Environment and Natural Resources Trust Fund
2019 Request for Proposals (RFP)

Project Title: **ENRTF ID: 206-F**

Minnesota Rare Plant Salvage Anoka Sand Plain Pilot

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

Sub-Category:

Total Project Budget: $ 357,788

Proposed Project Time Period for the Funding Requested: June 30, 2022 (3 yrs)

Summary:

In Minnesota, permitted take of endangered/threatened plants allows for destruction, but does not provide for salvage. This project will create a pilot program to salvage and relocate these plants.

Name: Carrie Taylor

Sponsoring Organization: Anoka Conservation District

Title: Restoration Ecologist

Department:

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Location

Region: Central, Metro

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

City / Township:

Alternate Text for Visual:

This pilot project will develop and field implement protocols for salvaging threatened and endangered plant species from permitted development sites where such rare plants would otherwise be destroyed.

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____%
____ If under $200,000, waive presentation?			

PROJECT TITLE: Minnesota Rare Plant Salvage – Anoka Sand Plain Pilot

I. PROJECT STATEMENT

This pilot project will develop and field implement a network and protocols for salvaging threatened or endangered (T&E) plant species from permitted development sites in the Anoka Sand Plain where such rare plants would otherwise be destroyed. Currently in Minnesota, when a Taking Permit is issued by the DNR for development of land supporting T&E plants, compensatory mitigation is provided to the DNR and the plants permitted for taking are destroyed during development of the land. There is currently no system in place to salvage or rescue these plants before they are destroyed. This proposal addresses this gap by forming a network and developing protocols to salvage T&E plants/seeds, translocating them when possible, and preserving plant material with *ex situ* conservation methods when necessary. This program would not reduce the applicants' required compensatory mitigation as directed by the MN DNR. This program seizes the opportunity to salvage T&E plants, propagules, and seeds to advance the science of rare species conservation in the Anoka Sand Plain, Minnesota, and beyond.

To lay the foundation for establishing and implementing this program, the group will:

1. Establish a team of technical experts including T&E plant ecologists and botanists, environmental regulators, and land managers to develop salvage and transplantation protocols;
2. Set criteria and identify at least 10 ecologically appropriate and permanently protected recipient sites;
3. Develop species specific salvage, transport, storage, and transplantation protocols;
4. Identify and create a responsive local network of entities responsible for the salvage of T&E plants from development sites in real time, prior to their destruction;
5. Oversee transplantation of salvaged T&E material from 4-10 populations of varied T&E species, likely comprising from 100 to 10,000 or more plants, into recipient sites (including Minnesota Landscape arboretum (MLA) as needed) and make contributions of T&E seeds to the MLA long-term seed bank as additional insurance for these populations;
6. Develop and implement monitoring protocols to determine the success of transplantation of T&E plant species at both recipient sites and at MLA.

Timely development of this program is essential as state-wide growth and development is projected to increase and will continue to impact T&E species. Requests for T&E permits are on the rise, and it is critical to take advantage of the opportunity to salvage seed and plant materials for transplantation purposes and seed banking while advancing our knowledge of Minnesota's T&E *ex situ* conservation tactics as part of all T&E salvage efforts. The Anoka Sand Plain (ASP) will be the geographic focus of this pilot project. The ASP includes several metro counties, is under intense development pressure, and supports nearly 20% of Minnesota's T&E species within only 2.2% of Minnesota's land area. This pilot project will lay the foundation for creating mobilization networks, developing recipient site criteria, identifying recipient sites, refining *ex situ* protocols, long-term monitoring of experimental transplanted populations, and defining benchmarks for success.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: **Develop rare plant salvage network and protocols** **Budget: $110,982**

An initial framework will be developed so that T&E plant materials can be effectively salvaged from development sites permitted for taking. A network of partners committed to T&E plant conservation will be established and protocols will be developed to take advantage of real time opportunities to salvage and transplant T&E plant populations and seeds permitted for taking. Permanently protected recipient sites will be identified based on scientific criteria and will be surveyed to document each site's potential to support salvaged T&E plant species. Appropriate locations at MLA will also be selected for the transplantation of salvaged plant material.

