

**Environment and Natural Resources Trust Fund
2010 Request for Proposals (RFP)**

LCCMR ID: 122-D

Project Title:

Reducing Spread of Japanese Beetle and Emerald Ashborer

LCCMR 2010 Funding Priority:

D. Invasive Species

Total Project Budget: \$ \$317,643

Proposed Project Time Period for the Funding Requested: 3 years, 2010 - 2013

Other Non-State Funds: \$ \$0

Summary:

Reducing the spread of landscape invasives through low risk insecticides and biocontrol (nematodes and protozoans) for Japanese beetle and proper use of systemic insecticides for emerald ash borer.

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Sponsoring Organization: U of MN

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Location:

Region: Statewide

County Name: Statewide

City / Township: St. Paul, Ramsey

_____ Knowledge Base	_____ Broad App.	_____ Innovation
_____ Leverage	_____ Outcomes	
_____ Partnerships	_____ Urgency	_____ TOTAL

PROJECT STATEMENT: The goal of this collaborative project is to reduce the spread of the invasive exotic Japanese beetle (JB) and emerald ash borer (EAB) into Minnesota through educational programs, hands on interactions with the public, and demonstration projects on appropriate management programs.

As part of my research program on JB, I have seen trap catches increase 1000 times in the last 5 years in the metro, as JB spreads from golf courses into recreational fields, parks, and home lawns because proper insecticides are not used and timed to the vulnerable grub stage. Female JB prefer to feed on golfcourse turf because it is irrigated and high in nitrogen. Specific insecticides are effective for adult beetles feeding on roses, lindens, and grapes, while grubs feeding on the roots of turf require different management and insecticides. Environmentally friendly commercially available products are effective, but are rarely used in Minnesota, such as nematodes and insect growth regulators (IGR, halofenozide) that do not harm humans and wildlife. In the 1960's JB was a major pest in the East, but today numbers are low. Researchers have determined that soil-inhabiting protozoans kill the grubs. These protozoan's when released on golf courses in Michigan were effective in killing grubs. Through the use of the UMN-MDA quarantine facility these protozoans need to be brought to Minnesota for research programs and then released. My UMN-MDA publication on JB management can be viewed at the CUES website (<http://www.entomology.umn.edu/cues/extpubs/7664japanese/DG7664.html>) as well as my CUES section on turf management (<http://www.entomology.umn.edu/cues/IPM-turf/IPM-turf.html>).

The JB research project on the St. Paul Campus will have 3 components: demonstration project, hands on workshops to review the demonstration project, and basic research on the use and establishment of JB protozoans thru the UM-MD quarantine facility. A demonstration project on the efficacy of low risk commercially available management (nematodes and IGR) compared to 3 conventional insecticides (imidacloprid, bifenthrin, and trichlorofon) will be visited during the annual UM Turf Field Day and two-UM-MDA recertification workshops for pesticide licenses (attendance of both around 200). The workshop will also be delivered at 8 other sites around the state as part of MDA-UMN-MNLA-MNTGFpesticide recertification program and arborists workshops.

The economic risk from EAB is high, since it was discovered in spring 2009 on the Minnesota and Wisconsin border. Minnesota has the third largest population of ash trees in the US (867 million ash trees on forestland). Since its interception in Michigan and neighboring Windsor, Ontario in June 2002, EAB has spread to 40,000 square acres, killed over 50 million ash trees and necessitated the removal of to 12 million ash trees, estimated to be between to cost in Ohio between 0.3 and 1.3 billion dollars. Professionals and homeowners need to receive educational programs about proper insecticide use that were developed in EAB established states. The EAB demonstration project on the St. Paul campus will show the different technologies to apply insecticides to ash trees. It will be reviewed during the annual UM Turf Field Day and two-UM-MDA recertification workshops for pesticide licenses (attendance of both around 200).The workshop will also be delivered at 8 other sites around the state as part of MDA-UMN-MNLA-MNTGFpesticide recertification program and arborists workshops.

This research and outreach program will help reduce the spread of JB and EAB throughout Minnesota. Establishment of the protozoans that kill JB grubs in the East and Michigan will reduce JB numbers on golf courses. We will work with an advisory committee composed of stakeholders from state agencies, landscape associations, and conservation groups to disseminate this research-based management information.

II. DESCRIPTION OF PROJECT RESULTS

Total budget: \$317,643

Result 1. Research programs. Work with state agencies to bring JB protozoan into the UM-MDA quarantine facility. Study the efficacy on the beetle in the lab and in the field.

Budget: \$217,143; Completion date: June 2013

Deliverable 1. Determine protozoans found to control JB in Connecticut and introduced into Michigan can control JB grubs in MN. Work with MDA and DNR to permit the release of the protozoans.

Result 2. Demonstration and outreach programs: Workshops and field days on JB and EAB management options.

