Reaching New Heights

2017 Annual Report

Rare Plant Monitoring Program

2017 Annual Report

Cover Photo: Rare Plant Monitoring Program volunteer Dave Czoschke photographed this beautiful false asphodel (*Triantha glutinosa)* at a state natural area in Green Lake County. Read a Q & A with Dave on page 9.

Issued April 11, 2018

Editor's Corner

2017 was a great year for our Rare Plant Monitoring Program. More people got trained and volunteers submitted more rare plant surveys than ever before.

Whatever your motivations to get involved — a desire to learn more about plants, visit new places, add rare plant monitoring to your restoration toolkit, or put your botanizing to work — we're very grateful for your help.

Protecting the hundreds of rare plant species and thousands of rare plant populations around Wisconsin is more than any one agency can handle. You, our RPMP volunteers, make this possible. Importantly, you are also helping build the botanical community here in Wisconsin.

There's no doubt there's more work to do on both counts, but I am so encouraged by how RPMP volunteers have stepped up for rare plant conservation already.

Just this last month a new cohort of 70 more volunteers finished our training and are itching to put their skills to work. I'm excited for the growing season to start and to see what everyone finds this year!

Kevin Doyle
Program Coordinator

The Rare Plant Monitoring Program Annual Report is a publication of the Wisconsin Department of Natural Resources Natural Heritage Conservation Program. State of Wisconsin Department of Natural Resources Box 7921 Madison, WI 53707

A year for the record books

Rare Plant Monitoring Program volunteers took things to new heights in 2017. Seventy-eight more people joined the team, bringing to 240 the number of plant monitors trained since the program began in 2013. That helps make it the largest organized rare plant inventory effort in Wisconsin thanks to your great effort!

This mix of new and veteran monitors submitted data on 185 surveys — **more information on Wisconsin's rare plants than all previous years combined!** As usual, most volunteers revisited known populations, allowing us to reassess how they are faring. Such check ups have always been a priority and will continue to be so in the future.

Highlights from the field

Christine Bohn, relocated a population of giant pinedrops (*Pterospora andromedea*) in 2017, one of only four populations seen in Wisconsin in the last 40 years and a feat even sweeter still because Christine had looked but not found the plant in 2016.

Debbie Konkel and Ben Johnston found new populations of long-spurred violet (*Viola rostrata*) and putty root orchid (*Aplectrum hyemale*), respectively, that are some of the largest populations of each species in the state.

Alex Bouthilet submitted data on the state endangered ground plum (*Astragalus crassicarpus*), which had not been visited in 28 years.

Josh Mayer relocated a population of erect dayflower (*Commelina erecta*) near Boscobel that had not been seen since 1884! See page 8 for the beautiful bloom.

Lastly, many new populations of species recently listed as special concern were submitted, including hairy valerian (*Valeriana edulis*), Great Plains lady's tresses (*Spiranthes magnicamporum)*, toothcup (*Rotala ramosior)*, and green milkweed (*Asclepias hirtella*).

(*continued page 2*)

Christine Bohn, top, relocated a population of giant pinedrops, bottom, in 2017, proving that persistence pays off.

Year for the record books

continued from pg. 2

Species of the Year

We focused on one particular species, white lady's slipper (*Cypripedium candidum*) in collaboration with a graduate student at UW-Madison. The effort was a success, as you'll read on page 6, and has allowed us to reassess the status of this threatened orchid.

UW students join the search

I was also encouraged to see numerous young people join the program as UW-Superior and UW-Platteville professors brought groups of students to training sessions this year. Students from UW-Platteville travelled all the way up to Forest County for surveys in July, reporting on populations of round leaved orchis, Hooker's orchid, and dwarf milkweed. It's great to see the next generation of conservationists getting involved right here in Wisconsin.

2018 will find us narrowing our focus

Looking forward to 2018, there will be a new Species of the Year and a new cohort of volunteers. We'll also be prioritizing rare plant surveys to steer volunteers toward populations we're likely to find and able to manage.

As usual, the information volunteers collect will be provided to property managers and added to the Natural Heritage Inventory, where it can be used for various conservation actions. In general, these data help us tell stories about some of the most vulnerable members of our flora. Sometimes these are encouraging stories that confirm our on-the-ground action. Sometimes they are alarming and highlight the need for more work. Without people visiting these populations, though, the stories go untold, and we risk losing parts of our natural heritage without realizing they're gone.

