Rare Plant Monitoring Program

Annual Report

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Cover photo credit: Roberta Herschleb
Volunteer plant monitor Roberta Herschleb took this photo of a jeweled shooting *(Primula fassettii)* star in Grant County. "Elders in my family often spoke of climbing the Mississippi River bluffs each spring to pick bouquets of these shooting stars (many decades long past). I'm glad enough remain for "collection by photo," she says.

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Editor's Corner

By Kevin Doyle
Rare Plant Monitoring Program Coordinator

Whatever your motivations to get involved with conserving plant biodiversity — a desire to learn more about plants, visit new places around Wisconsin, 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 around Wisconsin is more than any one agency can handle, and the importance and urgency of this undertaking can't be overstated. You, our RPMP volunteers, make conserving plant biodiversity possible. Importantly, you also are helping build the botanical community here in Wisconsin, a critical step in the long-term sustainability of our efforts. There's no doubt there's more work to do, but I am so encouraged by how RPMP volunteers have stepped up already. A special thanks to all the RPMP volunteers who participated in 2018. I look forward to working with you all again in 2019.

Thanks to all the Volunteers Who Helped Out in 2018!

Karen Ackroff
Jan Axelson
Mary Bartkowiak
Nichole Besyk
Christine Bohn
Ben Bomkamp
Justin Bournoville
Alex Bouthilet
Dan Buckler
Aaron Carlson
Dave Czoschke
Chuck Egle
Don Evans
Doug Fields
Tom Ganfield
Greg Gardner
Stephen Gifford
Ben Grady
Heidi Hankley
Laura Helmich
Emily Henrigillis
Roberta Herschleb
Ben Johnston
Joanne Kline
Melinda Knutson
Debbie Konkel
Zach Kron
Tom Lager
Brian Lennie
Noela Martell
Josh Mayer
Kay McClelland
Brianna McDowell
Jason Miller
Michaela Molter
Michael Nied
Ann Nolan Smith
Kerstyn Perrett
Sherry Pethers
Keith Phelps
Corey Raimond
George Riggin
Liz Roberts
Raymond Roberts
Gwendolyn Rouse
Michael Roy
Rod Sharka
Kathy Stahl
Ann Stoda
Juniper Sundance
Shalako Thomas
Tom Underwood
Connie Weedman
Jane Whitney

Discoveries of New Plant Populations Bloom in 2018

Starting with a putty root *(Aplectrum hyemale)* report near Boscobel on May 1 and ending with a goldenseal *(Hydrastis canadensis)* report near Cedarburg on October 1, Rare Plant Monitoring Program volunteers turned in a record number of rare plant reports in our 2018 season. More than 200 rare plant reports were submitted by 54 volunteers representing a mix of veterans and many of the 75 newly trained monitors.

As usual, most volunteers were sent out in 2018 to revisit known rare plant populations to reassess how they were faring. Such checkups are critical because roughly half our rare plant populations haven't been observed in 20 or more years – more than enough time for a habitat to degrade and a population to wink out. 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.

In 2018 as in previous years, however, intrepid volunteers exploring on their own found populations of rare plants in new locations. These 22 "new populations" are great finds and good news for these rare plants. Here are some highlights detailing some of these new finds as well as significant discoveries made by volunteers checking on known plant populations.

Volunteer **Aaron Carlson** found a new population of prairie Indian plantain *(Arnoglossum plantagineum)* near Black Earth. The discovery was interesting because the new population seems to be a response to restoration efforts in the area and not a case of the population having been overlooked. The new population was found on a site visited numerous times by skilled botanists and near a popular trail leading from the parking area. It's likely the species had been buried in the seed bank for decades. The significant restoration efforts of the property managers have improved the quality of the site and allowed suitable conditions for prairie Indian plantain and other unique native prairie plants to return.

Photo credit: Aaron Carlson
Prairie Indian plantain (Anoglossum plantagineum).

Prairie milkweed (Asclepias sullivantii)

RPMP volunteers discovered new populations of four of Wisconsin's five rare milkweeds. Milkweeds have been in the news a lot recently due to their importance to monarch butterflies and other native pollinators so it's encouraging that new populations are still being found. It's a great example of how plant conservation will benefit animal conservation. Enjoy this new factsheet on Wisconsin's 12 native milkweed species from partners at the Wisconsin Monarch Collaborative, a coalition of 70 groups and individuals, including DNR, promoting voluntary efforts to add about 120 million milkweed plants to Wisconsin by 2038.

