Ariadna E. Morales

Contact Information

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Research Interests

My research seeks to understand speciation processes by integrating genetic, environmental and phenotypic data. I mainly study flying mammals to identify patterns of gene flow, species limits, historical demography and phenotypic divergence that might be influenced by environmental forces. Part of my research involves the development of computational tools that can be used to test evolutionary hypotheses.

Education

The Ohio State University	Evolution and Ecology (Ph.D.)	2013 – 2018
The Ohio State University	Statistics (Graduate Minor)	2013 – 2018
Universidad Nacional Autónoma de México	Environmental Biology (M.Sc.)	2009 – 2012
Universidad Autónoma del Estado de México	Biology (B.Sc.)	2003 – 2008

Appointments

American Museum of Natural History, Dept. Vertebrate Zoology, and Richard Gilder Graduate School	Gerstner Postdoctoral Fellow	2018 – present
The Ohio State University, Dept. Evolution Ecology and Organismal Biology	Graduate Research/Teacher Assistant	2013 – 2018
Universidad Autónoma del Estado de México, Instituto de Ecología	Lab manager	2011 – 2013

Publications

According to Google Scholar (March 6, 2019), my work has been cited 154 times and my h-index is 6. Average Impact Factor = 6.312.

[*In Prep* / *In Review*]

14. **Morales AE**, Pinero D. (*In Prep*) Assessment of the genetic diversity of the broad-eared bat, *Nyctinomops laticaudatus*, at the northern edge of its distribution.
13. **Morales AE**, Carstens, BC. (*In Prep*) A machine learning approach to test local adaptation in *Myotis* bats from North America.
12. **Morales AE**, Ruedi M, Carstens, BC. (*In Review*) Diversification rates have no effect on the convergent evolution of foraging strategies in the most species-rich genus of bats, *Myotis*.
11. Mays H, Oehler D, Morrison K, **Morales A**, Lycans A, …, Weakley L. (*In Review*) Phylogeography, population structure, gene flow and species delimitation in Rockhopper penguins (*Eudyptes chrysocome* and *Eudyptes moseleyi*).

[*Peer-reviewed papers*]

10. Denton RD, **Morales AE**, Gibbs HL (*2018*) Genome-specific histories of divergence and

introgression between an allopolyploid unisexual salamander lineage and two ancestral sexual species. Evolution. 72:1689–1700 [*Impact Factor=4.201*]

9. Carstens BC, **Morales AE**, Field K, Pelletier TA (2018) A global analysis of bats using automated comparative phylogeography uncovers a surprising impact of Pleistocene glaciation. Journal of Biogeography. 45:1795–1805 [*Impact Factor=4.248*]
8. **Morales AE**, De-la-Mora M, Piñero D (2018) Space and environment predict skull variation and genetic structure in the cosmopolitan bat *Tadarida brasiliensis*. Journal of Biogeography. 45:1529–1540 [*Impact Factor=4.248*]
7. **Morales AE**, Carstens BC (2018) Evidence that *Myotis lucifugus* 'subspecies' are five non-sister species, despite gene flow. Systematic Biology. 67:756–769. [*Impact Factor=8.917*]
6. Carstens BC, **Morales AE**, Jackson N, O'Meara BC (2017) Objective choice of Phylogeographic Models. Molecular Phylogenetics and Evolution. 116:136–140 [*Impact Factor=4.419*]
5. Jackson N, **Morales AE**, Carstens BC, O'Meara BC (2017) PHRAPL: Phylogeographic Inference using Approximate likelihoods. Systematic Biology. 66:1045–1053. [*Impact Factor=8.917*]
4. Jackson N, Carstens BC, **Morales AE**, O'Meara BC (2017) Species delimitation with gene flow. Systematic Biology. 66:799–812. [*Impact Factor=8.917*]
3. **Morales AE**, Jackson N, Dewey T, O'Meara BC, Carstens BC (2017) Speciation with gene flow in North American *Myotis* bats. Systematic Biology. 66:440–452. [*Impact Factor=8.917*]
2. **Morales A**, Villalobos F, Velazco PM, Simmons NB, Piñero D (2016) Environmental niche drives genetic and morphometric structure in a widespread bat. Journal of Biogeography. 43:1057–1068. [*Impact Factor=4.248*]
1. Garrick RC, Bonatelli IAS, Hyseni C, **Morales A**, Pelletier TA, Perez MF, Rice E, Satler JD, Symula RE, Thomé MTC, Carstens BC (2015) The evolution of phylogeographic datasets. Molecular Ecology. 24:1164-1171. [*Impact Factor=6.086*]

[*Chapters in books*]

1. Vasquez Lobo A, **Morales Garcia AE** (2014) Microsatélites. Herramientas moleculares aplicadas en ecología (ed. Cornejo Romero A, Serrato Díaz A, Rendón Aguilar B & Rocha Munive MG), pp. 75-100. INECC-SEMARNAT, Mexico. ISBN: 978-607-8246-72-4.

