

Michael Roswell

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Education

2014-2020 Ph.D. Ecology and Evolution, Rutgers University. Adviser: Dr. Rachael Winfree
2007-2011 B.A. Majors in Biology and Linguistics, Swarthmore College

Professional experience

2023-pres Postdoctoral Associate, Dept. Biology, *University of Maryland, College Park*
2022-2023 Data Science Consultant, McMaster Theoretical Biology Group, *McMaster University*
2020-2023 Postdoctoral Associate, Dept. Entomology, *University of Maryland, College Park*
2019 Lecturer, Dept. Ecology, Evolution, & Natural Resources, *Rutgers University*
2018 Adjunct Professor, Dept. Biology, *Rider University*
2017 Lecturer, *Freedom Summer Collegiate/Millsaps College*
2014 Field Science Instructor and Site Manager, *Nature Bridge in Southern California*
2014-2018 NSF Graduate Fellow, Dept. Ecol., Evol., & Nat. Resources, *Rutgers University*
2014-2015 Excellence Graduate Fellow, Dept. Ecol., Evol., & Nat. Resources, *Rutgers University*
2013-2014 Lead Field Technician & Lab Manager, Winfree Lab, *Rutgers University*
2012-2013 Scientist, *Wondergy Inc.*

Peer-reviewed publications (Mentee: *Undergraduate, *Graduate)

Roswell, M. & Espíndola, A. Global conservation prioritization approach provides credible results at a regional scale. *In Review, Diversity and Distributions*. Preprint:
<https://doi.org/10.1101/2023.08.31.555788>

Roswell, M., Harrison, T., & Genung, M. A. Biodiversity-ecosystem function relationships change in sign and magnitude across the Hill diversity spectrum. *Philosophical Transactions of the Royal Society B*. 2023; 378:20220186 <https://doi.org/10.1101/2022.09.30.510130>

Simpson, D.* , Weinman, L.* , Genung, M., **Roswell, M.**, MacLeod, M., & Winfree, R.. Many species, including rare species, are important for function of mutualist networks. *Proceedings of the Royal Society B*. 2022; 289:20212689 <https://doi:10.1098/rspb.2021.2689>

Roswell, M., Dushoff, J., & Winfree, R. A conceptual guide to measuring species diversity. *Oikos*. 2021; 130(3), 321–338. <https://doi:10.1111/oik.07202> * **Editor's Choice**.

MacLeod, M., Reilly, J., Cariveau, D., Genung, M., **Roswell, M.**, Gibbs, J., & Winfree, R. How much do rare and crop-pollinating bees overlap in identity and flower preferences? *Journal of Applied Ecology*. 2020; 57(2), 413–423. <https://doi.org/10.1111/1365-2664.13543>

Roswell, M., Dushoff, J., & Winfree, R. Male and female bees show large differences in floral preference. *PLoS One*. 2019; 14: e0214909. <https://doi:10.1371/journal.pone.0214909>

Grants (\$46,200) & Fellowships (\$258,000)

2019 Earth, Ocean, and Atmospheric Science Seed Grant (for Data Club expansion). Golden A., **Roswell M.** \$6,000

- 2016 Rutgers Ecology & Evolution Graduate Program Small Grant, **Roswell, M.** \$1,000
- 2015 Federal Conservation Innovation Grant (**M. Roswell** addendum to existing grant, *Next steps in pollinator conservation...* Vaughn, M., Winfree R., & others). \$33,000
- 2015 Rutgers University Graduate School Conference Travel Award. **Roswell, M.** \$200
- 2015 Rutgers University School of Environmental and Biological Sciences Pre-Dissertation Award. **Roswell, M.** \$2,000
- 2014 Rutgers University Graduate School Excellence Fellowship. **Roswell, M.** \$30,000
- 2014 NSF Graduate Research Fellowship (Stipend + Scholarship). **Roswell, M.** \$138,000
- 2014 NSF GAANN Fellowship in Urban Ecology (declined). **Roswell, M.** \$90,000
- 2009 NY Times Sustainability Grant (awarded to found college Honey Bee Initiative). **Roswell, M.** \$500
- 2009 Joel Dean Research Fellowship (awarded to research dying language, Muniche, in Peruvian Amazon). **Roswell, M.** \$3500

