

LUCAS P. MEDEIROS

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ACADEMIC APPOINTMENTS

University of California, Santa Cruz

2022 - present

Postdoctoral Scholar at the Fisheries Collaborative Program (UCSC and NOAA Fisheries)

Supervisors: [Stephan Munch](#) and [Eric Palkovacs](#)

EDUCATION

Massachusetts Institute of Technology

2018 - 2022

Ph.D. in Civil and Environmental Engineering

Advisor: [Serguei Saavedra](#)

University of São Paulo

2015 - 2017

M.S. in Ecology

Advisor: [Paulo R. Guimarães Jr](#)

University of São Paulo

2014 - 2017

B.S. in Applied and Computational Mathematics

University of São Paulo

2009 - 2013

B.S. in Biological Sciences

Advisors: [Paulo R. Guimarães Jr](#) and [Esther Sebastián-González](#)

PUBLICATIONS

In preparation:

2. **Medeiros, L. P.** and Munch, S. B. (In preparation). A unified framework for responses to pulse perturbations under non-equilibrium population dynamics.
1. **Medeiros, L. P.**, Grady, K. O., Coates, J. H., and Munch, S. B. (In preparation). Predicting and controlling the dynamics of market squid with Empirical Dynamic Modelling.

In print:

10. **Medeiros, L. P.** and Saavedra, S. (2023). Understanding the state-dependent impact of species correlated responses on community sensitivity to perturbations. *Ecology*, e4115. <https://doi.org/10.1002/ecy.4115>
9. Camacho, L. A., Andreazzi, C. S., **Medeiros, L. P.**, Birskis-Barros, I., Emer, C., Reigada, C., and Guimarães Jr, P. R. (2023). Cheating interactions favor modularity in mutualistic networks. *Oikos*, 2023(3), e09176. <https://doi.org/10.1111/oik.09176>
8. **Medeiros, L. P.**, Allesina, S., Dakos, V., Sugihara, G., and Saavedra, S. (2023). Ranking species based on sensitivity to perturbations under non-equilibrium community dynamics. *Ecology Letters*, 26(1), 170-183. <https://doi.org/10.1111/ele.14131>

7. **Medeiros, L. P.***, Song, C.*, and Saavedra, S. (2021). Merging dynamical and structural indicators to measure resilience in multispecies systems. *Journal of Animal Ecology*, 90(9), 2027–2040. <https://doi.org/10.1111/1365-2656.13421> (* equal contribution)
6. **Medeiros, L. P.**, Boege, K., Del-Val, E., Zaldívar-Riverón, A., and Saavedra, S. (2021). Observed ecological communities are formed by species combinations that are among the most likely to persist under changing environments. *The American Naturalist*, 197(1), E17–E29. <https://doi.org/10.1086/711663>
5. Saavedra, S., **Medeiros, L. P.**, and AlAdwani, M. (2020). Structural forecasting of species persistence under changing environments. *Ecology Letters*, 23(10), 1511–1521. <https://doi.org/10.1111/ele.13582>
4. Pires, M. M., O'Donnell, J. L., Burkle, L. A., Diaz-Castelazo, C., Hembry, D. H., Yeakel, J. D., Newman, E. A., **Medeiros, L. P.**, De Aguiar, M. A. M., and Guimarães Jr, P. R. (2020). The indirect paths to cascading effects of extinctions in mutualistic networks. *Ecology*, 101(7), e03080. <https://doi.org/10.1002/ecy.3080>
3. Cenci, S., **Medeiros, L. P.**, Sugihara, G., and Saavedra, S. (2020). Assessing the predictability of nonlinear dynamics under smooth parameter changes. *Journal of the Royal Society Interface*, 17(162), 20190627. <https://doi.org/10.1098/rsif.2019.0627>
2. **Medeiros, L. P.**, Garcia, G., Thompson, J. N., and Guimarães Jr, P. R. (2018). The geographic mosaic of coevolution in mutualistic networks. *Proceedings of the National Academy of Sciences*, 115(47), 12017–12022. <https://doi.org/10.1073/pnas.1809088115>
1. Dáttilo, W., Lara-Rodríguez, N., Jordano, P., Guimarães Jr, P. R., Thompson, J. N., Marquis, R. J., **Medeiros, L. P.**, Ortiz-Pulido, R., Marcos-García, M. A. and Rico-Gray, V. (2016). Unraveling Darwin's entangled bank: architecture and robustness of mutualistic networks with multiple interaction types. *Proceedings of the Royal Society B*, 283(1843), 20161564. <https://doi.org/10.1098/rspb.2016.1564>

AWARDS

Vito Volterra Award for Best Student Oral Presentation - Ecological Society of America Theoretical Ecology Section	August 2021
Best M.S. thesis of 2017 in Ecology at the University of São Paulo	March 2018

FELLOWSHIPS

Ph.D. fellowship - Martin Family Society of Fellows for Sustainability (MIT Environmental Solutions Initiative)	2021 - 2022
Ph.D. scholarship - Swiss Government Excellence Scholarship (declined)	2018
Laboratory technician scholarship - São Paulo Research Foundation (FAPESP) - R\$14,347	2017 - 2018
M.S. scholarship - São Paulo Research Foundation - R\$33,207	2015 - 2017
Scientific Initiation scholarship - São Paulo Research Foundation - R\$6,128	2014
M.S. scholarship - National Council for Scientific and Technological Development (CNPq) -	

