Grant/Scholarship Award Recommendations

Hyland Johns Grant:

Dr. Bryant Scharenbroch, University of Wisconsin - Stevens Point
Project Title: "A Soil Management Toolbox for Urban Trees"
Requested: $48,583
Summary: In order to improve soil management for urban trees we need better assessment tools. However, not all urban tree managers require and can utilize the same soil assessments. For example, urban foresters may require coarser information on many planting sites. They would use this information to better match site conditions with species preferences to maximize diversity. Alternatively, arborists may be interested in seasonal patterns in the concentrations of nutrients in soil and tissues to develop prescription growth management recommendations. The goal of the proposed research is to develop three soil assessment models for urban tree managers to be included in a soil management toolbox. The first model, Urban Site Index (USI) is a field-based model that could be employed by the urban forester for a planting plan. Our most detailed model (USI++) would fulfill the objectives of an arborist wishing to develop a prescription fertilization plan. The last model (USI+) is intermediate in detail and cost and might be used by either the arborist or urban forester to assess soil conditions for urban trees. We have designed three experiments to develop and test these models. We also describe plans for collecting additional data for future refinement of the models. The models will be packaged in a user friendly and freely-available platform. Products from this research including three scientific manuscripts, workshops and presentations are described. Lastly, the research will train two graduate students and many undergraduates to grow the field of scientists in urban forestry, arboriculture and urban soil science.

Dr. Glynn Percival, Bartlett Tree Research Laboratory
Project Title: "Can Soil Amendments Reduce Disease Severity in Trees"
Requested: $40,000
Summary: During their life cycle, urban trees are susceptible to attacks by many pathogenic fungi and bacteria that, if uncontrolled, can result in high mortality rates. Control of these diseases is primarily through the use of synthetic agrochemicals. Increased tolerance to commercially available agrochemicals, failure of many chemicals to adequately control diseases once a tree is infected and increased legislative restrictions regarding agrochemical use and application means new techniques of disease control are now of fundamental and economic importance. It is widely known that trees can defend themselves against pathogen infection through a wide variety of mechanisms that can be either local, constitutive or inducible. Developments in plant protection technology have led to the formulation of several soil amendments that have been shown to induce or "switch on" a plant's own defense mechanisms. These include chitin, phosphites, biochar (a form of activated charcoal) and pure mulches i.e. a mulch made from a single tree species such as willow or eucalyptus. Preliminary studies have found a single soil application of these amendments provides long lasting, broad spectrum control of several fungal, bacterial and

viral pathogens. Importantly these amendments act by organic means so are not subject to government legislative restrictions that relate to synthetic agrochemicals. Aims of this investigation are to investigate the efficacy of a range of commercially available soil amendments singly and in combination on controlling two worldwide economically important tree diseases i) apple scab (Venturia inaequalis) a foliar biotrophic pathogens and ii) Phytophthora root rot (a root invasive pathogen)

If additional funding is available:

Dr. Susan Day, Virginia Tech
Project Title: "Urban Forests as Stormwater Systems—The role of canopy structure and ground cover in stormwater mitigation"
Requested: $50,000 (pending site selection criteria clarification, meta-analysis)
Summary: Can planting design and tree management be used to significantly increase stormwater mitigation by trees? Does presence of an urban forest understory or site maintenance practices such as leaf removal or mulching influence water infiltration and capture? Stormwater attenuation by urban forests is provided by a complex structural system that includes canopy interception, stemflow, and transmission into the soil. Plant characteristics, such as leaf morphology, architecture, and stem characteristics dictate canopy interception and stemflow. However, we hypothesize that the overall urban forest canopy structure, rather than characteristics of individual trees, has a greater effect on stormwater mitigation. Specifically, the addition of understory plantings could increase both canopy density and lead to soil surface traits that have already been identified as beneficial to stormwater capture, such as the presence of litter or mulch layers. We will examine three landscape structures in urbanized areas: trees only, trees plus understory, and understory only (defined as low shrubs or herbaceous plants) and evaluate them in terms of their effects on this stormwater mitigation complex. Sites will also be compared to a natural forest reference site, often used in policy development. This analysis will be replicated in a greenhouse study using the three plant structures in bioinfiltration cells with engineered soils where we will analyze changes in soil physical characteristics over time as well as rainfall partitioning using a rainfall simulator and lysimeters. Results can be used to optimize groundcover management beneath trees as well as to inform stormwater policy and runoff estimation models.

