

Lisa N. Barrow

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EDUCATION

Ph.D. Biological Science (Ecology & Evolution) Florida State University (FSU) 2016
Thesis: "Evolutionary insights from analyses of spatial genetic variation in North American frogs"
Advisors: Emily M. Lemmon and Scott J. Stepan

B.S. Zoology *Summa cum laude* University of Florida 2009
Honors Thesis: "Molecular systematics of the Southeastern pocket gopher (Geomys pinetis)"
Advisor: David L. Reed

APPOINTMENTS/FELLOWSHIPS

The Ohio State University President's Postdoctoral Scholars Program 2018–2020
Mentor: Bryan C. Carstens (Department of Evolution, Ecology and Organismal Biology)

NSF Postdoctoral Research Fellow – *Research Using Biological Collections* 2016–2018
"Quantifying host and climatic breadth of avian blood parasites using a genome-wide approach"
Mentors: Christopher C. Witt (Museum of Southwestern Biology, University of New Mexico (UNM))
Staffan Bensch (Lund University, Sweden)

NSF GROW with USAID Research & Innovation Fellow 2014–2015
"Marker development and conservation genetics of critically endangered South African herpetofauna"
Collaborator: Desiré L. Dalton (National Zoological Gardens of South Africa)

NSF Graduate Research Fellow 2010–2015

RESEARCH INTERESTS

Specimen-based research in evolution, genomics, phylogeography, population genetics, disease ecology, and biodiversity conservation; emphasis on amphibians, reptiles, birds, and their blood parasites

PUBLICATIONS

*mentored undergraduate/post-baccalaureate co-author

Peer-reviewed

18. **Barrow LN**, McNew SM, Mitchell N, Galen SC, Lutz HL, Skeen H, Valqui T, Weckstein JD, Witt CC. 2019. Deeply conserved susceptibility in a multi-host, multi-parasite system. *ECOLOGY LETTERS* 22:987–998. doi: 10.1111/ele.13263 [\[LINK\]](#)
17. Williamson JL, Wolf CJ, **Barrow LN**, Baumann MJ, Galen SC, Schmitt CJ, Schmitt DC, Winter AS, Witt CC. 2019. Ecology, not distance, explains community composition in parasites of sky-island Audubon's Warblers. *INTERNATIONAL JOURNAL FOR PARASITOLOGY* 49:437–448. doi: 10.1016/j.ijpara.2018.11.012 [\[LINK\]](#)
16. Kotze A, Ralph T, **Barrow LN**, Tarrant J, de Preez L, Madisha T, Dalton DL. 2019. Lack of phylogeographic structure in the endangered Pickersgill's Reed Frog; *Hyperolius pickersgilli* (Raw, 1982). *AFRICAN JOURNAL OF HERPETOLOGY* 68:1–17. doi: 10.1080/21564574.2018.1462064 [\[LINK\]](#)
15. **Barrow LN**, Allen JM, Huang X, Bensch S, Witt CC. 2019. Genomic sequence capture of haemosporidian parasites: Methods and prospects for enhanced study of host-parasite evolution. *MOLECULAR ECOLOGY RESOURCES* 19:400–410. doi: 10.1111/1755-0998.12977 [\[LINK\]](#)

