

<https://www.michaelroswell.com>mroswell@umd.edu

410.952.3018 (cell)

EDUCATION

Rutgers University Ph.D. Ecology & Evolution 2020
Committee: Rachael Winfree (Adviser), Olaf Jensen, Malin Pinsky, Jonathan Dushoff

Swarthmore College BA, Majors in Biology and Linguistics 2011

PEER-REVIEWED MANUSCRIPTS (Mentee: *Undergraduate °Graduate)

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>

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>

FORTHCOMING MANUSCRIPTS

Roswell, M. & Espíndola, A. Global conservation status modeling approach provides credible results at regional scales and with alternate taxa. *In prep* for submission to *Journal of Applied Ecology*, Early 2023.

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

Roswell, M., Cariveau, D. P., Harrison, T., Genung, M. A., Gibbs, J., & Winfree, R. Pollinator habitat plantings benefit wild, native bees, but do not necessarily favor rare species. *In prep* for submission to *Journal of Applied Ecology*, Winter 2023. *BioRxiv* Preprint of an earlier draft:
<https://doi.org/10.1101/2021.05.24.445524>

GRANTS (\$46,200) & FELLOWSHIPS (\$258,000)

Earth, Ocean, and Atmospheric Science Seed Grant (Data Club expansion)	2019	\$6,000
Rutgers Ecology & Evolution Graduate Program Small Grant	2016	\$1,000
Federal Conservation Innovation Grant (addendum to existing grant, <i>Next steps in pollinator conservation...</i> PI M. Vaughn, Co-PI R. Winfree & others)	2015	\$33,000
Rutgers University Graduate School Conference Travel Award	2015	\$200
Rutgers University SEBS Graduate Pre-Dissertation Award	2015	\$2,000
Rutgers University Graduate School Excellence Fellowship	2014	\$30,000
NSF Graduate Research Fellowship (stipend + scholarship)	2014	\$138,000
NSF GAANN Fellowship in Urban Ecology (declined)	2014	\$90,000
NY Times Sustainability Grant (awarded to found college Honey Bee Initiative)	2009	\$500
Joel Dean Fellowship (awarded to research dying language in Peruvian Amazon)	2009	\$3,500

SOFTWARE

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>

PRESENTATIONS

Roswell, M. & A. Espíndola. “Global conservation status modeling approach provides credible results at regional scales and with alternate taxa” (Poster). Postdoctoral Symposium, University of Maryland, Sep. 2022

Roswell, M., T. Harrison, and M. Genung. "Biodiversity can predict ecosystem function, but which measure of biodiversity does it best?" (Invited Seminar). Synthesizing Biodiversity Series, Hakai Institute, Jul. 2022

Roswell, M., J. Dushoff, and R. Winfree. “Seeing Hill numbers as mean rarity” (Invited Seminar). Synthesizing Biodiversity Series, Hakai Institute, Apr. 2021

Roswell, M. “Rarity and native bees” (Invited Seminar). Entomology Seminar Series, University of Maryland, Oct. 2020.

Genung, M., T. Harrison, **M. Roswell**, and R. Winfree. “Hill Numbers and Ecosystem Function” (Talk). Ann. meeting, Ecological Society of America, Aug. 2020

Roswell, M., R. Winfree, and J. Dushoff. “Seeing Hill numbers as mean rarity” (Talk). Ann. meeting, Ecological Society of America, Aug. 2019

Londono, K.⁺, **M. Roswell**, and M. Genung. “Floral architecture and bee behavior determine whether a flower visitor is an effective pollinator” (Poster). Ann. meeting, Ecological Society of America, Aug. 2019

Roswell, M., and R. Winfree. “Male and female bees visit different flower species” (Talk). Ann. meeting, Ecological Society of America, Aug. 2017

Roswell, M., D.P. Cariveau, and R. Winfree. “The importance of unequal sampling for estimating species richness” (Talk). Ann. meeting, Ecological Society of America, Aug. 2015

Roswell, M., D.P. Cariveau, and R. Winfree. “Variability reduces effort required to compare site biodiversity” (Poster). Ann. meeting, Ecological Society of America, Aug. 2014

Cariveau, D.P., N. Williams, K. Ward, **M. Roswell**, et al. “How to assess pollinator restorations efficiently” (Poster). Int’l Conf. on Pollinator Biology, Health and Policy, Aug. 2013

Roswell, M., and J. Harte. “Size matters for detecting spatial patterns of climate-driven competition” (Poster). Ann. meeting, Ecological Society of America, Aug. 2011

TECHNICAL PUBLICATIONS & 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 Municode Talking Dictionary- an online “talking” lexicon with both Municode- Spanish and Municode- English interfaces. June 2011. Available online at <http://municode.swarthmore.edu>

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

TEACHING

<i>Lab Coordinator,</i> University of Maryland	“The World of Biology”	Manage 6 TAs in teaching undergraduate introductory lab course	S2023
<i>Instructor,</i> University of Maryland	“Frontiers in Biodiversity Measurement”	Developed and lead graduate seminar with programming in R	F2021
<i>Coordinator,</i> Rutgers University	“Data Club”	Helped write grant to fund graduate course based on club I had led	S2019
<i>Lecturer,</i> Rutgers University	“Pollination Ecology”	Proposed, developed, taught upper-level, 4-credit course with programming in R	S2019
<i>Adjunct Professor,</i> Rider University	“General Ecology and Lab”	Developed and taught first half of upper-level, 4-credit ecology course	F2018
<i>Lecturer,</i> Millsaps College & Freedom Summer Collegiate	“Pollination Ecology”	Developed curriculum for and taught 2 sections of 2-credit ecology course	Jun 2017
<i>Guest lecturer,</i> Rutgers University	“Conservation ecology”		S2018
<i>Guest lecturer,</i> Rutgers University	“Agroecology”		S2018
<i>Guest lecturer,</i> Rutgers University	“Introduction to Apiculture”		S2017, S2018
<i>Guest lecturer,</i> Rutgers University	“Introduction to Environmental Science”		F2016, F2017
<i>Guest lecturer,</i> Rutgers University	“Plant Diversity and Evolution	Designed & graded pollination assignment ('15), traits and diversity assignment ('16)	F2015, F2016
<i>Faculty mentor,</i> Rutgers University	“FIGS”	Advised undergraduate instructor in development of 1-credit course	Jun-Dec 2016
<i>Science Educator,</i> Nature Bridge		Designed and taught 3-5 day outdoor science courses	2014
<i>Scientist,</i> Wondergy Inc.		Led 1-2 hour long interactive science explorations, up to 20 groups/week	2011- 2013

