Laurel Schmidt
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Education

Bachelor of Science Evolution, Ecology, and Biodiversity June 2023
University of California, Davis
GPA 3.96, *Highest Honors*
Minor: Paleobiology
UC Education Abroad Program: Tropical Biology and Conservation, Costa Rica
Honors Thesis: Evaluating genetic and phenotypic diversity of *Fusarium oxysporum* affecting diverse Allium crops

Research Experience

Junior Specialist Sept 2024-Current
UC Davis, Swett Lab, Department of Plant Pathology

- Conducting project to identify Fusarium species associated with Fusarium Basal Rot in asymptomatic and symptomatic garlic across production stages and from trials testing fungicide efficacy in seed production
- Performing rot evaluation and isolating and identifying fungal species from potato seed tubers to characterize Fusarium Dry Rot development and evaluate efficacy of gas treatment
- Designing and conducting experiments to test pathogenicity of *Fusarium spp.* in potato tubers
- Designing and conducting experiments to characterize pathotypes of *Fusarium noneumartii* from diverse crops in sweet potato tubers
- Maintaining culture collection including conducting pure culture isolations of fungal cultures for long term storage, organizing and updating culture collection database, and maintaining supplies
- Managing isolates from diagnostic lab that need further phenotypic testing including conducting pure culture isolations and using three gene haplotype to identify *Fusarium oxysporum f. sp. radicis-lycopersici*
- Managing one undergraduate research assistant

Research Assistant Jan 2024-July 2024
DEATH Lab, Smithsonian Tropical Research Institute, Panama

- Molecular Lab Manager
    - Performed PCR, gel electrophoresis, Sanger sequencing, sequence analysis, and troubleshooting (i.e. testing thermal cycler settings, PCR reagent amounts) for two fungal biomarkers for over 600 isolates and managed molecular supplies
- Conducted greenhouse inoculation experiments in over 400 seedlings of three common tropical trees to test Koch's postulates for fungal isolates
- Maintained greenhouse plants weekly (watering, potting, seeding, etc.)
- Surveyed seedlings of *Anacardium excelsum* for fungal disease on Barro Colorado Island and isolated putative fungal pathogens from leaves
- Performed Chao, Shannon, and fisher's diversity and fungal community comparison in R

· Created rank-abundance and bipartite plots in R to visualize community diversity
· Contributed to methods and results sections of in-prep manuscript describing difference in pathogen communities between the understory and canopy of tropical trees

Biological Technician June 2023-Jan 2024

USDA-ARS Invasive Species and Pollinator Health Research Unit (ISPHRU), Davis, CA

· Performed proboscis extension response assays to assess learning and memory in honeybees
· Executed regular honeybee colony maintenance such as feeding, treating, and assessing mite loads in colonies
· Led molecular biology project using 3 biomarkers related to immune function and 3 markers to quantify viral load to analyze RNA gene expression using qPCR
· Ran Shapiro, Kruskal-Wallis, ANOVA, Wilcoxon tests and used ggplot to create plots to visualize data in R
· Co-first author on in-prep manuscript summarizing learning, memory, immune function, and viral data. Contributed introduction, methods, results, and discussion writing, statistical analysis, and data collection

Schmidt, L, Mayack, C, Yee, I, Seshardi, A. Impacts of pollen diets from intensive agricultural landscapes on honeybee health. Prepared for PNAS

Honors Thesis 2022-2023

Advisor: Dr. Cassandra Swett
· Designed and conducted genetic project using five novel effector genes to phylogenetically compare over 40 fungal isolates
· Designed and conducted greenhouse trials with fungal isolates in susceptible and resistant onion cultivars to assess disease variability among isolates
· Wrote final honors thesis synthesizing statistical analyses and results
· Presented findings quarterly to lab members, attended Garlic and Onion Research Advisory Board Meeting

Student Assistant 2021-2023

UC Davis, Swett Lab, Department of Plant Pathology

· Maintained crops and collected plant and soil data in field and greenhouse settings to support diagnostic, rotation crop, and deficit irrigation research projects
· Processed diseased plant tissue and isolated pathogenic fungi using sterile technique
· Sequenced DNA (Sanger sequencing) from fungal cultures using PCR and gel electrophoresis to identify fungal species using multiple common fungal barcodes
· Managed and organized molecular samples from a variety of research projects
· Trained new undergraduate assistants (4 total) in above molecular and sterile techniques
· Participated in research conferences, outreach events to support Yolo County farmers

Independent Research Project Mar-June 2022

Monteverde Institute, Costa Rica, Advisor: Dr. Frank Joyce

Title: Differences in orchid mycorrhizal colonization between gardens and natural environments

· Developed and implemented root staining technique to visualize and quantify mycorrhizae on orchid roots using trypan blue dye

· Wrote final research paper synthesizing statistical data analysis and narrative review of results

Student Assistant 2020-2022

UC Davis, Patricelli Lab, Department of Evolution and Ecology

· Coded sexual and aggressive male Greater Sage Grouse behavior using video footage taken in Wyoming and Bishop, CA

Extension and Outreach Experience

Diagnostics Lab Manager Oct. 2024-Current

Swett Lab Vegetable and Field Crop Pathology Diagnostics Lab

· Inboxing vegetable sample submissions and maintaining log of metadata for each sample

· Managing student assistance for sample processing

STRI Outreach Events

BCI100 Conference Alumni Lab Open House June 2024

Smithsonian Science Education Center Tour June 2024

SIMONS Foundation Lab Tour Feb 2024

USDA Outreach Events

Collaboration with local beekeepers June-Dec. 2023

Almond Board Conference Dec. 2023

UC Davis Outreach Events

Garlic and Onion Research Advisory Board Meeting Feb. 2023

Swett Lab Vegetable Pathology Field Day 2022, 2023

Biodiversity Day Volunteer 2022, 2023

· Welcomed visitors and performed plant pressing demo (2023), discussed pine facts using herbaria samples (2022), and informed the public of importance of herbarium

Presentations

American Phytopathological Society Pacific Division, Poster (planned) 2025

Barro Colorado 100th Anniversary Conference, Poster 2024

Title: Is there turnover in fungal pathogens from the forest floor to canopy and across ontogeny? Implications for the role of phytopathogens in the maintenance of forest diversity

UC Davis Undergraduate Research Conference, Poster 2023

Title: Evaluating genetic and phenotypic diversity of *Fusarium oxysporum* affecting diverse Allium crops

Quarterly Presentation, Swett Lab Meeting 2022

Monteverde Institute Symposium, Talk 2022

Title: Differences in orchid mycorrhizal colonization between gardens and natural environments

Quarterly Presentation, Swett Lab Meeting 2022

Honors and Awards

College of Biological Sciences Distinguished Scholar 2023
Department Citation in Evolution and Ecology 2023
Law Family Award for the Study of Systematic Botany ($500) 2023
University Honors Program 2019-2023
Regent Scholarship ($30,000) 2019-2023

Other Work/Volunteer Experience

Assistant Curator 2022-2023
UC Davis Center for Plant Diversity
- Logged information from, imaged, and barcoded hundreds of plant specimens on Symbiota
- Learned how to properly mount dried plant specimens ensuring easy identification
- Collected native plant seeds for future restoration projects

CalTeach Intern 2020
- Taught mathematics to 5th grade students, managed a classroom alongside a Teaching Assistant, and orchestrated and lead various activities in the classroom