

**Environment and Natural Resources Trust Fund  
2014 Request for Proposals (RFP)**

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**Project Title:**

**ENRTF ID: 073-C**

Bee Discovery Center at the Minnesota Landscape Arboretum

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**Category:** C. Environmental Education

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**Total Project Budget: \$** 615,279

**Proposed Project Time Period for the Funding Requested:** 1 Year, July 2014 - July 2015

**Summary:**

The Minnesota Landscape Arboretum's new Bee Discovery Center will offer hands-on learning experiences for everyday people and communities to learn how they can protect bees and bee habitat.

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**Name:** Peter Moe

**Sponsoring Organization:** U of MN, Landscape Arboretum

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Chaska MN 55318

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**Location**

**Region:** Statewide

**County Name:** Anoka, Blue Earth, Brown, Carver, Dakota, Freeborn, Goodhue, Hennepin, Le Sueur, McLeod, Nicollet, Ramsey, Rice, Scott, Sherburne, Sibley, Stearns, Waseca, Wright

**City / Township:**

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_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ Employment	_____ TOTAL _____%



**PROJECT TITLE: Bee Discovery Center at the Minnesota Landscape Arboretum**

**I. PROJECT STATEMENT**

Imagine a supermarket produce aisle without cherries, plums, pumpkins, cucumbers, and berries. Numerous fruits and vegetables depend on bee pollination, an ecological service valued in North America at \$20 billion a year. We are now seeing the stresses of modern day pollination take their toll on honey bees. Most recently, colony collapse disorder and other emerging threats are causing the deaths of entire hives of bees. Their survival is in peril at a time when the demand for pollination services is skyrocketing. The Minnesota Landscape Arboretum is seeking to be on the forefront of a timely and critical movement to protect bees and bee habitat.

The Minnesota Landscape Arboretum is working with the Bee Lab at the University of Minnesota, led by Marla Spivak, in its unique capacity to engage and educate the public on this critical issue by creating a new **Bee Discovery Center to engage our 350,000 visitors a year**. With support from LCCMR, the Bee Discovery Center will provide a powerful combination of interactive, highly visual exhibits, a Pollination Garden that reflects the seasons in Minnesota, and an Apiary for visitors to safely watch bees at work, creating a depth of hands-on discovery unprecedented in the region.

The Bee Discovery Center will engage children and adults in both formal and informal hands-on learning experiences that provide them with ideas and tools that help them to make changes in their lives – think: how to create a bee friendly habitat in their backyard. From displays that take visitors into the inner workings of the hive, to demonstration on the agricultural and ecological importance and role of bees as pollinators, the Bee Discovery Center will promote ways in which everyday people and communities can protect bees and bee habitat – supporting the goals of LCCMR to restore and maintain a healthy and biodiverse natural environment.

**II. DESCRIPTION OF PROJECT ACTIVITIES**

**Activity 1: Create a 1,600 square foot indoor "Central Exhibit" space** **Budget: \$529,954**

The 1,600 square feet of Central Exhibits will be divided into several zones of well-designed displays that align closely with current research, close-up videos, and thoughtful interpretation. Concepts included: life inside the hive, bees in flight, beekeeping through the seasons including honey harvest, interdependence of people/plants/bees, and a sit-down area that includes a "Be a Bee" corner for young children and books and resources for children and adults.

<b>Outcome</b>	<b>Completion Date</b>
1. Zone 1: Visitors experience the sensation of entering the world of the honeybee – such as what a queen and the workers do, role of drones, how bee anatomy supports pollination.	Winter 2014
2. Zone 2: Visitors will learn about the social workings inside the hive and the activities of bees and their keepers as tied to the seasons.	Winter 2014
3. Zone 3: Visitors will learn about the intersection of bees, plants and human health.	Winter 2014
4. Zone 4: Visitors to the Honey Kitchen become discover essential pollination services bees provide to a multitude of fruit and vegetable crops and partake in honey demonstrations.	Winter 2014

**Activity 2: Create a 20,000 square foot Pollinator Garden** **Budget: \$165,843**

The Pollinator Garden will include 30 species of native plants, five native shrubs with pollen and nectar, and four species of trees for propolis. It will be organized around a central pavilion from which paver/mulch paths lead to planting beds organized by bloom season and also an agricultural garden. The gardens will be surrounded by an



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outer planting ring with propolis-producing trees, hedgerow plantings, and benches for shade seating. Concepts include: bee-friendly demonstration plantings, flower/bee adaptations for pollination, why people need bees, and importance of other native bees as pollinators.

