

## Renata Magalhães Pirani

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University of Nevada – Reno, NV, United States

I am an evolutionary biologist interested in how historical and evolutionary processes generated the high Neotropical biodiversity of amphibians and reptiles and how climate change impacts these organisms.

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### Professional Experience

- March 2020 – Present**     **Postdoctoral Fellow in Genetics and Lizards Adaptation** - University of Nevada – Reno, NV, United States in collaboration with the Smithsonian Tropical Research Institute (STRI), Panama (supervisor: Michael L. Logan)
- 2019 – 2020**                 **Postdoctoral Fellow in Genetics, Conservation and Evolutionary Biology** - Instituto Nacional de Pesquisas da Amazônia (INPA), Brazil
- 2015 (January-July)**     **Substitute Professor, Centro Universitário Una** – Campus Aimorés, Belo Horizonte, Brazil. Taught biological sciences at Una University to undergraduates and served as an undergraduate research advisor
- 2009 – 2015**                 **Independent Consultant for Environment Impacts, Herpetofauna** - Conducted environmental impact assessments for over 20 projects in Brazil. Main tasks included: amphibian and reptile surveys, identification of endangered species, habitat assessments, and mitigation methods reports  
Clients included: Samarco, Voltorantim, and Companhia Vale do Rio Doce
- 2013 (July)**                 **Visiting Professor** - Akron University, Ohio, United States. Visiting Professor during an internship with Biology students from Centro Universitário Una, Brazil
- 2011 (May-December)**   **Substitute Professor, Centro Universitário Una** – Campus Aimorés, Belo Horizonte, Brazil. Taught biological sciences at Una University to undergraduates and served as an undergraduate research advisor

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### Education

- 2015 – 2019**                 **Ph.D.** in Genetics, Conservation and Evolutionary Biology - Instituto Nacional de Pesquisas da Amazônia (INPA), Brazil
- 2009 - 2011**                 **M. Sc.** in Animal Biology, Universidade Federal de Viçosa (UFV), Brazil
- 2005 - 2008**                 **B. Sc.** in Biology, Centro Universitário Una, Brazil

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### Publications

- PIRANI, R. M.,** ARIAS, C., CURLIS, J. D., NICHOLSON, D. J., VARGAS, M., CHUNG, A. K., VARGAS, M., CHARLES, K., MCMILLAN, W. O., COX, C. L., LOGAN, M. L. A high-quality genome for the slender anole (*Anolis apletophallus*), an emerging model for field-studies of tropical ecology and evolution. GigaScience (SUBMITTED).
- PIRANI, R. M.,** TONINI, J. F. R., THOMAZ, A. T., NAPOLI, M., KNOWLES, L. L., WERNECK, F. P. Deep genomic divergence and phenotypic admixture of the treefrog *Dendropsophus elegans* (Hylidae: Amphibia) coincide with riverine boundaries at Brazilian Atlantic Forest. *Frontiers Ecology and Evolution*. 2022; (10) 1-15.
- PRADO, J. R., PERCEQUILLO, A. R., **PIRANI, R. M.,** THOMAZ, A. T. Biome effect on phenotypic and genomic differences in the South America marsh rats. *Zoological Journal of the Linnean Society* 2021; 1-19.
- DIELE-VIEGAS, L. M., ARAÚJO, O. G. S., BERNECK, B. V. M., BRASILEIRO, C. A., BRITO, E. S., BRUNES, T. O., CONDEZ, T. H., COSTA, L. C., DIAS-SILVA, F., FENKER, J., FREIRE, E. M. X., IOP, S., LUCAS, E. M.,

MONGIN-AQUINO, M., MONTEIRO, J. P. C., MONTESINOS, R., MORCATTY, T. Q., NASCIMENTO, L. B., OSWALD, C. B., **PIRANI, R. M.**, PRETTE, A. C. H., RAMALHO, Q., SOUZA, E., TARGINO, M., THOMÉ, M. T. C., VASCONCELOS, B. D., VASCONCELLOS, M. M., WERNECK, F. P., WIEDERHECKER, H. C., WINCK, G. R., ZINA, J., LOURENÇO, S. C. L. When misinterpretation leads to sexism: perspectives on gender disparity in Brazilian Herpetology. *Herpetologia Brasileira*. Dez, 2020: 9(3).

