

**Environment and Natural Resources Trust Fund
2017 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 122-D

Tactical Invasive Plant Management Plan Development

Category: D. Aquatic and Terrestrial Invasive Species

Total Project Budget: \$ 296,832

Proposed Project Time Period for the Funding Requested: 3 years, July 2017 - June 2020

Summary:

Develop regional priorities and an action plan for invasive plant management to protect and promote habitat and native species.

Name: Monika Chandler

Sponsoring Organization: Minnesota Department of Agriculture

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

Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

Heat map of common buckthorn reports shows areas where reports are concentrated in southeastern and west central Minnesota.

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



PROJECT TITLE: Tactical Invasive Plant Management Plan Development

I. PROJECT STATEMENT

Integrated planning for invasive plant management will facilitate protection of habitat and native species. Most invasive plant management decisions are made at the local level without the benefit of regional prioritization of targeted species and coordinated management across municipalities and counties. Existing plans produced by the National Invasive Species Council, Minnesota Invasive Species Advisory Council and Minnesota Department of Agriculture (MDA) outline prevention, early detection and rapid response, control and management, and restoration in general terms. None of these plans provides regional, species specific recommendations for invasive plant management that would inform state, county and municipal decision making.

We will analyze the current and predicted distributions of invasive plants and their economic impacts to inform priorities and management strategies. This has not been done before in Minnesota. A statewide invasive plant management plan with regional recommendations will be written. The plan will be available in interactive webpages and summarized in outreach materials. To educate about invasion fronts and priority species, regional workshops with field tours will be scheduled for Cooperative Weed Management Area (CWMA) partners and other land managers. Species selected for distribution and economics analyses are regulated, widespread and threaten managed landscapes and natural areas.

- | | | | |
|----------------|-------------------|------------------------|------------------|
| buckthorn | Japanese knotweed | narrowleaf bittercress | spotted knapweed |
| Canada thistle | leafy spurge | plumeless thistle | tansy |
| garlic mustard | multiflora rose | purple loosestrife | wild parsnip |

Improved access for counties, townships and municipalities to shared invasive plant data and data management tools will result from this project. This will improve coordination of state and local management efforts.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Facilitate state and local invasive plant data sharing and management **Budget: \$ 38,100**

State agencies share invasive plant data in EDDMapS, an online database. Counties and municipalities would also benefit from data sharing but are not familiar with the reporting and data management tools available. Some have data on paper forms, in spreadsheets and in geodatabases. We will prepare and upload these data into EDDMapS. Work will be done by a Plant Health Specialist at MDA.

Outcome	Completion Date
1. Discuss data tools, availability and formats with all counties and large municipalities	06/30/2018
2. Accept data in multiple formats then prepare and bulk upload into EDDMapS	06/30/2018

Activity 2: Define invasion fronts, predict spread and conduct economic analysis **Budget: \$ 130,372**

Use data in EDDMapS to define invasion fronts, predict spread based upon suitable habitat and conduct an economic analysis of abundant invasive plant species. Work will be done by a graduate student, research associate, and forestry and economics faculty at the University of Minnesota (U of M).

Outcome	Completion Date
1. Analyze current and projected species distribution and density. Define invasion fronts.	07/01/2019
2. Develop species specific economic model input parameters.	07/01/2019
3. Run economic models and analyze results with a breakdown by county.	06/30/2020

Activity 3: Write a statewide invasive plant management plan **Budget: \$ 68,000**

Integrate risk assessment, distribution and economic information with best management practices into a management plan with regional recommendations for each regulated species. Work will be done by a Plant Health Specialist at MDA.



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Outcome	Completion Date
1. Draft plan and send through review by project partners.	04/01/2020
2. Finalize plan and post on the MDA website.	06/30/2020

Activity 4: Develop user-friendly educational materials and communicate the plan **Budget: \$ 10,360**

Develop webpages and a printed materials to communicate species management objectives, practices and coordination. Translate the plan to the field and foster cooperation with 6 regional workshops with field tours to see invasion fronts and high priority infestations. Work will be done by U of M Extension.

Outcome	Completion Date
1. Define and develop outreach materials	05/30/2020
3. Hold 6 regional workshops with field tours	06/30/2020

Activity 5: Create an app for evaluating invasive plant management outcomes **Budget: \$ 50,000**

Build upon ISMTrack, an invasive species management tracking system developed in a previous LCCMR project, to summarize changes in infestation size and density over time. Create an app that works consistently offline on a mobile device. Work will be contracted through U of M Extension.

Outcome	Completion Date
1. Develop and test queries to evaluate the relative efficacy of treatments	05/30/2020
2. Create an ISMTrack app available for free in Apple and Android formats	06/30/2020

III. PROJECT STRATEGY

A. Project Team/Partners: This interdisciplinary project requires a large team.

Receiving funds: Matthew Russell (U of M Extension) will lead the invasive plant distribution analysis and predictive modelling. Jason Beddow (U of M) will lead the economic analysis. Angela Gupta (U of M Extension) will lead the outreach and ISMTrack capacity building. Monika Chandler (MDA) will lead invasive plant data sharing and plan writing. She will also provide overall project coordination. All organizations will provide in-kind equipment, facilities, and GIS/technical support.

