

# TAINÁ ROCHA

I am a Brazilian researcher working on patterns of biodiversity distribution, focusing on the impacts of global change (climate change and land-use and land-cover change). My recent interests and work include: **1.** Analysis of climate data and land-use and land-cover data under different scenarios of climate change, **2.** Spatial analysis (GIS), **3.** Ecological niche models/ species distribution models and other niche analyses to assess the impacts of global change on biodiversity, **4.** R package development

**Note:** I use open-source tools and platforms. I am interested in good practices about open science (open databases, open software, etc.), good workflows, reproducibility and FAIR principles.



[CV available in Portuguese version here](#)



Online version available at [https://tai-rocha.github.io/Tai-Rocha\\_CV.github.io/](https://tai-rocha.github.io/Tai-Rocha_CV.github.io/)





## EDUCATION

- 2017**  
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**2013**  
● **PhD in Zoology**  
Emílio Goeldi Museum  **MPEG**, Brazil  
• DISSERTATION: Phylogeographic of disjunct bird between Amazon and Atlantic Forest
- 2012**  
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**2010**  
● **MSc in Environmental biology**  
Federal University of Pará  **IECOS**, Brazil  
• THESIS: Phylogeographic analysis of *Xiphorhynchus guttatus* from Amazon and Atlantic Forest
- 2010**  
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**2006**  
● **Degree in biological science**  
Federal University of Pará  **UFPA**, Brazil



## RESEARCH EXPERIENCE

- Present**  
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**Nov-2021**  
● **Lab Guest**  
[Biogeography / Statistical Models / Informatics lab](#)  **Remote**, Florida-USA
- Mar-2022**  
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**Aug-2021**  
● **Biodiversity Researcher and Consultant at Brazilian National Centre for Flora Conservation**  
[IUCN Green Status](#) of threatened species of the Brazilian Cerrado  **JBRJ**, Brazil  
• The IUCN Green Status classifies species into nine Species Recovery Categories, indicating the extent to which species are depleted or recovered compared to their historical population levels. Each Green Status assessment measures the impact of past conservation on a species, a species' dependence on continuing support, how much a species stands to gain from conservation action within the next ten years, and the potential for it to recover over the next century.


## CONTACT

 [Github](#)

 [Lattes](#)

 [LinkedIn](#)

 [ORCID](#)



 [Researchgate](#)

 [taina013@gmail.com](mailto:taina013@gmail.com)







 [Twitter](#)

 [Website](#)





Sep-2021  
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Jun-2021

- Volunteer Researcher at United Nations Volunteers  
UN Online Volunteers  United Nations  
• Research Support for an Automated Analysis of Sustainable Development Goals  
 <https://www.osdg.ai/>

2021  
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2019



- Postdoctoral Researcher at Botanical Garden of Rio de Janeiro  
Terrestrial Ecosystem Modeling  JBRJ, Brazil  
Supervisor: Marínez F Siqueira  
• Beta diversity in Caatinga dry tropical forest  
 [https://github.com/Tai-Rocha/Caatinga\\_Dry\\_Forest.github.io](https://github.com/Tai-Rocha/Caatinga_Dry_Forest.github.io)  
• Climatic niche analysis of *Syzygiella rubricaulis* (Bryophytes)  
 [https://github.com/Tai-Rocha/S\\_rubricaulis\\_bryophytes](https://github.com/Tai-Rocha/S_rubricaulis_bryophytes)  
• The first botanical explorations of bryophyte diversity in the Brazilian Amazon mountains: high species diversity, low endemism, and low similarity  
 <https://github.com/Tai-Rocha/Bryophyte-Amazon-mountains>  
• Ecological niche models with future projections of *Dimorphandra wilsonii* Rizzini (Fabaceae) presented to Green List in the three-year activity plan of the Brazilian Plant Red List Authority member of the Plant Conservation Committee between 2017-2020 and the Species Survival Commission of the International Union for Conservation of Nature (IUCN)  
 <https://github.com/Tai-Rocha/faveiro>  
• Ferns and lycophytes diversity of Tijuca forest.  
 <https://github.com/Tai-Rocha/Ferns-and-lycophytes>

