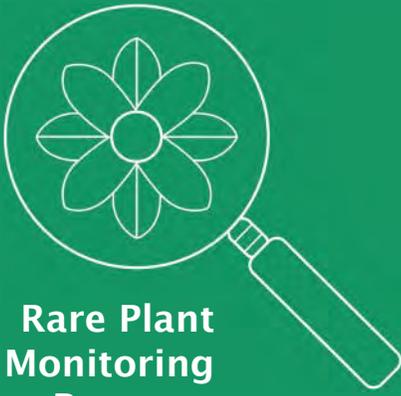


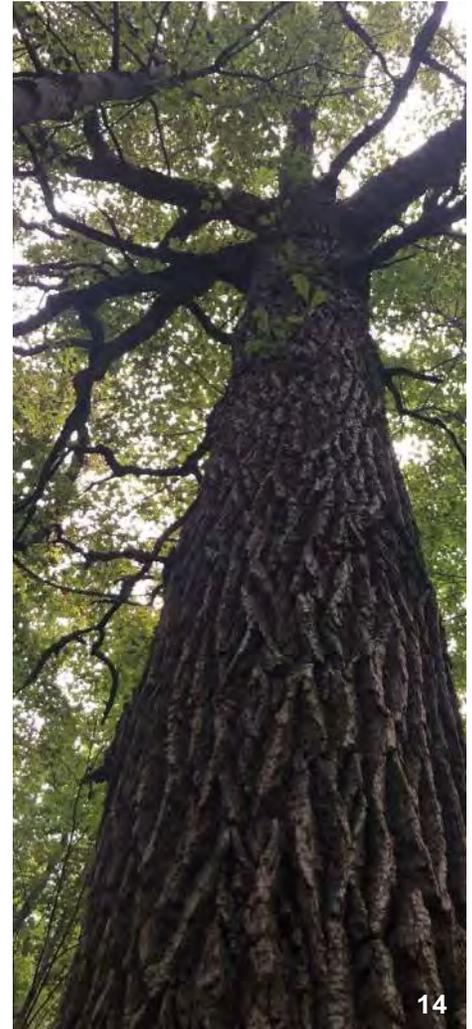
Annual Report



Rare Plant
Monitoring
Program



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Photo credit: Don Evans
English sundew was re-located in Ashland County for the first time in 40 years.

Editor's Corner

Rare Plants by the Numbers

2,366 total plant taxa

344, or 14.5 percent are rare

72 listed as endangered

58 listed as threatened

192 listed as "special concern" meaning they are suspected to be in decline

6 federally listed plants

- Northern monkshood (*Aconitum noveboracense*)
- Dwarf lake iris (*Iris lacustris*)
- Eastern prairie fringed orchid (*Platanthera leucophaea*)
- Dune thistle (*Cirsium pitcheri*)
- Prairie bush clover (*Lespedeza leptostachya*)
- Fassett's locoweed (*Oxytropis campestris* var. *chartacea*)

163 With a very high potential for extirpation from the state
2 plants are endemic to Wisconsin, meaning they're found nowhere else in the world: Fassett's locoweed and cliff cudweed.

By Kevin Doyle
RPMP coordinator

As the Rare Plant Monitoring Program grows, so too does our impact on the landscape. RPMP volunteers visited more rare plant populations in 2019 than any previous year, an accomplishment that becomes more difficult and more impressive each year. And while volunteers located 59 new rare plant populations, 63 populations previously documented could not be found. Some of these populations are only temporarily submerged as many lakes experience their highest levels in decades. Unfortunately, others have likely disappeared as part of a global trend in biodiversity loss.



Photo credit: Ryan O'Connor
Kevin Doyle records data for a rare plant survey.



Photo credit: Josh Mayer
Fassett's locoweed.

The Rare Plant Monitoring Program has always set out to address the first level of the conservation process: identifying if there is a problem. The next two levels, figuring out what is causing the problem and how to fix it, can't proceed without the basic inventory work done in large part by RPMP volunteers. In fact, the Rare Plant Monitoring Program is the largest source of rare plant data in Wisconsin and unique in the Midwest for its breadth of surveys statewide.

In this report you'll read highlights of many of your surveys, major rediscoveries of rare plants not seen in decades, and populations located

in hard-to-access spots like private land, military bases, or undeveloped lakes. There is also a piece by a fellow RPMP volunteer on a more detailed project to identify the best survey window for a small spring wildflower.

The information RPMP volunteers have collected documenting declines is now driving DNR efforts to reverse those trends. Whether hand pollinating orchids to improve seed set, collecting seed from some of our rarest plants for long-term storage, or working with local nurseries to grow federally listed plants to reintroduce to the wild, there are things we are doing to address biodiversity declines. These steps can only occur because our team of rare plant monitors collect the information that tells us where to direct our efforts.

There's no doubt there's more work to do, but I am so encouraged by how RPMP volunteers step up each year. A special thanks to all 2019 volunteers. I look forward to working together in 2020.

Thank You to our 2019 Volunteers!



Photo credit: Dan Roberts



Photo credit: Paul Hlina



Photo credit: Clayton Frazer



Photo credit: Don Evans



Photo credit: Paul Doxsee

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2019 Year in Review

Volunteers in 2019 produced another great year for the Rare Plant Monitoring Program. They visited 42 of Wisconsin's 72 counties and submitted over 250 rare plant reports, a new record!

