

**Environment and Natural Resources Trust Fund
2016 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 128-D

Elimination of Target Invasive Plant Species - Phase 2

Category: D. Aquatic and Terrestrial Invasive Species

Total Project Budget: \$ 752,100

Proposed Project Time Period for the Funding Requested: 3 years, July 2016 to June 2019

Summary:

To prevent environmental and economic damage, we will: 1) Train people to find target invasives; 2) Survey for infestations; and 3) Control these species before they spread.

Name: Monika Chandler

Sponsoring Organization: Minnesota Department of Agriculture

Address: 625 Rober Street North
St. Paul MN 55155

Telephone Number: (651) 201-6537

Email Monika.Chandler@state.mn.us

Web Address <http://www.mda.state.mn.us/en/plants/pestmanagement/weedcontrol/targetplants.aspx>

Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

Map shows a concentration of Oriental bittersweet in the Twin Cities and southeastern Minnesota, Grecian foxglove mainly in Washington County, cutleaf teasel in southeastern and northcentral, Japanese hops in southeastern and meadow knapweed in northcentral Minnesota.

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



PROJECT TITLE: Elimination of Target Invasive Plant Species - Phase 2

I. PROJECT STATEMENT

Eliminating highly damaging target invasive plant species before they become widespread prevents ecological and economic damage. Currently, these species have limited distributions in Minnesota. It is feasible to control them before they proliferate by continuing the strategic effort initiated in Phase 1. To date, we trained 521 people to identify target invasives, surveyed over 10,000 acres, initiated control on 450 acres and are developing an invasive species management database system with broad applicability for terrestrial and aquatic invasives. We propose to continue these activities in Phase 2. In addition, we will expand our training capacity by developing online training, test whether a drone will increase survey efficiency and add to the target species list.

Target Invasive Plant List: Species include but are not limited to the following. They are listed in order of feasibility to eradicate based upon their abundance and distribution. All target species are prohibited noxious and invasive weeds on the eradicate list (Minnesota Statutes, Section 18.78) providing a legal backing.

1. **Black swallow-wort** is a milkweed vine that overgrows other vegetation. Small infestations have been reported in Hennepin and Ramsey Counties and are being controlled. (New in Phase 2)
2. **Dalmatian toadflax** forms dense stands in grasslands and reduces biodiversity, wildlife habitat, and livestock production. Infestations in the Halma and Lutsen areas are reduced but not eliminated yet.
3. **Cutleaf and common teasels** overtakes grasslands and riparian areas reducing species diversity and wildlife habitat. There are scattered infestations in southeastern Minnesota. (Common teasel is new in Phase 2)
4. **Grecian foxglove** is highly toxic to humans, wildlife, and livestock. It also displaces native plants. As of spring 2015, most infestations are in Washington County.
5. **Japanese hops** are annual vines that grow so rapidly that they smother other plants. There is an extensive infestation along the Root River and a small infestation on the Mississippi.
6. **Brown and meadow knapweeds** are spreading across meadows in northern Minnesota. (New in Phase 2)
7. **Oriental bittersweet** is a woody vine that is destroying swaths of forest in Red Wing and Winona by girdling and breaking the trees then covering and shading the remains so that little else grows.

Our long-term goal is to eradicate these problematic species from Minnesota to protect forest and grassland habitats. All of the invasive plants listed harm natural areas and degrade wildlife habitat.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Train People to Identify and Report Target Invasive Species

Budget: \$ 204,180

University of Minnesota (U of M) will train professionals, volunteers and impacted landowners to prevent, identify, report and monitor target species spread.

Outcome	Completion Date
1. 9 Statewide training sessions/workshops/field trainings conducted and evaluated	06/10/2019
2. Develop online training and outreach materials that are publicly available	06/30/2019
3. Create high quality display materials and 5 invasive plant learning kits for check out by educators (schools, nature centers, master gardeners, etc.) and agency staff for outreach	06/30/2019

Activity 2: Survey, Coordinate Control and Monitor

Budget: \$ 380,100

Minnesota Department of Agriculture (MDA) will verify reports, survey potentially infested areas and delineate infestations. Conservation Corps Minnesota (CCM) will participate in large area surveys. The St. Croix River Association will be contracted for survey along the St. Croix River main stream and Brown’s Creek, a designated trout stream. The St. Croix watershed is a high priority conservation area where Oriental bittersweet and



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Grecian foxglove have been found. Additional survey is needed to find all populations. The U of M Unmanned Aerial Vehicle Lab will test its drone fleet with the goal of increasing survey efficiency. Invasive plant data will be entered into a national database. MDA will coordinate target species control with landowners and CCM.

Outcome	Completion Date
1. Drones will be tested for survey capability. Testing will determine the appropriate sensor, calculate the impact of variable light conditions and chart the optimal flying pattern.	03/01/2018
2. Surveys are conducted and infestations are documented	05/30/2019
3. Treated sites are monitored to determine whether additional control is needed	06/30/2019

Activity 3: Control Target Species

Budget: \$ 158,200

MDA will contract with CCM for trained and equipped field crews to control target invasive species on an estimated 660 acres (75 ac. Dalmatian toadflax, 5 ac teasels, 130 ac Grecian foxglove, 50 ac Japanese hops, 150 ac meadow and brown knapweeds, and 250 ac Oriental bittersweet).

