Melina de Souza Leite

CONTACT INFORMATION

Department of Ecology,
Biosciences Institute
University of São Paulo, São Paulo, Brazil

Bayreuth Center of Ecology and Environmental Research (BayCEER)
University of Bayreuth, Bayreuth Germany

melina.leite@ib.usp.br
Website / Github / Google Scholar

RESEARCH INTERESTS

- **Applied Ecology & Conservation**: Landscape ecology; Biodiversity and species conservation; Evidence-based synthesis and systematic reviews for landscape conservation and planning.
- **Theoretical Ecology**: Tree demography; Community ecology; Macroecology.
- **Data Science and Ecological statistics:** multilevel/mixed-effects linear models, variance partitioning analysis.
- **Metascience and Open Science**: gender bias, best practices in open science.

EDUCATION

Jun 2017 – Dec 2022
PhD in Ecology, University of São Paulo (USP)
Title: "Embracing Variability: the use of mixed effects models in Ecology"
March 2020 - March 2021: visiting student University of Regensburg (Germany)
September 2020 - February 2021: predoctoral fellowship at Smithsonian Environmental Research Center, Smithsonian Institution (USA)
January 2022 - March 2022: visiting student Leiden University (The Netherlands)

Oct 2021 - Jul 2023
MBA in Data Science and Analytics, USP
Title: "How to get the most out of forest data? Disentangling tree demography with multilevel models"

Nov 2015 – Aug 2017
MBA in Environmental Management, USP
Title: "Socio-economic factors and native vegetation cover on rural properties in the state of São Paulo, Brazil"

Mar 2007 – Jul 2009
MSc in Ecology, Federal University of Rio de Janeiro (UFRJ)
Title: "Spatial and activity patterns of the water opossum *Chironectes minimus* in Atlantic Forest rivers in southeastern Brazil"

Mar 2003 – Feb 2006
BSc in Biological Science, UFRJ
Title: "Ecology and conservation of the water opossum, Chironectes minimus, in Atlantic Forest rivers in the São João River Basin, Rio de Janeiro State."

PROFESSIONAL EXPERIENCE

Oct 2023 – Feb 2024
Visiting Researcher - University of Bayreuth
Developing a project about the demography of threatened tree species with Prof. Lisa Hülsmann at the Bayreuth Center of Ecology and Environmental Research (BayCEER)

Aug 2010 – now
Ecologist/Data Scientist/Laboratory Specialist – University of São Paulo

Working in ecology and conservation research projects in different laboratories at the Department of Ecology, USP, Brazil. I'm also a consultant in sampling design and statistical analysis and R for students and professors.

Jan 2023 – Mar 2023
Visiting Researcher - Leiden University
Developing a project in statistical methods for forest ecology in collaboration with Prof. Marco Visser at the Institute of Environmental Sciences.

Jun 2009 – Jul 2010
Environmental consultant
Responsible for field work in mammal assessment and for report writing in five Environmental License Projects for three different companies in environmental consultancy, in Brazil.

TEACHING EXPERIENCE

Aug 2023
Teacher and co-creator of the course "**Best Practices and Open Science Tools for Ecology**" for graduate students at the Graduate Program for Ecology, Biosciences Inst (USP). Block course, 1 week (30h).

May to June 2016
Teacher and creator of the course "**Introduction to R for Environmental Consultancy**". Course taught to the data science team at a large consultancy company in Brazil.

2012 – 2018 2023
Teaching Assistant in graduate courses at Biosciences Inst. (USP). Block courses, taught once per year.
- R Language for Ecological Data Analysis (from 2012 to 2018, 2023)
- Design, Planning and Data Analysis in Ecology (2018)

2015, 2017, 2024
Teaching Assistant at undergraduate course at Biosciences Inst. (USP)
- Ecology of plant populations and communities (2017)
- Virtual Ecology (2015, 2017)
- Ecological Bioclimatology (2024)

2011, 2012, 2015
Guest Teacher in field courses:
- Atlantic Forest field course (graduate course) at IB-USP (2015)
- Invertebrate Zoology and Ecology undergraduate field course at the Federal Institute of Education in Rio de Janeiro (IFRJ) (2011 and 2012)

2005 - 2006
Undergraduate **Teaching Assistant** at undergraduate course at the Biology Institute, Federal University of Rio de Janeiro (UFRJ):
- Ecology (2005, two semesters), Animal Ecology (2006), Vertebrate Zoology (2006)

PUBLICATIONS

13 peer-reviewed publications (5 as 1st author); 1 accepted manuscript; 1 submitted manuscript (1st author); 4 manuscripts in preparation (2 as 1st author); 3 Preprints; 5 repositories for datasets and code; 2 book chapters; 4 pieces of science outreach (1 video; 2 reports for magazines, 1 for newspaper).

