Mark Genung

University of Louisiana at Lafayette

Department of Biology

410 E. St. Mary Blvd. | Lafayette, LA 70503 USA

mark.genung@louisiana.edu

<https://genunglab.com/>

POSITIONS

**Assistant Professor**, University of Louisiana at Lafayette (2019- )

James Harper SLMWFA / BoRSF Endowed Professor of Biology (2022-)

**Postdoctoral Associate**, Rutgers University (2014-2018)

Advisor: Rachael Winfree

**Postdoctoral Associate**, University of Tennessee (2012-2014)

Advisor: Joseph Bailey

EDUCATION

**2012 University of Tennessee**

PhD, Ecology and Evolutionary Biology (2012)

Advisors: Jennifer Schweitzer and Joseph Bailey

**2007 University of Tennessee**

BS, Biology (2007)

PUBLICATIONS

***Invited***

**27. M Roswell, T Harrison, R Winfree, MA Genung. Hill diversity and ecosystem function. Invited to *Philosophical Transactions of the Royal Society - B*, March 2022.**

***In Review***

26. Scharnagl A, **MA Genung**, LM Holeski, NJ Kooyers. Tradeoffs between growth, reproduction speed and chemical defense drive patterns of local adaptation in an annual monkeyflower. Resubmitted to *The American Naturalist*, June 2022.

***Published***

**25. Genung MA**, NM Williams, J Reilly, A Buderi, J Gardner, R Winfree (2022) Many declining and rare bee species contribute to ecosystem function across time and space. *Ecology*, in press.

24. Topor Z, **MA Genung**, K Robinson (2022) Mesozooplankton communities show a unique response to Hurricane Harvey in the northern Gulf of Mexico. *Scientific Reports*, 12:8721.

**23. Simpson D, L Weinman, MA Genung, M Roswell, M MacLeod, R Winfree (2022) Many species, including rare species, are important for function of mutualist networks. *Proceedings of the Royal Society B*, 1972:** 20212689.

**22. Harrison T, R Winfree, MA Genung (2022) Price equations for biodiversity-function research. *The American Naturalist*, in press.**

**21. Genung MA**, JW Fox, R Winfree (2020) Dominance predicts the contributions of lost species to ecosystem function in nature, but not biodiversity experiments. *Global Ecology and Biogeography*, 29:1531-1541.

**20.** MacLeod M, J Reilly, D Cariveau, **MA Genung**, M Roswell, J Gibbs, R Winfree (2020) How much do rare and crop-pollinating bees overlap in identity and flower preferences? *Journal of Applied Ecology*, 57:413-423.

**19. Genung MA, JW Fox, NM Williams, C Kremen, JS Ascher, J Gibbs, R Winfree (2017) Pollinator abundance, rather than species richness, drives the temporal variability of pollination services. *Ecology*, 98:1807-1816.**

**18.** Mueller LO, LC Breza, **MA Genung**, CP Giardina, NE Stone, LC Sidak-Loftis, JD Busch, DM Wagner, JK Bailey, JA Schweitzer (2017) Ecosystem consequences of plant genetic divergence with colonization of new habitat. *Ecosphere*, 8:e01743.

**17.**MacLeod M\* & **MA Genung**\*, J Ascher, R Winfree (2016) Measuring partner choice in plant–pollinator networks: Using null models to separate rewiring and fidelity from chance. Ecology, 97:2925-2931. \* – equal contribution

**16.**Souza L, K Stuble, **MA Genung**, AT Classen (2016) Plant genotype identity and intra-specific diversity trump soil nutrient availability to shape old-field structure and function. Functional Ecology, 31:965-974.

**15. Genung MA**, JK Senior, J O’Reilly-Wapstra, SK Chapman, A Langley, JA Schweitzer, JK Bailey (2014) When ranges collide: Evolutionary history, phylogenetic community interactions, global change factors and range size differentially affect plant productivity. Invited to “Eco-evolutionary Dynamics” (eds. J Moya-Laraño, J Rowntree, G Woodward) Vol. 50, AECR, UK: Academic Press.

