Curriculum Vitae

Keaka Farleigh

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WEBSITES AND SOCIAL MEDIA

Coding Repository: https://github.com/kfarleigh
Research profiles: Google Scholar
ResearchGate
Website: https://kfarleigh.github.io

EDUCATION

May 2024   **Ph.D Ecology, Evolution, and Environmental Biology**. Miami University
Advisor: Tereza Jezkova

May 2018   **B.A. Biology.** Capital University
Advisor: Christine Anderson

PUBLICATIONS

7. **Farleigh, K.**, Ascanio, A., Farleigh, M.E., Schield, D.R., Card, D.C., Leal, M., Castoe, T.A., Jezkova, T., Rodriguez-Robles, J.A. Signals of differential introgression in the genome of natural hybrids of Caribbean anoles. *Accepted at Molecular Ecology*.

6. **Farleigh, K.**, & Jezkova, T. Genetic signals of local adaptation in a desert rodent that occupies diverse climates and habitats. *In press at Landscape Ecology*.

5. Koochekian, N., Ascanio, A., **Farleigh, K.**, Card, D. C., Schield, D. R., Castoe, T. A., & Jezkova, T. (2022). A chromosome-level genome assembly and annotation of the desert horned lizard, Phrynosoma platyrhinos, provides insight into chromosomal rearrangements among reptiles. *GigaScience*, *11*.

4. Finger, N., **Farleigh, K.**, Bracken, J. T., Leaché, A. D., François, O., Yang, Z., ... & Blair, C. (2022). Genome-Scale Data Reveal Deep Lineage Divergence and a Complex Demographic History in the Texas Horned Lizard (*Phrynosoma cornutum*) throughout the Southwestern and Central United States. *Genome biology and evolution*, 14(1), evab260.

3. **Farleigh, K.**, Vladimirova, S. A., Blair, C., Bracken, J. T., Koochekian, N., Schield, D. R., ... & Jezkova, T. (2021). The effects of climate and demographic history in shaping

genomic variation across populations of the Desert Horned Lizard (*Phrynosoma platyrhinos*). *Molecular Ecology*, 30(18), 4481-4496.

2. Santibáñez-López, C. E., **Farleigh, K.**, Cushing, P. E., & Graham, M. R. (2021). Restriction enzyme optimization for RADseq with camel spiders (Arachnida: *Solifugae*). *The Journal of Arachnology*, 48(3), 346-350.

1. **Farleigh, K.** (2018). Genetic estimates of migration for white-footed mice (*Peromyscus leucopus)* at the Primmer Outdoor Learning Center. *2018 NCUR Proceedings*.

Manuscripts in Review

Brunton, A.J., **Farleigh, K.**, Ogbourne, S.M., Rossetto, M., Schoeman, D.S., Conroy, G.C. The geno-geo-climate nexus: contributions of geographic and ecological factors in shaping the genomic divergence of two closely related threatened rainforest species of Fontainea Heckel (*Euphorbiaceae*). *In review at Landscape Ecology.*

Farleigh, K., Murphy, M.O., Blair, C., & Jezkova, T. PopGenHelpR: An R package to streamline population genomic analyses. *In review at Journal of Open Source Software*.

Hein, S.R., **Farleigh, K.**, Berg, D.J. Riverscape genomics of the endangered freshwater mussel *Lampsilis rafinesqueana. In review at Freshwater Biology.*

Pavon-Vazquez, C.J., Rana Q., **Farleigh, K.,** Crispo, E., Zeng, M., Liliah, J., … Blair, C. Gene Flow and Isolation in the Arid Nearctic Revealed by Genomic Analyses of Desert Spiny Lizards. *In Review at Systematic Biology.*

PRESENTATIONS

2023	Jezkova, T., & **Farleigh, K.**, Genomic approaches to detecting signals of local adaptation. Oral Presentation. Central Ohio Phylogeography Extravaganza. Columbus, OH.
2022	Koochekian, N., Ascanio, A., **Farleigh, K.**, Card, D.C., Schield, D.R., Castoe, T.A., Jezkova, T. A chromosome-level genome assembly and annotation of the desert horned lizard, *Phrynosoma platyrhinos*, provides insight into chromosomal rearrangements among reptiles. Oral Presentation. Evolution 2022.
2022	**Farleigh, K.,** & Jezkova, T. Genetic signals of local adaptation in a desert rodent that occupies diverse climates and habitats. Evolution 2022. Oral Presentation. Virtual.
2022	**Farleigh, K.,** & Jezkova, T. Exploring signatures of differential selection and local adaptation across climate and habitat in the chisel-toothed kangaroo rat (*Dipodomys microps*). Oral Presentation. International Biogeography Society Meeting. Virtual.

