

Gabriel Nakamura

## CURRICULUM VITAE

Texas A&M University • Corpus Christi • Department of Life Sciences

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### Academic employment

2021 – Date Postdoctoral Research Associate Texas A&M University – Corpus Christi

Supervisor: Prof. Dr. Barnabas Daru

2019 - 2020 Postdoctoral Fellow. Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul/Brazil

Supervisor: Prof. Dr. Leandro Duarte

### Education

2015-2019 Ph.D. in Ecology. Federal University of Rio Grande do Sul/Brazil

Advisor: Prof. Dr. Leandro Duarte

2012-2014 Master in Ecology and Conservation Federal University of Mato Grosso do Sul/Brazil

Advisor: Prof. Dr. Yzel Rondon Suárez

### Publications

- **Nakamura, G**; Richter, A and Soares, B.E. 2021. FishPhyloMaker: An R package to generate phylogenies for ray-finned fishes. *Ecological Informatics*. Doi <https://doi.org/10.1016/j.ecoinf.2021.101481>
- Richter, A.; **Nakamura, G.**; Iserhard, C.A. and Duarte, L.D.S. 2021. The hidden side of diversity: effects of imperfect detection on multiple dimensions of biodiversity. *Ecology and Evolution*. 11:18. Doi [doi.org/10.1002/ece3.7995](https://doi.org/10.1002/ece3.7995)
- Carvalho, F.G.; Duarte, L.D.S.; **Nakamura, G.**; Seger, G. and Juen, L. 2021. Changes of phylogenetic and taxonomic diversity of Odonata (Insecta) in response to land use in Amazonia. *Forests*. 12:8. Doi <https://doi.org/10.3390/f12081061>
- Dijk AV, **Nakamura G**, Rodrigues AV, Maestri R and Duarte LDS. Imprints of tropical niche conservatism and historical dispersal in the radiation of Tyrannidae (Aves:

Passeriformes). *Biological Journal of the Linnean Society*. Doi <https://doi.org/10.1093/biolinnean/blab079>

- Soares BE and **Nakamura G**. 2021. Ecologia filogenética de riachos neotropicais. *Oecologia Australis*. 25: 2. Doi <https://doi.org/10.4257/oeco.2021.2502.13>.
- **Nakamura, G**; Vicentin, W and Suárez, Y. 2021. Taxonomic and phylogenetic beta diversity in headwater stream fish communities of the Paraná and Paraguay river basins. *Neotropical Ichthyology*. 19:1 - e200126.
- **Nakamura, G**; Vicentin, W; Suárez, Y and Duarte, L. 2020. A multifaceted approach to analyzing taxonomic, functional, and phylogenetic  $\beta$ -diversity. *Ecology*. 101:10.
- **Nakamura, G**; Gonçalves, L and Duarte, L. 2019. Revisiting the dimensionality of biological diversity. *Ecography* 43: 539 - 548.
- **Nakamura, G**; Vicentin, W and Suárez, Y. 2018. Functional and phylogenetic dimensions are more important than the taxonomic dimension for capturing variation in stream fish communities. *Austral Ecology* 43: 2 - 12 (Top-20 downloaded paper 2018-2019)
- Sugai, L.S.M.; **Nakamura, G**; Sugai, J.L.M.M; Silva, T.S.F. SCINAX NASICUS (Lesser Snouted Treefrog). 2017. Predation by TRACHYCEPHALUS TYPHONIUS (Canauaru Frog). *Herpetological Review*. 48, p. 2.

#### *Book chapters (in portuguese)*

- **Nakamura, G**. 2014. Aprender (não) é preciso: predadores necessitam de aprendizado para evitação de presas aposemáticas no Pantanal?. In *Ecologia do Pantanal*

#### *Preprint publications (not peer-reviewed)*

- Duarte, LDS, **Nakamura G**, Debastiani V, Maestri R, Pereira MJ, Cianciaruso M and Diniz-Filho JAF. There and Back to The Present: An Evolutionary Tale on Biological Diversity. (DOI <https://doi.org/10.1101/2021.12.11.472171>).
- Richter A, **Nakamura G**, Iserhard CA, Duarte L. 2021. The hidden side of diversity: the effect of imperfect detection on multiple dimensions of biodiversity (DOI <https://doi.org/10.1101/2021.06.02.446400>)
- **Nakamura G**, Richter A, Soares BE. 2021. *FishPhyloMaker*: An R package to generate phylogenies for ray-finned fishes (DOI <https://doi.org/10.1101/2021.06.02.446400>)
- Rodrigues AV, **Nakamura G**, Duarte L. 2020. naturaList: a package to classify occurrence records in levels of confidence in species identification (DOI <https://doi.org/10.1101/2020.05.26.115220>) (*Gbif Ebbs Nielsen 3rd prize – Data Science competition*)

### *Manuscripts in review process or submitted*

- Duarte L; **Nakamura G**; Debastiani, V; Cianciaruso, M and Diniz-Filho, J.A.F. There and back again: an evolutionary tale on biological diversity. In review in *American Naturalist*.
- Carvalho F, Seger G, **Nakamura G**, Duarte LDS and Juen L. Detecting Darwinian shortfalls in the Amazonian Odonata. In review in *Neotropical Entomology*.