- PIRANI, R. M.**, PELOSO, P. L. V., PRADO, J. R., POLO, E., RON, S., RODRIGUES, M. T., KNOWLES, L. L., WERNECK, F. P. Diversification History of Clown Tree Frogs in the Neotropical Rainforests (Anura, Hylidae, *Dendropsophus leucophyllatus* group). *Molecular Phylogenetics and Evolution*. 2020; 1055-7903.
- PIRANI, R. M.**, WERNECK, F. P., THOMAZ, A. T., KENNEY, M., STURARO, M., ÁVILA-PIRES, T. C., PELOSO, P. L. V., RODRIGUES, M. T., KNOWLES, L. L. Testing main Amazonian rivers as barriers across time and space within widespread taxa. *Journal of Biogeography*. 2019; 00:1–13.
- MORAES, L. C. L., ALMEIDA, A. P., FRAGA, R., ZAMORA, R. R., **PIRANI, R. M.**, SILVA, A. A. A. CARVALHO, V. T., GORDO, M., WERNECK, F. P. Integrative overview of the herpetofauna from Serra da Mocidade, a granitic mountain range in Northern Brazil. *ZooKeys* 715: 103–159, 2017.
- FRAGA, R., ALMEIDA, A. P., MORAES, L. J. C. L., GORDO, M., **PIRANI, R. M.**, ZAMORA, R. R., CARVALHO, V. T., PASSOS, P., WERNECK, F. P. Narrow endemism or insufficient sampling? Geographical range extension and morphological variation of the poorly known *Atractus riveroi* Roze, 1961 (Serpentes: Dipsadidae). *Herpetological Review*, 48(2), 281–284, 2017.
- SILVA, E. A. P., SILVA, E. T., **PIRANI, R. M.**, MÂNGIA, S. Distress calls of two species of the *Bokermannohyla circumdata* group (Amphibia, Anura, Hylidae). *Herpetology Notes*, v. 7: 521-524, 2014.
- PIRANI, R. M.**, NASCIMENTO, L. B., FEIO, R. N. Anurans in a Forest Remnant in the transition zone between the Cerrado and Atlantic Rain Forest Domains in Southeastern Brazil. *Annals of Brazilian Academy of Sciences*. v. 85(3), p.1093-1104, 2013.
- GAIGA, R., LOIOLA, C., MÂNGIA, S., **PIRANI, R. M.** Advertisement call and tadpoles of *Bokermannohyla vulcaniae* (Vasconcelos and Giaretta, 2003) (Amphibia: Anura: Hylidae). *South American Journal of Herpetology*. V.8(2), p.127-131, 2013.
- MOURA, M. R., COSTA, H. C., **PIRANI, R. M.** Rediscovery of *Phalotris concolor* Ferrarezzi, 1994 (Serpentes: Colubridae: Elapomorphini). *Zoologia*, v.30(4), p.430-436, 2013.
- MOURA, M. R., **PIRANI, R. M.**, SILVA, V. X. New records of snakes (Reptilia, Squamata) in Minas Gerais, Brazil. *Check List*, v.9(1), p.099-103, 2013.
- PIRANI, R. M.**, MOURA, M. R. *Scinax fuscomarginatus* (Brown-bordered Snouted Treefrog). *AMELIA*. *Herpetological Review*, v.43, p.471 - 472, 2012.
- SANTANA, D. J., MOTTA, A. P., **PIRANI, R. M.**, SILVA, E. T., FEIO, R. N. Advertisement call and tadpole of *Chiasmocleis mantiqueira* Cruz, Feio and Cassini, 2007 (Anura, Microhylidae). *Journal of Herpetology*, v.46, p.14 - 18, 2011.
- PIRANI, R. M.**, PEZZUTI, T. L., MOTTA, A. P., FEIO, R. N. The tadpole of *Hylodes babax* Heyer, 1982 (Amphibia, Anura, Hylodidae). *Zootaxa (Online)*. v.2800, p.64 - 68, 2011.
- MOTTA, A. P., **PIRANI, R. M.**, SILVA, E. T., SANTANA, D. J., MANGIA, S., FEIO, R. N. New record and distribution extension of *Zachaenus carvalhoi* Izecksohn 1983 (Anura, Cycloramphidae) in south-eastern Brazil. *Herpetology Notes*. v.3, p.085 - 086, 2010.
- PIRANI, R. M.**, MANGIA, S., SANTANA, D. J., ASSIS, B., FEIO, R. N. Rediscovery, distribution extension and natural history notes of *Hylodes babax* (Anura, Hylodidae) with comments on southeastern Brazil biogeography. *South American Journal of Herpetology (Printed)*, v.5, p.83 - 88, 2010.
- PIRANI, R. M.**, SILVA, E. T., FEIO, R. N. Tadpole cannibalism in *Leptodactylus cunicularius* Sazima & Bokermann, 1978 (Anura, Leptodactylidae) at a temporary stream in South-eastern Brazil. *Herpetology Notes*. v.3, p.359 - 360, 2010.
- KLEINSORGE, J. M. D., FONSECA, R. A. M., **PIRANI, R. M.**, NASCIMENTO, L. B. Amphibia, Anura, Hylidae, *Itapotihyla langsdorffii* (Duméril and Bibron, 1841): Correction of older record and distribution extension. *Check List (São Paulo. Online)*. v.5, p.876 - 878, 2009.

