Brian S. **Maitner**

Postdoctoral Researcher

Department of Geography, Department of Environment and Sustainability, University at Buffalo, Buffalo, New York, USA

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Research Interests

Biodiversity; global change; community assembly; coexistence; community phylogenetics; behavioral ecology; community ecology; tropical ecology; invasion biology; biogeography; niche conservatism; trait-based ecology; data science; geospatial analyses; ecoinformatics; R

Professional Experience

Postdoctoral Scholar — *Buffalo, NY, USA*

University of Buffalo — *2021-present*

- Research focused on developing workflows to inform land managers in the Cape Floristic Region of South Africa of potential changes in vegetation (e.g. fires, droughts, invasive species, illegal land clearing).
- The workflow utilized remote sensing data, hierarchical Bayesian modeling to predict NDVI over time and detect deviations, and machine learning for classifying deviation from expectations into land change categories.

Terrestrial sampling stratification designer

BIOSCAPE — *2022-present*

- As part of NASA's first biodiversity-focused program, BIOSCAPE (https://www.bioscape.io/), I led the selection of the terrestrial sites that would be used by BIOSCAPE.
- Sites were selected by analyzing and synthesizing multiple environmental variables to ensure sites were representative while also being compatible with project logistics and goals (e.g., near roads, publicly accessible, small slope, etc.)

Postdoctoral Scholar — *Storrs, CT, USA*

University of Connecticut — *2020-2021*

- Research focused on using unsupervised clustering algorithms to conduct novel delineations of global ecoregions on the basis of global plant distribution models, assessing their conservation status, and projecting future changes.

Education

Doctor of Philosophy: Ecology and Evolutionary Biology — *Tucson, AZ, USA*

University of Arizona — *2014-2020*

- Advisor: B.J. Enquist, PhD
- Thesis: Challenging current paradigms in communirt phylogenestics: Including source range phylogenetic structure and transforming pylogenetic branches to reflect trait evolution.

Master of Science: Ecology and Evolutionary Biology — *Houston, TX, USA*

Rice University — *2009-2013*

- Advisor: K. Hylander, PhD
- Thesis: Declines and increases in northern and southern plant populations after changes in the microclimate

Bachelor of Science: Zoology — *East Lansing, MI, USA*

Michigan State University — *2004-2006*

- High Honors
- Concentrations in General Zoology and Ecology, Evolution, and Organismal Biology

Bachelor of Science: Ecology — *Grand Rapids, MI, USA*

Grand Rapids Community College — *2001-2004*

Additional Education and Relevant Travel

iDiv Summer School

German Centre for Integrative Biodiversity Research — *2017*

Computation Ecology Summer School

University of Montreal — *2016*

Biomedical Responsible Conduct of Research, Basic Course

Collaborative Institutional Training Initiative — *2012*

Species Distribution Modeling Training Course

American Museum of Natural History — *2011*

Studies in Natural History: Costa Rica

Grand Rapids Community College — *2003 & 2004*

Studies in Natural History: Canada

Grand Rapids Community College — *2003*

Funding

Robert May Prize

Awarded by: British Ecological Society — *2022*

Qualified for the UP Postgraduate Masters Research Bursary

Awarded by: University of Pretoria — *2018*

Awarded the 3rd year Undergraduate Mentorship Bursary

Awarded by: University of Pretoria — *2016*

Publications

Presentations

Invited talks

Phylogenetic relationships and community assembly. — *Grand Rapids Community College*

Maitner, B.S. — *2011*

Talks

The Ecosystem Monitoring and Management Application (EMMA) Workflow: Automating Change Detection and Reporting in the Hyperdiverse Fynbos of South Africa. — *American Geophysical Union Conference*

Maitner, B.S., Slingsby, J., Moncrieff, G.R., Hu, Y., Ma, Y., Wilson, A. — *2022*

Forecasting vegetation dynamics in an open ecosystem by integrating deep learning and environmental variables. — *American Geophysical Union Conference*

Hu, Y., Ma, Y., Moncrieff, G.R., Slingsby, J., Wilson, A., **Maitner, B.S.**, Zhenqi, R.Z. — *2022*

BioFI - The Biodiversity Forecasting Initiative to Understand Population, Community, and Ecosystem Function Under Climate Change. — *American Geophysical Union Conference*

Enquist, B.J., Merow, C., Nikolopoulos, E., Frazier, A., Duncanson, L., Anagnostou, E., Boyle, B., Breshears, D.D., Ernst, K.C., Foden, W., Gallagher, R.V., Klausmeier, C.A., Litchman, E., Norberg, J., Marquet, P.A., **Maitner, B.S.**, Midgley, G., Pascual, M., Rominger, A., Savage, V., Silander, J., Slingsby, J., Svenning, J.C., Wilson, A., Dietze, M., Cavender-Bares, J., Roehrdanz, P., Hannah, L.. — *2022*