Photo credit: Laura Helmich
Kittentails (Besseya bullii).

Volunteer **Laura Helmich** rediscovered a population of state threatened kitten-tails *(Besseya bullii)* in southern Rock County that had not been seen since 1911! Since the record was so old, it was actually removed from our Priority Species list and didn't show up on the Rare Plant Finder. Laura was familiar with the site and the plant, so when she found it and didn't see a record for that township on the Rare Plant Finder, she thought it may be a new record. Not new, exactly, but any update of a population not seen in more than 100 years is pretty amazing.

Photo credit: Nichole Besyk
Foxglove beardtongue (Penstemon digitalis).

During a survey for pale beardtongue (*Penstemon pallidus*; special concern) in Portage County, **Nichole Besyk** found the commonly planted—and nonnative—foxglove beardtongue *(Penstemon digitalis)* instead. It was determined that the original report was in error and the record was removed from the DNR files. It was an unusual survey and report but a crucial one for the integrity of our records.

Photo credit: Juniper Sundance
Prairie false dandelion (Nothocalais cuspidata)

Prairies in southern Wisconsin degrade quickly in the absence of management, so when **Juniper Sundance** went to check on a population of prairie false dandelion *(Nothocalais cuspidata)* near Black Earth that hadn't been seen in 27 years, I didn't have much hope. The site was indeed heavily impacted by brush and tree encroachment, but Juniper found 16 clumps of the rare prairie plant hanging on, highlighting its tenacity.

Volunteers turned in numerous reports of the Driftless Area specialist, jeweled shooting star *(Primula fassettii)*. **Debbie Konkel** and **Lorelei McNown** relocated a population in Trempealeau County that was last reported in 1980. They estimated almost 600,000 plants, making it the biggest population in the state! **Roberta Herschleb** also found a population along the Mississippi River in Grant County. Like Debbie and Lorelei, the population Roberta found had not been seen in a while and had no associated data that would help conservation biologists gauge its health. Roberta found almost 5,000 jeweled shooting stars, making this population the second largest in the state, trailing only the Trempealeau County one. Two more large jeweled shooting star populations were found in Grant County by **Dr. Ben Grady** and **students from UW-Platteville**, and one in La Crosse Co by **Ann Nolan Smith**. These discoveries proved that although jeweled shooting star is limited to only about 15 sites, all in the Driftless Area, this unique wildflower is doing quite well.

Photo credit: Roberta Herschleb
Jeweled shooting star (Primula fassettii)

Photo credit: Zach Kron
Woolly milkweed (Asclepias lanuginosa).

RPMP volunteers found three new populations of plants listed as endangered or threatened, all three milkweeds: dwarf milkweed *(Asclepias ovalifolia)*, woolly milkweed *(A. lanuginosa)*, and purple milkweed *(A. purpurascens)*. These species receive legal protection when found on public land, meaning that their presence will impact land use decisions at those sites in ways species listed as "special concern" won't. Because endangered and threatened species receive such protection, having accurate information on their precise location is crucial for land managers.

Blunt lobe grape fern (Sceptridium oneidense).

Volunteers found 22 new populations of rare plants. Among these was a new population of a difficult group of ferns called "grape ferns." Forest Service botanist and RPMP volunteer **Justin Bourneville** found a new population of blunt lobe grape fern *(Sceptridium oneidense)* in Oneida County. Having highly skilled botanists participate in our Rare Plant Monitoring Program allows us to capture data on some of the hardest-to-identify species and makes the RPMP program richer and more robust.

Photo credit: Greg Gardner
Waxleaf meadowrue (Thalictrum revolutum)

Volunteer **Greg Gardner** rediscovered a population of waxleaf meadow rue *(Thalictrum revolutum)* near Cedarburg that hadn't been seen in 42 years. To boot, the previous observation record did not contain any information about the population size and supplied only vague information about location. Thanks to Greg, we now have GPS coordinates of the plant's location, a precise assessment of the population size, and excellent photos of the species' distinctive glandular leaves.

What's New in 2019?

Improvements Unveiled to Rare Plant Finder Tool

We've revamped the Rare Plant Finder to include a number of new features that will help volunteers find survey assignments. Updates should be live this summer.