Not receiving funds: Trent McCorkle (MN Assoc. of County Ag. Inspectors), Laura Van Riper (DNR Invasive Species), Kenneth Graeve and David Hanson (MnDOT Vegetation Mgmt), Daniel Shaw and Natasha DeVoe (BWSR CWMA Program), James Calkins (MN Nursery Landscape Assoc.), Roger Becker (U of M Weed Scientist), and Robert Venette (MN Invasive Terrestrial Plants and Pests Center Director) will provide technical expertise and review the invasive plant management plan.

B. Project Impact and Long-Term Strategy

State and local partners jointly developed this proposal and will create an invasive plant management plan that is workable. CWMAs are an excellent vehicle for implementation. If there is a need, we would submit a future proposal to develop cohesive regional strategies and timelines with the CWMA program. After the plan is implemented, we anticipate more efficient and coordinated control of priority species. This will result in better protection of habitat and native species from invasive plants. We also anticipate that research and mapping needs will be identified. The plan framework will be valid for at least 10 years. The plan will be a dynamic document online with embedded live maps of invasion fronts to show changes based upon new invasive plant reports over coming years. Project partners will review the plan every five years. Ideally, the invasive plant distribution predictions and economic analysis would be updated every decade if funding permitted.

C. Timeline Requirements

The project will run for three years from 07/01/2017 to 06/30/2020.

2017 Detailed Project Budget

Project Title: Tactical Invasive Plant Management Plan Development

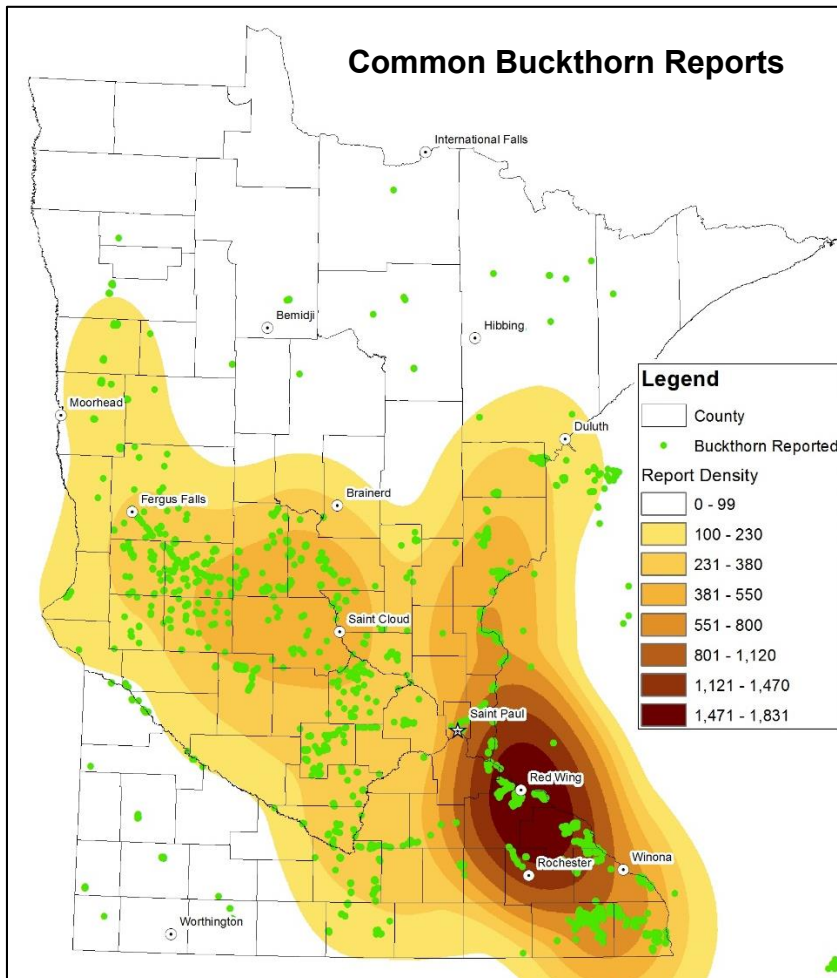
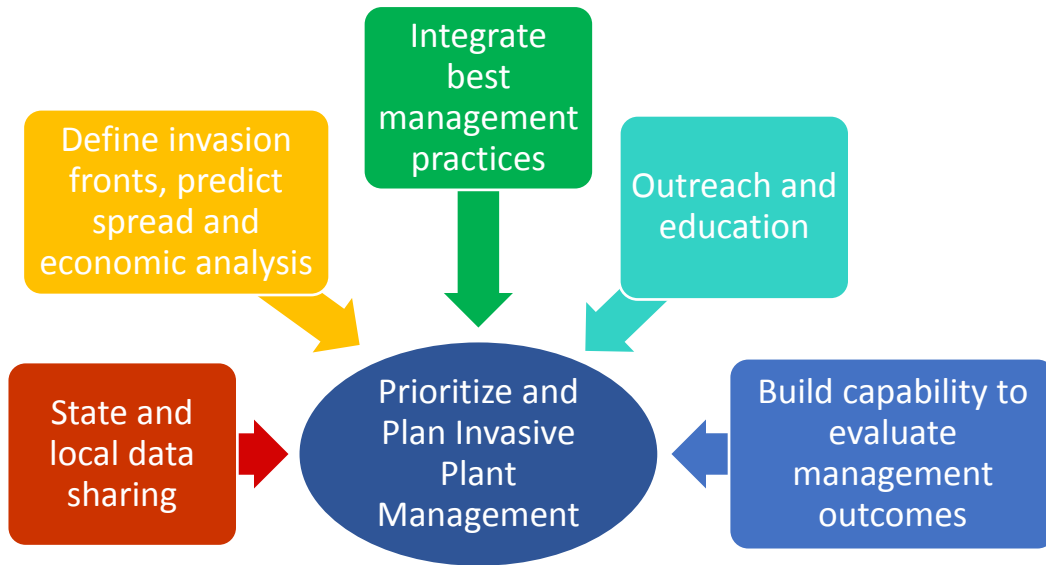
IV. TOTAL ENRTF REQUEST BUDGET 3 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
MDA Personnel	
One 3 year 50% time Plant Health Specialist 2 estimated salary \$34,000/yr plus fringe benefits @ 50% for Activities 1 and 3 invasive plant data sharing and plan writing	\$ 102,000
MDA Travel	
Mileage for Activity 1 meetings with counties about invasive plant records	\$ 2,400
Meals and lodging: 30 days of meals and 10 overnight lodging for Activity 1 meeting with counties about invasive plant records	\$ 1,700
MDA Total	\$ 106,100
U of M Personnel	
One 2 year graduate student salary \$17,940/yr and fringe @ 17.6% plus tuition benefits @ \$14,266/yr for Activity 2 economic analysis	\$ 70,700
One 10% time Rearch Associate salary \$6,900 and 33% fringe for 1 year for Activity 2 invasive plant distribution modeling	\$ 7,022
Two faculty one month summer salary \$9,000 plus fringe 17% @ for 2 years for Activity 2 economic analysis and 3 years for invasive plant distribution modeling and	\$ 52,650
U of M Contract	
Activity 5: Build capacity of ISMTrack (Invasive Species Management Tracking System) to evaluate management activity outcomes (\$10,000/year for 3 years) and to create an app that can work offline (\$20,000)	\$ 50,000
Graphic design for outreach materials	\$ 3,000
U of M Equipment/Tools/Supplies	
Outreach materials printing	\$ 3,000
U of M Travel	
Meals (\$35/workshop and field tour) and mileage (\$200/workshop and field tour) for U of M instructors for 6 workshops = \$1,410 and 4 overnight lodging (\$550) for Activity 4	\$ 1,960
Additional Budget Item	
Six regional field tours of invasion fronts and priority species for land managers. Anticipated attendance is 50 per regional tour = 300 total. Bus rental estimated	\$ 2,400
U of M Total	\$ 190,732
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST	\$ 296,832

