

Gaurav S. Kandlikar

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CURRENT POSITION

Assistant Professor

Louisiana State University (Baton Rouge)
Department of Biological Sciences

August 2023 - present

PREVIOUS POSITIONS

Postdoctoral Fellow

University of Missouri, Columbia
Divisions of Biological Sciences & Plant Sciences
Postdoctoral Program for Faculty Diversity

September 2020 - August 2023

EDUCATION

University of California, Los Angeles

PhD in Ecology and Evolutionary Biology

Committee: Dr. Nathan Kraft (Chair), Dr. Priyanga Amarasekare, Dr. Jennifer Martiny,
Dr. Lawren Sack, Dr. Felipe Zapata

2015 - 2020

University of Maryland, College Park

PhD in Biological Sciences

Moved to UCLA in 2015 with Dr. Nathan Kraft's lab

2014 - 2015

University of Minnesota, Twin Cities

B.S. in Ecology, Evolution & Behavior and Plant Biology

Minor in Biochemistry

Undergraduate Research Assistant and Herbarium Assistant with Dr. George Weiblen

2010 - 2013

AWARDS AND FELLOWSHIPS

2024 Vick Fellowship for Educational Innovation, College of Science, Louisiana State University
2020 Fellow of the Postdoctoral Program for Faculty Diversity, University of Missouri, Columbia
2020 Murray F. Buell Award for Excellence in Ecology, Ecological Society of America
2019 Student Research Award, American Naturalist Society
2019 UCLA Josephine Reich Quarter Fellowship
2019 Scherbaum Award for excellence in graduate research, UCLA-EEB
2019 Special Faculty Award for outstanding service to students and faculty, UCLA-EEB
2015 Graduate Research Presentation Award, University of Maryland GRID conference
2014 NSF Graduate Research Fellowship
2014 University of Maryland Flagship Fellowship
2014 University of Maryland Dean's Fellowship
2014 Undergraduate Research Prize and Travel Award, American Society of Plant Taxonomists
2013 NSF-REU, Smithsonian National Museum of Natural History, Dept. of Botany
2013 Hamm Memorial Scholarship in Plant Research Sciences, University of Minnesota
2013 Undergraduate Leadership Fellow, University of Minnesota Institute on the Environment

GRANTS

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| 2022 | British Ecological Society (£5,000) |
| 2021 | sDiv (German Centre for Integrative Biodiversity Research) (€24,020) |
| 2019 | UCLA EEB Departmental Research Award (\$4500) |
| 2018 | La Kretz Center for Conservation Science - Student Research Award (\$3000) |
| 2018 | Ecological Society of America Plant Population Ecology travel award |
| 2017 | Ecological Society of America Plant Physiological Ecology travel award |
| 2017 | UCLA EEB Vavra Research Award (\$3500) |
| 2016 | UCLA EEB Vavra Research Award (\$1000) |

