Gabriel C. Runte

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I am an applied forest ecologist focused on addressing the climate crisis through science-based conservation and carbon solutions. My expertise includes reforestation, management, and carbon accounting. I have 6 years of experience leading cross-disciplinary projects, collecting and processing ecological data, and building repeatable, scalable analytical workflows in multiple programming languages. I am looking to transition my technical expertise outside of academia to improve the quality and rigor of data-driven climate solutions.

Education

PhD | University of California, Santa Barbara - Ecology, Evolution, and Marine Biology. **2024**
Committee: Holly Moeller (chair), Leander Anderegg, Laura Bogar (UC Davis), Carla D'Antonio, Ryoko Oono

MA | University of California, Santa Barbara - Ecology, Evolution, and Marine Biology.
Committee: Holly Moeller (co-chair), Ryoko Oono (co-chair), Carla D'Antonio **2021**

BS | University of California, Santa Barbara - Environmental Studies.
Minor in Professional Writing for Science Communication **2018**

Professional Experience

Data scientist **2020-2024**

- Built and implemented analytical workflows across multiple programming languages (R, Python, Bash), optimizing processes for forest ecosystem research.
- Designed innovative solutions for the extraction and interpretation of diverse datasets, including multispectral imagery, high-resolution microscopy, and geospatial (GIS) datasets, aligning with carbon and biodiversity research goals.
- Developed collaborative pipelines on remote and cloud architectures, facilitating cross-functional team efforts in distributed environments.

Field study lead **2019-2024**

- Led multi-year remote research initiatives in diverse forest ecosystems, including tropical and temperate regions, focused on ecologically-informed reforestation.
- Designed and executed field studies that integrated both qualitative and quantitative data.
- Coordinated and communicated with interdisciplinary field teams, ensuring efficient data collection and robust project execution.
- Managed data workflows on collaborative platforms, with a focus on long-term ecological and forest carbon studies, contributing to actionable outcomes for forest management and climate mitigation.

Instructor/mentor **2021-2024**

- Taught university courses to undergraduate and graduate students, with a focus on theoretical ecology, coding skills, and applied data analysis in environmental sciences.
- Developed and implemented hands-on curriculum, including coding labs and classroom modules, preparing students for real-world challenges in ecology and climate research.
- Mentored multiple undergraduate students, fostering professional growth in ecological research and data science; many mentees have successfully transitioned to graduate programs at top universities.

Publications

GC Runte, A Chuen, B McKernan, HV Moeller (2024). A reflection of their roots: How soil conditioning and neighbor effects shift seedling outcomes and drought response. *In prep, manuscript available upon request.*

GC Runte, HV Moeller (2024). Is the friend of my friend my enemy? The maintenance of multiple hosts and symbionts in a mutualism network. *In prep, manuscript available upon request.*

HV Moeller, A L'Etoile-Goga, L Vincenzi, A Norlin, GS Barbaglia, **GC Runte**, JT Kaare-Rasmussen, MD Johnson (2024). Retention of blue-green cryptophyte organelles by Mesodinium rubrum and their effects on photophysiology and growth. *Journal of Eukaryotic Microbiology.* https://doi.org/10.1111/jeu.13066

GC Runte, R Oono, NA Molinari, SR Proulx, CM D'Antonio (2022). Restoring bigcone Douglas-fir post-fire in drought-stricken Southern California: Assessing the effects of site choice and outplanting strategies. *Frontiers in Forests and Global Change*. https://doi.org/10.3389/ffgc.2022.995487

J Weverka, **GC Runte**, EL Porzig, CJ Carey (2022). Exploring plant and soil microbial communities as indicators of soil organic carbon in a California rangeland. *Soil Biology and Biochemistry*. https://doi.org/10.1016/j.soilbio.2023.108952

