

**Environment and Natural Resources Trust Fund
2020 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 217-F

Developing a Rare Plant Salvage Program for Minnesota

Category: F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat

Sub-Category:

Total Project Budget: \$ 344,628

Proposed Project Time Period for the Funding Requested: June 30, 2023 (3 yrs)

Summary:

Develops critically needed and scalable protocols for salvaging rare plant species permitted to be destroyed. Accomplished through development of a mobilized network, species specific protocols, field testing, and monitoring.

Name: Carrie Taylor

Sponsoring Organization: Anoka Conservation District

Job Title: Restoration Ecologist

Department: _____

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Web Address: www.anokaswcd.org

Location:

Region: Central, Metro

County Name: Anoka, Benton, Chisago, Hennepin, Isanti, Morrison, Ramsey, Sherburne, Stearns, Wright

City / Township:

Alternate Text for Visual:

Develops critically needed and scalable protocols for salvaging rare plant species permitted to be destroyed. Accomplished through development of a mobilized network, species specific protocols, field testing, and monitoring.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity	_____ Readiness	_____ Leverage	_____ TOTAL _____%



PROJECT TITLE: Developing a Rare Plant Salvage Program for Minnesota

I. PROJECT STATEMENT

This project will conserve Minnesota's rare plant diversity by:

1. **Establishing a network** of technical experts and **developing species-specific conservation and salvage plans** for rare plant species within our focus area – the Anoka Sand Plain;
2. **Identifying and implementing salvage opportunities** by coordinating with private land developers, DNR staff, and partner organizations;
3. **Monitoring and evaluating transplants** to measure plant salvage efficacy; and
4. **Conducting outreach and sharing program materials** to allow for on-going implementation and to expand the program's impact in other parts of the state.

Rare plant salvage (also referred to as "rescue" or "translocation") is a conservation practice used when populations are under imminent threat of local extinction, most often the result of development. These situations present an important opportunity to explore salvage options and to collect critical information about these uncommon plants. While salvage of rare plant species occurs in many states (e.g., Massachusetts, Georgia, California, Nevada, and Washington), there is no established process for doing so in Minnesota. This project, developed in collaboration with the MN Department of Natural Resources (DNR), creates the foundation for a scalable salvage program by developing sample protocols to guide decision making and on-the-ground conservation measures, and field-testing those protocols with species-specific case studies. The results of this work will advance the science of rare plant conservation in Minnesota and provide important information to the DNR, where staff are currently developing guidance and permit language for rare plant propagation.

The focal area for this project is the Anoka Sand Plain (ASP), selected for of its floristic diversity (Figure 1) and location relative to the metro area where development pressure is highest. In the ASP, rare plants frequently occur within the footprint of proposed construction projects and can be permitted to be destroyed through the existing regulatory process – thus presenting an important opportunity for salvage. This location is also ideal because of its proximity to committed conservation partners and established volunteer networks.

Timely development of this program is essential, as state-wide growth and development is projected to increase and will continue to impact rare plants. It is critical to take advantage of this opportunity to establish a protocol for salvaging and conserving rare plants in order to protect Minnesota's biodiversity and landscape resilience.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Develop rare plant salvage network and protocols

Budget: \$97,684

The core group of collaborators will identify additional experts and key partners for the program. This group will identify rare plant salvage opportunities and develop detailed conservation and salvage plans for species on the MN Endangered, Threatened, and Special Concern list. Plans will include species biology, habitat availability, threats, and an overall conservation strategy. Resulting documents are intended to serve as guidance and templates for future efforts, including conservation and salvage of additional imperiled species in the ASP and throughout Minnesota. Field-based habitat assessments and spatial modeling will be used to identify ecologically-appropriate and permanently protected recipient sites for transplants. These recipient sites will be approved by the DNR.

Outcome	Completion Date
1. 10-20 recipient sites identified using habitat assessments and modeling	June 2022
2. Field inventories completed for 10-20 recipient sites	October 2022
3. 10 critically imperiled populations identified for salvage	April 2023
4. Conservation and salvage plans drafted for 10 priority species and approved by DNR	June 2023



Environment and Natural Resources Trust Fund (ENRTF)
2020 Main Proposal

Activity 2: Implement salvage and translocation of rare plants

Budget: \$143,920

We will salvage rare plants from identified, permitted development sites with a goal of recovering plants and/or seed from up to 100,000 individuals. Material will be transplanted to compatible, DNR approved recipient sites and the MLA. Off-site conservation (i.e., seed banking, propagation research, and growing plants for reintroduction) will take place at MLA. *Numbers of available plants are based on past years permits.*

Outcome	Completion Date
1. Rare plant salvage and off-site conservation achieved for 10 critically imperiled populations	June 2023

Activity 3: Develop and implement monitoring protocol for relocated rare plants

Budget: \$71,988

Working closely with DNR staff, scientifically-repeatable monitoring methods will be developed and implemented to track success of transplanted materials. Monitoring will be conducted at recipient sites and also at MLA. A new database will be created to track experimental translocated populations separate from the existing Natural Heritage Information System.

