
Ryan Schmidt

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NSF Graduate Research Fellow

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EDUCATION

- 2023- **PhD Organismic & Evolutionary Biology** – Harvard University – Cambridge, Massachusetts
Advisor: Charles Davis
- 2022-2023 **Graduate Program in Ecology & Evolutionary Biology** – Rutgers University – New Brunswick, New Jersey
Advisor: Lena Struwe
- 2022 **B.S. Ecology, Evolution, & Natural Resources** - Rutgers University – New Brunswick, New Jersey, *summa cum laude*, GPA: 3.978
Thesis: *Ballast Species: Using Herbarium Data to Understand the Impact of Historical Trade on the Flora of New Jersey*
Advisor: Lena Struwe

RESEARCH INTERESTS

Botanical Biodiversity; Historical Botany; Mechanisms of Plant Invasions; Taxonomy & Systematics of *Verbascum*; Population Genetics of Invasive Species; Collections-based Research; Urban Floristics; Urban Forests; Education & Outreach

REFEREED ARTICLES

Published

Schmidt, R. J., M. R. King, M. F. J. Aronson, and L. Struwe. 2023. Hidden Cargo: The Impact of Historical Shipping Trade on the Recent-Past and Contemporary Non-Native Flora of Northeastern United States. *American Journal of Botany*. <https://doi.org/10.1002/ajb2.16224>

Long, Z. G., J. V. Le, B. B. Katz, B. G. Lopez, E. Tenenbaum, B. Semmling, R. J. Schmidt, F. Grun, C. T. Butts, and R. W. Martin. 2023. Spatially resolved detection of small molecules from press-dried plant tissue using MALDI imaging. *Applications in Plant Science* 11(5):e11539. <https://doi.org/10.1002/aps3.11539>.

Weakley, A. S., J. C. Kees, B. A. Sorrie, S. G. Ward, D. B. Poindexter, M. Brock, L. D. Estes, E. L. Bridges, S. L. Orzell, G. A. Levin, R. K. S. McClelland, R. J. Schmidt, and S. A. Namestnik. 2023.

Studies in the vascular flora of the southeastern United States. IX. *J. Bot. Res. Inst. Texas*, 17(1): 191–257.

Schmidt, R. J., B. Casario, P. Zipse, and J. Grabosky, J. 2022. An Analysis of the Accuracy of Photo-Based Plant Identification Applications on 55 Tree Species. *Arboriculture & Urban Forestry*, 48(1):27–43.

In Press/Review

Schmidt, R. J., J. Johnston, and L. Struwe. *in review*. Waif to invasive: Transatlantic migration and survival of grasses introduced with pre-20th century ship ballast. *International Journal of Plant Sciences*.

In Preparation

Schmidt, R. J., L. Struwe, and C. Davis. *in prep*. The impact of phylogenetic relatedness on the establishment of historical non-native plants.

Schmidt, R. J., L. Struwe, and C. Davis. *in prep*. Phylogenetic structure of the genus *Verbascum* (Scrophulariaceae).

INTERNAL REPORTS

Schmidt, R. J., B. Casario, P. Zipse, and J. Grabosky. 2021. Proposed Guidelines for Beginning, Improving and Maintaining Municipal Tree Inventories for Dynamic Urban Forest Management. *Submitted to the NJ Community Forestry Council – Guidelines Subcommittee*.

NATURAL HISTORY COLLECTIONS

Schmidt, R. J. 2023. Natural history specimens collected and/or identified and deposited. [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.8175991>

SCIENTIFIC PRESENTATIONS

Schmidt, R.J.*, M.R. King, M.F.J. Aronson, and L. Struwe. Hidden Cargo: Death, Survival, and Dispersion of Ballast-Associated Plant Species in the Northeastern USA. Botany 2023-One World! (Boise, Idaho), 22-26 July 2023. (talk)

King, M.R., R.J. Schmidt, K. Gorman, M.F.J. Aronson, and L. Struwe. Latitude and Urbanization, Do They Matter? Investigating Morphological Plant Trait Change in Cities of Eastern North America. Botany 2023-One World! (Boise, Idaho), 22-26 July 2023. (talk)

Dettmer, F., R.J. Schmidt, and L. Struwe. Patterns in northward movements of southern plant species in New Jersey. Botany 2023-One World! (Boise, Idaho), 22-26 July 2023. (talk)

Schmidt, R.*, B. Casario, P. Zipse, and J. Grabosky. An Analysis of the Accuracy of Photo-Based

Plant ID Apps on 55 Tree Species. Partners in Community Forestry Conference - Arbor Day Foundation (Louisville, Kentucky), 18-19 November 2021. (talk)

Schmidt, R.*, M.R. King, and L. Struwe. Ballast Species and Herbarium Records: The Impact of Historical Shipping Trade on the Recent-Past and Contemporary Flora of the Northeastern United States. Botany 2021, 21 July 2021. (talk)

Schmidt, R.*, B. Casario, P. Zipse, and J. Grabosky. The Accuracy of Photo-Based Plant Identification Apps on Northeastern Trees. New Jersey Forest Association's Backyard Forestry in 90 Minutes webinar series, 19 November 2020. (talk)

