



Environment and Natural Resources Trust Fund (ENRTF)

M.L. 2014 Work Plan

Date of Report: June 24, 2015
Date of Next Status Update Report: July 31, 2015
Date of Work Plan Approval: July 10, 2014
Project Completion Date: June 30, 2022
Does this submission include an amendment request? Yes

PROJECT TITLE: Minnesota Invasive Terrestrial Plants and Pests Center

Project Manager: Robert Venette

Organization: Regents of the University of Minnesota

Mailing Address: Minnesota Invasive Terrestrial Plants and Pests Center, ~~1990~~ 1992 Folwell Ave.

City/State/Zip Code: St. Paul, Minnesota 55108

Telephone Number: ~~(651) 955-3415~~ (612) 301-1405

Email Address: venet001@umn.edu

Web Address: <http://www.cfans.umn.edu> <http://www.mitppc.umn.edu>

Location: Statewide

Total ENRTF Project Budget:

ENRTF Appropriation: \$1,460,000

Amount Spent: \$0

Balance: \$1,460,000

Legal Citation: M.L. 2014, Chapter 312, Article 12, Section 8

Appropriation Language:

\$490,000 in 2015 is from the environment and natural resources trust fund for the Invasive Terrestrial Plants and Pests Center requested under this act, including a director, graduate students, and necessary supplies. This is a onetime appropriation and is available until June 30, 2022. \$970,000 from the environment and natural resources trust fund appropriated in Laws 2011, First Special Session chapter 2, article 3, section 2, subdivision 9, paragraph (d), Reinvest in Minnesota Wetlands Reserve Acquisition and Restoration Program Partnership, is transferred to the Board of Regents of the University of Minnesota for the Invasive Terrestrial Plants and Pests Center requested under this act, including a director, graduate students, and necessary supplies and is available until June 30, 2022.

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

II. PROJECT STATEMENT:

The Minnesota Invasive Terrestrial Plants and Pests Center (MITPPC) will serve a lead role in terrestrial invasive species research – coordinating initiatives on prevention of establishment; early detection and rapid response; development of new control methods and technology; integrated pest management; and minimizing non-target impacts of control. The MITPPC mission is to offer science-based solutions to pest invasions that ensure the protection of Minnesota’s healthy prairies, forests, wetlands and agricultural resources. The goal is to eliminate, reduce, mitigate and prevent the introduction, expansion, or damage caused by terrestrial invasive species in Minnesota.

The array of terrestrial invasive species (TIS) of high concern for Minnesota are numerous and diverse, and include invasive grasses, trees, shrubs, insects, earthworms, mammals, fungal pathogens, and other microbes. TIS impact every citizen in the State: emerald ash borer damages our forests and urban landscapes; weeds diminish the biodiversity of our prairies and wetlands; and pests and pathogens destroy fruit and grain harvests resulting in significant economic costs. The annual, combined economic impact of plant, animal, and microbial invasives in the U.S. is estimated at \$134 billion (Agricultural and Resource Economic Review, 2006). Minnesota’s share of this loss is estimated at \$3 billion annually, which is typical of the 50 states.

This investment will result in a comprehensive assessment of TIS risks to Minnesota and a comprehensive, planned, multi-disciplinary approach to addressing risk. MITPPC will involve researchers from multiple disciplines, and will address invasives affecting our prairies, forests, agricultural landscapes and wetlands in urban, developing and rural contexts. The Center will identify research priorities for TIS already established in Minnesota and for those that appear likely to arrive and do harm, and develop control methods, management strategies, and policy to achieve effective outcomes. Upon the completion of an initial impact assessment, the expert panel working group will establish priorities and present requests for proposals and work-plans to conduct research to address identified priority invasive species. Proposals will be sent out 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 award recommendations. These specific initiatives selected and their budgets will be provided to LCCMR for review as the selections are made and the work progresses.

The Center will prioritize and support multiple projects by research teams comprised of faculty, students, and staff from one of 10 participating departments. UMN faculty will work with both graduate students and post-doctoral associates on any given project. The scope of each research project will likely vary by species addressed. With this and additional planned funding, it is expected that over an eight-year period the Center will conduct an estimated 18-25 projects and train roughly 25 graduate students and postdocs.

The Center will be administratively located in the College of Food, Agricultural and Natural Resource Sciences (CFANS) in coordination with the College of Biological Sciences (CBS). Participating departments within CFANS include Entomology, Plant Pathology, Forest Resources, Agronomy & Plant Genetics, Horticultural Science, Applied Economics, Fisheries, Wildlife and Conservation Biology, and Bioproducts and Biosystems Engineering. Participating departments within CBS include Plant Biology and Ecology, Evolution and Behavior. Additionally, research will be possible on CFANS’ eight research and outreach centers located in diverse agro-ecological areas of the State.

III. PROJECT STATUS UPDATES:

Project Status as of January 31, 2015:

As this is a new center, prior to acting on either of the activities/outcomes defined in this work plan, administrative establishment of the Minnesota Invasive Terrestrial Plants and Pests Center (MITPPC) has been essential. Thus activities to date have all related to the establishment of the Center and the hiring of a director. Administrative structure and oversight has been initiated. Financial accounts and protocols have been established. MITPPC office space on the Saint Paul Campus of the University of Minnesota in the USDA Forest Service building has been identified. A search committee was established to identify and hire a center director, and Dr. Robert Venette was hired as the inaugural MITPPC Director starting January 2, 2015. A search for an Associate Director is now underway. No ENRTF funds have been spent to-date, as the above activities are currently being paid through a General Fund appropriation, other University of Minnesota sources, and contributions from the Northern Research Station of USDA Forest Service.

Amendment Request (01/31/2015):

We are requesting a change in the project manager from Brian Buhr to Robert Venette. This change also impacts contact information (i.e., mailing address, telephone number and email address). In addition we have an amendment to the other funds listed in section VI B.

Amendment Approved: 02/06/2015

Project Status as of June 24, 2015: MITPPC completed a rapid prioritization to identify lines of research that would be immediately beneficial for the management of invasive terrestrial plants and pests. The details of that prioritization are summarized under updates to Activity 1. The outcome of the prioritization provided the foundation for MITPPC's first request for proposals (RFP). The RFP was issued on April 31, 2015. Eight pre-proposals were received for a total request of \$3.7 million. Additional details about the RFP, the review process, and the administration of sub-subprojects are provided under updates to Activity 2.

After a national search, Ms. Heather Koop accepted the position of Associate Director for the MITPPC. She assumed the role on May 4, 2015. This position is currently paid through a General Fund appropriation.

Amendment Request (06/24/2015):

The amendment requests include a correction to the street address of the Center; the substitution of contact phone number; and the substitution of the Center's new web address. The MITPPC budgets have been modified to reflect the anticipated future line items that will be necessary to fund selected research. Since those items are not known at this time, \$1 has been inserted in those line items in order to establish budgets and sub-budgets within the University's accounting system. Once the projects have been identified and recommended for funding, the MITPPC will return to the LCCMR for review with appropriate sub-work plans and sub-work budget adjustments. The travel line item in the narrative budget has been expanded to include travel within and outside of Minnesota. Examples of possible reasons for outstate travel are provided. Actual travel will be detailed in future budget amendment requests when research projects are identified. The professional/technical/service contracts line items have been expanded to include examples of the kinds of items and services that might be purchased. One other budget adjustment corrects an earlier typographical error: the line item for "travel expenses in MN" was \$13,381 and is now \$34,378 which aligns with the approved budget spreadsheet.

Project Status as of July 31, 2015

Project Status as of *January 31, 2016:*

Project Status as of *July 31, 2016:*

Project Status as of *January 31, 2017:*

Project Status as of *July 31, 2017:*

Project Status as of *January 31, 2018:*

Project Status as of *July 31, 2018:*

Project Status as of *January 31, 2019:*

Project Status as of *July 31, 2019:*

Project Status as of *January 31, 2020:*

Project Status as of *July 31, 2020:*

Overall Project Outcomes and Results:

IV. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1: Catalyzing Research & Education: Conduct Net Impact Risk Assessment

Description: A key foundational principle of the MITPPC will be to develop its research activities and portfolio based on net impact assessment of various invasive species and expected outcomes of intervention strategies. This approach will include consideration of pressing need, opportunity and practicality, which will allow for strategic management of the research portfolio. The Center will establish a 12-member expert panel to create risk assessment frameworks and conduct net impact assessments that will prioritize investments in research to address existing invasive species as well as rapidly spreading invasive species that have not yet but are highly likely to enter the State. The panel will meet annually (years 1-3) to assess progress and re-prioritize as necessary.