Google Scholar Citations 376; H-index 9; i10-index 9.

Peer-Reviewed

2022
1. **Leite, MS**, Boesing, AL, Metzger, JP & Prado, PI. 2022. *Matrix quality determines the strength of habitat loss filtering on bird communities at the landscape scale*. Journal of Applied Ecology, 59, 2790–2802. Citations: 6.

2. Oberpriller J, **Leite MS** & Pichler M. 2022. *Fixed or random? On the reliability of mixed-effects models for a small number of levels in grouping variables.* Ecology & Evolution, 12: e9062. Citations: 33

2021
3. Barros CS, Pistón N, Delciellos AC & **Leite MS.** 2021. *Is Oecologia Australis promoting gender equality in its review process?* Oecologia Australis 5(3): 642-647. Citations: 2.

2020
4. Locosselli GM, Brienen RJW, **Leite MS**, *et al.* 2020. *Global tree-ring analysis reveals rapid decrease in tropical tree longevity with temperature*. *PNAS* 117, 33358–33364. Citations: 62.

5. **Leite MS**, Alves da Silva Jr. J, Calaboni A & Igari A. 2020. *Socioeconomic factors and native vegetation cover in rural lands in São Paulo state, Brazil.* Ambiente & Sociedade (Environment & Society) 23: e03093. Citations: 8.

2019
6. Lira PK, **Leite MS** & Metzger JP. 2019. *Temporal lag in ecological responses to landscape change: where are we now?* Current Landscape Ecology Reports, 4(3):70-82. Citations: 51.

2018
7. Acosta AL, D'Albertas F, **Leite MS**, Saraiva AM & Metzger JP. 2018. *Gaps and limitations in the use of restoration scenarios: a review.* Restoration Ecology 26 (6): 1108-1119. Citations: 18.

2016
8. **Leite, MS**, Galliez, M, Queiroz, TL & Fernandez, FAS. 2016. *Spatial ecology of the water opossum Chironectes minimus in Atlantic Forest streams*. Mammalian Biology 81,480-487. Citations: 9.

2015
9. Fernandez, FAS, Galliez, M, **Leite, MS**, Queiroz, TL & Palmeirim, AF. 2015. *Natural history of the water opossum Chironectes minimus: a review*. Oecologia Australis 19, 47–62. Citations: 16.

2014
10. Palmeirim, AF, **Leite, MS**, Santos-Reis, M & Fernandez, FAS. 2014. *Habitat selection for resting sites by the water opossum (Chironectes minimus) in the Brazilian Atlantic Forest.* Studies on Neotropical Fauna and Environment 49, 231–238. Citations: 10.

2013
11. **Leite, MS**, Queiroz, TL, Galliez, M, de Mendonça, PP & Fernandez, FAS. 2013. *Activity patterns of the water opossum Chironectes minimus in Atlantic Forest rivers of south-eastern Brazil.* Journal of Tropical Ecology 29, 261–264. Citations: 15.

12. **Leite, MS**, Tambosi, LR, Romitelli, I & Metzger, JP. 2013. *Landscape Ecology Perspective in Restoration Projects for Biodiversity Conservation : a Review.* Natureza & Conservação (Perspectives in Ecology and Conservation) 11, 108–118. Citations: 86.

2009
13. Galliez, M, **Leite, MS**, Queiroz, TL & Fernandez, FAS. 2009. *Ecology of the water opossum Chironectes minimus in Atlantic forest streams of southeastern Brazil.* Journal of Mammalogy 90, 93–103. Citations: 56.

Accepted manuscripts

1. Hülsmann L, Chisholm R, Comita, L, Visser M, **Leite MS,** (...) & Hartig, F. Latitudinal patterns in stabilizing density dependence of forest communities. *Nature.*

Submitted anuscripts

1. **Leite, MS,** et al. (2023) <u>Major axes of variation in tree demography across global forests</u>. Submitted to *Ecography*. Preprint available below. (Preprint available below)

Manuscripts in preparation

1. Barreto J*, **Leite MS***, Romitelli I*, Santana P, Assis, AP & Pardini R. A decade of imbalance: can gender bias narrow perspectives in ecological science? *authors with equal contribution.
2. **Leite MS,** de Deurwaerder, H (...) & Marco Visser. Are there limits to the predictability of forest dynamics?
3. Morato, K, **Leite MS,** (...) & Metzger, J. Beyond the Concrete Jungle: A meta-analysis to uncover the influence of green areas on urban mental health.
4. Barreto, JR, **Leite MS,** Pardini, R, Metzger JP & Nichols E. Context-dependent drivers of biodiversity response to anthropogenic changes.