2021   Koochekian, N., Ascanio, A., **Farleigh, K.**, Card, D.C., Schield, D.R., Castoe, T.A., Jezkova, T. The genome of *Phrynosoma platyrhinos*. Oral Presentation. Virtual Evolution 2021. Virtual.

2021   **Farleigh, K.,** & Jezkova, T. Identifying genomic adaptations in *Dipodomys microps*. Oral Presentation. American Society of Mammalogists 100th Annual Meeting. Virtual.

2021   **Farleigh, K.** Identifying genomic adaptations in *Dipodomys microps*. Oral Presentation. Miami University Ecolunch. Virtual.

2020   Jezkova, T., & **Farleigh, K.** Detecting genomic signals of population adaptation. City University of New York Bioinformatics Bootcamp for Ecology and Evolution. Oral Presentation. Virtual.

2019   Blair, C., Finger, N., Jezkova, T., François, O., Williams, D., Leachè, A.D., Charran, T., **Farleigh**, **K.,** Bracken, J.T. Genomic data reveal deep lineage divergence and molecular adaptation in the Texas horned lizard (*Phrynosoma cornutum*), Poster Presentation. Annual Evolution Meeting. Providence, RI.

2019   **Farleigh, K.,** & T. Jezkova. Identifying genomic adaptations to diverse environments in the Chiseled-Toothed Kangaroo Rat (*Dipodomy microps*). Oral presentation. American Society of Mammalogists 99th Annual Meeting. Washington D.C.

2018   **Farleigh, K.,** Ignoffo, T., & W.J. Kimmerer. Variability in development rate within and between clutches from individual females copepods (*Pseudodiaptomus forbesi*). Oral Presentation. Capital University Symposium for Undergraduate Research. Columbus, OH.

2018   **Farleigh, K.,** & C.S. Anderson. Population Genetics and Migration of *Peromyscus leucopus,* a Lyme disease reservoir species. Poster Presentation. Capital University Symposium for Undergraduate Research. Columbus, OH.

2018   **Farleigh, K.,** & C.S. Anderson. Population Genetics and Migration of *Peromyscus leucopus,* a Lyme disease reservoir species. Poster Presentation. Ohio Academy of Science (OAS) 127th Annual Meeting. Bowling Green, OH.

2018   **Farleigh, K.,** & C.S. Anderson. Conservation genetics and migration of Lyme disease reservoir species. Poster Presentation. National Conference on Undergraduate Research. Edmond, OK.

2018   **Farleigh, K.,** & C.S. Anderson. Bioinformatics in Conservation of Lyme disease reservoir species *Peromyscus leucopus*. Poster Presentation. Ohio Fish and Wildlife Management Association Conference. Columbus, OH.

2017   **Farleigh, K.,** Ignoffo, T., & W.J. Kimmerer. Variability in development rate within and between clutches from individual females copepods (*Pseudodiaptomus forbesi*). Poster Presentation. Coastal and Estuarine Research Foundation Biennial Convention. Providence, RI.

2017   **Farleigh, K.,** Ignoffo, T., & W.J. Kimmerer. Variability in development rate within and between clutches from individual females copepods (*Pseudodiaptomus forbesi*). Oral Presentation. Romberg Tiburon Research Symposium. San Francisco, CA.

2017   **Farleigh, K.,** Ignoffo, T., & W.J. Kimmerer. Variability in development rate within and between clutches from individual females copepods (*Pseudodiaptomus forbesi*). Oral Presentation. Summer Research Symposium at San Francisco State University. San Francisco, CA.

2017   **Farleigh, K.,** & C.S. Anderson. Genetic estimates of migration of white-footed mice (*Peromyscus leucopus*) between two habitats at Primmer Outdoor Learning Center. Poster Presentation. Capital University Symposium for Undergraduate Research. Columbus, OH.

2017   **Farleigh, K.,** Mcknight, M., Rios, B., & K. Cheesman. Nitrate Consumption of *Chlorella vulgaris* and *Ulothrix*. Poster Presentation. Capital University Symposium for Undergraduate Research. Columbus, OH.

