



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2016 Work Plan

Date of Report: December 4, 2015 (revised 2-11-2016) (revised 2-19-2016)

Date of Next Status Update Report: January 31, 2017

Date of Work Plan Approval:

Project Completion Date: June 30, 2024

Does this submission include an amendment request?

PROJECT TITLE: Minnesota Invasive Terrestrial Plants and Pests Center, Phase III

Project Manager: Robert Venette

Organization: Regents of the University of Minnesota

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Location: Statewide

Total ENRTF Project Budget:

ENRTF Appropriation: \$3,750,000

Amount Spent: \$0

Balance: \$3,750,000

Legal Citation: M.L. 2016, Chp. xx, Sec. xx, Subd. xx

Appropriation Language:

I. PROJECT TITLE: Minnesota Invasive Terrestrial Plants and Pests Center, Phase III

II. PROJECT STATEMENT:

Funding is requested to accelerate priority research that will protect Minnesota’s prairies, wetlands, forests, and agricultural resources from terrestrial invasive plants and pests, including non-native weeds, pathogens, and insects. The Minnesota Invasive Terrestrial Plants and Pests Center (MITPPC) leads research that will provide new tools and techniques to:

- predict and prevent the arrival of new terrestrial invasive threats (e.g., pathway analyses for giant hogweed, soybean rust, and Asian longhorned beetle)
- detect and rapidly respond to new pest arrivals in the state (e.g., early detection tools for Dalmatian toadflax and brown marmorated stinkbug)
- mitigate impacts from well-established threats (e.g., improved integrated pest management for soybean aphid, buckthorn, and oak wilt);
- minimize impacts from measures to control invasive threats (e.g., protection of water quality and wildlife habitat);

The MITPPC was established at the University of Minnesota under ML 2014, Chapter 312, Article 13, Section 44. The MITPPC is administratively located in the College of Food, Agricultural, and Natural Resources Sciences. Research and outreach activities of the Center are conducted in close collaboration with state, federal, local and tribal governments, nongovernmental agencies, the private sector, Extension, and other colleges and universities. The MITPPC leverages existing expertise and infrastructure at the University, including Research and Outreach Centers located across the state, and the Departments of Entomology, Plant Pathology, Agronomy & Plant Genetics, Horticultural Science, Applied Economics, Fisheries Wildlife & Conservation Biology, Bioproducts & Biosystems Engineering, Plant Biology, and Ecology Evolution & Behavior.

The MITPPC relies on a strategic prioritization process to set its research direction. Financial resources are directed towards research that (i) addresses the invasive terrestrial plants and pests which pose the greatest threat to Minnesota and (ii) has the greatest potential to substantially improve management. A more expansive prioritization is nearing completion and will guide the construction of future Requests for Funding.

III. OVERALL PROJECT STATUS UPDATES:

- Status as of *January 31, 2017:***
- Status as of *July 31, 2017:***
- Status as of *January 31, 2018:***
- Status as of *July 31, 2018:***
- Status as of *January 31, 2019:***
- Status as of *July 31, 2019:***
- Status as of *January 31, 2020:***
- Status as of *July 31, 2020:***
- Status as of *January 31, 2021:***
- Status as of *July 31, 2021:***
- Status as of *January 31, 2022:***
- Status as of *July 31, 2022:***
- Status as of *January 31, 2023:***
- Status as of *July 31, 2023:***
- Status as of *January 31, 2024:***

Overall Project Outcomes and Results:

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Accelerate research on high priority terrestrial invasive species

Description:

By using funds from the 2014 General Fund appropriation, the MITPPC conducted a rapid prioritization in the spring of 2015 to identify immediate research needs among state agencies with primary responsibility for the management of terrestrial invasive plants and pests on public and private lands. The resulting Request for Proposals resulted in four projects that were funded under an ML 2014 ENRTF appropriation.

A more expansive research prioritization was initiated in May 2015 to systematically evaluate threats posed by a wider array of terrestrial invasive plants, pathogens, and insects/arthropods. The more expansive prioritization will be used to allocate the remaining research funds from the M.L. 2014 and M.L. 2015 ENRTF appropriations.