Teaching

Course instruction

- 2023 *The World of Biology*, University of Maryland (lab coordinator & TA supervisor for 7-section introductory course)
- 2021 *Frontiers in Biodiversity Measurement*, University of Maryland (Developed and taught graduate seminar with programming in R)
- 2019 *Data Club*, Rutgers University (coordinator, co-wrote grant to develop graduate course from club)
- 2019 *Pollination Ecology*, Rutgers University (proposed, developed, and taught upper-level 4-credit course with programming in R)
- 2018 *General Ecology and Lab* Rider University (developed and taught first half of upper-level 4-credit course)
- 2017 *Pollination Ecology*, Millsaps College/Freedom Summer Collegiate (developed and taught 2 sections of 2-credit course)

Guest lectures

- 2018 *Conservation Ecology*, Rutgers University
- 2018 *Agroecology*, Rutgers University
- 2017, '18 *Introduction to Apiculture*, Rutgers University
- 2016, '17 *Introduction to Environmental Science*, Rutgers University
- 2015, '16 *Plant Diversity and Evolution*, Rutgers University (Designed & graded pollination assignment 2015, traits and diversity assignment 2016)

Additional teaching experience

- 2016 *FIGS faculty mentor*, Rutgers University (Advised the undergraduate instructor in development and instruction of 1-credit seminar)
- 2014 *Science Educator*, NatureBridge (designed and taught 3-5 day outdoor science courses)
- 2011-'13 *Science Educator*, Wondergy Inc. (led 1-2 hour interactive science explorations, up to 20 groups/week)

Mentoring

Professional reference for colleagues, former students, and technicians; medical school, Ph.D., employment, NIH, NSF, and Fulbright fellowship recommendations (2015-present)

Mentor 15 undergraduates and technicians: assist with conference presentations, applying for jobs, fellowships, and graduate programs, securing funding for independent research, conducting peer reviews for journals, navigating degree and GPA. (2016-present)

EEB Mentor match mentor. Aide aspiring graduate students in application process and career readiness. (2020-present)

Co-Adviser for Honors Thesis: "Morphological trait matching between bees and flowers drives pairwise interactions." Guided lit. review, analysis, writing, presentation. (2015-2016)

Research Mentor for 3 Rutgers undergraduates. (2014-2015)

Technical reports, software, and datasets

R packages

Roswell, M., Bolker, B., & Dushoff, J. ratioScales: Rational Scales for Visualizing Change (R package). 2022. <https://github.com/mikeroswell/ratioScales>

Roswell M., Dushoff J. MeanRarity: Hill Diversity Estimation and Visualization (R package). 2020. <https://github.com/mikeroswell/MeanRarity>

R Shiny web applications

Roswell, M. & Dushoff, J. Mean Rarity balance plots. 2019. https://mean-rarity.shinyapps.io/rshiny_app1/

Technical reports and book reviews

Roswell, M. (2019). Protecting Pollinators: How to save the creatures that feed our world. *Ecological Restoration*, 37(4), 280.

Ward, K., D. Cariveau, E. May, **M. Roswell**, et al. 2014. *Streamlined Bee Monitoring Protocol for Assessing Pollinator Habitat*. Portland, OR: The Xerces Society for Invertebrate Conservation.

The Munique Talking Dictionary- an online "talking" lexicon with both Munique- Spanish and Munique-English interfaces. June 2011. Available online at <http://munique.swarthmore.edu>

Una Breve Descripción del Idioma Munique. Yurimaguas, Peru, August 2009. Available online at http://www.cabeceras.org/cap_my_ramatica_sep09.pdf

Invited talks and conference presentations

Invited talks

- 2022 Synthesizing Biodiversity Series, Hakai Institute (remote)
- 2020 Department of Entomology, University of Maryland, College Park, MD
- 2020 Synthesizing Biodiversity Series, Hakai Institute (remote)
- 2019 Drongos Conservation Biology Seminar, Princeton University, Princeton, NJ