Budget: \$96,000; Completion date: June 2013

Deliverable 2. Demonstration projects on St. Paul campus for JB and EAB. A demonstration project on the efficacy of low risk commercially available management (nematodes and IGR) compared to 3 conventional insecticides (imidacloprid, bifenthrin, and trichlorofon). Demonstration projects will be visited during the annual UM Turf Field Day and two-UM-MDA recertification workshops for pesticide licenses (attendance of both around 200) The workshop will also be delivered at 8 other sites around the state as part of pesticide recertification, MNLA (MN Nursery and Landscape Association), and arborists workshops. Provide articles and talks in state and commodity group newsletters and meetings. Use the popular landscape management website CUES (www.entomology.umn.edu/cues) to disseminate the information

Result 3. Advisory committee meetings

Budget \$4,500: Completion date: June 2013

Deliverable 3. Create advisory panel with stakeholders and meet every 6 mo to discuss research, field days, workshops, and outreach materials. Write and produce collaborative bulletins with members.

III. PROJECT STRATEGY

A. Project Team/Partners: Create an advisory panel with stakeholders.

1. MNLA, MN Landscape Association
2. MNTGF, MN Turf and Grounds Foundation
3. MSA, MN Society of Arboriculture
4. Private Arborists
5. Golf course superintendants
6. MDA, DNR

B. Timeline Requirements

Three years are needed to perform experiments and deliver research-based recommendations to stakeholders around Minnesota.

July 1, 2010 Initiate outreach and research

Collaborations: Convene advisory committee every 6 months, 6 times over the 3 year grant

Research: Initiate summer research on collecting and performing efficacy experiments in the quarantine lab on JB protozoans

Demonstration Projects: Set up demonstration projects on the St. Paul campus to investigate the efficacy of low risk and conventional insecticides for JB grubs and adults. Establish ash tress and show proper insecticide application techniques. Determine levels of imidacloprid in leaves through bioassays with JB.

Outreach Workshops: Convene 8 workshops, 24 times over the 3 year grant a year around the state to discuss issue and present data.

Outreach materials: Write and produce collaborative bulletins with members of the advisory committee on the results of the research and demonstration projects. Distribute bulletins and construct a section on the CUES website (<http://www.entomology.umn.edu/cues>)

May 2013 all grant products, website, workshops, and outreach materials finished

June 30, 2013 Project completed

C. Long-Term Strategy

Statewide, provide precise management information to reduce the spread of JB and EAB to reduce destruction to natural resources and economic impact.

Project Budget

Reducing spread of Japanese beetle and emerald ashborer

IV. TOTAL PROJECT REQUEST BUDGET

BUDGET ITEM	AMOUNT	% FTE
Personnel: Graduate Student \$35,000+17.14%fring=\$34,304 x 3yrs	\$108,143	50%
Undergraduate student \$12,000+ x 3yrs	\$36,000	100%
Research supplies: Colleting JB and protozoans, cages, plants	\$81,000	
Workshops and field days: professionals, landscape managers,homeowners	\$24,000	
Travel: Collect JBprotozoans, scientific meetings, meet w/ advisory committee, talks	\$38,500	
Outreach Publications: JB and EAB management, results of demonstration projects	\$24,000	
Reseacrh publications	\$6,000	
Equipment/Tools:	NA	
Acquisition (Including Easements):	NA	
Restoration:	NA	
Other:	NA	
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$317,643	

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Remaining \$ From Previous Trust Fund Appropriation (if applicable):	NA	
Other Non-State \$ Being Leveraged During Project Period:	NA	
Other State \$ Being Spent During Project Period:	NA	
Past Spending: Published 3 research papers, extension bulletin on Japanese beetle, book on management of landscape pests, and CUES website	\$100,000	

PROJECT TITLE: Reducing spread of Japanese beetle and emerald ashborer

Project Manager Qualifications and Organization Description

The PI is a tenured Faculty in the Entomology Department of the College of Food, Agricultural and Natural Resource Sciences at the University of Minnesota. One of the goals of the College is to develop viable food and agricultural systems, while maintaining healthy natural resources. The PI has over 30 years of research expertise and publications in this area. Equipment and facilities are available for this research.

Dr. Vera Krischik, Assoc. Professor and Ext. Urban Landscapes, Department of Entomology, University of Minnesota, St. Paul Campus

Vera obtained her PhD from the University of Maryland in 1984, was a researcher at the New York Botanical Garden (NSF sponsored Visiting Professor for Women, 1991-1993), and was an IPM coordinator at USDA, Washington DC from 1988-1994. She teaches a Pesticide Use Course and Ornamental and Turf IPM Course. She has published papers on JB and imidacloprid. She has two books: one published by John Wiley entitled " Microbial Mediation of Plant Insect Interactions" and another published by the MN Agricultural Experiment Station on "IPM of Midwest Landscapes": She is director of CUES: Center for sustainable urban ecosystems, that promotes natural resource management, online at www.entomology.umn.edu/cues.

Dr. Krischik offers workshops for MDA pesticide certification and recertification every year. She is an invited participant to the MDA DNR gypsy moth committee, EAB committee, and JB committee over the years. She has partnered with MDA, DNR, MNLA, MNTGF, master gardeners, and watershed districts for her outreach and research programs and publications.