Forecasting future global biodiversity: Predicting current and future global plant distributions, community structure, and ecosystem function. — *American Geophysical Union Conference*

Maitner, B.S. — *2019*

Short Presentations and Posters

Phylogenetic scaling and community phylogenetic patterns. — *Ecological Society of America Conference*

Maitner, B.S., Enquist, B.J. — *2018*

Evolutionary imbalance dominates phylogenetic patterns in successful bird introductions.
Ecological Society of America Conference
Maitner, B.S., Dlugosch, K.M, Enquist, B.J.
2018

Quantifying species tolerances and functional diversity using n-dimensional hypervolumes: a comparison of methods.
International Biogeography Society Conference
Morrow, C. B., Blonder, B., **Maitner, B.S.**, Lamanna, C., Kerkhoff, D., Enquist, B.J.
2017

Comparative community phylogenetics.
Gordon Conference: Unifying Ecology Across Scales
Maitner, B.S., Enquist, B.J.
2016

Phylogenetic diversity-area relationships reveal macroecological patterns.
Ecological Society of America Conference
Maitner, B.S., Morlon, H., Enquist, B.J.
2015

Are mountain passes higher in the tropics? A community phylogenetic approach.
Ecological Society of America Conference
Roy, C.L., **Maitner, B.S.**, Dunham, A.E.
2012

Nest Defense and Parental Investment in the House Wren.
Wilson Ornithological Society Conference
Fox, K., Caffarelli A., Walters L., **Maitner, B.S.**
2012

Phylogenetic distance and bird invasions.
Ecological Society of America Conference
Maitner, B.S. Rudgers J.A., Dunham A.E., Whitney K.D.
2010

Workshops and Organized Sessions

Open data in the life sciences: Challenges and Opportunities.
OpenCon
2017

Integrating and cleaning biodiversity data: Workflows to model ranges and merge associated ecological, phylogenetic, and trait information.
International Biogeography Society Conference
2017

Referee Duties

Acta Oecologica; American Journal of Botany; Annals of Botany; Biodiversity and Conservation; Biological Conservation; Biotropica; Diversity and Distributions; Ecography; Ecology; Ecological Informatics; Ecology Letters; Frontiers of Biogeography; Global Ecology and Biogeography; iScience; Journal of Biogeography; Journal of Ecology; Journal of Vegetation Science; Journal of the Arkansas Academy of Science; Methods in Ecology and Evolution; Nature Communications; New Phytologist; Philosophical Transactions of the Royal Society B; PLOS ONE; Science of the Total Environment; Scientific Reports.

Fellowships and Grants

Galileo Circle Scholarship
University of Arizona
2019-2020

William A. Calder III Memorial Scholarship
University of Arizona
2019

TransPlant Fellowship
University of Bergen
2019

Data Science Ambassadorship
University of Arizona
2018

Libraries' scholarship to attend OpenCo
University of Arizona
2017

Graduate fellowship

Rice University *2009-2013*

Rice Centennial Award to Support Undergraduate Research

Rice University *2012*

Awards

E4 Award (nominated)

Ecography *2021*

Graduate Award for Outstanding Teaching

University of Arizona *2020*

Ebbe Nielsen Challenge (Second place)

Global Biodiversity Information Facility *2019*

Award for Best Graduate Paper

Rice University *2012-2013*

Peter Savvas Nelson Award

Rice University *2012-2013*

Joe Davies Prize for Outstanding Service as a Teaching Assistant

Rice University *2009-2010*

Dean's list

Michigan State University *2004-2006*

Foundation Scholarship

Grand Rapids Community College *2004-2005*

Hansen Environmental Scholarship

2004

Biology Student of the Year (nominated)

Grand Rapids Community College *2004*

Dean's list

Grand Rapids Community College *2002-2004*

Michigan Merit Award

2002

Teaching Experience

Introduction to Agent Based and Individual Based Models (ECOL596W) *University of Arizona*

Proposed, designed and implemented course *2019*

Adaptive Evolution and Biodiversity Lab (BIO 182L) *University of Arizona*

Instructor *2018-2019*

Adaptive Evolution and Biodiversity Lab (BIO 182L) *University of Arizona*

Instructor *2015-2016*

Scientific Communication (EBIO 412) *Rice University*

Teaching Assistant *2012*

Biological Diversity Lab (EBIO 327) *Rice University*

Teaching Assistant *2011*

Animal Behavior (EBIO 321) *Rice University*

Teaching Assistant *2010-2011*

Conservation Biology (EBIO 323) *Rice University*

Teaching Assistant *2010*

Student Mentorship

Service/Outreach

Community Engagement

Science Communication

Cartoonist

Fortnightly cartoonist for Ecology for the Masses blog *2020 - 2022*

Popular Articles