Most exciting, volunteers discovered 59 populations of rare plants in new locations. That more than doubles the number found the previous year, and every one of these new populations helps provide another backstop against extinction for these rare plants in Wisconsin.

As usual, most volunteers were sent out in 2019 to revisit known rare plant populations. These "check ups" produced updated reports on 191 known populations, helping us reduce the number of rare plant populations that haven't been visited in 20 years, and helping increase our awareness of rare plant health. And this awareness informs action. The data volunteers

collect alerts land managers to pressing threats and informs on-the-ground management necessary to maintain these known populations. Data are also used for statewide, regional, and even international status assessments and conservation planning.

Unfortunately, searching for but not finding a rare plant population goes with the territory. Many of these species are declining and populations can wink out for a variety of reasons, including changes in habitat quality, predation, inbreeding depression and disease. In 2019, RPMP volunteers submitted 63 "negative" reports in which they could not find the species they were looking for. Though some of these negative reports are due to high lake levels temporarily flooding suitable habitat or other reasons, it's likely some of the populations have winked out. **Tanna Worrell** revisited a known prairie fame-

flower (*Phemeranthus rugospermus*) population only to find the site was now a parking lot. **Debbie Konkell** set out to relocate one of the rarest plants in Wisconsin, silver bladderpod (*Lesquerella ludoviciana*), known from a single bluff prairie in Pierce County. She visited the site but found the upper part of the bluff where the plants were last seen was covered with brush. More surveys are planned for this summer to confirm that the species has been extirpated from the state. **Brian Lennie** visited a known white lady's slipper (*Cypripedium candidum*) site twice in May 2019. He found some high quality habitat hanging on but no orchids. Brian felt the site could still support a lady's slipper population and will give it another try next year. In other cases, plants were not found but there is hope for the future.

Enjoy some highlights from the year.

English sundew (*Drosera anglica*) was relocated in Ashland County for the first time in over 40 years. RPMP Volunteer **Don Evans** was kayaking with **Judy**, his wife, when they saw some interesting sundews and snapped some photos. The plants were hard to determine but seemed close enough to English sundew that it was worth revisiting the site. Since Don lives pretty far from Ashland County, we contacted **Dr. Sarah Johnson** at Northland College in Ashland. She went to the site with some students in canoes and confirmed the identity. This is only the second extant population of this state threatened plant. A great find and a cool example of collaboration among DNR, volunteers, and academia.

English sundew is one of 15

carnivorous plant species in Wisconsin. Like other sundews, it is found in fens and bogs, harsh environments that have forced plants to find other ways to get nutrients.

English sundew has stalked glands across its leaves. Small insects are attracted to the sweet secretions from these glands but become trapped, gummed to the leaf surface by their stickiness. Soon more glands bend toward the ensnared prey, and the entire leaf curls around it, more like a boa constrictor than a plant. Eventually the insect dies from exhaustion or asphyxiation.

Although the glands' secretions are sweet, they are also corrosive and help break the prey down so



the sundew can digest its nutrients. Finally, the nutrients from the dead insect are absorbed through the leaf surface and fuel plant growth.





In 2019, RPMP volunteers found 59 new rare plant populations. **Don Evans** was one of these volunteers. He found the state threatened ram's head lady's slipper (*Cypripedium arietinum*) growing in a cedar swamp in Langlade County. This represents the first time this species has been documented in that county!



Ann Stoda and her husband, Doug, met with biologists at Fort McCoy in Monroe County to try to find a number of rare plants on the military base last seen several decades ago. In total, they searched for five species and found four of them. The couple relocated the state threatened dwarf milkweed (*Asclepias ovalifolia*) and the special concern prairie fame-flower (*Phemeranthus rugospermus*) not seen at the base since the early 1990s.



Though the priority of the RPMP is revisiting rare plant populations on public land, there are some volunteers who visit private property because they have special access to it or are willing to do the extra work to get permission. In 2019, surveys done on private land produced really valuable results. **Mike Baker** found pale purple coneflower (*Echinacea pallida*) on two dry prairies near Beloit. **Ben Bomkamp** and **Kerstyn Perrett** found October lady's tresses (*Spiranthes ovalis* var. *erostellata*) on a private prairie and woodland in Vernon County. **Derek Anderson** relocated a kittentails (*Besseyia bullii*) on private land along the St. Croix River in St. Croix County. Finally, **Mark Mittelstadt** led a group of volunteers including **Juniper Sundance, Raymond Roberts, David Eagen, and Sharon Klavins** to a private golf course in Iowa County to survey numerous rare plants on remnant dry prairies there.



Corey Raimond significantly improved our understanding of the prairie fame-flower (*Phemeranthus rugospermus*) population near Sparta. Two populations were known from the area, but Corey's work has shown that there are many sub-populations connecting these two.

Along with Don's first-in-the-county report for ram's head lady's slipper, there were five county records of rare plants reported in 2019. **Ben Bomkamp** and **Kerstyn Perrett** had three: Rocky mountain sedge (*Carex backii*) in St. Croix County, glade fern (*Homalorus pycnocarpus*) in Juneau County, and October Lady's tresses in Vernon County. **Aaron Carlson** found the first downy willow herb (*Epilobium strictum*) in Racine County.



