



Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-237

Proposal Title: Minnesota Environment and Natural Resources Workforce Development Study

Project Manager Information

Name: Forrest Fleischman

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

Office Telephone: (612) 625-4095

Email: ffleisch@umn.edu

Project Basic Information

Project Summary: Minnesota depends on our natural resources and we need people to manage and steward those resources. We will identify gaps in our workforce and develop recommendations to address those needs.

ENRTF Funds Requested: \$542,000

Proposed Project Completion: June 30, 2030

LCCMR Funding Category: Education and Outdoor Recreation (C)

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Minnesotans take pride in their natural resources. A healthy environment requires a skilled workforce which can undertake the stewardship and management needed to insure clean air and water, resilient forests, and abundant wildlife populations. However, there are not always enough workers or workers with the required training to support both a thriving economy and a healthy environment. Minnesota already has excellent training opportunities at our colleges and universities, however it is unclear if these opportunities meet the workforce's needs. Existing training opportunities can be inflexible (e.g. requiring four years for a B.S.) and existing workers desire opportunities for skill upgrades that would enable them to access high quality jobs. Well designed non-degree certificate programs can target high quality jobs where more workers are needed - for example in data analytics, management of urban parks and forests, and ecological restoration - and provide opportunities both for traditional and non-traditional students. Past experience shows that non-degree certificates can address workforce needs, but fail without detailed knowledge of workforce needs. This project aims to identify both gaps and opportunities to improve education and training opportunities so that Minnesota workers can access the high quality jobs needed to sustain a healthy environment.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

To understand opportunities and gaps, we plan to holistically review the natural resource workforce pipeline in Minnesota and identify gaps between student learners and employers. We will work across natural resource disciplines and departments within Minnesota. Our "green career" community collaborators see urgent need to bring job seekers to high quality environmental careers but do not have access to a training-to-career pipeline. We will conduct a systematic study of (a) current training opportunities in the environment & natural resources in colleges, universities, and continuing education programs around the state, (b) current job postings in the field, and (c) employer and current worker assessments of future workforce needs. From this information, we will develop a strategy to address workforce needs through improved educational offerings, including enhancements to existing degree programs, new non-degree certificate programs, and continuing education. We anticipate the need to develop new certificate programs through existing colleges and universities. Such certificates can be completed in the course of obtaining a degree by traditional students (such as those pursuing a 2 year A.S. or a 4 year B.S.), but can also be made available to people not currently served by conventional programs.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

The protection, conservation, preservation, and enhancement of our state's natural resources depend on trained professionals. Outcomes from this proposal will provide opportunities for graduating high school students and other individuals looking to transition into this field or move into higher quality jobs within the field. This will ensure that educational opportunities are effectively meeting the needs of our state at multiple levels (certificates, 2-year & 4-year). We will issue reports identifying the high quality jobs of the future to share with students, career counselors, and employers, and will begin developing new certificate training programs that address urgent training needs.

Activities and Milestones

Activity 1: Analysis of existing training curricula

Activity Budget: \$90,281

Activity Description:

Objective: Understand existing environment and natural resource training opportunities and curricula in the state of Minnesota so that gaps can be identified.

In order to achieve this objective, we will: (1) Identify all natural resource & environment training programs in the state, including those led by our "green careers" collaborators and their networks, those located at community & technical colleges, 4-year colleges, and universities, as well as standalone or continuing education programs. We understand natural resource training to include conventional natural resource programs, such as UMN's Forestry and Natural Resource Management B.S. program, and the wide variety of "environmental science" and "environmental studies" programs. This work will be assisted by UMN professors Alicia Coleman (expert on urban forestry training), Ingrid Schneider (expert on parks and recreation training), Marcella Windmuller-Campione (expert on forestry training) and Eli Sagor (head of the Sustainable Forests Education Cooperative); (2) gather program guides, learning objectives, and curricula for these programs; (3) systematically analyze these programs to understand the hard and soft skills acquired by people trained in these programs.

Output: Report on the existing state of natural resource education in Minnesota. This report does provide direct outcomes, but is an input into later activities.

Activity Milestones:

Description	Approximate Completion Date
Identification of programs	September 30, 2027
Gather program guides/curricula	October 31, 2027
Form educational task force of program leaders across the state	November 30, 2027
Analysis and report writing	April 30, 2028

Activity 2: Analysis of existing job postings in Minnesota

Activity Budget: \$90,280

Activity Description:

Objective: Understand the current job market in natural resources in Minnesota.