### *Manuscripts in preparation:*

- **Nakamura G**, Soares BE and Richter A. Quantifying the Darwinian shortfall for freshwater fishes.

### **Prizes and Grants**

- Best Ph.D. Thesis in Ecology – Federal University of Rio Grande do Sul (2019)
- GBIF Ebbe Nielsen Prize (Data Science competition) – 3<sup>rd</sup> prize (2019)
- Top-downloaded article – *Austral Ecology* (2018-2019)

### **Technical production**

#### *R programs and packages*

- *FishPhyloMaker* (author/maintainer) – R package to generate phylogenies for finned-ray fish (<https://github.com/GabrielNakamura/FishPhyloMaker>)
- *naturaList* (author) – Shiny application (<https://avrodrigues.shinyapps.io/naturaList/>); R package (<https://github.com/avrodrigues/naturaList>)
- *Mcfly* (author/maintainer) – R package to estimate the influence of stabilizing niche selection on species diversity across environmental gradients (<https://github.com/GabrielNakamura/mcfly>)

#### *Technical documents*

- Technical consultant for Minister of Justice of São Paulo State (Brazil) (2016)

### **Teaching experience**

- 2021 Temporary professor, Federal University of Ceara
- 2021 Lecturer, Federal University of Rio Grande do Sul, Introduction to git and GitHub
- 2019 Lecturer, Federal University of Rio Grande do Sul, Workshop – Reinventing the loop *for*: the use of *apply* family and parallel computation in R.

- 2016 - 2019 Teaching assistant, Federal University of Rio Grande do Sul, Bio 11443 (Quantitative methods in Ecology)

### **Professional Seminars/Talks**

- 2021/June Invited talk – Com quantas metricas se descreve uma comunidade? Seminar series for Federal University of Rio de Janeiro (UFRJ) (in Portuguese available here <https://www.youtube.com/watch?v=qQ99ZhebIos>)
- 2020/June Com que métrica eu vou? Quantificando a dimensionalidade para compreensão da diversidade biológica. Ecoencontros (With which metric do I go? Quantifying the dimensionality to understand biological diversity) - Seminar series for University of São Paulo (USP) (in portuguese)

### **Professional service**

- *Reviewer*: Journal of Vegetation Science, Perspectives in Ecology and Conservation, Journal of Biogeography, Frontiers in Ecology and Evolution, Ecology and Evolution, Functional Ecology, Global Ecology and Biogeography, Hydrobiologia.
- *Environmental consultant* at Fibracon (environmental analyst)

### **Ongoing projects**

#### **Reconciling historical biogeography and community phylogenetics: towards a unifying**

**approach** Community ecologist, desiring to reach a mechanistic comprehension of species assemblages, incorporated the time axis in the spatial distribution of species by developing what we call community phylogenetics. However, historical biogeography and community phylogenetics followed different ways by applying comparative methods of character reconstruction and a jungle of diversity measurements, respectively. Whereas historical biogeography was mainly interested in unveiling the effects of past events, the community phylogenetics used imprints of historical events on the current distribution of lineages to explain the current patterns of species distribution. In operational terms, it requires that comparative methods community phylogenetics are merged into a unified and comprehensive framework. In this project, I aim to develop a new methodological approach that incorporates models of habitat evolution in the calculation of tree-based metrics of phylogenetic diversity.

**Micro and macroevolutionary dimensions of biodiversity distribution across multiple ecological scales** This project aims to develop and apply innovative ecological research across multiple

ecological scales (individuals within populations, populations within communities, communities within ecoregions or biomes), integrating micro-and/or macroevolutionary and ecological (phenotypic traits, environmental gradients) dimensions of biodiversity, which ultimately determine coexistence patterns for different biological groups. The project has the following goals: 1) to propose new analytical tools that allow discriminating multiple interplays between evolutionary process, phenotypic trait patterns, and environmental gradients for co-occurring species pools; 2) to generate theoretical and empirical knowledge on the influence of evolutionary processes on spatial distribution patterns of individuals within populations, populations within communities, and communities within ecoregions/biomes, and to what extent those patterns correlate to biogeographical factors and current environmental gradients, and 3) to evaluate patterns of evolution of ecological traits in different biological groups and their relationships with dispersal capacity and habitat use (Lead by Leandro Duarte).