

Professional Summary

I am a broadly trained population geneticist and evolutionary biologist with an interest in rapid evolution and the conservation of wild species. My research leverages cutting-edge genomic techniques, bioinformatics, and fieldwork to understand the evolutionary consequences of anthropogenic change.

Education

Cornell University

PH.D. NATURAL RESOURCES AND THE ENVIRONMENT

- Advisor: Nina Overgaard Therkildsen

Ithaca, NY

2021 - 2026 (expected)

Princeton University

B.A. ECOLOGY AND EVOLUTIONARY BIOLOGY

- *Summa Cum Laude*
- Minor in Environmental Studies

Princeton, NJ

2015 - 2019

Research Experience

McBride Lab, Princeton University

RESEARCH SPECIALIST

- Research specialist studying the neural and genomic basis for mosquito host preference using neural imaging, behavioral assays, transgenic line maintenance, whole-genome sequencing, and tagmentation mapping protocols

Princeton, NJ

May 2019 - July 2021

Pringle Lab, Princeton University

SENIOR THESIS RESEARCH

- Conducted lab and field work in Nyika National Park, Malawi for plant specimen collection to construct local DNA barcode database and reconstruct herbivore trophic networks

Princeton, NJ

June 2018 - April 2019

Ayroles Lab, Lewis-Sigler Institute for Integrative Genomics

LAB TECHNICIAN

- Lead technician for project examining genetic basis of speciation between *D. sechelia* and *D. simulans*

Princeton, NJ

January - December 2018

Pringle Lab, Nyika National Park

FIELD TECHNICIAN

- Student intern collecting animal fecal samples for large mammalian herbivore diet and resource partitioning project

Malawi

June - August 2017

Pringle Lab, Mpala Research Centre

FIELD TECHNICIAN

- Student intern conducting field experiments on induced plant defenses of *Barleria* species

Laikipia, Kenya

July - September 2016

Publications

1. Velotta,[†] J. P., Iqbal,[†] Azwad R., Glenn, E. S., Franckowiak, R. P., Formenti, G., Mountcastle, J., Balacco, J., Tracey, A., Sims, Y., Howe, K., Fedrigo, O., Jarvis, E. D., & Therkildsen, N. O. (2024). A complete assembly and annotation of the american shad genome yields insights into the origins of diadromy. *Genome Biology and Evolution*, 17(1). <https://doi.org/10.1093/gbe/evae276>
2. Dimens, P. V., Franckowiak, R. P., Iqbal, Azwad, Grenier, J. K., Munn, P. R., & Therkildsen, N. O. (2024). Harpy: A pipeline for processing haplotagging linked-read data. *Bioinformatics Advances*, 5(1). <https://doi.org/10.1093/bioadv/vbaf133>
3. Pansu, J., Hutchinson, M. C., Anderson, T. M., Beest, M. te, Begg, C. M., Begg, K. S., Bonin, A., Chama, L., Chamailé-Jammes, S., Coissac, E., Croomsigt, J. P. G. M., Demmel, M. Y., Donaldson, J. E., Guyton, J. A., Hansen, C. B., Imakando, C. I., Iqbal, Azwad, Kalima, D. F., Kerley, G. I. H., ... Pringle, R. M. (2022). The generality of cryptic dietary niche differences in diverse large-herbivore assemblages. *Proceedings of the National Academy of Sciences*, 119(35). <https://doi.org/10.1073/pnas.2204400119>
4. Zhao, Z., Zung, J. L., Hinze, A., Kriete, A. L., Iqbal, Azwad, Younger, M. A., Matthews, B. J., Merhof, D., Thiberge, S., Ignell, R., Strauch, M., & McBride, C. S. (2022). Mosquito brains encode unique features of human odour to drive host seeking. *Nature*, 605(7911), 706-712. <https://doi.org/10.1038/s41586-022-04675-4>

Presentations

- 2024 The Population Genomics of Invasion: Founder effects, local adaptation, and chromosomal inversions shape the rapid evolution of invasive American shad. *Evolution 2024, Montreal, QB, Canada*
- 2023 The Population Genomics of Invasion: Insights into the Pacific Coast Invasion of American shad. *Great Lakes Annual Meeting of Evolutionary Genomics, Ithaca, NY*
- 2022 Investigating the genomic basis of rapid adaptation in the American Shad. *American Fisheries Society Annual Meeting, Spokane, WA*
- 2022 Investigating the genomic basis of rapid adaptation in an invasive migratory fish. *Evolution 2022, Cleveland, OH*
- 2019 Plant-Herbivore Interactions and Resource Partitioning in the Nyika Plateau, Malawi. *Princeton Environmental Institute Discovery Day, Princeton, NJ*

Funding & Grants

2025	Cornell Atkinson Center Sustainable Biodiversity Fund	\$2,970
2025	American Museum of Natural History Theodore Roosevelt Memorial Fund Grant	\$2,400
2024	Cornell Center for Vertebrate Genomics Scholar Award	\$12,000
2023	American Philosophical Society Lewis and Clark Fund	\$3,000
2023	Society for the Study of Evolution (SSE) R.C. Lewontin Early Award	\$2,500
2023	National Science Foundation Graduate Research Fellowship (GRFP)	\$159,000
2021	Cornell University Fellowship	\$33,032
2021	Cornell Atkinson Center Sustainable Biodiversity Fund	\$6,930

Honors & Awards

- 2024 Cornell Center for Vertebrate Genomics Scholar
- 2022 Best Proposal-stage Presentation - Cornell Department of Natural Resources Symposium
- 2021 NSF Graduate Research Fellowship Program (GRFP) Honorable Mention
- 2019 Sigma Xi Book Award for Outstanding Research - Princeton Department of Ecology & Evolutionary Biology
- 2019 Senior Thesis Prize in Ecology - Princeton Department of Ecology & Evolutionary Biology
- 2019 Gates Cambridge Finalist - Biological Sciences

Teaching

- 2025 *Guest Lecture* - NTRES 2830: DNA, Genes and Genetic Diversity
- 2023 *Teaching Assistant* - NTRES 6100: Collaborative and Reproducible Data Science in R
- 2022 *Teaching Assistant* - NTRES 2100: Introductory Field Biology
- 2021 *Guest Lecture* - NTRES 3400: Molecular Tools for Ecology, Conservation, and Natural Resource Management
- 2019 *Co-Instructor* - St. Paul's School Advanced Studies Program (Ecology)

Leadership & Service

- 2022-24 *Co-facilitator* - Cornell EvoGroup Seminar Series
- 2023 *Volunteer* - Cornell Expand Your Horizons
- 2022-23 *General Council Member* - Cornell Department of Natural Resources DEI Advisory Council
- 2022 *Co-Instructor* - Cornell Graduate Student School Outreach Program (GRASSHOPR)

Skills

Computational:

Programming Languages: R, Python, Snakemake, bash

Software: SLURM, bwa, samtools/bcftools, ANGSD, GATK, git/GitHub

Laboratory: Gel electrophoresis, PCR, gDNA extraction (archival and contemporary tissues), NGS library preparation

Language: English (Fluent), Bengali (Conversational), Hindi (Elementary), Spanish (Elementary)