R\$10,500

2015

(1st place in the admissions for the M.S. in Ecology at the University of São Paulo)

PRESENTATIONS

Conference talk - Ecological Society of America
(Portland, OR)

August 2023

Invited talk - Emerging Scholars in Integrative Biology
(Boston University)

March 2023

Conference talk - American Society of Naturalists
(Pacific Grove, CA)

January 2023

Workshop talk - 20th Annual UCSC & Stanford Species Interactions Workshop
(UC Santa Cruz)

December 2022

Invited talk - Symposium on market squid
(NOAA Southwest Fisheries Science Center)

November 2022

Ph.D. thesis defense - Department of Civil and Environmental Engineering
(Massachusetts Institute of Technology)

May 2022

Invited talk - Physics of Living Systems
(Massachusetts Institute of Technology)

May 2022

Invited talk - EcoEncontros at University of São Paulo
(Virtual)

December 2021

Invited talk - Ecological Resilience Webinar of the British Ecological Society
(Virtual)

September 2021

Conference talk - Ecological Society of America
(Virtual)

August 2021

Invited talk - Evolutionary and Ecological Systems Biology talks
(Massachusetts Institute of Technology)

September 2020

Poster presentation - MIT Quantitative Ecology Meeting
(Massachusetts Institute of Technology)

January 2020

Conference talk - American Society of Naturalists
(Pacific Grove, CA)

January 2020

Invited talk - Simple Person's Applied Math Seminar
(Massachusetts Institute of Technology)

September 2019

Invited talk - Opening lectures of the Graduate Program in Ecology
(University of São Paulo)

March 2018

Invited talk - EcoEscola
(University of São Paulo)

January 2017

Poster presentation - Evolution
(Austin, TX)

June 2016

TEACHING

Instructor for Instituto Serrapilheira's Quantitative Ecology Field Course
(Brazilian Amazon)
Supervised graduate student's field projects

July 2023

TA for Probability and Causal Inference - 1.010
(Massachusetts Institute of Technology)
Planned and conducted recitations

Fall 2021

TA for Ecological Dynamics and Modeling - 1.873
(Massachusetts Institute of Technology)
Conducted tutorials/discussions and graded problem sets

Spring 2021

TA for Probability and Causal Inference - 1.010
(Massachusetts Institute of Technology)
Graded problem sets

Fall 2020

TA for Ecological Dynamics and Modeling - 1.873
(Massachusetts Institute of Technology)
Conducted tutorials/discussions and graded problem sets

Spring 2020

TA for Probability and Causal Inference - 1.010
(Massachusetts Institute of Technology)
Graded problem sets

Fall 2019

TA for EcoEscola Field Course
(University of São Paulo)
Supervised undergraduate student's field projects

January 2017

TA for Southern-Summer School on Mathematical Biology
(ICTP-SAIFR)
Supervised graduate student's modeling projects

January 2016

TA for Diversity, Natural History and Conservation of South American Vertebrates
(University of São Paulo)
Moderated discussions and graded problem sets

August - December 2015

TA for R Language for Data Analysis in Ecology
(University of São Paulo)
Moderated tutorials and graded problem sets

March 2014

PROFESSIONAL SERVICE

Reviewed manuscripts for the following journals ([Web of Science](#)):
Ecology (1), *Ecological Complexity* (1), *Ecology Letters* (3), *Journal of Animal Ecology* (1),
Methods in Ecology and Evolution (1), *Nature Communications* (2),

Oikos (4), PLOS Computational Biology (1) *2018 - present*

Main organizer of symposium on Population Fluctuations in Ecology
at the ESA 2023 Conference (Portland, OR)
Speakers: Karen Abbott, Jeff Gore, Tanya Rogers, and Daniel Wieczynski *August 2023*

Conducted and presented modeling/data analyses for the
Squid Fishery Advisory Committee in collaboration
with the California Department of Fish and Wildlife *February 2023 - present*

Conducted modeling/data analyses for Covid-19 BR Observatory
in collaboration with several Brazilian researchers
(<https://covid19br.github.io>) *March - May 2020*

Judged talks/posters for prizes at 2 ASN and 1 ESA conference *2020 - 2023*

Helped organizing the annual Fritz Muller Seminar Series
(University of São Paulo, <https://fritzmuller.weebly.com>) *2014 - 2016*

COMPUTATIONAL SKILLS

- R (advanced)
- Python (basic)
- C (basic)
- Git and GitHub
- LaTeX
- Microsoft Office

SELECTED GRADUATE-LEVEL COURSES

Time Series Analysis (MIT - 14.384) *Fall 2020*

Modeling Environmental Complexity (MIT - 12.586) *Fall 2019*

Machine Learning (Harvard - CS181) *Spring 2019*

Ecological Dynamics and Modeling (MIT - 1.873) *Spring 2019*

Computational Ecology (MIT - 1.871) *Fall 2018*

Winter School on Quantitative Systems Biology (ICTP, 2.5 weeks, virtual) *December 2020*

Workshop on Dynamics of Ecological Networks (ICTP-SAIFR, 1 week) *May 2018*

School on Physics Applications in Biology (ICTP-SAIFR, 3 weeks) *January 2016*

Southern-Summer School on Mathematical Biology (ICTP-SAIFR, 2 weeks) *January 2014*

LANGUAGES

- Portuguese (native)
- English (fluent)
- Spanish (basic)