

Darby D. Bergl
Northern Arizona University, Flagstaff, AZ, 86011

Education

Northern Arizona University **2022-Present**
Ph.D. student in Biology
The Center for Ecosystem Science and Society
Advised by Dr. Mariah Carbon
Expected Graduation: 2026

Oregon State University **2021**
B.S. in Botany and Plant Pathology (*magna cum laude*)
Option in Ecology, Conservation, and Evolution
Cumulative GPA 3.76

Awards and Grants

Northern Arizona University

- Presidential Fellow (\$36,000) **2022-Present**
- Ecosystem Travel and Research Awards Program (\$1,500) **2023**
- Support for Graduate Students Award (\$1,700) **2025**
- Biological Sciences Graduate Student Symposium Best Poster Award **2025**
- Biological Sciences Graduate Student Symposium Best Talk Award **2026**

Oregon State University

- Honor Roll for each academic term **2018 – 2021**
- Dean's list for each academic term **2019 – 2021**
- Kori May Memorial Endowment Fund (\$4,000) **2019 – 2021**
- Nominated for OSU CAS Undergraduate Leadership award **2021**
- Honor Society **2021-Present**

Publications

Bates, T. A., **Bergl, D. D.**, Montgomery, A. S., and Ocamb, C. M. 2020. Evaluation of seed treatments for Fusarium seed rot and seedling blight of wheat. *Plant Disease Management Report*: Report No. 15: ST006.

Bates, T. A., **Bergl, D. D.**, Montgomery, A. S., and Ocamb, C. M. 2020. Evaluation of seed treatments for Fusarium seed rot and seedling blight of dent corn. *Plant Disease Management Report*: Report No. 15: ST006.

Thomas, W. J., Borland, T. G., **Bergl, D. D.**, Claassen, B. J., Flodquist, T. A., Montgomery, A. S. and Gent, D. H. 2022. A Quantitative PCR Assay for Detection and Quantification of *Fusarium sambucinum*. *Plant Disease*, 106(10), 2601-2606.

Crimmins, T. M., Barker, B. S., **Bergl, D. D.**, Brewer, S., de Beurs, K. M., Jones, S., ... & Williams, T. M. 2025. Phenology in higher education. In *Phenology: An Integrative Environmental Science* (pp. 609-635). Cham: Springer Nature Switzerland.

Uyekawa, J., Leland, J., **Bergl, D.**, Liu, Y., Richardson, A. D., & Lucas, B. 2025. Machine Learning-Based Prediction of Ecosystem-Scale CO₂ Flux Measurements. *Land*, 14(1), 124.

Liu, Y., Lucas, B., **Bergl, D. D.**, & Richardson, A. D. 2025. Robust filling of extra-long gaps in eddy covariance CO₂ flux measurements from a temperate deciduous forest using eXtreme Gradient Boosting. *Agricultural and Forest Meteorology*, 364, 110438.

Bergl, D. D., M. S. Carbone, D. Hollinger, et al. 2026. Increasing Respiration Weakens the Carbon Sink Over Two Decades in a Temperate Deciduous Forest. *Global Change Biology Communications* 1, no. 3: e70041. <https://doi.org/10.1002/gcb4.70041>.

Presentations

Bergl, D. D., Carbone, M. S., Richardson, A. D. 2023. Land-atmosphere carbon dynamics in a changing climate: Insights from two decades of eddy covariance data in the Bartlett Experimental Forest. Talk. Hubbard Brook Annual Cooperators' Meeting, Plymouth, NH.

Bergl, D. D. 2023. The Forest Raised Me. Storytelling performance. NPR's The Story Collider and Writing Class Radio, Center for Ecosystem Science & Society (ECOSS), Northern Arizona University, Flagstaff, AZ.

Liu, Y., **Bergl, D. D.**, Richardson, A. D. 2023. Gap-Filling Extra-Long Gaps in Eddy Covariance Measurements Using Boosted Regression Tree. AmeriFlux Annual Meeting.

