Environment and Natural Resources Trust Fund
2017 Request for Proposals (RFP)

Project Title: **ENRTF ID: 007-A**

Continue Expansion of the Minnesota Wildflowers Online Botanical Reference

Category: A. Foundational Natural Resource Data and Information

Total Project Budget: $ 270,470

Proposed Project Time Period for the Funding Requested: 2 years, July 2017 – June 2019

Summary:

Minnesota Wildflowers Information educates both the public and professionals on Minnesota flora (native and invasive) with an innovative comprehensive image-rich online field guide. Funding accelerates the number of species profiled.

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Sponsoring Organization: Minnesota Wildflowers Information

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Location

Region: Statewide

County Name: Statewide

City / Township:

Alternate Text for Visual:

A visual map of identifying an aquatic plant to using the Minnesota Wildflower website to determine if the plant is a native plant that needs protection or an invasive species to be managed.

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

PROJECT TITLE: Continue Expansion of the Minnesota Wildflowers Online Botanical Reference

I. PROJECT STATEMENT

After 20 months of ENRTF funding (2014-2017) Minnesota Wildflowers Information (MWI) has already expanded its online botanical reference by more than 300 species. An additional and final round of funding will allow us to continue the momentum and profile another 450 or more species by the end of 2020 funding, ultimately covering at least 1700 of Minnesota's 2100+ plants species. With ENRTF funding MWI has been able to nearly double the rate of publication, greatly expand trees, shrubs, grasses and sedges; field work to-date has collected images for 400+ more species awaiting publication. But there is still much work to do. The focus of continued field work would be photographing aquatic species and filling in the gaps of other vascular plant groups; continued publishing would include programming specialized search facilities for these plants as well as adding user-requested enhancements.

The mission of Minnesota Wildflowers Information (MWI) is, in part, to educate Minnesotans on our native plants and raise awareness on invasive species, with our main education tool the online field guide to wild plants in Minnesota, both native and exotic, using over 10,000 high quality photos. From its inception in 2007 through 2013, MWI was nearly entirely funded by its creator and collaborator with volunteer time adding 100 species/yr. ENRTF funding has provided the ability to greatly expand the catalog. The web site is already widely used as a reference by the public and professionals alike, serving over 358,000 unique users in 2015, with over 2.6 million web pages viewed. Apart from a handful of botanists, the average Minnesotan and even most professional natural resource managers are not skilled in plant identification, yet the ability to identify plants is crucial in identifying areas that need protection, in recognizing and managing new or existing invasive species (is this invasive Eurasian water milfoil or a native?), in monitoring restoration projects, in delineating wetlands. MWI's online field guide's easy-to-use web interface is innovative because no other resource makes plant identification so accessible to the common Minnesotan and the engaged land manager alike. MWI is a one-stop shop for learning about both native and invasive plants in Minnesota.

Quality control is paramount to producing a quality reference. The richness of the MWI's online field guide comes from the high quality technical images associated with each species profile and its comprehensive coverage of Minnesota's plants. Experience has taught us that the only way to reliably obtain the quality images required for identification purposes is to photograph them ourselves. Donated images rarely meet the quality standards, are inadequate to supply a complete suite for a species account, or simply do not exist for many Minnesota plants. Gathering technical images requires extensive field work throughout the state May through October, often in physically challenging conditions and rough terrain. Our photos have been requested by and issued to dozens of local, state, national, and global agencies and organizations involved in invasive species outreach and native species promotion and are a valued resource in and of themselves.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Field survey work for plant image and information collection **Budget: $140,470**

Based on recent historical information gathered from Bell Museum Herbarium records and other confirmed accounts, hundreds of locations across Minnesota have already been identified and targeted for survey, in the goal to increase the image catalog by 250-400 species, which includes previously photographed species with incomplete image sets. 13,000 miles per year could be traveled, with 40-50 overnight stays each year, in the effort to capture specific plants at a specific point of development useful in identification. (Travel + personnel)

Outcome	Completion Date
1. Images and information collected for targeted 250-400 species	*June 30, 2020*

Activity 2: Publish an additional 450-600 species in the online field guide **Budget: $130,000**

It takes an average 6-8 hours to publish a single species. Tasks involve: researching identification information from multiple credible botanical sources (Gleason and Cronquist, Flora of North America, etc.), using the most up-to-date nomenclature as used by the Bell Museum Herbarium, choosing and preparing appropriate technical images, writing species accounts using non-technical language, drawing county distribution maps based on herbarium records as well as personal and other confirmed observations, then publishing to the web site.

