

# MN PlantWatch 2023 Newsletter



Angela Miner, UMLA

*MN PlantWatch is thrilled to bring you our very first newsletter, which commemorates the completion of the pilot season of our program!*

A little background on who we are and what we do:

Minnesota is home to over 1700 vascular plant species, of which over 300 are listed as Endangered, Threatened, or Special Concern. For many of these rare plants, data on their distribution, population status, threats, and potential management needs are incomplete or outdated, which hinders protection and conservation efforts. The Minnesota Department of Natural Resources (DNR) and the Minnesota Landscape Arboretum (MLA) have partnered to launch MN PlantWatch! Our supporting partners are: the Bell Museum of Natural History, the Minnesota Native Plant Society, and the Minnesota Master Naturalist Program.

Our mission is to harness the power of conservation-minded volunteers across Minnesota to conduct community science and increase knowledge of our rare native plants. Data we collect will further our understanding of the health of our rare species populations and guide decisions on protection and conservation management needs.

Thanks to our team of staff and dedicated volunteers, in the spring of 2023 we launched our pilot season and worked through autumn to survey different species of rare plant populations across Minnesota. A testament to the diversity of our state's flora, we encountered a variety of challenges when applying our protocols to different plant populations across various habitats and landscapes. Data collected will go to update the state's Natural Heritage Information System plant population records.

In addition, we collected seed from multiple populations of several rare plant species to store in the Arboretum's Rare Plant Seed Bank. This serves to help preserve the genetic diversity found across a species' range, provide a back-up seed bank in case of population loss, and provide research opportunities to expand scientific knowledge of these species.

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*Volunteers  
conserving  
Minnesota's  
rare plants  
through  
Community  
Science!*

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## Season Highlights



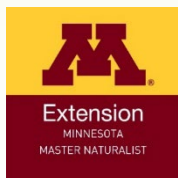
- 64 sites in total were surveyed.
- Target species were relocated at 42 of the sites!
- 56 sites had not been updated in over 25 years (exceeded goal of surveying 40 records over 25 years old).
- 29 different species were surveyed:
  - 2 Watchlist
  - 16 Special concern
  - 8 State threatened
  - 3 State endangered
- 11 population seed collections were completed for seed banking.
- 6 new rare plant population records were reported as a result of PlantWatch surveys, including:
  - *Panax quinquefolius*
  - *Crocianthemum canadense*
  - *Decodon verticillatus*
  - *Eryngium yuccifolium*
  - *Gaillardia aristata*
  - *Baptisia lactea*

## 2023 Species Surveyed List

Scientific Name	Common Name
<i>Arnoglossum reniforme</i>	Great Indian plantain
<i>Asclepias sullivantii</i>	Sullivant's milkweed
<i>Astragalus flexuosus</i>	Slender milkvetch
<i>Baptisia bracteata</i>	Plains wild indigo
<i>Baptisia lactea</i>	White wild indigo
<i>Caltha natans</i>	Floating marsh marigold
<i>Chamaerhodos erecta</i>	Nuttall's groundrose
<i>Cirsium pumilum</i> var. <i>hillii</i>	Hill's thistle
<i>Crataegus douglasii</i>	Black hawthorn
<i>Crocianthemum canadense</i>	Canada frostweed
<i>Crotalaria sagittalis</i>	Rattlebox
<i>Cypripedium arietinum</i>	Ram's head orchid
<i>Desmodium cuspidatum</i>	Big tick trefoil
<i>Deparia acrostichoides</i>	Silvery spleenwort
<i>Eryngium yuccifolium</i>	Rattlesnake master

Scientific Name	Common Name
<i>Gentiana affinis</i>	Pleated gentian
<i>Hamamelis virginiana</i>	Witch-hazel
<i>Hieracium longipilum</i>	Long-bearded hawkweed
<i>Juglans cinerea</i>	Butternut
<i>Lysimachia quadrifolia</i>	Whorled loosestrife
<i>Napaea dioica</i>	Glade mallow
<i>Panax quinquefolius</i>	American ginseng
<i>Paronychia fastigiata</i>	Forked chickweed
<i>Phlox maculata</i>	Wild sweetwilliam
<i>Shepherdia canadensis</i>	Soapberry
<i>Solidago mollis</i>	Soft goldenrod
<i>Synthyris bullii</i>	Kitten-tails
<i>Vitis aestivalis</i>	Silverleaf grape
<i>Xanthisma spinulosum</i>	Cutleaf ironplant

## Additional Partners



Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR). The Trust Fund is a permanent fund constitutionally established by the citizens of Minnesota to assist in the protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources.

