

The Minnesota Invasive Terrestrial Plants and Pests Center researches and develops effective measures to prevent and minimize the threats posed by terrestrial invasive plants, pathogens, and pests, in order to protect the state's native prairies, forests, wetlands, and agricultural resources.

80

The number of estimated UMN faculty with expertise in terrestrial invasive species research

10

The number of UMN Research and Outreach Centers participating with the MITPPC

Of the major university-based invasive species centers, MITPPC is the only one with significant funds dedicated to research

Amount of Public Support:

\$6.46 MILLION

from Environment and Natural Resource Trust Fund

\$3.4 MILLION

from General Fund

Close working relationships are developing with state agencies to help build bridges between research and implementation

MITPPC

Minnesota Invasive Terrestrial Plants and Pests Center

www.mitppc.umn.edu

College of Food, Agricultural and Natural Resource Sciences

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FIRST ROUND GRANTS

\$1.25 MILLION

14 Total students funded:

- 3 post-docs;
- 3 graduate students;
- 6 undergraduate students;
- 2 research fellows

4

The number of proposals funded

6 University departments involved;

state agencies, **2**

2 nonprofits, and

private business **1**

Threats addressed:

- Oak wilt
- buckthorn
- brown marmorated stinkbug
- Eight invasive plants affecting prairies, forests, and agriculture



INVASIVES

\$3 BILLION

Minnesota's annual estimated loss due to terrestrial invasive species

The MITPPC and its partners are prioritizing a list of 120 invasive pests, pathogens, and plants to guide its grantmaking

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February 11, 2016



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Driven to DiscoverSM

Minnesota Invasive Terrestrial Plants and Pests Center

**Applied Research for Partnerships,
Productivity, and Protection**

February 11, 2016



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Mission of Minnesota Invasive Terrestrial Plants and Pests Center (MITPPC)



“The purpose (of the MITPPC) is to **research and develop effective measures** to prevent and minimize the threats posed by terrestrial invasive plants, pathogens, and pests ... to protect the state’s native prairies, forests, wetlands, and agricultural resources.”
[ML 2014, Ch. 312, Sec 44]