Phenology Filter

The updated Rare Plant Finder allows users to search by plant phenology. If you only have time to search for plants in the spring, you can filter out those that are visible during the summer and fall. If it's July and you're itching to get out on a survey, you can filter out the plants best surveyed for in spring or fall.

Faster Searching

The new Rare Plant Finder also will make it easier to find known populations. Instead of overlaying a grid of all townships, whether they have rare plants or not, rare plant populations will show up as pins in the center of the township. No more wasting time clicking on a township to see if rare plants have been found there.

Date of Last Observation

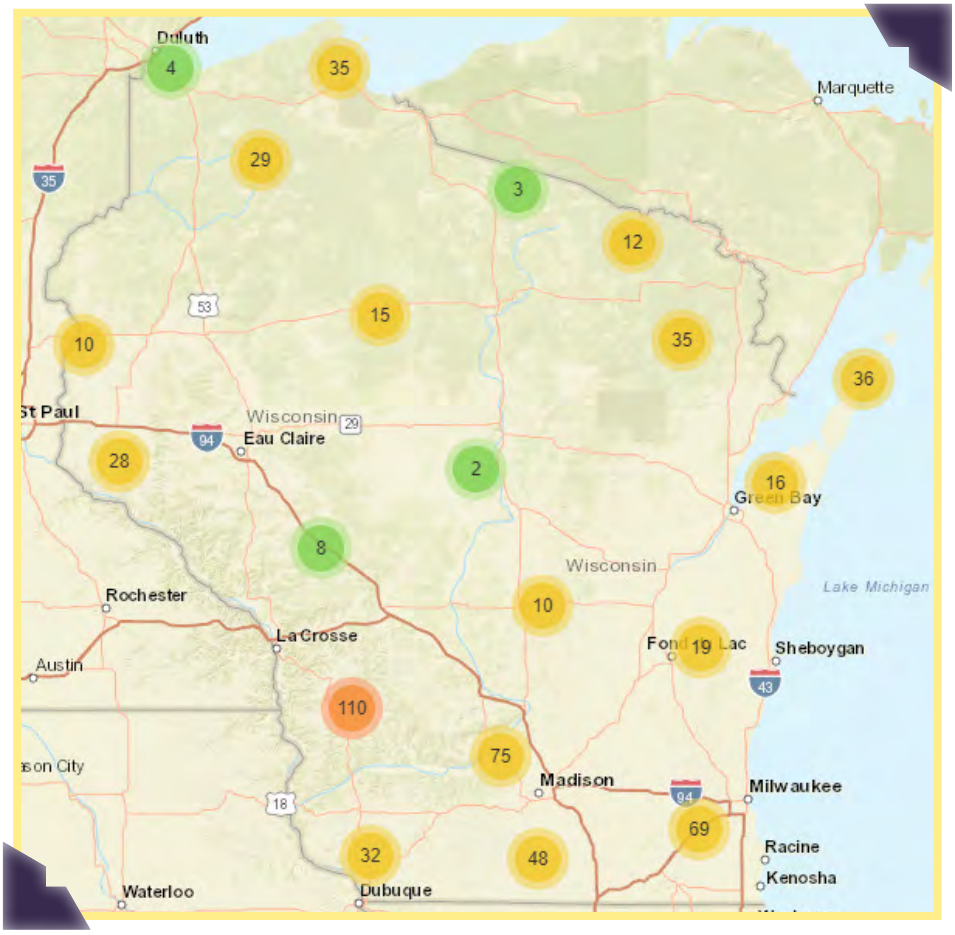
You'll soon be able to see the date when a rare plant species was last observed in a given township. This may be helpful in estimating the likelihood it is still there or that we have GPS coordinates marking the population.

New Digital Data Submission Form

We also have revamped the data submission process. Volunteers can still submit observations through iNaturalist or by mailing in hard copy forms. Instead of emailing the fillable *.pdf form, however, which often caused problems for volunteers and the program coordinator, we have developed a new online submission form. The new form uses ArcGIS's Survey123 program and in many ways is similar to iNaturalist, although no usernames are necessary.

Users can submit observations via their desktop computer or their mobile device using the Survey123 app. The new online form can be found in the same place as the old one—on the RPMP website under the "Volunteer" tab and "forms/guides." By clicking on the Online Data Submission Form you will be prompted to open the form on your desktop browser or in the Survey123 app if you have it downloaded.

