

CASSANDRA LANE ETTINGER

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EDUCATION & TRAINING

UNIVERSITY OF CALIFORNIA, RIVERSIDE 2020 – present

- Postdoctoral scholar, Dept. of Microbiology & Plant Pathology
- Advisor: Dr. Jason Stajich

UNIVERSITY OF CALIFORNIA, DAVIS 2013 – 2020

- Ph.D., Integrative Genetics & Genomics
- Dissertation: Taxonomic diversity of the bacterial and fungal communities associated with the seagrass, *Zostera marina*
- Advisor: Dr. Jonathan Eisen

UNIVERSITY OF CALIFORNIA, BERKELEY 2009 – 2013

- B.A., Molecular & Cell Biology – Genetics, Genomics & Development Emphasis
- Honors thesis: Genetic variation in abiotic tolerance and symbiotic quality among wild rhizobium bacteria
- Advisor: Dr. Ellen Simms

UNIVERSITY OF YORK, UNITED KINGDOM 2012

- Visiting Scholar, Biology & Archaeology Departments
- Research project: Investigation of the role of dopamine in *Drosophila* vision and its relation to Parkinson's disease
- Advisor: Dr. Christopher Elliot

PREPRINTS & PUBLICATIONS IN REVIEW

1. **Ettinger CL**, Byrne FJ, De Souza Pacheco I, Brown D, Walling LL, Atkinson PA, Redak RA & Stajich JE. In review. Transcriptome and Population Structure of Glassy-winged Sharpshooters (*Homalodisca vitripennis*) with Varying Insecticide Resistance in Southern California. Preprint on *Research Square*. DOI: [10.21203/rs.3.rs-1964919/v1](https://doi.org/10.21203/rs.3.rs-1964919/v1)

PEER-REVIEWED PUBLICATIONS

1. Stajich JE, Lovett BR, **Ettinger CL**, Carter-House D, Kurbessoian T & Kasson MT. 2022. An Improved 1.5 Gigabase Draft Assembly of *Massospora cicadina* (Zoopagomycota), Obligate Fungal Parasite of 13- and 17-Year Cicadas. *Microbial Resource Announcements*. DOI: [10.1128/mra.00367-22](https://doi.org/10.1128/mra.00367-22)
2. **Ettinger CL**, Lovett BR, Kasson MT & Stajich JE. 2022. Metagenome-assembled Genomes of Bacteria associated with *Massospora cicadina* Fungal Plugs from

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- Infected Brood VIII Periodical Cicadas. *Microbial Resource Announcements*. DOI: [10.1128/mra.00413-22](https://doi.org/10.1128/mra.00413-22)
3. **Ettinger CL**, Sadanandappa MK, Görgülü K, Coghlan K, Hallenbeck KK & Puebla I. 2022. A Guide to Preprinting for Early Career Researchers. *Biology Open*. DOI: [10.1242/bio.059310](https://doi.org/10.1242/bio.059310)
 4. Ladner JT, Palmer JM, **Ettinger CL**, Stajich JE, Farrell TM, Glorioso BM, Lawson B, Price SJ, Stengle AG, Grear DA & Lorch JM. 2022. Population genetic analysis of *Ophidiomyces ophidiicola*, the cause of snake fungal disease, suggests recent introductions to the USA. *PLoS Biology* DOI: [10.1371/journal.pbio.3001676](https://doi.org/10.1371/journal.pbio.3001676)
 5. **Ettinger CL**, Byrne FJ, Redak R & Stajich JE. 2022. Metagenome-Assembled Genomes of Bacterial Symbionts Associated with Insecticide-Resistant and -Susceptible Individuals of the Glassy-Winged Sharpshooter (*Homalodisca vitripennis*). *Microbial Resource Announcements*. DOI: [10.1128/mra.00506-22](https://doi.org/10.1128/mra.00506-22)
 6. De Souza Pacheco I, Doss AA, Vindiola BG, Brown D, **Ettinger CL**, Stajich JE, Redak RA, Walling LL & Atkinson PA. 2022. Efficient CRISPR/Cas9-mediated genome modification of the glassy-winged sharpshooter *Homalodisca vitripennis* (Germar). *Scientific Reports*. DOI: [10.1038/s41598-022-09990-4](https://doi.org/10.1038/s41598-022-09990-4)
 7. LaForgia ML, Kang H* & **Ettinger CL**. 2021. Competitive outcomes between native and invasive plants are linked to shifts in the bacterial rhizosphere microbiome. *Microbial Ecology* DOI: [10.1007/s00248-021-01853-1](https://doi.org/10.1007/s00248-021-01853-1) *undergraduate author
 8. **Ettinger CL**, Bryne FJ, Collin MA, Carter-House D, Walling LL, Atkinson PW, Redak RA & Stajich JE. 2021. Improved draft reference genome for the Glassy-winged Sharpshooter (*Homalodisca vitripennis*), a vector for Pierce's disease. *G3: Genes / Genomes / Genetics*. DOI: [10.1093/g3journal/jkab255](https://doi.org/10.1093/g3journal/jkab255)
 9. **Ettinger CL**, Vann LE & Eisen JA. 2021. Global diversity and biogeography of the *Zostera marina* mycobiome. *Applied and Environmental Microbiology*; DOI: [10.1128/AEM.02795-20](https://doi.org/10.1128/AEM.02795-20)
 10. **Ettinger CL**, Bryan J*, Tokajian S, Jospin G, Coil D & Eisen JA. 2021. Reconstruction of metagenome-assembled genomes from aquaria. *Microbial Resource Announcements*. DOI: [10.1128/MRA.00557-21](https://doi.org/10.1128/MRA.00557-21) *undergraduate author

