Jess Foley McLaughlin, PhD

(they/them)
Postdoctoral Scholar
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Education

PhD, Biology August 2017- December 2022
University of Oklahoma

MS, Biological Sciences January 2015-August 2017
University of Alaska Fairbanks

BS, Wildlife Biology and Conservation *cum laude* August 2011-December 2014
University of Alaska Fairbanks

Postdoctoral Research

Postdoctoral Researcher start date: September 2023
University of Massachusetts Amherst, Department of Environmental Conservation
PIs: Drs. Lisa Komoroske and Andrew Danylchuk

Postdoctoral Scholar September 2021–August 2023
University of California Berkeley, Department of Environmental Science, Policy, and Management
PI: Dr. Ian Wang

Professional Appointments

Associate Faculty (Instructor) Fall 2023, Spring 2024
Mission College, Department of Biological Sciences. Santa Clara, CA (remote)

Publications

** indicates student mentee at time of project; † indicates other undergraduate student*

Submitted:

Published:

[13] K Aghi, BM Anderson BM Castellano, A Cunningham , M Delano, ES Dickinson, L von Diezmann, SK Forslund-Startceva, DM Grijseels, SS Groh, EM Guthman, I Jayasinghe, J Johnston, S Long, **JF McLaughlin,** M McLaughlin, M Miyagi, B Rajaraman, F Sanchezneto, AI Scheim, SD Sun, FD Titmuss, RJ Walsh, ZY Weinberg. 2024. Rigorous science demands support of transgender scientists. *Cell* 187:1327–1334. https://doi.org/10.1016/j.cell.2024.02.021

[12] RG Cheek, **JF McLaughlin**, MP Gamboa, CA Marshall, BM Johnson, DB Silver, AA Mauro, CK Ghalambor. 2024. A lack of genetic diversity and minimal adaptive evolutionary divergence in introduced *Mysis* shrimp after 50 years. *Evolutionary Applications* 17:e13637. https://doi.org/10.1111/eva.13637

[11] S Sharpe, AP Anderson, I Cooper, AE Kralick, TY James, H Lindahl, SE Lipshutz, **JF McLaughlin**, B Subramaniam, AR Weigel, AK Lewis. 2023. Sex and biology: broader impacts beyond the binary. *Integrative and Comparative Biology*, icad113. https://doi.org/10.1093/icb/icad113

[10] **JF McLaughlin,** KM Brock, I Gates[†,] A Pethkar[†], M Piattoni[†], A Rossi[†], SE Lipshutz. 2023. Multivariate models of animal sex: breaking binaries leads to a better understanding of ecology and evolution. *Integrative and Comparative Biology*, icad027. https://doi.org/10.1093/icb/icad027

[9] F Spaulding*, **JF McLaughlin**, RG Cheek*, KG McCracken, TC Glenn, K Winker. 2023. Population genomics indicates three different modes of divergence and speciation with gene flow in the green-winged teal duck complex. *Molecular Phylogenetics and Evolution* 182: 107733. https://doi.org/10.1016/j.ympev.2023.107733

[8] M Weiser, CD Siler, SN Smith*, KE Marshall, **JF McLaughlin**, MJ Miller, M Kaspari. 2022. Robust metagenomic evidence that local assemblage increases with latitude in ground-active invertebrates of North America. *Oikos* 2022: e-08791. https://doi.org/10.1111.oik.08791

[7] F Spaulding*, **JF McLaughlin**, TC Glenn, K Winker. 2022. Estimating movement rates between Eurasian and North American birds that are vectors of avian influenza. *Avian Diseases* 66(2): 1-10. https://doi.org/10.1637/aviandiseases-D-21-00088

[6] **JF McLaughlin**, K Winker. 2020. An empirical examination of sample size effects on population demographic estimates in birds using single nucleotide polymorphism (SNP) data. *PeerJ*, 8, e9939. https://doi.org/10.7717/peerj.9939

[5] **JF McLaughlin**, B Faircloth, T Glenn, K Winker. 2020. Divergence, gene flow, and the speciation continuum in nine lineages of trans-Beringian birds. *Molecular Ecology*, 29(18), 3526-3542. https://doi.org/10.1111/mec.15574

[4] **JF McLaughlin,** JL Garzón, OG López Ch., MJ Miller. 2020. A preliminary bird list from Río Luis, Veraguas provides further insight into an avian suture zone in Caribbean Panama. *Cotinga*, 42, pp 77-81. PDF available upon request.

