

## **Matheus Lima de Araujo**

PhD Candidate

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### **RESEARCH EXPERIENCE**

I study uncertainty in biodiversity big data and the mechanisms influencing global biodiversity patterns, with a focus on developing quantitative approaches in macroecology. Although my research now focuses more on general questions than on specific taxa, I have a background in plant ecology, particularly epiphytes. I have also collaborated across diverse fields within community ecology, including landscape ecology and conservation biology.

Here are some of my keywords: Bid-data, community ecology, functional traits, knowledge shortfalls, macroecology, macroevolution, phylogenetics, software development, uncertainty.

### **EDUCATION**

#### **2023 – Present: PhD in Ecology and Evolution**

Federal University of Goiás (UFG), Goiania, Brazil.

Thesis: From gaps to insights: Quantifying biological data uncertainty and revisiting biodiversity in environmental space.

Supervisor: Dr. Thiago F. Rangel

#### **2025 – 2026: Internship abroad as a PhD student**

Swiss Federal Research Institute for Forest, Snow and Landscape (WSL), Zurich, Switzerland.

Funding: Brazilian Federal Agency for Support and Evaluation of Graduate Education - CAPES

Supervisor: Dr. Catherine H. Graham

#### **2021 – 2023: MSc in Ecology and Evolution**

Federal University of Goiás (UFG), Goiania, Brazil.

Dissertation: Interpreting deep evolutionary patterns through recent ecological processes.

Supervisor: Dr. Natan Medeiros Maciel

### **2016 – 2021: Bachelor in Biological Sciences**

Federal University of Alfenas (UNIFAL), Minas Gerais, Brazil.

Bachelor's thesis: Biases in sample collection shape our knowledge of vascular epiphytes.

Supervisor: Dr. Flavio Nunes Ramos

### **TEACHING EXPERIENCE**

**2022 – 2022** – Teaching internship in **Statistics** at the Universidade Federal de Goias. Supervisor: Dr. Thiago Rangel. Duration: 64 hours.

**2021 – 2021** – Teaching internship in **Statistics** at the Universidade Federal de Goias. Supervisor: Dr. Thiago Rangel. Duration: 64 hours

**2020 – 2020** – Teaching in **Introduction to R in Environmental Sciences** at the Universidade Federal de Alfenas. Supervisor: Prof. Dr. Flavio Nunes Ramos. Duration: 50 hours.

**2020 – 2020** – Volunteer undergraduate teaching assistant in **Evolutionary Ecology** at the Universidade Federal de Alfenas. Supervisor: Prof. Dr. Flavio Nunes Ramos. Duration: 60 hours.

**2018 – 2018** – Volunteer undergraduate teaching assistant in **Invertebrate Zoology II** at the Universidade Federal de Alfenas. Supervisor: Prof. Dr. Humberto Fonseca Mendes. Duration: 112 hours.

**2017 – 2018** – Volunteer undergraduate teaching assistant in **Invertebrate Zoology I** at the Universidade Federal de Alfenas. Supervisor: Prof. Dr. Humberto Fonseca Mendes. Duration: 90 hours.

### **SUPERVISION EXPERIENCE**

**2026 – Present: Supervising** undergraduate student Cecilia Correa e Silva (Federal University of Goias – BR) on a proposal for Scientific Initiation Scholarship project: “Investigating body size patterns for lizards and snakes in environmental space”.

**2024 – 2025: Supervising** undergraduate student Beatryz Nascimento Ibiapina (Federal University of Goias – BR) on Scientific Initiation Scholarship project: “Challenges in the quality of global distribution data for the tiger shark (*Galeocerdo cuvier*): a comparative analysis between GBIF and IUCN”.

**2023 – 2023: Co-supervising** undergraduate student Gustavo Nunes Freitas (Federal University of Goiás – BR, PI: Dr. Andre Luis Regolin) on the bachelor’s thesis: “Landscape simplification reduces the probability of puma occurrence in agroecosystems of the central Brazilian Cerrado”.

### **FUNDING AND AWARDS**

**2025 – 2026: CAPES Doctoral “Sandwich” Fellowship** (competitive award), Brazil. Funded 9-month research stay at Swiss Federal Research Institute for Forest, Snow and Landscape (WSL), Zurich, Switzerland.

**2023 – Present: PhD Scholarship** (competitive program-wise award), CAPES, Brazil. Awarded after a selection based on written exam in Ecology and Evolution plus CV evaluation.