V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ To Be Applied To Project During Project Period:	\$ -	N/A
Other State \$ To Be Applied To Project During Project Period:	\$ -	N/A
In-kind Services To Be Applied To Project During Project Period: MDA: Computing/software, GIS and data management, and project management for 3 years (\$15,000); U of M: One Extension Educator and 2 faculty for 2 weeks/yr for 3 years (\$36,200)	\$ 51,200	Secured
Funding History: Elimination of Target Invasive Plant Species Phase 1 project \$350,000 from ENRTF and \$80,000 in-kind. This project was early detection and rapid response to emerging invasive plants. The focus on widespread species in proposed project is different.	\$ 430,000	Spent by 06/30/2016
Remaining \$ From Current ENRTF Appropriation: Elimination of Target Invasive Plant Species Phase 2 project is recommended for funding \$750,000 from ENRTF and \$69,530 in-kind and \$62,500 other non-state \$. The focus on widespread species in proposed project is different.	\$ 882,030	Recommended

Tactical Invasive Plant Management Plan Development



This heat map of common buckthorn reports shows it is abundant in some areas of the state, but is an early detection target in northern and southwestern Minnesota.

We aim to predict the spread of buckthorn and other species based upon habitat suitability and do an economic analysis to inform decision making about priorities.



Buckthorn fruit with seed

Project title: Tactical Invasive Plant Management Development

Qualifications

Project Manager: Monika Chandler, M.S., Biological Control and Invasive Plant Management Coordinator, Minnesota Department of Agriculture

Monika has worked with invasive plants for 16 years. She is currently the project manager for the LCCMR projects titled *Elimination of Target Invasive Plant Species – Phase 2* and *Biosurveillance and Biocontrol of Emerald Ash Borer – Phase 2*.

Her responsibilities with invasive plant management 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.
- Work with local partners to implement biological control of invasive plants where appropriate.
- 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 invasive plant record coordination and plan writing. 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).