AWARDS & HONORS

- 2023 **Emanuel D. Rudolph Award**, Historical Section of the Botanical Society of America, best student presentation/poster at Botany 2023: "Hidden Cargo: Death, Survival, and Dispersion of Ballast-Associated Plant Species in the Northeastern USA".
- 2023 **Skaff Family Environmental Graduate Fellowship**, Harvard University
- 2022 **Graduate Research Fellowship Program**, National Science Foundation
- 2022 **Dean's Fellowship**, Rutgers University, fellowship funding one year of graduate school
- 2022 **LinnéSys: Systematics Research Fund**, research award funding the "*Verbascum* of the Mid-Atlantic United States" Project.
- 2022 **Torrey Botanical Society Undergraduate Research Award**, research award funding the "Rediscovering the Weeds of New Jersey" Project.
- 2022 **Philadelphia Botanical Society Member Grant**, research award funding the "Rediscovering the Weeds of New Jersey" Project.
- 2021 **Joan K. Hunt & Rachel M. Hunt Summer Scholarship in Field Botany**, Garden Club of America, research award funding the "Rediscovering the Weeds of New Jersey" Project.
- 2021 **Society of Herbarium Curators Undergraduate Research Award**, Society of Herbarium Curators, research award funding the "Rediscovering the Weeds of New Jersey" Project.
- 2021 **William J. Porter Arboriculture Scholarship**. New Jersey Shade Tree Federation.
- 2021 **Myron and Rona Solberg Renaissance Award**, Rutgers University, merit award for science majors participating in a fine or performing arts program at Rutgers University.
- 2021 **Amelia L. Ruggles Scholarship**, Rutgers University, merit award.
- 2021 **Kuser Scholarship**, Rutgers University, merit award.
- 2021 **Phillip Alampi Award**, Rutgers University, merit award for leadership in the sciences at Rutgers University.
- 2020 **Millicent Mercer Johnson Summer Intern Scholarship**, New Jersey Committee of The Garden Club of America, research award funding the GH Cook Honors Thesis on "Ballast Species".

2020 **Karen Smoyak Hoffman Student Prize for Natural Resource Management**, Rutgers University, based on academic merit, leadership skills, interest in research, and a commitment to the advancement of natural resource management.

TEACHING EXPERIENCE

2023 **Fundamentals of Evolution Laboratory.** Teaching Assistant. Rutgers University, New Brunswick, New Jersey
Advisors: Lena Struwe, Siobain Duffy

Led the Plant Molecular Evolution project in the lab section of a required course for Ecology, Evolution, & Natural Resources students (44 students).

2022 **Introduction to Herbarium Collection.** Instructor. Rutgers University, New Brunswick, New Jersey

Designed and implemented a lecture and laboratory course on basic plant identification, methods for creating herbarium specimens, and field collections to provide the necessary instruction for undergraduates wishing to become involved in plant collection.

2022-2023 **Seasonal Dendrology Workshop.** Instructor. Duke Farms, Hillsborough, New Jersey

Led the lecture and lab instruction of an introductory dendrology course designed to provide a strong ecological background for educators, land managers, ecologists, conservationists, and shade tree commission members.
Continuing Education Unit (CEU) Certified for International Society of Arboriculture, NJ Urban & Community Forestry, and NJ Board of Tree Experts.

2022 **Fair Haven Natural Area Guide.** Instructor. Fair Haven, New Jersey
Leading a series of educational walks in an urban natural area teaching interested community members and community scientists about plant identification, native plant communities, and invasive species.

2020-2021 **Dendrology (11:216:272).** Teaching Assistant. Rutgers University, New Brunswick, New Jersey

Led lecture and lab the instruction of tree identification in rural and urban systems in the extended absence of the professor (incl. lessons on the forest ecosystems of the New Jersey Highlands and the process of creating herbarium voucher specimens of woody species).
Advisor: Jason Grabosky

2021 **Wetland Ecology (11:216:421).** Teaching Assistant. Rutgers University, New Brunswick, New Jersey
Aided in the instruction of wetland delineation for the student course terminating in the Rutgers Wetland Delineation Certification; instructed Undergraduate and Graduate students on the identification of key wetland species, wetland soil and vegetation sampling, and wetland mapping exercises.
Advisor: Myla FJ Aronson

INVITED LECTURES

2023 **Hidden Cargo: Death, Survival, and Dispersion of Ballast-Associated Plant Species in the Northeastern USA** (*Plant Ecology*). Invited Lecturer. George Mason University, Fairfax, Virginia
Advisor: Andrea Weeks

2022 **Hidden Cargo: Death, Survival, and Dispersion of Ballast-Associated Plant Species in the Northeastern USA** (*Plant Diversity & Evolution - 11:216:411*). Invited Lecturer. Rutgers University, New Brunswick, New Jersey
Advisor: Lena Struwe

2022 **Botanical Research at Rutgers** (*Topics in Ecology, Evolution, & Natural Resources - 11:216:104*). Invited Lecturer. Rutgers University, New Brunswick, New Jersey
Advisor: Kimberly Russell

2022 **Exploring the Ferns of Honey Hollow.** Invited Lecturer. Honey Hollow Environmental Education Center, New Hope, Pennsylvania

2022 **Ferns are Dinosaur Food.** Invited Lecturer. Lawrenceville, New Jersey

CERTIFICATIONS

2021 **Rutgers Wetland Delineation Certificate Series.** The New Jersey Agricultural Experiment Station Office of Continuing Professional Education, Rutgers University, New Brunswick, New Jersey

MEMBERSHIP IN PROFESSIONAL SOCIETIES AND OTHER GROUPS

- Botanical Society of America, 2021-present
- Society of Herbarium Curators, 2021-present
 - SHC Membership Committee, 2023-present
- American Society of Plant Taxonomists, 2021-present
- Philadelphia Botanical Club, 2021-present
- Torrey Botanical Society, 2022-present
- Linnean Society, 2022-present
- Rutgers University Forestry Club (Rutgers), President (2021-2022), 2020-2022

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- Botany Salon (Rutgers), 2021-present
 - Journal Club in Evolution (Rutgers), 2020-present