<b>Outcome</b>	<b>Completion Date</b>
1. Visitors to the central “waggle dance” pavilion will learn about how bees communicate.	<i>Spring 2015</i>
2. Visitors to the bee friendly demonstration plantings will learn that bees need food all season long, how people can create low cost, low maintenance bee friendly environments in their yards using perennials, annuals, shrubs and groundcovers.	<i>Spring 2015</i>
3. Visitors to the agricultural garden will discover the essential pollination services bees provide to a multitude of fruit and vegetable crops.	<i>Spring 2015</i>
4. Students on field trips and daycamps will be engaged in hands-on learning experiences that take them beyond the fear of a sting to an understanding and appreciation for the essential role pollinators play in food production and plant reproduction and about the environmental factors that threaten their survival.	<i>Spring 2015</i>

**III. PROJECT STRATEGY**

**A. Project Team/Partners**

- 1) Peter Moe, Director of Operations, Arboretum. Project Manager – will coordinate design and development of Pollination Garden plantings, structures and circulation system.
- 2) Sandy Tanck, Manager of Interpretation, Arboretum. Lead planning to design, develop and produce interpretive displays and signage inside Bee Discovery Center and in outdoor Pollination Garden.
- 3) Dr. Marla Spivak and the scientists and graduate students at the U of M Bee Lab will provide current research based information and will review materials for scientific accuracy.
- 4) Tim Kenny, Director of Education, Arboretum. Ensure indoor and outdoor displays and interpretation meet the needs of adult, family and other specialized group program users.
- 5) Randall Gage, Manager of Youth Education, Arboretum. Ensure exhibits and garden displays, facilities and interpretation will meet the needs of school fieldtrip and summer children’s program users.

**B. Timeline Requirements**

Construction of the Bee Discovery Center will be completed by July 1, 2014. The design of exhibits and Pollinator Garden will start in Fall 2014 with expected completion by Spring 2015.

**C. Long-Term Strategy and Future Funding Needs**

The Bee Discovery Center is part of the University of Minnesota Landscape Arboretum’s Master Development Plan. To date the Arboretum has secured \$2.85 M from private donors for capital construction, roadway infrastructure and endowment, generating a strong sense of excitement and imminence that this will soon be an important resource and destination for the region. A Pollinator Center with a butterfly/hummingbird house is a likely future addition to the Bee Discovery Center.

<b>2014 Detailed Project Budget</b>		
<b>Project Title: Bee Discovery Center at the Minnesota Landscape Arboretum</b>		
<b>IV. TOTAL ENRTF REQUEST BUDGET 1 YEARS</b>		
<b>BUDGET ITEM</b>	<b>AMOUNT</b>	
<b>Personnel:</b>	<b>\$ 21,279</b>	
Lead Gardener (.20 FTE) - lead garden design, plant selection, overall project management for the Pollinator Garden and oversee garden construction under the supervision of Director of Operations	\$ 12,275	
Interpretive Assistant (.20 FTE) - supports Manager of Interpretation on developing exhibit interpretation and signage	\$ 9,004	
<b>Contracts:</b>	<b>\$ 495,000</b>	
Issue RFP and select a contractor for exhibit design and fabrication (estimate is based on 1,600 square feet of exhibit space @ \$300 sq/ft)		
Issue RFP and select a contractor for design of Pollinator Garden		
<b>Equipment/Tools/Supplies:</b>	<b>\$ 99,000</b>	
Prepare soil	\$ 3,000	
Install irrigation	\$ 10,000	
Plant plants (estimated at 1 plant per 2 square feet @ 15,000 square feet)	\$ 65,000	
Lay Mulch	\$ 5,000	
Interpretive signage & labelling	\$ 12,000	
Microscopes for outdoor use (40 @ \$100 each)	\$ 4,000	
<b>TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =</b>	<b>\$ 615,279</b>	