With advancing technologies and workforce demands for technology literacy, we need better understanding of which skills and tools most effectively manage natural resources. For example, modern mapping no longer requires a skills to use stereoscopes but handheld GPS units still require skills to read paper maps and compasses. A systematic review of the required and preferred skills for natural resource jobs has not yet been completed, and this activity will identify required and preferred skills across Minnesota. We will use this data, data from Activity 1, and the task force to identify what skills are currently being taught and where there are gaps.

Tasks: (1) Identify places where natural resources related jobs are advertised in the state (e.g. online job boards and social networks, college careers webpages, webpages of major employers). (2) download available job postings and analyze them using AI to identify common skillsets and requirements (such as accredited degrees).

Output: Report on the current job market in natural resources in Minnesota. This report will be published in an accessible format and shared with job seekers and their advisors

Activity Milestones:

Description	Approximate Completion Date
Identify relevant job boards	October 31, 2027
Analyze job postings and write report	May 31, 2028

Activity 3: Analysis of future workforce needs

Activity Budget: \$179,322

Activity Description:

Objective: Current job postings, alone, cannot necessarily represent future workforce needs, as they don't account for anticipated retirements, or tools and skills that are not currently in use but may be in the future (e.g. due to automation or AI). To address this gap, we will speak directly to hiring managers and current employees to understand how they anticipate future changes in the workforce. We will snowball from our "green careers" partners statewide collaborators and agency connections to ensure connection to Greater Minnesota.

Tasks: (1) Identify major employers of natural resource professionals (e.g. through job postings identified in Activity 2, surveys of alumni of programs identified in Activity 1); (2) Conduct interviews and focus groups with selected hiring managers & employees to understand future workforce needs; (3) Conduct a survey of all identified employers & employees to identify broader trends in the workforce. This survey will request information about anticipated future hiring related to job types and expected skills.

Output: Report on future workforce needs in the state of Minnesota. Report will be distributed and presented at colleges, universities, and other relevant forums, such as to high school career counselors and workforce development organizations.

Activity Milestones:

Description	Approximate Completion Date
Identification of employers	May 31, 2028
Interviews & Focus groups completed	December 31, 2028
Surveys completed	April 30, 2029
Report completed and published	August 31, 2029

Activity 4: Develop strategy for improving curriculum based on activities 1-3

Activity Budget: \$182,117

Activity Description:

Objective: The ultimate goal of this project is to develop better natural resource workforce training. Based on the findings from Activities 1-3, we will work with our task force of educational- program leaders to develop strategies to address workforce needs.

Tasks: (1) Create a report that summarizes results of Activities 1-3 with implications for training programs and present this report to training program administrators and university officials. This presentation will show how existing training programs compliment or diverge from current job availability and future workforce needs. (2) Propose evidence-based

new certificate programs that address identified training needs. This work will be assisted by the University of Minnesota Office of Distributed Learning and the School of Continuing and Professional Studies, who will perform market research and assist in the development of online and non-degree program offerings at the University of Minnesota. (3) Assist curriculum leaders at other institutions to refine and adjust their curriculum.

Output: Changes to training programs that reflect future workforce needs.

Activity Milestones:

Description	Approximate Completion Date
Report completed	November 30, 2029
Presentations at programs and conferences	April 30, 2030
New certificate programs proposed, developed and submitted for approval	June 30, 2030

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Alicia Coleman	University of Minnesota	Expert on urban forest and natural resource management and training.	Yes
Ingrid Schneider	University of Minnesota	Expert on parks and protected area management management and training	Yes
Marcella Windmuller-Campione	University of Minnesota	Expert on forest management and training.	Yes
Eli Sagor	University of Minnesota/Sustainable Forests Education Cooperative	Expert on continuing natural resource education	No
Eric Watkins	University of Minnesota	Expert on education innovation and distributed learning	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

We will publish a report outlining key work and training opportunities, and disseminate this report to education institutions throughout the state, focusing on colleges, universities, and other organizations that provide natural resource education, as well as organizations that provide career counseling and training (such as high school career counselors). We will present our findings at key state natural resource conferences such as the joint meetings of the Minnesota Society of American Foresters/Wildlife Society/Fisheries Society, and the Minnesota Parks & Recreation Association. We will also conduct webinars through programs including the Sustainable Forests Education Cooperative and UMN extension.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

This project aims to align existing natural resource training programs in Minnesota between workforce needs and curricular offerings, and especially through the development of new certificate programs or other microcredentials. Our "green careers" community partners see this need in the Twin Cities and in Greater Minnesota. Internally, UMN educational programs have existing sources of funding, such as tuition revenue at colleges and universities, however they do not have funding to assess the alignment of their programs and skills training with the job market and employer expectations. Once improvements are implemented, revised training programs can move forward with pre-existing funding.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Trialing Climate-Ready Woodland Trees in Urban Areas	M.L. 2025, First Special Session, Chp. 1, Art. 2, Sec. 2, Subd. 03ee	\$255,000

Project Manager and Organization Qualifications

Project Manager Name: Forrest Fleischman

Job Title: Associate Professor & Director of Graduate Studies, Natural Resources Science & Management

Provide description of the project manager's qualifications to manage the proposed project.

