



Environment and Natural Resources Trust Fund (ENRTF) M.L. 2018 ENRTF Work Plan (Main Document)

Today's Date: February 21, 2018

Date of Next Status Update Report: January 31, 2019

Date of Work Plan Approval: 06/05/2018

Project Completion Date: June 30, 2023

Does this submission include an amendment request? No

PROJECT TITLE: Minnesota Invasive Terrestrial Plants and Pests Center: Phase 4

Project Manager: Robert Venette

Organization: Regents of the University of Minnesota

College/Department/Division: College of Food, Agriculture, and Natural Resource Sciences

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Location: Statewide

Total Project Budget: \$3,500,000

Amount Spent: \$0

Balance: \$3,500,000

Legal Citation: M.L. 2018, Chp. 214, Art. 4, Sec. 02, Subd. 06a

Appropriation Language: \$3,500,000 the second year is from the trust fund to the Board of Regents of the University of Minnesota for high-priority research at the Invasive Terrestrial Plants and Pests Center to protect Minnesota's natural and agricultural resources from terrestrial invasive plants, pathogens, and pests as identified through the center's strategic prioritization process. This appropriation is available until June 30, 2023, by which time the project must be completed and final products delivered.

I. 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., mountain pine beetle)
- detect and rapidly respond to new pests (e.g., brown marmorated stinkbug and Palmer amaranth)
- mitigate impacts from well-established threats (e.g., soybean aphid, buckthorn, and oak wilt);
- minimize impacts from measures to control invasive threats;

This proposal funds the work of an additional 4 graduate students and 7 post-docs and their faculty advisors. A new generation of scientists with this expertise is needed in Minnesota to address future invasive threats.

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 and is guided by a 15-member Center Advisory Board. 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 relies on a strategic prioritization process to set its research direction. Financial resources are directed towards research that addresses the invasive terrestrial plants and pests which pose the greatest threat to Minnesota and has the greatest potential to substantially improve management. A white paper, "Minnesota's Top 124 Terrestrial Invasive Plants and Pests: Priorities for Research," describes the invasive species that pose the greatest threats to Minnesota's forests, prairies, wetlands, and agricultural resources and provides guidance for rationing limited research funds. The prioritization is revisited at least bi-annually to scan for new threats to the state. For example, when the invasive plant, Palmer amaranth was detected in Minnesota, prioritization methodology allowed the Center to reassess the threat of this species with relevant new information, and the species moved from #20 in 2016 to #15 in 2017 of the top invasive plants in Minnesota.

The MITPPC has had great success in soliciting proposals from University of Minnesota faculty in each of its Requests for Proposals. To date, the MITPPC has funded 16 research projects, totaling almost \$6 million from ML 2014 and 2015 ENRTF appropriations. The Center and associated research projects have leveraged an additional \$4.86 million in state and non-state funds.

Each successful proposal has had extensive vetting by internal and external reviewers by leaders in invasion biology. Proposals are carefully considered and evaluated on a number of criteria, including urgency, extent of impact, contribution to the field, and innovation. The value-added benefits of the center approach extends to administrative and technical support, facilitating research team development, and convening stakeholders on a terrestrial invasive species topics, particularly on issues that affect both the agricultural and natural resource sectors. Partnerships with land managers remains an important part of the success of the research program and MITPPC staff and principal investigators communicate on a regularly with state and federal agencies, nonprofits, and commodity groups.

II. OVERALL PROJECT STATUS UPDATES:

First Update January 31, 2019

Second Update June 30, 2019

Third Update January 31, 2020

Fourth Update, June 30, 2020

Fifth Update, January 31, 2021

Sixth Update, June 30, 2021

Seventh Update, January 31, 2022

Eighth Update, June 30, 2022

Ninth Update, January 30, 2023

III. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Accelerate research on high priority, terrestrial invasive species

Description:

MITPPC will accelerate research on invasive species that pose the greatest threat to Minnesota. The overall goal of this research is to prevent or minimize the damage caused by terrestrial invasive species across the state. Research projects will focus on the development of strategies for prediction and prevention of threats that are not yet in the state and on tools and techniques for early detection and rapid response for new terrestrial threats to Minnesota’s resources. Some management options for well -established species range from containment, to slowing the spread, to Integrated Pest Management (IPM). IPM, the reliance on multiple, compatible strategies to keep plants or pests below damaging levels, may also include new biological control efforts. New tools, technology, and strategies are needed to support these efforts. Training experts in invasive species remains a common, vital goal, so funding for graduate students to work with existing faculty remains a core component of these projects.