Outcome	Completion Date
1. Publish a minimum 450 species	*June 30, 2020*

III. PROJECT STRATEGY

A. Project Team/Partners

Team: Katy Chayka, is the creator of MWI and has managed the project since its inception in 2007. A self-employed small business web programmer by profession, she has 15 years of experience managing limited-budget projects for clients and is project manager for the current ENRTF project. Peter Dziuk, field coordinator and lead photographer, has degrees in both Biology and Horticulture and over 18 years experience with the Minnesota Department of Agriculture as state program and field coordinator for gypsy moth, invasive species and other programs, and working with large program budgets.

Project Partners Receiving Funds:

- Katy Chayka [$122,000]: Primary publisher, and assist with field survey
- Peter Dziuk [$146,700]: Primary field surveyor, and assist with publishing

Project Partners Not Receiving Funds:

- Steve Eggers, US Army Corps of Engineers ecologist: additional images
- Jason Husveth, botanist/ecologist: expert peer review and consultation
- The Biota of North America Program (BONAP): national species distribution range maps

B. Project Impact and Long-Term Strategy

This proposal builds on a well-established and much used botanical resource. Minnesota Wildflowers Information is committed to providing this free, quality botanical reference to the general public in perpetuity and is working with the University of Minnesota Bell Museum on a plan to ensure this resource endures. A second and final round of funding will allow MWI to profile 80-90% of Minnesota's flora within 3 years, making it a truly comprehensive, robust botanical reference resource for Minnesotans and land managers. Donations from the general public are sufficient to pay for general operating expenses and the minimal field work outside of Minnesota. Without continued funding, public donations would support a very limited amount of field work and publishing would revert to approximately 100 species/yr.

C. Timeline Requirements

Activity 1 is a seasonal activity, taking place during the growing season from April through October each year. Activity 2 is a year-round activity that is supported with the output of Activity 1; the majority of Activity 2 takes place from October through April.

With ENRTF funding, by the end of 2020, MWI will have published online species profiles for at least 1700 of Minnesota's 2100+ plant species.

2017 Detailed Project Budget

Project Title: *Continue Expansion of the Minnesota Wildflowers Online Botanical Reference*