Dr. Kathleen Wolf, University of Washington
Project Title: "Urban Forests and Human Health: Science Review & Economic Valuation"
Requested: $36,512
Summary: Arborists and urban foresters are often challenged to justify the costs of tree planning and management. Evidence of environmental services (such as carbon sequestration and stormwater management) has generated support in many communities. In addition, nearly 40 years of research indicates the human health benefits gained from experiences of nature in cities. This evidence is now summarized at the Green Cities: Good Health (GCGH) web site (hosted at the University of Washington). The article database that informs GCGH includes studies spanning a wide range of urban greening situations (parks, gardens, school yards, hospital gardens, streetscapes, green roofs, etc.) and a wide range of positive human health responses (work performance, cardiovascular disease, mental health, stress and immune function, etc.). A subset of articles report on responses specifically associated with city trees and urban forestry. The entire article collection has been used to generate several peer-reviewed publications that indicate

economic benefit and valuation (see Wolf et al., 2015, and Wolf & Robbins, 2015, in Relevant Citations). This project will extract the articles of previous research about tree and forest response from the GCGH database, synthesize them into a review manuscript, and conduct economic valuation using a benefits transfer approach. The resulting manuscript will be submitted to a peer-reviewed public health or medical journal. Science delivery products will include a results briefing, powerpoint presentation, and urban forestry policy guidelines. The results and outreach tools will be valuable for communicating the important human health and wellness benefits provided by the urban forest.

Arboriculture Education Grant:

McCrory Gardens - South Dakota State University
Project Title: Junior Arborist Camp
Requested: $5,000
Summary: The objective of this project is to create, implement and evaluate an arboriculture summer program focused on middle and high school students. The intent to create modules that other summer school programs can use as templates for creating their own programs. The summer camp will consist of four days of field and classroom modules designed to acquaint students with the opportunities and careers within the broad field of arboriculture. The curriculum will be prepared with input and direct involvement by University faculty and industry. The program will be taught by University faculty and ISA certified arborists and Board Certified Master Arborists.

Asheville GreenWorks
Project Title: Tree Detective Kits
Requested: $5,000
Summary: Asheville GreenWorks is requesting funding to create six "Tree Detective" kits to be used for free at Buncombe County libraries during the summer and fall and at Asheville City and Buncombe County Schools during the spring, reaching pre-school, elementary, and middle school students throughout the county. Asheville GreenWorks environmental education staff and consultants will prepare the kits and partner with staff from NC Arboretum, NC Park Service, Blue Ridge Parkway, Appalachian Highlands Science Learning Center at Great Smoky Mountains National Park and local educators to provide a self-guided, hands-on learning experience correlated to state education standards. Activities will include reading, science, math and the arts. Kits will be curriculum based and include books, hand lenses, binoculars, scavenger hunts, counting games, tree stacking blocks, leaf rubbing plates and specimens of tree cookies, leaves, and seeds to promote hands-on learning.

Each kit will cost $375.00 and be replicable. Asheville GreenWorks' staff will hold workshops for librarians and teachers on how to use the kits, helping to ensure the program's success. GreenWorks staff will also provide pre- and post-visits to students using the kit in order to enrich student learning. Kits will be distributed to libraries in the early fall of 2016, collected during the winter and modified if needed before being available to teachers during the spring when most teach forestry. The "Tree Detective" kits will increase knowledge of urban forestry concepts for residents in Asheville and Buncombe County leading to a greater appreciation of the role trees play in community health.

If additional funding is available:

The Greening of Detroit
Project Title: Our LAND
Requested: $5,000
Summary: The Greening of Detroit seeks funding for its Our LAND (Learn, Admire, Nurture and Dream) project, servicing students in grades 4-8 in Detroit schools. This program connects students to their local forests through yearlong classroom activities, on-site field experiences and service learning opportunities taking place in River Raisin, their nearby Federal Land, and Rouge Park, Detroit's only section of riparian forest. Our place-based education approach boosts student achievement and demonstrates to youth how local citizens can improve their community's urban forest, environmental quality and social vitality. Our LAND students learn about the factors impacting trees and study forest health surrounding their school, at a Detroit park and nearby federal land. They explore the impacts humans have on the forest ecosystem and ways to improve these interactions by helping plan and implement a service learning project which may include tree planting or invasive species removal within the forest. The Greening connects students to Citizen Foresters who act as mentors to the youth and provide assistance during plantings. This program engages families by providing take home activities and invitations to all of the field trips, particularly the tree planting event. These program elements provide students a wide environmental view with local context, while also helping to enhance their grasp of required science curriculum content. Teachers love our program and have noticed improved student outcomes as a result of their students' participation.

Robert Felix Memorial Scholarships $3,000:

Jamilee Kempton
University of Hawaii at Manoa
Essay:
Dear Committee,
I have dedicated the last 5 years to a career in arboriculture. During this time I have become an ISA Certified Arborist and have worked as a climbing arborist in both the public and private sector. I chose to pursue a career in arboriculture because I find it to be fascinating, rewarding and challenging both physically and mentally. As a returning student, I consider myself fortunate to have found my passion for a life long profession.