Awarded Grants And Fellowships

[*Research ($59,020), Fellowships/Scholarships ($114,309), Travel ($2,950)*]

2018. Richard Gilder Graduate School at the American Museum of Natural History. Gerstner Scholar Postdoctoral Research Fellowship. Research expenses ($30,000)
2017. Ohio Supercomputer Center. Research grant [PAS1184-2] ($4,000)
2016. NSF. Doctoral Dissertation Improvement Grant [DEB-1701810] ($ 20,020)
2016. Ohio Supercomputer Center. Research grant [PAS1184-1]($4,000)
2013 – 2017. CONACyT. The Mexican National Council for Science and Technology (Consejo Nacional de Ciencia y Tencnología). Ph.D. Fellowship ($97,359 divided in four years)
2012. University of Washington, 17th SISG. Travel grant ($1,200)
2011. CONACyT. Internship travel grant ($1,000)
2010. UNAM. Travel grant ($750)
2009. CONACyT. M.Sc. Fellowship ($15,000)
2007. AMC. Mexican Academy of Sciences (Academia Mexicana de Ciencias). Research grant ($500)
2007. Santander Universia. Scholarship ($1,950).
2006. AMC. Research grant ($500)

Research Projects and Experience

2016 – 2017. Graduate Research Assistant: Behavioral Ecology and Systematics of the Fungus-growing Ants and their Symbionts. PI: Rachell Adams. The Ohio State University. One paper is in preparation to be submitted for pee-review.

2013 – present. Ph.D. project. Evolutionary history of *Myotis* bats in the New World. Advisor: Bryan Carstens. The Ohio State University. Two research papers were published in Systematic Biology. Two papers are in preparation to be submitted for pee-review.

2013 – 2015. Graduate Research Assistant: phrapl – Phylogeographic model selection using Approximate Likelihood (DEB 1257784/DEB 1257669). PI: Bryan Carstens and Brian O'Meara. The Ohio State University. Three research papers were published, in Systematic Biology (2) and Molecular Phylogenetics and Evolution (1).

2009 – 2012. M.S. project. Phylogeography of the free-tailed bat *Tadarida brasiliensis* in North America. Advisor: Daniel Piñero. Instituto de Ecología, UNAM. One research paper was published in Journal of Biogeography.

2011. Graduate Internship. Evolutionary morphology and revisionary systematics of *Tadarida brasiliensis.* Supervisor: Dr. Nancy B. Simmons. Mammals collection, American Museum of Natural History. One research paper was published in Journal of Biogeography.

2008 – 2009. Undergraduate honors research project. Genetic diversity and structure of the molosid bat *Nyctinomops laticaudatus* in Yucatan peninsula, Mexico. Advisor: Daniel Piñero. Instituto de Ecología , UNAM.

2007. Undergraduate Internship. The National Mammals Collection and its role in the knowledge of biodiversity. Supervisor: Dr. Fernando A. Cervantes. National Mammals Collection (CNMA), Instituto de Biologia, UNAM.

2006. Undergraduate Internship. Molecular systematics of two Chiroptera genera: *Myotis* and *Tadarida.* Supervisor: Dr. Omar Chassin-Noria. Multidisciplinary Center of Biotechnology Studies, UMSNH.

Student Academic Awards

2017. EEOB Osburn Award for Excellence in Research. The Ohio State University

2010. Best undergraduate research. Bernardo Villa award. 10th National Conference and 1st Latin-American Mammalogy Conference.

2006. Best student presentation. XXXII and XXXIII Esteban Barcenas Guevara Student Symposium. UAEMex.

Abstracts and Presentations

Morales A, Ruedi M, Carstens BC. The evolutionary history of the bat genus *Myotis*. 2018 North American Society for Bat Research Meeting. Puerto Vallarta, Guadalajara, Mexico.

Morales A, Carstens BC. Genomic evidence that *Myotis lucifugus* 'subspecies' are five non-sister species, despite gene flow. 2017 North American Society for Bat Research Meeting. Knoxville, Tennessee, USA.

Morales A, Carstens BC. Unraveling the effects of gene flow on species limits and phylogenetic signal in *Myotis* bats. 2017 Evolution Meeting. Portland, Oregon, USA.

Morales A, Jackson N, O'Meara BC, Carstens BC. Species delimitation with gene flow in *Myotis lucifugus* bats. Society for Systematic Biologists 2017 Standalone Meeting. Baton Rouge, Louisiana, USA.

Carstens BC, **Morales A**, Pelletier T. Phylogeographic meta-analysis into global patterns of genetic variation. 2016 Evolution meeting, Austin, Texas, USA.

Morales A, Jackson N, O'Meara BC, Carstens BC. Speciation with gene flow in North American *Myotis* bats. 2016 Evolution meeting, Austin, Texas, USA.

Morales A, Jackson N, O'Meara BC, Carstens BC. *Myotis* bats diverge, but with migration. 2015 North American Society for Bat Research Meeting, Monterey, California, USA.

Morales A, Jackson N, O'Meara BC, Carstens BC. Species delimitation of the western long-eared *Myotis* Bats using approximated likelihood. Society for Systematic Biologists 2015 Standalone Meeting. Ann Arbor, Michigan, USA.