Bergl, D. D., Carbone, M. S., Richardson, A. D. 2024. Trends in decadal-scale ecosystem fluxes at the Bartlett Experimental Forest. Talk. Hubbard Brook Annual Cooperators' Meeting, Plymouth, NH.

Talib, A., **Bergl, D. D.**, Green, M., Matthes, J. 2024. Examining drivers of increasing evapotranspiration across New England long-term sites. Talk. Hubbard Brook Annual Cooperators' Meeting, Plymouth, NH.

Bergl, D. D. 2025. My Ego Was Deflated by a Grungy Old Field Technician. Science on Tap Storytelling Event, Flagstaff, AZ.

Bergl, D. D., Carbone, M. S., Hollinger, D., Liu, Y., Lucas, B., Ollinger, S. V., Ouimette, A., Templer, P., Richardson, A. D. 2025. Talk. Increasing Respiration Weakens the Carbon Sink over Two Decades in a Temperate Deciduous Forest. American Geophysical Union (AGU), New Orleans, LA.

Bergl, D. D., Carbone, M. S., Richardson, A. D. 2025. Increasing Ecosystem Respiration Weakens the Carbon Sink in a Temperate Deciduous Forest Over Two Decades. Talk. Center for Ecosystem Science & Society (ECOSS) Seminar, Northern Arizona University, Flagstaff, AZ.

Bergl, D. D., Carbone, M. S., Richardson, A. D. 2025. Weakening Carbon Sink Strength in a Temperate Deciduous Forest. Poster. Biological Sciences Graduate Student Symposium, Flagstaff, AZ.

Bergl, D. D., Richardson, A. D., Carbone, M. S. 2025. Two Decades of Experimental Soil Warming in a Temperate Deciduous Forest. Talk. Arizona Climate and Ecosystems Isotope Working Group (ACE), Flagstaff, AZ.

Bergl, D. D., Carbone, M. S., Richardson, A. D. 2026. Carbon Cycling Dynamics Over Two Decades in Temperate Deciduous Forests. Talk. Max Planck Institute for Biogeochemistry, Jena, Germany.

Bergl, D. D., Frey, S., Knorr, M., Richardson, A. D., Sierra, C., Carbone, M. S. 2026. Long-Term Warming Destabilizes Persistent Soil Carbon and Accelerates Cycling Across Soil Carbon Pools. American Geophysical Union (AGU), San Francisco, CA.

Bergl, D. D., Richardson, A. D., Carbone, M. S. 2026. Effects of Calcium Addition on Soil Carbon Cycling and Persistence in Acid-Affected Temperate Forests. Talk. Arizona Climate and Ecosystems Isotope Working Group (ACE), Flagstaff, AZ.

Bergl, D. D., Richardson, A. D., Carbone, M. S. 2026. Soil Carbon Under Change: 20 Years of Warming in a Temperate Deciduous Forest. Talk. Biological Sciences Graduate Student Symposium, Flagstaff, AZ.

Bergl, D. D., Richardson, A. D., Carbone, M. S. 2026. Soil carbon cycling responses to wollastonite addition across soil horizons and density fractions. Talk. Hubbard Brook Annual Cooperators' Meeting, Plymouth, NH.

Hicks-Pries, C., **Bergl, D. D.,** Contosta, A., Demers, J., Fahey, B., von Fromm, S., Garnas, J., Groffman, P., Lany, N., Lowman, H., Olinger, S., Possinger, A., Reinman, A., Rooney, E. C., Solomon, C., Templer, P., Wilson, G. 2026. Temporal Trends in Carbon Cycling. Talk. Hubbard Brook Annual Cooperators' Meeting, Plymouth, NH.

Zimmerman, O., **Bergl, D. D.,** Post, A., Young, A., Richardson, A. D. 2026. Using Open-Access PhenoCam Imagery and Data for Science Outreach and Education in Elementary to University-Level Classrooms. Poster. Ecological Society of America (ESA), Salt Lake City, UT.