Once you download the app, you must use your web browser to navigate to the RPMP website. Click on "Online Data Submission Form" and then "Open in the Survey123 field app." This will load the RPMP form into your app. From then on, simply access the data form via the Survey123 app.



The updated Rare Plant Finder shows clusters of rare plants throughout the state and allows users to filter by survey period. This map shows rare plants best identified in spring.

2018 Species of the Year: Goldenseal

Goldenseal *(Hydrastis canadensis)* was the target of our 2018 Species of the Year search, and RPMP volunteers and other contributors' findings revealed mixed fortunes for this plant. Golden seal is found in a wide swath of forests across southern and western Wisconsin and has become increasingly prized for its medicinal value.

When last assessed, the conservation status of goldenseal was listed as "imperiled or vulnerable," which is a rank somewhere in between the second and third highest level of risk ("critically imperiled" is the level denoting the highest). With this new round of survey results in, we now consider goldenseal "vulnerable," which is good news, although many questions remain about its status.

Roughly 17,000 stems of goldenseal have been reported to the DNR since the 1970s, and about 13,000 of them, or 75 percent, have been seen in the last 10 years-- almost all, in fact, during 2018 by RPMP volunteers as part of our Species of the Year focus. So that's pretty good news. On the other hand, attempts to relocate four separate goldenseal populations in 2018 turned up empty. While most of these were small populations, one was big, around 1,000 stems.

Photo credit: Aaron Carlson

Goldenseal (Hydrastis canadensis).

Driftless Area a Stronghold for Goldenseal While Southeastern Wisconsin Sites Sparse

Goldenseal seems to be doing better in some areas than others. In particular, populations in the Driftless Area where there are larger tracts of oak forest seem to be doing better. The lion's share, roughly 70 percent, of all goldenseal stems ever counted in Wisconsin occur across just three sites in the Driftless Area.

Populations in the southeast may not be doing as well. One site that harbored 1,000 goldenseal stems in 1999 was surveyed by an RPMP volunteer in 2018. During 2.5 hours of surveying the site, the volunteer couldn't find a single