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## Books Chapters

MORAES, L. C. L., ALMEIDA, A. P., **PIRANI, R. M.**, RAINHA, R. N., OLIVEIRA, A. F. S., SILVA, A. A. A., OLIVEIRA, M. E., GORDO, M., WERNECK, F.P. Amphibians and squamates in Amazonian flooded habitats, with a study on the variation of amphibian assemblages along the Solimões River. Book Fundamentals of Tropical Freshwater Wetlands. Chapter 13. 2021.

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## Professional Presentations

- 2022** TALK: The Society of Integrative and Comparative Biology-SICB, Phoenix, AZ, United States  
**2021** TALK: Young woman in Science, University of Nevada, Reno, NV, United States  
**2020** INVITED PRESENTATION: I – Encontro CFT / INPA - Virtual talk about Scientific Communication, Brazil  
**2020** INVITED PRESENTATION: X Workshop PPG GCBev/INPA - Virtual Herpetology Class to undergraduate students, Brazil  
**2020** INVITED PRESENTATION: Centro Universitário Una - Virtual Herpetology Class, Brazil  
**2020** INVITED PRESENTATION: Smithsonian Tropical Research Institute - Virtual Science talks, Panama  
**2020** INVITED PRESENTATION: Universidad Nacional de Colombia - Virtual class to undergraduate students, Colombia  
**2020** INVITED PRESENTATION: Universidade Estadual de Campinas - Virtual class to undergraduate students, Brazil  
**2019** TALK: IX Congresso Brasileiro de Herpetologia, Campinas, Brazil  
**2019** TALK: Evolution Meeting – Providence, RI, United States  
**2017** POSTER: Evolution Meeting – Portland, OR, United States  
**2012** POSTER: 7<sup>th</sup> World Congress of Herpetology, Canada  
**2011** TALK: IX Congresso Latino Americano e Brasileiro de Herpetologia, Brazil. 3 Posters presented and 1 oral presentation  
**2010** POSTER: IV Simpósio de Anfíbios, Brazil. 4 Posters presented  
**2009** POSTER: IV Congresso Brasileiro de Herpetologia, Brazil. 3 Posters presented  
**2008** POSTER: XXII Jornada de Biologia da PUC Minas, Brazil  
**2007** POSTER: IV Simpósio Brasileiro de Animais Silvestre e Selvagens, Brazil  
**2007** POSTER: III Congresso Brasileiro de Herpetologia, Brazil  
**2007** POSTER: VII National Congress of Scientific Initiation and V International Congress of Scientific Initiation, Brazil

