

## NATALIE M. HOWE

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**I thrive when I help people build stronger relationships with this land**

### **Education**

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PhD., Ecology and Evolution	Rutgers University, NJ
Master of Environmental Studies	University of Pennsylvania, PA
BS, Molecular Biophysics & Biochemistry	Yale University, CT

### **Experience Teaching**

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#### **Colleges:**

2020-present: Adjunct Instructor, George Mason University

- *Mushrooms, Molds and Society, BIOL408/EVPP408*

2016-2021: Adjunct Instructor, Southern New Hampshire University (Online courses)

- *Conservation Biology, BIO330*
- *Ecological Principles and Field Methods, BIO315, (2 semesters)*
- *Natural Resources, BIO318*
- *Environmental Science, BIO101*

2016: Adjunct Instructor, Department of Biology, The College of New Jersey

- *Ecology and Field Biology, BIO221*

2013-2016: Volunteer teacher, NJ-Scholarship and Transformative Education in Prisons Program:

- *Woody Plants BIO202*
- *Environmental Studies BIO101*
- *Human Biology BIO120*

2010-2015: Instructor, School of Environmental and Biological Sciences, Rutgers University

- *Fungi in the Environment, 11:776:400*
- *Plant Diversity and Evolution Lab, 11:216:412*
- *Plant Ecology Lab 11:704:332 (Teaching assistant, 2 semesters)*
- *General Biology Lab 01:119:101-102 (Teaching assistant, 5 semesters)*

2006: Adjunct Instructor, Department of Earth & Environmental Studies, University of Pennsylvania

- *Evolution of the Physical World Lab GEOL289 (Teaching assistant)*

#### **High Schools:**

2006-2008: King's Academy in Jordan (Teaching Fellow, 2006-2008)

- Taught chemistry and organized & ran labs for students with a range of backgrounds in science & English

#### **Middle Schools:**

2003: W. Alton Jones Environmental Education Center (Field Teacher / Naturalist)

- Designed and led outdoor learning adventures in forest ecology, wetlands, and wildlife.
- Coordinated team building programs including ropes courses, night hikes, and fireside songs

2002: Americorps at Salem State College and North Shore Community College (Water Watch Organizer)

- Designed and led water quality education programs for middle schools

#### **Adult Education:**

2017-present: USDA

- Plant Identification: I organize trainings on how to identify wildflowers and grasses for USDA staff
- International Pest Management: I organized and led international trainings on pest prevention at USDA
- Intern Mentor: I organized and created educational material for intern training activities on USDA careers, risk assessment, weed control, and plant biology
- Ag Discovery Program: I created remote learning activities on biotechnology

2017-present: Friends of Patuxent Wildlife Refuge

- I assist a team of lichen volunteers in collecting and identifying specimens.

2017-2018: University of the District of Columbia

- I volunteered for the DC Master Naturalist Program, teaching workshops on urban ecology, soils, fungi, and local flora, creating class material and programs.

Led Natural History Workshops for:

- Natural History Society of Maryland
- Northeast Mycology Foray
- North American Mycological Association
- Nature Forward
- NJ Mycological Society
- Mycological Association of Washington

Invited Speaker for Public Lectures with:

- Garden Club of America
- National Invasive Species Managem. Assn.
- Torrey Botanical Society
- Philadelphia Botanical Club
- Maryland Natural History Society
- Western PA Mushroom Club
- Eastern PA Mushroomers
- NJ Forestry Association

Led Bioblitz Events for:

- Philadelphia & DC City Nature Challenge
- Rutgers Newark & NJIT 5<sup>th</sup> Annual Bioblitz,
- University of Pennsylvania Bioblitz
- Sandy Hook National Seashore, NJ
- Edwin B Forsythe NWR, NJ
- McCaulay Honors College Bioblitz, NY
- Union County Bioblitz, NJ

## **Other Experience in Environmental Outreach**

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Public Information Tables at Festivals

- USDA Urban Agriculture Display Table at Agricultural Outlook Forum (2025)
- Soil Health Display for USDA Nat. Resources. Conservation Service at Maryland Day (2024)
- Fungal Diversity Table for Mycological Association of DC at Smithsonian Earth Optimism Festival (2022)
- Native Plant Table for Friends of Patuxent Wildlife Refuge (2019-2020)
- Invasive Pest Outreach for Animal & Plant Health Inspect. Svc., Cherry Blossom Festival, DC (2017-2020)
- Rutgers Ecology & Evolution Outreach Table at Whitesbog Blueberry Festival, NJ (2016)
- Florescent lichens display for Rutgers Geology Museum Marvelous Microbes Opening Day (2016)