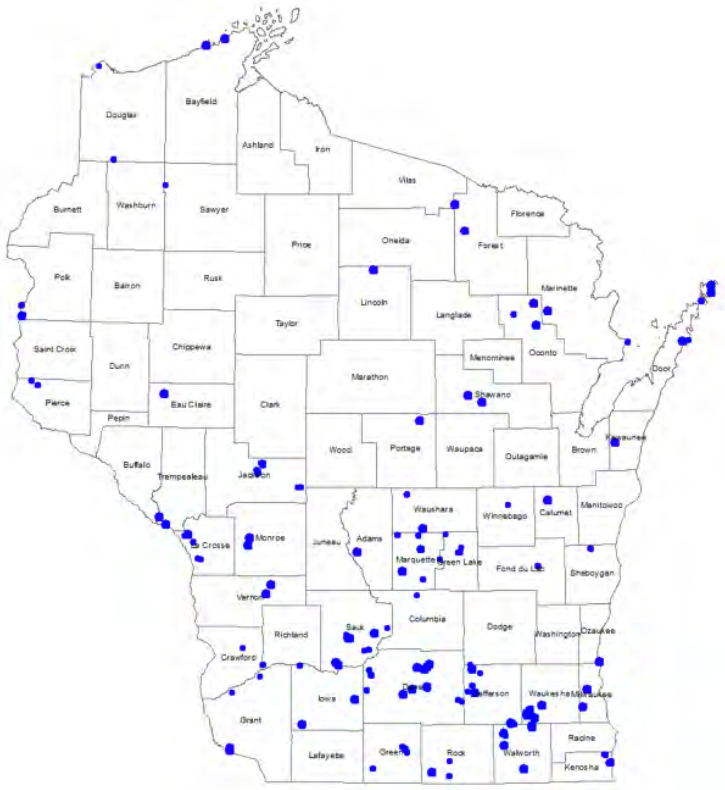


Figure 1. Rare Plant Monitoring Program volunteers submitted 185 survey reports in 2017 from a wide range of places across the state.

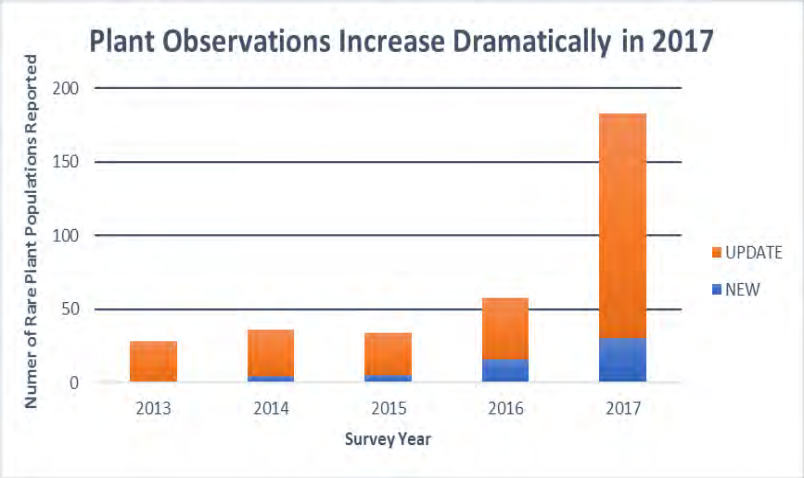


Table 1. Number of rare plant reports submitted by RPMP volunteers each year.

Volunteer data directly connected to conservation action

In most cases, volunteers revisit known rare plant locations (Table 1). These updates are critical since roughly half our rare plant populations haven't been seen in over 20, more than enough time for a habitat to degrade and a population to wink out. Volunteer's data alert land managers to pressing threats and inform on-the-ground management. Data are also used for statewide, regional, and even international status assessments and conservation planning.

Strategic changes for 2018

Narrowing the search for priority plant populations

Every year during our Rare Plant Monitoring training sessions I explain the gap this project fills: there are way too many rare plant populations for DNR staff to visit regularly, meaning the entire botanical community must be involved.

Despite our growing numbers of volunteers, trying to revisit every known rare plant population doesn't always make sense.

For example, the chances of relocating the linear-leaved sundew (*Drosera linearis)* population on Madeline Island that was last observed in 1832 are pretty low, while finding a population last seen in 2005 and marked with GPS coordinates are much higher. So we are prioritizing our survey efforts to focus on those populations we are likely to find and where we can make a difference.