Contributed talks and posters

- 2023 Ann. meeting, Entomological Society of America (talk)
- 2023 Mid-Atlantic chapter meeting of the Ecological Society of America (poster)
- 2022 Postdoctoral Symposium, University of Maryland (poster)
- 2020 Ann. meeting, Ecological Society of America (talk)
- 2019 Ann. meeting, Ecological Society of America (poster, *undergraduate first author)
- 2019 Ann. meeting, Ecological Society of America (talk)
- 2017 Ann. meeting, Ecological Society of America (talk)
- 2015 Ann. meeting, Ecological Society of America (talk)
- 2014 Ann. meeting, Ecological Society of America (poster)
- 2013 Int'l Conf. on Pollinator Biology, Health, and Policy (poster)
- 2011 Ann. meeting, Ecological Society of America (poster)

Professional service and outreach

Manuscript reviewer

American Journal of Botany, Annals of the Entomological Society of America, Arthropod-Plant Interactions, Ecography, Ecology (2x), Ecology Letters (2x), Functional Ecology, Journal of Animal Ecology (2x), Journal of Ecology, Natural Areas Journal, Oikos (2x), Philosophical Transactions of the Royal Society B, PLoS One, Proceedings of the Royal Society B, Rhodora, Royal Society Open Science

Outreach and Extension

- 2022-2023 *Bug Camp Pollinator Programs* (workshop series)
- 2023 *Skype a Scientist*. Pewaukee Lakes Elementary School (seminar + workshop)
- 2023 *Skype a Scientist*. Roosevelt Middle School (seminar)
- 2022 *Skype a Scientist*. Chelsea High School (seminar)
- 2022 *4-H Summer Pollinator Programs* (train the trainers)
- 2022 *Apple Beeginnings*. Calvert County 4-H (workshop)
- 2020 *Bees and Pollination*. Orion Lakes School District (workshop)
- 2020 *Pollinator Party*. Baltimore Greenspace (lecture)
- 2019 *Pollinators of HMF*. Hutcheson Memorial Forest Center (workshop)
- 2018 *Bees and Pollination*. Duke Farms Master Ecologists (workshop)
- 2018 *Does habitat enhancement benefit rare bees?* New Jersey Wildlife Society (lecture) –
- 2018 *Introduction to bees and pollination*. Master Gardeners of Passaic Co.
- 2018 *Do male and female bees like different flowers?* Lord Stirling Env. Center (lecture)
- 2017 *Luring pollinators for lurid favors*. Master Gardeners of Monmouth Co. (lecture)

- 2016 *What are native bees?* Princeton Academy (workshop)
 2016 *Wild bees can help with pollination concerns.* NJ Agricultural Convention (lecture)
 2015 *Why Native Bees?* The Native Plant Society of Bergen Co. (lecture)
 2014 *Asking questions about native bees.* Native Plant Society of NJ (keynote lecture)
 2014 *Streamlined bee monitoring protocol.* Duke Farms (workshop)
 2013 *Pollinator Biodiversity.* Rutgers Gardens (lecture)

Other service

- 2022 *Subject Matter Expert* for instrument validation, NSF-funded study on how DEI labor is rewarded in promotion and tenure
 2020-2022 *Member,* Entomology Department Diversity, Equity, and Inclusion working group, *University of Maryland College Park*
 2022 *Participant,* NSF URoL Workshop “Stewarding and Integrated Biodiversity-Climate System.” *National Science Foundation*
 2022 *Judge,* IDEA 2022 Trade Show “How can we Save the Bay.” *Bryant University*
 2021 *Grant Panelist,* UMD Entomology outreach award, *U. of Maryland College Park*
 2014-2019 *Host,* 5 extramural speakers for departmental seminar series
 2015-2018 *Reviewer,* New Jersey Junior Science & Humanities Symposium (2015-2018)
 2016, 2019 *Organizer,* grad program “data club” (2016); co-developed as a grad course (2019)
 2016-2017 *Volunteer,* Shore Bowl regional oceanography competition, *Rutgers University*

Professional development

- 2022 *Mentoring Workshop Series for Postdoctoral Fellows,* *University of Maryland*
 2021 *Becoming a Resilient Scientist Series,* *NIH*
 2020 *Bayesian Statistics,* *SESYNC*
 2017 *Curriculum Workshop and Teaching Orientation,* *Millsaps College*
 2017 *Introduction to College Teaching,* *Rutgers University*

Societies and certifications

Sigma Xi; The Ecological Society of America; The Entomological Society of America
 Wilderness First Responder

Languages

English (Native); Spanish (Proficient); French (Conversational)