# Rare Species Notes from the Field



## Species: **Kitten-tails (*Synthyris bullii*) (aka *Besseya bullii*)**

An early bloomer, this species has the honor of being MN PlantWatch's inaugural plant survey! A Midwestern endemic, this species is rare or threatened wherever it occurs and is listed as threatened in MN. Populations have continued to decline in recent decades due to habitat loss and degradation. We found plants in both of the two locations that we searched this year, and we collected seed from one site.

## Species: **Hill's Thistle, (*Cirsium pumilum* var. *hillii*)**

Thistles often have a bad reputation, mostly due to the aggressive exotic varieties, however this thistle is native to MN and is a rare beauty to find in flower. Listed as special concern in MN, this thistle has a large flowering head that is very attractive to pollinators and is typically found in prairies and savannas. We surveyed 8 populations this year and found plants in 6 of them. At most sites, flowers were quite rare or absent altogether. However, at one site we found hundreds in bloom, which was a real treat!



## Species: **Canada Frostweed (*Crocanthemum canadense*)**

The fragile dry sandy prairie opening habitats for this species are at continued risk of degradation or destruction, leading to a status of state special concern. One site we searched we found many *Crocanthemum* plants, but belabored over the species identification. Something just didn't seem right. After consulting with several botanists, we came to the unfortunate conclusion that the original record was a misidentification of the more common *C. bicknellii*. It is likely that *C. crocanthemum* was never known at that location. On the plus side, the voucher specimen collected in 1992 is now correctly catalogued as *C. bicknellii* at the Bell Herbarium. This mistake may have long gone unnoticed if not for MN PlantWatch!

## Species: **Ram's Head Orchid (*Cypripedium arietinum*)**

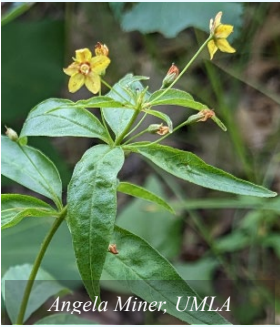
With some imagination, you may see the head of a charging ram in the flower of this unique orchid. *C. arietinum* is typically found in the forests, cedar swamps, and fens of northern MN. Its declining populations are largely due to habitat loss and changes in land use, which has led to its status as state threatened in MN. We surveyed four populations of *C. arietinum* this year and found plants at all four sites!



## Species: **Pleated Gentian (*Gentiana affinis*)**

With spotted lobes connected with pleat-like tissue, this rare beauty can sometimes be found in wet saline prairies in the northwest corner of the state. This preferred microhabitat is vulnerable to a variety of agricultural activities and invasive species leading to a listing of special concern for this species in the state. We searched long and hard at 4 record locations but only happened upon a small cluster at one site. We noted that flowers were just past bloom, making plants very difficult to find. We look forward to future attempts during a better bloom window.

# Rare Species Notes from the Field

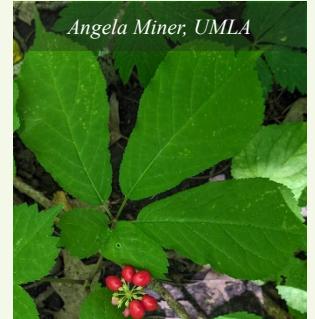


## Species: **Whorled Loosestrife (*Lysimachia quadrifolia*)**

This whorled star-shaped flower is typically found in drier forest habitats and is restricted to the St. Croix River valley region of MN. This plant was only more recently discovered in MN in 1980 and is listed as special concern for its rarity and limited geographic distribution. Although its short stature often hid the plant amongst taller vegetation, we surveyed 4 neighboring element occurrence records this year and found the plants to be so widespread in abundance that we suspect the records may all be part of a single connected population.

## Species: **American Ginseng (*Panax quinquefolius*)**

Once reported to have been so common as to appear to carpet forest floors, this plant has been overexploited and harvested to scarcity in Minnesota and across its range in the US. Ginseng can reach over 100 years of age and produces beautiful red fruits with seed that require 2 winters in the soil before germination. We searched six record locations this year but only found a handful of plants at two sites. On the plus side, we documented one formerly unknown population.