Originally from Seattle I moved to the island of Oahu in 2009 and began working full time as a landscaper and nursery worker. During that time, I attended night and weekend classes to complete the Subtropical Urban Tree Care Program at Oahu's Windward Community College and the University of Hawaii's Master Gardener Program.

Following completion of the Tree Care Program, I was employed by the University of Hawaii's Lyon Arboretum as their arborist, where I learned how to care for a large and diverse collection of rare and endangered tropical tree species. Thereafter I worked for Oahu Tree Works, LLC, a privately owned company specializing in pruning and removal services for residential clientele.

Working for OTW, I gained valuable experience in production climbing, leadership, management and sales.

Since 2011, I've been an active member, volunteer and officer for the Aloha Arborist Association. As a volunteer I have organized and instructed various tree climbing workshops for our local community.

Through attending local workshops and ISA Conferences I acquired over 100 CEU's in my first three years as an ISA Certified Arborist. To support tree related research, education and outreach I have raised funds for the Britton Fund and participated in an 88 mile bike ride through the Angeles National Forest in 2014.

I started competing at the International Tree Climbing Championships in 2013 representing the Western Chapter and I am proud to say that I earned 1st place at the 2015 ITCC in Tampa, Florida and currently hold the world record for the women's 15M footlock. To say the least, I love the tree care industry and I couldn't imagine pursuing any other profession. I am very much looking forward to participating in the upcoming 2016 ITCC in San Antonio, Texas, April 2-3.

I'm thrilled to be a full time student, and for the Fall 2015 semester, I earned a 4.0 GPA and joined the Phi Theta Kappa International Honor Society. While attending school full time, I started my own business, Jamilee's Trees LLC. I primarily work as a contract climber which allows for a flexible work schedule to accommodate my academic commitments.

My educational goal is to complete a degree in Business Entrepreneurship with a minor in Tropical Plant Soil Science at the University of Hawaii, at Manoa. For Fall 2016, I will attend the University of Hawaii as a senior.

Ultimately, I would like to own and operate a tree care company on Oahu. Pursuing a degree in business has taught me valuable skills and introduced me to beneficial resources for successful entrepreneurship. I believe an education is invaluable, and I appreciate you taking the time to allow me to better represent the tree care industry.

Sincerely,
Jamilee Kempton

Daniel Hedden
California Polytechnic State University, San Luis Obispo, CA
Essay:
Dear members of the Tree Fund,

My name is Dan Hedden and I am very excited to be applying for the Robert Helix Memorial Scholarship. The scholarship will provide me another year at California Polytechnic State University, San Luis Obispo, Ca studying arboriculture, membership in the Association of Environmental Professionals, and the opportunity to work on more tree research projects. I want to explain how I discovered arboriculture and why I see it as a fulfilling career.

I transferred to Cal Poly in 2014 from Santa Barbara City College where I took a general botany course taught by Dr. Matthew Kay that opened my eyes to the diverse world of trees and why they matter. In response to my botany course, I sought out careers in restoration, one being a non-profit in Ojai, CA called Concerned Resourceful Environmental Workers (CREW). With CREW, I learned how to restore and maintain a variety of unhealthy ecosystems. This work brought a strong sense of community building while it also fueled my growing interest in identifying and understanding trees and how their services are used in urban settings.

I have since taken many courses at Cal Poly to further explore my interest such as forest ecosystem management, ecology, and my favorite so far, dendrology. When I'm not studying, I volunteer at Cal Poly's Plant Conservatory helping Dr. Matt Ritter and many undergraduate students grow and maintain a variety of plants for biology classes, graduate experiments and restoration projects throughout California. The Conservatory has been a wonderful alternative classroom allowing me to collaborate with professionals to reach goals while helping me to better understand the services different plants species provide.

In addition, I participated in a special extended study course with Drs. Ritter and Jenn Yost, palm expert Don Hodel and several Cal Poly students where we gathered field data on a variety of palm species at the Huntington Botanical Garden and LA Arboretum. Our data will eventually be used for peer reviewed publication. Moreover, I currently work with Dr. Ritter on a California Big Tree Registry Project, where I am responsible for the upkeep and management of the American Forests Registry and California Big Tree Registry databases. These databases are used to recognize, document and curate state and national tree records in California. I meet weekly with my Dr. Ritter to be assigned tasks such as transferring tree nomination forms into excel spreadsheets, finding and editing specific database files, locating champion trees by geo-referencing. Each task has a deadline and once completed I inform and discuss the results with my supervisor.

When I'm not helping Dr. Ritter, I explore Cal Poly's campus as it is home to 548 tree species which is more than any other campus in California and was named a Tree Campus USA November 2015. At the award ceremony, I spoke with California's State Urban Forester John Melvin who educated me on the importance of arboriculture as it aims to maintain and use the different services of trees in urban designs in such ways as surface runoff control and temperature control. During our talk, I began to envision arboriculture as not only a fulfilling career but as an opportunity to apply my course studies, work experience and curiosity. Furthermore, I was able to spend a day with Bartlett Tree Services master arborist Richard Mason in Santa Barbara, California. Mr. Mason provided me an excellent overview of what Bartlett does while also reinforcing the reasons why I see a career in arboriculture as important and fulfilling.