PUBLICATIONS

Peer-reviewed publications

20. **Kandlikar, G.S.**. 2024. Quantifying soil microbial effects on plant species coexistence: a conceptual synthesis. *American Journal of Botany* 111:4 e16316.
19. Rankin, T.L., Cowen, M.C., **Kandlikar, G.S.**, Shulzitski, K., and Sponaugle, S. 2024. Behavioral mechanisms underlying trait-mediated survival in a coral reef fish. *Frontiers in Fish Sciences*, 1:1276343.
18. Morton, T., and 21 others, including **Kandlikar, G.S.** 2023. Re-Envisioning the Culture of Undergraduate Biology Education to Foster Black Student Success: A Clarion Call. *CBE-Life Sciences Education*, 22:es5, 1–13.
17. Munoz, F., and 21 others, including **Kandlikar, G.S.** 2023. The ecological causes of functional distinctiveness in communities. *Ecology Letters* 26:8 1452-1465.
16. Halpern, B., and 100+ others, including **Kandlikar, G.S.**. 2023. Priorities for synthesis in ecology and environmental science. *Ecosphere* 14:1 e4342.
15. McGuire, R.⁺, Hayashi, K.⁺, Yan, X.⁺, Carita Vaz, M., Cinoğlu, D.⁺, Cowen, M.⁺, Sullivan, L., Martínez-Blancas, A.⁺, Vazquez-Morales, S., and **Kandlikar, G.S.*** 2022. EcoEvoApps: interactive applications for teaching quantitative models in ecology and evolution. *Ecology and Evolution* 12:e9556.
⁺ Graduate student coauthor; * Corresponding and senior author.
14. Gui-Qing, X. , **Kandlikar, G.S.**, and Carita Vaz, M. 2022. Evolutionary lability underlies adaptation of Australian shrubs along aridity gradients. *Frontiers in Plant Sciences* 13:949531.
13. Yan, X.^{+*}, Levine, J., and **Kandlikar, G.S.***. 2022. A quantitative synthesis of microbial effects on plant diversity. *Proceedings of the National Academy of Sciences* 119 (22) e2122088119.
⁺ Graduate student coauthor; *Equal contribution and corresponding authors.
12. **Kandlikar, G.S.**, Kleinhesselink, A., and Kraft, N.J.B. 2022. Functional traits predict species responses to environmental variation in a California grassland annual plant community. *Journal of Ecology* 110(4): 833-844.
11. Sandel, B., and 11 others, including **Kandlikar, G.S.**. 2021 Predicting intraspecific trait variation among California's grasses. *Journal of Ecology* 109(7):2662-2677.
10. **Kandlikar, G.S.**, Yan, X.* , Levine, J.M., and Kraft, N.J.B. 2021. Soil microbes generate stronger fitness differences than stabilization among California annual plants. *The American Naturalist* 197(1):E30-E39.
^{*} Undergraduate mentee.
9. Meyer, R.S., and 15 others, including **Kandlikar, G.S.**. 2021. The California environmental DNA "CALeDNA" Program. *California Agriculture* 75(1):20-32 (Special issue on Citizen Science). Preprint available on BioRxiv.

8. Sura, S.A., and 14 others, including **Kandlikar, G.S.**. 2019. Ten simple rules for giving an effective academic job talk. *PLoS Comput Biol* 15(7): e1007163.
7. Curd, E.E., Gold, Z.*., **Kandlikar, G.S.***, Gomer, J.* , and 13 others. 2019. Anacapa: an environmental DNA toolkit for processing multi-locus metabarcode datasets. *Methods in Ecology and Evolution* 10:9, 1469-1475.
*Equal contribution. Featured cover article and short-listed for Robert May Prize.
6. **Kandlikar, G.S.**, Johnson, C., Yan, X.* , Kraft, N.J.B., and Levine, J.M. 2019. Winning and losing with microbes: how microbially mediated fitness differences influence plant community dynamics. *Ecology Letters* 22:8, 1178-1191.
* Undergraduate mentee. Recommended on F1000.
5. **Kandlikar, G.S.**, Gold, Z.J., Cowen, M.C., Meyer, R., Friese, A.C., Kraft, N.J.B., Moberg-Parker, J., Sprague, J., Kushner, D., and Curd, E.E. 2018. Ranacapa: an R package for interactive visualization and exploratory analysis of environmental DNA data. *F1000 Research* 7:1734.
The software I developed for this paper is used to analyze data in the HHMI-funded UCLA undergraduate course "Biodiversity in the Age of Humans", as well as the NSF-Funded Bean Beetle Microbiome research-education project.
4. Petry, W., **Kandlikar, G.S.**, Kraft, N.J.B., Godoy, O., and Levine, J.M. 2018. A competition–defence trade-off both promotes and weakens coexistence in an annual plant community. *Journal of Ecology* 106:5, 1806-1818.
3. **Kandlikar, G.S.***, Vaz, M.C*., Kriebel, R., Vargas, G., Michelangeli, F., Cordero, R., Avalos, G., Almeda, F., Fetcher, N., Kraft, N.J.B. 2018. Low functional and phylogenetic turnover of melastomes along a Costa Rican elevational gradient. *Journal of Tropical Ecology* 34:3, 204-208.
*Equal contribution.
2. Hanson, W., and 14 others, including **Kandlikar, G.S.** 2018. Student reflections on careers and culture of 21st century ecology. *Ecosphere* 9:2, e02099.
1. Yan, M., **Kandlikar, G.S.**, Jacobson, L., Clanton, C., and Hu, B. 2014. Lab simulation to determine the factors affecting swine manure foaming. *Trans of the Am. Soc. of Agricultural and Biol. Engineers* 57(3): 907–914.