We will create the panel using national level scientists with demonstrated research expertise (advanced degrees in related field, publications in related discipline, affiliation with recognized research centers in related disciplines). The twelve members will include eight Minnesota experts (faculty at University of Minnesota, or Minnesota government or non-governmental organizations with credentials as above) and four external experts (similar credentials as internal but from out of state). The goal is to provide input from broader national experiences with similar challenges. The external experts will receive an honorarium of \$1,000 per meeting as well as travel expenses such as lodging, transportation and meals. The \$1,000 includes not only the two days of on-site meetings, but also it is expected that external experts will spend significant time reviewing literature and other information regarding Minnesota's invasive species challenges. Internal experts will receive travel related and meal expenses to the extent the sessions are held off their home site and are likely to include lodging and meals.

Summary Budget Information for Activity 1:

ENRTF Budget: \$ 25,381

Amount Spent: \$ 0
Balance: \$ 25,381

Activity Completion Date:

Outcome	Completion Date	Budget
1. <i>Establish a panel of internal and external experts to provide input on strategic direction and research priorities</i>	Sept 15, 2015	\$0
2. <i>Convene expert panel to create framework and then to conduct initial assessment to establish highest priority species</i>	Oct 15, 2015	\$8,461
3. <i>Convene expert panel annually (years 2-3) to assess net impacts of invasive species and control responses.</i>	Oct 15, 2017	\$16,920

Activity Status as of January 31, 2015:

Nothing to report.

Activity Status as of June 24, 2015: 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. Initial priority plants are species on the eradicate list, the control list, or the restricted noxious weed list as designated under Minnesota’s noxious weed law, and initial priority pests were the brown marmorated stink bug (*Halyomorpha halys*) and oak wilt (caused by the fungal pathogen *Ceratocystis fagacearum*). Initial priority themes for research are:

- invasive species detection and distribution;
- invasive species response to climate change; and
- new approaches to management of invasive species.

These priorities were identified through a consultative process with eight representatives from the Minnesota Board of Water and Soil Resources, Minnesota Department of Agriculture, Minnesota Department of Natural Resources, and Minnesota Department of Transportation. Each agency had generated a list of several dozen potential research themes and topics. From these lists each agency self-selected their top four research priorities. MITPPC advised that a research topic should be considered a priority if it (i) would help the agency achieve its mission more effectively, (ii) would be of benefit to another agency (iii) could be supported by the agency financially or through in-kind contributions, and (iv) could be completed with the capacity at the University of Minnesota. Agency priorities were vetted during a joint meeting on March 26, 2015. The initial prioritization was complete by April 15, 2015. The prioritization provided the basis for MITPPC’s first request for proposals. More details about those proposals are provided under updates to Activity 2.

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 than could be completed during the rapid prioritization. The more expansive prioritization will be used to allocate the remaining research funds from the M.L. 2014 ENRTF appropriation and the M.L. 2015 ENRTF appropriation. Twelve panelists were identified, six from the faculty at the University of Minnesota and six program managers with advanced degrees from partner agencies (Minnesota Departments of Natural Resources and Agriculture). In total, these panelists will identify 120 significant invasive plants, pathogens, or insects/arthropods that threaten Minnesota’s agriculture, forests, wetlands, or prairies. An Analytical Hierarchy Process (AHP) will be used to rank these threats. AHP is a form of multi-criteria decision analysis that makes the process of selecting the highest priority threats consistent and transparent. AHP has been used by many agencies and organizations to facilitate complex decision

making. In brief, the twelve member panel will engage in a facilitated discussion about criteria by which terrestrial invasive plants and pests should be considered a high threat (e.g., spread rate, reproductive rate, and impact potential) and the relative importance of each criterion. Each of the criteria will be applied to the 120 plants, pathogens, and insects/arthropods through reviews of the literature and consultations with relevant experts. National experts will be consulted to identify the greatest research needs for these priority taxa.

Activity Status as of *July 31, 2015:*

Activity Status as of *January 31, 2016:*

Activity Status as of *July 31, 2016:*

Activity Status as of *January 31, 2017:*

Activity Status as of *July 31, 2017:*

Activity Status as of *January 31, 2018:*

Activity Status as of *July 31, 2018:*

Activity Status as of *January 31, 2019:*

Activity Status as of *July 31, 2019:*

Activity Status as of *January 31, 2020:*

Activity Status as of *July 31, 2020:*

Final Report Summary:

ACTIVITY 2: Launch research on high priority, established terrestrial invasive species and rapid response for the prevention of establishment of new threats.

Description: Upon the completion of an initial impact assessment, the expert panel working group will establish priorities and present requests for proposals and work-plans to conduct research to address identified priority invasive species. Proposals will be sent out 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 final award recommendations.

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 in Activity 1. 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.

Since University faculty are expected to acquire grants that cover their research salary, existing faculty are accounted for in the budget at 25% 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 in two to three projects depending upon the priority identified by the risk assessment planning. It is expected that per project expenses for established invasive species will be higher as compared to prevention strategies. As the priorities are established and research projects are reviewed and approved for funding as we describe here, the project specific work plan activities and budgets will be updated.

Summary Budget Information for Activity 2:

ENRTF Budget: \$ 1,434,619
Amount Spent: \$ 0
Balance: \$ 1,434,619

Activity Completion Date:

Outcome	Completion Date	Budget
1. RFP released for first phase of projects	Dec 15, 2015	\$0
2. First two research projects selected and launched; 2 graduate students and 2 postdoctoral associates hired for 4 years	May 15, 2016	\$0
3. Research findings for first two projects	May 15, 2020	\$1,434,619

Activity Status as of January 31, 2015:

Nothing to report.

Activity Status as of June 24, 2015: After review and approval by LCCMR staff, MITPPC's first request for proposals was issued on April 30, 2015. The complete request for proposals, including descriptions of priorities and the process by which projects will be selected, is attached as Appendix A to this work plan. The rapid prioritization and associated request for proposals will be used to allocate up to \$1.2 million awarded to MITPPC through the M.L. 2014 ENRTF appropriation.

Eight pre-proposals were received on May 22, 2015. Those pre-proposals are currently being reviewed by a five member panel of University faculty who do not have a conflict of interest with the proposals submitted. Their evaluations will be used to determine which research teams will be invited to submit full proposals with the proposed or a modified scope of work. Full proposals will be reviewed by three experts outside of the University for scientific novelty and rigor. Final funding recommendations will be presented to the Center Advisory Board for review and consent. The intent is for initial projects selected for funding under the M.L. 2014 ENRTF appropriation to be reviewed by LCCMR and begin by August 15, 2015.

Research projects funded by MITPPC will be treated administratively as sub-projects under this work plan. As research sub-projects are identified for funding, new sub-project work plans and budgets will be submitted to LCCMR by the new investigators for review and consent. Regular activity updates and budget updates will be provided by sub-project leaders directly to LCCMR and to MITPPC. 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. Details on expenditures will be found in sub-project reports.

Activity Status as of July 31, 2015

Activity Status as of January 31, 2016:

Activity Status as of July 31, 2016:

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Activity Status as of *July 31, 2020:*

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.

Status as of *January 31, 2015:*

Nothing to report.

Status as of *June 24, 2015:* A website and a Google group have been established for the MITPPC. Both may be accessed at www.mitppc.umn.edu. The website is intended to provide updates about planned and achieved progress of the Center, to announce RFPs and awards of grants, and to publicize research results. The website will assist a general educational function by publicizing pertinent media releases concerning terrestrial invasive species. The website will also provide process transparency for participants and stakeholders interested in these issues. The Google groups are intended to facilitate communications with our Center Faculty Group and other stakeholders external to the University.