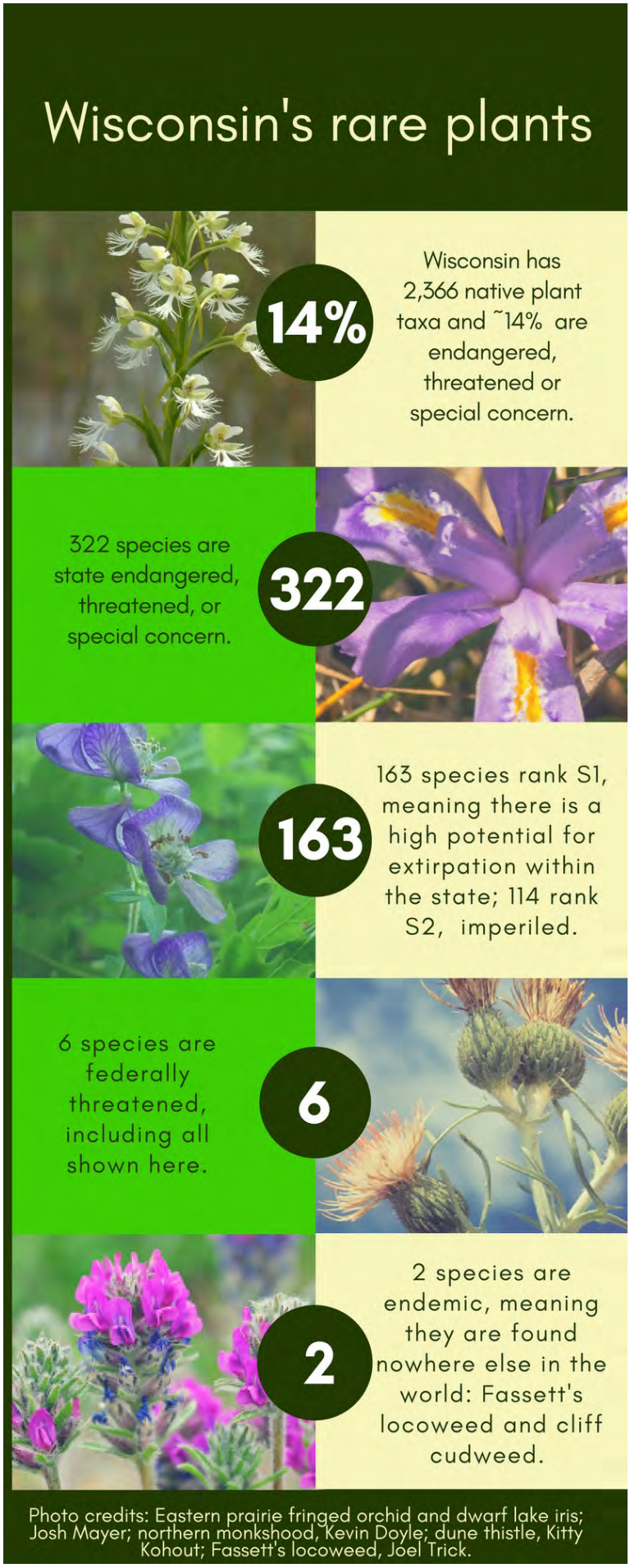
3,000 priority populations to get attention

Prioritizing our survey efforts benefits plant conservation in several ways. It allows us to set measurable goals we can use to gauge our effectiveness and garner interest; allows us to spend our valuable time efficiently; and allows us to more accurately target management and research.

Criteria for prioritization include:

- Population has been seen since 1970.
- Location of population is relatively precise, usually known to within 40 acres.
- Found on protected, usually publicly accessible, land.

This prioritization process will evolve over time. For example, we will likely add other factors to our prioritization such as distance to road so we can rank surveys from easy to difficult.



Strategic Changes

continued

In general, the distribution of rare plant populations will not change (see maps to the right; the rare plant "hotspots" are the same, and the areas with few known populations are the same).

However, the total number of plant populations available for surveys will be reduced down by almost half to 2,935.