Non-peer reviewed publications

1. Simha, A.* , James, A.* , Monk, J.D., Zou, H-X., K, P-J., Wright A., Bimler, M.D., Moore, C.M., Pierre, S., Carley, L.N., **Kandlikar, G.S.**. When the window is a mirror: how do dominant theories limit our understanding of nature? (ESA 2023 INS23). *In press* at Bulletin of the Ecological Society of America.
*Equal contribution

Preprints and manuscripts in review

3. Wu, H., Wang, W., Wu, T., Luo, Z., Lin, W., Liu, H., Xiao, J., Luo, W., Li, Y., Wang, Y, Song, C., **Kandlikar, G.S.**, Chu, C. Soil microbial influences over coexistence in multispecies plant communities in a subtropical forest. *In revision at Ecology*.
2. Ou, S.X., **Kandlikar, G.S.**, and Ke, P-J.* . Realistic time-lags and litter dynamics alter predictions of plant–soil feedback across generations. *In review*.
1. Ke, P-J.* , Ou, S.X.*,+ , **Kandlikar, G.S.**, Hsu, G-C., Wan, J.+ , and Krishnadas, M. Time will tell: the temporal and demographic contexts of plant–soil microbe interactions. *In review*.
*Equal contribution, +Graduate student coauthor

TEACHING EXPERIENCE

Primary Instructor (Instructor of Record):

Undergrad course: Principles of Ecology (28 students). Link to course website.

LSU 2023

Grad course: Data Science for Plant Biology (co-taught, 15 students) MU 2022

Developed new modules on microbiome sequence analysis and statistics/visualization.

Grad course: Teaching in the Life Sciences (25 students) UCLA, 2018

'Using R and Shiny for Bioinformatics' for undergraduate-level course in Bioinformatics at Penn State University - Brandywine (Fall 2022)

"Trophic interactions in ecological communities" for graduate-level Fundamentals in Ecology course at CCMB, India (Fall 2021 and 2022)

"How stress mediates plant-plant interactions" for graduate-level MU course on plant stress biology (Fall 2021 and 2022)

"Coexistence in plant communities" for Upper-division UCLA course on plant ecology (Fall 2019)

"From taxon tables to biological understanding" for Lower-division UCLA course on biodiversity (Fall 2019)

"How soil microbes affect plant communities" for Upper-division UCLA course on environmental soil microbiology (Fall 2017)

Teaching Assistant:

Plant Physiology (Upper Division, 120 students). *Online due to pandemic.* UCLA, 2020

Plant Ecology (Upper Division, 40 students). UCLA, 2019

Practical Computing in Biology (Upper Division/Graduate Students; 50 students). UCLA, 2017

I developed the syllabus and all activities for the lab component.

Calculus for Life Sciences (Lower Division, 40 students). UCLA, 2017

Principles of Molecular Biology (Lower Division, 60 students). U. Maryland, 2015

Principles of Ecology (Upper Division, 60 students). U. Maryland, 2014

Principles of Ecology and Evolution (Lower Division, 40 students) U. Minnesota, 2013

Organized workshops:

Two-day Software Carpentry workshop on Shell, R, and Git (co-instructor) MU, 2022

Two-day Software Carpentry workshop on Shell, R, and Git (lead instructor) UCLA, 2020

Various workshops on R, shiny, markdown, and reproducible research UCLA EEB Dept, 2017-2020

Pedagogical workshops and teaching certificates:

Certified Instructors with the Software Carpentry Consortium 2019

Center for the Integration of Research, Teaching, and Learning (CIRTL) Associate UCLA, 2017

Educational Development Summer Institute CEILS, UCLA, 2017

MENTORSHIP

PhD Students:

Richard Ita LSU, Fall 2023-present

Member of graduate student advisory committees at Louisiana State University:

Rohit Jha (2023-present; PhD Advisor: Daijiang Li)

Undergraduate research mentees at Louisiana State University:

Swati Halder (Fall 2023); Alex Phillips (Fall 2023-present); Milayna Ullua (Fall 2023-present); Ameya Kherde (Winter 2023; Internship student from IISER-Pune (India)); Diamonique Curvin (Spring 2024-present); Xavier Jackson (Spring 2024-present); Angelina Nguyen (Spring 2024-present)

Undergraduate research mentees at U. Missouri:

