

Max McCarthy, Ph.D.

Rutgers University
Graduate Program in Ecology & Evolution
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EDUCATION

Rutgers University, New Brunswick

Ph.D., Ecology & Evolution, (2020-2026)

GPA: 4.0

Advisor: Rachael Winfree

Dissertation title: Communities, Populations, And Pollination: Measuring Wild Bees and Their Interactions Across Ecological Scales

Dissertation defense: June 1, 2026 Degree conferral: October 2026

Relevant coursework: Mathematical and Computational Methods in Theoretical Biology, Population Ecology, Advanced Ecological Data Analysis, Community Dynamics, Molecular Ecology, Methods in Plant Systematics

Tufts University

BS, Biology and Environmental Studies, *Summa cum laude*, (2020)

GPA: 3.85

Relevant coursework: Ecological Statistics and Data, Plant Physiology, Tropical Ecology and Conservation, Organic Chemistry, Biochemistry, Calculus II

GRANTS, FELLOWSHIPS, AND AWARDS

Entomological Society of America Annual Meeting Student Competition Award, Pollinator Ecology, 1st Place - \$75 – 2023

American Museum of Natural History Theodore Roosevelt Memorial Fund - \$1,075 – 2023

Explorers Club Rolex Grant - \$5,000 – 2022

Garden Club of America Caroline Thorn Kissel Summer Environmental Studies Scholarship - \$3,000 - 2022

New England Botanical Society Graduate Student Research Award - \$2,858 - 2022

Ted Stiles Award, Ecology and Evolution Graduate Student Association, Rutgers University - \$500 - 2021

Small Grants Award, Department of Ecology and Evolution, Rutgers University - \$1,000 - 2021

Presidential Fellowship, Rutgers University Graduate School-New Brunswick - \$75,000 - 2020-2025

Dean's Fellowship, Rutgers University Graduate School-New Brunswick - \$25,000 - 2020-2022

Benjamin G. Brown Scholarship - \$1,750 - 2020

Barry Goldwater Scholarship - \$7,500 – 2019

Top natural sciences, math, and engineering scholarship available to undergraduates in the United States

Thomas Harrison and Emily Leonard Carmichael Prize Scholarship - \$1,295 - 2019

Nelson Family Summer Scholar Fund - \$5,500 - 2019

Albert N. Votaw Memorial Summer Internship - \$5,500 - 2018

PUBLICATIONS

McCarthy, M., D. T. Simpson, A. H. Aldercotte, C. Smith, T. Harrison, and R. Winfree. 2026. Separating sampling bias from abundance shows that different methods catch different wild bees. *Ecology and Evolution*. doi: 10.1002/ece3.73060

Giulian, J., **M. McCarthy**, S. R. Wilhelm, A. H. Aldercotte, and K. J. Turo. 2024. Rediscovering *Colletes bradleyi* (Hymenoptera: Colletidae): First notes on natural history, male description, and a range extension. *Journal of the Kansas Entomological Society*. doi: 10.2317/0022-8567-97.4.12

- Dorian, N., **M. McCarthy**, and E. Crone. 2024. Bringing population ecology back to wild bees. *Ecosphere*. doi: 10.1002/ecs2.4973
- Dorian, N., **M. McCarthy**, and E. Crone. 2022. Ecological traits predict long-term phenological trends in solitary bees. *Journal of Animal Ecology*. doi: 10.1111/1365-2656.13778
- Bonoan, R., and **M. McCarthy**. 2022. Response of a temperate grassland ant community to burning. *Insectes Sociaux*. doi: 10.1007/s00040-022-00851-x

RESEARCH PRESENTATIONS

- M. McCarthy**. Small populations and local movement in a rare solitary bee, *Andrena parnassiae*. Oral presentation – Ecological Society of America. Aug. 10-15, 2025.
- M. McCarthy**. Population size estimates and foraging movement of a rare solitary bee, *Andrena parnassiae*. Oral presentation – Entomological Society of America. Nov. 10-13, 2024.
- McCarthy, M.** and R. Winfree. Wild bee sampling bias depends on method, location, and time. Oral presentation – Entomological Society of America. Nov. 4-8, 2023
- McCarthy, M.**, N. Dorian, and E. Crone. Phenological trends in wild bees with diverse ecological traits. Oral presentation – Ecological Society of America. Aug. 2-6, 2021
- McCarthy, M.**, N. Dorian, and E. Crone. Phenological change in solitary bees with diverse traits. Poster presentation – Ecological Society of America. Aug. 3-6, 2020
- McCarthy, M.** Phenological trends in wild bees with diverse life history traits. Senior Honors Thesis Defense – Tufts University, Medford, MA; Highest Honors. Apr. 29, 2020
- McCarthy, M.** Phenological trends in wild bees with diverse life history traits. Oral presentation – Tufts Summer Scholars Conference, Tufts University, Medford, MA. Aug. 8, 2019
- McCarthy, M.**, N. Dorian, and E. Crone. Phenological shifts in bees with varying life history traits in the genus *Colletes*. Poster presentation – Northeast Natural History Conference, Springfield, MA; Student Poster Presentation First Place Award. Apr. 13, 2019
- McCarthy, M.** Relationship between floral abundance and pollen collection in two solitary bees. Oral presentation – Tufts REU Symposium, Tufts University, Medford, MA. Aug. 3, 2018

MEDIA

- “[To Learn Bees’ Secrets, Count Them One by One](#)”. Full-page profile article on my PhD research project, *The New York Times*, Oct. 16, 2021
- [WatchingBees.com](#). Online field identification guide for common wild bee species of the northeastern United States, co-written by me and colleague Nick Dorian.