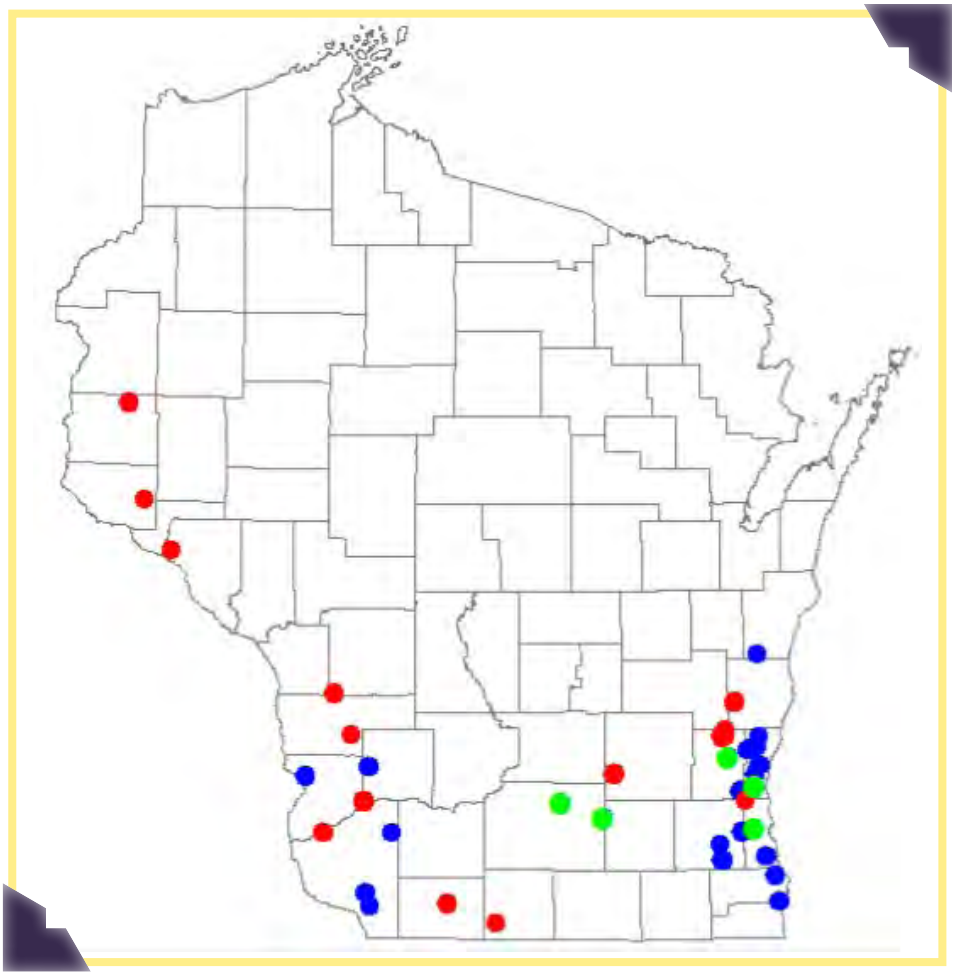
Species of the Year

Each year the Rare Plant Monitoring Program picks a plant deserving special attention. Volunteers are not required to survey for the "Species of the Year" but are encouraged to do so to allow a statewide status update and to allow participants to become more familiar with one plant species.

stem. A second site, which also had around 1,000 stems in 1999, was revisited in 2011 and only a few plants were seen. Other sites that once had large populations occur in small isolated woodlots embedded within a landscape of agriculture, residential, and commercial development. These sites haven't been visited recently, but their viability doesn't seem good.

If the Driftless Area is a stronghold for goldenseal perhaps we can hold out hope that more populations remain to be found. In fact, three new populations in the northern Driftless Area have been reported in the last five years, much further north than goldenseal was known to occur. There is reason to hope that more populations like these will be found: a lot of suitable habitat in the Driftless Area is privately-owned and thus not frequently surveyed. It's possible there are large populations of goldenseal that are thriving on these lands and have just not been reported to DNR yet.

Despite these lingering questions, it is clear that the goldenseal population is changing in Wisconsin-- our understanding of it has changed. While goldenseal appears to be doing well in the Driftless Area and even expanding northward, populations in the southeast are languishing, and some have perhaps even been extirpated. Despite an overall population decline of around 10 percent in the last 20 years, the space it occupies has increased significantly, buffering it from local threats like disease outbreak or natural disasters.



Populations of goldenseal in Wisconsin. Red dots are populations that have been seen since 2009. Blue dots have not been seen since 2009. Green dots have not been seen since 2009 despite attempts to relocate them.

One Threat Looms Above the Others: Overharvest

The threats to goldenseal populations looms large, however, and are similar to the threats facing many of our native woodland plants: loss or degradation of suitable habitat. Invasive species like garlic mustard, honeysuckle, and buckthorn outcompete goldenseal for sunlight and nutrients. Coupled with threats from other plants, exotic earthworms remove organic material from the soil, leading to desiccation and soil compaction.

There is one threat that is unique to goldenseal, though, which lies in its commercial value. Goldenseal is sought after for its medicinal value and is therefore harvested and sold. In 2017, the International Union for Conservation of Nature (IUCN) listed it as "vulnerable" in part for the threats mentioned above, but also because it is victim to uncontrolled wild harvest. It is illegal to harvest goldseal on public lands in Wisconsin but harvest on private lands is allowed but unregulated. Declines have been seen in goldenseal populations across eastern North America, but without monitoring of the goldenseal harvest, it's hard to say how many plants occur in Wisconsin or how many are dug up and sold. And without this information it's hard to ensure sustainable harvest is occurring. The result is a big unknown in the conservation status of goldenseal here in Wisconsin.

2019 Species of the Year: Prairie Turnip

Keep your eyes peeled for the 2019 Species of the Year – Prairie turnip *(Pediomelum esculentum)*
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, but the idea is to gain a statewide status update for a particular plant while also building excitement and allowing participants to become more familiar with one plant species.

Species Overview

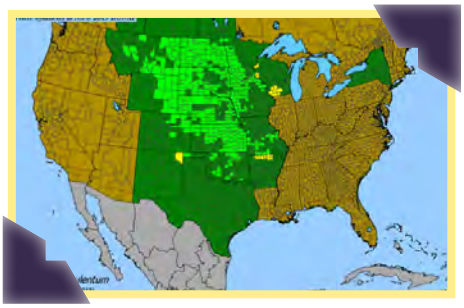
The genus Pediomelum (from the Greek, for "apple of the plains") is endemic to North America, with about 29 species found across the continent, mostly west of the Mississippi River. Prairie turnip *(Pediomelum esculentum)* reaches its eastern limit here in Wisconsin but is common in the Great Plains 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.