Outcome	Completion Date
1. New, program specific database developed	June 2022
2. Monitoring protocol developed and implemented for 10 transplanted populations	June 2023

Activity 4: Public engagement and information dissemination

Budget: \$31,036

To develop a knowledgeable and skilled volunteer force, we will host two hands-on training sessions to outline the program and demonstrate how to maintain and monitor transplants. Target audience includes MN Master Naturalists, MN Master Gardeners, MN Native Plant Society, local school environmental teachers, and environmental staff of local governments. Program methods and results will be made public and disseminated through speaking events and scientific publications.

Outcome	Completion Date
1. Two volunteer training events hosted, reaching 30-100 individuals	October 2022
2. Four presentations delivered at conferences and symposia	June 2023
3. Program materials, methods and results published	

III. PROJECT PARTNERS AND COLLABORATORS:

The Anoka Conservation District* will serve as the primary project coordinator and work in partnership with skilled botanists and ecologists from the MLA*, MN DNR, Critical Connections Ecological Services*, and ASP Partnership. We have received written support from Anoka County Parks, Sherburne County Parks, USFWS Sherburne National Wildlife Refuge, and the City of Blaine who will partner with us to identify salvage opportunities and provide access to protected sites for translocated rare plant populations.

* *Funded organizations*

IV. LONG-TERM IMPLEMENTATION AND FUNDING:

This project aims to address loss of rare plant populations and develop achievable conservation strategies to overcome real and urgent threats to MN's rare plants. The resulting program will include an easily mobilized network of stakeholders equipped with vetted protocols to initiate plant salvage and conservation efforts. This program will be deployable within the ASP beyond the project time period and potentially form the foundation for a future state-wide effort. Due to the critical nature of this work, project partners are committed to pursuing private and public funding opportunities.

V. SEE ADDITIONAL PROPOSAL COMPONENTS: A. Proposal Budget Spreadsheet, B. Visual Component or Map, C. Project Manager Qualifications and Organization Description, D. Letter of Resolution.

Attachment A: Project Budget Spreadsheet
Environment and Natural Resources Trust Fund
M.L. 2020 Budget Spreadsheet

Legal Citation:

Project Manager: Carrie Taylor

Project Title: Developing a Rare Plant Salvage Program for Minnesota

Organization: Anoka Conservation District

Project Budget: \$344,628

Project Length and Completion Date: 3 years - June 20, 2023

Today's Date: April 12, 2019



ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Budget	Amount Spent	Balance
BUDGET ITEM			
Personnel (Wages and Benefits)	\$ 204,169	\$ -	\$ 204,169
David Remucal, MLA Curator of Endangered Plants, \$12,266 (64%salary 36%benefits), 0.05 FTE each year for 3 years - salvage activities, seed banking, propagation, conservation plans			
Amanda Weise, MLA Plant Conservation Program Associate, \$54,633 (70.5%salary 29.5%benefits), 0.30 FTE each year for 3 years - salvage activities, seed banking, propagation, select and survey recipient sites, conservation plans, create program materials, outreach			
MLA Greenhouse/Plot Technician, \$18,065 (70.5%salary 29.5%benefits), 0.10 FTE each for 3 years - field work and manage plants in greenhouses			
Carrie Taylor, ACD Restoration Ecologist, \$61,862 (67%salary 33%benefits), 0.22 FTE each year for 3 years - coordinate project, select and survey recipient sites, salvage activities, create and implement monitoring protocol, manage rare plants at recipient sites, outreach to additional partners and volunteers			
Chris Lord, ACD District Manager, \$6,600 (67%salary 33%benefits), 0.02 FTE each year for 3 years - promote program, review protocols			
Aaron Diehl, ACD Conservation Specialist, \$32,657 (67%salary 33%benefits), 0.12 FTE each year for 3 years - select and survey recipient sites, salvage activities, monitoring, create new database to track rare plants			
Becky Wozney, ACD Wetland Specialist, \$5,008 (67%salary 33%benefits), 0.02 FTE each year for 3 years - salvage activities			
ACD Seasonal Technician, \$9,529 (100%salary 0%benefits), 0.09 FTE each year for 3 years - field work, salvage activities, rare plant transplant maintenance			
Kathy Berkness, ACD Office Administrator, \$3,550 (67%salary 33%benefits), 0.01 FTE each year for 3 years - project finances			
Professional/Technical/Service Contracts			
Critical Connections Ecological Services, Jason Husveth, expert in ASP rare plant ID and ecology. He will identify rare plant features for salvage, identify and inventory ecologically suitable recipient sites, and monitor rare plant transplanted populations at contractor rate of \$130/hour plus travel for 30 trips/year @ 50 roundtrip miles and 0.58/mile for 3 years. The experience and expertise brought to this project team by CCES is essential for project success and is the reason this single source is needed. The efficiency of work that will be provided by CCES ensures economic value for the project. Hourly rates provided are competitive in the area.	\$ 112,503	\$ -	\$ 112,503
Service Contractor TBD - Operator and Equipment for rare plant salvage activities	\$ 11,800	\$ -	\$ 11,800
Equipment/Tools/Supplies			
Greenhouse supplies including soil and lumber for raised bed plots, pots, caging material	\$ 4,300		\$ 4,300
Plant salvage, relocation, monitoring supplies including GPS, gloves, pots, soil, watering supplies, shovels, shade cloth, monitoring plot equipment	\$ 5,000	\$ -	\$ 5,000
Capital Expenditures Over \$5,000			
	\$ -	\$ -	\$ -
Fee Title Acquisition			
	\$ -	\$ -	\$ -
Easement Acquisition			
	\$ -	\$ -	\$ -
Professional Services for Acquisition			
	\$ -	\$ -	\$ -
Printing			
	\$ -	\$ -	\$ -
Travel expenses in Minnesota			
Mileage reimbursement for rare plant surveys, recipient site inventories, recipient site preparation, seed and/or live plant salvage/translocation, recipient site maintenance trips, outreach. MLA staff: 0.58 per mile x 27 100-mile round trips per yr for 3 years. ACD staff: 0.58 per mile x 31 40-mile round trips per yr for 3 years. Reimbursement based on University of Minnesota plan.	\$ 6,856	\$ -	\$ 6,856
Other			
	\$ -	\$ -	\$ -
COLUMN TOTAL	\$ 344,628	\$ -	\$ 344,628

SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT	Status (secured or pending)	Budget	Spent	Balance
Non-State: Anoka Conservation District	Secured	\$ 4,000	\$ -	\$ 4,000
State:		\$ -	\$ -	\$ -
In kind: David Remucal, MLA Curator of Endangered Plants, 115 hours @ \$42.30/hour, Additional time anticipated for salvage activities, seed bank, propagation, outreach. Jason Husveth, Critical Connections, 85 hours @ \$130/hour, Additional time anticipated for salvage activities and recipient sites. Hannah Texler, DNR Project Advisor, 135 hours @ \$100 per hour, Advising on protocol and conservation plans, reviewing recipient sites. Volunteer hours, 900 @ \$24.69/hour. Use of Equipment and Supplies, \$2,000.	Secured	\$ 57,585	\$ -	\$ 57,585
Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS	Amount legally obligated but not yet spent	Budget	Spent	Balance
		\$ -	\$ -	\$ -

Developing a Rare Plant Salvage Program for Minnesota

- Launching a new conservation and salvage program for rare plants throughout the Anoka Sand Plain Ecoregion of east-central Minnesota (1.1 million acres)
- Conducting outreach and sharing program materials to expand the program's impact



Identify 10-20 recipient sites using habitat assessments and modeling



Salvage up to 100,000 individual rare plants and/or seed and relocate to suitable recipient sites



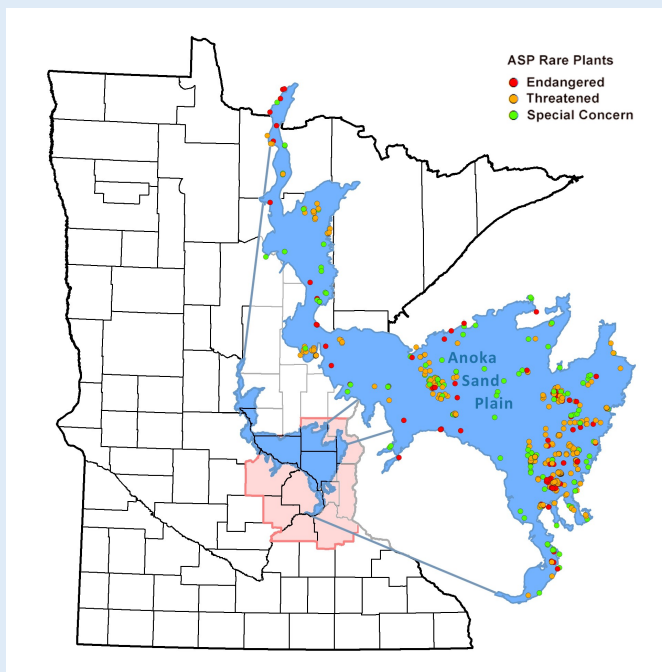
Seed bank, propagate, and grow at the Minnesota Landscape Arboretum