STEM Education Events

- Prince George's County Envirothon Leader, MD (2025)
- UMD Minorities in Agriculture, Natural Resources, and Related Sciences Career Day (2024)
- College Park Academy Science Fair Judge, MD (2023)
- Woodrow Wilson High School Career Day, Volunteer Mentor, DC (2022)
- Dora Kennedy French Immersion School science class speaker, MD (2019)
- National Ocean Sciences Bowl, Volunteer Shore Bowl Official, NJ (2011-2015)
- Mastery Charter High School Science Club, Volunteer Teacher, PA (2012)
- Course Assistant: RU Extension, Plant Identification for Wetland Delineation, NJ (2011)

## **Research Experience in Biology**

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USDA – Natural Resources Conservation Service (2023-present): Plant Materials Center Manager. Applied research on best practices for establishing meadows and cover crops to prevent erosion on agricultural lands.

USDA – Animal and Plant Health Inspection Service (2017-2023): Biological Scientist (Weed Ecologist). Research on environmental risk of biotechnology.

USDA – Forest Service Philadelphia Field Station: (2015-2016). Sustainable Science Fellow with Center for Resilient Landscapes, research on understory effects of Emerald Ash Borers in urban forests.

Rutgers Pinelands Research Station and Institute for Marine and Coastal Sciences (2010-2016). Research on effects of lichens on soil chemistry and soil biodiversity.

National Park Service (2009-2010) Biological Science Technician: Invasive Plants. Research on invasive plant populations through San Francisco Bay Area Inventory and Monitoring Program at Point Reyes National Seashore.

## Grants and awards

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### Awards

2024 - Soil and Water Conservation Society Award for coordinating Women In Natural Resources webinars  
2020 – APHIS Administrator award for the first comprehensive revision of APHIS' biotechnology regulations  
2016 - Graduate School New Brunswick Graduate Excellence in Undergraduate Teaching Award

### Grants

2016 - Tuckerman Award: American Bryological and Lichenological Society (\$500)  
2015 - Caroline Thorne Kissel Award For Environmental Studies: Garden Club of America (\$2000)  
2014 - James C. Rutherford Jr. Scholarship: Pinelands Preservation Alliance (\$200)  
2013 - Charlie Kontos Award: Rutgers Graduate Program in Ecology and Evolution (\$1500)  
2011 - Bayard Long Award for Botanical Research: Philadelphia Botanical Club (\$500)  
2006 – Binns/Williams Grant for Research in Ecology and Evolution at UPenn (\$500)

## Publications

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Google Scholar Profile: Citations: 105, h-index 5, i-10-index 5

ResearchGate Profile: Citations 28, Reads 4854

### Book Chapters

Coxson, D. and **N. Howe**, 2016. Lichens in Natural Ecosystems. In: The Fungal Community: Its organization and role in the ecosystem, Fourth Edition, CRC Press, London.

### Journal Articles

- Yahr, R., Allen, J.L., Atienza, V., Burgartz, F., Christmas, N., Dal Forno, M., Degtjarenko, P., Ohmura, Y., Pérez-Ortega, S., Randle, T. and Næsborg, R.R., Simijaca-Salcedo, D., von Hirschheydt, G., Anderson, F., Aptroot, A., Balderas, E., Borukhiyah, N., Chandler, A.M., Chesa Marro, M., Divakar, P.K., Andrés García, R., de los Angeles Herrera-Campos, M., **Howe, N.**, Joseph, S., Larsen, E.M., Lendemer, J.C., McMullin, R.T., Michlig, A., Moncada, B., Paulsen, J., Roa-García, F., Rosentreter, R., Scheidegger, C., Sparrius, L.B., Stone, D.F. 2024. Red Listing lichenized fungi: best practices and future prospects. *The Lichenologist*, 56(6), pp.345-362.
- 2021 Hansen, C.J., Lendemer, J.C., Tripp E.A., Allen, J.L., Buck, W.R., England, J.K., Harris, R.C., **Howe, N.M.**, McMullin, R.T., and Waters, D.P. 2020. Lichens and allied fungi of Central Alabama, USA: Survey results from the 26th Tuckerman Workshop. *Opuscula Philolichenum*, 19, pp.36-57.
- England, J.K., C.J. Hansen, J.L. Allen, S.Q. Beeching, W.R. Buck, V. Charny, J.G. Guccion, R.C. Harris, M. Hodges, **N.M. Howe** and J. C. Lendemer. 2019. Checklist of the lichens and allied fungi of Kathy Stiles Freeland Bibb County Glades Preserve, Alabama, USA. *Opuscula Philolichenum*, 18:420-434.
- Franck A.R., D. Barrios, K.C. Campbell, J. Lange, B. Peguero, E. Santiago-Valentin, Z. Rigerszki, J. Haakonsson, G.D. Gann, W. Cinea and **N.M. Howe**. 2019. Revision of Pilosocereus (Cactaceae) in the Caribbean and northern Andean region. *Phytotaxa* 411(3):129-82.
- Allen, J.L. and **N.M. Howe**, 2016. Landfill Lichens: A checklist for Freshkills Park, Staten Island, NY *Opuscula Philolechenum* 15:82-91.
- Pollock, N., **N. Howe**, I. Irizarry, N. Lorusso, A. Kruger, K. Himmler, & L. Struwe, 2015. Personal BioBlitz: A new way to encourage biodiversity knowledge in K-99 education and outreach. *BioScience* 65(10):1083-1091.
- Struwe, L., L.S. Poster, **N. Howe**, P. Sweeney, and C.B. Zambell, 2014. The Making of a Student-Driven Online Campus Flora: an example from Rutgers University. *Plant Science Bulletin*, **60(3)**: 159-169.
- Howe, N.M.**, and J. C. Lendemer, 2010. The recovery of a simplified lichen community at the Palmerton Zinc Smelter after 34 years. In: A Lichenological Legacy – Festschrift T. H. Nash III. S.T. Bates, F. Bungartz, R. Lücking, M.A. Herrera-Campos & A. Zambrano (eds.). *Bibliotheca Lichenologica* **106**: 120–136.
- Fryday, A.M., J.C. Lendemer & **N.M. Howe**, 2007. Porpidia soledizodes (lichenized ascomycota) in North America. *Opuscula Philolichenum*, 4:1-4.

