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- present)

Harper Mid-Winter Fair / BoRSF Professor of Biology (2022- present)

**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)

 Advisor: Nathan Sanders

PUBLICATIONS

***In Review***

R4. Sweet J, S Casas S, J La Peyre, **MA Genung**, BA Stauffer. Effects of the cyanobacteria *Microcystis aeruginosa* on eastern oyster feeding. Minor revisions, *Ecosphere*, June 2025.

R3. Kooyers NJ, **MA Genung**, SG Innes, AK Turcu, DM Hinrichs, B LeBlanc, CM Patterson. Heatwaves decrease fitness and alter maternal provisioning in natural populations of Mimulus guttatus. Minor revisions, *American Journal of Botany*, June 2024.

R2. Winfree R, J Reilly, **MA Genung**. The Pareto principle (80-20 rule) in biodiversity-ecosystem functioning research. In review, *Bioscience*, May 2024.

R1. McClain CR and 11 others including **MA Genung**. Abundance, niche diversity, and differential species effects impact ecosystem function on the bottom of the ocean. Resubmitted to *The American Naturalist* after "Major Revision" decision, January 2025.

***Published***

31. Winfree R, J Reilly, **MA Genung** (2025) Abundance, not just diversity, needs to be part of biodiversity-ecosystem services research. *Nature Reviews Biodiversity*, https://doi.org/10.1038/s44358-025-00040-1.

30. Zhang A, S Chen, Z Liu, J Chen, H Song, J Wang, H Cui, Z Yang, S Xiao, A Lizhe, **MA Genung** (2024) After shrub encroachment, changes in plant biomass are driven by persisting plant species, but species gains drive nematode carbon dynamics. *Ecology Letters*, 28:e70070.

**29. Genung MA, Winfree R (2024)** Dominant species stabilize pollination services through response diversity, but not cross-scale redundancy. *Ecology*, Early View, e4481.

**28. M Roswell, T Harrison\*, R Winfree, MA Genung (2023) Hill diversity and ecosystem function. *Philosophical Transactions of the Royal Society – B*, 378: 20220186.**

27. Scharnagl A, **MA Genung**, LM Holeski, NJ Kooyers (2023) Tradeoffs between growth, reproduction speed and chemical defense drive patterns of local adaptation in an annual monkeyflower. *Evolution*, 77:370-383.

26. **Genung MA**, NM Williams, J Reilly, A Buderi\*, J Gardner, R Winfree (2023) Many declining and rare bee species contribute to ecosystem function across time and space. *Ecology*, e3899.

**25.** Greer AT, MS Schmid, PI Duffy, KL Robinson, **MA Genung**, JY Luo, T Panaiotis, C Briseño-Avena, ME Frischer, RK Cowen, S Sponaugle (2022) Imaging across ecosystems to resolve the fine-scale oceanographic drivers of a globally significant planktonic grazer. *Limonology and Oceanography*, 68:192-207

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*, 200:181-192.**

**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.*

*In Revision / Near Submission*

Buderi A\*, M Page, CC Nicholson, NM Williams, **MA Genung**. Big or hairy: Pollinator and plant traits interact to generate broad patterns of trait matching. In revision.

Novak Pilch B\*, **MA Genung**. Temperature, humidity, and predator density interactively affect pollinator visitation and behavior. In revision.

Harrison T, M Roswell, DP Cariveau, **MA Genung**, J Gibbs, J Dushoff, R Winfree. Defining and drawing inference about rare species: A worked example with rare bees in pollinator habitat restorations. Target: *Methods in Ecology and Evolution.*

Torgersen K, WGR Crampton, **MA Genung**, M Tan, KO Winemiller, JA Albert. The First Ecological Trait Space of Neotropical Freshwater Fishes, in *The Ecology and Evolution of Amazonian Fishes*.

GRANTS UL Total $845,423

2027-2029 U.S. National Science Foundation, Biological Oceanography. Collaborative Research: Cracking Community Assembly: Connectivity, Dispersal and Selection in Deep-Sea Wood Falls. PI: CM McClain, Co-PIs: **MA Genung** and KS Meyer-Kaiser. $923,528 (in review)

2026 U.S. Fish and Wildlife Service, State Wildlife Grants Program. Detailed analysis of floristic community responses to rangeland restoration. PI: **MA Genung**. $22,070.

2024-2025 U.S. Fish and Wildlife Service, State Wildlife Grants Program. Benefits of native seed mixes for pollinators in longleaf pine habitats. PI: **MA Genung**, Co-PI: A Daugereaux. $162,079.

2023-2024 U.S. National Science Foundation, Research Infrastructure. Increasing Capacity at the University of Louisiana Lafayette Ecology Center. PI: **MA Genung**, Co-PIs: A Daugereaux, NJ Kooyers, R Zerebecki. $412,064.

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 U.S. 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

TEACHING AND MENTORING

***Courses Taught***

*Current UL Courses*

BIOL 321 Entomology

BIOL 510 Community Ecology

BIOL 575 Statistical Ecology

***Postdocs***

Dr. Tina Harrison (2019-2020) Abundance-based ecological Price equation

***PhD student mentees***

Andrew Buderi, (2019-2024) Plant and native bee biodiversity and functional ecology

Blaine Pilch (2019- ) Predator density and its effects on native bee behavior

***MS student mentees***

Anna Espinoza (2022-2024) Pollinator rewiring & Louisiana barrier island native bees

Kimberly Hamm (2021-2024) Urban ecology and thermal tolerance of native bees

***Undergraduate student mentees***

Rumaan Baloch (2023-2024) Scholarship / 410. Bee traits and identification

Seth Duet (2021-2022) Scholarship worker. Floral structure and seed set

Allen Soileau (2021-2022) Scholarship worker. Pollinators and predators

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

Ty Henley (2020-2021) BIOL 410 student. Temperature and ant colony growth

Joshua Ray (2020-2024) Scholarship / 410. Pollinators and predators

Ryan Fontenot (2019-2023) BIOL 410 student. Plant-pollinator networks

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

***Research Technicians***

Kimberly Hamm (2020-2021) PhD student in Genung Lab, UL Lafayette

Hannah Kernen (2021) PhD student in Kaplan Lab, Purdue

Kristin Robinson (2021) PhD student in Baudier Lab, Southern Miss

Laura Taylor (2021) PhD student in Youngsteadt Lab, NC State

SERVICE AND OUTREACH

* UL Lafayette SEEDS chapter, faculty advisor (2022- )
* Bee Campus USA project (2022- )
* Hilliard Museum of Art, scientific program to complement *Fragile Bee* exhibit (2021-2022)
* Lafayette Garden Club (2021)
* Acadiana Native Plant Society (2019)
* Scientific advisor for NJ Senate (2016–2018)

***Peer Review***

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