Last summer I worked with Cachuma Operation and Maintenance Board (COMB), a federal fisheries division in Santa Barbara, California that actively manages the Santa Ynez watershed. With COMB, I worked with Dr. Tim Robinson and other biologists as a field technician supervising a variety of California Conservation Corps (CCC) tasks, collecting water flow and temperature data and trapping native and nonnative freshwater aquatic species. I found my favorite part of working at COMB came through an oak restoration project as it allowed me to

apply my course studies, learn more about arboriculture and meet several arborist such as Ken Knight, an oak tree specialist. The project started in 2002 and has aimed to have four thousand oak trees planted, mature and mapped by 2025. Ken Knight was hired by COMB as a private arborist to see the project through and after working with him I gained a better understanding of the role trees play socially, environmentally and economically.

Dr. Kay's general botany course got me started in the world of trees, Cal Poly's "Learning By Doing" curriculum cultivates innovation and has expanded my interest in arboriculture, and lastly, botanist Matt Ritter and arborists Richard Mason and Ken Knight have shown me why arboriculture can be a fulfilling career. My next step in becoming an arborist will come this summer as I plan to complete the GRE as I will be applying to UCSB's Bren School and Cal Poly's city and regional planning masters program.

I will be at Cal Poly until spring 2017, support from the Tree Fund's Robert Helix Memorial scholarship is a great investment in my journey for knowledge, building a stronger community and pursuing a fulfilling career in arboriculture. Thank you again for your consideration.

Sincerely,
Dan Hedden

Savannah Haines
University of Maine
Essay:
Currently, I am a sophomore at the University of Maine majoring in forestry and minoring in environmental horticulture. I am a strong academic, with many extra circular activities. I strive myself on doing well in school, but I understand that academics is not everything. I am trying to improve myself professionally and socially. I am a member of the University of Maine's student chapter of the Society of American Foresters, the University of Maine's School of Forester Resources Volunteers, as well as the Horticulture Club.
For the 2015-2016 academic year, I have been president of the University of Maine's Student Chapter of the Society of American Foresters (SAF). Along with my vice president, Brian Renfro, we have been working tirelessly to turn this club around. Prior to our leadership positions, the student club did minimal trips and had a very small university impact. Since the fall, we have grown our group to about thirty members, ten of whom are actively participating every week. We have had guest presenters come in, had trips to Acadia, as well as have a strong representation at both the Maine Chapter of Society of American Foresters meeting, as well as the National Society of American Foresters meeting. In the upcoming semester, we are striving for more club activities and higher participation; especially from the freshman and sophomore class.
As well as being active in SAF, I have been recently been certified with the International Society of Arboriculture Arborist's certification. This is a professional credential that strengthens my resume and solidifies my ability to do arboriculture work. To be considered for this exam, I had to document my education and work experience, which was presented to a third party deciding committee.
In addition to my Arborist's certification, I am starting to prepare myself for my Forester's certification, as well as my certificate of professionalism. This past month, the student chapter of SAF hosted Ken Lawson who talked to us about this certification. I learned what was required for

credentials, as well as what I can do to prepare myself for the exam. Starting the summer of my junior year, I will be able to document work experience that will be counted as part of my credentials. While I am in school, I will continue working towards my certificate of professionalism. I have attend the School of Forest Resources' professional assemblies and will continue to do so in order to complete the certificate.

Upon graduating from the University of Maine, I would like to go to graduate school for forest pathology. Depending on the money I have available, as well as the job opportunities that are presented, I may continue graduate school to obtain my doctorate. After I finally graduate from school, I would like to be a forest pathologist.

As it has come to my attention, many plant pathologists do not have a strong plant background. I believe that with my forestry and arboriculture background, I will have one step above my job competitors.

Although graduate school is a few years away, I am doing my best to prepare. I am gaining work experience in the pathology field working part time for a graduate student on fungal pathogens of white pine. This is another great opportunity for me to add to my resume for future jobs. For this summer, I am applying for jobs with Massgov. I am trying to get a job working with red pine mortality in southeastern Mass, a job that I was underqualified for last summer. Previously, I have worked in mostly environmental fields; last summer I worked for the Westport Land Conservation Trust and the summers before that I worked for T.F. Morra's Tree Care. I love being outside and working with the environment.

With this scholarship, I will be able to pursue my dreams. Without higher education, I will not be able to be the professional I aspire to be. With this money I will be able to stay in school and gain knowledge and skills that will help me obtain jobs in the future.