



# Environment and Natural Resources Trust Fund (ENRTF) M.L. 2014 Work Plan

**Date of Report:** May 12, 2014

**Date of Next Status Update Report:** January 30, 2015

**Date of Work Plan Approval:**

**Project Completion Date:** 06/30/2017

**Does this submission include an amendment request?** NO

**PROJECT TITLE:** Expansion of Minnesota Wildflowers Online Botanical Reference

**Project Manager:** Catherine Chayka

**Organization:** Minnesota Wildflowers Information

**Mailing Address:** 1590 Long Lake Road

**City/State/Zip Code:** New Brighton, MN 55112

**Telephone Number:** (651) 399-4064

**Email Address:** info@minnesotawildflowers.info

**Web Address:** http://www.minnesotawildflowers.info/

**Location:**

**Plant Survey & Photography:** Selected sites statewide

**Website publishing:** In-house at New Brighton address

**Total ENRTF Project Budget:**

**ENRTF Appropriation:** \$150,000

**Amount Spent:** \$0

**Balance:** \$150,000

**Legal Citation:** M.L. 2014, Chp. 226, Sec. 2, Subd. 05n

**Appropriation Language:**

\$150,000 the second year is from the trust fund to the commissioner of natural resources for an agreement with Minnesota Wildflowers Information in cooperation with the University of Minnesota Bell Museum of Natural History to accelerate field work for surveying and imaging of plant species and publication of species profiles to a plant identification reference website available to the public and land managers. Images acquired and information compiled using these funds are for purposes of public information available on a website. If the organization is no longer able to maintain the website it shall work with the state and the University of Minnesota Bell Museum of Natural History to ensure the materials remain publicly available on the web. This appropriation is available until June 30, 2017, by which time the project must be completed and final products delivered.

**I. PROJECT TITLE: Expansion of the Minnesota Wildflowers Online Botanical Reference**

**II. PROJECT STATEMENT:**

Apart from a handful of professionals, the average Minnesotan and even most professional natural resource managers are not skilled in plant identification, yet the ability to positively identify plants is crucial in identifying areas that need protection, in recognizing new or existing invasive species, in monitoring restoration projects, in delineating wetlands, in managing invasive species. The Minnesota Wildflowers project fills this need by providing a free, web-based field guide that currently profiles over 750 plant species with more than 5500 high quality photos. This 3-year funding commitment will allow the project to more than double the rate new species are published, expand the image catalog by a target 500-700 additional species, and bring it approximately 2/3 the way to profiling all 2100+ vascular plant species in Minnesota, as recognized by the Minnesota Department of Natural Resources.

Quality control is paramount to producing a quality reference. We use only credible botanical sources as well as our extensive personal experience in drafting species accounts. The richness of the resource comes from the high quality technical images associated with each species. Experience has taught us that the only way to reliably obtain the quality images required for identification purposes is to photograph the plants ourselves (donated images rarely meet quality standards, are inadequate to supply a complete suite for a species account, or simply do not exist for many Minnesota plant species). Gathering technical images requires extensive field work throughout the state during the growing season, and intensive publishing through the winter months.

**III. PROJECT STATUS UPDATES:**

**Project Status as of:** January 30, 2015

**Project Status as of:** November 30, 2015

**Project Status as of:** April 30, 2016

**Project Status as of:** November 30, 2016

**Project Status as of:** April 30, 2017

**Overall Project Outcomes and Results:**

**IV. PROJECT ACTIVITIES AND OUTCOMES:**

**ACTIVITY 1: Field Survey and Digital Photography**

**Description:**

Precise, high resolution digital images of all key plant morphological characteristics that are necessary for accurate identification will be collected from locations across the state. Over 99% of images used in the Minnesota Wildflower identification resource are obtained directly in the field by staff through survey, using historical records available from the Herbarium at the Bell Museum of Natural History as a primary source of location information for specific species. Survey sites are selected based on age, habitat quality and site accessibility. While increasing time and mileage, routes such as freeways are avoided, rather state trunk, county highways and rural back roads are utilized allowing for slower speeds, closer proximity to remnant habitats and facilitating frequent stops to explore areas such as road ditches, gravel pits, railroad rights-of-way, and public boat accesses en route to planned survey destinations. Every attempt is made to capture high resolution digital images of all relevant morphological details in a natural setting using natural light and without destroying the

target specimen. When appropriate and permitted, specimens may be collected for further study and photography in vitro. If species are located but not suitable for photography, for reasons such as poor weather or phenology, their locations are documented using GPS for return trips later that season or in subsequent seasons. Most images are reviewed post field season for quality and/or redundancy.