Workshops

Bergl, D. D., Zimmerman, O., Javadian, M., Richardson, A. D. 2024. PhenoCam Training Workshop: Studying Biological Impacts of Environmental Change Using Repeat Photography. Workshop. Northern Arizona University, Flagstaff, AZ.

Bergl, D. D., Zimmerman, O., Javadian, M., Richardson, A. D. 2024. Using Open-Source PhenoCam Data to Study the Phenology of Diverse Ecosystems Across Time and Space. Workshop. Ecological Society of America (ESA) Annual Meeting, Long Beach, CA.

Bergl, D. D., Zimmerman, O., Javadian, M., Richardson, A. D. 2024. PhenoCam Training: Studying Biological Impacts of Environmental Change Using Repeat Photography. AmeriFlux Webinar Workshop, virtual.

Bergl, D. D., Zimmerman, O., Javadian, M., Richardson, A. D. 2024. The Great Thermal Bakeoff PhenoCam Workshop. Workshop. Northern Arizona University, Flagstaff, AZ.

Bergl, D. D., Blais, J., Javadian, M., Richardson, A. D. 2025. PhenoCam Workshop. NAU Biennial Conference, Northern Arizona University, Flagstaff, AZ.

Bergl, D. D., Javadian, M., Richardson, A. D. 2025. PhenoCam Workshop. Flagstaff Festival of Science, Flagstaff, AZ.

Teaching

BIO 205L – Microbiology Lab (2023-2026)

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|-------------------------------------|---|
| ● Spring 2023: 40 students | Student evaluation: Course 3.6/4.0; Instructor 3.8/4.0 |
| ● Spring 2024: 38 students | Student evaluation: Course 3.7/4.0; Instructor 3.8/4.0 |
| ● Spring 2025: 43 students | Student evaluation: Course 3.8/4.0 ; Instructor 3.8/4.0 |
| ● Fall 2026: 40 students (expected) | |

Service and Outreach

Volunteer

2020-2021

Oregon State University Herbarium

- Processed and Imaged 2,400 west coast macroalgae specimens
- Uploaded all 2,400 specimens to the OSU Macroalgal Consortium Herbarium Database
- Sampled 96 *Cardamine oligosperma* specimens to examine population genomics with Dr. Milos Tsiantis at the Max Planck Institute in Germany.

Volunteer

2022

Northern Arizona University Biennial Conference

- Assisted with checking in speakers and poster presenters
- Assisted with directing speakers to their appropriate presentation rooms

Tenure-Track Student Committee Member

2021

Oregon State University

- Evaluated a faculty member for advancement to the next stage of their tenure-track position
- Lead the student committee's review of the candidate's application materials
- Oversaw interactions with the board to formalize the student committee's final examination of the candidate

Young Voices of Science Member

2022

Hubbard Brook Research Foundation

- Received science-specific communication training through the Young Voices of Science program, with the objective of developing a lasting outreach project following completion of the program.
- Developed a free podcast focused on ecosystem ecology, featuring interviews and discussions with experts in the field

Diversity, Equity, and Inclusion Committee Member

2022-Present

Northern Arizona University

- I currently assist with the planning and implementing of DEI training each semester for all lab members in Dr. Mariah Carbone's and Dr. Andrew Richardson's lab groups

Educational Newsletter Author and Creator

2022-Present

"Ecosystem Ecology Overview" available free on Substack

- Author and manage the open-access *Ecosystem Ecology Overview*, an educational science communication platform focused on ecology and Earth system science.