**V. OTHER FUNDS**

<b>SOURCE OF FUNDS</b>	<b>AMOUNT</b>	<b>Status</b>
<b>Other Non-State \$ Being Applied to Project During Project Period:</b> The Arboretum has secured \$2,000,000 for the Bee Center Building including infrastructure and endowment for maintenance and \$850,000 for a new road to the Bee Discovery Center. The building will be complete on 9/1/2014.	\$2,850,000	Secured
<b>Other State \$ Being Applied to Project During Project Period:</b>	\$ -	NA
<b>In-kind Services During Project Period:</b> Arboretum personnel will be provided in-kind including: Director of Operations (.05 FTE), Manager of Interpretation (.75 FTE), Director of Education (.05 FTE), Manager of Youth Education (.05 FTE)	\$ 80,518	Secured
<b>Remaining \$ from Current ENRTF Appropriation (if applicable):</b>	\$ -	NA
<b>Funding History:</b>	<b>\$ 3,560,000</b>	
LCCMR Funding History		
2005: Land Acquisition - \$650,000		
2003: Land Acquisition - \$350,000		
2001: Land Acquisition - \$730,000		
1999: Land Acquisition - \$700,000		
1997: Land Acquisition - \$450,000		
1995: Land Acquisition - \$680,000		



## **Project Manager Qualifications**

Peter Moe has been the Director of Operations and Research at the Minnesota Landscape Arboretum since 1975. In his 38 years with the Arboretum, Mr. Moe has overseen and led the development of a constantly evolving public garden that includes 1,137 acres of plant collections, display gardens, research plots and natural areas. Overall he supervises 80 employees and manages a \$5.4M operating budget and a \$5M capital budget for the Arboretum.

Mr. Moe has played a major role in growing the Arboretum through a strategic land acquisition program. Over the past 20 years Mr. Moe has overseen many acquisitions including:

- 227 acres purchased from willing sellers using Legislative Citizen Commission for Minnesota Resources (LCCMR) and private matching funds;
- Working with the University of Minnesota to purchase of 90 acres of maple-basswood forest, wetlands and tillable land in 2008; and
- Most recently gaining the support of LCCMR again during the 2013 funding process to purchase 78 acres of land located adjacent to the Arboretum's Horticultural Research Center on the north side of Highway 5 and east of Bavaria Road in the City of Victoria. The Site contains approximately 20 acres of wetlands, as well as 1,300 feet of lakeshore on Lake Tamarack – the deepest lake in Carver County.

Finally since 1991 Mr. Moe has been an Instructor in Horticultural Science at the University of Minnesota.

## **Organization Description**

### **Organization History**

In 1908, the University bought 78 acres of farmland west of Minneapolis in Chanhassen and formally established the Fruit Breeding Farm to develop fruits, vegetables, and later, landscape trees and shrubs that would thrive in Minnesota. The Arboretum was founded in 1958 on a site near the Fruit Breeding Farm. It began as a research and education facility under the direction of Dr. Leon Snyder, head of the University of Minnesota's Department of Horticultural Science. In 1976, the Fruit Breeding Farm was renamed the Horticultural Research Center to reflect the diversity of horticultural research, and in 1985 it merged with the Arboretum. The Minnesota Landscape Arboretum is one of the few institutions worldwide that identifies and develops cold-hardy fruit and landscape plants.

### **Programs, Strengths and Accomplishments**

The Arboretum is a vital element of the cultural, educational, and economic fiber of the Twin Cities and larger community serving a broad audience with more than 350,000 visitors and nearly 22,000 member households. Today, the Arboretum consists of 1,137 acres of unique public gardens, natural spaces and research areas with 32 display and specialty gardens, 48 generic plant collections, 5,000 species of plants, and 8 native and restored environments. It is a resource for horticultural and environmental information, a center for research and public education, and a place to inspire and offer models for visitors with quality plants in well-designed and maintained displays, collections, model landscapes and conservation areas.