GRANTS AND AWARDS

2023   Dissertation Scholarship – Miami University (**$11,000**)
2022   Thesis and Dissertation Research Support – Miami University: *Identifying genomic adaptations of Ambystoma salamanders using whole exome sequencing* (**$600**)
2020   Theodore Roosevelt Memorial Grant Program – American Museum of Natural History: *Identifying genomic adaptations to diverse climates and habitats in Dipodomys microps* (**$2,000**).
2020   NSF Graduate Research Fellowship Program: *Identifying genomic adaptations to diverse climates and habitats in Dipodomys microps populations* (**$147,000**).
2018   Diversity Enhancement Pathway (DEP) Graduate Assistantship
2018   Graduate School Scholar Assistantship
2018   Magna Cum Laude
2017   Boyd Fund Memorial Grant – Capital University: *Bioinformatics in Conservation of Lyme disease reservoir species Peromyscus leucopus* (**$1,000**).
2017   Beta Beta Beta Research Grant: *Bioinformatics in Conservation of reservoir species Peromyscus leucopus* (**$500**).
2017   NSF REU Travel Grant: *Variability in development rate within and between clutches from individual female copepods (Pseudodiaptomas forbesi)* (**$1,000**).
2017   President's List, Capital University
2014-2017   Capital Grant Award

2014-2017	Presidential Scholarship
2014-2017	Discover Cap Grant
2014-2017	Rev. Rufus Tarrant Grant
2014-2017	HWCIA Scholarship
2014-2016	Dean's List, Capital University

SOFTWARE AND DATA REPOSITORIES

PopGenHelpR (https://kfarleigh.github.io/PopGenHelpR):
>An R package to estimate commonly used population genomic statistics and to generate publication quality figures.

HybridFindR (https://github.com/kfarleigh/HybridFindR):
>An R package to detect signals of differential introgression in hybrid individuals.

GEApermutation (https://github.com/kfarleigh/GEApermutation)
>A statistical test to identify differential patterns of local adaptation linked to environmental conditions (see publication #6).

Bioinformatics Bootcamp 2020 (https://github.com/kfarleigh/BioinformaticsBootcamp_2020):
>A tutorial to perform genome-environment association analysis using data published in Farleigh et al., (2021; see publication #3). This tutorial was presented at the City University of New York Bioinformatics Bootcamp in the Summer of 2020.

Moments (https://github.com/kfarleigh/Moments):
>Python scripts and demographic models used to model the demographic history of 3 and 4 populations. Models were originally published in Farleigh et al., (2021; see publication #3).

STUDENT ADVISING AND TRAINING

As a Ph.D. student in the laboratory of Dr. Jezkova at Miami University, I have assisted Dr. Jezkova in mentoring eight undergraduate researchers and one high school researcher. I have trained students in molecular laboratory techniques, including parts of next-generation library construction, and have trained students in bioinformatic techniques as well as the use of Geographic Information Systems (GIS) programs.

TEACHING EXPERIENCE

Instructor Summer, 2023
>Lambda Biological Data Analysis Workshop – Miami University, Oxford, OH
>Instructor for Genetic Data with R, focusing on population genomics, phylogenetics, and differential gene expression.

Assistant Instructor Summer 2019, 2021
>Computer Science in Modern Biology – Miami University**,** Oxford, OH

Assistant instructor for introduction to R and data visualization classes.

Instructor Summer 2020
Bioinformatics Boot Camp for Ecology and Evolution – The City University of New York, New York, NY
Instructor for a tutorial demonstrating how to use genetic and environmental data to perform genome-environment association analyses.

Graduate Teaching Assistant Fall 2018
Miami University, Oxford, OH
Laboratory instructor for semester long course **Biological Concepts: Ecology, Evolution, Genetics, and Diversity** (BIO 115).

PROFESSIONAL SOCIETIES

Member	Beta Beta Beta, National Biological Honor Society
Member	Society for the Study of Evolution

SERVICES

2017-2018	Treasurer, Beta Beta Beta, Capital University
2018	Participant, Student Leadership Conference, Capital University
2017	Presenter, Science Visit Day, Capital University
2017	Judge, Horizon Science Academy Science Fair
2017	Panelist, Capital University Student Science Opportunities Panel
2017	Student Coordinator, Capital University Primmer Property Cleanup and BBQ
2017	Beta Beta Beta National Biological Honor Society, Capital University
2017	Volunteer, Relay for Life, Capital University

SKILLS

Programs
R: High proficiency;
Datacamp certified Data Scientist in R
Ability to develop and publish packages to CRAN
Ability to implement standard and advanced statistical processes
Machine Learning (Supervised, Unsupervised, Reinforcement)
Data Cleaning, Mining, and Modeling
GIS Mapping
Function Writing
Data Visualization
Python: Working proficiency;
Ability to implement standard statistical processes
Data Cleaning, Mining, and Modeling
Data Visualization
Git: Working proficiency;
Version control

ArcGIS: High proficiency;
       Spatial Analysis – proficient
Microsoft: High proficiency;
       PowerPoint
       Word
       Excel
Languages
Spanish – Beginner