Upon the completion of the expansive research prioritization, MITPPC will prepare a request for proposals and work-plans to conduct research to address identified priority invasive species. Proposals will be sent for peer review to ad hoc scientific reviewers in the field of research, which will allow for rapid turnaround of proposals to expedite work to be completed. The ad hoc scientific reviewers will make recommendations to MITPPC's Director on the suitability of the project for funding. Final award decisions will be made with the consent of the Associate Dean for Research and/or the Dean (both College of Food, Agricultural and Natural Resources Sciences, University of Minnesota). A small portion of funds (not to exceed 30% of this allocation) will be held to conduct research on emerging issues that might not have been addressed during the prioritization or to conduct cross-cutting research that addresses more than one priority species.

These selected proposals are to be considered sub-projects with respect to this work plan. Detailed sub-project work plans and budgets will be submitted to LCCMR for review and approval. The details about each sub-project work plan will be included as attachments to this document. Regular activity updates and budget updates will be provided by sub-project leaders and MITPPC to LCCMR. This overarching work plan and budget will be updated accordingly to include general progress of the Center and a synopsis of activities completed by each sub-project. The budget updates for this overall work plan will provide summaries of expenditures (by budget line item) for each sub-project. Detailed sub-project reports and associated budget updates will be prepared by investigators in cooperation with the MITPPC Director and Associate Director. MITPPC will provide LCCMR with updates to this overall work plan and each sub-project as a single packet.

The Center will initiate and/or accelerate coordinated, applied research according to the prioritized list of pest and plant species that threaten Minnesota's prairies, urban and rural forests, wetlands, and agricultural resources as identified through this assessment process. Depending on the net impacts associated with each species, research may include new control methods including bio-control and technology, development of integrated pest management tools that minimize non-target impacts of control, early detection of and/or rapid response to new threats, and establishment prevention. The Center infrastructure is vital to improving Minnesota's capacity and response time to preventing and limiting introduction of new terrestrial invasive species. All research projects will include an analysis of any consequences related to the management of prioritized species to the State's non-target flora, fauna or our soils, water and climate.

Workforce development and training experts in invasive species management is also critical. A core component of each project will be funding of graduate students and postdoctoral associates to work with existing faculty.

Existing faculty with less than 12-month appointments may include in the budget up to 25% of their time in their role as the project leader. Providing salary through these awards will secure faculty time and intellectual effort

in the projects, assuring that we are attracting the resources to provide project design, effort, and mentoring of the graduate students and post-docs in their research development. We do not anticipate hiring any new faculty for the projects.

The Center will support multiple projects by research teams, each comprised of a UMN faculty member from one of the participating departments, one graduate student and one postdoctoral associate. Estimated funding per project will be \$180,000-210,000 per year, for three to four years. We expect this to result approximately five projects in two separate phases, depending upon the priority identified by the annual risk assessment planning. It is expected that per project expenses for established invasive species will be higher as compared to prevention strategies.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 3,750,000
Amount Spent: \$ 0
Balance: \$3,750,000

Outcome	Completion Date
1. Request for proposals released	August 31, 2016
2. Initial research projects selected and launched (est. 5 projects, ranging from 3-4 years each)	May 31, 2017
3. Research findings for projects completed	May 31, 2024

Status as of January 31, 2017:

Status as of July 31, 2017:

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Status as of July 31, 2022:

Status as of January 31, 2023:

Status as of July 31, 2023:

Status as of January 31, 2024:

Final Report Summary:

V. DISSEMINATION:

Description:

Findings will be shared with agencies and citizen groups so that public information and decision making is based on the best available science. Updates on progress and research results will be disseminated through University of Minnesota, College of Food, Agricultural, and Natural Resource Sciences, and College of Biological Sciences via websites, social media, and publications. Media releases will also be used when warranted. Additionally, findings will be presented at local and national conferences and via peer-reviewed publication and student theses.