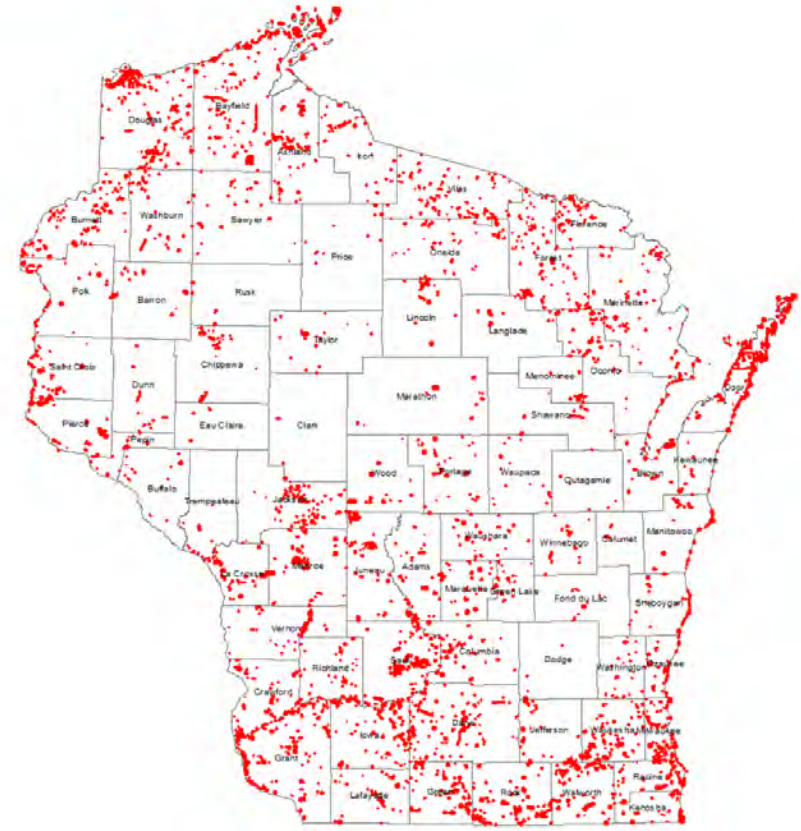
How the change affects volunteers

The reduction in plant populations we will be surveying means there are half as many survey opportunities as there previously were, and volunteers may have to search a bit harder to find a survey in their areas. Although that may be the case, there will be more tools to find the surveys that meet their needs in terms of ease of access, time spent searching and interpreting the landscape, and difficulty in identifying the target species.

These prioritization tools are in development now. Hopefully they will be available for this field season but if not, certainly the next one. I'm excited with the opportunities this prioritization will allow us.

Having a smaller target of surveys to focus on may open up opportunities to collect different kinds of information. For example, volunteers may want to collect information on plant size, pollinator interactions, effects of a given management technique, or seed viability instead of estimating the population size each year.

I also think that volunteer participation and retention—an issue with any citizen science project—may improve if volunteers feel their time is being used as effectively as possible.



Distribution of all known rare plant populations

Distribution of priority rare plant populations

2017 Species of the Year results

White Lady's Slippers slip

In 2017, volunteers took part in a targeted effort to visit as many populations of a single rare plant species as possible to assess its statewide status. We teamed up with UW-Madison graduate student Andrea Weissgerber who is looking at how this orchid responds to various environmental factors.

The 2017 results tell a mixed story. Volunteers submitted data on 23 white lady's slipper populations, including 19 of the 28 priority populations, i.e., those found on protected land, seen since 1970, and with fairly precise locational information. Unfortunately, 10 of the 23 reports came back negative — no orchids were found. While most of the 10 were previously known to be small or highly threatened, one was considered highly viable, and its loss is a significant hit to the statewide population. Also concerning is that 7 of 10 occurred on protected land; their failure to survive doesn't bode well for populations on unprotected lands.

Due to these results — a statewide decline of roughly 33% and few populations considered highly viable — white lady's slipper is now at greater risk of extinction in the state. It has been downgraded from vulnerable to extinction in the state, an "S3" ranking, to "S2," imperiled.

Silver linings for slippers

On a more positive note:

- One of our healthiest white lady's slipper populations was relocated in 2017 and doing better than we thought;
- Over 1,000 orchids were found at a high quality remnant prairie in Kettle Moraine State Forest-Southern Unit;
- A population near Waterloo not seen in over 30 years was relocated;
- Josh Mayer and Brian Lennie found more white lady's slippers than had been seen in 20 years near East Troy.

Finally, since many of these populations had not been visited since the mid-1980s, we received lots of data that will improve our understanding of exactly where these orchids are found and how their habitat has changed.

Volunteer Roberta Herschleb relocated a population of white lady's slipper near Waterloo that had not been seen in over 30 years. Photo by Roberta Herschleb.