[3] KE Everson, **JF McLaughlin,** IA Cato, MM Evans, AR Gastaldi, KK Mills, KG Shink, SM Wilbur, K Winker. 2019. Speciation, gene flow, and seasonal migration in *Catharus* thrushes

(Aves:Turdidae). *Molecular Phylogenetics and Evolution*, 139: 106564. https://doi.org/10.1016/j.ympev.2019.106564

[2] KM O'Brien, EL Crockett, J Philip, CA Oldham, M Hoffman, DE Kuhn, R Barry, **J McLaughlin**. 2018. The loss of hemoglobin and myoglobin does not minimize oxidative stress in Antarctic icefishes. *J. Exp. Biol* 221: jeb162503. https://doi.org/jeb.162503

[1] LE Teigen, JI Orczewska, **J McLaughlin**, KM O'Brien. 2015. Cold acclimation increases levels of some heat shock protein and sirtuin isoforms in threespine stickleback. *Comp. Biochem. Phys. A*, 188: 139-147. https://doi.org/10.1016/j.cbpa.2015.06.028

Preprints:

JF McLaughlin, L Cueto-Aparicio, A Alarcon*, B Alarcon*, R Collier*, A Takyar*, SJ Vong*, C Aguilar, OG Lopez Ch., JM Bernstein, R Driver, JR Loaiza, LF De León, K Saltonstall, SE Lipshutz, WG Navia-Gine, KM Brock, MJ Miller. 202X. Comparative phylogeography reveals widespread cryptic diversity driven by ecology in Panamanian birds. R&R, *Ornithology*. Preprint available at https://www.biorxiv.org/content/10.1101/2023.03.15.530646v1

JF McLaughlin, MJ Miller. 202X. Time in allopatry does not predict the outcome of secondary contact in lowland Panamanian birds. In prep for resubmission. Preprint: https://www.biorxiv.org/content/10.1101/2022.10.25.513737v1

In prep, manuscript available upon request:

JF McLaughlin. MJ Miller, JI Brown, K Hawkins, P Lavretsky. 202X. Rapid development of post-zygotic reproductive isolation in a New World woodpecker lineage. In prep, *Evolution*.

Scholarships, Grants, and Awards

Total grants: $18,630

- Sutton Scholarship, University of Oklahoma, Spring 2019. $6,400.
- Sutton Scholarship, University of Oklahoma, Spring 2018. $4,000.
- University of Oklahoma Alumni Fellow, 2017.
- American Ornithological Union Travel Award, August 2016. $530.
- Associated Students of the University of Alaska Fairbanks Travel Grant, Spring 2015. $800.
- Brina Kessel Medal for Excellence in Science, 2015. $700.
- Carol Feist Memorial Award for Undergraduate Biology, 2014-2015. $500.
- Outstanding Undergraduate in Wildlife Biology, 2014.
- Spencer Linderman Award, 2014. $700.
- Undergraduate Research and Scholarly Activity Project Award, Fall 2013. $2,500.
- University of Alaska Fairbanks Honors Program Capstone Completion Grant, Fall 2013. $2,500

- University of Alaska Fairbanks Honors Program, 2011-2015

Teaching

Associate Faculty (Instructor), Mission College, Department of Biological Sciences
Introduction to Biology Fall 2023 and Spring 2024

- Instructor of record
- Fully online course
- Responsible for syllabus development, writing and grading all assignments, and producing lecture videos

Teaching Assistant, University of Oklahoma, Department of Biology
Ornithology Fall 2018
Introductory Zoology Fall 2017, Summer 2020, Spring 2021, Summer 2021

Teaching Assistant, University of Alaska Fairbanks, Department of Biology and Wildlife
Principles of Genetics Fall 2016
Principles of Evolution Spring 2016

Mentoring

University of California Berkeley
Sponsored Project for Undergraduate Research (SPUR), Spring 2023

- Isabella Ho
- Victoria Jauregui (Current position: Naturalist, Richardson Bay Audubon Center and Sanctuary, Tiburon, CA)
- Dillan Nagrik

University of Oklahoma
Undergraduate mentees, Miller Lab, Spring 2019 – Spring 2020

- Ashleigh Alarcon
- Brandon Alarcon(Current position: Medical laboratory scientist, Quest Diagnostics, Oklahoma City, OK)
- Rugger Collier
- Anshule Takyar (Current position: Research technologist, Johns Hopkins Bloomberg School of Public Health)
- Sidney Vong