Habitat

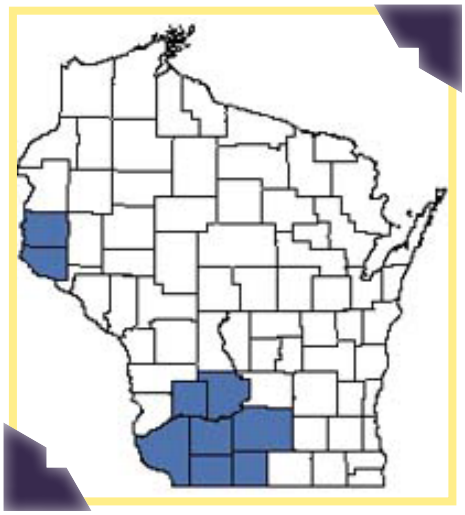
Prairie turnip is found in dry and dry-mesic prairies in two disjunct regions in western Wisconsin: the Driftless Area south of the Wisconsin River and along the Kinnickinnic River in Pierce and St. Croix counties. It is only rarely found on the steep bluff prairies above the Mississippi River.

Photo by John Zaborsky

Prairie turnip (Pediomelum esculentum).



National distribution of prairie turnip. Taken from Biota of North America Program (BONAP).



Biology

Prairie turnip is a slow growing perennial that emerges in May

and flowers shortly after through June. The plant is conspicuously hairy, particularly on the stems. The leaves are alternate and palmately compound with five leaflets. The inflorescence is composed of numerous bluish-purple stalkless flowers in a dense 1-3 inch spike. A 1-2 seeded pod develops in July and August.

Identification Tips

There aren't many plants that can been confused for prairie turnip in Wisconsin. The most closely related species, silvery scurf pea *(P. argophyllum)* is exceedingly rare and may only be represented here by a single population. Wild lupine *(Lupinus perrenis)* has palmately compound leaves like prairie turnip, but there are 7-11 leaflets instead of five for prairie turnip. Also, lupine has a much taller inflorescence of stalked flowers. Lupine is not nearly as copiously hairy as prairie turnip either. Wild indigos *(Baptisia spp.)* have a similar low bush-like appearance as prairie turnip but, again, those species are not copiously hairy. They are also generally taller and have white to cream colored flowers.

Conservation Concerns

Like many other prairie dependent plants and animals, the main cause of prairie turnip's rarity is loss or degradation of habitat. Being at the eastern edge of its range, it was never common in Wisconsin, making it naturally more vulnerable than other prairie plants. In 1986, prairie turnip was listed as special concern, and since then almost 70 populations have been reported, including herbarium specimens. Of these, 25 are priorities for monitoring.

Top: The leaves of prairie turnip are palmately compound with 5 leaflets. Photo credit: Heidi Hankley
Middle left: The thickened root tubers give prairie turnip its name. Photo credit: Bonnie Heidel
Middle right: The stems and branches of prairie turnip are conspicuously hairy. Photo credit: Robert Read
Bottom: The flowers develop into hairy pods by July or August. Photo credit: Heidi Hankley

Despite a relatively large number of prairie turnip populations in Wisconsin, very few are large and most have not been observed recently. Although a lot of prairie restoration has occurred in the last 30 years, prairies that have not received attention have likely degraded and the small prairie turnip populations that survived on these sites are particularly vulnerable to extirpation.

Interviews: Volunteers Talk About Rare Plant Monitoring Program

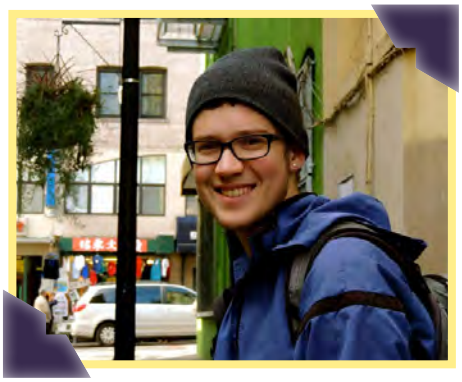
Debbie Konkel has always had an interest in plants and knowing what she is looking at. When she received an e-mail about the program a few years after she had retired from the DNR, "I knew this was exactly what I was looking for to make my retirement fun."