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## Main Recent Projects

Current: Rules of Life - Integrating responses to environmental change: roles of behavior, plasticity, and evolution at Anoles species in Panama

Completed: Population genomic analysis of secondary contact of *Dendropsophus elegans* (Hylidae: Amphibian) species in the Brazilian Atlantic Forest

Completed: Amphibians and squamates in Amazonian flooded habitats, with a study on the variation of amphibian assemblages along the Solimões River

Completed: Phylogeny and historical biogeography of *Dendropsophus leucophyllatus* species group at the Neotropical region

Completed: Understanding South American biogeography: case studies of widely distributed South American lizards (Reptilia: Squamata)

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## Fellowships, Awards & Honors

- 2020 - Present** Postdoctoral fellowship – University of Nevada, Reno, USA (Prof. Michael Logan Lab).  
**2019 - 2020** Postdoctoral fellowship – PNPd/CAPES – Instituto Nacional de Pesquisas da Amazônia – INPA, Brazil  
**2019** Society for the Study of Evolution-SSE Evolution Meeting Travel Award (\$825)

2017	Society for Systematic Biologists-SSB Grant Student Awardee (GSRA) (\$1000)
2017	Society for the Study of Evolution-SSE Travel Award (\$1500)
2015 - 2019	Doctoral fellowship – CNPQ – Instituto Nacional de Pesquisas da Amazônia – INPA, Brazil (Prof. Fernanda P. Werneck Lab).
2016 - 2017	Doctoral fellowship - Science without Borders (CNPq) at the University of Michigan, USA (Prof. L. Lacey Knowles Lab).
2009 - 2011	Master fellowship – CAPES - Universidade Federal de Viçosa, Brazil (Prof. Renato Feio Lab).
2009 - 2011	Master fellowship - Fundação Arthur Bernardes (FUNARB) – Universidade Federal de Viçosa, Brazil.
2007 – 2008	Scientific Initiation research - Centro Universitário Una, Brazil.

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## Academic Services

Students mentorship: Graduate level – André Yves – INPA, Brazil (co-advisor; 2020-2022)  
 Undergraduate level - Adriano M. Souza - Centro Universitário Una (advisor; 2011)  
 Undergraduate level - Flávia C. Rezende. Centro Universitário Una (advisor; 2011)  
 Undergraduate level - João Brás - Centro Universitário Una (advisor; 2011)  
 Undergraduate level – Emanuel Silva - Centro Universitário Una (advisor; 2011)

Committees: Priscila Carvalho Santos, PhD thesis – UNESP, Brazil (2022)  
 Ibrahim K. R. Nehemy, Master dissertation – UFMS, Brazil (2022)  
 Beatriz Diogo Vasconcelos, Master dissertation – UFMS, Brazil (2021)  
 Lucas Bandeira, PhD thesis – INPA, Brazil (2021)  
 Mariana Pedrozo, Master dissertation - UFMS, Brazil (2020)  
 Nasrah M. C. Hamdan, Master dissertation – UFAM, Brazil (2019)  
 Patrik Ferreira Viana, PhD thesis – INPA, Brazil (2019)

Workshops/Teaching: Teaching experience at Prof. Fernanda Werneck’s workshop “Filogeografia/Adaptação Ambiental” in 2021, “Filogeografia baseada em modelos” and “Filogeografia estatística” at the Instituto Nacional de Pesquisas da Amazônia (INPA) in 2017; at the workshop “Advanced Phylogeography, Conservation and Evolutionary Genomics” in 2019 for Prof. Lacey Knowles and Prof. Camila Ribas at INPA. I was recently invited to teach the course “Filogeografia 2022” at the Universidad de la República in Uruguay with Prof. Arley Camargo.