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11. Danko D, Bezdan D, [...], Mason CE & **The International MetaSUB Consortium**. 2021. A global metagenomic map of urban microbiomes and antimicrobial resistance. *Cell*; DOI: [10.1016/j.cell.2021.05.002](https://doi.org/10.1016/j.cell.2021.05.002) *as a consortium member
12. **Ettinger CL** & Eisen JA. 2020. Fungi, bacteria and oomycota opportunistically isolated from the seagrass, *Zostera marina*. *PLoS One*. DOI: [10.1371/journal.pone.0236135](https://doi.org/10.1371/journal.pone.0236135)
13. Selbmann S, Coleine C, de Hoog S, Donati C, Druzhinina I, **Ettinger CL**, Gladfelter AS, Gorbushina AA, Grigoriev IV, Grube M, Gunde-Cimerman N, Muggia L, Northen T, Pennacchio C, Pöcsi I, Prigione V, Riquelme M, Segata N, Schumacher J, Shelest E, Sterflinger K, Tesei D, U'Ren J, Varese GC, Vázquez-Campos X, Vicente VA, Souza EM, Walker AL & Stajich JE. 2020. Shed light in The daRk lineagES of the Fungal Tree Of Life - STRES. *Life*. DOI: [10.3390/life10120362](https://doi.org/10.3390/life10120362)
14. **Ettinger CL** & Eisen JA. 2019. Characterization of the mycobiome of the seagrass, *Zostera marina*, reveals putative associations with marine chytrids. *Frontiers in Microbiology*. DOI: [10.3389/fmicb.2019.02476](https://doi.org/10.3389/fmicb.2019.02476)
15. Amend A, Burgaud G, Cunliffe M, Edgcomb VP, **Ettinger CL**, Gutiérrez MH, Heitman J, Hom E, Ianiri G, Jones A, Kagami M, Picard K, Quandt A, Raghukumar S, Riquelme M, Stajich JE, Vargas-Muñoz J, Walker AK, Yarden O & Gladfelter AS. 2019. Fungi in the marine environment: open questions and unsolved problems. *mBio*. DOI: [10.1128/mBio.01189-18](https://doi.org/10.1128/mBio.01189-18)
16. **Ettinger CL***, Wilkins LGE*, Jospin G & Eisen JA. 2019. Metagenome-assembled genomes provide new insight into the microbial diversity of two thermal pools in Kamchatka, Russia. *Scientific Reports*. DOI: [10.1038/s41598-019-39576-6](https://doi.org/10.1038/s41598-019-39576-6) *co-first authors
17. **Ettinger CL**, Wilkins LGE, Dahlhausen KE, Ghose SL, Oberbauer D*, Eisen JA & Coil DA. 2018. Even superheroes need help sometimes: Three incredible tales of microbial symbiosis. *Frontiers for Young Minds*. DOI: [10.3389/frym.2018.00050](https://doi.org/10.3389/frym.2018.00050) *undergraduate author
18. Brown EA, Dickinson PJ, Mansour T, Sturges B, Aguilar M, Young A, Korff C, Lind J, **Ettinger CL**, Varon S, Pollard R, Brown T, Raude spp T & Bannasch DL. 2017. *FGF4* retrogene on CFA 12 is responsible for chondrodystrophy and intervertebral disc disease in dogs. *PNAS*. DOI: [10.1073/pnas.1709082114](https://doi.org/10.1073/pnas.1709082114)