### Scientific Reports

- Howe, N., Ugiansky R.J., Belt, S., and Anderson, B. 2024. [Norman A Berg National Plant Materials Center Report of Activities](#). USDA NRCS Plant Materials Program Technical Documents.
- R Yahr, J Allen, C Lymbery, R Batallas-Molina, F Bungartz, M Dal Forno, N Howe, J Lendemer, T McMullin, A Mertens, H Paquette, M Petix, R Reese Næsborg, F Roberts, S Sharrett, J Villella. 2021. *Parmelia saxatilis*. The IUCN Red List of Threatened Species 2021: e. T194660573A194678129
- Conroy, M., **N.M. Howe**, T. Klodnicki, A. Baig, K.Ward. 2020. Climate Change and Environmental Risks. A Primer on Environmental Risks to the Insurance Industry. Society of Actuaries.  
<https://www.soa.org/globalassets/assets/files/resources/research-report/2020/climate-change-environmental-risks.pdf>
- Conroy, M., **N.M. Howe**, T. Klodnicki, A. Baig, K.Ward. 2020. Introduction to Environmental Risk. A Primer on Environmental Risks to the Insurance Industry. Society of Actuaries.  
<https://www.soa.org/globalassets/assets/files/resources/research-report/2020/intro-environmental-risk.pdf>
- Steers, R., E. Wrubel., A. Williams, **N. Howe**, and J. Jordan, 2011. Invasive plant species early detection in the San Francisco Bay Area Network: 2010 annual report. Natural Resource Technical Report NPS/SFAN/NRTR—2011/494. NPS, Fort Collins, CO.
- Williams, A., J. Rogers, **N. Howe**, R. Steers, and C. Wrubel. 2011. Invasive plant species early detection in the San Francisco Bay Area Network: 2009 annual report. Natural Resource Technical Report NPS/SFAN/NRTR—2011/493. National Park Service, Fort Collins, CO.