Kyra Binkhoelter (2020-21; FRIPS program), Jordyn Hammel (2021-2022; CAFNR Undergraduate Research Internship), Sarah Guardia (2021-2022; CAFNR Undergraduate Research Internship)

Undergraduate research mentees at UCLA:

Clare Camilleri (2016-2017), Angela Chen (2016-2018), Anmol Dhaliwal (2018-2020), Aoife Galvin (2016-18), Jonathan Shi (2018-2020, UCLA EEB Poster Award), Xinyi Yan (2017-2020, Coauthor on Publications 6, 10, 13 and 15, UCLA Undergraduate Research Fellowship, CAL-eDNA Summer Fellowship; UCLA EEB Poster Award)

Mentor to graduate/undergraduate students through the following programs:

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| University of Missouri McNair Scholars program | 2021-2022 |
| Ecological Society of America SEEDS program | 2018-2020 |
| UCLA Graduate Student Writing Center | 2018-2020 |
| Developed a new workshop on "Creating effective figures for scientific presentations and publications". | |
| UCLA PEERS program, Graduate mentor for "Calculus for Life Sciences" | 2017 |
| UCLA-PEERS is a program aimed at supporting undergraduate students from disadvantaged backgrounds. | |

PRESENTATIONS

Invited department seminars

11. Archbold Biological Station, Distinguished Speaker Seminar. Venus, FL, USA. April 2024.
10. Beijing Biodiversity Science Association, Chinese Academy of Sciences. Remote Talk. September 2023.
9. National Center for Biological Sciences. Bangalore, India. December 2022.
8. Laboratory for the Conservation of Endangered Species, Center for Cellular and Molecular Biology. Hyderabad, India. November 2022.
7. Department of Biology, Indian Institute of Science Education and Research. Pune, India. October 2022.
6. Department of BioSciences, Rice University, Texas, USA. May 2022.
5. Kansas Biological Survey, University of Kansas. April 2022.
4. Department of Biological Sciences, Louisiana State University. March 2022.
3. Peay Lab, Department of Biological Sciences, Stanford University. August 2020.
2. O'Dwyer Lab, Department of Plant Sciences, University of Illinois-Urbana Champaign. February 2020.
1. Integrative Plant Group, University of Missouri, Columbia. February 2020.

Invited presentations at conferences

5. "Engaging scientists and practitioners in the Global South for enhancing ecology." *Invited talk* in an Organized Oral Session at ESA 2023
4. "What we talk about when we teach about Ecology." *Ignite Talk* in an Inspire Session at ESA 2023
3. "How, when, and why to write research proposals." *Invited Talk* for the University of Missouri McNair Scholars Program (2021 and 2022)
2. Invited Panelist for Ecological Society of America roundtable on "Collaborations Across ESA Programs to Advance Science, Education and Diversity" at ESA 2021.
1. "Interactive Webapps to Help Student Understanding of Quantitative Models in the Life Sciences". 2021. University of Missouri Teaching For Learning Center.

Contributed presentations as presenting author

13. Interactions at the edge: how microbes shape plant coexistence in a fragmented forest. Talk at 2023 ESA Annual Meeting in Portland, Oregon.
12. Microbial regulation of plant coexistence through the lens of functional traits. Talk at 2022 ESA Annual Meeting in Montreal, Canada.
11. A quantitative synthesis of microbially-mediated plant coexistence. Poster at 2022 Changing Microbiomes Symposium at Penn State University.

10. A meta-analysis of microbially mediated stabilization and fitness differences among plants. Talk at 2021 Botanical Society of America Annual Meeting (online).
9. EcoEvoApps: Interactive apps for teaching ecology and evolution. Poster at 2020 ESA Annual Meeting (online).
8. Winning and losing with microbes: how microbially mediated fitness differences influence plant diversity. Talk at 2019 ESA Annual Meeting in Louisville, KY. **Buell Award for Excellence in Ecology.**
7. Using R for teaching ecology. Talk at 2019 Los Angeles SatRday conference, Los Angeles, CA.
6. Winning and losing with microbes: how microbially mediated fitness differences influence plant diversity. Poster at 2018 Gordon Research Conference on Plant-Herbivore Interactions.
5. Functional traits help explain plant demographic responses to variation in soil abiotic characteristics and microbial composition. Talk at 2018 ESA Annual Meeting in New Orleans, LA.
4. Functional traits and the drivers of plant species coexistence across a heterogeneous landscape. Talk at 2018 California Native Plants Society Annual Meeting in Los Angeles, CA.
3. Functional traits and the drivers of plant species coexistence across a heterogeneous landscape. Talk at 2017 ESA Annual Meeting in Portland, OR.
2. High phylogenetic but low functional turnover of melastomes along a tropical elevational gradient. Poster at 2015 ESA Annual Meeting in Baltimore, MD.
1. Chloroplast DNA reveals uniparental plastid inheritance from *Isoetes engelmannii* in two allotetraploid speciation events. Poster at 2014 Botany Annual Meeting in Boise, ID.