**14. Genung MA**, JA Schweitzer, N Omomo, JK Bailey (2014) The effects of phylogenetic diversity and species richness on ecosystem function are dependent upon evolutionary history. PeerJ, 2:e288.

**13.**Gorman CE, QD Read, ME Van Nuland, JAM Bryant, JN Welch, JT Altobelli, MJ Douglas, **MA Genung**, EN Haag, DN Jones, HE Long, AD Wilburn, JA Schweitzer, JK Bailey (2014) Below-ground communities: Phylogenetic similarity aboveground leads to community similarity belowground through conservatism of functional traits. *AoB Plants*, 5:plt049.

**12.**Burkle LA, L Souza, **MA Genung**, GM Crutsinger (2013) Plant genotype, nutrients, and G x E interactions structure floral visitor communities. *Ecosphere*, 4:art119.

**11.** Bailey JK, **MA Genung**, I Ware, CE Gorman, M Van Nuland, H Long, JA Schweitzer (2013) Indirect genetic effects: An evolutionary mechanism linking feedbacks, genotypic diversity, and coadaptation in a climate change context. Functional Ecology, 28:87-95.

**10. Genung MA**, JK Bailey, JA Schweitzer (2013) Belowground interactions shift the relative importance of direct and indirect genetic effects. *Ecology and Evolution*, 3:1692-1701.

**9.** Bailey JK, RK Bangert, **MA Genung**, JA Schweitzer, and GM Wimp (2013) Community Ecology. In “Berkshire Encyclopedia of Sustainability: Ecosystem Management and Sustainability”. Berkshire Publishing Group, Great Barrington, MA, USA.

**8. Genung MA**, JK Bailey, JA Schweitzer (2013) The afterlife of interspecific indirect genetic effects: Genotype interactions alter litter quality with consequences for decomposition and nutrient dynamics, *PLOS ONE*, 8:e53718.

**7. Genung MA**, JK Bailey, JA Schweitzer (2012) Welcome to the neighborhood: Interspecific genotype interactions influence above- and belowground biomass and associated communities, *Ecology Letters*, 15:65-73.

**6.**Bailey JK, **MA Genung**, J O’Reilly-Wapstra, BM Potts, J Rowntree, JA Schweitzer, TG Whitham (2012) New frontiers in community and ecosystem genetics for theory, conservation, and management. *New Phytologist*, 193:24-26.

**5.**Lessard J-P, WN Reynolds, WA Bunn, **MA Genung**, and 11 others (2012) Conservation of effect strength through understory, litter, and soil communities following deer herbivory.  *Basic and Applied Ecology,*13:59-66.

**4. Genung MA**, GM Crutsinger, JK Bailey, JA Schweitzer, NJ Sanders (2012) Spatial patterns of aphid abundance depend on plant genotype and genotypic diversity, *Oecologia*, 168:167-174.

**3. Genung MA**, JA Schweitzer, F Ubeda, BM Fitzpatrick, CC Pregitzer, E Felker-Quinn, JK Bailey (2011) Genetic variation and community change – selection, evolution, and feedbacks, *Functional Ecology*, 25:408-419. Invited to “Plant-Herbivore Interactions” Special Feature.

**2.**Bailey JK, JA Schweitzer, F Ubeda, M Zinkgraf, BM Fitzpatrick, J O’Reilly-Wapstra, BJ Rehill, CJ LeRoy, BM Potts, TG Whitham, **MA Genung**, DG Fischer, CC Pregitzer, A Keith (2011) From genes to ecosystems: emerging concepts bridging ecological and evolutionary dynamics, invited to “The ecology of plant secondary metabolites: from genes to landscapes” (*eds*. GR Iason, M Dicke, and SE Hartley), Cambridge University Press, Cambridge, UK.