Reviewer: Herpetology Notes, PeerJ, Biological Journal of the Linnean Society, Frontiers in Ecology and Evolution, BMC Evolutionary Biology, The American Naturalist, Ecology and Evolution, Herpetologia Brasileira, Molecular Phylogenetics & Evolution.

Journal Editor: Frontiers in Ecology and Evolution team/ Biogeography and Macroecology.

Professional Societies: Society for the Study of Evolution (SSE), Society of Systematic Biologists (SSB), Brazilian Society of Herpetology (SBH).

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## Skills

Fieldwork: Brazil – Atlantic Forest (2008-2014), Cerrado (2008-2014), and Amazonia (2014-2020); Panama (2022). Amphibian and reptile sampling, identification, morphological and ecological data, GIS, data collection and organization of field expeditions.

Leadership: Master fieldwork, Brazil (2009-2011), planning and collecting data; The fieldwork at the National Park Monte Roraima in the Indigenous Land Raposa Serra do Sol, Brazil (2019); A group of ten graduate students through three months of fieldwork at the Smithsonian Tropical Research Institute (STRI), Panama (2022), collecting, processing and executing different thermophysiology experiments.

Scientific Collection Contributions: During fieldwork, specimen tissues were collected for DNA extraction. From my undergraduate studies onward, I performed scientific collections in the field, catalogued and identified specimens for collaborative projects. The specimens are now part of three herpetology collections at PUC Minas (Belo Horizonte, MG), Universidade Federal de Viçosa (Viçosa, MG) and Instituto Nacional de Pesquisas da Amazônia - INPA (Manaus, AM).

**Molecular Lab Experience:** During my PhD, I learned next generation sequencing methods (e.g., ddRADseq, PCR, pippin prep, DNA clean up and others) during the one year fellowship at Dr. Lacey Knowles' Lab (University of Michigan). I prepared four Illumina libraries using the ddRADseq protocol. During my postdoctoral at the University of Nevada Reno, I also learned how to analyze pooled population sequencing (Pool-Seq) data, assemble a *Anolis* genome, and develop SNP chips for genotyping, among others techniques.

**Software and Techniques:** I am proficient in several bioinformatics programs for next generation sequence (STACKS and ipyRAD pipelines), in addition to phylogenetic and population genetics analyses (FASTSINCOAL2, Structure, BEAST, RaxML, SNAPP, R packages and others). As a Postdoctoral Fellow, I have used different bioinformatic resources to assemble and analyze a *Anolis* genomic data (GitHub scripts, Pool-seq pipeline, BWA, Samtools, miniconda). I have also used these genomic data to generate pedigrees for each transplanted island population, and to conduct a genome-wide association study (GWAS) to reveal the genetic basis of important physiological and morphological traits.

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## Volunteer Activities

- 2012**            **Volunteer, 7<sup>th</sup> World Herpetology Conference, Vancouver, Canada**  
I assisted in the organization of the conference, provided guidance on the UBC campus for participants and introduced speakers.
- 2019**            **Planning the IX Workshop of Genetic, Conservation and Evolutionary Biology, Manaus, Brazil**  
I have led a group of graduate students and planned a workshop for the Graduate Program in Genetic, Conservation and Evolutionary Biology at the Instituto Nacional de Pesquisas da Amazônia (INPA).

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## Contact Information

- 1            Prof. Michael L. Logan – Postdoctoral supervisor, University of Nevada Reno, NV, USA (mike.logan1983@gmail.com)
- 2            Prof. W. Owen McMillian - Postdoctoral co-supervisor, Smithsonian Tropical Research Institute (STRI), Panama City, Panama (mcMillanO@si.edu)
- 3            Prof. Fernanda P. Werneck – PhD advisor, Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, AM, Brazil (fewerneck@gmail.com)
- 4            Prof. L. Lacey Knowles – PhD co-advisor, University of Michigan, Ann Arbor, MI, United States (knowlesl@umich.edu)
- 5            Prof. Renato N. Feio – Master advisor, Universidade Federal de Viçosa (UFV), Viçosa, MG, Brazil (rfeio@ufv.br)