Outcome	Completion Date
Establish preliminary network of collaborators for pilot project.	April 2020

Develop criteria to select ecologically-appropriate and permanently-protected recipient sites capable of supporting multiple T&E plant species.	April 2020
Complete field inventories and assessments of 10 selected recipient sites.	April 2020
Determine locations at MLA to establish, manage, and monitor transplanted salvage plants.	April 2020
Establish species-specific salvage, transport, storage, and translocation protocols.	April 2020

Activity 2: Implement salvage and translocation of T&E plant materials **Budget: $140,814**

T&E plants and seeds (with a goal of salvaging 100-10000 plants) will be salvaged from permitted development sites and transplanted to ecologically compatible recipient sites as well as MLA. Seed banking, propagation, and cultivation will occur at MLA. Numbers of available plants are based on past years takings.

Outcome	Completion Date
Site preparation of recipient sites to optimize suitability for transplant populations.	Oct 2021
Salvage material from 4-10 populations of T&E plants and translocate or preserve as appropriate. Additional populations may be salvaged depending on availability of permitted takes.	Nov 2021
Seed banking, propagation, and cultivation of salvage material from 4-10 populations of T&E plants at MLA.	June 2022
Post-transplantation site management (watering, invasives control, predation control, etc.)	June 2022

Activity 3: Develop and implement monitoring program for relocated T&E plant species **Budget: $105,992**

A scientifically-repeatable monitoring method will be developed for tracking success of transplanted plant materials. Monitoring will be conducted at recipient sites and also at MLA. The project team will coordinate closely with the MN DNR endangered species coordinator to track transplanted experimental plant populations in a newly created database separate from the existing Natural Heritage Information System.

Outcome	Completion Date
Produce monitoring protocol for tracking transplanted T&E species at recipient sites and MLA.	April 2020
Document and share results of *ex situ* T&E plant conservation: including the monitoring results on the transplanting, propagation, and cultivation of at least 4 T&E plant populations.	June 2022
Host at least two volunteer visits to assist with salvage, transplantation and/or monitoring. Target volunteers include: MN Master Naturalists, MN Master Gardeners, MN Native Plant Society, local school environmental teachers, and environmental staff of local governments.	June 2022
Create a database to track newly transplanted experimental T&E species populations.	June 2022

III. PROJECT STRATEGY

A. Project Team/Partners

Partners receiving funding: Minnesota Landscape Arboretum; Anoka Conservation District; Critical Connections Ecological Services

Partners not receiving funding from LCCMR funds: ASP Partnership partners, local government units.

B. Project Impact and Long-Term Strategy

This project aims to address the threats to MN's T&E species and loss of plant biodiversity. This phase will build a mobilizing network of local stakeholders and establish protocols to initiate a T&E species salvage program. Protocol development and salvage operations by network experts will lay the foundation for future participation of network partners of a wider variety of experience. This project will develop and implement a T&E salvage program that will be scaled up for a greater number of species and populations to function throughout Minnesota in future phases.

C. Timeline Requirements

This proposal intends to complete work within the three-year time-frame as outlined above.