Status as of *July 31, 2015:*

Status as of *January 31, 2016:*

Status as of *July 31, 2016:*

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:

Final Report Summary:

VI. PROJECT BUDGET SUMMARY:

A. ENRTF Budget Overview:

Budget Category	\$ Amount	Explanation
Personnel:	\$ 949,619	<ul style="list-style-type: none"> • one research faculty PI: \$27,300 (66% salary, 33.8% benefits); 25% FTE for 3 years • one research faculty PI: \$27,300 (66% salary, 33.8% benefits); 25% FTE for 4 years • one graduate research assistant: \$22,000 (56% salary 35% tuition 9% benefits); 50% FTE for 3 years • one graduate research assistant: \$22,000 (56% salary 35% tuition 9% benefits); 50% FTE for 4 years • one postdoctoral associate: \$45,900 (79% salary, 21.4% benefits); 100% FTE for 3 years • one postdoctoral associate: \$45,900 (79% salary, 21.4% benefits); 100% FTE for 4 years (More detail to be provided as specific research projects are proposed.)
Professional/Technical/Service Contracts:	\$ 12,000	Expert panel member honoraria- approx.4 people x \$500 x 2 days (years 1, 2, and 3); <u>engineering services, lab sample analysis. More detail to be provided as specific research projects are proposed (if applicable)</u>
Equipment/Tools/Supplies:	\$ 464,000	Consumable lab materials, specimens and other expenses directly related to research (More detail to be provided as specific research projects are proposed)
Capital Expenditures over \$5,000:	<u>\$ 1</u>	More detail to be provided as specific research projects are proposed (if applicable).
Printing	<u>\$ 1</u>	More detail to be provided as specific research projects are proposed (if applicable)
Travel Expenses in MN:	\$ 13,381 <u>\$34,378</u>	• Expert panel travel - approx.12 people x \$200 x 2 days (years 1, 2 and 3)

		<ul style="list-style-type: none"> • Travel directly related to research • <u>Travel to advanced technical training outside MN, or travel to professional conferences outside MN to report project results.</u> • More detail to be provided for all travel as specific research projects are proposed.
Other:	\$ 1	<u>More detail to be provided as specific research projects are proposed (if applicable). Potential examples include fees to publish project results in open access journals.</u>
TOTAL ENRTF BUDGET:	\$ 1,460,000	

Explanation of Use of Classified Staff: N/A

Explanation of Capital Expenditures Greater Than \$5,000: More detail to be provided as specific research projects are proposed (if applicable)

Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation: 14

Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation: none

B. Other Funds:

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state			
State			
General Fund Appropriation MN Legislature 2014: Chapter 312, HF 3172, Article 12, Section 8	\$3,400,000	\$9,038	Funds will be used to support the hire of a Center Director and administrative support for the 8-year project period, and to support additional research projects and will include personnel costs (faculty, graduate students, postdoctoral associates), equipment, materials and supplies necessary for research. Each project is estimated at \$100-200K/year for 3-5 years.
M.L. 2015, Ch. 76, Art. 1, Sec. 6a	\$5,000,000	\$0	Funds will be used to support additional research projects and will include personnel costs (faculty, graduate students, postdoctoral associates), equipment, materials and supplies related directly to research. Each project is estimated at \$100-200K/year for 3-5 years.

TOTAL OTHER FUNDS:	\$8,400,000	\$9,038	

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. While M.L. 2014 ENRTF and General Fund dollars will be used to conduct a risk assessment and launch initial research or prioritized species, funding is being sought through M.L. 2015 ENRTF 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 15-20 species upon which we will focus.

C. Spending History: N/A

VIII. ACQUISITION/RESTORATION LIST: N/A

IX. VISUAL ELEMENT: see attached

X. ACQUISITION/RESTORATION REQUIREMENTS WORKSHEET: N/A

XI. RESEARCH ADDENDUM: Peer review will be conducted by internal U of MN process and documentation to be provided to LCCMR

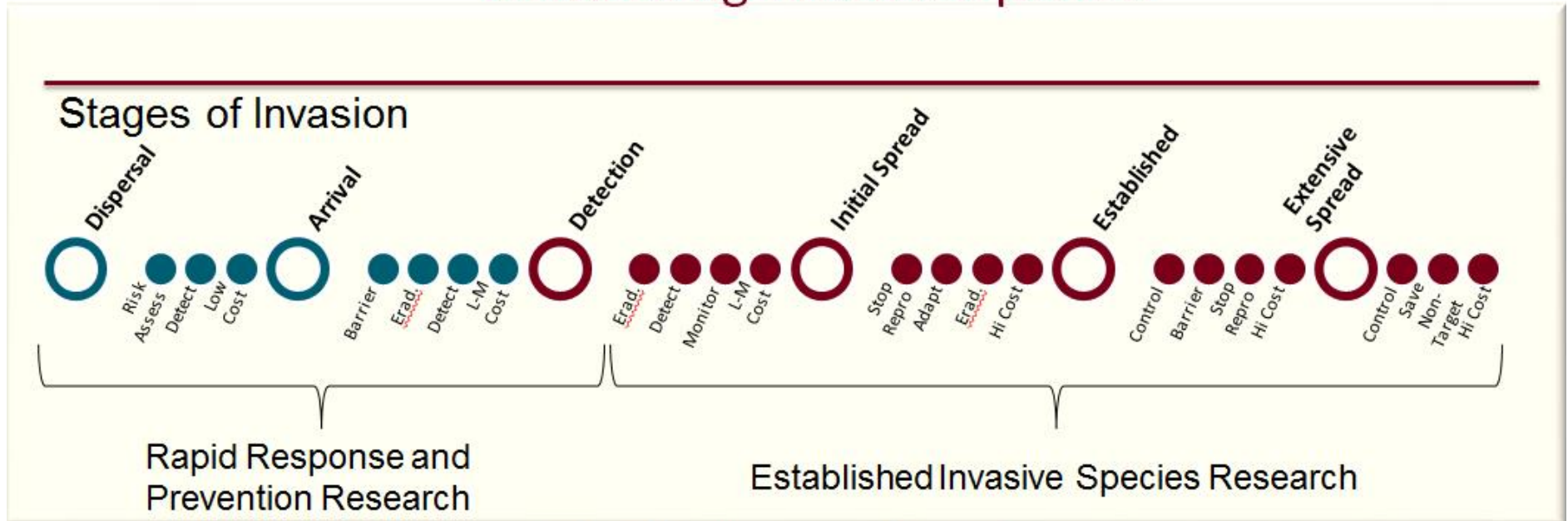
XII. REPORTING REQUIREMENTS:

Periodic work plan status update reports will be submitted no later than January 31 and July 31 each year (every 6 months). A final report and associated products will be submitted between June 30 and August 15, 2022

Professional Services and Contracts: Fees/honoraria for expert panel.	\$12,000	\$0	\$12,000				\$12,000	\$0	\$12,000
Printing	\$0	\$0	\$0	\$1	\$0	\$1	\$1	\$0	\$1
More detail to be provided as specific research projects are proposed (if applicable.)				\$1	\$0	\$1	\$1	\$0	\$1
Equipment/Tools/Supplies	\$0	\$0	\$0	\$464,000	\$0	\$464,000	\$464,000	\$0	\$464,000
Consumable lab materials, specimens and other expenses directly related to research (more detail to be provided as specific research projects are proposed). This may include items within the				\$464,000	\$0	\$464,000	\$464,000	\$0	\$464,000
Supplies - Lab and/or Field (e.g.,polymerase chain reaction chemicals; pots, soil, fertilizer for plant propogation; ingrediants for insect diet; confinement cages for insect rearing) More detail to be provided as specific research projects are				\$0	\$0	\$0	\$0	\$0	\$0
Equipment - Non-Capital Lab and/or Field (e.g., pipettes, balances, laboratory glassware, laptop to operate, heat block, vortex, mini centrifuge, etc.) More detail to be provided as specific research				\$0	\$0	\$0	\$0	\$0	\$0
Capital Expenditures Over \$5,000	\$0	\$0	\$0	\$1	\$0	\$1	\$1	\$0	\$1
More detail to be provided as specific research projects are proposed (if applicable). Examples may include growth chambers, DNA sequencers,				\$1	\$0	\$1	\$1	\$0	\$1
Travel	\$13,378	\$0	\$13,378	\$21,000	\$0	\$21,000	\$34,378	\$0	\$34,378
Travel -- Domestic. (e.g. expert panel travel). More detail to be provided as anticipated expenditures are determined. All travel expenses will follow U of MN policy allowances.	\$7,378	\$0	\$7,378	\$0	\$0	\$0	\$7,378	\$0	\$7,378
Travel directly related to research (more detail to be provided as specific research projects are proposed) All travel expenses will follow U of MN				\$21,000	\$0	\$21,000	\$21,000	\$0	\$21,000
Travel -- Minnesota (e.g. mileage, conferences, meetings, expert panel travel, etc.). More detail to be provided as anticipated expenditures are determined. All travel expenses will follow U of MN	\$6,000	\$0	\$6,000	\$0	\$0	\$0	\$6,000	\$0	\$6,000
Other	\$0	\$0	\$0	\$1	\$0	\$1	\$1	\$0	\$1
More detail to be provided as specific research projects are proposed (if applicable).				\$1	\$0	\$1	\$1	\$0	\$1
COLUMN TOTAL	\$25,378	\$0	\$25,378	\$1,434,622	\$0	\$1,434,622	\$1,460,000	\$0	\$1,460,000