14. Jeffries DL, Lavancy G, Sermier R, Sredl MJ, Miura I, Borzee A, **Barrow LN**, Canestrelli D, Crochet P, Dufresnes C, Fu J, Ma W, Garcia CM, Ghali K, Nicieza AG, O'Donnell R, Rodrigues N, Romano A, Martinez-Solano I, Stepanyan I, Zumbach S, Brelsford A, Perrin N. 2018. A rapid rate of sex-chromosome turnover and non-random transitions in true frogs. *NATURE COMMUNICATIONS* 9:4088. doi: 10.1038/s41467-018-06517-2 [\[LINK\]](#)
13. van Wyk AM, Kotzé A, Grobler P, van Vuuren BJ, **Barrow LN**, Dalton DL. 2018. Isolation and characterization of species-specific microsatellite markers for blue wildebeest (*Connochaetes taurinus*) and black wildebeest (*Connochaetes gnou*). *JOURNAL OF GENETICS* 97:e101–e109. doi: 10.1007/s12041-018-1000-2 [\[LINK\]](#)
12. **Barrow LN**, Lemmon AR, Lemmon EM. 2018. Targeted sampling and target capture: Assessing phylogeographic concordance with genome-wide data. *SYSTEMATIC BIOLOGY* 67:979–996. doi: 10.1093/sysbio/syy021 [\[LINK\]](#)
11. Relyea RA, Stephens PR, **Barrow LN**, Blaustein AR, Bradley PW, Buck JC, Chang A, Collins JP, Crother B, Earl J, Gervasi SS, Hoverman JT, Hyman O, Lemmon EM, Luhning TM, Michelson M, Murray C, Price S, Semlitsch RD, Sih A, Stoler AB, VandenBroek N, Warwick A, Wengert G, Hammond JI. 2018. Phylogenetic patterns of trait and trait plasticity evolution: Insights from amphibian embryos. *EVOLUTION* 72:663–678. doi: 10.1111/evo.13428 [\[LINK\]](#)
10. **Barrow LN**, Soto-Centeno JA, Warwick AR, Lemmon AR, Lemmon EM. 2017. Evaluating hypotheses of expansion from refugia through comparative phylogeography of Southeastern Coastal Plain amphibians. *JOURNAL OF BIOGEOGRAPHY* 44:2692–2705. doi: 10.1111/jbi.13069 [\[LINK\]](#)
9. Marroquin-Flores, RA*, Williamson JL, Chavez AN, Bauernfeind SM, Baumann MJ, Gadek CR, Johnson AB, McCullough JM, Witt CC, **Barrow LN**. 2017. Diversity, abundance, and host relationships of avian malaria and related haemosporidians in New Mexico pine forests. *PEERJ* 5:e3700. doi: 10.7717/peerj.3700 [\[LINK\]](#)
8. **Barrow LN**, Dalton DL, Kotzé A, Evans SW. 2016. Geographically widespread mitochondrial lineages of the African saw-wings inconsistent with species boundaries. *OSTRICH: JOURNAL OF AFRICAN ORNITHOLOGY*. 87:271–275. doi: 10.2989/00306525.2016.1204370. [\[LINK\]](#)
7. Engebretsen KN*, **Barrow LN**, Rittmeyer E, Brown JM, Lemmon EM. 2016. Quantifying the spatio-temporal dynamics in a chorus frog hybridization zone over 30 years. *ECOLOGY AND EVOLUTION* 6:5013–5031. doi: 10.1002/ece3.2232 [\[LINK\]](#)
6. **Barrow LN**, Bigelow AT*, Phillips CA, Lemmon EM. 2015. Phylogeographic inference using Bayesian model comparison across a fragmented chorus frog species complex. *MOLECULAR ECOLOGY* 24:4739–4758. doi: 10.1111/mec.13343 [\[LINK\]](#)
5. **Barrow LN**, Phillips CA, Lemmon EM. 2014. Development and characterization of 24 microsatellite loci for the Illinois Chorus Frog (*Pseudacris illinoensis*) and Strecker's Chorus Frog (*P. streckeri*). *CONSERVATION GENETICS RESOURCES* 6:633–636. doi: 10.1007/s12686-014-0158-z [\[LINK\]](#)
4. **Barrow LN**, Ralicki HF*, Emme SE, Lemmon EM. 2014. Species tree estimation of North American chorus frogs (Hylidae: *Pseudacris*) using parallel tagged amplicon sequencing. *MOLECULAR PHYLOGENETICS AND EVOLUTION* 75:78–90. doi: 10.1016/j.ympev.2014.02.007 [\[LINK\]](#)
3. Soto-Centeno JA, **Barrow LN**, Allen JM, Reed DL. 2013. Reevaluation of a classic phylogeographic barrier: new techniques reveal the influence of microgeographic climate variation on population divergence. *ECOLOGY AND EVOLUTION* 3:1603–1613. doi: 10.1002/ece3.576 [\[LINK\]](#)
2. Blumstein DT, **Barrow L**, Luterra M. 2008. Olfactory predator discrimination in yellow-bellied marmots. *ETHOLOGY* 114:1135–1143. doi: 10.1111/j.1439-0310.2008.01563.x [\[LINK\]](#)
1. Light JE, Allen JM, Long LM, Carter TE, **Barrow L**, Suren G, Raoult D, Reed DL. 2008. Geographic distributions and origins of human head lice (*Pediculus humanus capitis*) based on mitochondrial DNA. *JOURNAL OF PARASITOLOGY* 94:1275–1281. doi: 10.1645/GE-1618.1 [\[LINK\]](#)

GRANTS, AWARDS, & SCHOLARSHIPS (total \$473,874)

