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**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*, Summer 2022.  
**Roswell, M.**, Harrison, T., Winfree, R., & Genung, M. A. Biodiversity can predict ecosystem function, but which measure of biodiversity does it best? *In prep* for special issue in *Philosophical Transactions of the Royal Society B*; expected publication early 2023  
**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. *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.,** 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](http://www.cabeceras.org/cap_my_ramatica_sep09.pdf)

## TEACHING

Instructor, University of Maryland	"Frontiers in Biodiversity Measurement"	Developed and lead graduate seminar with programming in R	F2021
Coordinator, Rutgers University	"Data Club"	Helped write grant to fund graduate course based on club I had led	S2019
Lecturer, Rutgers University	"Pollination Ecology"	Proposed, developed, taught upper-level,	S2019

		4-credit course with programming in R	
<i>Adjunct Professor, Rider University</i>	“General Ecology and Lab”	Developed and taught first half of upper-level, 4-credit ecology course	F2018
<i>Lecturer, Millsaps College &amp; Freedom Summer Collegiate</i>	“Pollination Ecology”	Developed curriculum for and taught 2 sections of 2-credit ecology course	Jun 2017
<i>Guest lecturer, Rutgers University</i>	“Conservation ecology”		S2018
<i>Guest lecturer, Rutgers University</i>	“Agroecology”		S2018
<i>Guest lecturer, Rutgers University</i>	“Introduction to Apiculture”		S2017, S2018
<i>Guest lecturer, Rutgers University</i>	“Introduction to Environmental Science”		F2016, F2017
<i>Guest lecturer, Rutgers University</i>	“Plant Diversity and Evolution	Designed & graded pollination assignment ('15), traits and diversity assignment ('16)	F2015, F2016
<i>Faculty mentor, Rutgers University</i>	“FIGS”	Advised undergraduate instructor in development of 1-credit course	Jun-Dec 2016
<i>Science Educator, Nature Bridge</i>		Designed and taught 3-5 day outdoor science courses	2014
<i>Scientist, Wondergy Inc.</i>		Led 1-2 hour long interactive science explorations, up to 20 groups/week	2011-2013

## OUTREACH & EXTENSION

*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  
*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

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

*Mentor* 13 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*; *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-present)

*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)

## **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

Wilderness First Responder

## **LANGUAGE PROFICIENCY**

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