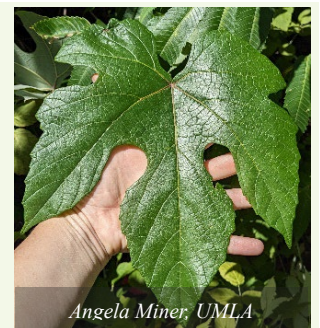


## Species: **Wild Sweetwilliam (*Phlox maculata*)**

Once more widespread in pre-settlement times, the wet/mesic meadow habitat of this species has been largely degraded or destroyed, leading to the decline of this species and its listing as state special concern. We found *P. maculata* in one of the three locations searched this year, while the other two locations were overgrown with buckthorn and other invasive plants which have degraded the habitat.

## Species: **Silverleaf Grape (*Vitis aestivalis*)**

A species often overlooked or mistaken for its more common cousin *V. riparia*, the silverleaf grape is distinguished by reddish cobwebby hairs on the whiteish underside of its leaves. Although it's listed as threatened in Minnesota, its rarity is not well understood and it continues to face habitat degradation and loss. This is the oldest record that we relocated this year; one of the two populations we surveyed was reported as last observed in 1918!



## Species: **Cutleaf Ironplant (*Xanthisma spinulosum*)**

This yellow aster blooms mid to late summer and is noted for its divided leaves with bristle-tipped lobes. Rare along the eastern edge of its US range, this species is reported in only four Minnesota counties. Its dry prairie habitat is under threat of gravel mining, overgrazing, and habitat degradation leading to a listing of state special concern. We found this species at all 4 record locations that we searched. We found over a thousand plants at a site managed by the US Fish and Wildlife Service! However, in 2 other sites we only located 1 to 4 plants.



Angela Miner, UMLA

## Looking Forward



Angela Miner, UMLA

Because 2023 was our launch year, we limited volunteer recruitment, program promotion, and data collection methods. As the program grows, we are excited to bring MN PlantWatch into the digital realm! Here are a few updates we are working on:

- We have a new website! This will be the hub for MN PlantWatch program information and updates. Check it out at: <https://sites.google.com/view/mnplantwatch>
- New program contact email for reaching out to MN PlantWatch staff with your questions and comments: [MNPlantWatch@gmail.com](mailto:MNPlantWatch@gmail.com)
- Digital data collection: We are building a digital data collection tool for use in the field. It will allow volunteers to view maps and collect data directly on smartphone or tablet devices. Paper forms will still be available, but we hope the app will provide increased ease and efficiency.
- Digital database: along with the app, we are building a digital database so collected data can be efficiently transcribed into record updates for the state's Natural Heritage Information System.
- Seed collection: We collected a limited amount of seed in 2023, and we look forward to further emphasizing seed collection for the Arboretum's Rare Plant Seed Bank next year.

## Meet the Staff

**Deanna Leigh** is a self-proclaimed non-botanist, but she is very enthusiastic about rare species, including plants. In the past, she worked with rare wildlife including *Allogona townsendiana* (the Oregon forestsnail, federally endangered in Canada), *Charadrius melodus* (piping plover, federally endangered in the United States) and *Emydoidea blandingii* (Blanding's turtles, threatened in Minnesota). Deanna grew up in Minnesota, then toured North America for college (Trinity Western University), grad school (Western Washington University), and numerous natural resources jobs, before joining the Minnesota DNR full-time in 2017. Most recently, she worked as a resource specialist for State Parks and Trails, conducting habitat management in some of Minnesota's best state parks (her opinion). She joined MN PlantWatch as the Community Science Coordinator in April 2023. Her favorite things about MN PlantWatch are visiting high quality habitats, and learning from all the volunteers, most of whom know more about plants than she does. If she keeps spending time with you all, someday she might actually call herself a botanist!



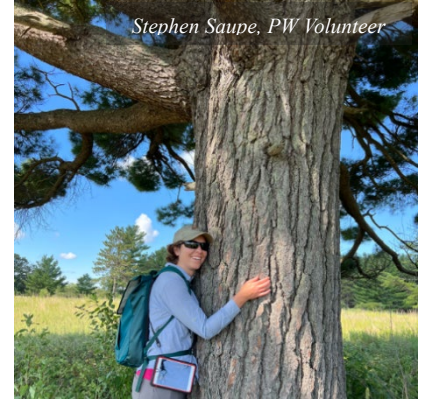
**Angela Miner** graduated from the University of Minnesota and started her career in natural resources while serving in the Peace Corps in Honduras as a Protected Areas Management Advisor. She continued her work in states across the US conducting various surveying and monitoring efforts for rare and native species in ecological communities ranging from prairies to flatwoods and savannas to forest habitats. She returned to her home state of Minnesota to conduct habitat restoration and management with The Nature Conservancy. In spring of 2023, she joined the MN Landscape Arboretum as the Conservation Botanist with the Plant Conservation Program and began her work with MN PlantWatch. Angela enjoys working and recreating with other conservation enthusiasts in Minnesota's great outdoors and especially enjoys camping, kayaking, woodworking, and pyrography.