Recently burned prairie in Waukesha County where white lady's slippers were found in 2017. Protected land like this site is more likely to be actively managed and continue to support white lady's slippers. Photo by Laura Giese.

Although this year's surveys revealed a concerning trend—one not seen in neighboring states, by the way—they are an excellent example of why we need to revisit vulnerable species more frequently. As we found in 2017, 20-30 years is more than enough time for reed canary grass and buckthorn to take over a site or a prairie to be drained by a new ditch. Land managers can and will use the information on white lady's slipper location and health to gauge past management success and plan for the future. Without the help of volunteers, the plight of white lady's slippers would go untold.

Species of the Year 2018

Goldenseal (*Hydrastis canadensis*)

Photos by Ryan O'Connor

Each year the Rare Plant Monitoring Program picks a plant deserving special attention. Monitors are not required to survey for the species of the year; it is meant to build excitement and allow participants to become more familiar with one plant species.

Species overview:

The heart of the goldenseal distribution occurs from Pennsylvania to Missouri, and there the species appears to be secure. At the periphery of the distribution, though, goldenseal is much less common. There are 38 known locations of goldenseal in Wisconsin; 27 of these are priorities for monitoring.

Habitat

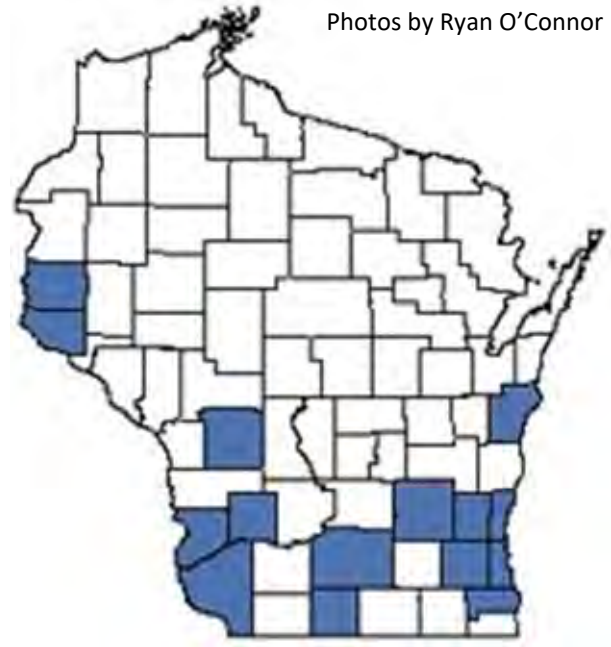
Goldenseal is found in rich deciduous forests typically dominated by sugar maple and basswood though occasionally oak and hickory are prevalent. Nearby wildflowers include trilliums, May apple, bloodroot, hepaticas, as well as some ferns.

Biology

In the spring, two palmately lobed leaves form at the end of a one foot tall hairy stem. The whitish flower develops between the two leaves in late April or early May. The goldenseal flower lacks petals, and the sepals it does have quickly disappear. Numerous white stamens, which arch upward are what gives this plant its spring color. After flowering, the two leaves continue to expand and stem loses its hair. By mid summer the bright red fruit, similar to a raspberry, develops above the leaves.

Identification tips

Goldenseal is distinctive due to its petal-less flowers, hairy young leaves, and bright red fruit. Other palmately-lobed woodland plants are easily distinguished. Hops (*Humulus* spp.) have similar leaves to goldenseal but are vines. May apple (*Podophyllum peltatum*) will likely be found alongside goldenseal and has two leaves that form at the end of a stem. However, May apple leaves are more deeply lobed, its young leaves are not hairy, and its flower, which appears below the leaves, has petals.



Conservation Concerns

Poaching is a major threat to goldenseal. The plant is highly valued for its medicinal use, and over-collecting wild populations to sell for large sums has led to its decline. Habitat loss and degradation, either from logging, grazing, land conversion, or spread of invasive species, have reduced the viability of the remaining populations. Goldenseal was listed as special concern in Wisconsin in 1986.

Meet your RPMP volunteer

Dave Czoschke

Dave joined the Rare Plant Monitoring Program in 2017 and quickly made a mark, submitting data on 20 rare plant populations. He lives in central Wisconsin and enjoys numerous opportunities to visit rare prairie, barrens and sedge meadow species. He also takes excellent photos, as you can see for yourself on the front and covers of the report.

What got you interested in botany?

In 2013, I started trying to identify the wildflowers that I would see on my walks along the country roads where I live. Then I started photographing them with my pocket camera so I could identify them later.