**2021 – 2023: Master’s Scholarship** (competitive program-wise award), CAPES, Brazil. Awarded after a selection based on written exam in Ecology and Evolution plus CV evaluation.

**2020 – 2021: CNPq Scientific Initiation Scholarship** (competitive university-wide award), Brazil — Funded undergraduate research at Universidade Federal de Alfenas, MG, BR.

**2019 – 2020: CNPq Scientific Initiation Scholarship** (competitive university-wide award), Brazil — Funded undergraduate research at Universidade Federal de Alfenas, MG, BR.

**2018 – 2019: CNPq Scientific Initiation Scholarship** (competitive university-wide award), Brazil — Funded undergraduate research at Universidade Federal de Alfenas, MG, BR.

### **SCIENTIFIC PUBLICATIONS** (chronologically)

**12.** Nakamura, G., Stabile, B. H. M., Frateles, L. E. F., **Araujo, M. L.**, Neuhaus, E. B., Marinho, M. M. F., De Souza Leite, M., Richter, A., Ding, L., Da Silva Freitas, T. M., Soares, B., Da Graça, W. J., Moura, M. R., & Diniz-Filho, J. a. F. (2025). The hidden biodiversity knowledge split in biological collections. *Proceedings of the Royal Society B Biological Sciences*, 292(2058), 20251045. <https://doi.org/10.1098/rspb.2025.1045>

**11.** Coelho, M. T. P., Barreto, E., Diniz-Filho, J. a. F., Rangel, T. F., Bohdalková, E., Storch, D., Jang, Y., Pontarp, M., Cassemiro, F., **Araujo, M. L.**, Hull, P. M., & Graham, C. H. (2025). Consistent energy-diversity relationships in terrestrial vertebrates. *Science*, 389(6755), 53–57. <https://doi.org/10.1126/science.adu2590>

**10.** **Araujo, M. L.**, Coelho, M. T. P., Gotelli, N. J., Colwell, R. K., Rangel, T. F., & Dambros, C. S. (2025). In situ speciation of Dispersal-Limited taxa leads to strong phylogenetic community clustering. *Journal of Biogeography*, 52(9). <https://doi.org/10.1111/jbi.70005>

9. Teles, W. S., Regolin, A. L., De Andrade-Silva, B. E., Maldonado, A., Junior, Vilela, R. D. V., Borges-Almeida, K., Pereira, M. J., **Araujo, M. L.**, & Collevatti, R. G. (2025). Host diversity mediates the influence of landscape structure on parasite communities in Cerrado agricultural landscapes. *Annals of the New York Academy of Sciences*, 1545(1), 105–115. <https://doi.org/10.1111/nyas.15292>
8. Graham, C. H., **Araujo, M. L.**, Barreto, E., Dambros, C. S., Diniz-Filho, J. a. F., Zimmermann, N. E., Rangel, T. F., & Coelho, M. T. P. (2025). Biodiversity patterns redefined in environmental space. *Ecology Letters*, 28(2), e70008. <https://doi.org/10.1111/ele.70008>
7. **Araujo, M. L.**, Coelho, M. T. P., Cassemiro, F. a. S., & Rangel, T. F. (2024). Global Distribution of Mammalian Cradles and Museums is Driven by Past Climate Dynamics and Present Water–Energy Balance. *Global Ecology and Biogeography*, 33(12). <https://doi.org/10.1111/geb.13914>
6. **Araujo, M. L.**, Ferreira, L. G. S. S., Nakamura, G., Coelho, M. T. P., & Rangel, T. F. (2024). ‘treesliceR’: a package for slicing phylogenies and inferring phylogenetic patterns over evolutionary time. *Ecography*, 2025(1). <https://doi.org/10.1111/ecog.07364>
5. Pereira, F. W., **Araujo, M. L.**, Brum, F. T., Melo, G. a. R., Moura, M. O., & Gonçalves, R. B. (2024). Bees travelling south: Climate-induced range shifts and suitable habitat losses in south-eastern neotropics. *Journal of Biogeography*, 51(11), 2259–2273. <https://doi.org/10.1111/jbi.14989>
4. Ramos, F. N., **Araujo, M. L.**, Da Silva Assis, I., Basílio, G. A., Barbosa, D. E. F., Correa, T. A., Delgado, C. N., Furtado, S. G., Marquez, G., Soares, J. S., Yañez, A., Silva, S. M., Neto, L. M., & Elias, J. P. C. (2024). Vascular epiphytes of the South America Dry Diagonal: characterising their occurrence and richness in this neglected region. *New Zealand Journal of Botany*, 63(4), 822–839. <https://doi.org/10.1080/0028825x.2024.2387188>
3. Carneiro, M. S., Ribeiro, B. R., Campos, C. C. F., De Souza Almeida, H., **Araujo, M. L.**, Santos, F. a. M. D., & Ramos, F. N. (2023). Small forest fragments and their importance for conservation of tree communities in Atlantic Semideciduous Forest. *Iheringia Série Botânica*, 78, e2023019. <https://doi.org/10.21826/2446-82312023v78e2023019>
2. **Araujo, M. L.**, Quaresma, A. C., & Ramos, F. N. (2022). GBIF information is not enough: national database improves the inventory completeness of Amazonian epiphytes. *Biodiversity and Conservation*, 31(11), 2797–2815. <https://doi.org/10.1007/s10531-022-02458-x>
1. **Araujo, M. L.**, & Ramos, F. N. (2021). Targeting the survey efforts: Gaps and biases in epiphyte sampling at a biodiversity hotspot. *Forest Ecology and Management*, 498, 119544. <https://doi.org/10.1016/j.foreco.2021.119544>