IV. TOTAL ENRTF REQUEST BUDGET 3 years

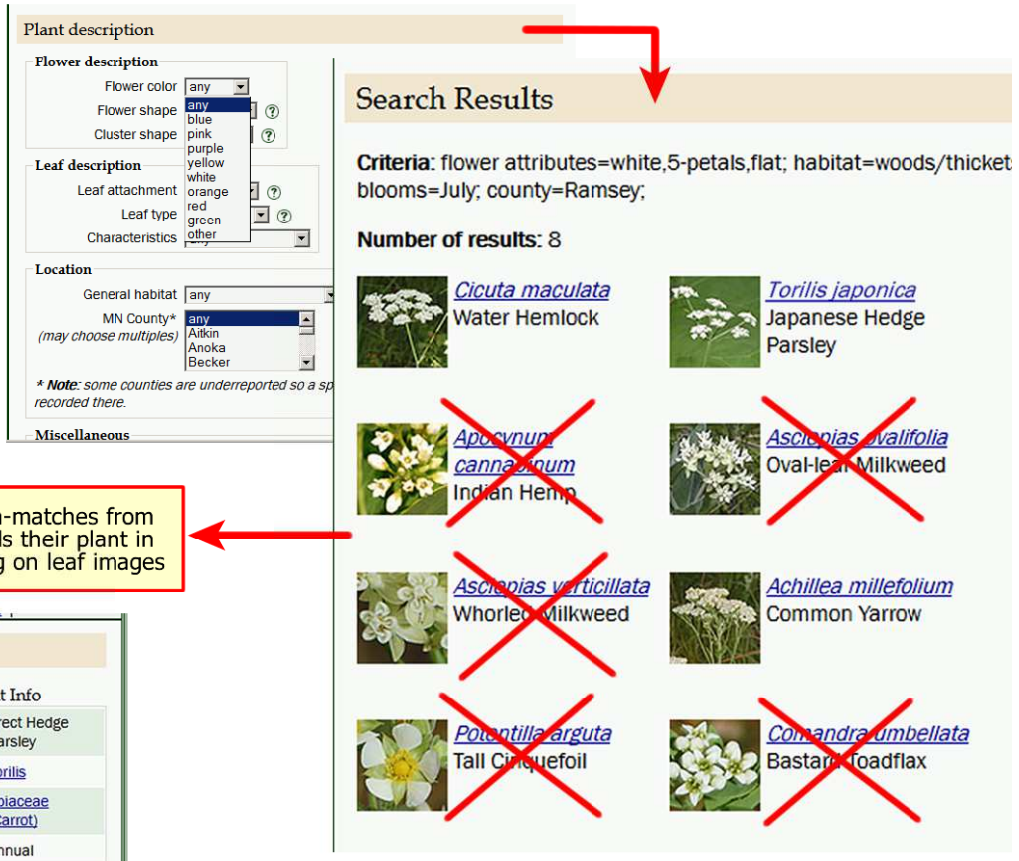
BUDGET ITEM	AMOUNT
Personnel: Seasonal field surveyor (2PTE), 2.1FTE (.7FTE/yr x 3 years), 100% salary, $27/hr	$ 113,400
Personnel: Publishing (2PTE), 2.4FTE (.8FTE/yr x 3 years), 100% salary, $27/hr	$ 129,600
Equipment/Tools/Supplies: Safety GPS Beacon, wet suit, batteries, software, miscellaneous field supplies	$ 1,775
Travel: in-state field visits 36,000 miles (12,000/yr x 0.55 x 3 years), parking and permits	$ 20,295
Travel: Field visits: 40-50 overnight stays per year, food and lodging (campsites)	$ 5,400
Additional Budget Items:	NA
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	$ 270,470

V. OTHER FUNDS

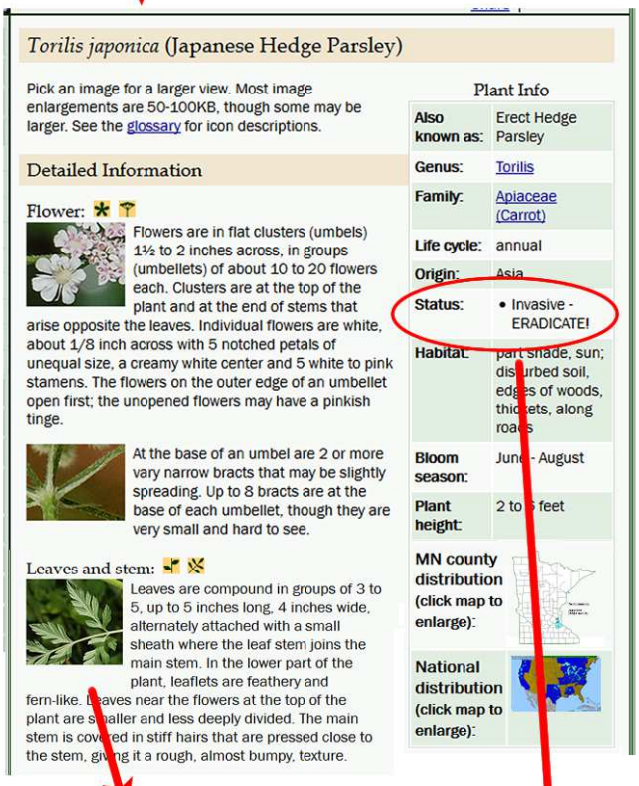
SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ To Be Applied To Project During Project Period: Public donations ($6K/yr x 3 yrs)	$ 18,000	Pending
Other State $ To Be Applied To Project During Project Period:	NA	
In-kind Services To Be Applied To Project During Project Period: Volunteer field work, photo contributions	$ 1,500	Pending
Funding History: ENRTF (2014-2017), funded by volunteers prior to 2014	$ 150,000	Secured
Remaining $ From Current ENRTF Appropriation: ENRTF (2014-2017) as of 2/29/16	$ 62,886	Unspent

