

# TAINÁ ROCHA

Brazilian researcher and data scientist focusing on the impacts of global changes (climate and land use and land cover changes). My interests and work are: **1.** Analysis of climate data and land use and land cover data in different scenarios/projections, **2.** Biodiversity data analysis, **3.** Predictive models **4.** Spatial analysis (GIS), **5.** Bioinformatics, R and Python programming language, Google Earth Engine etc.

**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](#)



 [PDF version available here](#)





## 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**  
|  
**2006**
  - **Degree in biological science**  
Federal University of Pará  **UFPA, Brazil**

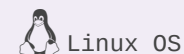


## RESEARCH EXPERIENCE

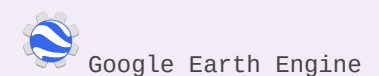
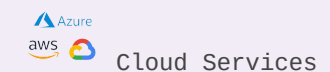
- Present**  
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**May-2022**
  - **Postdoctoral Researcher**  
[Brazilian Biodiversity Research Program \(PPBio\)](#)  **Brazil**
    - Impacts of global changes on Brazilian biodiversity and ecosystem services
    - Main task : Compilation of data generated by the program
- Present**  
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**Nov-2021**
  - **Lab Guest**  
[Biogeography / Statistical Models / Informatics lab](#)  **Remote, Florida-USA**
    - Research collaboration on biodiversity and global change. R package development for biodiversity data.

## SKILLS

Familiarity and daily use:



Familiarity and occasional use:




Basic knowledge and sporadic use:




Mar-  
2022  
|  
Aug-  
2021

● **Biodiversity Researcher and Consultant**  
**Brazilian National Centre for Flora Conservation** 📍 JBRJ, Brazil

-  <https://www.iucn.org/commissions/species-survival-commission/resources/iucn-green-status-species>  
Green Status of threatened species of the Brazilian Cerrado.  
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.  
Here we used predictive models of species niche and potential distribution in scenarios of climate change and land use data of Mapbiomas (<https://mapbiomas.org/en>) to infer Species Recovery metrics.






Sep-  
2021  
|  
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: Marinez F Siqueira

- Beta diversity (variation in species composition among locations) in Caatinga dry tropical forest using predictions of Generalized dissimilarity Models (GDM) and Baselga Metrics  
 [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>
- Predictive models of species niche and potential distribution 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 also future climatic conditions (different scenarios- SSP and RCPs)  
🔗 [https://github.com/Tai-Rocha/LUH2\\_Data](https://github.com/Tai-Rocha/LUH2_Data)
  - Predictive models of species niche and potential distribution 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)
  - Predictive models of species niche, potential distribution and niche similarity test to compares two divergent lineages of *Microtus californicus* (Rodentia, Cricetidae)  
🔗 <https://github.com/Tai-Rocha/Vole>



## SELECTED PUBLICATIONS

2023  
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2023

- **Hidden costs of Europe's deforestation policy**  
**Science**
  - Authored by Geraldo W. Fernandes, Hernani F. M. Oliveira, Helena G. Bergallo, Vitor N. T. Borges-Junior, Guarino Colli, Stephannie Fernandes, Nathan C. Fonsêca, Adrian A. Garda, Carlos E. V. Grelle, André V. Nunes, Lucas N. Perillo, Tainá C. Rocha, Domingos J. Rodrigues, Ricardo R. da Silveira-Filho, Helena Streit, Tiago S. P. Toma, Pedro L. Viana, Fabio O. Roque

2023  
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2023

- **Evolutionary rescue and geographic range shifts under climate change for global amphibians**  
**Frontiers in Ecology and Evolution**
  - Authored by Souza KS, Fortunato DS, Jardim L, Levi C, Lima-Ribeiro MS, Mariano CA, Pinto-Ladezma JN, Loyola R, Dobrovolski R, Rangel TF, Machado IF, Rocha T, Batista MG, Lorini ML, Vale MM, Navas C, Maciel MN, Villalobos F, Olalla-Tarraga MA, Rodrigues JFM, Gouveia S, Diniz-Filho JA

2022  
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2022

- **GridDER: Grid Detection and Evaluation in R**  
**Preprint at EcoEvoRxiv**  
Under review Ecological Informatics.  
Prize winner of **GBIF Ebbe Nielsen Challenge 2022**
  - Authored by Feng X, Rocha TC, Thammavong HT, Tulaiha R, Chen X, Xie Y, Park D

2022  
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2022

- **Climatic conditions may structure the distribution of *Syzygiella rubricaulis* (Nees) Steph., a disjunct and high elevation species**  
Under review at **Phytotaxa**
  - Authored by Costa D, Rocha TC. and Siqueira MF

## Contact

🌲 [Linktree](#)

🔗 [Github](#)

👁 [Lattes](#)

in [Linkedin](#)

ID [ORCID](#)

📄 [Researchgate](#)

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

🐦 [Twitter](#)

🌐 [Website](#)

- 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: Dendrocolaptidae)**  
*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.