Most interesting plant you've found in Wisconsin: [Muskroot] *Adoxa moschatellina*. A rare plant that is so small and looks so delicate that seems to be thriving in a heavily used natural area, even along the edges of the trails where they are likely trampled. It emerges very early in the spring and appears to bloom before any of the other forest flora that we consider early blooming. Its flowers are so tiny that it is exciting to see them bloom.

Personal skills or traits important for participating in RPMP: Persistence, you don't always find the species on the first visit or where it is recorded to be.

Most rewarding rare plant survey: The jeweled shooting star *(Primula fassettii)* survey near Trempealeau. I had visited the site too late the first year and did not find it. Going back the second year and hitting the perfect timing and seeing a plant that is rare to be so abundant and so out in the open for anyone to see.

Plants you want to see or places to survey: I like to visit State Natural Areas, especially prairies since they are my favored habitat, but I love being in the woods also. I am looking forward to doing a phenology study of *Adoxa moschatellina* this spring.



Keith Phelps saw the Rare Plant Monitoring Program as a great way to improve botanical identification skills, gain experience in rare/species monitoring and data collection, and explore far more State Natural Areas than he would if he was just hiking.

Most interesting rare plant: Northern monkshood (*Aconitum noveboracense*), due to its location on moist limestone cliffs with cool air drainages. I find these landscape features quite remarkable. This particular survey was on a cliff with a dramatic drop off. It truly felt like an adventure as the survey was fraught with the danger of slipping off the cliff face! In addition, I was able to see other rare/fascinating species like Sullivant's coolwort (*Sullivantia sullivantii*) and walking fern (*Asplenium rhizophyllum*).

Plants you want to see or places you want to survey: For this year, I really want to conduct some muskroot *(Adoxa moschatellina)* surveys. I love the forest environments they occupy and I think their flowering structure is incredibly unique. Plus, I have never seen this species before!

Most rewarding plant survey: This past survey of goldenseal *(Hydrastis canadensis)* in Green County. I found the population very quickly and upon scouting out the adjacent area, found other equally robust populations! I ended up returning at a later date to conduct more transect surveys as there were so many individual plants. It was amazing to see the population numbers so strong and to catch the plant when it was flowering.

What personal skills or traits are important to participate in the RPMP: A strong desire to preserve rare and endangered flora, the love of hiking and being immersed in an outdoor environment, a propensity to ask questions/research what you don't know and an undying love of plants!

Karen Ackroff took the Master Gardener and Master Naturalist courses and has volunteered on other DNR projects. A retired scientist, she values the Rare Plant Monitoring Program because it allows her to collect data again. 2018 was her first year with the program. Karen took this photo of kittentails on her first survey.

Most rewarding rare plant survey: I have only done one so far. It was in spring and involved exploring an area near home. I did it solo and returned several times to get it right. I liked being able to contribute useful information while doing something I enjoy-- hiking in relatively unchanged land.

Personal skills or traits important for participating in RPMP: Careful data collection, patience, observational skills, basic hiking ability

Plants you want to see or places you want to survey: I will look for Christmas fern, my other assignment from last year. I'd like to return and check on the kittentails I surveyed last year. And I'd like to continue to help with surveys in southeastern parts of the state.

What I like to do when I'm not looking for rare plants: Working to naturalize a portion of my yard, volunteering at the local nature trail, hiking.

Alex Bouthilet joined the Rare Plant Monitoring Program after volunteering with different non-profit groups on habitat restoration projects. He wanted a way to share his observations of the rare plants he was seeing on land he helped manage.

Most rewarding rare plant survey: Two years ago I surveyed a population of ground plum *(Astragalus crassicarpus)* on a small hill prairie that I had burned with The Prairie Enthusiasts. The survey was about a month after the prescribed fire, and I was overjoyed to count all the [ground plum] plants emerging from the black. I most enjoy seeing when land management work I've helped with leads to positive effects on rare plant communities.

What I like to do when I'm not looking for rare plants: When I'm not looking for rare plants I am working to increase and improve their habitat with organizations such as The Prairie Enthusiasts, Standing Cedars Community Land Conservancy, the DNR and the U.S. Fish & Wildlife Service. I also assist the St. Croix Wetland Management District of the USFWS in running the Star Prairie Seed Nursery in St. Croix County. There are 60 acres of planted prairie seed production plots that we manage and collect to meet the need for local ecotype native seed. This seed is used on habitat restoration projects throughout the district.