Outcome	Completion Date
1. Acres treated are documented	06/30/2019

Activity 4: Implement Invasive Species Management Database System from Phase 1

Budget: \$ 9,620

In the field, CCM will use tablets with a database system developed in Phase 1 to collect data on target invasive control treatments and monitor infestation changes. This platform will enable us to communicate across organizations and efficiently summarize activities and outcomes. Extension will train agencies and other organizations to utilize this system.

Outcome	Completion Date
1. 6 training workshops will be conducted for vegetation managers	05/30/2019
2. Tablets and software will be utilized for data collection in the field	06/10/2019
3. Summary reports of activities and outcomes will be run	06/30/2019

III. PROJECT STRATEGY

A. Project Team/Partners

Receiving funds: Angela Gupta (U of M) will lead the educational components. Brian Taylor (U of M) will lead the survey drone test. Monika Chandler (MDA) will lead survey, coordination of target species control with CCM and follow up monitoring. Brian Miller (CCM) will lead target species control activities. All organizations will provide in-kind equipment, facilities, and GIS/technical support.

Not receiving funds: We will draw from Extension’s existing statewide base of volunteers which totals over 102,000 active, trained volunteers. We will collaborate with DNR and Mn/DOT, other federal and state agencies, counties, municipalities, and private landowners.

B. Project Impact and Long-Term Strategy

Preventing highly destructive invasive plant species from spreading throughout the state has an enormous impact. All of the selected species would become widespread without intervention. They would overtake habitats and be prohibitively costly to control on a large scale. Controlling these target species across property lines protects the investment by agencies such as Mn/DOT on their lands. Eradication is defined as target species absence for six years after the last seed was produced. Therefore, eradication must be achieved in a long-term effort and ongoing monitoring is critical. ENRTF funds will be leveraged for (1) Extension funding for online training development cost not included in this proposal and (2) federal funding for volunteer training.

C. Timeline Requirements

The project will run for three years from 07/01/2016 to 06/30/2019.

2016 Detailed Project Budget

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IV. TOTAL ENRTF REQUEST BUDGET 3 years

BUDGET ITEM	AMOUNT
MDA Personnel	
One 3 year FTE Research Scientist 1 estimated salary \$50,000/yr plus fringe benefits @ 47% for Activity 2 survey and project coordination	\$ 224,900
One 3 year FTE Student Worker Para Professional Sr. estimated salary \$13.70/hr plus fringe benefits @ 7.65% for Activity 2	\$ 69,400
MDA Contract	
Conservation Corps Minnesota for survey for and initial control of target species (\$21/hr per crew member includes equipment, training and travel costs)	\$ 175,000
Contract with St. Croix River Association for survey along the St. Croix River main stream and Brown's Creek (personnel \$19,000, equipment & supplies \$2,500 and mileage \$1,000)	\$ 22,500
MDA Equipment/Tools/Supplies	
Supplies: Includes tags, flags, herbarium supplies, etc. for Activity 2	\$ 1,500
MDA Travel	
Mileage for for Activity 2 and project coordination	\$ 11,200
Meals and lodging: Approx. 180 days of meals and 22 overnight lodging for Activity 2 survey and project coordination staff and project manager.	\$ 8,800
MDA Total	\$ 513,300
U of M Personnel	
One 3 year FTE Program Coordinator estimated salary \$42,640/yr plus fringe benefits @ 27.4% for Activity 1 online training development, community engagement and volunteer coordinator	\$ 163,000
One single year 25% graduate student salary and fringe for Activity 2 survey drone test	\$ 22,500
U of M Contract	
Develop video for online training for Activity 1	\$ 10,000
Quality display materials and 5 invasive plant learning kits for check out by educators (schools, nature centers, master gardeners, etc.) and agency staff for outreach	\$ 15,000
U of M Equipment/Tools/Supplies	
Materials for trainings and volunteer surveys (identification guides and survey equipment such as safety vests)	\$ 10,200
Tablets (20 @ \$400 each) for field data collection for Activity 4 for with 10 tablets for Extension training sessions and Extension will provide 10 tablets to Conservation Corps. Please make an exception for tablet purchase to enable field use of a sophisticated database system.	\$ 8,000
Supplies for Activity 2 survey drone test (will use existing U of M drone fleet and sensors)	\$ 1,000
U of M Travel	
Approx. 30 days of meals (\$750), 9 overnight lodging (\$900) and milage (\$500/yr = \$1,500) for Activity 1 program coordinator	\$ 3,150
Meals (\$70/workshop) and milage (\$200/workshop) for U of M instructors for 15 workshops = \$3,240 for at least 2 instructors/workshop for Activity 1 & 4 workshops	\$ 4,050
Lodging and meals and mileage for grad student and faculty for Activity 2 survey drone test	\$ 1,500
Additional Budget Item	
Bus rental for in-depth field training of 40 Master Naturalist instructors	\$ 400
U of M Total	\$ 238,800
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 752,100