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19. **Ettinger CL**, Williams SL, Abbott JM, Stachowicz JJ & Eisen JA. 2017. Microbiome succession during ammonification in eelgrass bed sediments. *PeerJ*. DOI: [10.7717/peerj.3674](https://doi.org/10.7717/peerj.3674)
20. Coil DA, **Ettinger CL** & Eisen JA. 2017. Gut Check: The evolution of an educational board game. *PLoS Biology* 15(4):e2001984. DOI: [10.1371/journal.pbio.2001984](https://doi.org/10.1371/journal.pbio.2001984)
21. **Ettinger CL**, Voerman SE, Lang JM, Stachowicz JJ & Eisen JA. 2017. Microbial communities in sediment from *Zostera marina* patches, but not the *Z. marina* leaf or root microbiomes, vary in relation to distance from patch edge. *PeerJ*. DOI: [10.7717/peerj.3246](https://doi.org/10.7717/peerj.3246)
22. Shehata HR, **Ettinger CL**, Eisen JA, & Raizada MN. 2016. Genes Required for the Anti-fungal Activity of a Bacterial Endophyte Isolated from a Corn Landrace Grown Continuously by Subsistence Farmers Since 1000 BC. *Frontiers in Microbiology*. DOI: [10.3389/fmicb.2016.01548](https://doi.org/10.3389/fmicb.2016.01548)
23. Mousa WK, Shearer, C, Limay-Rios, V, **Ettinger CL**, Eisen JA & Raizada MN. 2016. Root-hair endophyte stacking in finger millet creates a physicochemical barrier to trap the fungal pathogen *Fusarium graminearum*. *Nature Microbiology*. DOI: [10.1038/nmicrobiol.2016.167](https://doi.org/10.1038/nmicrobiol.2016.167)
24. **Ettinger CL**, Mousa WM, Raizada MN, Eisen JA. 2015. Draft genome sequence of *Enterobacter* sp. strain UCD-UG_FMILLET (phylum *Proteobacteria*). *Genome Announcements*. DOI: [10.1128/genomeA.01461-14](https://doi.org/10.1128/genomeA.01461-14)
25. **Ettinger CL**, Shehata HR, Johnston-Monje D, Raizada MN, Eisen JA. 2015. Draft genome sequence of *Burkholderia gladioli* strain UCD-UG_CHAPALOTE (phylum *Proteobacteria*). *Genome Announcements*. DOI: [10.1128/genomeA.01462-14](https://doi.org/10.1128/genomeA.01462-14)

PROTOCOLS

1. **Ettinger CL** & LaForgia ML. 2021. Plant-associated microbiome sampling protocol for field work. *protocols.io*. DOI: [10.17504/protocols.io.buttnwnn](https://doi.org/10.17504/protocols.io.buttnwnn)
2. **Ettinger CL**. 2021. Fungal isolate identification using ITS-LSU regions. *protocols.io*. DOI: [10.17504/protocols.io.butvwnn6](https://doi.org/10.17504/protocols.io.butvwnn6)

