

Ceili DeMarais

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EDUCATION

Montana State University

PhD College of Agriculture, Land Resources and Environmental Sciences

PI: Dr. Anna Schweiger

Expected graduation: Summer 2028

Graduate Research Assistant

2024-present

Remote Sensing of Biodiversity Lab, Dr. Anna Schweiger

- Working with NEON and EMIT data to analyze spectral diversity across spatial scales; in collaboration with the NASA ROSES EMIT science team.
- Examining the potential of using partial least squares regression analysis on *Pinus flexilis* and *Pinus ponderosa* leaf spectra to determine water metrics and nonstructural carbohydrate abundance in relation to drought tolerance.
- Using partial least squares discriminant analysis with leaf-level spectra to quantify different forms of mechanistic herbivory on *Collinsia parviflora* in combination with gas exchange and trait measurements.
- Instruction on the use of our ASD Fieldspec and maintenance of lab equipment.

Graduate Teaching Assistant (GPHY384)

Spring 2025

- Advanced GIS and Spatial Analysis
- Led own lab section, developed assignments, graded, and lectured
- Course Language: Beginning Python

Graduate Teaching Assistant (ENSC 110)

Fall 2024

- Intro to Land Resources and Environmental Sciences
- Graded quizzes and assignments
- Held office hours and lectured on lab activities

St. Olaf College

Spring 2024

BA Biology, Environmental Studies

GPA: 3.89

Student Researcher

2023-2024

- Used Landsat 7ETM+ imagery and lake sediment cores to recreate the fire ecology history in a study zone along the boreal-tundra border in Northern Manitoba; under guidance of Dr. Charles Umbanhowar.
- Participated in a common garden experiment studying evolutionary implications of climate change for tall grass prairie ecosystems. Focus on rhizobia and AMF symbiotic interactions with *Chamaecrista fasciculata*. Under the guidance of Dr. Naomi Rushing.

Student Naturalist

- Created educational outreach opportunities for the St. Olaf and local communities related to the St. Olaf Natural Lands and local flora and fauna.

PROFESSIONAL HISTORY

Geospatial and Conservation Intern

Kenai Watershed Forum, Soldotna, AK

Spring, Summer 2024

- Led educational summer camp for ages 6-10
- Community outreach, focusing on education for local fishermen
- Stream monitoring and bank restoration projects, including fish trapping and invasive species management

Geospatial Services, St. Mary's University, Winona, MN

- Created methodology for analyzing anadromous stream networks in the Kenai Peninsula; focus on passage of Chinook Salmon over gradient barriers and habitat potential modeling
- Used hydro conditioning of a watershed on the Kenai Peninsula to locate major stormwater outfalls from impervious surfaces for use by local conservation boroughs

Extended Trip Outdoor Leader

Apostle Islands, Lake Superior Sea kayaking expeditions

Summer 2023

- Worked as a primary leader, guiding extended back-country sea kayaking expeditions for groups with varied backgrounds and physical abilities
- Job focused on outdoor accessibility and education for those historically underrepresented in the outdoors. Gained experience in outdoor education, field management, and group dynamics

Land Technician

Summer 2022

- Controlled burn crew for St. Olaf Natural Lands and the Cowling Arboretum
- Invasive species management, including herbicide application and chainsaw training

CERTIFICATIONS

- ACA L3 Sea Kayak Guide
- Wilderness First Aid; NOLS

SERVICE

- Program manager for Volunteer Network at St. Olaf College; 2020-2022
- Clean River Partners Volunteer; 2020-2024
- Cross-cultural Ministry Project; 2017-2019

REFERENCES

- Dr. Anna Schweiger, Assistant Professor of Remote Sensing at Montana State University
 - Anna.schweiger@montana.edu

- Benjamin Meyer, Environmental Scientist and Water Quality Coordinator at the Kenai Watershed Forum
 - ben@kenaiwatershed.org
- Charles Umbanhowar, PhD. Professor of Biology and Environmental Studies at St. Olaf College, Director of the Natural Lands
 - ceumb@stolaf.edu
- Jay Demas, PhD. Professor of Physics and Biology at St. Olaf, Physics Department Chair
 - demas@stolaf.edu
- Laura Listenberger, PhD. Professor of Biology and Chemistry at St. Olaf College
 - listenbe@stolaf.edu