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.** Biodiversity, **3.** Predictive models of species niche and potential distribution, **4.** Spatial analysis (GIS), **5.** Bioinformatics, R 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 | 2013

PhD in Zoology

Emílio Goeldi Museum — MPEG, Brazil

- DISSERTATION: Phylogeographic of disjunct bird between Amazon and Atlantic Forest

2012 | 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 | 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 | 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.

CONTACT

Linktree
Github
Lattes
Linkedin
ORCID
Researchgate
taina013@gmail.com
Twitter
Website

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 | 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
- Climatic niche analysis of *Syzygiella 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 Commitee 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 | 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
- 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
- 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

2022 | 2022

Evolutionary rescue and geographic range shifts under climate change for global amphibians

Under review at 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 | 2022

GridDER: Grid Detection and Evaluation in R

Preprint at EcoEvoRxiv DOI 10.32942/osf.io/6qy5u
Under review [Ecological Informatics] (https://www.sciencedirect.com/journal/ecological-informatics)

- Authored by Feng X, Rocha TC, Thammavong HT, Tulaiha R, Chen X,Xie Y, Park D

2022 | 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

2021 | 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.

SKILLS

- R
- Git
- GitHub
- Markdown
- Linux OS
- Virtual Machines
- Azure, aws, Cloud Services
- Google Earth Engine
- GIS
- ArcGIS

2020 | 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 | 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 | 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, RangelTF, Bione I, Freitas R, Machado IF, Rocha TC, Lorini ML, ValeMM, Navas CA, Maciel NM, Villalobos F, Olalla-Tarraga MA, Gouveia S.

2015 | 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 | 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 | 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

Dec 2022
PeerJ
One 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 | 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 andprogress of Sustainable Development Goals (SDGs) 13 and 15 in Brazilian semi-arid biome

Final Master committee. Student: Lucas Peixoto Teixeira Advisor: Marcelo FreireMoro

UFC, Brazil

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 inthe 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 andprogress 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 conservationof endemic and threatened species: Hindsia glabra K.Schum E 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

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 | 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 | 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 | 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/MTI2NTU0NzQ0Nzcw/sort-last-name

2020 | 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 | 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 | 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 | 2017

Guest lecture

Biological Sciences Undergraduate — UNESA, Brazil

- Introduction to databases which provide input to perform ecological niche models (3 h)

2017 | 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 2022-12-23 and available here.