OUTREACH & EXTENSION

Skype a Scientist. Pewaukee Lakes Elementary School (seminar + workshop) – Jan. 2023

Skype a Scientist. Roosevelt Middle School (seminar) – Jan. 2023

Skype a Scientist. Chelsea High School (seminar) – Sep. 2022

Bug Camp Pollinator Programs (workshop series) – Jun.-Jul. 2022

4-H Summer Pollinator Programs (train the trainers) – Jun. 2022

Apple Beeginings. Calvert County 4-H (workshop) – Mar. 2022

Bees and Pollination. Orion Lakes School District (workshop) – Nov. 2020

Pollinator Party. Baltimore Greenspace (lecture) – Jun. 2020

Pollinators of HMF. Hutcheson Memorial Forest Center (workshop) – Sep. 2019

Bees and Pollination. Duke Farms Master Ecologists (workshop) – Sep. 2018

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Does habitat enhancement benefit rare bees? New Jersey Wildlife Society (lecture) – May 2018
Introduction to bees and pollination. Master Gardeners of Passaic Co. (workshop) – Mar. 2018
Do male and female bees like different flowers? Lord Stirling Env. Center (lecture) – Jan. 2018
Luring pollinators for lurid favors. Master Gardeners of Monmouth Co. (lecture) – Feb. 2017
What are native bees? Princeton Academy (workshop) – Dec. 2016
Wild bees can help with pollination concerns. NJ Agricultural Convention (lecture) – Feb. 2016
Why Native Bees? The Native Plant Society of Bergen Co. (lecture) – Nov. 2015
Asking questions about native bees. Native Plant Society of NJ (keynote lecture) – Nov. 2014
Streamlined bee monitoring protocol ... Duke Farms (workshop) – Jun. 2014
Pollinator Biodiversity. Rutgers Gardens (lecture) – Sep. 2013

MENTORING

Academic Adviser, 40 undergraduates (2023-Present)
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)

SERVICE

Reviewer, *American Journal of Botany*; *Annals of the Entomological Society of America*; *Arthropod-Plant Interactions*; *Ecology*; *Ecology Letters*; *Functional Ecology*; *Journal of Animal Ecology*; *Journal of Ecology*; *Natural Areas Journal*; *Oikos*; *Philosophical Transactions of the Royal Society B*; *PLoS One*; *Proceedings of the Royal Society B*; *Rhodora*; *Royal Society Open Science*
Subject Matter Expert for instrument validation, NSF-funded study on how DEI labor is rewarded in promotion and tenure (2022)
Member, Entomology Department Diversity, Equity, and Inclusion working group, *University of Maryland College Park* (2020-2022)
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* (2022)
Grant Panelist: UMD Entomology outreach award (2021)
Host, 5 extramural speakers for departmental seminar series (2014-2019)
Reviewer, New Jersey Junior Science & Humanities Symposium (2015-2018)
Organizer, graduate program "data club" (2016); co-developed as a graduate course (2019)
Volunteer, Shore Bowl regional oceanography competition, *Rutgers University* (2016, 2017)

RECENT PROFESSIONAL APPOINTMENTS

Postdoctoral Associate Department of Entomology at University of Maryland, College Park, Maryland (2020-Present)
Data science consultant McMaster Theoretical Biology Group at McMaster University, Hamilton, Canada (2022- Present)
Part Time Lecturer Department of Ecology, Evolution, and Natural Resources at Rutgers University,

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New Brunswick, New Jersey (2019)

Adjunct Professor Department of Biology at Rider University, Lawrenceville, New Jersey (2018)

NSF Graduate Research Department of Ecology, Evolution, and Natural Resources at Rutgers University, New Brunswick, New Jersey (2015-2018)

Professor Freedom Summer Collegiate / Millsaps College, Rosedale, Mississippi (2017)

Excellence Graduate Fellow Department of Ecology, Evolution, and Natural Resources at Rutgers University, New Brunswick, New Jersey (2014-2015)

Winfree Lab lead field technician and laboratory manager Department of Ecology, Evolution, and Natural Resources at Rutgers University, New Brunswick, New Jersey (2013-2014)

Field Science Instructor and Site Manager Nature Bridge in Southern California, Thousand Oaks, California (2014)

Scientist Wondergy Inc., Philadelphia, Pennsylvania (2012-2013)

PROFESSIONAL DEVELOPMENT

Mentoring Workshop Series for Postdoctoral Fellows, University of Maryland System (Winter 2022)

Becoming a Resilient Scientist Series, NIH (Fall 2021)

Bayesian Statistics, SESYNC (Fall 2020)

Curriculum Workshop and Teaching Orientation, Millsaps College (May 2017)

Introduction to College Teaching, Rutgers University (Jan.-May 2017)

SOCIETIES AND CERTIFICATIONS

Sigma Xi; The Ecological Society of America

Wilderness First Responder

LANGUAGE PROFICIENCY

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