Multi-disciplinary and Two Pronged Approach for Controlling Invasive Species



Forestry Resources



Entomology/ Horticulture



Weed Science/ Agronomy/ FWCB



Plant Pathology



Request for Proposals

In brief

- **Eligibility.** Faculty and postdocs with the authority to serve as principal investigators at the University of Minnesota are invited to submit proposals. Multidisciplinary projects are encouraged but not required. Researchers or managers from other academic, governmental, or private institutions are welcome to serve as cooperators. The inclusion of external partners is strongly encouraged. No funding may be transferred to cooperating institutions outside the University of Minnesota.
- **Priorities.** Proposals should address one or more high-priority invasive terrestrial plants or pests and one or more research themes identified by the MITPPC's rapid prioritization process. Priority taxa for this RFP are: selected plants on Minnesota's noxious weed list, brown marmorated stink bug (*Halyomorpha halys*), and oak wilt (caused by the fungal pathogen *Ceratocystis fagacearum*). Priority themes are: invasive species detection and distribution, invasive species response to climate change, and invasive management.
- **Funding availability.** A total not to exceed \$1.2 million will be allocated under this initial request for proposals. A single proposal may be for up to \$150,000 per year for a maximum of four years. Funding is primarily to support graduate students and postdocs. Capital requests are not eligible. A second request for proposals with updated priorities is expected in Fall 2015.
- **Funding begins:** August 15, 2015
- **Deadline to submit pre-proposals:** May 22, 2015 (4:30 PM)
- **Electronic submissions are required.** (Pre-) Proposals should be submitted to Dr. Robert Venette, Director, Minnesota Invasive Terrestrial Plants and Pests Center, venet001@umn.edu; 612-301-1405
- **Applicants should follow the instructions provided with this RFP carefully.**
- **Questions?** Contact Dr. Robert Venette, Director, Minnesota Invasive Terrestrial Plants and Pests Center, venet001@umn.edu; 612-301-1405 or Ms. Heather Koop, Associate Director, MITPPC, 612-626-1914.

The Minnesota Invasive Terrestrial Plants and Pests Center was established "to research and develop methods to prevent and minimize the threats posed by terrestrial invasive plants, other weeds, pathogens, and pests in order to protect the state's prairie's, forests, wetlands, and agricultural resources."

About the MITPPC

The Minnesota Invasive Terrestrial Plants Center was established in 2014 at the University of Minnesota with funding from the Minnesota Legislature. Terrestrial invasive plants and pests are the weeds, pathogens, and animals (including insects and other arthropods) that are not native to Minnesota's ecosystems and have the potential to harm people or valued, land-dwelling plants and animals. Invasive species are economically costly, ecologically damaging, and socially disruptive. As a result, the Legislature established the MITPPC to encourage the development of new tools and strategies to better manage the risks posed by invasive terrestrial plants and pests. Funding for the MITPPC is available for 8 years.

As described in Chapter 312 – H.F. No. 3172, Article 13, Section 44 of Minnesota Statutes, the MITPPC shall achieve its purpose by:

- *Creating a prioritized list of pest and plant species that threaten the state's prairies, forests, wetlands, and agricultural resources and making the list publically accessible;*
- *Conducting research focused on the species included on the prioritized list ... that includes:*
 - *Development of new control methods, including biocontrols;*
 - *Development of integrated pest management tools that minimize nontarget impacts;*
 - *Research projects focused on establishment prevention, early detection, and rapid response;*
 - *An analysis of any consequences related to the management of prioritized species to the state's water, pollinators, and native prairies and other native species; and*
 - *Reports on the results that are made publicly accessible.*

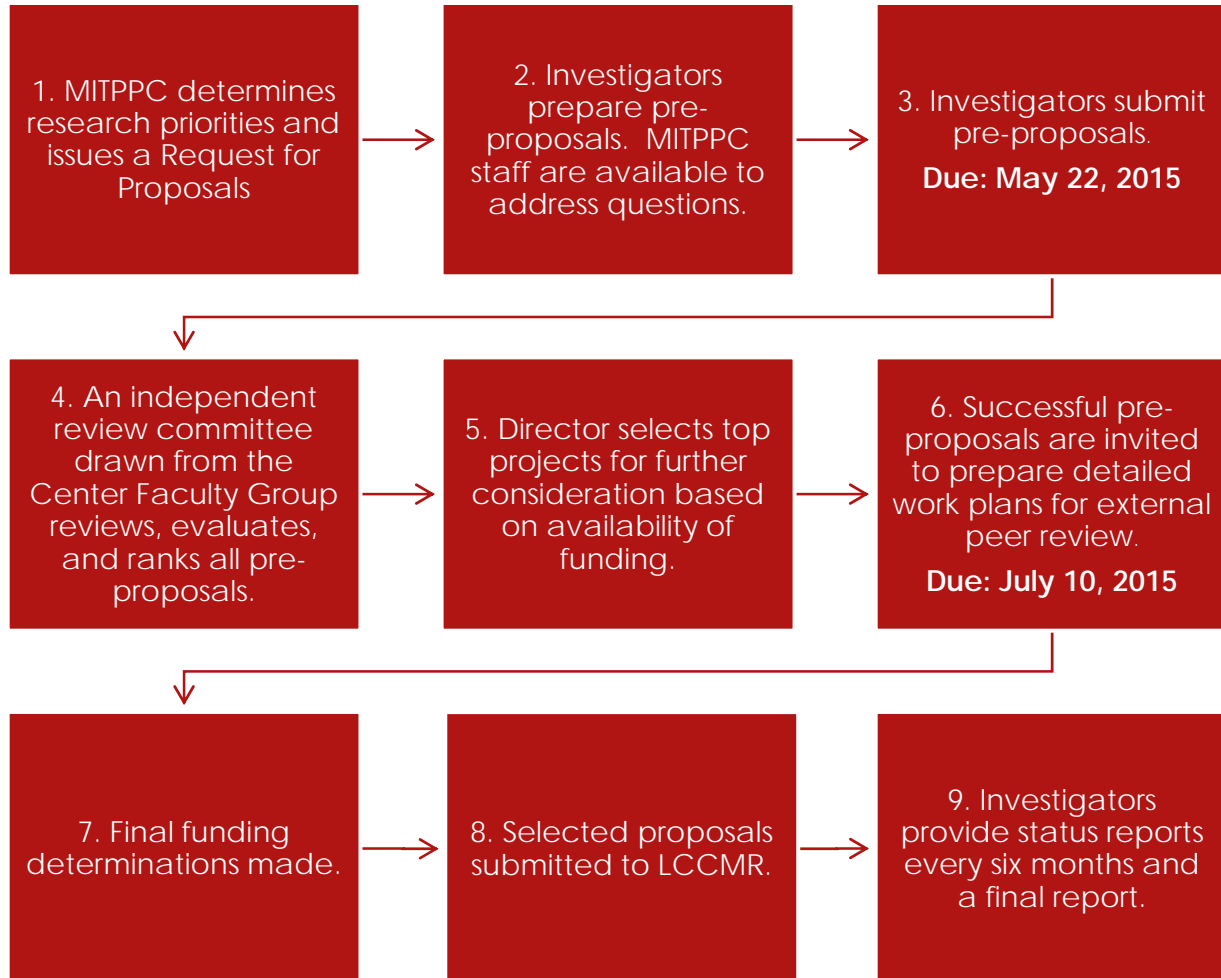
The College of Food, Agricultural and Natural Resource Sciences is responsible for the MITPPC, but collaborations with faculty throughout the University, especially in the College of Biological Sciences, are encouraged. Any individual from the University of Minnesota with the authority to serve as a Principal Investigator is eligible to apply, but involvement of faculty from Entomology, Plant Pathology, Forest Resources, Horticultural Science, Fisheries Wildlife and Conservation Biology, Agronomy and Plant Genetics, Plant Biology, or Ecology, Evolution, and Behavior is encouraged.

The success of the MITPPC will be determined by the impact that the Center's research has on management of terrestrial invasive species in Minnesota in the next six to eight years. As a result, all research directly supported by the MITPPC will have an applied focus, though basic research with immediate relevance to applied questions will be eligible for funding.