A number of significant updates resulted from RPMP surveys in 2019: **Greg Gardner** found a forked aster population near Mequon not seen in 25 years. **Mark Lange** found the Great Lakes endemic, American sea rocket (*Cakile edentula* var. *lacustris*) in Kenosha County for the first time since 1993. **Derek Anderson** found a rock stitchwort (*Minuartia dawsonensis*) population near Osceola not seen since 1993. **Ryan Clemo**

relocated maidenhair spleenwort (*Asplenium trichomanes*) at a State Natural Area in Sauk County for the first time since 1992.

Eric Howe documented seaside spurge (*Euphorbia polygonifolia*), another Great Lakes endemic, on Washington Island for the first time in 30 years. And **Ben Bomkamp** and **Kerstyn Perrett** collected data on a Sullivan's coolwort (*Sullivantia sullivantii*) population in Juneau County not seen since 1979!



Along with tracking rare plants, the DNR also lists roughly 50 lichens as special concern. Since there are very few people comfortable with identifying lichens in Wisconsin, we don't receive many reports, but Rare Plant Monitoring Program volunteers are a special group. In the past, **Mary Bartkowiak** has submitted her observations of rare lichens. In 2019, **Aaron Carlson** submitted an amazing 13 rare lichen reports! Aaron is mostly self-taught but uses online resources like iNaturalist and Mushroom Observer to help confirm identifications. Data on these difficult to identify organisms fill in a lot of gaps in our knowledge of their status and distribution and is just another example of the value the Rare Plant Monitoring Program brings to conservation in Wisconsin.



Jan Axelson has been surveying a couple of white lady's slipper (*Cypripedium candidum*) populations near Madison for years. Historically, there were at least 11 populations, but over the years that number has dwindled to just three. Jan had always wondered about one site in particular that was near an existing population but more degraded. She searched the site, finding four flowering clumps of the state threatened orchid, the first time this population had been seen since 1973! It's a great example of how rare plants can be rediscovered even in heavily populated areas.



Ben Johnston led a group to try to relocate a rare orchid, three birds orchid (*Triphora trianthophora*), which had been documented on the Kickapoo Valley Reserve in 1999. At that time, only a single plant was found. Ben and his crew found 463 orchids!

Muskroot Monitoring Finds New Population, Refines Survey Timing

By Debbie Konkel

Surveying Same Species, Same Site, Yields New Insights

On May 20, 2016, as volunteers in the Wisconsin Rare Plant Monitoring Program, Dr. Joe Rohrer (UW—Eau Claire) and I surveyed the population of muskroot (*Adoxa moschatellina*; state threatened) known from a State Natural Area (SNA) in Eau Claire County. The survey date was well within the late May to late June time-frame recommended for sampling on DNR's Rare Plant page. Dr. Rohrer conducted the survey on two small sites within the State Natural Area, and I surveyed the slightly larger site, using 11 transects perpendicular to the adjacent trail. At the time of the survey, the surrounding vegetation was mature, concealing the muskroot. We determined that an earlier sampling date would yield a larger population and/or additional sites.

In April 2017, I started searching the site to determine when the muskroot first becomes evident. By April 22, the plants were mature enough to identify, and the rest of the ground cover was very low, revealing a more widespread muskroot population than the 2016 survey indicated. Two of the 2016 populations actually turned out to be one large population. There was also another new site found at a different, distant location in the State Natural Area.

I decided to resurvey the two sites in 2018 as one site. In April 2018, we experienced a late, heavy snow that did not leave the forest floor until early May. I found the muskroot up on



May 6 and surveyed May 7 and used 18 transects to estimate the number of plants as one large population. Even though the muskroot appeared more abundant, the results of the 2018 survey indicated fewer plants than the 2016 population estimate. It was not known if this was due to:

1. Enlarging the sites to include

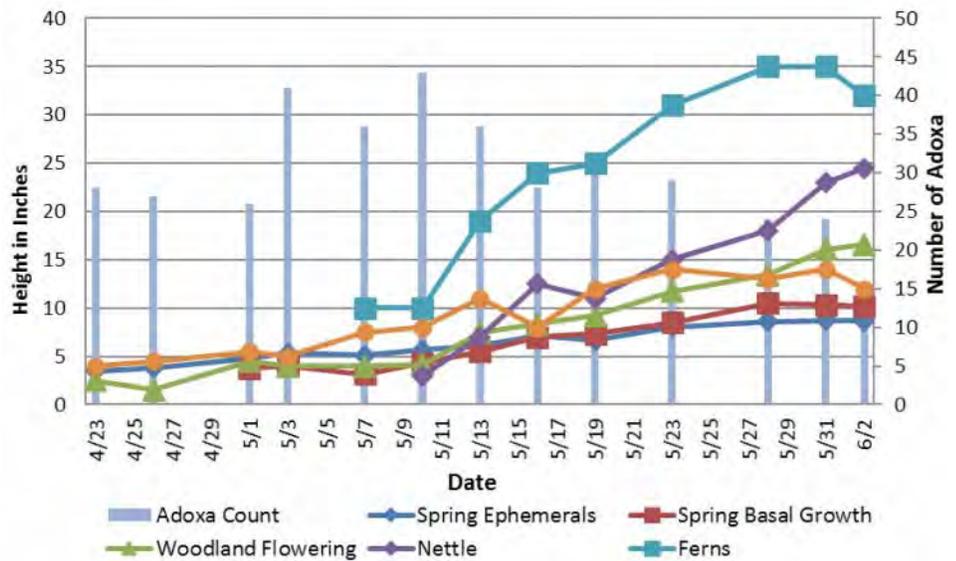
RPMP Volunteers **Debbie Konkel** and **Joe Rohrer** started monitoring a population of the state threatened muskroot (*Adoxa moschatellina*) in Eau Claire in 2016. After a couple years of monitoring, Debbie was concerned that her estimates of the plant's population size were confounded by the timing of her surveys. The spring wildflower is tiny and quickly hidden by surrounding vegetation so it was unclear if she was finding all the plants that were there. Debbie set up a special project to figure out the best time to survey for muskroot.