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3. **Ettinger CL.** 2021. Collection and processing of intertidal seagrass tissues for bacterial and fungal culturing. *protocols.io*. DOI: [10.17504/protocols.io.butrnwm6](https://doi.org/10.17504/protocols.io.butrnwm6)
4. **Ettinger CL.** 2021. Protocol for preparing seagrass-microbiome samples for DNA extraction. *protocols.io*. DOI: [10.17504/protocols.io.butqnwmw](https://doi.org/10.17504/protocols.io.butqnwmw)

GRANTS & FELLOWSHIPS

NSF OCEAN SCIENCES POSTDOCTORAL FELLOWSHIP (\$300,753)	2022 – 2024
CENTER FOR POPULATION BIOLOGY (CPB) TRAVEL AWARD (\$800)	2020
MICROBIOME GRADUATE RESEARCH AWARD (\$1000)	2019
CPB RESEARCH AWARDS (\$5650)	2016 – 2019
CPB COLLABORATIVE PROJECT RESEARCH AWARD (\$4000)	2018
<ul style="list-style-type: none">Project: <i>Unlocking the terrestrial realm: Are microbial symbioses the key to land crab terrestrial invasions?</i>Co-PI: Victoria Morgan, PhD Candidate, Population Biology, UC Davis	
SIGMA XI GRANT-IN-AID OF RESEARCH (\$1000)	2018
H. A. LEWIN FAMILY FELLOWSHIP (\$2000)	2018
JEFFERY AND MARSHA GIBELING FELLOWSHIP (\$1100)	2018
CPB COLLABORATIVE PROJECT RESEARCH AWARD (\$4500)	2017
<ul style="list-style-type: none">Project: <i>Understanding belowground plant-microbe feedback loops during competition between native and invasive plant species in a grassland ecosystem</i>Co-PI: Marina LaForgia, PhD Candidate, Ecology, UC Davis	
NATURAL RESERVE SYSTEM RESEARCH GRANT (\$2000)	2016
SANTA BARBARA SCHOLARSHIP FOUNDATION (\$23,814)	2009 – 2017
<ul style="list-style-type: none">Tuition and stipend for four years at UC Berkeley and for four years at UC Davis	
MARINE BIOLOGICAL LABORATORY (MBL) SCHOLARSHIP (\$6975)	2015
<ul style="list-style-type: none">Tuition and room/board for the Microbial Diversity summer course at the MBL	
UNIVERSITY OF CALIFORNIA BLOCK GRANT	2014
<ul style="list-style-type: none">Tuition and stipend for two quarters at UC Davis	

TEACHING EXPERIENCE

TEACHING ASSISTANT

- Introduction to Biology: Biodiversity and the Tree of Life (BIS2C), UC Davis – Spring 2015, Spring 2016, Summer 2016, Fall 2016, Winter 2017, Fall 2017, Fall 2018, Winter 2019, Fall 2019
- Complimentary class to BIS2C for underserved students (BIS98), UC Davis – Fall 2016
- Microbial Phylogenomics (EVE161), UC Davis – Winter 2018, Winter 2020

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ORGANIZER

- Marine Microbial Ecology Seminar (PBG 298 / ECL 290), UC Davis – Winter 2019
- Environmental Surveys of Viruses Seminar (PBG 298), UC Davis – Spring 2020

ACADEMIC SERVICE & AFFILIATIONS

Mycological Society of America Student Section Post-Doc Rep	2021 – present
National Microbiome Data Collective Champion	2021 – present
ASAPbio Fellow	2021
UC Davis Data Science Initiative Graduate Affiliate	2017 – 2020
UC Davis Center for Population Biology Graduate Affiliate	2014 – 2020
Coastal & Marine Science Institute Grad Committee Co-chair	2015 – 2019
Integrative Genetics & Genomics Admissions Officer	2016 – 2018

ACHIEVEMENTS & HONORS

Genetics Society of America Presidential Membership	2022
NSF GRFP Honorable Mention	2014

PROFESSIONAL MEMBERSHIPS

Association for Women in Science, American Society for Microbiology, National Center for Science Education, Mycological Society of America, Ecological Society of America, International Society for Microbial Ecology, Genetics Society of America