### Selected Published Abstracts for Presentations

- Gallagher, F., Hafstad, J., Holzapfel, C. **Howe, N.**, Lendemer, J., Waters, D., Bryophytes and Lichens of Liberty, A baseline survey of Liberty State Park Before Park Restoration. Annual Meeting of the Mid-Atlantic Chapter of the Ecological Society of America, 2025.
- Struwe, L. and **Howe, N.M.**, 2017. Discovery and learning of everyday biodiversity using iNaturalist-driven bioblitzes and campus inventories. Life Discovery Biology Education Conference. October 19<sup>th</sup>-21<sup>st</sup> 2017.
- Howe, N.M.**, 2016. Lichens of Philadelphia. Student Conference on Conservation Science at American Museum of Natural History. October 21<sup>st</sup>-23<sup>rd</sup> 2016.
- Howe, N. M.**, J. Dighton, and D. Grey. 2016. Nutrient interception by soil lichens. Lichens in Deep Time: 8<sup>th</sup> International Association of Lichenology Symposium, Helsinki, Finland, August 1-5 2016.
- Howe, N.M.** and S. Low. 2016. Monitoring the effects of emerald ash borer in the Philadelphia Urban Forest. Novel Ecosystems, Novel Management: Annual Meeting of the Mid-Atlantic Chapter of the Ecological Society of America, Kutztown, PA, April 8-10 2016.
- Ray, J. R. Artigues, J. Azzolini, R. Buczynski, V. Cusimano, R. Fastige, G. Hess, **N. Howe**, M. King, T. Lin, C. Olivares, R. Rodriguez, A. Sun, & L. Struwe. 2016. The undergraduate Herbarium Army at Rutgers University: Promoting interaction between students and scientific collections in teaching, research, and outreach. Botany 2016, Savannah, GA, July 30-Aug 3, 2016.
- Howe, N.M.** A. Trierweiler, S. A. Batterman, M. Schumer, J. Knapp, K. Volzing, K. Uyehara, Carey, J. and B. Jonsson. 2015. Woody Plants class as an introduction to lab science for incarcerated students. Ecological Science at the Frontier: Ecological Society of America Annual Meeting, Baltimore, MD, August 9-14 2015.
- Struwe, L., **N. Howe**, I. Irizarry, N. Lorusso, A. Kruger, N. Pollock, and S.R. Loarie. 2015. Personal BioBlitzing increases biodiversity awareness, excitement of science, and engages people at all educational and age levels. Botany 2015, Edmonton, Canada, July 25-29, 2015.
- Howe, N.M.**, J. Dighton, and D. Grey. 2014. Influence of lichens on NJ Pinelands soils. Ecological Society of America Annual Meeting. Sacramento, CA, August 10-14, 2014.
- Howe, N.M.** and J. Dighton, 2012. Lichen Communities of the NJ Pinelands. Biodiversity, From Evolutionary Origins to Ecosystem Function: Academy of Natural Sciences of Drexel Bicentennial Symposium, Philadelphia, PA, October 11-12, 2012.
- Howe, N.M.**, 2010. The recovery of a simplified lichen community at the Palmerton Zinc Smelter” Northwest Lichenologists Annual Meeting. Centralia WA, March 24-27, 2010

### Herbarium Research Contributions

- 2024 Taught students how to make natural history collections and contributed to the Ted R. Bradley Herbarium of George Mason University.
- 2013-2014 As the Honoray Curator of Cryptogams, I assisted in curation and digitization of lichens and bryophyte specimens at the Chrysler Herbarium at Rutgers University.  
Bryophyte portal: <http://bryophyteportal.org/portal/collections/misc/collprofiles.php?collid=32>

Lichen portal: <http://lichenportal.org/portal/collections/misc/collprofiles.php?collid=47>  
2008-2010 Volunteered in curating lichen specimens and in organizing educational workshops at the University and Jepson Herbaria, (UC/JEPS) at the University of California, Berkeley  
2004-2006, 2018 Volunteered in databasing and curating lichen and plant specimens at the Philadelphia Herbarium (PH) at the Academy of Natural Sciences of Drexel University

## **Student Mentorship**

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2024: Nina Zhao, USDA Pathways Intern, Boston University  
2023: Elizabeth Rush, Graduate Student in Environmental Science and Policy at George Mason University  
2023: Zach Combs, Graduate Student in Environmental Science and Policy at George Mason University  
2020: Andrew Fahey, OneUSDA Intern, Pennsylvania State University  
2019: Laura Reese, OneUSDA Intern, University of Georgia  
2018: Efrain Rivera, Hispanic American Colleges USDA intern, Inter-American University of Puerto Rico  
2018: Anthony Coombs, Wolf Trap National Park Intern, University of Maryland  
2016: Emma Lasky, U.S.F.S. Sustainable Science Fellowship, Bryn Mawr College  
2014: Citlally Garcia, Alliance/Merck Ciencia Hispanic Scholars Program, Fairleigh Dickinson University  
2012: Maria Castro, independent study at Rutgers Pinelands Research Station, Union County College

## **Publicity and Media Coverage**

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- [NPR Podcast](#) on Patuxent Mushroom Walk
- [USDA People's Garden Instagram](#) posts on [cover crops](#) and [collards](#)
- [Smithsonian article](#) on Earth Optimism Festival
- Instagram videos on [urban wildlife](#)
- [Youtube video](#) on Rutgers University Pinelands Field Station Student Research
- [Scientific American blog](#) of Lichens on Skyscrapers collaboration with artist Elizabeth Demaray:
- Lichens of Philadelphia summary from [University of Pennsylvania Alumni magazine](#)

## **Technical skills and languages**

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Spatial analysis: ArcGIS, CLIMEX	MS Office: Excel, Word, PowerPoint, Outlook
Statistical programs: R, SAS, SQL	Languages: English, French, Spanish
Website development: HTML/CSS/JavaScript	

## **Professional Affiliations**

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ESA: Ecological Society of America	SSSA: Soil Science Society of America
BSA: Botanical Society of America	MSA: Mycological Society of America
IPRRG: International Pest Risk Research Group	ABLS: American Bryological & Lichenological Society