Muskroot is very rare in Wisconsin. There are 12 documented populations, but only four have been seen in the last 20 years. Combined with its tiny size, it can be hard to collect accurate data on muskroot even when the plant is found. So Debbie's report uncovering the best survey period is a great example of the kind of project RPMP volunteers can undertake if they want to dig a little deeper than a traditional rare plant survey. These more intensive efforts can be tailored to the skills and interests of a volunteer. The results will inform future survey or management efforts.

- populations skewed the estimate
- 2. Early sampling date may have been before all the plants had emerged
- 3. Other environmental factors affect the population in various years

Zeroing in on When to Look for a Small Wildflower

A phenology survey was conducted in spring 2019 to determine if there was an optimum time to survey for muskroot. Four permanent transects were randomly located across the largest population area. Every three to five days, all muskroot plants within 0.5 meters along the west side of the transect were counted. Other species in the study site and their height were recorded on each sampling date. The total number of muskroot counted on each date was compared with the height of the other vegetation in the site. The number of



muskroot found increased throughout the time period other vegetation remained about 6 inches tall (Figure 1). Additional muskroot plants were not found when the ferns grew above 1 foot tall and the other vegetation

started exceeding 6 inches. The height of the muskroot remained 2 inches throughout the study. Based on this study, the best time to survey for muskroot is when the forest floor cover is about 6 inches high.

2020 Species of the Year

Search Targets 15 Plants

Widespread Botanizing

Opportunities for Rarest of the Rare

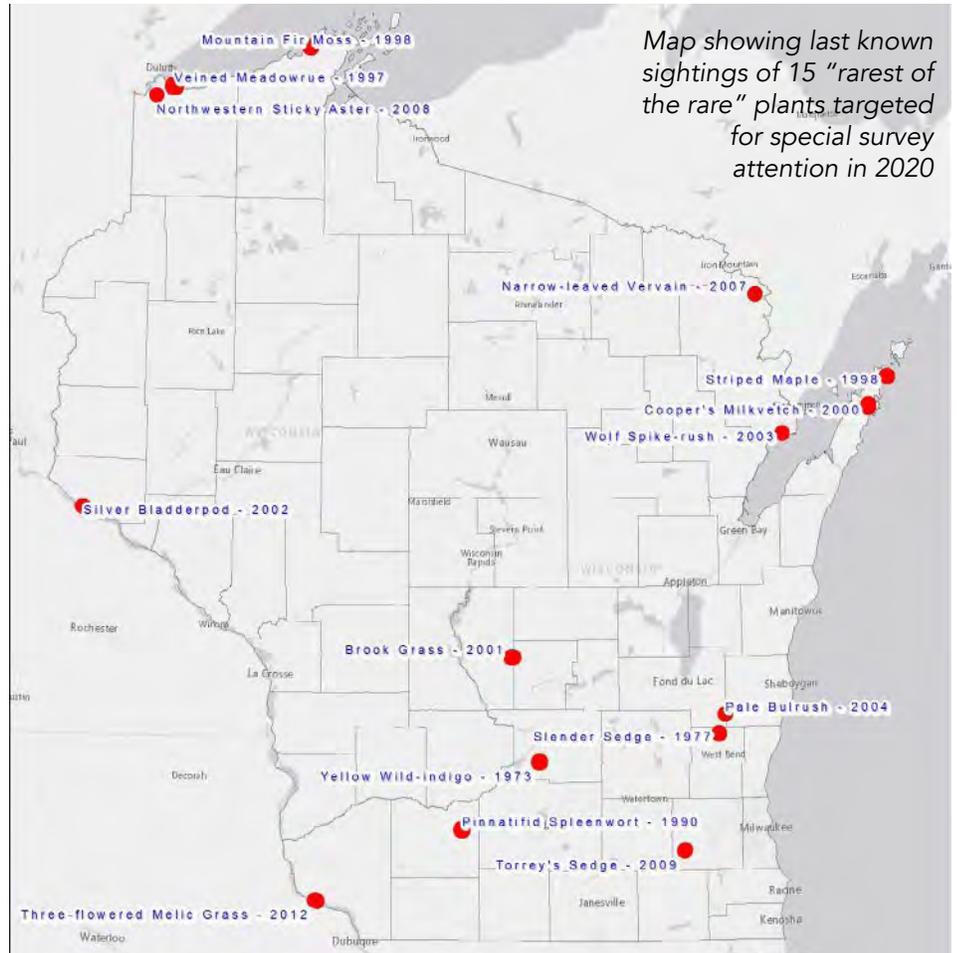
Each year the Rare Plant Monitoring Program picks a plant deserving special survey attention. Monitors are not required to look for the target species but are encouraged to do so to build excitement and allow participants to become more familiar with that one plant. This year we will target not one but the 15 rarest plants on the Priority Rare Plants List. Doing so gives more people opportunities to survey for plants near where they live and also will provide important information as DNR gears up for coming assessments to determine if plants are to be added or removed from the state endangered and threatened species list.