WORKING GROUPS AND SPECIALIZED COURSES

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| Undergraduate Network for Increasing Diversity of Ecologists (UNIDE) Member of the Pedagogy Subcommittee | 2023-present |
| Soil microbial controls over plant coexistence (sPSF) co-PI of this international working group, with Dr. Meghna Krishnadas (members from USA, Sweden, Germany, India, Taiwan, Colombia) | 2021-present |
| Future of Synthesis in Science (NCEAS Workshop) | 2021 |
| Re-Envisioning Culture Network Enhancing Black undergraduate student experiences in biology. | 2020-present |
| Causes and consequences of functional rarity from local to global scales | 2018-2020 |
| UC-Conservation Genomics Consortium Environmental DNA working group | 2017-2018 |
| Ecological Society of America EcoFutures working group | 2015-2016 |
| Organization for Tropical Studies, field course on Tropical Plant Systematics | 2014 |

PROFESSIONAL SERVICE

University service

- Member of the "Humans Building Bridges" committee, focused on Inclusion, Equity, and Diversity at the U. Missouri Division of Biological Sciences, 2021-2023.
- Founder and Organizer of Graduate student and Postdoc co-working space/"Hacky Hours", Dept. of Ecology and Evolutionary Biology, UCLA. 2017-2020.
- Graduate student representative for Faculty search committee for Quantitative Microbial Ecology or Evolution position, Dept. of Ecology and Evolutionary Biology and Institute for Quantitative and Computational Biology, UCLA. 2018.
- Graduate student representative for Department seminar committee, Dept. of Ecology and Evolutionary Biology, UCLA. 2016-2017.
- Guest panelist for "Teaching in Life Sciences" course (3 times) and "Professional Skills for Biological Research" course (2 times).

Graduate Assistant for R Bootcamp for incoming graduate students, Dept. of Ecology and Evolutionary Biology, UCLA. 2016-2018.

Extramural service

Editor for a Special Issue on "Plant-microbe interactions in tropical and subtropical ecosystems" for *American Journal of Botany* (2023)

Peer review for *American Journal of Botany* (1); *The American Naturalist* (2); *Annals of Botany* (1); *Ecology* (6); *Ecology and Evolution* (1); *Ecology Letters* (6); *Functional Ecology* (1); *Oecologia* (1); *Oikos* (1); *Journal of Applied Microbiology* (1); *Journal of Ecology* (3); *Journal of Theoretical Ecology* (2); *Methods in Ecology and Evolution* (1); *Microbial Ecology* (1); *Molecular Ecology* (1); *Nature Ecology and Evolution* (1); *New Phytologist* (1); *Proceedings of the Royal Society B* (1).

Numbers indicate unique manuscripts (revisions not counted)

Ad-hoc grant review for *US National Science Foundation* (2)

SEEDS Mentor for Ecological Society of America Annual Meeting (2018, 2019, 2020)

Co-organizer of Symposium "The state of ecosystems across the Global South: Perspectives on ecology, conservation, and environmental justice" for Ecological Society of America Annual Meeting, 2022 (In collaboration with Latin American and Caribbean chapter).

Secretary for Plant Population Ecology section, Ecological Society of America (2020-2023).

Co-organizer of Organized Oral Session "Examining the Role of Spatial Variation in Maintaining Plant Community Diversity" for Ecological Society of America Annual Meeting, 2018.

Vice President of Partnership for Academic Competition Excellence, 2016-17

Head Editor for Academic Competition Federation's ACF Fall tournament, 2014-17

SOCIETY MEMBERSHIP

Ecological Society of America (2015-present, *Member of the ESA council, 2022*); American Society of Naturalists (2018-present); Botanical Society of America (2020-present); California Native Plants Society (2016-2018)