2019 Proposal Budget Spreadsheet

Project Title: Minnesota Rare Plant Salvage - Anoka Sand Plain Pilot

IV. TOTAL ENRTF REQUEST BUDGET 3 years

BUDGET ITEM (See "Guidance on Allowable Expenses")	**AMOUNT**
Personnel (MLA)	$ 95,002
David Remucal, Ph.D., Curator of Endangered Plants: 0.05 FTE @ $29.30 per hour FY2020 (anticipated) and fringe of 31.8%) ($12,744)	
Plant Conservation Program Associate: 0.2 FTE @ $21.00 per hour FY2020 (anticipated) and fringe of 26.2%) ($33,923)	
Greenhouse/Plot Technician: 0.3 FTE @ $20.00 per hour FY2020 (anticipated) and fringe of 26.2%) - Technician to do field work and manage plants in greenhouses and research plots ($48,335)	
Personnel (ACD) - average anticipated salary for specific LCCMR project July 2019-June 2022, Fringe (FICA, PERA, Disability Insurance, Health Insurance, Workers Comp, Paid Leave)	$ 133,438
Chris Lord, District Director: 0.01 FTE @ $47 per hour and fringe of 33.3% ($6,732)	
Carrie Taylor, Restoration Ecologist: 0.18 FTE @ $33 per hour and fringe of 33.3% ($54,945)	
Aaron Diehl, Conservation Specialist: 0.14 FTE @ 37 per hour and fringe of 33.3% ($48,840)	
Becky Wozney, Wetland Specialist : 0.02 FTE @ $39 per hour and fringe of 33.3% ($7,020)	
Seasonal Technician: 0.06 FTE @ $22 per hour and fringe of 33.3% ($11,550)	
Kathy Berkness, Public Communications: 0.02 FTE @ $32 per hour and fringe of 33.3% ($4,351)	
Professional/Technical/Service Contracts: Contract, Critical Connections Ecological Services, Jason Husveth is expert in ASP rare plant ID and ecology (identifying rare plant features for salvage; identifying and inventorying ecologically suitable recipient sites@ contractor rate of $1040/day plus travel for 10 trips/year @ 80 roundtrip miles and 0.535/mile for FY19-21)	$ 108,144
Equipment/Tools/Supplies:	$ -
Greenhouse supplies: Including soil and lumber for garden bed maintenance, pots, plot structure supplies, fertilizers, caging material	$ 6,000
Plant relocation monitoring supplies: including monitoring plot equipment, GPS equipment, gloves, pots, soil, watering supplies, shovels, equipment rental.	$ 4,000
Travel:	$ -
Mileage reimbursement for rare plant surveys, recipient site inventories, recipient site prepartaion, seed and/or live plant salvage/translocation, recipient site maintenance trips - .535 per mile x 10 110 mile round trips per yr x 3 years. Reimbursed based on University of	$ 7,704
Additional Budget Items: Printing for educational brochure: 5 panel, folded, 2-sided, 4-color, 3K quantity	$ 3,500
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 357,788

V. OTHER FUNDS *(This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)*

SOURCE OF FUNDS	**AMOUNT**	**Status**
Other Non-State $ To Be Applied To Project During Project Period:	NA	
Other State $ To Be Applied To Project During Project Period: Additional time anticipated to be required of David Remucal, Ph.D., Project Partner: 0.05 FTE @ $29.30 per hour and fringe of 31.8%. Additionally, all U of MN overhead charges will be applied as matching funds.	$ 4,522	*Pending*
In-kind Services To Be Applied To Project During Project Period:	NA	
Past and Current ENRTF Appropriation:	NA	
Other Funding History:	NA	

Minnesota Rare Plant Salvage—Anoka Sand Plain Pilot

Minnesota Landscape ARBORETUM

Critical Connections Ecological Services, Inc.