**1. Genung MA**, JP Lessard, CB Brown, WA Bunn, MA Cregger, WN Reynolds, E Felker-Quinn, ML Stevenson, AS Hartley, GM Crutsinger, JA Schweitzer, JK Bailey (2010)Non-additive effects of genotypic diversity affect pollinator visitation, *PLOS ONE.*

*Near Submission*

**Cariveau DP, M Roswell, T Harrison, MA Genung, J Gibbs, R Winfree. Pollinator habitat restorations benefit bees, favoring neither rare nor common species. Target journal and date: *Journal of Applied Ecology*, Summer 2022.**

Greer AT, MS Schmid, PI Duffy, KL Robinson, **MA Genung**, JY Luo, T Panaiotis, C Briseño-Avena, ME Frischer, RK Cowen, S Sponaugle. Imaging across ecosystems to resolve the fine-scale oceanographic drivers of a globally significant planktonic grazer. Target journal and date: *Global Ecology and Biogeography*, Summer 2022.

GRANTS

2023-2024 U.S. Fish and Wildlife Service, State Wildlife Grants Program. Benefits of native seed mixes for pollinations in longleaf pine habitats. PI: **MA Genung**, Co-PI: A Daugereaux. $173,669.

2022-2023 Louisiana Board of Regents, Departmental Enhancement. Improving Engineering Education and the Pipeline of Engineering Majors Through a Preservice Teacher Bioinspired Engineering Maker Space and Curricular Enhancements. PI: DC Williams, Co-PIs: AH Barber, TL Chambers, **MA Genung**. $94,476

2020 Louisiana Department of Education, Louisiana Environmental Education Commission. The Impact of Pollinator Predation on the Cajun Prairie. PI: **MA Genung**, Co-PI: B Pilch\*. $2,240

2020 Louisiana Department of Education, Louisiana Environmental Education Commission. The pollinator communities of Western Louisiana and their impact on plant populations. PI: **MA Genung**, Co-PI: A Buderi\*. $2,496

2019-2021 National Science Foundation, Population and Community Ecology. SG: Synthetic analysis of the importance of species richness to ecosystem services in real-world systems. PI: **MA Genung**, Co-PI: R Winfree. $149,998

2017-2018 National Science Foundation, Population and Community Ecology. REU: The role of species dominance in mediating biodiversity-ecosystem function relationships across spatial scales. PI: R Winfree, Sr. Personnel: **MA Genung**. Two awards totaling $18,750.

\* - graduate student co-PI

INVITED TALKS

**University of Louisiana at Lafayette, Biodiversity and ecosystem function in natural communities (Feb 2018)**

**Fordham University,** Evenness predicts the importance of species loss for ecosystem services, Department of Biological Sciences (Mar 2017)

**International Congress of Entomology (Orlando)**, Measuring partner choice in plant – pollinator networks, Biology of Wild and Native Bees symposium (Oct 2016)

**Princeton University**, Pollinator abundance, not species richness, drives the temporal variability of pollination function, Kocher Lab (Aug 2016)

**Princeton University**, Biodiversity and ecosystem function at large scales, Wilcove Lab (Apr 2016)

**Rutgers University**, Improving realism in biodiversity-ecosystem function research, Department of Ecology, Evolution, and Natural Resources (Sep 2015)

**Doñana Biological Station (Seville, Spain)**, Using the Price equation to understand the temporal dynamics of pollination function (Dec 2014)

**BES-SFE Annual Meeting (Lille, France)**, The Price equation and ecosystem functioning: Dominant pollinators determine the temporal stability of ecosystem services (Dec 2014)

**Villanova University**, From genotypes to landscapes: Plant-pollinator interactions at multiple scales, Department of Biology (Nov 2014)

**University of Pennsylvania**, From genotypes to landscapes: Plant-pollinator interactions at multiple scales, EcoLunch Speaker Series (Oct 2014)

**Rutgers University**, The hierarchy of biodiversity and ecosystem function, Winfree Lab (Feb 2014)

**Oak Ridge National Laboratory**, The hierarchy of biodiversity and ecosystem function, Environmental Sciences Division (Oct 2013)