Each of these 15 plants has only one population that meets the three criteria for Priority Rare Plants. (See page 4 of our 2017 program report.) They are truly the rarest of the rare.

If you remember, this list is a subset of all rare plants known in Wisconsin. It includes rare plant populations that:

1. Have been seen since 1970
2. Have relatively precise locational information—usually known to within 40 acres
3. Found on protected, usually publicly accessible, land.

One of the most basic questions plant conservationists need to answer is how are the species we are interested in doing? In some cases, answering this question requires driving around the state, trying to visit as many populations as possible in a short survey window. In the case of these 15 plants, though, the results of one volunteer conducting one survey could help us answer this question. A single survey could find a thriving population or a couple plants barely hanging on. With one survey, a



volunteer could identify impending hazards that threaten to wipe out the population if no action is taken. Our rarest species are our most vulnerable species, meaning they require close monitoring. Because they are so rare, though, it should be possible to collect really critical and valuable data on many species in a short amount of time.

How the Data will be Used

In the next few years the DNR will be updating the state Endangered and Threatened Species List. Understanding as much as we can about the rarest of our plant species will inform our decisions to move species from special concern to endangered or threatened status or downgrade species from endangered or threatened to special concern. Species also can be moved off the Endangered and Threatened Species List if we think they have been extirpated from the state. Given the rarity of these 15 species that is a real possibility.

The DNR will hopefully begin collecting more seed of rare plants in the near future with the goal of preserving our unique genotypes in long-term storage. These surveys for our rarest species could be reconnaissance for that future seed collection effort. Seed banking buys time by preserving genotypes while we develop a more comprehensive conservation strategy to address the threats responsible for species' decline. If we fail to collect these seeds, the unique genotypes found in Wisconsin will be vulnerable to winking out before we can preserve them.

Name	State Status	Identification	Access	Last Observed	County
Striped maple (<i>Acer pensylvanicum</i>)	Special Concern	Easy	Moderate	1998	Door
Lobed spleenwort (<i>Asplenium pinnatifidum</i>)	Threatened	Easy	Moderate	1990	Iowa
Cooper's milkvetch (<i>Astragalus neglectus</i>)	Endangered	Easy	Moderate	2000	Door
Yellow wild indigo (<i>Baptisia tinctoria</i>)	Special Concern	Easy	Easy	1973	Columbia
Northwestern sticky aster (<i>Canadanthus modestus</i>)	Special Concern	Moderate	Moderate	2008	Douglas
Slender sedge (<i>Carex gracilescens</i>)	Special Concern	Difficult	Difficult	1977	Washington
Torrey's sedge (<i>Carex torreyi</i>)	Special Concern	Moderate	Easy	2009	Waukesha
Brook grass (<i>Catabrosa aquatica</i>)	Endangered	Difficult	Moderate	2001	Adams
Wolf's spikerush (<i>Eleocharis wolffii</i>)	Endangered	Difficult	Difficult	2003	Marinette
Mountain fir moss (<i>Huperzia appressa</i>)	Special Concern	Moderate	Difficult	1998	Bayfield
Silver bladderpod (<i>Lesquerella ludoviciana</i>)	Threatened	Easy	Difficult	1977	Pierce
Three-flowered Melic Grass (<i>Melica nitens</i>)	Special Concern	Difficult	Moderate	2012	Grant
Pale bulrush (<i>Scirpus pallidus</i>)	Special Concern	Difficult	Moderate	2004	Fond du Lac
Veined Meadowrue (<i>Thalictrum venulosum</i>)	Special Concern	Easy	Easy	1997	Douglas
Narrow-leaved Vervain (<i>Verbena simplex</i>)	Special Concern	Easy	Easy	2007	Marinette



Photos, Left to Right:
 1: Photo credit: Thomas Meyer. Lobed spleenwort.
 2: Photo credit: UW Herbarium/Linda Curtis. Slender sedge.
 3: Photo credit: Emmet Judzewicz. Silver bladderpod.
 4: Photo credit: Scott Namestnik. Northwestern sticky aster.

Volunteers, Past Records Help Root Out Prairie Turnip Trends



2019 Species of the Year Results

Our 2019 species of the year was the prairie turnip, genus *Pediomelum*, from the Greek for “apple of the plains.” This plant reaches its eastern limit here in Wisconsin but is common in the Great Plains and western Minnesota. The thick tuberous roots were an important part of the American Indian diet as well as for the European settlers who came later. (See more about this species on page 10 of our 2018 report.)

We did not get a lot of interest in the species of the year -- only four of the 23 priority populations were surveyed in 2019 – but we’ve been able to combine that data with other records to assess the status of prairie turnip

in Wisconsin. Since the RPMP started in 2013, 11 prairie turnip surveys have been conducted and four more populations have been reported on by non RPMP volunteers. Other reports have come in over the years from DNR staff, partners, and the general public. Collectively, these and the 2019 surveys help paint a clearer, but still unfinished, picture. When assessing a species’ conservation status there are three categories to consider: rarity, threats, and trends. So let’s go through each one.

Rarity

There are roughly 50 populations of prairie turnip in Wisconsin, which is actually a lot for a rare species. The

problem is that the majority of these populations are quite small. Of the 50, only six have 50 plants or more and these populations likely account for as much as 75% of the total number of prairie turnip plants found in Wisconsin.

