

Alivia G. Nytko

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Education

Ph.D. Ecology and Evolutionary Biology August 2022 – Present
Interdisciplinary Minor in Computational Science Current GPA 4.00/4.00
The University of Tennessee, Knoxville, TN
Advisors: Joe Bailey & Brian O'Meara

B.S. Biology – Ecology & Evolutionary Biology Concentration May 2022
The University of Tennessee, Knoxville, TN GPA 3.91/4.00
Thesis Advisor: Jen Schweitzer

Software Engineering Bootcamp June 2024
The University of Tennessee, Knoxville, TN
Center for Professional Educational & Lifelong Learning

Research Grants and Fellowships

Active funding

- 2022-2027 \$111,000 NSF Graduation Research Fellowship Program (GRFP)

Completed Funding

- 2021-2022 \$1,500 Faculty Research Assistant Funding (FRAF)
- 2023-2024 \$2,750 UTK EEB Graduate Research Award

Awards

- Finalist – Ernst Mayr Award – SSB (2025)
- Dawn and Lawrence Taylor Dissertation Award (2025)
- Best Progress Toward Dissertation – EEB (2025)
- E. Lucy Braun Award – ESA (2024)
- Tom Hallam Award – EEB (2024)
- Ray Holton Plant Science Award (2023)
- Global Catalyst Student International Travel Grant (2023)
- Tennessee Plant Research Center Travel Fellowship (2023)
- Graduate Student Senate (GSS) Travel Award (2023)
- Graduate Researchers in Ecology, Behavior, and Evolution (GREBE) Travel Award (2023)

- Best Science Communication at the 6th Annual EEB Undergraduate Research Symposium (2022)
- Hochman Research Award – Funds Declined (2022)
- Volunteer of Distinction – Extraordinary Academic Achievement (2022)
- Volunteer of Distinction – Extraordinary Professional Promise (2022)
- Best Student Presentation Award in the FEWSUS International Symposium (2021)
- Dean’s List at the University of Tennessee – Summa Cum Laude (2019 – 2022)
- Volunteer Scholarship Recipient (2019 – 2022)
- Distinguished Tennessean Award (2019 – 2022)

Publications

Manuscripts in Review

- **A.G. Nytko**, J.M. Beaulieu, B.C. O’Meara, J.K. Bailey. The seven forms of eco-evolutionary rarity.

Published Manuscripts

- **A.G. Nytko**, J.K. Senior, R.C. Wooliver, J. O’Reilly-Wapstra, J.A. Schweitzer, J. Bailey. An evolutionary case for plant rarity: *Eucalyptus* as a model system. *Ecology and Evolution* (2024), <https://doi.org/10.1002/ece3.11440>.
- **A.G. Nytko**, A.M. Hord, J.K. Senior, J. O’Reilly-Wapstra, J.A. Schweitzer, J. Bailey. Evolution of rarity and phylogeny determine above- and belowground biomass in plant-plant interactions. *PLOS ONE* (2024), <https://doi.org/10.1371/journal.pone.0294839>.
- S.J. Love, J.D. Edwards, C.N. Barnes, T.W. d’Entremont, A.M. Hord, **A.G. Nytko**, N.B. Sero, S.N. Kivlin, J.K. Bailey. Identifying research targets and risks in climate change studies to break barriers to broad inference. *PLOS Climate* (2023), <https://doi.org/10.1371/journal.pclm.0000320>.

Preprints

- **A.G. Nytko**, J.A. Schweitzer, J.K. Bailey. Positive and negative feedbacks drive aboveground traits in rare plant species. *Authorea* (2024), doi: 10.22541/au.171483239.91020880/v1.

Scientific Software

- **GeoFunPhy R package (DOI: 10.5281/zenodo.13845718)**
 - <https://github.com/anytko/GeoFunPhy>

- Calculates and compares species' geographic range sizes, evolutionary distinctiveness, and functional trait distinctiveness to classify the eco-evolutionary status of species varying in rarity.
- **Ecospat Python package**
 - <https://pypi.org/project/ecospat/>
 - Maps and identifies historical and contemporary range edges for over 600 tree species.
 - Calculates the northward rate of movement, change in population density over time, average temperature, precipitation, and elevation of range edges.
 - Assigns a range movement pattern to species distributions.
 - Generates a predicted persistence raster for further analyses.
- **EcoSMART: Statistics, Modeling, Analysis of Ranges and Traits**
 - <https://anytko.shinyapps.io/ecosmart/>
 - Maps and calculates species native and invasive ranges.
 - Provides animations representing species occurrences through time.
 - Displays connected populations through time and estimates dispersal rates.

Presentations

- Evolution Annual Meeting (2025)
- Ecological Society of America Conference (2023)
- The 6th Annual EEB Undergraduate Research Symposium (2022)
- NSF FEWSUS international Student Workshop – Co Chair position (2022)
- The 26th Annual Exhibition of Undergraduate Research and Creative Achievement (EUREKA) (2022)
- 12th Annual Undergraduate Research Symposium at The University of Tennessee – Knoxville (2021)
- The 25th Annual Exhibition of Undergraduate Research and Creative Achievement (EUREKA) (2021)
- NSF Student FEWSUS International Symposium (2021)
- University of Tennessee Summer Research Scholars Symposium (2021)

Conferences, Working Groups, & Symposia Organized

- Special Session Organizer (Role: Organizer, Session Chair, ESA 2025) for “Breaking barriers to incorporating phylogenetics in ecology”

Workshops Attended

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| • Phylogenomics Software School – Evolution Annual Meeting | 2025 |
| • An introduction to close range LiDAR forest ecology – BES | 2023 |

Teaching Experience

The University of Tennessee, Knoxville, TN Graduate Teaching Assistant Organismal & Ecological Biology – BioLit Ecology	2022 – 2023
The University of Tennessee, Knoxville, TN Undergraduate Teaching Assistant Skills of Biological Investigation Lab	2020 – 2021

Skills

- R
- Python
- ArcGIS
- Ecological Niche Modeling
- JavaScript
- React
- Redux
- Django

Professional Service

Manuscript Review

Proceedings of the National Academy of Sciences (PNAS)
Science of the Total Environment

Professional Society Service

President, Delta Alpha Pi Honors Society, University of Tennessee	2021 – 2023
• Facilitated 3 rd Annual DAPi Disability Awareness Seminar	

Outreach

Mycelium Committee Chair	2025 – 2026
Darwin Day Committee	2024 – 2025
• Developed a K-12 educational activity on phylogenetics for McClung Museum Darwin Day	

Sigma Alpha Graduate Application Workshop
UTK College of Arts and Sciences Undergraduate Orientation

Professional Society Membership

- Ecological Society of America
 - Student Section
 - Theoretical Ecology Section
 - Vegetation Section
- British Ecological Society
- Society for the Study of Evolution
- Society of Systematic Biologists
- Delta Alpha Pi Honors Society