University of Alaska Museum
Biomedical Learning and Student Training (BLaST), Spring 2015 – Summer 2017

- Fern Spaulding (Current position: Research biologist, US Army Corps of Engineers, Joint Base Elmendorf-Richardson, Anchorage, AK)

Undergraduate mentee, Ornithology lab, Spring 2015 – Spring 2016

- Rebecca Cheek Current position: Geneticist, Washington Department of Fish and Wildlife)

Workshops
University of Oklahoma
CODE Workshop, STEM Inclusion Council, August 2020

- Instructor, R and Python

Presentations

2023

Invited Speaker, Behavioral Endocrinology course, Loyola Marymount University (virtual). 16 October 2023. "Reconceptualizing sex: how a multivariate model of animal sex can lead to better understandings of ecology and evolution."

Departmental Seminar, Ecology, Evolution, and Conservation Biology, University of Hawai'i Mānoa (virtual) 15 September 2023. "Reconceptualizing sex: how a multivariate model of animal sex can lead to better understandings of ecology and evolution."

Invited speaker, Queer Ecologies series, University of California Santa Cruz, 8 May 2023. "Blurry species boundaries and binary breaking: exploring grey areas in biology."

Invited speaker, Hoffmann Lab meeting, UT Austin, Austin, TX (virtual). 7 April 2023. "Multimodal models of animal sex: breaking binaries leads to better understanding of ecology and evolution."

Invited speaker, Queer Perspectives Speaker Series, oSTEM, Stanford University. 16 March 2023. "Blurry species boundaries and binary breaking: exploring grey areas in biology."

2022

Guest lecture, Hudson Valley Community College, 28 October 2022. "Queerer than we can suppose: how the language of sex and gender shapes biological inquiry".

Departmental Seminar, San Jose State University, 12 October 2022. "Speciation in Neotropical birds: what predicts outcomes of secondary contact in lowland Panama?"

Departmental Seminar, Research and Collections seminar series, Natural History Museum of Los Angeles County, 22 September 2022. "Speciation in Neotropical birds: what predicts outcomes of secondary contact in lowland Panama?"

Association of Field Ornithologists, June 2022. Invited talk, "Speciation in Neotropical birds: what predicts outcomes of secondary contact in lowland Panama?" (virtual). Part of ongoing AFO Café series.

Invited speaker, Barrett Lab meeting, McGill University, Montreal, Quebec, Canada (virtual). April 2022. "Blurry species boundaries and binary breaking: exploring grey areas in biology".

2021

Avian hybridization seminar, August 2021, Charles Sturt University, NSW, Australia (virtual). Invited speaker, "Along the speciation continuum from north to south".

Departmental seminar, February 2021, California State University Long Beach (virtual). "Along the speciation continuum from north to south".

2020

Avian hybridization seminar, August 2020, Charles Sturt University, NSW, Australia (virtual). Invited speaker, "Along the speciation continuum from north to south".

2019

American Ornithology, June 2019, Anchorage, AK. "Using comparative genomics to investigate non-geographic drivers of divergence and introgression in Panamanian birds".

- Invited speaker in the symposium "Lessons from avian hybrid zones and the maintenance of species boundaries"

Service, Outreach, and Advocacy

Ongoing

Reviewer: Ecology and Evolution, Frontiers in Ecology and Evolution, Ibis, Journal of Biogeography, Journal of Caribbean Ornithology, Journal of Heredity, Mitochondrial DNA Part B, Zoology

Grant Reviewer: Wilson Ornithology Society (Student Research Awards)

Personal Blog, October 2021-present. Views in 2022: 18,033.

- Writing about topics ranging from inclusion and equity in STEM to bioinformatics teaching modules, freely available
- "Trans inclusion in the biology classroom", 14 February 2022, received 7,482 reads in the first month after posting, was featured in the 15 February 2022 Nature briefing, and has been incorporated into classroom curricula at University of Calgary, Hudson County Community College, and University of California Davis.

Science and Sorcery, February 2022-present.

- Guest player (Feb 2022, March 2023) and DM (June 2022) on a Dungeons and Dragons livestream featuring science communicators talking about science in a cooperative gameplay setting.

2023

Equity Pedagogy Community of Praxis**,** Fall 2023. 30 hours of additional training in developing equity-based pedagogy and curriculum development. Mission College, Santa Clara, CA.

Bruin Birding Club, 11 June 2023. Panelist, LGBTQ+ Birding Festival, UCLA.

Nature Check, January 2023. Guest player on Dungeons and Dragon livestream focused on science communication.

