Gustavo Brant Paterno

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Postdoctoral Research Fellow
Departamento de Ecologia | *Universidade Federal do Rio Grande do Norte* | 2020 |

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 vizualization, phylogenetics and developing open software.

Education

PhD in Ecology 2014 - 2018
- *Departamento de Ecologia, Universidade Federal do Rio Grande do Norte*
- *Restoration Ecology Chair, Technische Universität München - TUM*
- *Functional Ecology of Plants and Ecosystems, Vrije Universiteit Brussel*
- *Comparative Ecology Group, Macquarie Universit*

- 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 ecossystems

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, ***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 *(Cover article)*

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 *2018-2019*

- Data management and Vizualization with R
  Departamento de Ecologia, UFRN
- Methods in Field Ecology
  PPG Ecologia UFJF & TUM - link
- Evolutionary ecology and phylogenetic comparative analysis with R
  Departamento de Ecologia, UFRN
- Data analysis and Vizualization 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

- Best master thesis in Ecology (UFRN) 2013
- Best PhD thesis in Ecology (UFRN) 2018