Funds from the MITPPC are to support the research of faculty, graduate students, and postdocs. Projects that are primarily educational will not be funded by the MITPPC, but individuals supported by the MITPPC are expected to engage in outreach and education.

Process Overview

The general process for the development of a research proposal for the MITPPC is summarized in the flow chart below. Because much of the funding for the MITPPC was provided by Minnesota's Environment and Natural Resources Trust Fund, all proposals must adhere to general requirements established by the Legislative-Citizen Commission on Minnesota Resources (LCCMR). Projects selected for funding will be subject to LCCMR's requirements for fiscal accountability and progress reporting.



The guidelines for the development of (pre-) proposals for MITPPC are adapted from guidance provided in LCCMR's general request for proposals. Some modifications have been made to help focus research proposals on the MITPPC's priority topics and species. As a result, the guidelines provided in this document must be followed closely.

Process Details

1. MITPPC determines research priorities and issues a request for proposals.

This initial request for proposals is based on the outcome of a rapid research prioritization process. The Minnesota Department of Agriculture, Minnesota Department of Natural Resources, Minnesota Department of Transportation, and the Board of Water and Soil Resources, agencies with responsibilities for the management of terrestrial invasive species on public and private lands, were asked to identify each of their top four, immediate research needs. Research was to be considered a priority if (i) the agency could use the results to achieve its mission more effectively, (ii) the agency could support the research financially or through in-kind contributions, (iii) other agencies might find utility in the research, and (iv) the research could be conducted with faculty and infrastructure available at the University of Minnesota. The 16 submitted ideas were vetted during a multiagency meeting, and the top three priority research themes were identified. In the course of discussions, a list of priority pests and plants emerged. This initial prioritization is meant to facilitate a timely, reasoned start to research in the MITPPC. A more detailed research prioritization is in process.

Invasive Terrestrial Plants and Pests: Initial Priority Species

Brown marmorated stink bug (*Halyomorpha halys*)

Oak wilt (caused by *Ceratocystis fagacearum*)

Prohibited noxious weeds

o **Eradicate list**

- Palmer Amaranth, *Amaranthus palmeri*
- Oriental Bittersweet, *Celastrus orbiculatus*
- Brown Knapweed, *Centaurea jacea*
- Yellow Star Thistle, *Centaurea solstitialis*
- Meadow Knapweed, *Centaurea x moncktonii*
- Black Swallow-wort, *Cynanchum louiseae*
- Grecian Foxglove, *Digitalis lanata*
- Common Teasel, *Dipsacus fullonum*

- Cut-leaved Teasel, *Dipsacus laciniatus*

- Giant Hogweed, *Heracleum mantegazzianum*

- Japanese Hops, *Humulus japonicas*

- Dalmatian Toadflax, *Linaria dalmatica*

o **Control list**

- Narrowleaf Bittercress, *Cardamine impatiens*
- Plumeless Thistle, *Carduus acanthoides*
- Spotted Knapweed, *Centaurea stoebe* spp. *micranthos*
- Canada Thistle, *Cirsium arvense*
- Leafy Spurge, *Euphorbia esula*
- Purple Loosestrife, *Lythrum salicaria*, *virgatum*

- Wild Parsnip, *Pastinaca sativa* (Except for non-wild cultivated varieties)

- Common Tansy, *Tanacetum vulgare*

o **Restricted noxious weeds**

- Garlic Mustard, *Alliaria petiolata*
 - Glossy Buckthorn (and all cultivars), *Frangula alnus* Mill (*columnaris*, *tallcole*, *asplenifolia* and all other cultivars)
 - Common Reed - non-native subspecies, *Phragmites australis* ssp. *australis*
 - Common or European Buckthorn, *Rhamnus cathartica*
 - Multiflora Rose, *Rosa multiflora*
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Priority Research Theme 1. Detection and Distribution of Invasive Terrestrial Plants and Pests. Strategic and tactical decisions for the statewide management of terrestrial invasive species depend on accurate, detailed information about the geographic distribution of those species. Currently, many agencies and organizations in Minnesota are gathering information about the distribution of terrestrial invasive species to support internal decision-making. There is a growing recognition of the value of sharing information about the distribution of invasive plants and pests more broadly. Some tools already exist for this purpose. For example, EDDMaps (www.eddmaps.org) has been used as a clearinghouse for terrestrial invasive plants data for some state agencies. Such tools are useful for collecting presence points, but do not “connect the dots” to show the complete, potential distribution of an invasive plant or pest. Maps that depict where terrestrial invasive species are present and abundant across the state are essential to coordinate regional terrestrial invasive species management plans and to evaluate the effectiveness the activities conducted under those plans.

Some terrestrial invasive species may not be reliably detected with typical approaches. Ground-based surveys are time and resource intensive and are frequently limited to relatively small areas. Aerial surveys for widespread woody species, such as buckthorn, have been attempted but have yielded too many false positives to be useful.

For this theme, proposals are requested to:

- Characterize the current and potential distributions of multiple terrestrial invasive species in Minnesota. Research in this area should (a) develop information technology to integrate existing and future survey results from multiple agencies and organizations into a common platform; (b) use species distribution models to associate those records with justifiable environmental covariates (e.g., temperature, moisture, soil type, land use, etc.); and (c) develop and test forecasts of species’ occurrence and/or abundance across the state.
- Explore new technologies for area wide detection of terrestrial invasive species, including, but not limited to low-altitude, remotely-operated aircraft and automated or human-guided image processing.

Priority Research Theme 2. Response of Invasive Terrestrial Plants and Pests to Climate Change. Temperature and moisture conditions in Minnesota have been changing over the past 100 years and are projected to continue to change. Climate changes can directly or indirectly affect the future distribution, abundance, and/or impact of terrestrial invasive species that are already present or might arrive in the state. Tools are needed to describe which terrestrial invasive species are likely to become more widespread, abundant, or damaging and which are likely to experience geographic range contractions, become less abundant, or have less impact under future climate conditions. These descriptions should be as spatially explicit as possible. For example,

the USDA Forest Service developed the Climate Change Tree Atlas (Prasad et al. 2007)¹ to describe the impact of future climate conditions on tree species. Equivalent products are needed for terrestrial invasive plants and pests in Minnesota. This information could be used by the Noxious Weed Advisory Committee as it conducts risk analyses on terrestrial invasive plants. Those analyses are used to justify exclusion, eradication, or other regulatory actions. The information could also be used by land-managers to help them target priority invasive species and explore mitigation and adaptation strategies to minimize future damage.

For this theme, proposals are requested to:

- Provide statewide, spatially-explicit descriptions of the future potential distribution, abundance, or impact of multiple terrestrial invasive species in Minnesota given projections about future climate change. Measure variability in these descriptions that arise from different climate change scenarios and general circulation models.

Priority Research Theme 3. Effectiveness of Management Alternatives for Invasive Terrestrial Plants and Pests. A variety of cultural, manual, mechanical, biological and chemical approaches are being used alone and in combinations to control terrestrial invasive plants and pests in Minnesota. Invasive plant and pest managers face a two-part challenge when choosing a course of action. First, managers must contend with difficult questions about what constitutes successful management. For example, while the timely application of appropriate herbicides is likely to kill targeted plants, is the treatment “successful” if seeds are so plentiful that the plant readily re-establishes itself in the following year or if the composition of the plant community does not “improve”? Similarly, at what time- or spatial-scale should management be considered successful, for example, only within the treated area or over the entire range of the plant within the state? Second, managers frequently have little information about the effectiveness of novel management tactics. For example, the use of large-grazing animals (e.g., sheep, goats, and cattle) increasingly is proposed as a strategy for invasive-plant management, yet reliable information about the effectiveness of generalist grazers is limited.

For this theme, proposals are requested to:

- Develop and test strategies to achieve the area wide suppression of terrestrial invasive plants and pests.

¹ Prasad, A. M., L. R. Iverson., S. Matthews., M. Peters. 2007-ongoing. A Climate Change Atlas for 134 Forest Tree Species of the Eastern United States [database]. <http://www.nrs.fs.fed.us/atlas/tree>, Northern Research Station, USDA Forest Service, Delaware, Ohio.

- Develop generalizable models for the role of vertebrate grazing in the control of terrestrial invasive plants, especially with respect to the timing and intensity of grazing to lower densities of invasive plants while retaining native plants.
- Develop novel control strategies to reduce impacts from high-priority terrestrial invasive woody plants in Minnesota such as buckthorn, Oriental bittersweet, and non-native honeysuckles.