Outcome	Completion Date
1. New tools and technologies developed to detect and characterize the distribution of invasive species.	June 30, 2023
2. New, effective prevention and management alternatives developed and tested.	June 30, 2023
3. Predictive tools created to account for invasive species issues under future conditions.	June 30, 2023
4. Socio-economic analyses completed to better gauge impacts from, and responses to, terrestrial invasive species.	June 30, 2023

ENRTF BUDGET: \$3,500,000

- First Update January 31, 2019**
- Second Update June 30, 2019**
- Third Update January 31, 2020**
- Fourth Update, June 30, 2020**
- Fifth Update, January 31, 2021**
- Sixth Update, June 30, 2021**
- Seventh Update, January 31, 2022**
- Eighth Update, June 30, 2022**
- Ninth Update, January 30, 2023**
- Final Update June 30, 2023**

IV. 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.

- First Update January 31, 2019**
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 Seventh Update, January 31, 2022
 Eighth Update, June 30, 2022
 Ninth Update, January 30, 2023
 Final Update June 30, 2023

V. PROJECT BUDGET SUMMARY:

A. Preliminary ENRTF Budget Overview:

See attached spreadsheet.

Explanation of Capital Expenditures Greater Than \$5,000: N/A

Explanation of Use of Classified Staff: N/A

Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 7FTE

Enter Total Estimated Personnel Hours: 14,560	Divide by 2,080 = TOTAL FTE: 7
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Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: N/A

Enter Total Estimated Personnel Hours:	Divide by 2,080 = TOTAL FTE:
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B. Other Funds:

SOURCE OF AND USE OF OTHER FUNDS	Amount Proposed	Amount Spent	Status and Timeframe
Other Non-State \$ To Be Applied To Project During Project Period:			
	\$	\$	
Other State \$ To Be Applied To Project During Project Period:			
UMN Indirect rate 54%	\$ 1,890,000	\$ 0	This is the rate for 2019.
Past and Current ENRTF Appropriation:			
ML 2014, Ch. 312, Art. 12, Sec. 8	\$ 1,460,000	\$ 173,284	6/30/2022
ML 2015, Ch. 76, Sec. 2, Subd. 6a	\$5,000,000	\$312,436	6/30/2023
ML 2016, Ch. 186, Sec. 2, Subd. 6a	\$3,750,000	\$0	6/30/2023
Other Funding History:			
ML 2014, Ch. 312, Art. 12, Sec. 8	\$ 3,400,000	\$ 383,816	6/30/2023

VI. PROJECT PARTNERS:

A. Partners receiving ENRTF funding

Name	Title	Affiliation	Role
University of Minnesota Researchers TBD through competitive RFP process			

B. Partners NOT receiving ENRTF funding

Name	Title	Affiliation	Role
TBD			

VII. LONG-TERM- IMPLEMENTATION AND FUNDING:

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.

VIII. REPORTING REQUIREMENTS:

- **The project is for four years, will begin on July 1, 2019 and end on June 30, 2023.**
- **Periodic project status update reports will be submitted June 30 and December 31 of each year.**
- **A final report and associated products will be submitted between June 30 and August 15, 2023.**

IX. SEE ADDITIONAL WORK PLAN COMPONENTS:

- A. Budget Spreadsheet**
- B. Visual Component or Map**

Attachment A:
 Environment and Natural Resources Trust Fund
 M.L. 2018 Budget Spreadsheet



Project Title: Minnesota Invasive Terrestrial Plants and Pests Center: Phase 4
 Legal Citation: M.L. 2018, Chp. 214, Art. 4, Sec. 02, Subd. 06a
 Project Manager: Robert Venette
 Organization: University of Minnesota
 College/Department/Division: College of Food, Agriculture, and Natural Resource Sciences
 M.L. 2018 ENRTF Appropriation:
 Project Length and Completion Date: 5 years, June 30, 2023
 Date of Report: February 21, 2018

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET	TOTAL BUDGET	TOTAL SPENT	TOTAL BALANCE
BUDGET ITEM			
Personnel (Wages and Benefits)	\$3,018,000	0	\$3,018,000
<i>5 project managers (66% salary, 33% benefits); 25% FTE (summer salary) per year for 4 years</i>			
<i>4 graduate research assistants (56% salary, 44% tuition and benefits); 50% per year for 4 years</i>			
<i>7 post-doctoral associates (79% salary, 21% benefits); 100% FTE for 4 years</i>			
Professional/Technical/Service Contracts	\$71,000	\$0	\$71,000
<i>bio-security lab space; data storage; greenhouse charges; etc</i>			
Equipment/Tools/Supplies	\$336,000	\$0	\$336,000
<i>consumable lab supplies; insect and plant rearing materials; software; etc</i>			
Capital Expenditures Over \$5,000	\$0	\$0	\$0
Travel expenses in Minnesota	\$75,000	\$0	\$75,000
COLUMN TOTAL	\$3,500,000	\$0	\$3,500,000