What happens to these six populations has a significant impact on the fate of the species statewide.

Trends

We all know that 99% of the prairie that covered southern and western Wisconsin before European settlement has disappeared. The loss of prairie doesn’t necessarily mean that each species living in a prairie has also declined by 99%, but it’s almost

certain the prairie turnip population has declined by at least 50% in the last 200 years.

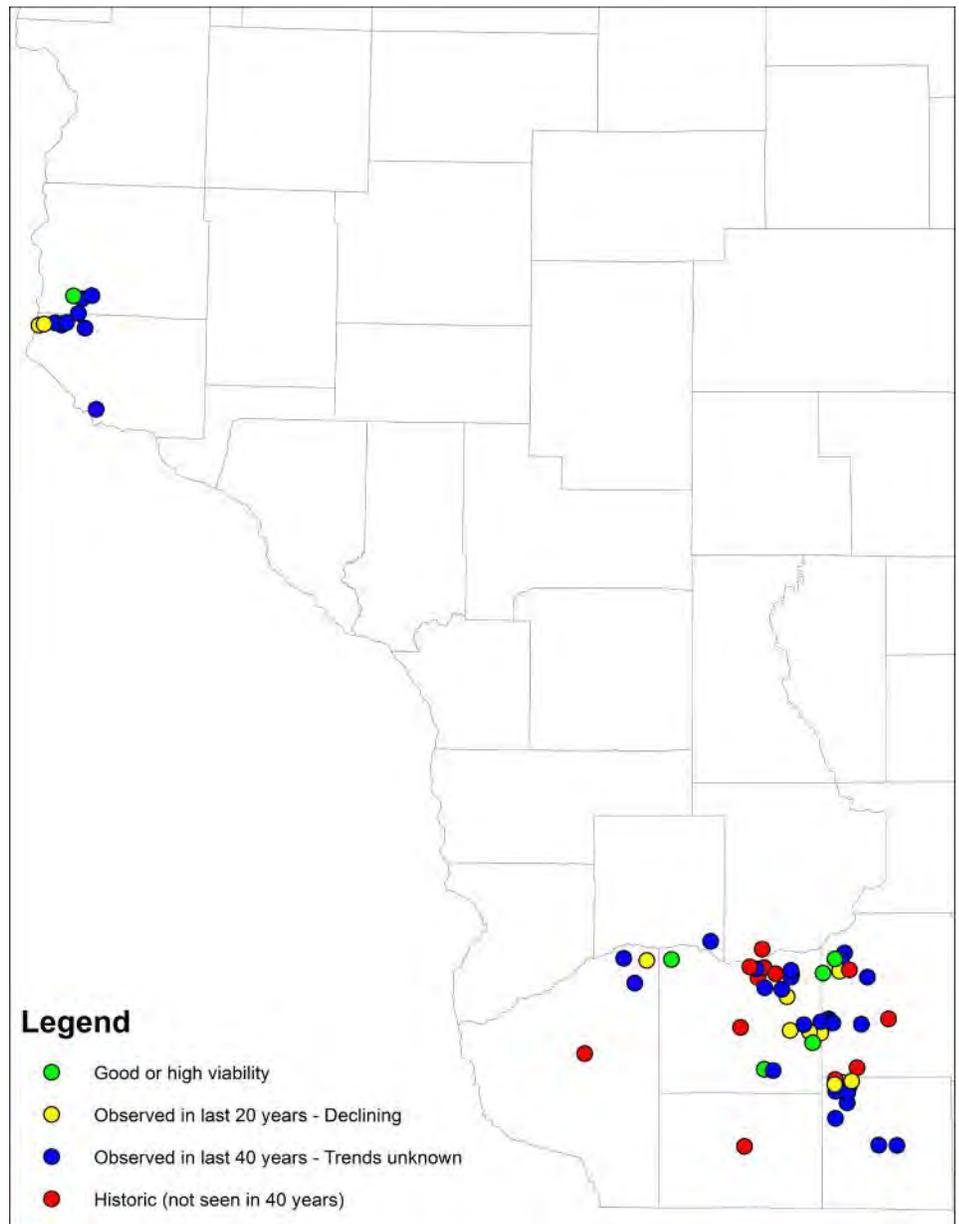
It's easier to see trends in more recent decades. At least 25% of the prairie turnip populations seen in the last 20 years have declined from their previous size; at least a third seen in the last 10 years have declined and we now consider only 10 populations to be viable, meaning they likely to persist or grow in the next 20 years or so. Fortunately, the six biggest sites have not shown major declines.

Threats

So what is causing these recent declines? As a prairie species, prairie turnip requires frequent fire and invasive species control to keep the sites open. In the absence of management, brush and weeds close in and the fragile rarities disappear. More insidious factors like nitrogen deposition, which reduces species diversity, may also play a role, especially on sites that are well-managed but still see turnip declines. Fortunately, on the six biggest sites fire and invasive species control are at least partially addressed. These sites tend to be protected either on public land or through conservation easements and are actively managed. Many of the smaller sites occur on private land where no management occurs.