2. Investigators prepare pre-proposals. MITPPC staff are available to address questions.

(Pre-) proposals must address one or more of the MITPPC's priority research topics AND one or more priority species. Questions regarding the relevance of a proposal idea to the MITPPC's priorities should be directed to the Director. Pre-proposals should be prepared on the appropriate proposal submission forms (attached as a separate document to this RFP). Principal investigators are encouraged to inform their Department Heads/Chairs of their intent to submit a pre-proposal.

Provide all requested information. See guidelines for pre-proposal components below.

For the entire pre-proposal

- 8 1/2" x 11" pages; single-spaced; 11 pt. font minimum, except for "Detailed Project Budget", which can be 10 pt.
- Proposal title clearly marked on top of each page.
- Blank 1-inch margin on bottom of each page.
- Any information exceeding the page limits indicated will be not be reviewed as part of your proposal.

A complete pre-proposal will have the following components:

1. Cover sheet: Complete the submission form as the cover sheet for the proposal.
2. Main Proposal (2-page limit): Use the template (MS-Word) that accompanies this RFP.
3. Detailed Project Budget (1-page limit): Use the template (MS-Excel) that accompanies this RFP.
4. Visual or Map (1-page limit): Visual illustration of proposal information or site-specific map (see below).
5. Qualifications of Principal Investigators and Cooperators (1-page limit—total)

Guidelines for specific components of the pre-proposal

- #2 Main Proposal (2-page limit) Main proposal must provide concise information summarizing proposed project, activities, outcomes, and strategy and timeline.

Outcomes should have clear relevance to the management of terrestrial invasive plants and pests.

#3 Detailed Project Budget (2-page limit) Project budget must clearly account for how all requested funds would be used and explain what (if any) other funds would be used during the project. Funds are intended to support primarily graduate students and postdocs, but faculty on 9-month appointments may request summer salary (up to 25% of their current salary) as part of the proposal. Research supplies and in-state travel are eligible for funding. Funds for specialized research equipment may be requested, but clear justification must be provided.

The justification for faculty salary must specify the period for which funding is requested and the number of hours per week that will be devoted to the proposed project. Grant management, including the administrative supervision of graduate students and postdocs, may not account for more than 5% of full-time effort. Normal University activities such as service, teaching, outreach that are not directly related to the proposed project or the operations of the MITPPC are not allowable within the times faculty salary is requested.

#4 Visual or Map (1-page limit). Provide a graphic, table, photo(s), figure, map, or other visual element that illustrates or elaborates on information in the main proposal. Map must be legible as black & white printout.

#5 Qualifications of Principal investigators and cooperators (1-page limit—total) Include summary of qualifications and responsibilities of principal investigators and cooperators pertaining specifically to project proposal. Complete resumes or CVs are not requested. Include a brief description of the mission of each cooperating organization outside the University of Minnesota as it pertains to invasive terrestrial species.

Other project requirements

Expenditures must strictly adhere to Article XI, Section 14 of the Minnesota Constitution and M.S. 116P.08, the laws governing expenditure of the Environment and Natural Resources Trust Fund (see pg. 13 of this document).

Fee-title and conservation easement acquisition projects are not eligible for funding under this call for proposals.

Any royalties, copyrights, patents, or sale of products or assets resulting from a project are subject to revenue sharing requirements outlined in M.S. 116P.10.

All projects are subject to additional requirements including accessibility, data availability, energy conservation and sustainability guidelines, and recyclable material requirements. See pages 15-19 of this document.

3. Investigators submit pre-proposals.

Pre-proposals **are due no later than 4:30PM on May 22**. Pre-proposals must be submitted electronically in a single file formatted for Word or as a PDF. Investigators who do not submit pre-proposals will not be eligible to submit full proposals unless approved by the Director of the Minnesota Invasive Terrestrial Plants and Pests Center.

Pre-proposals should be submitted to Dr. Robert Venette, Director, Minnesota Invasive Terrestrial Plants and Pests Center, venet001@umn.edu. Principal investigators will receive confirmation that their pre-proposal was received.

4. An independent review committee drawn from the Center Faculty Group reviews, evaluates, and ranks all pre-proposals.

The Center Faculty Group is comprised of all faculty in the College of Food, Agricultural, and Natural Resource Sciences, the College of Biological Sciences, or other administrative units within the University of Minnesota with interests in the biology, ecology, or management of terrestrial invasive species and a desire to support the goals of the MITPPC. An ad hoc review committee of no fewer than three faculty or postdocs with no conflicts of interest with the principal investigators will be drawn from the CFG. The review committee will evaluate proposals based on the following criteria.

Evaluation Criteria

All proposals should strive to maximize efficiency and return on investment for the proposed expenditures. Additionally the following criteria, as applicable, will be considered in evaluating proposals:

1. FUNDING PRIORITIES: Responds to research priorities for the MITPPC outlined in this RFP.
2. MULTIPLE BENEFITS: Delivers multiple benefits to Minnesota's environment and natural resources.
3. OUTCOMES: Identifies clear objectives likely to result in measurable, demonstrated, and meaningful outcomes that have clear relevance to invasive terrestrial species management in Minnesota.
4. KNOWLEDGE BASE: Contributes to the knowledge base or disseminates information that will benefit other efforts.
5. EXTENT OF IMPACTS: Results in broad, long-term impacts of statewide or regional significance.
6. INNOVATION: Employs or demonstrates innovative approaches to more effectively and efficiently solve specific environment and natural resources issues.
7. SCIENTIFIC/TECHNICAL BASIS: Reflects current scientific and technical knowledge, standards, and best practices.
8. URGENCY: Addresses an issue for which immediate future action is necessary and essential to avoid undesirable consequences.
9. CAPACITY AND READINESS: Demonstrates capacity and readiness for efforts to be managed and completed in a timely, accountable, and effective manner.
10. LEVERAGE: Leverages collaborative partnerships and additional efforts, resources, and non-state funds.

5. Director selects top projects for further consideration based on availability of funding.

A total not to exceed \$1.2 million will be allocated under this initial call for proposals. A second call for proposals is expected in calendar year 2015. The second call will reflect a broader prioritization of plants and pests.

Pre-proposals that are not selected for funding may be resubmitted under future requests for proposals if the proposed research continues to align with the Center's priorities.

6. Successful proposals are invited to prepare detailed work plans that will undergo external peer review.

Detailed work plans are due by 4:30PM on July 10, 2015. The general formatting requirements that were used for the pre-proposal continue to apply:

- o 8 1/2" x 11" pages; single-spaced; 11 pt. font minimum, except for "Detailed Project Budget", which can be 10 pt.
- o Proposal title clearly marked on top of each page.
- o Blank 1-inch margin on bottom of each page.
- o Any information exceeding the page limits indicated will be not be reviewed as part of your proposal.

Templates for the expanded proposal will be provided at the time principal investigators are invited to submit a full proposal, but in general, the expanded proposal will include the following components:

#1 Cover sheet (Same as pre-proposal).

#2 Main Proposal (15-page limit; 10 pages recommended). The text in this section should follow the organization of the pre-proposal. The scientific rationale and novelty of the proposed research should be described in detail. (Note: the rationale does not need to address the significance of the targeted invasive terrestrial plants or pests.) For each activity, specific hypotheses that will be tested should be mentioned, if applicable. Outcomes of each activity should be described with respect to potential changes in terrestrial invasive species management in the state. The strategy for each activity should include detailed descriptions of intended procedures, including experimental design, statistical analysis, and "pitfalls and workarounds." This section should describe potential issues that might disrupt an activity (for example, spring flooding of field sites) and efforts to prevent those issues from disrupting the project (for example, selecting field sites across the state).

The timeline is especially important. **Continued funding for multi-year projects is contingent upon satisfactory progress.** Satisfactory progress will be determined based on realized accomplishments relative to stated milestones. Specific annual milestones must be provided.

#3 Detailed Project Budget (No page limit). Project budget must clearly account for how all requested funds would be used in each fiscal year and explain what (if any) other funds would be used during the project. Funds are primarily intended to support graduate students and postdocs, but faculty may request up to 25%

of their current salary. Research supplies, equipment, and in-state travel are eligible for funding. Indirect costs are not allowed.

The justification for faculty salary must continue to specify the period for which funding is requested and the number of hours per week within that period that will be devoted to the proposed research.

