Environment and Natural Resources Trust Fund

M.L. 2026 Approved Work Plan

General Information

ID Number: 2026-010

Staff Lead: Tom Dietrich

Date this document submitted to LCCMR: May 28, 2026

Project Title: Cultivate, Connect, and Train Minnesota's Young Conservation Scientists

Project Budget: $538,000

Project Manager Information

Name: David Remucal

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Project Reporting

Date Work Plan Approved by LCCMR: June 17, 2026

Reporting Schedule: April 1 / October 1 of each year.

Project Completion: June 30, 2029

Final Report Due Date: August 14, 2029

Legal Information

Legal Citation: M.L. 2026, Chp. 104, Sec. 2, Subd. 05b

Appropriation Language: $538,000 the second year is from the trust fund to the Board of Regents of the University of Minnesota for the Minnesota Landscape Arboretum to expand a conservation science program that trains teachers and engages students in immersive research experiments and collaborative activities that build their scientific knowledge, skills, and interest and their appreciation for Minnesota's natural heritage.

Appropriation End Date: June 30, 2029

Narrative

Project Summary: Produce 1900 young environmental scientists from diverse classrooms across MN. Create lasting appreciation for Minnesota's natural heritage through immersive leading-edge research by working with professional conservation researchers.

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

Fewer people are pursuing botany or ecology degrees or careers in science, natural resources or environmental advocacy necessary to study and preserve the increasing numbers of plant and animal species that are becoming endangered. There is an urgent need to educate and develop scientists with a conservation ethic and direct hands-on experiences and knowledge to work with native plants and landscapes. Access to high level research equipment and experiments is often available only to well-resourced schools, with fewer opportunities for underserved, less-connected schools. Similarly, schools with connections to professional scientific advisors and collaboration opportunities are often high-resourced schools near colleges or universities. Engaging students from across Minnesota's socioeconomic spectrum with authentic plant science experiences is a vital step in addressing these challenges. We can expand the science-based conservation ethic of students and communities across Minnesota with authentic research experiences, challenging student scientists to collect, analyze, share results, and confront opportunities for further research. However, as an applied research program, the UMN Landscape Arboretum's (UMLA) Plant Conservation Program is not closely connected with secondary education programs across Minnesota. But as a Minnesota center of plant conservation science, it is a potential resource for schools to engage the next generation of scientists.

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.

We are going to train students by:
-Engaging 15-20 classrooms (reaching 1900+ students) over 3 years, immersing students in semester or year-long research and curricula to protect, conserve and preserve Minnesota's native flora.
-Training teachers and using feedback for program and curriculum improvements each year.
-Bringing students together in an annual symposium to share their research with each other and the public, building confidence and collaboration.
-Supporting the program with native plant material for classroom research projects.

UMLA's Project Orchid, developed in partnership with the Smithsonian Environmental Research Center (SERC), leverages expertise and infrastructure of UMLA's Plant Conservation Program, where students grow native plants using orchids as complex model systems, collect data in classrooms, and seek answers to real-time research questions. It brings an immersive semester or year-long research program to students across the state, offering a depth of experience with Minnesota's natural heritage rarely available at middle and high school levels. Students will interact with staff and other classrooms to compare results and share future conservation research ideas. They will also interact with students in similar programs at Maryland's SERC and Florida's Fairchild Tropical Botanic Garden. Currently, UMLA's limited resources bring this program to only four classrooms.

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?

This project will produce 1900 Minnesota elementary students trained with botanical research being conducted in their state and region, highlighting local environmental connections while inspiring students and positively impacting the natural world. This shapes the next generation of scientists, educators, leaders and citizens with a deep, sustained interest in Minnesota's natural heritage. The project will expose Minnesota students to work and research protecting Minnesota resources at an age when they can start thinking about pursuing this study further. It will bring a scientifically-based conservation ethic to schools in metro, suburban and rural locations, across different economic and cultural backgrounds.

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

Activities and Milestones

Activity 1: Organize, recruit and teach 1900 diverse students across the state in cutting-edge Minnesota conservation research through Project Orchid.