GC Runte AH Smith, HV Moeller, LM Bogar (2021). Spheres of influence: Host tree proximity and soil chemistry shape rRNA, but not DNA, communities of symbiotic and free-living soil fungi in a mixed hardwood-conifer forest. *Frontiers in Ecology and the Environment*. https://doi.org/10.3389/fevo.2021.641732

Grants, Fellowships, and Awards

Joseph H. Connell Field Ecology Research Fellowship ($3,000)	**2024**
Worster Award Fellowship ($5,000)	**2022**
Sonoma County Mycological Society Scholarship ($1,000)	**2022**
Schmidt Family Foundation Mentorship Award ($8,000)	**2021**
Associated Students Coastal Fund at UC Santa Barbara ($9,000)	**2021**
Honorable Mention, NSF Graduate Research Fellowships Program	**2021**
Garden Club of America Fellowship in Ecological Restoration ($4,000)	**2020**
Honorable Mention, NSF Graduate Research Fellowships Program	**2020**
Sonoma County Mycological Society Scholarship ($1,000)	**2020**
NSF Research Experiences for Undergraduates	**2018**
UC Global Food Initiative Fellowship ($4,000)	**2018**
Diana Raab Writing Fellowship ($750)	**2018**

Presentations

Guest Lecture on Climate Niche Modeling, UCSB	**2024**
International Conference on Mycorrhizas	**2024**
Ecological Society of America Annual Meeting	**2023**
Terrestrial Microbiology Guest Lecture on Fungi in the Environment, UCSB	**2023**
8th Annual California Oak Symposium	**2022**
Ecological Society of America Annual Meeting	**2022**
Yosemite Symbiosis Workshop	**2022**
Conservation Seminar Series, UC Santa Barbara	**2021**
Terrestrial Microbiology Guest Lecture on Fungi in the Environment, UCSB	**2021**
UCSB EEMB Graduate Research Symposium	**2020**
National Fish and Wildlife Fire Restoration Grantee Forum	**2019**

Training

CyVerse Foundational Open Science Skills (FOSS) Course **2023**
ESIIL Forest Resiliency Working Group **2023**

Mentorship

Undergraduate Researchers
Independent projects:
Aubrey Chuen **2022-2023**
Developed a non-destructive plant health survey method for greenhouse applications. This method uses remote sensing techniques and a multispectral camera for image analysis in R. *Worster Award Recipient*

Bailey McKernan **2021-2023**
Conducted an experiment on how drought-conditioning might improve outplant success in the backcountry. *Schmidt Family Foundation Mentorship Award Recipient, URCA Recipient. Masters Student at SDSU.*

Nicholas Haghani **2019-2020**
After the campus closure due to COVID, Nicholas pivoted from a lab-based project to bioinformatic and statistical analyses on microbe communities in a highly stratified marine system. *PhD student at UC Davis.*

Additional mentoring (discipline, Graduate/Undergrad):
Ryan Fass (programming, G), Stephanie Hurtado-Gonzalez (molecular techniques, U), Ronja Keeley (data analysis, U), Piper Lovegreen (general advising, G), Emily Lu (molecular techniques, U), Keith Oshima (molecular techniques, U), Alex Smith (molecular techniques, U), Kiana Soeung (molecular techniques, U), Joanna Tang (data analysis, G)

Outreach and Teaching

Outreach
EEMB Undergraduate Research Open House **2022-2024**
Developed and ran an open house event aimed at broadening access to underrepresented groups in undergraduate research. Led fundraising and co-led organizing each year.

High school research demos **2023-2024**
Introduced high school students to university programs and facilities. Led students through a brief experimental project harvesting mycorrhizal seedlings.

Teaching Assistant
Ecological Modeling **2022**
Led a computer-based laboratory section introducing students to coding in R and working with calculus-based mathematical modeling using numerical simulations.

Introduction to Ecology **2021, 2024**
Broad introductory course to many of ecology's foundational theories. Led discussion sections centered on literature interpretation. (2021 was via Zoom)