

Gustavo Brant Paterno

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Postdoctoral Research Fellow

Departamento de Ecologia | Universidade Federal do Rio Grande do Norte | 2019 |

Summary

I am interested in Ecology, Evolution and Data Analysis. My current research is focused on the role of herbivores and sexual selection on the evolution of sex and the diversification of the Angiosperms. I am also interested in the mechanisms shaping plant community structure and their implications to restoration ecology. I have great interest in statistics and data visualization, phylogenetics and developing open software.

Education

PhD in Ecology

2014 - 2018

Departamento de Ecologia, Universidade Federal do Rio Grande do Norte

- Thesis: Sex, herbivores and the evolution of flowers

M.Sc. Ecology

2011 - 2013

Departamento de Ecologia, Universidade Federal do Rio Grande do Norte

- Thesis: The role of nurse plants in the restoration of semiarid ecosystems

B.Sc. Ecology

2005 - 2010

Universidade Federal do Rio Grande do Norte

- Thesis: Species-specific facilitation, ontogenetic shifts and consequences for plant community succession

Working Experience

Postdoctoral fellow

2019 - current

*Universidade Federal do Rio Grande do Norte, **Brasil***

- Reserach Topic: Sex, herbivores and the diversification of Angiosperms sexual strategies.
Prof. Carlos R. Fonseca.

Postdoctoral fellow

2018 - 2019

*Universidade Federal do Juiz de Fora, **Brasil***

- Reserach Topic: Biodiversity-ecosystem function and Atlantic Forest resotration.
Prof. André Amado.

Visiting schoolar

2018 - 2018

*Macquarie University - MACQUARIE, **Australia***

- Comparative Ecology Group.
Prof. Mark Westoby.
- Reserach Topic: Global allometry of Angiosperm flowers

Visiting schoolar

2017 - 2017

*Vrije Universiteit Brussel - VUB, **Belgium***

- Functional Ecology of Plants and Ecosystems.
Prof. Harry olde Venterink.
- Reserach Topic: Flower stoichiometry

Visiting schoolar

2016 - 2016

*Technische Universität München - TUM, **Germany***

- Chair of Restoration Ecology.
Prof. Johannes Kollmann.
- Reserach Topic: Flower sex allocation

Visiting schoolar

2015 - 2015

*Technische Universität München - TUM, **Germany***

- Chair of Restoration Ecology.
Prof. Johannes Kollmann.
- Reserach Topic: Flower sex allocation

Publications

2019

- Wolff, J. O., **Paterno, G. B.**, Liprandi, D., Ramírez, M. J., Bosia, F., Meijden, A., Michalik, P., Smith, H. M., Jones, B. R., Ravelo, A. M., Pugno, N., & Herberstein, M. E. (2019). Evolution of aerial spider webs coincided with repeated structural optimization of silk anchorages. *Evolution*, 73(10), 2122–2134. [link](#)

2018

- **Paterno, G. B.**, Penone, C., & Werner, G. D. A. (2018). sensiPhy: An r-package for sensitivity analysis in phylogenetic comparative methods. **Methods in Ecology and Evolution**, 9(6), 1461–1467. [link](#).

2016

- **Paterno, G. B.**, Siqueira Filho, J. A., & Ganade, G. (2016). Species-specific facilitation, ontogenetic shifts and consequences for plant community succession. **Journal of Vegetation Science**, 27(3), 606–615. [link](#).
- Kollmann, J., S. T. Meyer, R. Bateman, T. Conradi, M. M. Gossner, M. de Souza Mendonça, G. W. Fernandes, J.-M. Hermann, C. Koch, S. C. Müller, Y. Oki, G. E. Overbeck, **G. B. Paterno**, M. F. Rosenfield, T. S. P. Toma, and W. W. Weisser. 2016. Integrating ecosystem functions into restoration ecology-recent advances and future directions. **Restoration Ecology** 24:722–730. [link](#).
- Röhr, D. L., **G. B. Paterno**, F. Camurugi, F. A. Juncá, and A. A. Garda. 2016. Background noise as a selective pressure: stream-breeding anurans call at higher frequencies. **Organisms Diversity and Evolution** 16:269–273. [link](#).

2015

- Garla, R. C., R. H. a. Freitas, J. F. Calado, **G. B. Paterno**, and A. R. Carvalho. 2015. Public awareness of the economic potential and threats to sharks of a tropical oceanic archipelago in the western South Atlantic. **Marine Policy** 60:128–133. [link](#).

2010

- Loiola, M. I. B., **G. B. Paterno** and J. Apolinar. 2010. Leguminosae and Its Potencial of Use in the Rural Communities of São Miguel Do Gostoso – Rn. *Revista Caatinga* 23:59–70.

In revision

- **G. B. Paterno**, Carina L. Silveira, Johannes Kollmann, Mark Westoby, Carlos Roberto Fonseca. **The maleness of larger angiosperm flowers**. *PNAS*

In preparation

- **G. B. Paterno**, Harry olde Venterink, Carlos Roberto Fonseca. **The stoichiometry of flowers**. *in prep*.
- C. R. Fonseca, **G. B. Paterno**, M. M. Gossner, M. Brändle, W. Weisser, J. Kollmann and H. O. Venterink. **Sex, herbivores and flower evolution**. *in prep*.

Teaching Experience

Postgraduate teaching

2018-2018

- Evolutionary ecology and phylogenetic comparative analysis in R
Departamento de Ecologia, UFRN
- Data analysis and Visualization in R
Departamento de Ecologia, UFJF

Undergraduate teaching

2013-2014

- Field Ecology
Departamento de Ecologia, UFRN
- Population Ecology
Departamento de Ecologia, UFRN
- Community Ecology
Departamento de Ecologia, UFRN
- Ecosystems Ecology
Departamento de Ecologia, UFRN
- Biological Conservation
Departamento de Ecologia, UFRN

Software

sensiPhy

The sensiPhy R package provides simple functions to perform sensitivity analyses in phylogenetic comparative methods. It uses several simulation methods to estimate the impact of different types of uncertainty on Phylogenetic comparative methods.

- Github Page: <https://github.com/paternogbc/sensiPhy>
- Online tutorial: <https://github.com/paternogbc/sensiPhy/wiki>

Weasel

Simulate the evolution of digital individuals (An implementation of Richard Dawkins Weasel algorithm). The Weasel Algorithm was developed by Richard Dawkins to demonstrate how random variation combined with non-random cumulative selection can drive evolutionary change.

- Github Page: <https://github.com/paternogbc/weasel>

SSregression

This interactive application allows you to explore how Sums of Squares are calculated in simple linear regressions. Change one of the parameters to see what happens.

- Github Page: <https://github.com/paternogbc/SSregression>
- See application page: https://paternogbc.shinyapps.io/SS_regression/

Web development

- **Methods in Field Ecology:** <https://methods-field-ecology.netlify.com/>
- **Gustavo Paterno:** <https://paternogbc.netlify.com/>
- **Laboratório de restauração:** <https://lerufrn.wixsite.com/restauracao>
- **Blog R-Aprendiz:** <https://raprendiz.wordpress.com/>

Reviewer

I am currently a reviewer for the following journals

- [Plant and Soil](#)
- [Ecosphere](#)

Awards and Honors

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| • Best master thesis in Ecology (UFRN) | 2013 |
| • Best PhD thesis in Ecology (UFRN) | 2018 |