REVIEWER

Environmental Microbiology, mSystems, PLOS One, PeerJ, FEMS Microbiology Ecology, Marine Ecology Progress Series, Scientific Reports, Frontiers Ecology And Evolution, Frontiers in Marine Science, Microbiome, Diversity, Journal of Soil and Sediments, Plant Biology, Mycological Progress, Microbiology Spectrum

ORAL PRESENTATIONS

1. **Ettinger CL**. 2022. "Plenty of fungi in the sea: insights from profiling the seagrass mycobiome" invited talk at San Diego State University, May 2, online.
2. **Ettinger CL**, Vann LE & Eisen JA. 2021. "Turning the tide on marine fungi: insights from the global biogeography of the seagrass mycobiome" contributed talk at the Ecological Society of America Annual Meeting, August 2–6, online.
3. **Ettinger CL** & Eisen JA. 2020. "The seagrass mycobiome: what happened to fungal associations as plants moved back into the marine environment?" contributed talk at the Ecological Society of America Annual Meeting, August 3–6, online.

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4. **Ettinger CL** & Eisen JA. 2019. "The seagrass mycobiome: what happened to fungal associations as plants moved back into the marine environment?" invited talk at the California Academy of Sciences, April 11, in San Francisco, California.
5. **Ettinger CL** & Eisen JA. 2018. "The seagrass mycobiome: what happened to fungal associations as plants moved back into the marine environment?" invited talk at the 12th annual UC Davis Research Retreat on Host Microbe Interactions, October 19, in Tahoe City, CA
6. **Ettinger CL**, Porter SS & Simms EL. 2013. "Genetic variation in abiotic tolerance and symbiotic quality among wild rhizobium bacteria" a ten-minute talk at the UC Berkeley Molecular and Cell Biology Honors Research Symposium, April 24, in Berkeley, California.

POSTER PRESENTATIONS

1. **Ettinger CL** & Eisen JA. 2020. "Global characterization of the fungal community associated with the seagrass, *Zostera marina*" a graphical abstract presented at the Mycological Society of America Annual Meeting, July 22, online.
2. **Ettinger CL** & Eisen JA. 2018. "Characterization of the mycobiome of the seagrass, *Zostera marina*, across space and time" a poster presented at the Lake Arrowhead Microbial Genomics Conference, September 17, in Lake Arrowhead, California.
3. **Ettinger CL**, Lang JM, Voerman SE, Stachowicz JJ & Eisen JA. 2015. "The Seagrass Microbiome Project: Edge Effects and Seagrass Microbiome Diversity" a poster presented at the 115th General Meeting of the Amer. Soc. for Microbiology, June 1, in New Orleans, Louisiana.
4. **Ettinger CL**, Lang JM, Voerman SE, Stachowicz JJ & Eisen JA. 2015. "Edge Effects and Seagrass Microbiome Diversity" a poster presented at the Integrative Genetics and Genomics Graduate Group Colloquium, May 18, in Davis, California.
5. **Ettinger CL**, Lang JM, Voerman SE, Stachowicz JJ & Eisen JA. 2014. "Edge Effects and Seagrass Microbiome Diversity" a poster presented at the 20th Annual International Meeting on Microbial Genomics, September 15, in Lake Arrowhead, California.

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6. **Ettinger CL**, Lang JM, Voerman SE, Eisen JA & Stachowicz JJ. 2014. "Edge Effects and Seagrass Microbiome Diversity" a poster presented at the Integrative Genetics and Genomics Graduate Group Colloquium, June 2, in Davis, California. Won "People's Choice".

PANEL PRESENTATIONS

"Playing FAIR: Integrating FAIR Data Principles as Standard Microbiome Practices" invited panel member at the World Microbe Forum, June 20–24, 2021, online.