Preprints

1. **Leite, MS,** McMahon, SM, Prado, PI, (...) Visser, MD & Hulsmann, L. (2023) *Major axes of variation in tree demography across global forests*. bioRxiv, 2023.01.11.523538.
2. **Leite MS,** Boesing, AL, Metzger, JP & Prado, PI. 2021 *Matrix quality determines the strength of habitat loss filtering on bird community assembly across spatial scales.* EcoEvo Preprint (Published in to Journal of Applied Ecology 2022)
3. Oberpriller, J, **Leite, MS**, Pichler, M. 2021. *Fixed or random? On the reliability of mixed-effects models for a small number of levels in grouping variables.* bioRxiv: (Published in Ecology and Evolution 2022)

Book chapters

1. **Leite, MS**, Silva JR, JA, Calaboni, A & Igari, AT. 2021. <u>*Variações no percentual de vegetação nativa em imóveis de povos indígenas, quilombolas e comunidades locais tradicionais no Estado de São Paulo*</u> (*Variations in the percentage of native vegetation on properties owned by indigenous peoples, quilombolas and traditional local communities in the state of São Paulo)*. In: Povos Tradicionais e Biodiversidade no Brasil. Parte II. Seção 5: Os territórios indígenas e tradicionais protegem a biodiversidade? Cunha, MC, Magalhães, SB & Adams C (Orgs.).
2. Calaboni A, **Leite MS** et al. 2020. <u>ODS 15 – Vida terrestre – Histórico, governança e perspectivas para conservação dos ecossistemas terrestres na Macrometrópole Paulista.</u> (*SDG 15 - Terrestrial life: History, governance and prospects for the conservation of terrestrial ecosystems in the Macrometropolis of São Paulo*). In: Objetivos do Desenvolvimento Sustentável: Desafios para o planejamento e a governança ambiental na Macrometrópole Paulista: 235–261. Frey, K., Torres, P.H.C., Jacobi, P.R. & Ramos, R.C.F. (Eds.). Santo André: Editora UFABC. Citations: 2.

Datasets/repositories

1. **Leite, MS.** 2022. Data and code from: Major axes of variation in tree demography across global forests (v0.9). *Zenodo*, https://doi.org/10.5281/zenodo.7448220.
2. Pichler, M, **Leite, MS,** Oberpriller, J. 2022. Data and code from: Oberpriller et al. 2022, Fixed or random? On the reliability of mixed-effects models for a small number of levels in grouping variables. Zenodo, https://zenodo.org/doi/10.5281/zenodo.5817297
3. **Leite, MS.** 2022. Data and code from: Matrix quality determines the strength of habitat loss filtering on bird communities at the landscape scale (v2.2). Zenodo, https://doi.org/10.5281/zenodo.5516703

4. Locosselli GM, Brienen RJW, **Leite MS**, et al. 2020. Dataset and R code associated with Locosselli et al. 2020, Global tree-ring analysis reveals rapid decrease in tropical tree longevity with temperature. Proceedings of the National Academy of Sciences (PNAS)

5. **Leite, MS**, Galliez M, Queiroz TL, Mendonça PP, Fernandez FAS. 2016a. Data from: Spatial ecology of the water opossum Chironectes minimus in Atlantic Forest streams. Movebank Data Repository. doi:10.5441/001/1.4rr97k10

Scientific outreach

1. Outreach promoting video of my PhD Thesis (see awards section). Available at:

2. Galliez, M, **Leite, MS**, Fernandez, FAS, Queiroz, TL, Palmeirim, AF & Avelato, HL. 2011. *Cuíca d'água Chironectes minimus (Water opossum, Chironectes minimus)*. MG BIOTA 4, 56–60.

3. Fernandez, FAS, Galliez, M, **Leite, MS** & Queiroz, TL. 2007. *O gambá que inventou o submarino (The opossum who invented the submarine)*. Ciência Hoje 39, 70–72.

4. Fernandez, FAS; Galliez M & **Leite, MS**. 2007. *O gambá que inventou o submarino: estudando o misterioso Chironectes minimus* (*The opossum that has created the submarine: studying the mysterious Chironectes minimus*). Jornal do Brasil, JB Ciência Hoje, p. A12, 10 fev. 2007.