## OTHER PUBLICATION TYPES

- Apr 2022 ● Forest land under different scenarios of future global change  
Global Dataset Online
- Dec 2021 ● Third Report- GREEN STATUS  
GREEN STATUS Activity Progress Report for 10 Cactaceae species Online
- Oct 2021 ● Second Report- GREEN STATUS  
GREEN STATUS Activity Progress Report for 10 Cactaceae species online
- Sep 2021 ● First Report- GREEN STATUS  
GREEN STATUS Activity Progress Report for 10 Cactaceae species Online



## JOURNAL REVIEWER

- Feb 2023 ● PeerJ  
Two review Online
- Sep 2022 ● Ecography  
One review Online
- 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 | 2021 ● Perspectives in Ecology and Conservation  
Two reviews Online

2019  
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2020

● *Oecologia Australis.*

Three reviews

📍 Online



## COMMITTEE MEMBER

Apr 2022

● 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 Brazilian semi-arid biome

**Final Master committee.** Student: Lucas Peixoto Teixeira 📍 *UFC*, Brazil  
Advisor: Marcelo Freire Moro

Jun 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

Jul 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

Mar 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

Feb 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

Aug  
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: Marínez Ferreira de Siqueira. Institution: ENBT/JBRJ 📍 *ENBT-JBRJ*, Brazil

Jul 2018

- Seabird habitat use and its association offoraging 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

## 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>

2020  
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2019

- Instructor  
Biology department  
📍 PUC-Rio, Brazil  
• Ecological Niche Models and Species Distribution Models, theory and practice (40 h)  
• Public tools for spatial analysis of biodiversity (40 h)

2020  
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2020

- Instructor  
ENBT Postgraduate  
📍 ENBT-JBRJ, Brazil  
• 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) |  <https://classroom.google.com/u/0/r/MTI2NTU0NzQ0Nzcx/sort-last-name>

2020  
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2020

- Guest Lecture  
II National Meeting on Biological Collections and their Interfaces  
📍 IVB, Brazil  
• Ecological niche models and biological conservation in future scenarios of global changes (5 h)

2019  
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2018

- Guest lecture.  
Biological Sciences- Bachelor's Degree  
📍 UVA, Brazil  
• Ecological niche models under a biogeography perspective (3 h)  
• Ecological Niche Models and Species Distribution Models (3 h)

- 2018  
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2017
  - **Guest lecture**  
Biological Sciences- Bachelor's Degree 📍 UFRA, Brazil
    - Introduction to Geographic Information System (GIS) (12 h)
    - Data for ecological niche models (12 h)
- 2017  
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2017
  - **Guest lecture**  
Biological Sciences Undergraduate 📍 UNESA, Brazil
    - Introduction to databases which provide input to perform ecological niche models (3 h)
- 2017  
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2015
  - **High school teacher**  
Dinâmica Natural 📍 Rio de Janeiro, Brazil
    - Science classes



## 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 TALKS & SCIENTIFIC COMMUNICATION

- May 2022
  - **VI International Seminar on Statistics with R**  
[VI SER](#) rgee: an R package to use Google Earth Engine| Participation as a Speaker. 📍 online
- 2020
  - **Global land-use and land-cover data: historical, current and future scenarios**  
Final presentation in [OLS-2](#)|[Slides](#) 📍 Online
- 2020
  - **Open tools and databases to analyze biodiversity in space and time**  
Week curator at [Biodiversity in Focus](#) | [Webpage](#) for the content shared 📍 Online




I have a [website](#) to talk about science communication, provide tutorials and diverse content.



- 2019 ● **Connecting data and experiences: Biodiversity, Information and Communication Technologies in Brazil**  
RNP 2019 | [Slides](#)  Brasília, Brazil





## 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. 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  
|  
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

This CV was made with R packages: [pagedown](#) e [datadrivencv](#).

Code available at [GitHub](#).

Last updated in 2023-04-04 and [available here](#).