Activity Budget: $261,000

Activity Description:
To facilitate research-based science learning, trained teachers, with assistance from UMLA research and education staff, will oversee the setup of classroom experiments, weekly data measurements taken by students, and results analysis. Students will engage in all aspects, from setup and planting to final analyses and data sharing. Project Orchid offers a growing library of resources related to conservation strategies, botany, ecology, and Minnesota habitats that will allow individual classrooms to customize and enhance their understanding of data collection, analyses, and processes for determining viability of results and future research pathways. Project Orchid classroom research will expose student scientists to authentic experiences in each of four strands identified in the 2019 MN State Academic Standards for Science. This comprehensive research experience covers the experiment itself, data analysis and sharing, and the students' communication of results to communities and other students. Expanding to 20 classrooms over 3 years, from 7th graders to high school classrooms based on teacher interests and needs, Project Orchid will reach 1,900+ MN students in rural and metro schools. Students will interact, in person and through technology, with UMLA research scientists and other schools around the state and country performing similar experiments, sharing and analyzing data together.

Activity Milestones:

Description	Approximate Completion Date
Implement Project Orchid participation in 8 classrooms, providing equipment and training to teachers.	June 30, 2027
Increase participation of classes to 15, providing equipment and training to teachers at new locations.	June 30, 2028
Increase participation of classes to 20, providing equipment and training to teachers at new locations.	June 30, 2029

Activity 2: Produce 20 trained teachers in conservation science through annual workshops in Project Orchid program and curriculum evaluation.

Activity Budget: $84,000

Activity Description:
Convene teachers at an annual workshop at UMLA to discuss further curricula refinement, classroom engagement improvements, and identify species and research questions to be further addressed. Teachers already engaged in the program will assist in leading discussions to onboard new teachers. The program will recruit teachers by directly connecting with different school district science coordinators. This will allow us to connect with classroom teachers quickly and across the state. Teachers have also reached out to UMLA when they have heard of the program. All teachers will work with UMLA staff to learn about orchid and rare plant biology, plant ecology and Minnesota landscapes so teachers can continue this curriculum. These workshops will also be organized to be an opportunity for them to connect with each other to exchange and review experiences. These workshops will also review each previous year to improve curriculum material, and provide feedback on research and plant material. Experienced teachers and UMLA staff will lead evaluations and develop continued improvements to the Project Orchid curriculum, expanding its application to additional grade levels and school resource levels. Curriculum material is provided to enhance the resources available to teachers and to supplement their ability to teach to important topics.

Activity Milestones:

Description	Approximate Completion Date
Initial workshop for teacher training of 10 participating teachers	July 31, 2026
Organize and host annual teacher workshop for 15 participating teachers.	July 31, 2027
Organize and host annual teacher workshop for 20 participating teachers.	July 31, 2028

Activity 3: Convene up to 600 diverse students each year at Project Orchid symposiums to share data and hone science communication skills.

Activity Budget: $100,000

Activity Description:
Convene students at an annual student symposium at the end of each school year to present their results in a scientific conference and interact with each other and plant science professionals. Parents will be encouraged to attend to see the results of their children's work. Similar to a professional scientific conference, students will have the opportunity to participate in poster sessions or through presentations. There may also be opportunities to send students to a national orchid research conference hosted by UMLA, Smithsonian Environmental Research Center or Fairchild Tropical Botanic Garden. These conferences will seek to build young scientists' confidence in their results and their abilities, and reinforce each other's interest in the sciences.

Activity Milestones:

Description	Approximate Completion Date
Organize up to 300 students and teachers in a professional-style conference for school year 2026-2027.	June 30, 2027
Organize gathering of 450 students and teachers in a professional-style conference for school year 2027-2028.	June 30, 2028
Organize gathering of 600 students and teachers in a professional-style conference for school year 2028-2029.	June 30, 2029

Activity 4: Produce ecologically appropriate native orchids for Project Orchid classroom studies.

Activity Budget: $93,000

Activity Description:
Grow target native orchid and rare plant species for classroom projects and expand curricula as well as the suite of species for additional regions of the state. Each year, plant material must be produced for classroom use. The UMLA team will work with the Smithsonian and other participating groups around the country to develop the species lists for classrooms, to collect the seed material needed to propagate the plants and grow the plants in a timely manner so they are ready for classroom use. Background research will be carried out to establish classroom research questions. Some travel will be required as the program grows, with efforts made to bring regionally appropriate plant materials to schools (i.e. for a Duluth school, seedlings will be brought to a classroom from seed collected within 20 miles of Duluth). This will allow each class to plant their plants in local protected natural areas, parks, or botanic gardens at the end of each semester.