## **TECHNICAL PRODUCTION**

**1. Araujo, M.,** Ferreira, L., Nakamura, G., Coelho, M., & Rangel, T. (2025). ***\_treesliceR: To Slice Phylogenetic Trees and Infer Evolutionary Patterns Over Time\_***. **R package version 1.1.0**, <<https://CRAN.R-project.org/package=treesliceR>>.

## **PROFESSIONAL ACADEMIC SERVICES**

**Reviewer for the journals:** *Ecography* (2026–present), *Global Ecology and Biogeography* (2025–present), *Nature Communications* (2025–present), *Biotropica* (2025–present), *Diversity and Distributions* (2024–present), *Journal of Biogeography* (2023–present).

## **CONFERENCE PARTICIPATION & PRESENTATION**

**2026 - The International Biogeography Society (IBS) 12th Biennial Conference.** *Bergmann's rule is supported for terrestrial vertebrates in environmental space* (Poster). Aarhus University, Aarhus, Denmark.

**2024 - 1st Brazilian Congress of Evolutionary Biology.** *Global distribution of mammalian cradles and museums is driven by past climate dynamics and present water–energy balance* (Poster). Federal University of Paraná (Poster), Curitiba, Paraná, Brazil.

**2024 - 4th RABECO - Ecologia Plural: Intersectionality and Transdisciplinarity in Solving Environmental Problems.** *treesliceR: a package for slicing phylogenies and inferring phylogenetic patterns over evolutionary time* (Poster). Federal University of Bahia (UFBA), Salvador, Bahia, Brazil.

**2021 - 7th Integrated Symposium UNIFAL: Transversality, Science, and Affection.** *GBIF information is not enough: national database improves the inventory completeness of Amazonian epiphytes* (Oral presentation). Federal University of Alfenas (UNIFAL), Alfenas, Minas Gerais, Brazil.

**2020 - 6th Integrated Symposium UNIFAL - University, Science, and Society.** *Geographical Gaps and Biases in the Quality of Digital Data on Atlantic Forest Epiphytes* (Oral presentation). Federal University of Alfenas (UNIFAL), Alfenas, Minas Gerais, Brazil.

**2019 - 5th Integrated Symposium UNIFAL.** *Effect of Landscape Configuration on Tree Species Richness* (Oral presentation). Federal University of Alfenas (UNIFAL), Alfenas, Minas Gerais, Brazil.

**2019 - 14th Open Congress for Biology Students (XIV CAEB).** State University of Campinas (UNICAMP), Campinas, São Paulo, Brazil.

**2019 - 14th Brazilian Ecology Congress (CEB).** São Lourenço, Minas Gerais, Brazil.

**2017 - 28th Ecology Study Week.** São Paulo State University (UNESP), Rio Claro, São Paulo, Brazil.

### **PERSONAL SKILLS**

**Programming languages:** R and C++;

**Languages:** Portuguese (native) & English (fluent).

### **REFERENCES**

#### **Dr. Thiago F. Rangel**

Federal University of Goiás (UFG), Goiania, Goiás, Brazil.

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#### **Dr. Flavio N. Ramos**

Federal University of Alfenas (UNIFAL), Alfenas, Minas Gerais, Brazil.

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