

# 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

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## 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

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## 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 6<sup>th</sup> 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

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### 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

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

- Calculates and compares species' geographic, functional, and phylogenetic dimensions of rarity at local and global scales in a global model of discretized rarity.
- **Ecospat Python package**
  - <https://pypi.org/project/ecospat/>
  - Maps and identifies historical and contemporary range edges of species in the Global North and South.
  - Calculates the northward rate of movement and change in population density through time.
  - Assigns a range movement dynamic to species distributions.
  - Calculates propagule pressure and predicts the persistence of individuals.
- **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

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

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- 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

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

## Skills

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

## Professional Service

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### Manuscript Review

Proceedings of the National Academy of Sciences (PNAS)  
Evolution

### Professional Society Service

President, Delta Alpha Pi Honors Society, University of Tennessee	2021 – 2023
• Facilitated 3 <sup>rd</sup> 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**

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- 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