If faculty salary is requested, the budget justification must include a signed statement from the Department Head/Chair that reads "I, (type name), acknowledge that a member of my Department/administrative unit is requesting faculty salary from the Minnesota Invasive Terrestrial Plants and Pests Center as part of this research proposal. We have discussed how any salary savings will be allocated. I understand that normal university/departmental activities such as service, outreach, teaching, research and consulting that are not directly related to the proposed project or the operations of the Center are not allowable within the times faculty salary is requested." An electronic signature from the Department Head/Chair on the Proposal Routing Form is sufficient to confirm the Head/Chair's agreement with the statement.

#4 Visual or Map (1-page limit). Provide a graphic, table, photo(s), figure, map, or other visual element that illustrates or elaborates on information in the main proposal. Map must be legible as black & white printout.

#5 Qualifications of Principal investigators and cooperators (up to 1-page for each investigator and cooperator). Include summary of qualifications and responsibilities of principal investigators and cooperators pertaining specifically to project proposal. Complete resumes or CVs are not requested. Include a brief description of the mission of each cooperating organization outside the University of Minnesota as it pertains to invasive terrestrial species.

This section should include a brief statement to verify that all principal investigators and cooperators have discussed and agreed to plans for authorship of publications or products that are described in the proposal.

Full proposals should receive formal administrative review by the University prior to submission. Proposals should be routed through the Office of Sponsored Projects Administration and submitted electronically to Dr. Robert Venette, Director, Minnesota Invasive Terrestrial Plants and Pests Center, venet001@umn.edu.

Proposals will be reviewed by no fewer than three individuals outside the University of Minnesota with relevant expertise in biology or management of invasive terrestrial plants and pests. External reviewers will be asked to comment on the novelty of the research, the rigor of the proposed methods, the qualifications of the team to complete the research, and the potential impact of the research on the management of invasive, terrestrial plants and pests in Minnesota. Efforts will be made to complete external reviews in 4-6 weeks. A subcommittee from the pre-proposal review

committee will be called to summarize all comments received and make a final recommendation to the Director to fund the proposal as submitted, fund with modifications, or not fund the proposal.

7. A final funding determination is made.

Investigators will be notified by the Director within a week of the final decision from the review committee. If additional modifications to a proposal are requested, investigators will have three weeks to complete such revisions. Revisions that affect the budget must be approved by Sponsored Projects Administration.

8. Selected proposals submitted to LCCMR

Project proposals that are endorsed by external peer reviewers and the Center are not considered final until approved by the Legislative-Citizen Commission for Minnesota Resources. The final project must be in Work-Plan format as required by the LCCMR.

Work Plans must be submitted electronically to lccmr@lccmr.leg.mn and to Dr. Robert Venette, Director, Minnesota Invasive Terrestrial Plants and Pests Center, venet001@umn.edu.

9. Investigators provide status reports every six months and a final report.

Projects are required to provide written status reports no later than every six months. An initial progress report will be due Dec. 15, 2015. Projects must also provide at least one oral project report per year at a public meeting on invasive species (e.g., Upper Midwest Invasive Species Conference). For multi-year projects, a funding determination will be made each year based on annual accomplishments. Continued project funding is contingent upon satisfactory progress being made. Project performance will be evaluated by a committee comprised of members the Center Faculty Group and external stakeholders.

Projects are required to submit a final report on project outcomes and results within 6 weeks after a project's designated completion date. Final reports must comply with requirements established by the LCCMR.

At the time progress reports are due, copies of the report should be sent electronically to lccmr@lccmr.leg.mn and to Dr. Robert Venette, Director, Minnesota Invasive Terrestrial Plants and Pests Center, venet001@umn.edu.

Guidance from LCCMR on Allowable Expenses

ELIGIBLE EXPENSES

Eligible expenses are those expenses solely incurred through project activities that are directly related to and necessary for producing the project outcomes described in the proposal. *All* proposed expenses *must be* specified in the proposal submitted. Please note that for non-state entities all funds are awarded on a reimbursement basis, unless otherwise authorized, and all eligible expenses will need to be documented. Eligible expenses may include:

- a. Eligible expenditures incurred only after the effective date as approved by LCCMR.
- b. Wages and expenses of salaried Recipient employees if specified, documented, and approved. For State Agencies: use of unclassified staff only OR request approval for the use of classified staff accompanied by an explanation of how the agency will backfill that part of the classified staff salary proposed to be paid for with these funds. This is subject to specific discussion and approval by LCCMR.
- c. Fringe benefit expenses limited to salary, FICA/Medicare, retirement, and health insurance of Recipient's employees if specified.
- d. Professional services specified in the approved Work Plan that are rendered by individuals or organizations not a part of the Recipient;
- e. Materials and supplies specific to the project and incoming freight charges for them.
- f. Capital expenditures for facilities, equipment, and other capital assets as expressly approved. For expenditures greater than \$5,000, the Recipient must provide an explanation as to how all the equipment purchased with the appropriation will continue to be used for the same program through its useful life, or, if the use changes, a commitment to pay back to the Environment and Natural Resources Trust Fund an amount equal to either the cash value received or a residual value approved by the director of the LCCMR if it is not sold.
- g. Publication and printing/copying expenses (including the process of composition, plate-making, press work, binding, and the end products produced) necessary for contract administration, work products production, and semi-annual reports relating to accomplishments.
- h. In-state transportation and travel expenses such as lodging, meals, and mileage of personnel directly involved in the Project in the same manner and in no greater amount than provided for in the current "**Commissioner's Plan**" promulgated by the Commissioner of Management of Budget and as provided by LCCMR or, for University of Minnesota projects, the University of Minnesota plan found at <http://policy.umn.edu/policies/finance/travel/travel.html>. Allowable meal and lodging expenses are for employees only. Purchasing meals for others is not an allowable expense.

GENERALLY INELIGIBLE EXPENSES-UNLESS EXPLICITLY APPROVED

Generally ineligible expenses for reimbursement mean all expenses not defined as eligible expenses, but for which an explicit exception can be sought from LCCMR if the expenses can be clearly justified and individually documented as directly related to and necessary for a project. No broad allocations for costs in either dollars or percentages are allowed. In deciding whether to seek exception for these costs consider that cash and in-kind leverage are criteria considered in proposal evaluation. Generally ineligible expenses include but are not limited to:

- a. General operations, overhead, and other indirect expenses, including office maintenance, office utility expenses, and office materials and supplies.
- b. Office rental fees (including storage space rental).
- c. Communication expenses incurred for telephone calls, web access, postage, and similar services.
- d. Insurance, except title insurance.
- e. Attorney fees, except to acquire and clear title to land.
- f. Purchase of communication devices such as pagers, cell phones, or smart phones.
- g. Purchase of computers or audiovisual equipment.
- h. Generally available food and refreshments, except if explicitly approved for certain types of events.
- i. Conference attendance and associated costs and fees, except if to participate in formal presentation of project findings.
- j. Out of state transportation and travel expenses.

PROHIBITED EXPENSES

Prohibited expenses for reimbursement mean all expenses indicated below, including but not limited to:

- a. Any expenses incurred before the project is authorized, before July 1, 2015, or before LCCMR work plan approval—whichever is latest.
- b. Fundraising.
- c. Taxes, except sales tax on goods and services.
- d. Lobbyists or political contributions.
- e. Advertising and marketing expenses.
- f. Loans, grants, or subsidies to persons or entities for development.
- g. Bad debts, late payment fees, finance charges, or contingency funds.
- h. Interest or investment management fees.
- i. Directors or officers salary.
- j. Merit awards and bonuses.
- k. Memberships (including subscriptions and dues).
- l. Publications, periodicals, and subscription fees.
- m. Employee worksite parking.
- n. Entertainment, decorations, gifts, and prizes.

ADDITIONAL PROPOSAL REQUIREMENTS

Please note: These items are subject to change. Many of these provisions (e.g., 116P.115-118) will not be applicable to research proposals to the Minnesota Invasive Terrestrial Plants and Pests Center because Center funds may not be used to purchase lands.

ACCESSIBILITY

Structural and nonstructural facilities must meet the design standards in the Americans with Disability Act (ADA) accessibility guidelines.

DATA AVAILABILITY REQUIREMENTS

Data collected by the projects funded under this section that have value for planning and management of natural resource, emergency preparedness, and infrastructure investments must conform to the enterprise information architecture developed by the Office of Enterprise Technology. Spatial data must conform to geographic information system guidelines and standards outlined in that architecture and adopted by the Minnesota Geographic Data Clearinghouse at the Land Management Information Center. A description of these data that adheres to the Office of Enterprise Technology geographic metadata standards must be submitted to the Land Management Information Center to be made available online through the clearinghouse and the data must be accessible and free to the public unless made private under the Data Practices Act, Minnesota Statutes, chapter 13.