Activity Milestones:

Description	Approximate Completion Date
Collect seed and begin propagation of plant material one year prior to classroom experiments.	October 31, 2026
Collect seed and begin propagation of plant material one year prior to classroom experiments.	October 31, 2027
Collect seed and begin propagation of plant material one year prior to classroom experiments.	October 31, 2028

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Million Orchids Project	Fairchild Tropical Botanic Garden	Exchange and share parallel expansion of curricula. Support and exchange of ideas relating to program development of logistics and management. Coordination of their program's students/classrooms in interactions with Project Orchid students/classrooms.	No
Orchids in the Classroom	Smithsonian Environmental Research Center	Exchange and share parallel expansion of curricula. Support and exchange of ideas relating to program development of logistics and management. Coordination of their program's students/classrooms in interactions with Project Orchid students/classrooms.	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.
The Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgement Guidelines. We continue to present information to visitors and members of the Arboretum through talks and print media, including information about the project on the conservation program's webpage. We have worked with the StarTribune and other local/regional news outlets for publicizing conservation program work in the past and would continue to do so with this project. An interesting aspect of this program is the potential national reach of the program. We will be partnering with schools and researchers in Alaska, Maryland, and Florida and so will be able to disseminate information about this program and ENRTF through some national sources, as well. Curricular material developed and refined throughout this program will be made available both through the Arboretum and through the Smithsonian's online teaching resources.

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?
UMLA is committed to the Project Orchid model and its expansion, as it uniquely combines vital research on rare and high priority plant species with conservation and education programming. UMLA will provide ongoing access to and information on native orchids and rare plants for teachers across the state.

Project Orchid's success will continue to leverage prospective, diversified funding. It will continue to be supported similar to other UMLA programs – through a combination of volunteer work, fundraising, earned income, and endowment support. Philanthropic external sources (grants, individual gifts, corporate support) will continue to be pursued to sustain and grow this program.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Preserving Minnesota's Only Ball Cactus Population	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08d	$103,000
Minnesota's Volunteer Rare Plant Conservation Corps	M.L. 2022, , Chp. 94, Art. , Sec. 2, Subd. 08a	$859,000
Long-Term Preservation of Minnesota's Ball Cactus Population	M.L. 2024, , Chp. 83, Art. , Sec. 2, Subd. 08a	$100,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Seedbank Coordinator		Manage plant propagation and production for all Project Orchid classrooms, work with students as needed			32.3%	0.3		$31,000
Field Botanist		Help refine curricula and work with individual classrooms and students, and collect necessary seeds for propagation material			32.3%	0.24		$24,000
Classroom Coordinator		Central point person for Project Orchid - Manage and coordinate implementation and expansion of Project Orchid with classrooms and UMLA staff, assist in prep of classroom plant material, including collection of necessary seeds			32.3%	2.73		$215,000
Curator of Endangered Plants		Principal Investigator and Project Coordinator - work with students, develop research question directions, manage plant material development and selection for classrooms, and collect necessary seeds			36.6%	0.15		$21,000
UMLA Greenhouse Technician		Assist with lab and greenhouse propagation of material for classroom experiments. Work with Classroom Coordinator to bring classroom material to schools.			32.3%	1.5		$97,000
							Sub Total	**$388,000**
Contracts and Services								
Venue rental for annual student science symposium	Service Contract	Venue rental for annual season review and training event (full-day event to provide updated training and program information for 250-500 people)				0		$4,000
							Sub Total	**$4,000**
Equipment, Tools, and Supplies								

	Tools and Supplies	Field, lab and greenhouse supplies to propagate classroom material - potting media, containers, lab glassware, propagation media, collection envelopes, laboratory material, etc.	Supplies needed at UMLA for orchid seed collection and propagation in support of classroom experiments.					$6,000
	Equipment	Classroom greenhouse setup - for 28 classrooms. Each greenhouse includes a grow shelf, lights, humidity control cover and fans, pots, potting media, labeling material, light timer, etc.	Light shelf/greenhouse setups used by classrooms to perform Project Orchid research. Each setup includes growing material as well as equipment to collect data. 28 classroom setups are going to be provided in anticipation of losing a few classrooms over the course of the granting period and recruiting replacement classrooms.					$5,000
							Sub Total	**$11,000**
Capital Equipment								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Other	Bus transportation - and average of $1000/roundtrip. For participation of up to 10 schools in 2027, 15 schools in 2028 and 20 schools in 2029	Travel for students for annual symposium at UMLA (or potential other location)					$45,000
	Miles/ Meals/ Lodging	UMLA staff travel to classrooms. Mileage estimated based on 2025 UM mileage reimbursement rate of $0.70/mi. Assuming 5 trips to each classroom on average and travel to sites all around the state can be averaged to 150 miles roundtrip.	Regular travel for UMLA staff to classrooms to engage with students and teachers in person.					$23,625
	Miles/ Meals/ Lodging	Mileage for one UMLA staff who will travel to collect native seed material for propagation for each classroom, with remaining seed placed in UMLA long-term seedbank. Mileage estimated based on 2025 UM mileage reimbursement rate of $0.70/mi. Average of 300 miles roundtrip, and an estimated	Travel is needed to collect seed for material for participating Project Orchid Classrooms.					$1,230