**International Botanical** **Conference (Melbourne, Australia)**,Ecological and evolutionary consequences of genotype-based plant-neighbor interactions (Jul 2011)

OUTREACH TALKS

**Acadiana Native Plant Society, Native pollinators of the Cajun Prairie (Oct 2019)**

**Lafayette Garden Club, Gardening for native bee species (Sep 2021)**

RELEVANT SKILLS

Field Ecology: pollination methods (advanced), Eastern US bee identification (intermediate)

Programming: R (advanced), simulation models (advanced), SAS (intermediate), Git (basic)

Database Management: SQL (intermediate)

Mathematical ecology: Price equation (expert), null models (expert), numerical ecology (advanced), network analysis (advanced), linear and matrix algebra (intermediate)

TEACHING AND MENTORING

***Courses Taught***

*Current*

BIOL 595 Community Ecology

BIOL 321 Entomology

BIOL 575 Statistical Ecology

*Previous UL Courses*

BIOL 421G Experimental Design and Data Analysis

***PhD Student mentees***

Andrew Buderi, started Fall 2019

Blaine Pilch, started Fall 2019

Kimberly Hamm, started Fall 2021

***Undergraduate student mentees***

Alyx Hebert (2022-) Predator-pollinator interactions in the Cajun Prairie

Seth Duet (2021-) Scholarship worker. Floral structure and seed set

Allen Soileau (2021-) Scholarship worker. Pollinators and predators

Asia Dauntain (2020) BIOL 410 student. Floral structure and seed set

Ty Henley (2020-) BIOL 410 student. Temperature and ant colony growth

Joshua Ray (2020-) Scholarship worker. Pollinators and predators

Ryan Fontenot (2019-) Plant-pollinator networks in the Cajun Prairie

Emma Weiser (2019) Scholarship worker. Campus pollinators of UL

***Research Technicians***

Kimberly Hamm (2020-2021) Summer research technician in plant/pollinator ecology

***Mentoring as Postdoc***

*Graduate students*

Michael Roswell (2014-2018) PhD student at Rutgers University

Colleen Smith (2014-2018) PhD student at Rutgers University

Molly MacLeod (2014-2015) Senior Manager in Science Content at Pfizer

Liam Mueller (2013-2014) PhD student at the University of Tennessee

Ian Ware (2013-2014) PhD student at the University of Tennessee

*Research technicians*

Andrew Buderi (2018) PhD student at the University of Louisiana

Mary Linabury (2018) PhD student at Colorado State University

Lucia Weinman (2016-2018) PhD student at Rutgers University

Erin Lowe (2016-2017) MS student at the University of Wisconsin

Tiffany Bennett (2016-2017) Forester at Gracie and Harrigan

*Undergraduate students*

Casey Hamilton (2018-2019) REU student 2018, poster at ESA Annual Meeting (2019)

Alexandra Matthews (2016-2019) REU student 2017, poster at ESA Annual Meeting (2019)

Hannah Long (2012-2013) Poster at ESA Annual Meeting (2013)

Nicole Hergott (2008-2010) Ph.D. student at U. of Tennessee

SERVICE AND OUTREACH

* Hilliard Museum of Art, scientific program to complement *Fragile Bee* exhibit (2021)
* First Presbyterian Church, Honeybee hives and pollinator garden (2020)
* Acadiana Native Plant Society (2019 - )
* Scientific advisor for NJ Senate (2016 – 2018)
* NSF-funded Biology Curriculum Reform Committee, Univ. of Tenn. (2013- 2014)
* STEM careers for rural East Tennessee Girls’ Science Clubs (Sunbright TN, 2013)
* Graduate Student Member, Graduate Affairs Committee, University of Tennessee Department of Ecology and Evolutionary Biology (2011-2012)

***Peer Review***

In the past three years, I have reviewed papers for a range of journals including *Nature Communications, Ecology Letters, Ecology, American Naturalist,* and *Global Ecology and Biogeography*.