RESEARCH FEATURES

- "A Quick Look at Marine Fungi" – Mushroom Revival Podcast 2021
"Cassie Ettinger and the Seagrass Microbiome" – Tree of Life Podcast 2019
"Spotlight on Cassie Ettinger" – CMSI, UC Davis 2018

PROFESSIONAL DEVELOPMENT & WORKSHOPS

- NAIST INTERNATIONAL STUDENT WORKSHOP in Nara, Japan November 2018
MARINE FUNGI WORKSHOP at the MBL May 2018
ANVIO WORKSHOP at the Joint Genome Institute September 2017
SCIENCE COMMUNICATION WORKSHOP at UC Davis April 2017
EARLY CAREER OCEAN SUMMIT in Waikoloa, HI January 2017
BAYESIAN STATISTICAL PHYLOGENETICS USING REVBayes at UC Davis July 2016
MICROBIAL DIVERSITY COURSE at the MBL July – August 2015
EXPLORATIONS IN DATA ANALYSES FOR METAGENOMIC ADVANCES IN
MICROBIAL ECOLOGY (EDAMAME) COURSE at MSU August 2014
SOFTWARE CARPENTRY WORKSHOP at UC Davis June 2014

VOLUNTEER & OUTREACH EXPERIENCE

NATIONAL SUMMER UNDERGRADUATE RESEARCH PROJECT (NSURP) 2020 – 2022

- *Mentor*: Supervised BIPOC undergraduate students on remote summer research opportunities; Organized internal seminar series and journal clubs

E&E GRAD PREVIEW 2021

- *Mentor*: Mentored participants interested in evolution and ecology graduate programs; Provided guidance on graduate school and fellowship applications

UC DAVIS MANRRS MENTORING PROGRAM 2021

- *Mentor*: Mentored undergraduate students on career development through Minorities in Agriculture, Natural Resources, and Related Sciences (MANRRS)

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EXPANDING YOUR HORIZONS 2013 – 2019

- *Workshop Leader:* Introduced 6th – 9th grade girls to STEM careers at UC Berkeley EYH; Led a yearly bioinformatics workshop “Genome Detectives”

LETTERS TO A PRE-SCIENTIST 2017 – 2018

- *Volunteer:* Exchanged letters with a pen pal about science careers

DAVIS SCIENCE COLLECTIVE 2014 – 2016

- *Volunteer:* Promoted science through the Davis Public Library; Helped 5th graders with science fair project ideas and experiential designs

MENTORSHIP

Undergraduate Students (Research):

- Morgan Saunders (June 2022 – present) *via NSURP
- Neptali Flores (June 2021 – September 2020) *via NSURP
- Sudipto Paul (June 2021 – September 2020) *via UCR RISE
- Tykera Moore (June 2021 – September 2020) *via NSF-CEPCEB REU
- Leah Spalding (July 2020 – September 2020) *via NSURP
- Donito Burgess (June 2020 – September 2020) *via NSURP
- Jordan Bryan (June 2020 – September 2020) *via NSURP
- Neil Brahmhatt (January 2018 – June 2020)
- Jolie Lobrutto (September 2018 – June 2019) *co-advised with Lena Capece
- Katelin Jones (June 2018 – September 2018)
- Tess McDaniel (June 2018 – September 2018)
- Hannah Kang (September 2017 – June 2018) *co-advised with Marina LaForgia
- Katie Somers (September 2017 – June 2018)

Undergraduate Students (Career development):

- Esha Urs (August 2021 – present) *via E&E Grad Preview
- Katie Blessing (August 2021 – July 2022) *via E&E Grad Preview
- Anna Quigley (January 2021 – April 2021) *via MANRRS
- ManLam Yu (January 2021 – April 2021) *via MANRRS

High Schools Students (Research):

- Henna Hundal (June 2014 – August 2014) *via Young Scholars Program

SKILLS & INTERESTS

COMPUTER SKILLS: Coding and data analysis in Python, UNIX and R. Basic knowledge of HTML/CSS. Documentation and version-control using Jupyter Notebooks, RMarkdown and GitHub. Advanced knowledge of 16S, ITS and 18S amplicon analysis, and microbial metagenome assembly, annotation, binning, phylogenetics and

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comparative genomics of bacteria, fungi, and viruses. Proficient in transcriptome and population genetic analyses.

INTERESTS: photography, theatre, reading, baking, knitting, mountain biking, paddle boarding, rock climbing, backpacking, skiing, graphic design, science communication