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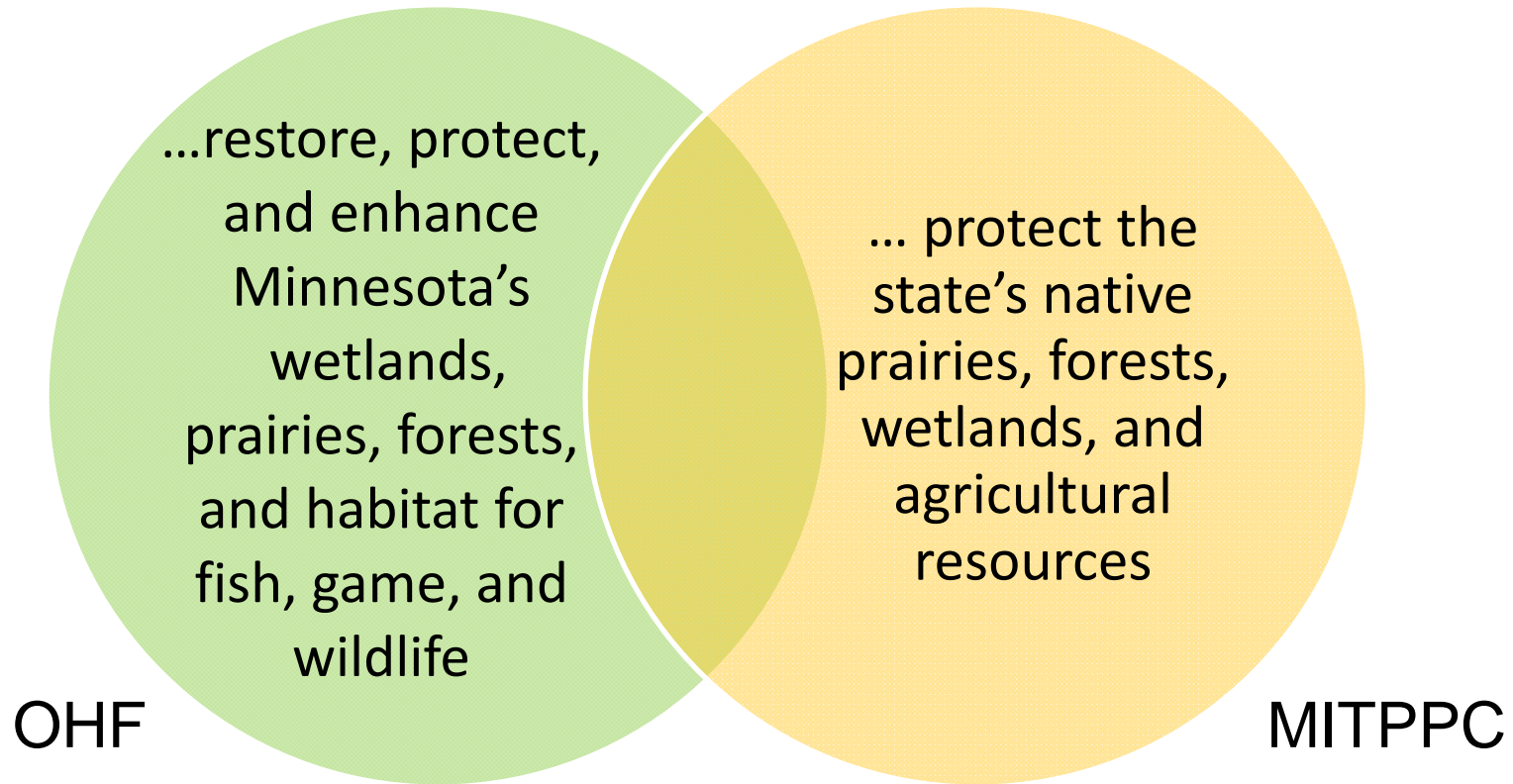
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Outdoor Heritage Fund and Minnesota Invasive Terrestrial Plants and Pests Center have complementary purposes.



MITPPC will fulfill its mission by:

- Producing new technologies and techniques
- Delivering workable solutions to partners
- Educating and training the next generation of scientists



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Why the University of Minnesota?

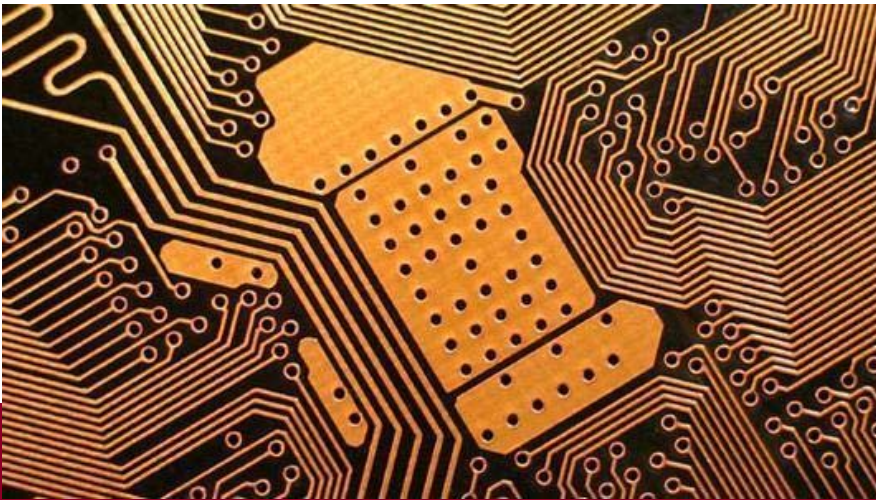


Capacity for Productivity

- People: Faculty, staff, & students
- World-class research facilities
- 10 Research and Outreach Centers around the state