**Malcolm MacFarlane** was raised in a rural community just southwest of the Twin Cities metro. He went to Macalester College in St. Paul for a BA, the University of Minnesota for a Ph.D., and taught Limnology, Fisheries, and Aquatic Invertebrates at the University of Wisconsin—Stevens Point, and the University of Nis, Yugoslavia. He started doing botanical rare species work in the early 90's, first for Superior National Forest, and then in a variety of capacities from volunteer, contractor, to seasonal employee for the Minnesota DNR. Since 2018, he has also worked seasonally, part time, for the Arboretum, in the Plant Conservation Program. Malcolm's special interests are the Botrychium, orchids, the Orobanche, lichens, and the plant communities of a range of rare habitats. He is married now 53 years, with one adult son, and lives in St. Paul.



# Stories from MN PlantWatch Participants

“This past summer I was honored to be able to participate in the PlantWatch program, especially considering my performance on the DNR rare plant certification tests. I took four exams and got a perfect score - I failed all four! Fortunately, Deanna didn't seem to mind and she invited me to participate as a volunteer anyway. My first project was with Deanna in Morrison County hunting for Hill's thistle. We arrived on site and roamed around and eventually found quite a few. This was a real treat for me since I hadn't seen it in bloom before. In addition, we found some massive white pines. What I learned is that Deanna, like me, loves 'big trees,' too.” ~Stephen Saupe, Volunteer



Stephen Saupe, PW Volunteer

*“As a plant enthusiast and an active Minnesota Master Naturalist volunteer I was very excited to hear about and then to be invited to participate in the first year of the MN PlantWatch project.*

*The leaders were well organized and welcoming. We were encouraged to critique and offer suggestions to improve the survey protocol, the field datasheet, and the individual field assignment documents, to make them volunteer friendly.*

*The field experiences were educational, challenging, rewarding, and confidence building. Checking on rare orchids was a dream come true. Wearing waders to search for rare water plants was a first for me. Surveying for a rare shrub along a boulder shoreline of a major river was rewarding. A final team assignment to the top of Lutsen mountain was successful on multiple fronts.*

*My first field season with MN PlantWatch met or exceeded all my expectations. I look forward to additional seasons of engagement with this important and rewarding volunteer experience.” ~Rubin Stenseng, Volunteer*



Derek Anderson, DNR

“It was an absolute pleasure and treat to look for rare plants with so many enthusiastic volunteers this season. Thanks for all of the wonderful help you provided in updating our records! I look forward to working with you again next season!”

~Derek Anderson, DNR

“I got to survey at Afton SP which was very cool. We spent the morning looking on this steep hillside for butternut trees. Then the afternoon was spent on the beach of the St. Croix where we found an individual that we were looking for. I got to sit in the sand and fill out the data sheet. While hiking around looking for plant species, we found this huge chicken of the wood, growing halfway up this tall tree in the floodplain forest. I was able to grab a stick and knocked it down while Angie waited underneath to catch the fruiting mass. I had a blast spending time in the field with other specialists. I can't wait for another field season to come and hopefully identify some information for these unique and rare plant populations!”

~Addeline Theis, Volunteer

## Thank You!

To each of the following volunteers who joined us in the field in 2023!:

Summer Badawi, Kristina Bloomquist, Cassandra Carlson, Carol Downie, Tony Ernst, Cal Harth, Jerold Ibberson, Brian Johnson, Daniel Jones, Courtney Kerns, David Klett, Jeanne LaBore, Tucker Lutter, Janet Nelson, Stephen Saupe, Kieran Schwartz, Ansel Stacken, Jake Stacken, Rubin Stenseng, Addeline Theis

And to the staff who provided program support: Derek Anderson, Holly Bernardo, Nathan Dahlberg, Kim Drewiske, Rebecca Holmstrom, Nick Jensen, Tom Klein, Mike Lee, David Remucal, and all the local land managers who were able to provide us with updated information on the units they manage.