- Newsletters to-date: (1) *Exploring the Connection Between Plants, Microbes, and Carbon Pools* (2) *“Drought and Flooding: Two Sides of the Same Coin* (3) *Let’s Talk Fluxes* (4) *Exploring the Role of Fire throughout Ecosystems* (5) *“Tis’ the Season”* (6) *“Wait, What? Oxygen without Photosynthesis”*

Science in the Park Outreach Event Member

2022-Present

Northern Arizona University, Ecosystem Science and Society (ECOSS)

- Participated in annual Science in the Park outreach events as part of the Flagstaff Festival of Science.
- Planned and implemented hands-on activities focused on phenology, measurements of ecosystem fluxes, and ecosystem ecology for K–12 students and the broader public.

K-12 Outreach Committee Member

2022-Present

Northern Arizona University, Richardson Lab

- Develop and lead classroom activities introducing K–12 students to plant phenology, ecosystem ecology, and the use of PhenoCam imagery and data.
- Develop educational materials and hands-on activities that make ecological monitoring and environmental change accessible to K–12 audiences.
- Participated in classroom outreach annually from 2022–2025 across multiple grade levels and Flagstaff schools.

Other Research Experience

Undergraduate Research Technician

Summer 2020

PI Dr. Andy Jones, Oregon State University

I assisted a Ph.D. graduate student in testing theories about the evolution of the specialization of hummingbirds. For this, I captured hummingbirds in a field setting and released them into the synthetic flower chamber to mimic different pollination syndromes as they relate to flower color. I collected the rates and types of floral visitations for each hummingbird and communicated this data to the Ph.D. student I was working alongside with.

Undergraduate Research Technician

2020-2022

PI Dr. Cynthia M. Ocamb, Oregon State University

I prepared and processed all field and greenhouse specimens, while also assisting with the set-up of greenhouse and field studies for disease biology and management. I maintained and transferred obligate parasites and facultative saprophytes for pathogen identification, as well as culture collections, and managed the growth of these pathogens in laboratory and greenhouse settings. I monitored soilborne fungal pathogens (*Fusarium* spp.) in commercial vegetable and specialty seed crop fields, where I collected soil samples in a field setting independently year round. I processed soil samples for *Fusarium* counts (done by PI) and coordinated the preparation and processing of soil samples for this project. I conducted nucleic acid extractions of both DNA and RNA pathogens, prepared various samples for sequencing of ITS, beta-tubulin, and the elongation factor region. I conducted PCR assays for viruses, viroids, fungal, and bacterial pathogens. I assisted a PhD graduate student in a USDA lab with activities for the sequencing of a *Fusarium* sp. and developed a real-time PCR assay for diseased hop plants, where I performed serial transfers of *Fusarium* spp., nucleic acid extractions, and sequenced the samples for the ITS, beta-tubulin, and elongation factor regions.

Professional Experience

Microbial Quality Assurance (QA) Lab Technician**2019-2020***Stahlbush Island Farms*

My principal duties as a microbial QA technician included determining and monitoring all microbial specs in accordance with food safety protocols. I collected and recorded hourly data for samples from 7 different operations and recorded this in the lab's data management system. I communicated the results of all microbial food safety tests hourly. Additional tasks included programming and operating in-line metal detectors and x-ray machines.

Ecological Restoration Technician**Summer 2020***Integrated Resource Management*

My principal role during this summer position involved restoring both aquatic and terrestrial ecosystems through implementing various management plans. Restoration projects took place in wetland, prairie, oak, riparian, and forest habitats. All restoration technicians were required to have precise plant-identification skills and operate UTVs or ATVs. An important part of this job was working with stakeholders, local and regional non-profits, and local tribes to reach restoration goals.

Organic Chemist and Radiochemist**2022***ACZ Laboratories*

I prepared and analyzed a broad range of samples from both liquid and solid matrices for analysis. These included total petroleum hydrocarbons, total-volatile hydrocarbons, semi-volatile hydrocarbons, nonylphenols, base/neutral acid extractions, radium 226, thorium, polonium, uranium, and gross alpha/gross beta extractions. Instrument analysis included: GC/FID, GC/PID, GC-ECD, GC/MS, liquid scintillation counters, and alpha spectroscopy. I worked with the Thermo-Scientific LIMS software to analyze and store client data.