**Summary Budget Information for Activity 1:**

**ENRTF Budget: \$ 41,508**  
**Amount Spent: \$ 0**  
**Balance: \$ 41,508**

**Activity Completion Date:** June 30, 2017

<b>Outcome</b>	<b>Completion Date</b>	<b>Budget</b>
1. 39,000 miles traveled statewide, 40-60 sites visited/yr, complete image sets obtained for 450-750 plant species - both native and exotic, including forbs, trees, shrubs, ferns, grasses, sedges, rushes	June 30, 2017	\$41,508

**Activity Status as of:** January 30, 2015

**Activity Status as of:** November 30, 2015

**Activity Status as of:** April 30, 2016

**Activity Status as of:** November 30, 2016

**Activity Status as of:** April 30, 2017

**Final Report Summary:** A final report will be submitted between June 30 and August 30, 2017.

**ACTIVITY 2: Publishing Plant Identification Pages to the Field Guide**

**Description:**

Species identification accounts are drafted addressing all key morphological structures (i.e. flowers, leaves, stems, etc.). Field notes are cross-referenced with standard accepted botanical references (e.g. Gleason & Cronquist, Flora of North America, Britton & Brown, Smith, Mohlenbrock, Hitchcock, etc.). Any inconsistencies or conflicting information between various references and field observations are resolved prior to publication. County distribution maps are constructed using confirmed personal observations and Herbarium records (Bell, Lakela) for point locations, along with the DNR's MNTaxa county level information. Technical terms are rephrased as needed to ensure understanding by users of all experience levels. Cross references are made to related and/or similar species, and a previously published species may be updated to include new information, additional or improved images, and/or a reciprocal link to the new species account. Cataloged field images are again reviewed for completeness, selected and edited as required to clearly show the desired traits, then optimized for web use and uploaded to the remote web site. The final text draft is typically reviewed by a collaborator before publishing and any errors, omissions or ambiguities corrected.

Taxonomy and the statewide vascular plant spreadsheet published by the Minnesota Department of Natural Resources (i.e. MNTaxa) are reviewed annually. Previously published species accounts are updated when appropriate.

**Summary Budget Information for Activity 2:**

**ENRTF Budget: \$ 108,492**  
**Amount Spent: \$ 0**  
**Balance: \$ 108,492**

**Activity Completion Date:** June 30, 2017

Outcome	Completion Date	Budget
1. 600-700 new plant species pages added to field guide, at least 50% non-forbs (trees, shrubs, ferns, grasses, sedges, rushes)	June 30, 2017	\$ 108,492

**Activity Status as of:** January 30, 2015

**Activity Status as of:** November 30, 2015

**Activity Status as of:** April 30, 2016

**Activity Status as of:** November 30, 2016

**Activity Status as of:** April 30, 2017

**Final Report Summary:** A final report will be submitted between June 30 and August 30, 2017.

#### V. DISSEMINATION:

##### Description:

Individual species additions and updates are announced on the web site's home page (<http://www.minnesotawildflowers.info>) as they are made, and announcements of important project updates and discoveries are made to social networking sites and/or the web site's blog. A statewide email mailing list is being compiled of nature centers, environmental organizations, educators and natural resource agencies to notify those groups of the expanded project and how they may utilize this resource in their own programs. We seek additional public outreach opportunities at relevant expositions and conferences, as well as presentations to garden clubs and other groups interested in the wild plants of Minnesota.

**Activity Status as of:** January 30, 2015

**Activity Status as of:** November 30, 2015

**Activity Status as of:** April 30, 2016

**Activity Status as of:** November 30, 2016

**Activity Status as of:** April 30, 2017

**Final Report Summary:** A final report will be submitted between June 30 and August 30, 2017.

#### VI. PROJECT BUDGET SUMMARY:

##### A. ENRTF Budget Overview:

Budget Category	\$ Amount	Explanation
Personnel:	\$ 120,090	<b>Field survey:</b> .08FTE for 3yrs - P. Dziuk <b>Web publishing:</b> .67FTE for 3 yrs - K. Chayka (base salary for each \$53372/yr, no benefits)
Professional/Technical/Service Contracts:	\$	NA
Equipment/Tools/Supplies:	\$ 2,560	Camping gear, batteries, miscellaneous photography equipment, maps (both printed and for GPS), graphics software

Capital Expenditures over \$5,000:	\$	NA
Fee Title Acquisition:	\$	NA
Easement Acquisition:	\$	NA
Easement – Long-term Monitoring, Management, and Enforcement	\$	NA
Professional Services for Fee Title and Easement Acquisition:	\$	NA
Printing:	\$	NA
Travel Expenses in MN:	\$ 27,350	Field work mileage (13000/yr, statewide), parking, permits, lodging for 45-50 nights/yr, food for overnight trips plus 10-15 day trips/yr (the preferred and least expensive lodging option is tent camping at state parks and other public lands)
Other:	\$	NA
<b>TOTAL ENRTF BUDGET:</b>	<b>\$ 150.000</b>	