Research Grants & Fellowships

^also listed above under Appointments/Fellowships

- 2018–2020^ President's Postdoctoral Scholars Program, The Ohio State University (\$55,000 / year)
- 2017 New Mexico Ornithological Society Research Grant (\$1,000)
- 2016–2018^ NSF Postdoctoral Research Fellowship, *Research Using Biological Collections* (\$138,000)
- 2014–2015^ NSF GROW with USAID Research & Innovation Fellowship (\$15,000)
- 2013 NSF Doctoral Dissertation Improvement Grant (\$19,110)
- 2013 Dissertation Research Grant, FSU Graduate School (\$750)
- 2012 Lewis & Clark Fund, American Philosophical Society (\$4,700)
- 2012 Theodore Roosevelt Memorial Grant, American Museum of Natural History (\$2,004)
- 2012 East Texas Herpetological Society Grant (\$300)
- 2011 Rosemary Grant Award, Society for the Study of Evolution (\$2,500)
- 2010–2015^ NSF Graduate Research Fellowship (\$128,500)
- 2010–2011 University Fellowship, FSU Graduate School (\$19,000)
- 2009–2010 College Teaching Fellowship, FSU Department of Biological Science (\$12,360)

Awards & Scholarships

- 2016 ASN Outstanding Presentation Award, Southeastern Ecology/Evolution Conference (\$100)
- 2014 Graduate Student Publication Award, FSU Department of Biological Science (\$300)
- 2014 Margaret Menzel Alumni Scholarship, FSU Department of Biological Science (\$1,000)
- 2011 Summer Institute of Statistical Genetics Scholarship, Univ of Washington-Seattle (\$2,250)
- 2010 Robert B. Short Scholarship in Zoology, FSU Department of Biological Science (\$2,000)
- 2007 University Scholars Program, University of Florida (\$3,000)
- 2007 NSF Research Experience for Undergrads, Rocky Mtn Biological Laboratory (\$4,000)

Conference Support

- 2017 Evolution Conference Travel Stipend, Society for the Study of Evolution (\$500)
- 2010–2016 Presentation Travel Grant, FSU Department of Biological Science (5 meetings: \$3,450)
- 2010–2016 Conference Presentation Grant, FSU Congress of Graduate Students (5 meetings: \$1,700)
- 2015 Regional Meeting Conference Grant (co-author), American Society of Naturalists (\$1,500)
- 2014 Phylogenomics School Travel Award, University of Texas (\$250)
- 2014 Student Travel Award, American Society of Naturalists (\$500)
- 2012 Southeastern Ecology and Evolution Conference Travel Award, Clemson University (\$100)

PRESENTATIONS

Invited Talks

- 2018 SACNAS Diversity in STEM conference, Ecology and Evolution symposium, San Antonio, Texas. *Variable host susceptibility and enigmatic parasite distributions: Insights from museum collections and genomics of avian haemosporidians.*
- 2015 Conservation Lecture Series, FSU Coastal and Marine Laboratory, Panama, Florida. *Frogs, conservation, and what genetics can tell us: Tales from Africa and back.*
- 2014 Phylogenomics Workshop, Forestry and Agricultural Biotechnology Institute, University of Pretoria, South Africa. *Advances in generating data for phylogenomic studies: Genome reduction strategies.*
- 2014 South African National Biodiversity Institute, Kirstenbosch Research Centre, Cape Town. *Harnessing next-generation sequencing for phylogenetics, phylogeography, and population genetics: Applications in North American amphibians.*
- 2014 Department of Botany and Zoology, Stellenbosch University, Stellenbosch, South Africa. *Harnessing next-generation sequencing for phylogenetics, phylogeography, and population genetics: Applications in North American amphibians.*