2019  
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2017

- Researcher of Technological Development and Innovation  
INCT Ecology, Evolution and Biodiversity Conservation  UFRJ, Brazil  
Supervisor: Mariana M Vale  
• Global land-use and land-cover (LULC) data under historical, current, and future climatic conditions  
 [https://github.com/Tai-Rocha/LUH2\\_Data](https://github.com/Tai-Rocha/LUH2_Data)  
• Ecological niche models (ENMs) for *Carpornis melanocephala* (Passeriformes: Cotingidae) in Rio de Janeiro State, Brazil  
 [https://github.com/Tai-Rocha/Carpornis\\_melanocephala](https://github.com/Tai-Rocha/Carpornis_melanocephala)  
• Ecological niche models and niche similarity test to compares two divergent lineages of *Microtus californicus* (Rodentia, Cricetidae)  
 <https://github.com/Tai-Rocha/Vole>

## TEACHING EXPERIENCE

Sep-2021  
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Sep-2021

- Guest lecture.  
Plant Biology Postgraduate  UFPE, Brazil  
• Ecological Niche Models: Introduction to Theory and Practice (60 h) |  <https://classroom.google.com/u/0/r/Mzg4ODE4NDg1NDQx/sort-first-name>

## SKILLS


 R

 Git

 GitHub

 Markdown









 LaTeX

 Linux OS

 Virtual Machines

 QGIS

 ArcGIS

2020   2019	<p><b>Instructor</b></p> <p>Biology department  PUC-Rio, Brazil</p> <ul style="list-style-type: none"> <li>• Ecological Niche Models and Species Distribution Models, theory and practice (40 h)</li> <li>• Public tools for spatial analysis of biodiversity (40 h)</li> </ul>
2020   2020	<p><b>Instructor</b></p> <p>ENBT Postgraduate  ENBT-JBRJ, Brazil</p> <ul style="list-style-type: none"> <li>• Ecological niche modeling: theory and practice. Modeling potential species distribution. Niche concept and its application. Algorithms modeling. Source of biotic and abiotic data. Maps and spatial analysis using GIS. Tools for processing and preparing biotic and abiotic data. R programming to modeling. Applications. Model testing and validation (40 h)    <a href="https://classroom.google.com/u/0/r/MTI2NTU0NzQ0Nzcxw/sort-last-name">https://classroom.google.com/u/0/r/MTI2NTU0NzQ0Nzcxw/sort-last-name</a></li> </ul>
2020   2020	<p><b>Guest Lecture</b></p> <p>II National Meeting on Biological Collections and their Interfaces  IVB, Brazil</p> <ul style="list-style-type: none"> <li>• Ecological niche models and biological conservation in future scenarios of global changes (5 h)</li> </ul>
2019   2018	<p><b>Guest lecture.</b></p> <p>Biological Sciences- Bachelor's Degree  UVA, Brazil</p> <ul style="list-style-type: none"> <li>• Ecological niche models under a biogeography perspective (3 h)</li> <li>• Ecological Niche Models and Species Distribution Models (3 h)</li> </ul>
2018   2017	<p><b>Guest lecture</b></p> <p>Biological Sciences- Bachelor's Degree  UFRA, Brazil</p> <ul style="list-style-type: none"> <li>• Introduction to Geographic Information System (GIS) (12 h)</li> <li>• Data for ecological niche models (12 h)</li> </ul>
2017   2017	<p><b>Guest lecture</b></p> <p>Biological Sciences Undergraduate  UNESA, Brazil</p> <ul style="list-style-type: none"> <li>• Introduction to databases which provide input to perform ecological niche models (3 h)</li> </ul>
2017   2015	<p><b>High school teacher</b></p> <p>Dinâmica Natural  Rio de Janeiro, Brazil</p> <ul style="list-style-type: none"> <li>• Science classes</li> </ul>



## MENTORING EXPERIENCE

2019

### ● Technical Advisor

Geographic Information System (GIS). Student: Tainá Cunha Udine Bernardino. Institution: Federal University of Rio de Janeiro, Brazil.

Geographic Information System (GIS). Student: João Pedro Sousa Cerqueira Cruz. Institution: Federal University of Rio de Janeiro

📍 RJ, Brazil



## SELECTED PUBLICATIONS

2021

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2021

### ● Global land-use and land-cover data: historical, current and future scenarios

[Biodiversity Informatics Journal](#)

• Authored by Vale MM, Lima-Ribeiro MS and Rocha TC.

