**PROJECT TITLE:** Minnesota Invasive Terrestrial Plants and Pests Center: Phase 5

**I. PROJECT STATEMENT**

Invasive species threaten Minnesota’s prairies, wetlands, forests, and agricultural resources. Protecting those lands requires new tools and techniques that can only be developed through applied research and implemented by engaged partners. The Minnesota Invasive Terrestrial Plants and Pests Center (MITPPC) requests $7 million to accelerate up to 15 new, high-priority research projects that will lead to better management of invasive species on the land.

The MITPPC value-added approach extends to (i) leveraging ongoing research efforts, (ii) facilitating new research team development, (iii) convening stakeholders on terrestrial invasive species topics, particularly on issues that affect both the agricultural and natural resource sectors, and (iv) providing administrative and communications support.

MITPPC is being recognized as the nation’s leading university research center to:

* Predict and prevent the arrival of new terrestrial invasive threats;
* Detect and rapidly respond to new pests;
* Mitigate impacts from well-established threats; and
* Quantify the economic impacts of new invasive species and socio-economic barriers to management.

MITPPC‘s coordinated, multi-disciplinary approach has produced important results: three unprecedented technologies have been developed for a hand-held device to identify invasive fungal pathogens in oak trees, a suite of new pest management options and decision-making tools are being delivered to soybean and berry growers, and a novel management strategy that replaces buckthorn with pollinator-friendly native plants has been rigorously tested. These are just a selection of many promising solutions to emerge from MITPPC work, based in high-quality research science.

The multi-disciplinary approach is augmented by strong external partnerships, both through MITPPC’s Advisory Board and with individual research teams. Organizations as diverse as commodity groups, state, federal and tribal agencies, NGOs, growers’ associations are actively engaged with the research teams to bring results to the landscape.

**II. PROJECT ACTIVITIES AND OUTCOMES**

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| **Activity 1: Accelerate research on high priority, terrestrial invasive species** | **Budget: $7,000,000** |

Research projects will focus on the prediction and prevention of threats that are not yet in Minnesota, and on early detection and rapid response of threats that are newly arrived. The white paper, “*Minnesota’s Top 124 Terrestrial Invasive Plants and Pests: Priorities for Research,*” focuses funding by prioritizing the invasive species that pose the greatest threats to Minnesota’s forests, prairies, wetlands, and agricultural resources. The prioritization is revisited regularly and updated as new threats arise and new biological information comes available. For example, the MITPPC was able to respond quickly when Palmer amaranth was found in western Minnesota and to address the impact of jumping worms on our natural resources due to the coordination with state agencies and UMN research scientists.

It is anticipated that 15 new lines of high-priority research projects would be funded, and fund up to seven graduate students and 15 post-doctoral associates. With this investment, a new generation of applied scientists will be cultivated who will address current and future terrestrial invasive species threats.

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| **Outcome** | **Completion Date** |
| 1. New tools and technologies developed to detect and characterize the distribution of invasive species. | June 30, 2025 |
| 2. New, effective prevention and management alternatives developed and tested. | June 30, 2025 |
| 3. Predictive tools created to account for invasive species issues under future conditions. | June 30, 2025 |
| 4. Socio-economic analyses completed to better gauge impacts from, and responses to, terrestrial invasive species. | June 30, 2025 |

**III. PROJECT PARTNERS**

Each project is strongly encouraged to partner with an external entity, preferably one that can implement research findings. Current research project partners include the Minnesota departments of agriculture, natural resources, and transportation, the US Forest Service, Minnesota Soybean Research and Promotion Council, Fond du Lac Band of Lake Superior Chippewa, the Friends of the Mississippi, and the Minnesota Fruit and Vegetable Growers. The MITPPC strongly supports the idea that its success is tied to measurable outcomes on-the-ground. MITPPC partners set the research themes for MITPPC, specifically the need for new techniques and technology to 1) detect and report distributions of invasive species, 2) improve management of terrestrial invasive species, 3) better forecast consequences of future conditions on terrestrial invasive species; and 4) consider socioeconomics to improve invasive species management. Implementation partners engage with researchers at the project level to ensure outcomes will improve management. Some partners may even help to conduct the research by providing labor, land, or other resources. Lastly, implementation partners work to ensure that research has meaningful outcomes.

**IV. LONG-TERM IMPLEMENTATION AND FUNDING**

Terrestrial invasive species affect nearly every Minnesotan and landscape. Invasive weeds, pathogens, insects, and arthropods threaten to lower the biodiversity and aesthetic value of prairies and wetlands, increase damage to urban and rural forests, and increase economic damage to grain and fruit producers. In total, terrestrial invasive species cost Minnesotans at least $3 billion annually.

**V. TIMELINE REQUIREMENTS**

A typical research project takes 3-5 years, and at least another 3-5 years is needed for implementation. Close collaboration with implementation partners at the outset will allow MITPPC to achieve its goals by 2025.