Summary

With all this in mind, we can reassess the status of prairie turnip in Wisconsin. Prairie turnip was formerly considered vulnerable but should now be listed as imperiled. A large portion of the total stems found in Wisconsin are harbored in just six sites, and although these sites appear secure, the more eggs put in fewer baskets the more vulnerable the



2019 Species of the Year

species is overall. If just one of these sites disappeared, the total number of plants found in the state could decline by 33%. Declines have been noted in many of the other smaller populations, too, likely a result of lack of management or already small populations winking out.

This is another reminder of the fragile nature of our flora and fauna. Without our constant monitoring and management, plants and animals, especially those found in prairies, can flounder. The Rare Plant Monitoring Program, of course, plays a critical role in revealing these trends that may otherwise go unseen.

Interviews: Volunteers Talk About Rare Plant Monitoring Program



Doug & Ann Stoda

Ann Stoda's curiosity, attention to detail, and love of the outdoors has made the RPMP a good fit for her.

What do you think is the most interesting Wisconsin plant?



Prairie fame-flower (*Phemeranthus rugospermus*) was interesting because I had never seen it before. I didn't know that

there were plants in Wisconsin with succulent leaves and it was so tiny that it was hard to find. But once we did find it, we couldn't miss it.

What has been your most rewarding rare plant survey?

Last summer, we were searching for four rare plants in the same public land area. We found three. The real rewarding part was that we saw prairie like we had never seen prairie before. I realized how ignorant I was of the beauty of prairies. We were

really impressed looking out over the expanse and walking through it, seeing the beautiful blooms and butterflies.

What got you interested in the Rare Plant Monitoring Program?

I had not heard of the program until my husband saw an announcement for the training in our local newspaper. I was immediately interested because plants and wild flowers had always caught my attention. When we hike I'm often looking down and my husband looks out and up. So he sees the deer and I see the Jack-in-the-Pulpit. So this was an opportunity to see new plants and do some worthwhile volunteering. After two seasons of helping me do surveys my husband, Doug, is going to take the training too.



Mike Baker

Mike Baker recently finished a degree in GIS and had been missing the interaction with plants he had during his nine years in the horticulture industry in Iowa. The RPMP gives him a way to continue to learn about plants and get to know native Wisconsin plants.

What do you think is the most interesting Wisconsin plant?

This past year I found two sites that had white lady's slipper (*Cypripedium candidum*). Growing up in Iowa, lady slippers were always this elusive species that you could find only in enchanted places. The lady slippers were so interesting to me, because I had never seen one in person and so being able to see this in nature was awesome. I had no idea how small and delicate the blooms are.

What has been your most rewarding rare plant survey?

The first plant survey I went on I was trying to find wafer ash (*Ptelea trifoliata*). The information I had on this species was from the 1980s and had only measurements, no GPS coordinates. This location was also mostly prairie but had areas of very dense trees and brush. I tried for several hours to find the one of the two trees at this location with no luck. I started looking for the other tree with the directions I had, which pinpointed it to the middle of one

of these large brushy areas. When I finally managed to get into the middle of this section, I found the small wafer ash. It was a great specimen and perfectly protected right in the middle of this area.

What kinds of rare plant surveys get you excited?

I really enjoy new sites and new plants, but my favorite is going back to places I've been before and finding more rare species there. When you sign up to find a particular species, you don't know right away where the exact location is. There have been two sites

I repeatedly go back to and I love that these amazing spots are providing so much diversity. I always see interesting animal and bird species in these sites too.

What plants do you want to see?

I have a kayak and would love to find some plants while kayaking. Last year I went out in July to find prairie false-dandelion (*Nothocalais cuspidata*). By that time, it was done blooming and I was not able to find it. That is a plant that I want to look for first thing in this coming spring.



Corey Raimond

Corey Raimond's degree in wildlife ecology and past jobs identifying plants have helped him with the RPMP. Now his volunteer work has helped him become a better naturalist - including finding a plant that is new to him in his own driveway!

What do you think is the most interesting Wisconsin plant?

I think plants that are endemic to the Upper Midwest are interesting because there are so few of them as a result of the geologic history. For example: glade mallow (*Napaea dioica*), sawtooth mugwort (*Artemisia serrata*), kittentails (*Besseyia bullii*), forked aster (*Eurybia furcata*), prairie bush clover (*Lespedeza leptostachya*), northern monkshood (*Aconitum noveboracense*), Fassett's locoweed (*Oxytropis campestris* var. *chartacea*), and jeweled shooting star (*Primula fassettii*), dwarf lake iris (*Iris lacustris*), and dune thistle (*Cirsium pitcheri*) come to mind. Of those, the Fassett's locoweed stands out because of its unique habitat and being one of the only plant that can't be found anywhere else on earth besides Wisconsin.

the first time. I remember visiting around eight locations over many years which were said to have this species, but I could never find any until I received a tip about a population in the Black River State Forest. I have been monitoring those frequently since then.

What kind of plant surveys get you excited?

I get excited for any rare plant survey because I recognize that most of these plants are uncommon because the majority of savanna and prairie habitat they evolved in is gone now. It is wonderful to still see some outstanding examples of these communities left on the landscape. I get excited about things that some other people might not notice, for example plants that are more esoteric or have small flowers. I get excited seeing plants that one cannot buy at any nurseries (not trying to discourage native plant nurseries, I buy stuff from them frequently). I also really enjoy finding previously undocumented

What has been your most rewarding rare plant survey?

