Applicant Information
Name:
Address:

Phone:
Email:

Member Information
PKP Member #:
Chapter Where Initiated:
Current Chapter Affiliation:
Place of Employment: and I
Job Title: Graduate Assistant

Proposed Use of Funds:

☐ travel ☐ tuition ☐ continuing education
☑ research ☐ other:

Love of Learning History:
Previously Awarded: No

Transcript:
Status: Missing

Summary of Educational Background

Name & Location	Start Date	End Date	Degrees Earned Date	GPA	HoursEarned	Degree(s) Earned
Nazareth College, Rochester NY	8/2009	5/2013	5/2013	3.96	130.50	Bachelor of Science
SUNY College of Environmental Science and Forestry, Syracuse, NY	8/2013	5/2016	5/2016	3.95	21.00	Master of Science

Academic Recognitions:
Summa cum laude graduate, Nazareth College (May 2013)
Nazareth College Biology Dept. Outstanding Senior Research award (May 2013)
$300 Rochester Academy of Science undergraduate research grant (January 2013)
Nazareth College Dean's list (all semesters, Fall 2009-Spring 2013)
$68,000 Nazareth College Presidential Scholarship (August 2009)

Community Activity & Leadership:
SUNY ESF graduate teaching assistant, August 2013-present
SUNY ESF volunteer field research assistant, May-August 2013
Biology and chemistry tutor, August 2011-May 2013
Spring break service trip to The Mountain Institute in Circleville WV, March 2012
Nazareth College Science Club, August 2011-May 2013
Nazareth College Go Green Club, August 2011-May 2013
Nazareth College Concert Band, August 2009-May 2011

Description of your Intended Use of Funds & Itemized Budget:

If I am selected for the 2014 Love of Learning award, the funds will be used to support my Master's thesis research at SUNY College of Environmental Science and Forestry. My interests revolve around restoration ecology and remediation, specifically phytoremediation. Phytoremediation is a sustainable remediation method that uses plants to remove or stabilize contaminants in the environment. When applicable, this technology is very effective and more economical compared to conventional methods such as excavation.

Mine wastes, also referred to as tailings, are extremely harsh environments for plant life to establish and survive. Tailings typically have low nutrient contents and water holding capacities, and often have high concentrations of toxic heavy metals. In addition to soil characteristics such as nutrient levels, moisture, and acidity, specific plant functional traits and biotic interactions are also important for plant survival. Mine tailing revegetation has been extensively studied, but information regarding the role of plant functional traits is very limited.

For my thesis work, I am studying soil chemistry and vegetation characteristics at Benson Mines, a retired iron mine site in the northwestern Adirondack Mountains of New York State. During peak operations, approximately one million metric tons of iron were produced, drastically boosting the local economy. However, for every ton of iron concentrate, three times as many waste tailings were produced, which were simply dumped on the site. Revegetation at Benson Mines was attempted in the late 1970s, but was relatively unsuccessful. Since its abandonment, the site has been colonized by numerous species, most native to the area. A wetland has also developed at the base of the mine tailings, which boasts astounding numbers of several rare orchid species, among other important local plants.

The transition from the densely vegetated wetland to the almost bare tailings dump is an important gradient to study. Characterization of soil chemistry, plant traits, and mycorrhizal interactions (symbiotic relationships between fungi and plant roots) of common species along this gradient will shed light upon abiotic and biotic interactions significant for plant establishment on the site. Although my research is not necessarily a restoration experiment, it is crucial to understand how natural systems develop following disturbance before implementing remediation projects. Plant choice and initial establishment are challenging tasks in many phytoremediation applications. Ultimately, the results of my work will provide more insight to traits of plants that are ideal for revegetation of mine waste sites.

Budget

Soil nutrient analyses: $480
-80 sample plots x 3 replicates per plot = 240 samples
-Approximately $2 per sample for analysis of soil nitrogen

Laboratory supplies: $20
-Approximately $20 for tryphan blue stain solution for root fungal analysis

Total amount: $500

Personal Statement:

My academic and professional goals stem from my lifelong adoration of and commitment to the environment. Most of my personal interests, including traveling, hiking, camping, and kayaking on peaceful Adirondack lakes, revolve around the natural world. Growing up near Onondaga Lake in Syracuse, NY, I have witnessed firsthand how pollution can affect local communities. As one of the most severely polluted aquatic systems in the United States, swimming has been banned since the mid 1900s, and fish consumption is still highly restricted. A multitude of restoration projects have been implemented, and the improvements in the ecosystem's health are certainly noticeable. My connection with Onondaga Lake sparked my passions for ecological restoration and conservation.

After graduating in May 2013 from Nazareth College with a Bachelor of Science degree in environmental science, I came to SUNY ESF to pursue a Master of Science degree in ecology. In addition to coursework and research at SUNY ESF, I have worked as a teaching assistant for undergraduate biology courses. The necessity to work with diverse groups of students and fellow instructors has vastly improved my communication and collaboration skills, which are necessary for any occupation.

Following the completion of my graduate studies, I would like to work as a scientist at an environmental consulting or engineering firm. My ideal position would involve researching and implementing restoration projects, specializing in phytoremediation applications. The vast abundance of polluted ecosystems today calls for innovative, sustainable, and cost-effective remediation methods, which I aim to help develop throughout my career. Additionally, I am determined to use my career as an opportunity to make a difference in the local community. Connecting with local citizens and responding to their concerns is arguably the most practical and effective way to promote environmental awareness. As with most environmental projects, restoration efforts are rarely successful unless the local community is involved. In addition to my career, I will continue to pursue my research interests in ecosystem remediation, contributing to the scientific community. My goals to improve current methods and develop new remediation techniques will be a positive addition to the ever-growing field of restoration ecology.

The Love of Learning award from Phi Kappa Phi would significantly aid in the achievement of my aforementioned goals. Specifically, the award would aid my graduate research expenses, specifically chemical analysis of soil samples. Completing my research in a timely manner is highly contingent on the amount of funding available. The funds provided by the Love of Learning award would allow me to complete more thorough analyses, which would greatly improve my thesis work overall. In turn, my graduate work will prepare me for various environmental career opportunities, through which I can achieve my professional goals.

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