AWARDS, FELLOWSHIPS AND GRANTS

2023	"**Outstanding Thesis Prize 2023**" from the University of São Paulo. Prize awarded to the best PhD thesis defended in 2022, with a promoting outreach video of the study. Prize R$ 10,000 (~US$3,000).
2023	**Research Fellowship** from CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil, PrInt Program) to the Leiden University, The Netherlands, between January and March 2023. Total € 5,030.
2022	**Research Grant** from CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil) via Graduate Program in Ecology (USP) to develop part of the Ph.D. project at the Leiden University, The Netherlands, between January and March 2022. Total US$ 10,000.
2020 – 2021	**Predoctoral Fellowship** from Smithsonian Institution (SI-USA) to work at the Laboratory of Quantitative Ecology, Smithsonian Environmental Research Center. 6 months. Total US$ 18,080. **Research Grant** from Smithsonian Tropical Research Institute (SI-USA), to develop a project with the ForestGEO network in the University of Regensburg, Germany, for 2 months. Total US$ 2,500.
2014 – 2020	Grants from São Paulo Research Foundation (FAPESP) as a **research member**: - Ecological Detective tools: using imperfect detection models to investigate ecological questions (2014-2017). PI: Paulo Inácio Prado. - Functional and Phylogenetic assembly of trees in Restinga forest (2018-2020). PI: Alexandre Adalardo de Oliveira.
2007 – 2009	**Masters fellowship** from Brazilian National Council for Scientific Development (CNPq).
2005 – 2007	**Undergraduate scientific scholarship** from Brazilian National Council for Scientific Development (CNPq).

2005 – **Five one-year project grants** during my undergraduate and masters research
2010   projects from O Boticário Nature Protection Foundation (Non-governmental
organization in conservation science in Brazil).

Shortlisting

2022   Shortlisted for the **Journal of Applied Ecology's 2022 Southwood prize for Early
Career Researchers** with the paper "*Matrix quality determines the strength of
habitat loss filtering on bird communities at the landscape scale*". Paper available on
the [Virtual Issue of JAE](#) April 2023.

TALKS

Invited talks

- Lecture 2023: *"Open Data in Ecology"* at the Graduate course on Open Science, University of Goiás, Brazil.

- Lecture 2022: "*Fixed or random? On the reliability of mixed-effects models for a small number of levels in grouping variables*" at the Graduate course on Mixed-Effects Models, Institute of Mathematics and Statistics, USP.

- Lecture 2018: "*Use of mixed-effects models in Ecology*" at the Graduate course on Mixed-Effects Models, Institute of Mathematics and Statistics, USP.

Selected talks (total 9)

- 2022 - *Disentangling the major contributions to tree demography in global forests*. Leiden University, The Netherlands.

- 2022 - *Open Data: what is it and what's in it for me?*. Seminar series at the Department of Ecology, University of São Paulo, Brazil.

- 2022 - *Organizing global forests: Disentangling the contributions of species, space, and time to tree demography.* INTECOL 2022, Genebra, Switzerland.

- 2022 - *Major axes of variation in tree demography across global forests.* Seminar series at the Department of Ecology, University of São Paulo, Brazil.

- 2021 - *The dominant role of taxonomy in global forests: Disentangling the major contributions to tree demography*. ForestGEO seminar series, online.

- 2020 - *Seeing the forest for the trees: Disentangling the contribution of species, space and time to the variability in tree vital rates*. Festival of Ecology, British Ecological Society.

- 2020 - *Matrix quality modulates habitat loss filtering across scales on bird assemblages in fragmented landscapes*. Laboratory of Theoretical Ecology, University of Regensburg, Germany.

- 2019 - *Effects of matrix quality on the (dis)assembly of bird communities in fragmented landscapes*. EcoEncontros Seminar series, at the Department of Ecology, USP.

- 2017 - *Applications of Mixed-Effects models in Ecology*. Laboratory of Landscape Ecology and Conservation, Department of Ecology, University of São Paulo.

OTHER PROFESSIONAL EXPERIENCES

Jury member

- **Jury member** in Fernando Silvério PhD thesis defense at the Graduate Program of Ecology (USP). October 2023.

Committee member for Master's projects

- Jenifer Prestes Auler. Mater's degree in Ecology (USP). 2022-2023.
- Irina Lerner. Master's degree in Ecology (USP). 2023-2024.

Editorial

- **Assistant editor** of the Preprint repository EcoEvoRxiv, from January 2024.

- **Assistant editor** in statistics in journal Oecologia Australis (July 2020 - now).