Emphasis on Partnerships

- Collaboration with state agencies, NGOs, private industry



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MITPPC brings added value



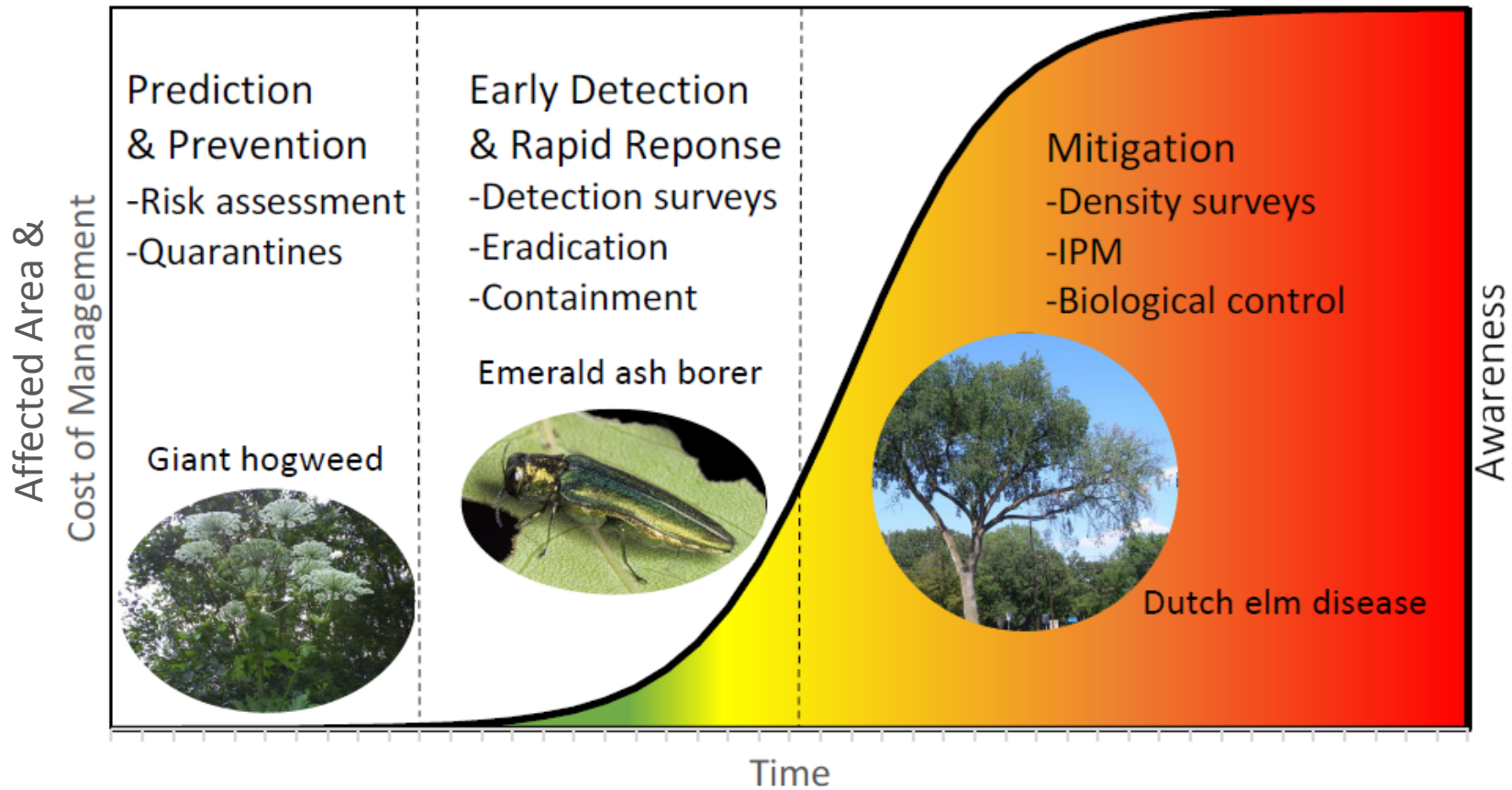
- Sets common priorities so dollars can be targeted for impact
- Coordinates multi-disciplinary approach; access to top faculty
- Fosters graduate student training to expand future impact
- Keeps emphasis on products that are useful to partners
- Structured response to be flexible and preventive