2020

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2020

### ● The first botanical explorations of bryophyte diversity in the Brazilian Amazon mountains: high species diversity, low endemism, and low similarity

[Biodiversity and conservation](#)

• Authored by Costa D, Nada F. and Rocha TC.

2019

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2019

### ● A dynamic continental moisture gradient drove Amazonian bird diversification

[Science Advances](#)

• Authored by Silva SM, Townsend P, Carneiro L, Burlamaqui TCT, Ribas CC, Sousa-Neves T, Miranda LS, Fernandes AM, d'Horta FM, Araújo-Silva LC, Batista R, Bandeira CHMM, Dantas SM, Ferreira M, Martins DM, Oliveira J, Rocha TC, Sardelli CH, Gregory T, Rêgo PS, Santos MP, Sequeira F, Vallinoto M and Aleixo A.

2019

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2019

### ● A macroecological approach to evolutionary rescue and adaptation to climate change

[Ecography](#)

• Authored by Diniz-Filho JAF, Souza KS, Bini LM, Loyola R, Dobrovolski R, Rodrigues JFM, Lima-Ribeiro Matheus MS, Terribile CL, Rangel TF, Bione I, Freitas R, Machado IF, Rocha TC, Lorini ML, Vale MM, Navas CA, Maciel NM, Villalobos F, Olalla-Tarraga MA, Gouveia S.

2015

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2015

### ● Molecular phylogeny and diversification of a widespread Neotropical rainforest bird group: The Buff-throated Woodcreeper complex, *Xiphorhynchus guttatus/susurrans* (Aves: Dendrolaptidae)

[Molecular Phylogenetics and Evolution](#)

• Authored by Rocha TC, Sequeira F, Aleixo A, Rego PS, Sampaio I, Schneider H, Vallinoto M.

2014  
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2014

- **Instabilidade Climática e diversidade de espécies na Amazônia**  
**In book: Cenários para Amazônia: clima, biodiversidade e uso da terra**  
· Authored by Aleixo A, Townsend P, Araújo-Silva LC, Miléo CHM, Batista R, Burlamaqui TCT, Danta SM, Fernandes AM, Ferreira M, Martins DM, Rêgo PS, Ribas CC, Rocha TC, Santos MP, Sardelli CH, Sequeira F, Soares LMS, de Sousa BRS, Sousa SA, Sousa-Neves T, Gregory T, Vallinoto M.

2009  
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2009

- **Identification and phylogenetic inferences on stocks of sharks affected by the fishing industry off the Northern coast of Brazil**  
**Genetics and Molecular Biology**  
· Authored by Rodrigues-Filho LF, Rocha TC, Rego PS, Schneider H, Sampaio I, Vallinoto M.




## JOURNAL REVIEWER

Mar  
2022

- **Acta Botanica Brasilica**  
One review  Online

Oct 2021

- **Conservation Science and Practice**  
One review  Online

2021

- **Frontiers in Ecology and Evolution**  
Three review  Online

2020  
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2021

- **Perspectives in Ecology and Conservation**  
Two reviews  Online


2019  
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2020

- **Oecologia Australis.**  
Three reviews  Online




## COMMITTEE MEMBER

2021

- **Leave out or put in - selecting input data to improve ecological niche models applied to conservation and climate change analysis: an approach using the Atlantic Goliath Grouper, *Epinephelus itajara* (Perciformes)**  
**Final Master committee.** Student: Eduardo Motta Carelli Minsky.  
Advisor: Maria Lucia Lorini. Institution: UNIRIO  UNIRIO, Brazil

2021

- **Wallacean knowledge shortfall of mammals in the Central Corridor of the Atlantic Forest**  
**Final undergraduate committee.** Student: Inês Motta Comarella.  
Advisor: Francisco Candido Cardoso Barreto. Institution: UFES  UFES, Brazil

- 2021 ● Impacts on the food behavior of birds in the urban, semi-urban and rural environment in the municipal of Capanema, Pará

**Final undergraduate committee.** Student: Luana Gabriela Costa Bezerra. Advisor: Breno Barros. Institution: UFRA

📍 [UFRA](#), Brazil
- 2021 ● Modeling species distribution of plant species as tool for assessing the impacts of climate changes and progress of Sustainable Development Goals (SDGs) 13 and 15 in Caatinga biome

