

Suitability against the selection criteria

- *PhD degree and independent research output:* I will graduate with my PhD in Biology in June 2024, and my degree program has focused on plant ecophysiology, biogeochemistry, and carbon cycles. I am coauthor on two publications in leading journals (Dawson et al. 2022 *JGR Biogeosci* doi.org/10.1029/2022JG007060; Tang et al. 2022 *Agr Forest Meteorol* doi.org/10.1016/j.agrformet.2022.109056) as well as three preprints in review or the final stages of preparation (Dawson et al. *bioRxiv* doi.org/10.1101/2022.10.05.511035; Shek et al. *bioRxiv* doi.org/10.1101/2022.10.05.510876; Bomfim et al. *bioRxiv* doi.org/10.1101/2022.09.16.508323). I have presented posters at two national conferences, and will give an oral presentation at ESA 2023 this summer.
- *Strong computational skills:* I have extensive experience in R, beginning in my undergraduate degree when I first taught myself to code and continuing through my professional and PhD experience when I expanded into specialized techniques such as structural equation modeling and network analyses.
- *Experience in remote field work:* I have six seasons of experience conducting field research in a variety of ecosystems and settings during both my undergraduate and graduate degrees. As an undergraduate, I was awarded a fellowship to work on a long-term snow removal experiment at Rocky Mountain Biological Laboratory (RMBL) at ~3,000 m elevation. I also spent time living on a remote island research station with a small team, and took several courses taught primarily in the field, such as Winter Ecology during which I snowshoeing across a frozen lake to a cabin camp, hiking a mountain to observe snowy owls, and generally becoming comfortable operating scientific equipment under winter conditions. Although my current work is more temperate and closer to facilities, during summers I spend my weekends taking long hikes at ~1,800 m chasing snowmelt fungi and backpacking in the Cascade Mountains. This summer I will be collecting data in Norwegian alpine heathlands, including several field sites north of the Arctic Circle.
- *Innovative research:* The first two chapters of my PhD were field-focused and examined plant traits under experimental drought. My first paper found that established relationships between plant form and function held under drought. My second paper (currently in review) used stable isotopic tracers to test carbon and nitrogen transfer between grassland plants through a potential common mycorrhizal network. I found that the rate of nitrogen transfer was independent from fungal metrics, instead best predicted by plant stoichiometry. To accomplish this work, I labeled plants in the field with stable-isotopically enriched gasses, collected and processed the resulting leaves, and analyzed data in R. As an extension of my third chapter, which will focus on linking plant traits and carbon fluxes, I am working in the field this summer measuring leaf traits in Norwegian heathlands to compare inter- and intraspecific variation across a climatic gradient.
- *Student supervision:* I have extensive experience teaching and mentoring students. As someone who benefited greatly from undergraduate research experiences, I consider student mentoring to be an important part of my research. I have mentored five undergraduates during my tenure in my current lab, many of whom were new to science when they first began research under my guidance. In my mentoring, I focus on helping students find their place in science and conduct meaningful projects that they feel ownership of. I offer hands-on guidance where appropriate, but ensure that advanced students reach independence quickly. My first mentee Lenora Davis is now a science teacher at a local secondary school, and my current mentee Emily Scherer recently presented her research at an international conference. My teaching experience began as an undergraduate when I worked both as a teaching assistant and a writing tutor. As a graduate student, I have taught two introductory biology lab sections, as well as assisted with an advanced botany course and led a weekly graduate seminar discussing plant-soil interactions.

• *Multidisciplinary teamwork:* I studied for my undergraduate degree at a multidisciplinary and interdisciplinary institution where students designed their own program of study combining the arts, humanities, and science. This experience provided me with a solid foundation of working across disciplines, as well as accommodating the different ways of thinking that developed in each discipline. Members of my current lab span four disciplines (biology, environmental studies, geography, and earth sciences) and we collaborate on a variety of different projects. Before beginning my PhD, I managed the launch of one of the core on-going projects, a long-term reforestation experiment that aimed to maximize atmospheric drawdown. In this role, I designed large scale experiments (~27 ha total) testing the effects of plant functional types, planting density, and mycorrhizal associations on soil carbon. I managed a team of nine lab members as well as outside collaborators. I led field teams collecting plant biodiversity and soil property baseline data, mentored undergraduates on their own independent projects, and liaised with community organizations to ensure our work had a meaningful local impact. I was responsible for ensuring that we met regular deadlines, such as planting dates for each phase of the experiment and completing reports and presentations for our funding source.

• *Communication skills:* I worked as a peer tutor in an undergraduate writing center where I coached students who had a range of familiarity with the English language to improve their communication skills. To prepare for this role, I took advanced training in professional level composition and editing. I have led two papers written with senior collaborators, and been co-author on three other papers, including one published with an international team. As a project manager, I assisted my PI with writing national level grants, a process which taught me to balance conflicting opinions on style and content in a large multi-disciplinary team while making the most of the limited page count we had available. I was also responsible for liaising with community partners, including the local utility board who funded the project I managed. This included designing realistic reforestation experiments with a forestry company, coordinating site access with government research teams, and soliciting input from our funding agency on their goals for the project. Outside the academic environment, I have communicated science to the public through my freelance work on a truffle dog team researching fungal biodiversity. I have been invited to give three talks and lead three forays with amateur mycology societies, and have been featured as a contributor on a national television program that will be released this fall.

• *Equal opportunity principles:* I am committed to promoting diversity, equity, and inclusion in my leadership, mentorship, and teaching. A core tenet of my DEI philosophy is transparency, and I lead by example by initiating conversations on the inequities faced by people with minoritized identities, drawing on my personal experiences and broad readings to help students understand the issues they and their peers face in science. I prioritize mentoring students who face these inequities, particularly women who have limited experience in science research, and I focus on creating an environment where they feel supported and safe to ask questions.