Expand the Minnesota Wildflowers Online Botanical Reference

user finds an unknown plant in their woods, garden, or restoration area, comes to Minnesota Wildflowers web site and searches for a match



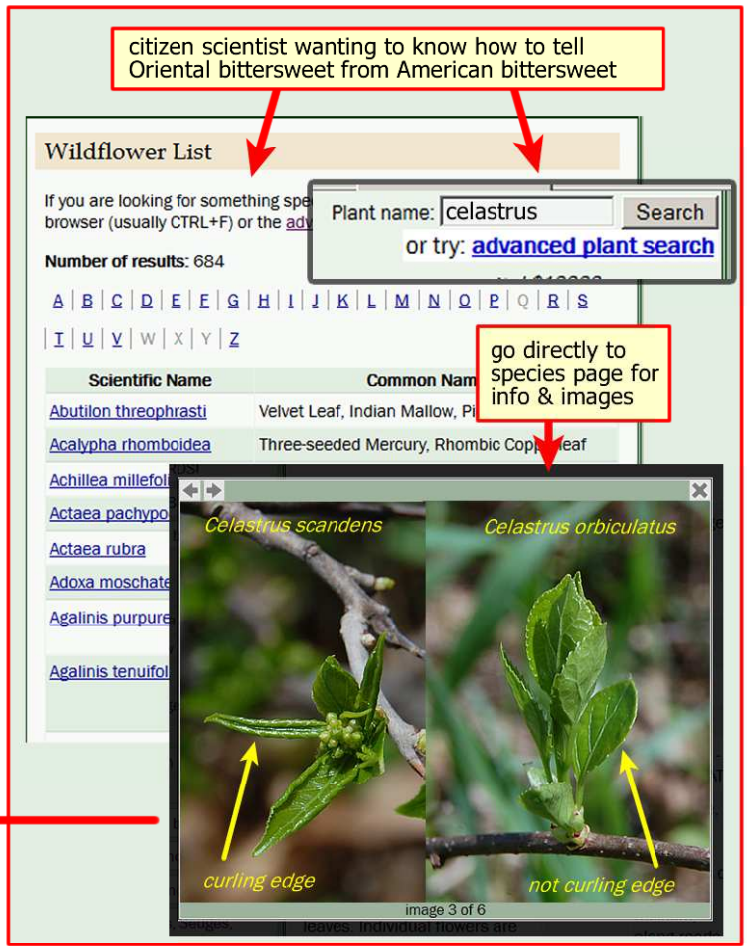
eliminates obvious non-matches from search results and finds their plant in the short list, matching on leaf images



learns it is invasive

takes appropriate action

citizen scientist wanting to know how to tell Oriental bittersweet from American bittersweet



go directly to species page for info & images

Project Manager Qualifications

Katy Chayka is the creator of MWI and has managed it since its inception in 2007. A self-employed small business web programmer by profession, she has 15 years of experience managing limited-budget projects for clients and is project manager for the current ENRTF project.

Organization Description

The Minnesota Wildflowers web site began as a private endeavor by Catherine (Katy) Chayka in 2006, in response to the poor resources available to the general public learning about plants growing wild in Minnesota. The initial web site was launched in March 2007 with approximately 15 species. In 2009 with nearly 300 species published, Peter Dziuk joined as a collaborator, contributing a private collection of approximately 50,000 plant images. The two have been managing the web site together ever since. As of January, 2015, approximately 900 plant species are profiled with the goal of recording all 2200+ species in Minnesota then branching into neighboring states, becoming a complete reference for the entire Upper Midwest.

The MWI mission is to educate Minnesotans on our native plants, raise awareness on threats like invasive species, and inspire people to explore our great state, appreciate its natural heritage, and become involved in preserving it.