**Master's qualifying examination.** Student: Lucas Peixoto Teixeira. Advisor: Marcelo Freire Moro. Institution: UFC

📍 [UFC](#), Brazil
- 2020 ● Strategies for conservation of endemic and threatened species: *Hindsia glabra* K.Schum & *Aosa uleana* (Urb.Gilg) Weigend

**Master's project monitoring committee.** Student: Bárbara Piovani Luz Aieta Afonso. Supervisor: Marinez Ferreira de Siqueira. Institution: ENBT/JBRJ

📍 [ENBT-JBRJ](#), Brazil, Brazil
- 2018 ● Seabird habitat use and its association foraging with Guiana dolphin (*Sotalia guianensis*) in Sepetiba Bay (2018).

**Undergraduate monitoring committee.** Student: Leonardo Gomes Pacheco de Sá. Advisor: Maria Alice dos Santos Alves. Co-advisor: Rodrigo Hipolito Tardin Oliveira. Institution: UFRJ

📍 [UFRJ](#), Brazil



## SELECTED TALKS & SCIENTIFIC COMMUNICATION

- 2020 ● Open tools and databases to analyze biodiversity in space and time

Week curator at [Biodiversity in Focus](#) | [Webpage](#) for the content shared

📍 Online
- 2020 ● Global land-use and land-cover data: historical, current and future scenarios

Final presentation in [OLS-2](#) | [Slides](#)

📍 Online
- 2019 ● Connecting data and experiences: Biodiversity, Information and Communication Technologies in Brazil

[RNP 2019](#) | [Slides](#)

📍 Brasília, Brazil

I recently created a website<sup>7</sup> where I will talk about science communication, provide tutorials of different tools and diverse content about science.



## SELECTED EVENTS

- 2021 ● **V International Seminar on Statistics with R**  
V SER event was recognized by the R Foundation (2018) for its pioneering in Latin America in bringing together an expressive number of R users| Participation as a listener.  
📍 Online
- 2019 ● **Forum of Rede Nacional de Ensino e Pesquisa**  
RNP 2019. Challenges of digital transformation in teaching and research will lead debates at 2019 RNP Forum| Participation as Guest speaker.  
📍 Brasília, Brazil
- 2018 ● **Workshop Evolutionary Rescue**  
The workshop was organized by José Alexandre Diniz-Filho professor. The general concept of “evolutionary rescue” refers to the possibility of rapid Darwinian adaptation of populations under a strong effect of environmental stress. Specifically, in this workshop we discussed: 1) the concept of evolutionary rescue and the theoretical models in evolutionary genetics that have been used to study this process, and; 2) the integration of these theoretical models with ecological niche modelling techniques, in a context of climate change and anthropogenic changes in the landscape, 3) their implications for the conservation of diversity in the face of these changes, at different spatial scales. Analyses were implemented for some species of amphibians, such as model organisms, and the possibilities of expanding these analyses to a global scale were discussed, and several sub-projects to be carried out in the coming years on this topic were defined. 20h  
📍 Goiânia, Brazil



## COMPLEMENTARY TRAINING COURSES

- Nov 2021- Jan 2022 ● **R for Data Science II**  
🔗 This course aims to deepen the essential concepts of programming in R for Data Science. We will present intermediate and advanced data manipulation techniques from real data analysis problems, including texts and dates, and functional programming concepts. 18 h  
📍 Online
- Mar 2021 ● **Flexdashboard: Interactive panels using R**  
🔗 Analyze. Share. Reproduce. Your data tells a story. Use rmarkdown and Flexdashboard and transform your analysis into high-quality documents, reports, presentations and dashboards. 4 h  
📍 Online

- Feb 2021 ● **Managing tables with dplyr R package**  
● The main functions of dplyr for handling tables. 4 h ● Online
- Feb 2021 ● **Regular expressions (regex) for data cleaning**  
● Regex as part of the data cleaning and transformation process using Tidyverse R packages. 4 h ● Online
- Aug 2020  
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Dec 2020 ● **Open Life Science program**  
OLS-2. Training for early stage researchers and young leaders interested in furthering their Open Science skills. ● Online
- Sep 2020 ● **Writing academic manuscripts using rmarkdown**  
● This training provided the different steps and tools for writing academic manuscripts or technical reports in an automated and reproducible way using R and rmarkdown. 4 h ● Online