Develop and implement monitoring program to evaluate relocation efforts

59 species of rare plants in the ASP

While the Anoka Sand Plain comprises only 2.2% of the lands in Minnesota, this region supports 20% of all Threatened and Endangered plant species in the state.



Minnesota Landscape
ARBORETUM



mn
DEPARTMENT OF
NATURAL RESOURCES

The Anoka Sand Plain Partnership

Developing a Rare Plant Salvage Program for Minnesota

Qualifications and Organization Descriptions

Anoka Conservation District (ACD) is a non-regulatory county level subdivision of state government. ACD's mission is to conserve and enhance the natural resources of Anoka County and is an active member of the Anoka Sand Plain Partnership whose goals include resource conservation in the Anoka Sand Plain Ecological Region.

Carrie Taylor, Restoration Ecologist, will serve as project coordinator, facilitate development of monitoring protocols, and lead management of transplanted rare plant species at recipient sites. She has 13 years of natural resources experience, including botanical surveys, ecological restoration, propagating native plants, and project management. Carrie has a MS in Land Rehabilitation and a BS in Geological Sciences.

Aaron Diehl, Conservation Specialist, will serve as a project assistant for identifying, relocating, and monitoring rare plant populations. Aaron has 15 years of natural resources experience, including rare species surveys, and native landscape restorations. He has an MS in Environmental Science, an MBA, and a BS in Environmental Biology.

Critical Connections Ecological Services, Inc. (CCES) is a Minnesota based natural resource and ecological consulting firm dedicated to project work associated with rare plant species within the Anoka Sand Plain (ASP). CCES has surveyed tens of 1,000's of acres within the ASP and understands the complex habitats associated with rare plant species of the ASP as well as challenges and issues affecting their viability. The experience, expertise, and efficiency of work provided by CCES is essential for project success.

Jason Husveth, President & Principal Ecologist, will serve as lead plant ecologist and botanist, and be responsible for identifying rare plant features for salvage as well as for identifying and inventorying recipient sites. Jason is a MN DNR approved rare plant surveyor and has more than 20 years of specialized experience working with rare plant features and habitats of the ASP. He holds a MS in Landscape Architecture and a BS in Environmental Planning and Design.

University of Minnesota Landscape Arboretum is a center for horticulture and plant research, the Arboretum is a proud partner with the Center for Plant Conservation (CPC) to create a long-term genetically diverse seed bank of rare plant species as well as developing an understanding of how best to propagate and out-plant each species.

David Remucal, Curator of Endangered Plants, will serve as the project lead for transplanting and seed banking rare plant populations. He has 20 years of botanical experience, including 5 years running the MLA's Plant Conservation Program. The Plant Conservation Program has partnered with both MN and WI DNRs on rare plant salvage projects since 2015. He holds a PhD in Ecology and a BA in Biology.

Amanda Weise, Plant Conservation Associate, will lead the development of prioritization protocols, draft conservation and salvage plans for target species, and oversee salvage implementation. Amanda Weise has over 11 years of experience in rare plant conservation, and has designed and implemented rare plant salvage efforts throughout Massachusetts. She also serves as an advisor and botanist with the New England Plant Conservation Program – a network of professional botanist dedicated to rare plant conservation. Amanda holds a MS in Environmental Conservation and a BA in Biology.

MN Department of Natural Resources Minnesota Biological Survey systematically collects, interprets, and delivers baseline data on the distribution and ecology of native animals, plants, and plant communities to guide management, conservation, and monitoring of critical habitat and ecological functions.

Hannah Texler, MN Biological Survey Plant Survey Supervisor, will serve as an advisor to the project and is part of the MN DNR Propagation of Endangered and Threatened Plants permit team. Hannah Texler has extensive experience in native plant community and plant species field survey and mapping, land management, and conservation planning.

Anoka Sand Plain Partnership is a coalition of 25 conservation stakeholders, led by Great River Greening, with a mission to bring together their collective expertise, resources and connections to advance terrestrial and freshwater resource conservation in the Anoka Sand Plain Ecological Region.