Recent Conferences & Seminars

- 2019 Barrow LN, Fonseca EM, Thompson CEP, Carstens BC. *Do species traits predict genetic diversity in North American amphibians?* Joint Meeting of Ichthyologists and Herpetologists, Snowbird, Utah.
- 2019 Barrow LN, McNew SM, Mitchell N, Galen SC, Lutz HL, Skeen H, Valqui T, Weckstein JD, Witt CC. *Deeply conserved susceptibility in a multi-host, multi-parasite system.* Evolution meetings, Providence, Rhode Island.
- 2018 Barrow LN, Allen JA, Huang X, Bensch S, Witt CC. *Genomic sequence capture of haemosporidian parasites from wild birds.* 4th International Conference on Malaria and Related Haemosporidian Parasites of Wildlife, Beijing, China.
- 2018 Barrow LN, Huang X, Bensch S, Witt CC. *Diversity and host specificity of avian blood parasites in New Mexico and Peru: Towards a genome-wide approach.* New Mexico Ornithological Society meeting, Albuquerque, New Mexico.
- 2017 Barrow LN, McNew SM, Galen SC, Lutz HL, Skeen H, Valqui T, Weckstein JD, Witt CC. *Macroevolutionary patterns of susceptibility to avian malaria.* Evolution meeting poster session, Portland, Oregon.
- 2017 Barrow LN, Soto-Centeno JA, Warwick AR, Lemmon AR, Lemmon EM. *Evaluating suture zones and refugia through comparative phylogeography of amphibians in the Southeastern Coastal Plain.* 8th Biennial International Biogeography Society Meeting, Tucson, Arizona.
- 2016 Barrow LN. *Evolutionary insights from analyses of spatial genetic variation in North American frogs.* Brown Bag Seminar, UNM Department of Biological Science, Albuquerque, New Mexico.
- 2016 Barrow LN, Soto-Centeno, JA, Lemmon AR, Lemmon EM. *Targeted sampling and target capture: Assessing phylogeographic concordance with genome-wide data.* Evolution meetings, Austin, Texas. **Ernst Mayr Symposium finalist.** [\[Partial Video on YouTube\]](#)
- 2016 Barrow LN, Lemmon AR, Lemmon EM. *Targeted sampling and target capture: Assessing phylogeographic concordance with genome-wide data.* Southeastern Ecology and Evolution Conference, Tallahassee, Florida.
- 2015 Barrow LN, Bigelow AT, Phillips CA, Lemmon EM. *Phylogeographic inference using Bayesian model comparison across a fragmented chorus frog species complex.* Evolution meetings, Guarujá, São Paulo, Brazil.
- 2015 Barrow LN. *Species trees, phylogeographic inference, and conservation: Harnessing high-throughput sequencing for studies of North American chorus frogs.* Ecology and Evolution Departmental Seminar, Florida State University, Tallahassee, Florida.
- 2014 Barrow LN. *Harnessing next-generation sequencing for phylogeography and population genetics: Applications to conservation research.* 5th Annual Research Symposium, National Zoological Gardens of South Africa, Pretoria.
- 2014 Barrow LN, Lemmon AR, Lemmon EM. *Comparative phylogeography of amphibians in the Southeastern U.S. with anchored phylogenomics.* Evolution meeting poster session, Raleigh, North Carolina.
- 2014 Barrow LN, [‡]Bigelow AT, Phillips CA, Lemmon EM. *Investigating the genetic structure of a fragmented chorus frog species complex.* Evolution meeting poster session, Raleigh, North Carolina. [‡]presenting author, undergraduate mentee

FIELD & MUSEUM EXPERIENCE

Postdoctoral Researcher, 2018–2020, Museum of Biological Diversity, The Ohio State University.
Active role in the Tetrapod Division initiating modern collection efforts of terrestrial vertebrates and their parasites. Co-wrote IACUC and Institutional Biosafety Committee protocols; applied for permits for amphibian and reptile collection in Texas and Ohio.

Postdoctoral Researcher, 2017–2018, Museum of Southwestern Biology, University of New Mexico.
Community surveys of avian hosts and blood parasites in northern New Mexico. Mist-netting, identification, data and sample collection (tissues and thin blood smears) in the field; prepared

specimens; processed tissue loans in the Division of Genomic Resources; archived tissues and blood smears; gained experience with the Arctos collection management system.

Project Lead, 2009–2014, Florida State University dissertation research.

Amphibian and reptile collection in the Southeastern United States. Field collection, tissue preservation, and specimen preparation; wrote and maintained Institutional Animal Care and Use protocols and collection permits in six states; trained undergraduates in field methods and museum specimen preparation. Catalogued tissues from 1,889 individuals; 905 vouchers (21 spp).

Field Assistant, May–July 2009, Iquitos, Peru.

Mist-netting, identification, banding, and sample collection (blood, ectoparasites, measurements) of bird communities in the Amazon rainforest. Worked with a team of Peruvian and American student researchers to band 2,096 individuals (109 species). Personally ID'd and banded 126 birds (44 spp.).

Research Experience for Undergraduates, May–August 2007, Rocky Mountain Biological Laboratory, Gothic, Colorado. Behavioral observations, olfactory predator cue experiments, and assisted with mark-recapture of yellow-bellied marmots.

Field and Laboratory Assistant, January 2006–May 2009, Florida Museum of Natural History; Florida, Puerto Rico. Assisted with field trapping and collection of small rodents and bats.