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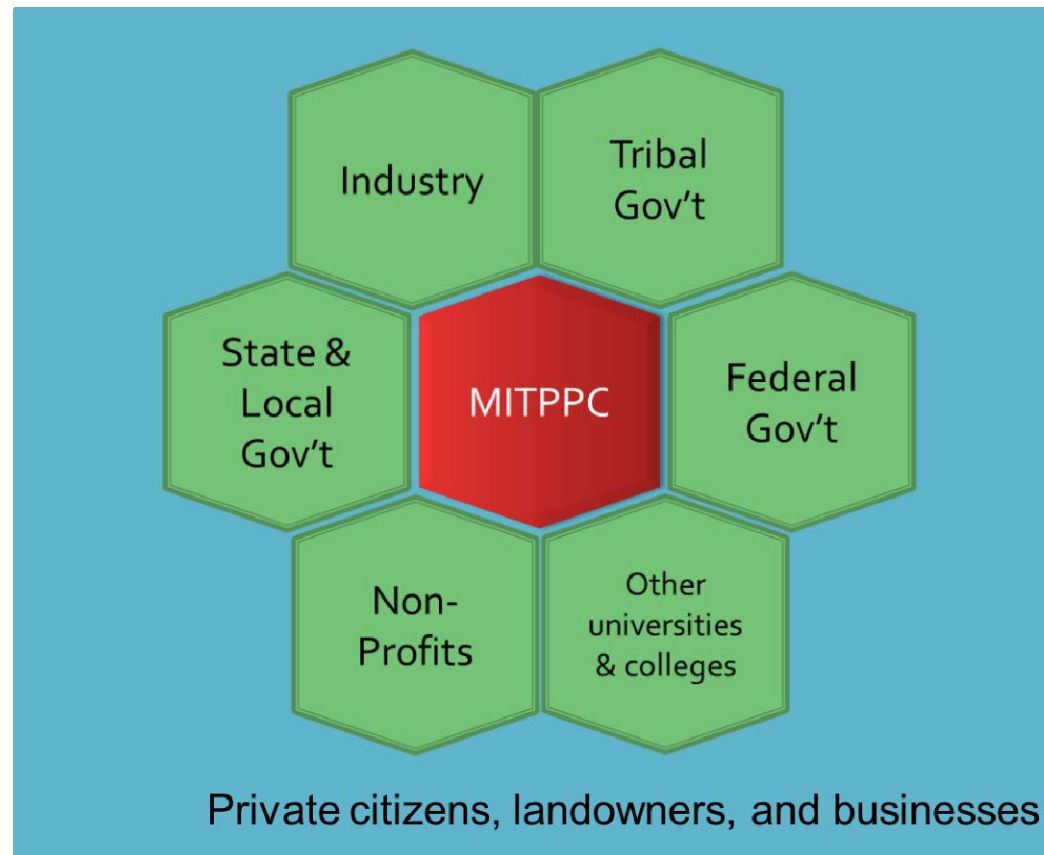
Multi-Disciplinary Response



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The successes of the MITPPC and our partners are interconnected



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Funding and startup of MITPPC

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Current Funding is from the general fund and the Minnesota Environment and Natural Resource Trust Fund

- \$3.4M general fund, ML 2014
- \$1.46M ENRTF, ML 2014
- \$5M ENRTF, ML 2015
- \$3.75M ENRTF currently pending for ML 2016



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Rapid research prioritization