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ Being Applied to Project During Project Period: St. Croix River Association will have 1:1 match funds (\$22,500) from WI DNR to survey on the WI side of the St. Croix. Extension will work to procure an additional \$40,000 to support work related to this project from non-state funding sources (likely Federal, \$35,000 and private, \$5000).	\$ 62,500	SCRA Secured/Extension Pending
In-kind Services During Project Period: MDA: Field equipment, computing/software, GIS and data management, and project management for 3 years (\$30,000); U of M: One Extension Educator at 10% time for 3 years (\$18,700); and CCM: Approximately \$2.50/hr difference between actual cost per member (\$23.50/hr) and billing rate (\$21.00/hr) = \$20,830.	\$ 69,530	Secured
Funding History: LCCMR Elimination of Target Invasive Plant Species (Phase 1) project \$350,000 from ENRTF and \$80,000 in-kind. U of M Extension received a total of \$228,200 in federal and state grant funding for the award winning MN Forest Pest First Detector volunteer program development and past activities 2008 to 2015.	\$ 69,530	Spent by 06/30/2016
Remaining \$ From Current ENRTF Appropriation: M.L. 2013, Chp. 52, Sec. 2, Subd. 06d for \$350,000	\$133,792	Encumbered
	\$184,500	Expended
	\$ 31,709	Unobligated will be spent by 06/30/2016

Elimination of Target Invasive Plant Species – Phase 2



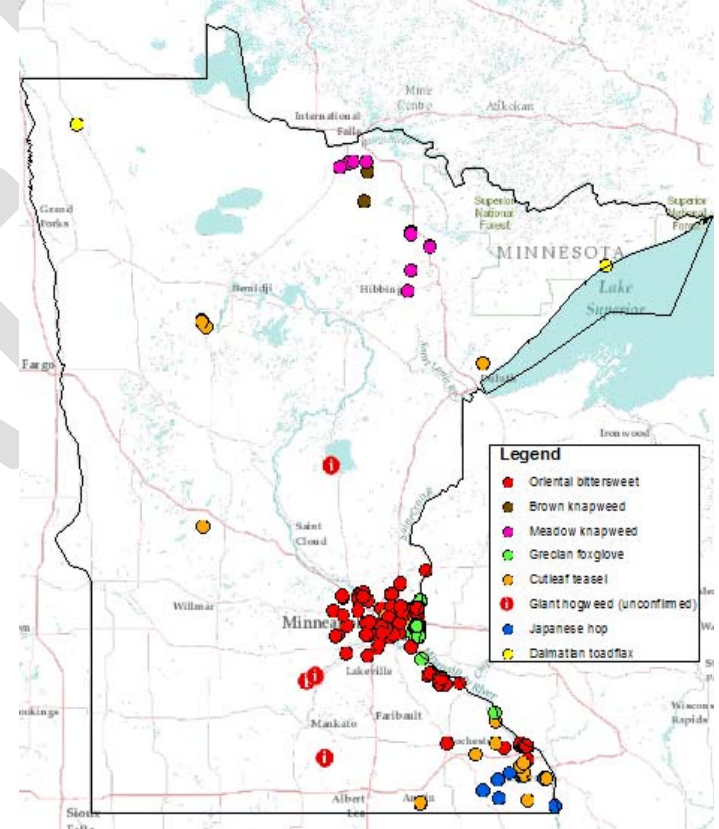
Conservation Corps controlling Oriental bittersweet in Red Wing



Oriental bittersweet vines overwhelming and killing trees in Red Wing

To prevent environmental and economic damage, we will detect, contain and control target species before they become widespread.

Target Invasive Plant Report Locations



Unmanned Aerial Vehicle Lab students will test a drone for survey



Training people to identify and report target species.

Partners



Project title: Search and destroy target invasive plant species

Qualifications

Project Manager: Monika Chandler, M.S., Biological Control and Terrestrial Invasive Plant Early Detection Programs Coordinator, Minnesota Department of Agriculture

Monika has worked with invasive plants for 15 years. She is currently the project manager for the LCCMR projects titled *Elimination of Target Invasive Plant Species – Phase 1* and *Biosurveillance and Biocontrol of Emerald Ash Borer – Phase 2*.

Her responsibilities as a terrestrial invasive plant early detection program coordinator are to:

- Facilitate identification/species determination
- Aid infestation delineation, quantification, and mapping
- Compile suggested practices from literature, weed scientists and land managers for management recommendations
- Coordinate management efforts with public and private partners
- Communicate about species of concern with land managers in Minnesota and neighboring states.
- Write risk assessments for and present species of concern to the Noxious Weed Advisory Committee for evaluation. This committee makes formal recommendations to the Commissioner of Agriculture about listing and categorizing species as regulated noxious weeds.

Organization Description

The Minnesota Department of Agriculture's Plant Protection Division will lead the target species survey, infestation delineation and mapping, and coordinate the control effort with Conservation Corps Minnesota. The Minnesota Department of Agriculture is authorized to eradicate and prevent the spread of harmful or dangerous plants pests in Minnesota by MN Statute 18G.03 subd. 1(e) (2008).