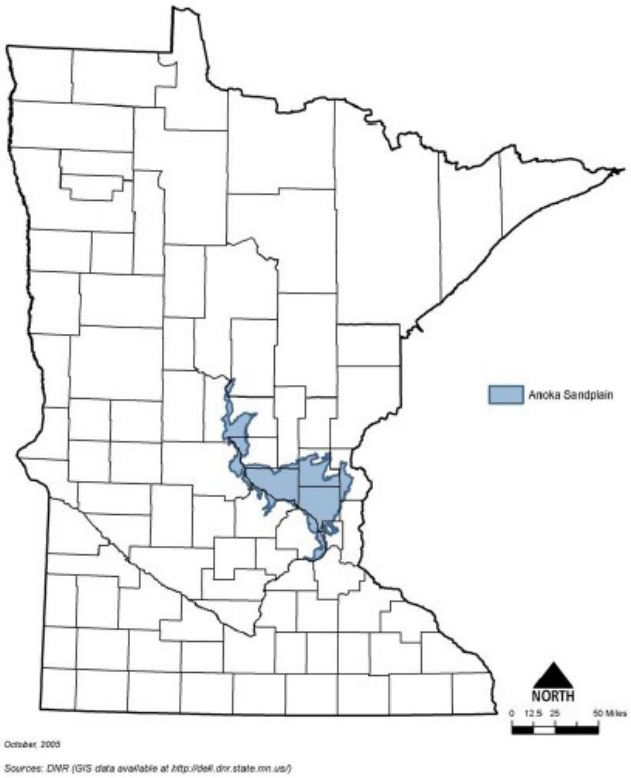
Anoka Conservation District

The Anoka Sand Plain Partnership

Permitted rare plant impacts

Arboretum rare plant propagation

Rare plant relocation to protected recipient site



While the Anoka Sand Plain makes up only 2.2% of the lands in Minnesota, the ASP supports 20% of the Threatened and Endangered plants in the state.


Viola lanceolata ◦CCES


Xyris torta ◦CCES

Project Managers Qualifications

David Remucal, Curator of Endangered Plants – Minnesota Landscape Arboretum

David Remucal 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 endangered plant program. He holds a PhD in Ecology and a BA in Biology.

Jason Husveth, President, Principal Ecologist – Critical Connections Ecological Services, Inc.

Jason Husveth will serve as the lead project plant ecologist and botanist. He will be primarily responsible for identifying rare plant features for salvage as well as for identifying and inventorying ecologically suitable recipient sites. Jason has more than 20 years of specialized experience working with rare plant features and habitats of the Anoka Sand Plain. He is a MN DNR approved rare plant surveyor and frequently works on rare species permitting projects. He has a MS in Landscape Architecture and a BS in Environmental Planning and Design.

Carrie Taylor, Restoration Ecologist – Anoka Conservation District

Carrie Taylor will facilitate the technical team to create salvage and monitoring protocols, inventoried recipient sites, and salvage network. She will lead site preparation and maintenance at recipient sites. She has 12 years of natural resources experience, including botanical surveys, ecological restoration, wetland delineations, and propagating native plants. Carrie has a MS in Land Rehabilitation and a BS in Geological Sciences.

Aaron Diehl, Conservation Specialist – Anoka Conservation District

Aaron Diehl 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.

Chris Lord, District Manager – Anoka Conservation District

Chris Lord will provide project and grant management expertise. He has managed natural resources in Anoka County for nearly 27 years, during which time he has successfully completed several grant funded projects in excess of $450,000 on-time and within budget. Chris holds a BS in Natural Resources and Environmental Sciences.

Organizational Descriptions

Anoka Conservation District

The Anoka Conservation District (ACD) is a non-regulatory county level subdivision of state government. ACD has a staff of ten natural resource management professionals and provides technical and financial assistance to landowners to conserve and improve soil, water, and ecological resources.

University of Minnesota Landscape Arboretum

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.

Critical Connections Ecological Services, Inc.

CCES is a natural resource and ecological consulting firm based in Stillwater, Minnesota. Since incorporating in 1999, CCES has been dedicated to project work associated with endangered and threatened plant species within the Anoka Sand Plain (ASP) including survey, research, permit development, conservation, mitigation, and public education. CCES has surveyed tens of 1,000's of acres within the Anoka Sand Plain for both public and private entities and intimately understands the complex habitats associated with rare plant species of the ASP as well as the challenges and issues affecting their viability. 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 typical of CCES' project work and is competitive in the area.

Anoka Sand Plain Partnership

The 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.