Goal: Identify pressing research needs among partner organizations and launch initial research projects



Involved 4 agencies

Brainstorm research topics for MITPPC

Select top 4 research priorities

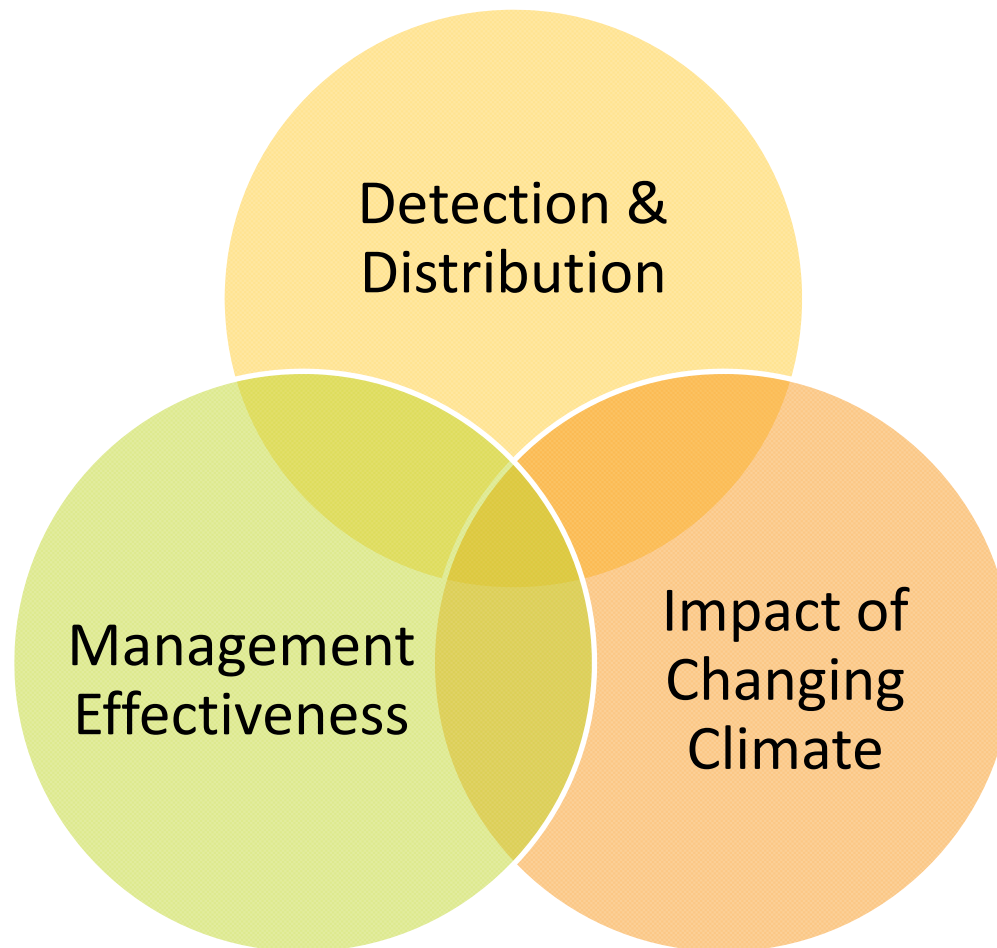
- Help agency achieve mission
- Other agencies might benefit
- In-kind or \$ support from agency
- Could be completed at the UMN



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Rapid Prioritization-Top Research Themes



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Rapid Prioritization-Top Research Taxa

25 NOXIOUS WEEDS

- **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*
- **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*
- **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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Initial research projects



Brown marmorated stink bug:
Detection, distribution
and forecasts



Nine noxious weeds:
Current and future
distribution



Oak wilt:
New diagnostic technologies



Buckthorn:
New, sustainable
management



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Where to next?



Prioritizing the top 120 terrestrial invasive species that threaten Minnesota



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Photo from The Nature Conservancy



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