**Explanation of Use of Classified Staff:** N/A

**Explanation of Capital Expenditures Greater Than \$5,000:** N/A

**Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation:** 2.25 (~.75 FTE x 3 years)

**Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:** N/A

**B. Other Funds:**

Source of Funds	\$ Amount Proposed	\$ Amount Spent	Use of Other Funds
Non-state	\$ 7,500	\$	Operating costs, field tablet and software, photographic equipment, out-of-state travel, accounting services
<b>TOTAL OTHER FUNDS:</b>	<b>\$7,500</b>	<b>\$</b>	

**VII. PROJECT STRATEGY:**

**A. Project Partners:** A primary partner presently is the Bell Museum of Natural History for the purpose of ensuring permanency of public access to the online field guide and also as a repository of all high resolution images collected by the project. The Bell also provides access to physical specimens for our review, records in their database not readily accessible to the general public, and species identification clarification when requested. The project is also increasingly attracting individual collaborators or contributors that can provide for reliable field observations for species' locations or high quality habitats, as well as providing phenological reports in out-state locations. Plans are being made to incorporate relevant pollinator information, provided by the Xerces Society or other agencies and/or qualified individuals. Volunteer contributors have provided species write-ups on species for which they have experience and in-depth knowledge as well as high quality digital images. These are informal partnerships of various contribution levels or time commitment, but collectively meaningful to date and a high future potential. Such contributors include J. Husveth (Ecologist, CCES, Inc.) and S. Eggers (Ecologist, US Army Corps of Engineers).

**B. Project Impact and Long-term Strategy:** Increases in online usage of just the past several years demonstrates the dramatic future potential of the online field guide. Of two factors that drive usage (presence on internet over time and volume of content), this project's greatest contribution will be towards the latter. It can be expected usage will nearly double, approaching .5M users annually in the 3 year period of this funding cycle. Continued funding will be sought beyond the present period, as well as from other sources.

**C. Spending History:**

Funding Source	M.L. 2008 or FY09	M.L. 2009 or FY10	M.L. 2010 or FY11	M.L. 2011 or FY12-13	M.L. 2013 or FY14
NA – the project has previously been funded by volunteers					

**VIII. ACQUISITION/RESTORATION LIST:**  
NA

**IX. VISUAL ELEMENT:**

**What We Do** →

**Research herbarium records**

**Map out itinerary**

**Drive, drive, drive, take photos**

**Research species identification information**

**Write species account**

**Choose & prepare images**

**Draw map**

**Publish!**

**X. ACQUISITION/RESTORATION REQUIREMENTS WORKSHEET:**

NA

**XI. RESEARCH ADDENDUM:**

NA

**XII. REPORTING REQUIREMENTS:**

Periodic work plan status update reports will be submitted no later than January 30, 2015, November 30, 2015, April 30, 2016, November 30, 2016, and April 30, 2017. A final report and associated products will be submitted between June 30 and August 30, 2017.



<b>Environment and Natural Resources Trust Fund</b>								
<b>M.L. 2014 Project Budget</b>								
<b>Project Title:</b> Expansion of Minnesota Wildflowers Online Botanical Reference								
<b>Legal Citation:</b> <i>M.L. 2014, Chp. 226, Sec. 2, Subd. 05n</i>								
<b>Project Manager:</b> Catherine Chayka								
<b>Organization:</b> Minnesota Wildflowers Info								
<b>M.L. 2014 ENRTF Appropriation:</b> \$ 150,000								
<b>Project Length and Completion Date:</b> 3 years ending June 30, 2017								
<b>Date of Report:</b> May 12, 2014								

<b>ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET</b>	<b>Activity 1 Budget</b>	<b>Amount Spent</b>	<b>Activity 1 Balance</b>	<b>Activity 2 Budget</b>	<b>Amount Spent</b>	<b>Activity 2 Balance</b>	<b>TOTAL BUDGET</b>	<b>TOTAL BALANCE</b>
<b>BUDGET ITEM</b>	<i>Field survey and Photography</i>		<i>Publishing to web</i>					
<b>Personnel (Wages and Benefits)</b>	\$12,318		\$12,318	\$107,772		\$107,772	\$120,090	\$120,090
Catherine Chayka, Project manager: \$107,772 (100% salary); .67 FTE for 3 yrs.								
Peter Dziuk, Field Survey Coord. & Photographer: \$12,318 (100% salary); .08 FTE for 3 yrs								
<b>Equipment/Tools/Supplies</b>	\$1,840		\$1,840	\$720		\$720	\$2,560	\$2,560
Software: photo editing and Garmin maps (~\$870)								
Field maps (~\$60)								
Photographic supplies, camera, batteries (~\$1480)								
Camping supplies (~\$150)								
<b>Travel expenses in Minnesota</b>	\$27,350		\$27,350				\$27,350	\$27,350
Mileage, throughout MN: ~12000/yr								
Lodging: 40-50 nights/yr								
Food: overnight plus 10-15 day trips/yr								
Parking and permits								
<b>COLUMN TOTAL</b>	<b>\$41,508</b>		<b>\$41,508</b>	<b>\$108,492</b>		<b>\$108,492</b>	<b>\$150,000</b>	<b>\$150,000</b>