Committee work

- **Vice staff representative** (administrative and technicians' leader) to the Committe of Pemanent affirmative actions (Comissão Permamente de Ações Afirmativas, CoPAF) of the Graduate Program of Ecology (USP), from January 2024.

- **Staff representative** (administrative and technicians' leader) to the Council of the Department of Ecology (USP), 2022-2023. Vice representative in 2024.

- **Staff representative** (administrative and technicians' leader) to the Committee of Culture and Outreach, Institute of Biosciences (USP). 2015.

Reviewer scientific papers

- **Referee of 11 manuscripts for 7 peer-reviewed journals**, including: Journal of Biogeography (2, 2021-2022) Ecology (1, 2021), Biota Neotropical (1, 2020), Oecologia Australis (3, 2021, 2019, 2014), Studies on Neotropical Fauna and Environment (1, 2018), Mammalia (1, 2014), Biotemas (2, 2010).

Workshop organization

- **Organizational work** for 2016 International Workshop on MetaEcology, University of São Paulo, Ilhabela, Brazil. Funded by FAPESP, Brasil.

SCIENTIFIC ORGANIZATIONS AFFILIATION

- ABECO (2020-2023) - Associação Brasileira de Ciência Ecológica e Conservação (Brazilian Association for Ecological Science and Conservation)

- SBPC (2021-2023) - Sociedade Brasileira para o Progresso da Ciência (Brazilian Society for the Advancement of Science)

- BES (2020-2021) - British Ecological Society. 2020-2022.

- SORTEE (2021-2023): Society for Open, Reliable, and Transparent Ecology and Evolutionary Biology

LANGUAGE SKILLS

- **English:** Advanced. TOEFL ITP total score (2022): 647 of 677 (level C1)
- **Spanish:** Intermediate

- **German:** Intermediate
- **Portuguese:** Native speaker

COMPUTATIONAL SKILLS

- Daily: R, Git/Github, MacOS, Linux Sever (for High Performance Computing)
- Often: QGIS, ArcGIS
- Seldom: html, css, Python, Latex

SPECIALIZED TRAINING

Schools, Workshops and Field courses

- 2020
  - <u>IX Southern-Summer School on Mathematical Biology</u> at ICTP-SAIRF, São Paulo, Brazil
  - <u>School on Community Ecology: from principle to patterns</u> at ICTP-SAIRF São Paulo, Brazil
- 2019
  - Smithsonian CTFS-ForestGEO Analytical Workshop (104h), Singapore. Travel costs covered by the Smithsonian Institution.
- 2008:
  - Field Course: Ecology of Pantanal (1 month), Federal University of Mato Grosso do Sul, Brazil
- 2007
  - Filed Course: Ecology of Amazon Forest (1 month), Institute of Amazonian Research (INPA), Brazil

Other courses (graduate level)

- 2020
  - Machine learning and AI in TensorFlow and R (40h) University of Regensburg.
- 2018
  - Model based multivariate analysis of abundance data using R (40h), Glasgow, Scotland
  - Generalized linear models (120h), USP, São Paulo, Brazil.
  - Multivariate analysis (120h), USP, São Paulo, Brazil.
- 2017
  - Time Series Analysis (60h), USP, São Paulo.
  - English for oral presentation (30h), USP, São Paulo, Brazil
  - Workshop "MCMC step-by-step" (30h), USP, São Paulo, Brazil
- 2016
  - Mixed Models and Applications (120h), USP, São Paulo, Brazil
  - Multivariate Analysis for Environmental Science (40h), USP, São Paulo, Brazil
  - Introduction to Exploratory Analysis and Statistical Methods (40h), USP, São Paulo, Brazil
- 2015
  - Coaching and Leadership (40h), USP, São Paulo, Brazil
  - Software Carpentry Workshop for Python, Git and Github (16h), USP, São Paulo, Brazil
- 2014
  - Academic Writing (40h), USP, São Paulo, Brazil
  - Bayesian Models in Ecology (40h), USP, São Paulo, Brazil
  - Statistical Models in Population Ecology (40h), USP, São Paulo, Brazil
  - Statistical Modeling for Ecology (40h), USP, São Paulo, Brazil
- 2011
  - R Language for Ecological Data Analysis (40h), USP, São Paulo, Brazil
  - English for Academic Writing (40h), USP, São Paulo, Brazil
- 2009

- ○ GIS for Conservation Biology (30), São Paulo, Brazil
- 2008
  - ○ Design and Analysis of Ecological Experiments, Rio de Janeiro, Brazil