To the extent practicable, summary data and results of projects funded under this section should be readily accessible on the Internet and identified as an environment and natural resources trust fund project.

ENERGY CONSERVATION AND SUSTAINABLE BUILDING GUIDELINES

A recipient to whom an appropriation is made in this section for a capital improvement project shall ensure that the project complies with the applicable energy conservation and sustainable building guidelines and standards contained in law, including Minnesota Statutes, sections 16B.325, 216C.19, and 216C.20, and rules adopted thereunder. The recipient may use the energy planning, advocacy, and State Energy Office units of the Department of Commerce to obtain information and technical assistance on energy conservation and alternative energy development relating to the planning and construction of the capital improvement project.

PURCHASE OF RECYCLED AND RECYCLABLE MATERIALS

A political subdivision, public or private corporation, or other entity that receives an appropriation in this section must use the appropriation in compliance with Minnesota Statutes, sections 16B.121 and 16B.122, requiring the purchase of recycled, repairable, and durable materials; the purchase of uncoated paper stock; and the use of soy-based ink.

116P.10 ROYALTIES, COPYRIGHTS, PATENTS, AND SALE OF PRODUCTS AND ASSETS

(a) This section applies to projects supported by the trust fund and the oil overcharge money referred to in section 4.071, subdivision 2, each of which is referred to in this section as a "fund."

(b) The fund owns and shall take title to the percentage of a royalty, copyright, or patent resulting from a project supported by the fund equal to the percentage of the project's total funding provided by the fund. Cash receipts resulting from a royalty, copyright, or patent, or the sale of the fund's rights to a royalty, copyright, or patent, must be credited immediately to the principal of the fund. Receipts from Minnesota future resources fund projects must be credited to the trust fund. The commission may include in its legislative bill a recommendation to relinquish the ownership or rights to a royalty, copyright, or patent resulting from a project supported by the fund to the project's proposer when the amount of the original grant or loan, plus interest, has been repaid to the fund.

(c) If a project supported by the fund results in net income from the sale of products or assets developed or acquired by an appropriation from the fund, the appropriation must be repaid to the fund in an amount equal to the percentage of the project's total funding provided by the fund. The commission may include in its legislative bill a recommendation to relinquish the income if a plan is approved for reinvestment of the income in the project or when the amount of the original grant or loan, plus interest, has been repaid to the fund.

History: 1988 c 690 art 1 s 14; 1993 c 172 s 79; 2003 c 128 art 1 s 151; 2008 c 367 s 3; 2009 c 143 s 5

LAND ACQUISITION 116P.15 LAND ACQUISITION RESTRICTIONS

Subdivision 1. **Scope.** A recipient of an appropriation from the trust fund or the Minnesota future resources fund who acquires an interest in real property with the appropriation must comply with this section. For the purposes of this section, "interest in real property" includes, but is not limited to, an easement or fee title to property.

Subd. 2. **Restrictions; modification procedure.**

(a) An interest in real property acquired with an appropriation from the trust fund or the Minnesota future resources fund must be used in perpetuity or for the specific term of an easement interest for the purpose for which the appropriation was made. The ownership of the interest in real property transfers to the state if:

- (1) the holder of the interest in real property fails to comply with the terms and conditions of the grant agreement or work plan; or
- (2) restrictions are placed on the land that preclude its use for the intended purpose as specified in the appropriation. (b) A recipient of funding who acquires an interest in real property subject to this section may not alter the intended use of the interest in real property or convey any interest in the real property acquired with the appropriation without the prior review and approval of the commission or its successor. The commission shall notify the chairs and ranking minority members of the legislative committees and divisions with jurisdiction over the trust fund or Minnesota future resources fund at least 15 business days before approval under this paragraph. The commission shall establish procedures to

review requests from recipients to alter the use of or convey an interest in real property. These procedures shall allow for the replacement of the interest in real property with another interest in real property meeting the following criteria:

- (1) the interest must be at least equal in fair market value, as certified by the commissioner of natural resources, to the interest being replaced; and
- (2) the interest must be in a reasonably equivalent location, and have a reasonably equivalent useful conservation purpose compared to the interest being replaced, taking into consideration all effects from fragmentation of the whole habitat. (c) A recipient of funding who acquires an interest in real property under paragraph (a) must separately record a notice of funding restrictions in the appropriate local government office where the conveyance of the interest in real property is filed. The notice of funding agreement must contain:
 - (1) a legal description of the interest in real property covered by the funding agreement;
 - (2) a reference to the underlying funding agreement;
 - (3) a reference to this section; and
 - (4) the following statement:

"This interest in real property shall be administered in accordance with the terms, conditions, and purposes of the grant agreement controlling the acquisition of the property. The interest in real property, or any portion of the interest in real property, shall not be sold, transferred, pledged, or otherwise disposed of or further encumbered without obtaining the prior written approval of the Legislative-Citizen Commission on Minnesota Resources or its successor. The ownership of the interest in real property transfers to the state if: (1) the holder of the interest in real property fails to comply with the terms and conditions of the grant agreement or work plan; or (2) restrictions are placed on the land that preclude its use for the intended purpose as specified in the appropriation."

History: *1Sp2001 c 2 s 141; 2002 c 225 s 4; 2006 c 243 s 21; 2013 c 52 s 6*

116P.16 REAL PROPERTY INTEREST REPORT

By December 1 each year, a recipient of an appropriation from the trust fund, that is used for the acquisition of an interest in real property, including, but not limited to, an easement or fee title, must submit annual reports on the status of the real property to the Legislative-Citizen Commission on Minnesota Resources or its successor in a form determined by the commission. The responsibility for reporting under this section may be transferred by the recipient of the appropriation to another person who holds the interest in the real property. To complete the transfer of reporting responsibility, the recipient of the appropriation must:

- (1) inform the person to whom the responsibility is transferred of that person's reporting responsibility;
- (2) inform the person to whom the responsibility is transferred of the property restrictions under section 116P.15; and

- (3) provide written notice to the commission of the transfer of reporting responsibility, including contact information for the person to whom the responsibility is transferred.

After the transfer, the person who holds the interest in the real property is responsible for reporting requirements under this section.

History: *1Sp2005 c 1 art 2 s 136; 2006 c 243 s 21; 2013 c 52 s 7*

116P.17 ACQUISITION OF LANDS OR INTEREST IN LANDS; COMMISSIONER APPROVAL.

Subdivision 1. **Commissioner approval.**

- (a) A recipient of an appropriation from the trust fund who acquires an interest in real property must receive written approval from the commissioner of natural resources prior to the acquisition, if the interest is acquired in whole or in part with the appropriation. A recipient must request the commissioner's approval at least ten business days before the proposed acquisition. When a recipient requests approval under this subdivision, the recipient must simultaneously submit the same information to the commission. Conservation easements to be held by the Board of Water and Soil Resources and acquisitions specifically identified in appropriation laws are not subject to commissioner approval under this section.
- (b) The commissioner shall approve acquisitions under this section only when the interest in real property:
 - (1) is identified as a high priority by the commissioner and meets the objectives and criteria identified in the applicable acquisition plan for the intended management status of the property; or
 - (2) is otherwise identified by the commissioner as a priority for state financing.

Subd. 2. Value assessment.
At least ten business days prior to acquiring an interest in real property with an appropriation from the trust fund, a recipient of an appropriation must submit the most recent tax assessed value and most recent tax statement of the real property and the amount the recipient plans to offer for the interest in real property to the commission and the commissioner of natural resources. Conservation easements to be held by the Board of Water and Soil Resources are not subject to the requirements of this section. The board shall keep a record of the tax assessed value of the real property at the time of acquisition and the most recent tax statement.

History: *2010 c 362 s 3; 2013 c 52 s 8*

116P.18 LANDS IN PUBLIC DOMAIN.

Money appropriated from the trust fund must not be used to purchase any land in fee title or a permanent conservation easement if the land in question is fully or partially owned by the state or a political subdivision of the state or was acquired fully or partially with state money, unless:

- (1) the purchase creates additional direct benefit to the protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources; and

(2) the purchase is approved, prior to the acquisition, by an affirmative vote of at least 12 members of the commission.

History: 2013 c 52 s 9