PROFESSIONAL EXPERIENCE

- Bee Biodiversity Inventory for Marblehead Conservancy; co-led inventory of wild bee species on remediated industrial property, with a focus on minimally lethal observational sampling methods; summarized inventory results in co-written report to inform property management (Apr. 2025-Aug. 2025)
- National Park Service Pollinator Inventory; developed, implemented, and evaluated training for park service employees in field identification of butterflies, bumble bees, and other wild bees and conducted inventory of pollinators at Minute Man National Historical Park, MA, with emphasis on non-lethal methods (Jul. 2023-Dec. 2025)
- Bee Biodiversity Inventory for the New Jersey Natural Lands Trust; conducted inventory of wild bee species on NJDEP properties of high conservation value with a focus on detecting species of likely conservation interest; summarized inventory results in annual reports to inform property management (2023-2025)
- Bee taxon team expert, Northeast Association of Fish and Wildlife Agencies Regional Species of Greatest Conservation Need Taxon Review (2021-2022)

TEACHING EXPERIENCE

- Intro to Pollinator Watching Workshop; co-leader of day-long program introducing participants to ecology and identification of bees, wasps, and other pollinators at Wing and a Prayer Nursery, Cummington, MA (Jul. 8, 2023)

Natural History of Native Bees: Biology, Ecology, Identification, and Conservation; co-leader of annual week-long seminar teaching participants about ecology and field and microscope identification of wild bees at the Eagle Hill Institute, Steuben, ME (Jun. 25-Jul.1, 2023; Jun. 23-29, 2024; Jun. 22-28, 2025; Jun. 21-27, 2026); attended by 53 students as of Jul. 2026

Teaching Assistant, Principles of Biology, Department of Life Sciences, Rutgers University; lab instructor for two 3-hour laboratories per week (48 students/semester); responsible for laboratory prep, lab lectures and activities, field trips, office hours, exam proctoring, and grading; contributed to developing lab manual, lab activities, and other course material; introductory biology seminar course for non-major students, with topics including genetics, cell biology, evolution, plant and animal physiology, and population and community ecology (Sep. 2022-Dec. 2025; 4 semesters)

Teaching Assistant, Biological Research Laboratory, Department of Life Sciences, Rutgers University; lab instructor for two 4-hour laboratories per week (48 students/semester); responsible for laboratory prep, lab lectures and activities, office hours, and grading; research-focused biology course for life sciences majors, with topics including water quality, bacterial culture, PCR, gel electrophoresis, the scientific method, and basic statistical analysis (Jan. 2023-May 2026; 4 semesters)

SERVICE & OUTREACH

Buzzing Through the Garden State: A Journey in Jersey with Wild Bees; gave presentation on native bees of New Jersey to Rutgers Master Gardeners of Hunterdon County (Sep. 10, 2025)

Spectacular Pollinators on Spectacle Island public outreach program; co-led a two-day series of guided public walks focused on identifying and learning about major groups of pollinators in the Boston Harbor Islands National Recreation Area; attended by 150 participants (Aug. 31 and Sep. 1, 2024)

Rutgers University 4-H Youth Development Program; pollinator ecology speaker at Rutgers Gardens summer camp field trip for primarily middle school-aged students (Jul. 13, 2022)

Butterfly Festival at The Watershed Institute, Pennington, NJ; educated public visitors about insects and pollination with pinned and live specimens and pollinator-flower matching game (August 6, 2022)

Rutgers Day; prepared and interpreted exhibits of museum specimens and live animals for public visitors at annual Rutgers Day street fair (Apr. 2022-2025).

Rutgers' Ecology & Evolution Graduate Student Association; treasurer (2021-2023), outreach chair (2023-2025), and seminar chair (2025-present)

[iNaturalist](#); contributor of over 29,000 identifications for community science observations, primarily of wild bees in the northeastern United States and southern Canada (2020-present)

[Tufts Pollinator Initiative](#); founding member of student-lead group advocating for urban pollinator conservation through community engagement and outreach (Mar. 2019-May 2020)

MENTORSHIP

Undergraduate research mentor for Sedona Sabatino (Jan.-Apr., 2023), Anisha Verma (Jan.-Apr., 2024), Sarah Taylor (Jan.-Apr., 2024), and Bella Cueto (Jan. 2026-May 2026); students worked in the Winfree Lab once a week for research credit, assisting with sorting and labeling of seeds and learning to use ImageJ software for automated seed counting for a study of pollen limitation in a rare wildflower

Supervisor and mentor for field technicians Samantha Rego (Aug.-Oct. 2022) and River Pasquale (Aug.-Oct. 2023); instructed and supervised technicians in field research methods for measuring pollen limitation and seed set in a rare wildflower and for conducting a mark-release-recapture population study of wild solitary bees

ADDITIONAL SKILLS

Software: Statistical analysis and modeling using R, including linear and mixed-effects models; population mark-recapture analysis using program MARK; Sequel database management

Photography: Advanced skills in insect macro photography, general wildlife photography, and editing of digital photographs in Adobe Photoshop and Lightroom

Field biology: Advanced skills in field identification of plant, insect, and bird species with specialty in wild bees

Taxonomy: Advanced skills in species-level identification of bee specimens