Forrest Fleischman is an associate professor in the Department of Forest Resources and the Director of Graduate Studies in Natural Resources Science & Management at the University of Minnesota, where his responsibilities include developing and improving graduate education in natural resources in Minnesota. He holds a PhD in Public Policy from Indiana University. His research and teaching focus on forest & restoration policy and governance, and he leads the environmental governance research group within the National Science Foundation funded Minneapolis-Saint Paul Metropolitan Area Long Term Ecological Research Program . He has previously been a part of over \$14 million dollars in research grants, with 3.5 million dollars under his direct supervision, from funders such as the US Forest Service, National Aeronautics and Space Administration (NASA), and the National Science Foundation. He has mentored 4 postdoctoral fellows, and supervised 3 completed PhD dissertations, and his current research lab includes 4 PhD students and 2 MS students.

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

Organization Description:

The College of Food, Agricultural, and Natural Resource Sciences (CFANS) within the University of Minnesota hosts twelve academic departments and ten research and outreach centers, the Minnesota Landscape Arboretum, the Bell Museum, and several interdisciplinary centers. Within CFANS, the Department of Forest Resources advances the science and management of forests and related natural resources by developing solutions to important problems affecting these resources; training the next generation of scholars and practitioners; and informing the broad public on the importance of forests and natural resources and how they enrich our quality of life. The graduate program in Natural Resource Science and Management provides interdisciplinary training at the MS and PhD level in managing natural resources, and the Sustainable Forest Education Collaborative is a partnership between CFANS and many land management organizations around the state which provide continuing education to forest professionals.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Forrest Fleischman - project director		Dr. Fleischman will direct the project			36.6%	0.24		\$49,653
Marcella Windmuller-Campione		Senior Personnel to lead silviculture/ forestry industry connections and interviews			36.6%	0.18		\$40,343
Alicia Coleman		Senior Personnel to lead urban and community forestry industry connections and interviews			36.6%	0.18		\$16,303
Ingrid Schneider		Senior Personnel to lead parks and protected areas industry connections and interviews			36.6%	0.12		\$8,532
Laura Reuling		Senior Personnel to lead logging and forestry products connections and interviews			36.6%	0.45		\$48,526
Graduate Research Assistants		2 graduate students will lead data collection			20.2%	3		\$353,315
Undergraduate Research Assistant		To support data collection			0%	0.4		\$10,000
							Sub Total	\$526,672
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Equipment								
							Sub Total	-

Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Conference Registration Miles/ Meals/ Lodging	8 individual trips over 3 years	Presenting results to stakeholders at Minnesota conferences and professional meetings					\$11,361
							Sub Total	\$11,361
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
	Publication	Publication and distribution of 2 reports.	We will prepare & publish 2 reports, the first identifying promising natural resource career paths, and the second identifying training needs to enable Minnesotans to pursue these paths. Each report will be published and disseminated to interested parties throughout the state.					\$3,967
							Sub Total	\$3,967
Other Expenses								
							Sub Total	-
							Grand Total	\$542,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
---------------	---------------------	-------------	--

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

Total Project Cost: \$542,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [c6823f9a-c36.pdf](#)

Alternate Text for Visual Component

This visual contains text that briefly summarizes the main goals of the project, illustrated with a photograph of the use of old fashioned and out-of-date technology and modern mobile phone based technologies for studying forest structure....

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
UMN approval letter	580d0121-fa0.pdf
Support Letter, EMERGE Community Development	c7d3a37a-123.pdf
Support Letter, City of Minneapolis Green Careers Exploration Program	f9239bfc-b82.pdf
Support Letter, Sustainable Forests Education Cooperative	99726858-9b2.pdf
Support Letter, Smart North	a6340874-9fa.pdf
Support Letter, Tree Trust	4db751a1-d5b.pdf
Support letter, Office of Distributed Learning	ac2e9e6b-dcf.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the UMN Policy on travel applies.

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

Yes, Sponsored Projects Administration

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:

Alicia Coleman, Andrea Little (both from UMN)

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

N/A