Identifying some of them was not always easy. Sometimes I needed help. I'd send these photos off to some people I knew that were into botany if I couldn't figure it out from books or online. I learned allot in that process.

Do you typically find the rare plant you're looking for or have you gone home unsatisfied?

I'd say it would be better than 50 percent of the time I find the plant. The discouraging thing about not finding them is that it is sad that they don't seem to be there anymore.

Do you survey where you live or venture around?

It's most always places I can get to as a day trip or closer.

What is your favorite rare plant memory of 2017?

Finding the Small White Lady's Slipper near where I live and to see that they were doing well there too.

What other interests take up your time when you're not looking for rare plants?

When I'm not looking for them I'm posting them and any wildflower on iNaturalist and on a Flickr page I have. I've been into vermicomposting for a while. Composting with red worms. I have flower gardens.

Top photo: Dave Czoschke. Center: Dwarf lake iris (*Iris lacustris*). Bottom: Brittle prickly pear (*Opuntia fragilis*). Photos by Dave Czoschke.

Like many naturalists, you take excellent photos. What came first, the interest in photography or nature?

It happened together. I enjoy trying to improve my nature photography.

Do you have any rare plants or sites that you're looking forward to visiting in 2018?

I'd love to find and shoot a snow trillium (*Trillium nivale*) this spring. I'll be looking for that pale green orchid (*Platanthera flava)* I couldn't find last year.

Field notes and photos from 2017

Volunteers found some beautiful blooms and long-lost treasures in 2017. Enjoy this small sample of the compelling images and stories.

Josh Mayer relocated a population of erect dayflower (*Commelina erecta)* near Boscobel that had not been seen since 1884!

Josh also relocated the state's only population of northern clubmoss (*Selaginella selaginoides)* and submitted data via iNaturalist.

Lynn Preston and Joan Fritzler are a rare plant monitoring team, doing numerous surveys together in the Southern Kettle Moraine area. They conducted two white lady's slipper (*Cypripedium candidum)* surveys in 2018 as part of the Species of the Year effort.

George Riggin visited the same site numerous times throughout the summer, reporting four rare plants in total, including this population of broad beech fern (*Phegopteris hexagonopteris).*

"I knew it was there, but never realized how much until I laid out boundaries and transects." **Debbie Konkel** found this population of long spurred violet (*Viola rostrata*) on private land in Shawano County. It is one of the biggest populations in the state.

Michael Nied surveyed this population of amethyst shooting star (*Primula fassettii*) during the critical time for identification and captured a photo of the key diagnostic trait: the capsule.

Joe Rohrer and Debbie Konkel submitted data on the most northern population of ovate beak grass (*Diarrhena obovata*), a state endangered grass not seen at this location in 29 years.

After not finding his target species during his first attempt, **Stephen Gifford** relocated this population of twinleaf (*Jeffersonia diphylla*) in multiple locations.

Despite having knee surgery early in the summer, **Melinda Knutson** still managed to conduct a rare plant survey and relocated this population of clustered poppy mallow *(Callirhoe triangulata*) in La Crosse County.

John Scholze did rare plant surveys all over the Black River State Forest, finding five species in total, including this population of toothcup (*Rotala ramosior*). Toothcup is a recently listed species so gathering data is a priority.

Juniper Sundance relocated a population of the state threatened slender bush clover (*Lespedeza virginica*), in the Baraboo Hills. Not seen in 25 years, this is one of the healthiest populations in the state. Juniper found it to still be in good shape, and thanks to her, we have much more precise locational information for future monitoring.

Alex Bouthilet submitted a report on a population of the state endangered ground plum *(Astragalus crassicarpus).* One of the largest populations in the state, no data had been submitted in almost 30 years.

Putty root (*Aplectrum hyemale*) is best observed in spring and fall. This population found by **Aaron Carlson** was submitted on March 27, the first report of 2017. **Ben Johnston** submitted the last rare plant report of the year, also of putty root.

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Rare Plant Monitoring Program volunteer Dave Czoschke photographed this beautiful Hairy Wild Petunia (Ruellia humilis). Ruellia is a Wisconsin Endangered plant and is found in prairies and upland oak woods. Blooming occurs in late May through early October; fruiting occurs in late June through early October. Optimal identification period for this species is late May through early October. Distinguishing characteristics are its profusion of hairs, sessile or subsessile leaves, narrowly linear calyx lobes and a long funnelform lavender flower.