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 Status as of July 31, 2021:
 Status as of January 31, 2022:
 Status as of July 31, 2022:
 Status as of January 31, 2023:
 Status as of July 31, 2023:
 Status as of January 31, 2024:

Final Report Summary:

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget Overview:

Budget Category	\$ Amount	Overview Explanation
Personnel:	\$	
Professional/Technical/Service Contracts:	\$	
Equipment/Tools/Supplies:	\$	
Capital Expenditures over \$5,000:	\$	
Fee Title Acquisition:	\$	
Easement Acquisition:	\$	
Professional Services for Acquisition:	\$	
Printing:	\$	
Travel Expenses in MN:	\$	
Other:	\$3,750,000	Funds will be distributed across line items when projects are chosen to move forward.
TOTAL ENRTF BUDGET:	\$3,750,000	

Explanation of Use of Classified Staff:

Explanation of Capital Expenditures Greater Than \$5,000: 0

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: unknown

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state			
	\$	\$	
State			
UMN indirect cost recovery @52%	\$1,950,000	\$	
TOTAL OTHER FUNDS:	\$1,950,000	\$	

VII. PROJECT STRATEGY:

A. Project Partners:

Project Partners (not receiving funds):

- USDA Forest Service Northern Research Station
- Minnesota Department of Agriculture
- Minnesota Department of Natural Resources
- Minnesota Forest Resource Council
- Agencies and organizations involved in invasive species outreach programs so public information is based on the best available science.
- Networks of citizen scientists could be an important part of implementing early detection programs and monitoring the effectiveness of control efforts.

This will be updated in more detail once the priorities for research are established.

B. Project Impact and Long-term Strategy:

The Center’s ultimate goal is to eliminate, reduce, mitigate or prevent the introduction, expansion or damage done by terrestrial invasive species in Minnesota. Metrics of success include: threat awareness, response efficiency, control effectiveness, non-target species protection, and mitigation strategies. Ancillary goals include: workforce development, citizen engagement, focused research strategies, improved response time to emerging threats, and improved coordination of efforts.

Success will depend on the ability to marshal multi-disciplinary teams in timely and prioritized ways to deliver results. Funding provided will be used to support additional multi-disciplinary research teams. With adequate funding, the Center’s efforts are expected to result in numerous, effective prevention and control methods within an eight year time frame for a significant portion of the species upon which we will focus.

C. Funding History:

Funding Source and Use of Funds	Funding Timeframe	\$ Amount
ML 2014 Chapter 312, Article 12, Section 8 (general fund)	6/30/2022	\$3,400,000
M.L. 2014, Ch. 312, Art. 12, Section 8 (ENRTF)	6/30/2022	\$1,460,000
M.L. 2015, Ch. 76, Sec. 2, Subd. 6a (ENRTF)	6/30/2023	\$5,000,000

IX. VISUAL COMPONENT or MAP(S): See attached

X. RESEARCH ADDENDUM: Peer review will be conducted by internal UMN process and documentation to be provided to LCCMR.

XI. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted no later than January 31 and July 31 each year (every six months). A final report and associated products will be submitted between June 30 and August 15, 2023.

**Environment and Natural Resources Trust Fund
M.L. 2016 Project Budget**



Project Title: Minnesota Invasive Terrestrial Plants and Pests Center, Ph. 3

Legal Citation: *Fill in your project's legal citation from the appropriation language - this will occur after the 2016 legislative session*

Project Manager: Robert Venette

Organization: Regents of the University of Minnesota

M.L. 2016 ENRTF Appropriation: \$3,750,000

Project Length and Completion Date: June 30, 2024

Date of Report: December 4, 2015 (revised February 19, 2016)

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	Activity 1 Budget	Amount Spent	Activity 1 Balance	TOTAL BUDGET	TOTAL BALANCE
BUDGET ITEM	<i>Accelerate research on high priority terrestrial invasive species</i>				
Personnel (Wages and Benefits)					
Professional/Technical/Service Contracts					
Equipment/Tools/Supplies					
Capital Expenditures Over \$5,000					
Fee Title Acquisition					
Easement Acquisition					
Professional Services for Acquisition					
Printing					
Travel expenses in Minnesota					
Other -- Reserve	\$3,750,000		\$3,750,000	\$3,750,000	\$3,750,000
COLUMN TOTAL	\$3,750,000	\$0	\$3,750,000	\$3,750,000	\$3,750,000