Jackson N, Carstens BC, **Morales A**, O'Meara BC. Phylogeographic model selection using approximated likelihoods. 2014 Evolution Meeting, North Carolina, USA.

Morales A, Piñero D. Phylogeography of *Tadarida brasiliensis* in North America. 2014 Evolution Meeting, North Carolina, USA.

Workshops

[*Co-instructor*]

2017. January 8th. PHRAPL: phylogeographic model selection using approximated likelihood. Society for Systematic Biologists 2017 Standalone Meeting. Baton Rouge, Louisiana.

2015. May 28th-30th. Phylogeographic model selection. Columbus, The Ohio State University.

[*Attendee*]

2012. November 26th – 30th. Lineal and generalized lineal models using R. Biology Institute, UNAM.

2012. July 9th – 27th. 17th Summer Institute in Statistical Genetics (SISG). Population Genetics and Association Mapping, Molecular Phylogenetics, Coalescent Theory modules. University of Washington.

2012. January 9th – 13th. Next Generation Sequencing. Biology Institute, UNAM.

2011. January 17th-28th. Latin American Workshop of Molecular Evolution. Genomic Center Sciences (CCG), UNAM.

2010. February 12th – July 2nd. Environmental law and management certificate. School of Sciences, UNAM and Law and Environmental Research Center (CEJA).

2010. September 19th – 20th. Echolocation bat bioacoustics workshop: detection, recording, analysis and ecology and conservation application. Mexican Mammalogy Association (AMMAC).

2009. August 9th – 16th. Neotropical bats biology (Field Course). Tirimbina Biological Reserve, Heredia, Costa Rica and UNAM.

2008. July, 19th – 23rd. Bat's Ecology course. Yucatan Autonomous University (UADY).

2007. March 30th – 31st. Introduction to geographic systems information applied to the management and conservation of wildlife. School of sciences, UNAM and Mexican Society of Ornithology.

2006. December 1st. Scientific collections specimens' preservation. Biology Institute, UNAM.

2005. October 10th – 14th. Radioimmunoassay (RIA) and Enzyme-Linked immunoabsorbent assay (ELISA) Course. MIYMSA.

Teaching Experience

2018 (spring). Teacher assistant of Ecology and Evolution of Mammals (EEOB 4220). Dept. Evolution Ecology and Organismal Biology, The Ohio State University.

2017 (summer). Teacher assistant of REU Site: Next generation Evolutionary Biology (NSF 1560116). Dept. Evolution Ecology and Organismal Biology, The Ohio State University.

2017 (spring). Teacher assistant of Ecology and Evolution of Mammals (EEOB 4220). Dept. Evolution Ecology and Organismal Biology, The Ohio State University.

Software Development

R package: PHRAPL (phylogeographic model selection using approximated likelihood). In collaboration with Brian O'Meara, Nathan Jackson, Bryan Carstens.

Code available at: https://github.com/bomeara/phrapl,
User manual: https://github.com/ariadnamorales/phrapl-manual.

Academic Service

[24 reviews verified by Publons https://publons.com/author/1193325/ariadna-morales - profile]

2014 – present. Ecography (1), Evolution and Ecology (1), Evolutionary Biology (1), Journal of Biogeography (1), Journal of Mammalogy (2), Molecular Ecology (5), Molecular Ecology Resources (5), Molecular Phylogenetics and Evolution (2), PLOS ONE (3), Systematic Biology (2), The Southwestern Naturalist (1).

2019 – 2020. Committee for the Graduate Women in Science National Fellowship competition.

Synergistic Activities

2018 – present. Public relationships Committee. Graduate Women in Science.

2017. Co-organizer of "5K EEOB Fun Run", Dept. Evolution Ecology and Organismal Biology, The Ohio State University.

2016 – 2017. Graduate Student Representative at Seminar Committee, Dept. Evolution Ecology and Organismal Biology, The Ohio State University.

Languages

Spanish (native)

English: reading (proficient), conversing (proficient), writing (proficient).

Academic References

Ph.D. Advisor – Bryan C. Carstens [carstens.12@osu.edu]
Associate Professor, Dept. of Evolution, Ecology and Organismal Biology, The Ohio State University

M.Sc. Advisor – Daniel Piñero Dalmau [pinero@ecologia.unam.mx]
Professor, Instituto de Ecologia, Universidad Nacional Autónoma de México

Postdoc Co-Advisor – Frank T. Burbrink [fburbrink@amnh.org]
Associate Curator, Dept. of Herpetology, Division of Vertebrate Zoology, American Museum of Natural History; Professor, Richard Gilder Graduate School

Postdoc Co-Advisor – Nancy B. Simmons [simmons@amnh.org]
Curator-in-Charge, Dept. of Mammalogy, Division of Vertebrate Zoology, American Museum of Natural History; Professor, Richard Gilder Graduate School

Collaborator – Brian O'Meara [bomeara@utk.edu]
Associate Professor, Dept. of Ecology & Evolutionary Biology, University of Tennessee Knoxville