a six-session Graduate Learning Community sponsored by the University of Wyoming Office of Graduate Education and Office of Diversity, Equity, and Inclusion, and facilitated by Communication Across the Curriculum, Writing Center, Wyoming Science Communication Initiative, and UW Libraries staff. Sessions involved readings, group discussions, and panel discussions about ways to be a successful writer and how to teach graduate students to be successful in scholarly writing.

Workshop on Molecular Evolution (Summer 2017), a 10-day intensive workshop at the Marine Biological Laboratory (Wood's Hole, MA) focused on molecular phylogenetics and genomic analyses.

Teaching and Learning in the Life Sciences (Fall 2016), a semester-long graduate course focusing on improving teaching with a focus on student learning and implementing active learning in courses.

Learning Innovations Teaching Fellowship (Spring & Summer 2015), a fellowship through the University of Minnesota's Writing Across the Curriculum program to collaborate with professors on improving a science writing-focused upper division elective for the UMD Biology department, which resulted in the course *BIOL 3990: Writing for the Duluth Undergraduate Journal of Biology*.

PROFESSIONAL MEMBERSHIPS

Society for Systematic Biology, Society for the Study of Evolution, American Genetics Association

PEER REVIEW

Evolution (2), *Molecular Ecology* (4), *Molecular Ecology Resources* (1), *Systematic Biology* (2), *Scientific Reports* (2), *Conservation Genetics* (1), *Ecological Applications* (1)