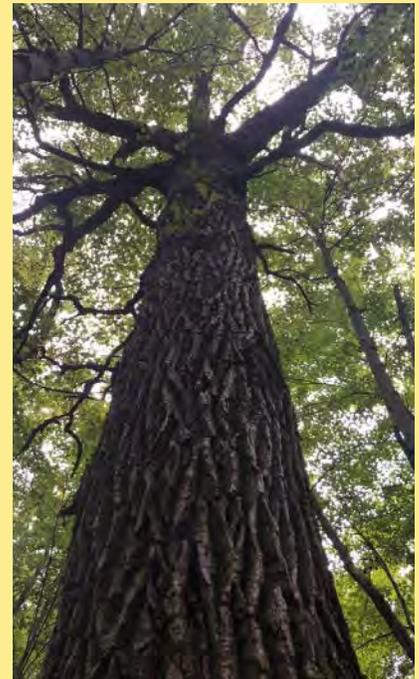
Occurred when I encountered woolly milkweed (*Asclepias lanuginosa*) for

Field Notes & Photos

Plant surveys, like much natural history work, are richer experiences than simply counting the number of stems we see. What sticks with us afterwards is the site we traversed to find the plant and the people who walked with us. It's reading up on the plant beforehand but still being surprised when we see it in the field. Enjoy a few more stories from the 2019 field season.



One of the volunteers who searched for prairie turnip (*Pedicularis esculentum*) in 2019 was **Dave Czoschke**. He relocated a single plant at a State Natural Area near Black Earth in Dane County. The population at this site seems to be dwindling over the last 20 years despite continuous management and few apparent threats.



Abby Zwicke searched for—and found—two rare plants at a State Natural Area near Big Bend, in Waukesha County. We don't have too many rare trees in Wisconsin and assessing the status of these slow growing, long lived species is a little different than assessing wildflowers or other herbaceous rarities. Abby's data on Kentucky coffee tree (*Gymnocladus dioica*) and Chinquapin oak (*Quercus muehlenbergii*) will help us keep tabs on these species.



Snow trillium (*Trillium nivale*) is the first rare plant to bloom each year, meaning it is the prize for all of us jonesing to get out after a long winter. And sometimes while we have our eyes glued to the forest floor for tiny white flowers, we almost miss the larger stuff. During a snow trillium survey near Lake Winnebago, **Jesse Haack** noted "Human disturbance near the easternmost individuals. Apparently, some state park survivalists are practicing bushcraft."



Mullein foxglove (*Dasistoma macrophylla*) was believed to occur at only one site in Wisconsin before 2019. **Roberta Herschleb** revisited that site in 2019 and then found a new population on her own property nearby!



One rare plant that I'm particularly interested in is woolly milkweed (*Asclepias lanuginosa*). Populations are (or were) scattered across the southern half of the state, but their sizes dwindle, especially in the absence of fire and on richer soils where competition is high and seed pods are rarely produced. At some sites, competition is kept low artificially via mowing. Such is the case at a cemetery in Portage County. First year RPMP Volunteer **Paul Doxsee** spent an hour searching the entire cemetery, focusing on plots where the woolly milkweeds had last been seen. Unfortunately, there were none this year. However, Paul's data show that some prairie species are still hanging on, giving us hope that the state threatened milkweed will reappear someday.



Samantha and Jesse Koyen were busy this summer. Besides buying and renovating a new house and getting married, they also managed to make some interesting plant discoveries. Jesse found the rare long spurred violet (*Viola rostrata*) in a beech-maple woods, just a few days after they found two very interesting and potentially rare ferns called moonworts (*Botrychium* spp.). These tiny plants are notoriously variable and difficult to identify, but Door County, where Jesse and Samantha found them, is a hotspot. We are awaiting the opinion of a moonwort expert and may need to do follow up surveys, but the Koyens' discoveries are cause for excitement to be sure.



Alongside moonworts, sedges are also notorious for how difficult they can be to identify. Finding and identifying the species is considered a rite of passage for a botanist trying to prove his worth. **Zach Kron** certainly proved his worth this summer, finding a new population of the very rare swan sedge (*Carex swanii*). Before 2019, only two populations were believed to still occur in Wisconsin.



Another "sedgehead" is **John Scholtze**. He has been monitoring a population of clustered sedge (*Carex cumulata*) in Jackson County, even finding a new one in 2016. John's annual reports allow us to assess short-term trends in a way not possible for most rare plant populations.



Small yellow pond lily (*Nuphar microphylla*) is rare in the Midwest and was recently listed as special concern in Wisconsin. **Quita Sheehan** found a new population in Vilas County last summer. The plant looks similar to the much more common bull head pond lily (*Nuphar variegata*), so flowers are needed for identification. The majority of our rare aquatic plants occur in northcentral Wisconsin, so having great botanists like Quita keeping an eye out is critical for assessing how they are doing.



Paul Hlina was really active in 2019, reporting on seven rare plants in the Lake Superior area. One of these was a new population of the state special concern Russet cotton-grass (*Eriophorum russeolum*). A few years ago this was an extremely rare species, found in just a small handful of sites across the northern tier of counties. Recently, though, multiple new populations have been discovered in the northwest part of the state in particular.



In another example of rare plants hanging on in heavily populated, often visited area, **Maureen Bogdanski** surveyed a population of the spring wildflower twinleaf (*Jeffersonia diphylla*) at a county park in Kenosha. Over four days last spring, Maureen visited multiple spots where twinleaf had previously been found in the park and documented a much larger number of plants than was previously known.



Photo: Josh Mayer

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