TEACHING EXPERIENCE

Instructor, Applied Phylogenetic Methods (informal Graduate workshop), Summer 2018, UNM

Teaching Assistant, Lecturer for Biology for Non-majors (BSC1005) [Human Physiology unit], Summer 2014, Summer 2016, FSU

Teaching Assistant, Evolution (PCB4674), Spring 2016, FSU

Teaching Assistant, Ornithology (ZOO4353C), Fall 2015, FSU

Teaching Assistant, Biology for Non-majors Laboratory (BSC1005), Spring 2014, FSU

Teaching Assistant, Herpetology (ZOO4343C), Fall 2013, FSU

Teaching Assistant, Animal Diversity (BSC2011L), Summer 2010, FSU

MENTORING

Undergraduate Students at The Ohio State University

Ivy Larkin; undergraduate researcher (Jan. 2019–present); Squamate genetic diversity in the Southeastern U.S.

Post-baccalaureate and Undergraduate Students at University of New Mexico

Daniele Wiley; undergraduate research assistant (2017–present); New Mexico avian haemosporidian parasite surveys; Avian malaria of grey and plumbeous vireos.

Selina Bauernfeind; Post-baccalaureate Research & Education Program (PREP) scholar (2017–2019). Community turnover of avian haemosporidian parasites.

Xena Mapel; undergraduate honors thesis (2017–2018); Diversification of South Pacific birds. B.S. 2018; Current M.S. student at UNM.

Paxton Cruz; undergraduate research assistant (2017–2018); New Mexico avian haemosporidian parasite surveys. B.S. 2018; Current research assistant at Univ. Texas Southwestern.

John Ford; undergraduate research assistant (2017); B.S. 2017; New Mexico avian haemosporidian parasite surveys.

Rosario Marroquin-Flores; PREP scholar (2016–2017); Diversity and host associations of avian haemosporidian parasites. Current PhD student at Illinois State University.

Undergraduates at Florida State University

Alyssa Hassinger; undergraduate/Directed Individual Study (DIS) student (2012–2013); Population genetics of the Illinois chorus frog. B.S. 2013; Current graduate student at The Ohio State University.

Kristin Engebretsen; undergraduate/DIS student (2012–2013); Spatiotemporal dynamics of a chorus frog hybrid zone. B.S. 2013; M.S. 2018; Current PhD student at Utah State University.

Hannah Ralicki; undergraduate/DIS student (2011–2012); Genetic marker development for non-model frogs. B.S. 2012; M.S. 2015; Current research technician at University of Connecticut.

PROFESSIONAL SERVICE

Associate Editor, 2019, Systematic Biology

Reviewer, 2019, SACNAS Undergraduate Research Presentations

Mentor and Judge, 2018, SACNAS Diversity in STEM conference, San Antonio, Texas

Co-organizer, 2017–2018, NSF Graduate Research Fellowship Workshop, UNM;

Led series of workshops on writing a competitive GRF proposal; attended by 80+ UNM students from across STEM fields; closely assisted 7 students with proposal development

Panelist, 2017, Women in STEM: Let's Talk Success, STEM Collaborative Center, UNM

Journal reviewer, Evolution, Molecular Ecology, Molecular Ecology Resources, Systematic Biology, Journal of Avian Biology, Herpetological Conservation and Biology, Journal of Biogeography, Conservation Genetics, PeerJ, PLoS ONE, Journal of Heredity

Planning committee, 2015–2016, Southeastern Ecology and Evolution Conference 2016, FSU

Secretary, 2013–2014, Ecology and Evolution Research Discussion Group (EERDG), FSU

Panelist, 2010–2015, NSF Graduate Research Fellowship workshop, FSU

PROFESSIONAL MEMBERSHIPS

Society of Systematic Biologists, Society for the Study of Evolution, Society for the Study of Amphibians and Reptiles, Malaria Research Coordination Network

PUBLIC OUTREACH

Museum of Biological Diversity Open House, 2019, The Ohio State University, Columbus OH

Research Day Open House, 2017–18, Museum of Southwestern Biology Bird Division, Albuquerque NM

MSB Birds Research Table, 2017, NM Museum of Natural History and Science, Albuquerque NM

Central NM Science and Engineering Research Challenge Judge, 2017, Albuquerque NM

iDigBio Herbarium Transcription Blitz, 2015, FSU Herbarium, Tallahassee FL

Volunteer Field Trip Leader, 2015, Remote Footprints, Tallahassee FL

EERDG Wild & Scenic Film Festival, 2014, IMAX Challenger Learning Center, Tallahassee FL

Science Night Frog Booth, 2014, School of Arts and Sciences, Tallahassee FL

Saturday-at-the-Sea marine outreach program Instructor, 2011–2013, Tallahassee FL

Capitol Regional Science and Engineering Fair Judge, 2010–2014, Tallahassee FL