		half of schools each year will need seed we can not already provide.						
	Miles/ Meals/ Lodging	Lodging and per diem (2025 GSA rates) for one UMLA staff who will travel to collect native seed material for propagation for each classroom, with remaining seed placed in UMLA long-term seedbank.	Travel is needed to collect seed for material for participating Project Orchid Classrooms.					$1,270
	Miles/ Meals/ Lodging	Lodging and per diem (2025 GSA rates) for 1-2 UMLA staff who will travel to work with classrooms. Estimated that roughly 1/3 of classrooms each year will require overnight stay (3 in 2026-7, 5 in 2027-8 and 9 in 2028-9)	Regular travel for UMLA staff to classrooms to engage with students and teachers in person.					$20,875
							Sub Total	**$92,000**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
		Stipend for teachers. The stipend will average $355 for each teacher. The expectation is that over the three years one teacher will represent each participating classroom for a total of 45 teachers over the 3 years. The stipend will help cover travel costs for teachers to attend the workshops (based on University-accepted GSA rates) and for work hours beyond school hours.	Stipend is necessary to ensure participation in the Project Orchid is not a financial burden to teachers. It will help enable teachers to perform extra work outside of school hours as well as attend the annual workshop. Returning teachers can learn new skills, help review and enhance curricula, and share experiences with each other and with teachers new to Project Orchid.					$16,000
		Food and beverages for conference attendees. Over 1100 students are expected to attend a one day, full day scientific symposium for the program over the course of the granting period and food will be provided at the MN GSA per diem rates for breakfast and lunch.	Annual full day student symposium where students travel for a conference with other participating classrooms	X				$27,000
							Sub Total	**$43,000**

							Grand Total	**$538,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Other Expenses		Food and beverages for conference attendees. Over 1100 students are expected to attend a one day, full day scientific symposium for the program over the course of the granting period and food will be provided at the MN GSA per diem rates for breakfast and lunch.	Because this is a full-day event, from 8-5, we will need to provide two meals for the group. Given the anticipated size of the group with students, parents and teachers we would likely overwhelm most restaurants near potential venues, with likely limited venue options given the sizes of the gatherings.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
			State Sub Total	**-**
Non-State				
In-Kind	University of Minnesota Landscape Arboretum	Senior and general staff time for administration of project	Secured	$60,000
			Non State Sub Total	**$60,000**
			Funds Total	**$60,000**

Total Project Cost: $598,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: fd083c54-3cf.pdf

Alternate Text for Visual Component

Graphic depiction of four proposed activities, photographs of young orchids and Project Orchid students measuring and planting orchids in pots. Icon representations of classrooms learning about orchids and exchanging ideas and information between other Project Orchid classrooms, as well as teachers attending annual workshops and students attending annual symposium....

Supplemental Attachments

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

Title	File
SPA support letter	271fea97-3ca.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

Because the allocation is smaller than originally requested, the goals of activity 1 were reduced as a result of necessary reductions in staff commitment. The final classroom number goal remains the same, but the number for the first year was reduced slightly (resulting in an overall slight reduction in number total students reached through the granting timeframe). Salary commitment had to be reduced to match the recommended funding, with most staff reducing overall FTE except for one position (the lowest salary position) being increased to try to compensate for the loss in commitment from other positions. Conference attendance may be affected that first year, but if we can get 10 classes that first year we'll still try, and try to include them in the conference as well.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

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?

No

Does the organization have a fiscal agent for this project?

No

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")?

Yes

Do you certify that background checks are performed for background check crimes, as defined in Minnesota Statutes, section 299C.61, Subd. 2, on all employees, contractors, and volunteers who have or may have access to a child to whom children's services are provided by your organization?

Yes

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

Valerie Aas, UMLA

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

Yes, I understand