The Society for Integrative and Comparative Biology, January 2023. Invited roundtable participant in symposium session "Sex Diversity and Variation".

2022

Wilson Ornithology Society Annual Meeting, July 2022. Invited panelist for DEIJ session, discussing trans and nonbinary inclusion in ornithology.

Nerd Nite San Francisco, June 2022. "How to Sequence a Genome".

DNA Day 2022, April 2022. 3 hour live interview with vTuber Lotl about anole and bird research, streamed over Twitch to an audience of ~ 50 for interactive Q&A.

2021

Panelist, Bio-diverse Festival, Sheffield, England, UK (virtual). October 2021.

- Panelist for a discussion of LGBTQIA+ inclusion in ecology and evolutionary biology.

Minneapolis Audubon Society, March 2021, virtual outreach talk "Along the speciation continuum from north to south".

Prior to 2021

OU STEM Inclusion Council, September 2019- May 2021

- Advocate for inclusive policies in a cross-departmental organization

OU Genomics Reading Group, September 2019-March 2020

- Organizing a reading group for OU students to talk about genomics papers, research methods, and writing. Includes graduate students from the Biology and Anthropology departments.

UAF Bioinformatics Discussion Group, October 2015-May 2017

- Started a bimonthly group attended by students, staff, and faculty at UAF interested in bioinformatics. Leading discussions, organizing guest speakers, and maintaining a group page to share resources. Example topics have included providing basic Linux training to new students, running R on supercomputing clusters, and introduction to git and github.

Board of Directors, Alaska Songbird Institute, January 2016-January 2018

- As a member of the board, assisting with non-profit management, including fundraising, policy making, and publicity. Coordinating volunteer efforts between ASI and local groups such as Scouts and university groups.

Technical Skills

Lab Skills

- Genetics: DNA extractions (blood, fresh and frozen tissue, museum specimens; high molecular weight extractions), PCR, agarose gels; library preparation for RADseq, whole genome, long-read, and amplicon sequencing.
- Physiology and biochemistry: protein gel electrophoresis, Western blots, protein assays (BCA and Bradford), gel staining, quantification of protein from stained gels and Western blots.

Museum Skills

- Preparation of bird specimens as round and flat skins, spread wings, skeletons, tissue samples, gut samples, stomach contents, and parasite collection and cloacal swabs as necessary.
- Practicing proper data recording, including proper labels.
- Providing assistance for outreach and education efforts, including behind-the-scenes tours, open houses, and guests.
- Assistance in outreach efforts, including producing video content (examples: https://www.youtube.com/watch?v=4qS6PfeVnBA, https://www.youtube.com/watch?v=ENt211IyO-8)

Bioinformatics and Computational Skills

- Experienced in the use of the following programs: ANGSD, bcftools, BEAST, Bowtie 2, bwa, δaδi, distruct, GATK, illumiprocessor, IQ-TREE, IMa2p, PGDSpider, phyluce, PICARD, samtools, STRUCTURE , treemix, Trinity, VCFtools. Very comfortable with quickly learning new programs.
- Primary programming languages: Python and R, with additional basic skills in Perl, C, C++, Cython, and Fortran.
- Experienced with running analyses and scripting in R.
- Proficient in running programs on supercomputing clusters, as well as writing and compiling programs for these systems, and familiar with proper data archiving practices.
- Can do basic parallel programming with multiprocessing, OpenMP, and MPI.
- Experienced at scientific illustration and data visualization, both for own research and for clients including numerous lab groups, conferences, and individual researchers. Portfolio available at https://www.jfmclaughlin.org/art

Field Skills

- Strong bird identification skills. Can band, sex, age, and assess condition of passerines, woodpeckers, shorebirds, ducks, hummingbirds, and small raptors.
- Proficient in catching lizards with lasso and in general herping.
- Experienced with conducting point counts in a variety of habitats, including tundra, boreal forest, and savannah. Experienced with use of mist nets, with and without playback, to catch resident and migrant birds in boreal, temperate, and tropical forests, and in shortgrass prairie and oak woodland.
- Strong general outdoor skills, including long-term camping in front or backcountry, hiking up to 30 km a day, land navigation with GPS or map and compass, kayaking and canoeing, cross-country skiing, snowshoeing, and maintenance of equipment in the backcountry. Comfortable living without running water for long durations and working in extreme temperatures.

Language Skills

- Intermediate: speaking, reading, and writing Kiswahili and Spanish.