Personal skills or traits important for participating in RPMP: An appreciation for our native plants. If you enjoy being in beautiful places and observing plants then you can be an important part of the RPMP. The only skill I would say is required would be a willingness to learn.

Join the Team!

Love hiking, being outside and botanizing? Learn more about DNR's Rare Plant Monitoring Program and how to get involved in this fun opportunity to explore local lands.

Visit: http://wiatri.net/inventory/rareplants/

2018 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. These are a few more stories from the 2018 rare plant monitoring season that tell the stories of rare plants but also the people and their experiences finding them.

Photo credit: Joanne Kline

We don't get many reports on rare aquatic plants so when **Joanne Kline** submitted data on Vasey's pondweed *(Potamogeton vaseyi)*, we were pretty excited. Aquatics can be hard to photograph in the water, so Joanne "floated" the pondweed on top of a piece of waterproof paper as a backdrop.

Photo credit: Liz Roberts

Liz Roberts took her dad out for a rare plant survey over Memorial Day weekend. They looked for, and found, pale beardtongue *(Penstemon pallidus)* near Pleasant Prairie in Kenosha County.

Photo credit: Ann Stoda

We all know that milkweeds are important hosts for monarch butterflies. **Ann Stoda** found proof when she captured this photo of a monarch caterpillar on the upper stem of the state threatened dwarf milkweed *(Asclepias ovalifolia)*. The milkweed population Ann was checking up on hadn't been seen in 20 years but persisted over that period and was roughly the same size. Good news for our native plants and pollinators!

Photo credit: Emily Henrigillis

Capitate spike-rush *(Eleocharis flavescens)* is a rare spike-rush, usually found on mudflats around the lake edge or even floating in the lake. **Emily Henrigillis** found this population at a previously undocumented site in Shawano County. Unfortunately, Emily flipped her kayak and lost the pictures on her phone. This photo was saved because she had already texted a copy to a friend. The dangers and benefits of using a cell phone for fieldwork.

Photo credit: Ton Ganfield

Tom's training in the Rare Plant Monitoring Program will help him assess how the kittentails *(Besseya bullii)* population responds to management.

Photo credit: Jared Urban

Tom Ganfield is a State Natural Area volunteer steward working near Whitewater. Tom is a full service volunteer, providing the habitat restoration and the vegetation monitoring! Here, Tom collects seed and cuts brush at Kettle Moraine Oak Opening State Natural Area.

Photo credit: Ben Bomkamp and Kerstyn Perrett

Ben Bomkamp and **Kerstyn Perrett** have submitted a number of rare plant reports over the last couple of years, mainly from central Wisconsin. One of them was netted nutrush *(Scleria reticularis)*, a state endangered plant—known from only 2 sites in the state—and one of our "Atlantic Coastal Plain disjuncts." This tiny sedge has distinctive netted veins on its fruit, best seen under magnification.

Photo credit: Jason Miller

Jason Miller used to coordinate the Plants of Concern program in Illinois but moved to Door County in 2018. Jason used the RPMP to familiarize himself with the local flora and conducted numerous rare plant surveys, including for the federally threatened dwarf lake iris *(Iris lacustris)*. It's a hardy species that can grow in shallow soil and even directly out of rock as seen here.

Photo credit: Dan Buckler

Dan Buckler conducted a survey at a park in Milwaukee for a rare viburnum called smooth black-haw *(Viburnum prunifolium)*. The species looks very similar to the much more common nannyberry *(V. lentago)* but does not have winged petioles. Dan's close-up photo of the leaves and petioles clearly show they are unwinged. This is a great example of the kinds of photos Rare Plant Monitoring Program volunteers need to submit to confirm identification.

Photo credit: Dave Czoschke

There are a number of rare plants found on the Fort McCoy Military Installation but getting access to survey them can be difficult. **Connie Weedman** is from the area and was not deterred. She got permission to access the site and conducted a survey for a state threatened cactus, brittle prickly pear *(Opuntia fragilis)*.

Photo credit: Corey Raimond

Whenever **Corey Raimond** sees a plant he doesn't recognize he assumes it's nonnative, and he's usually right. This time, however, the mystery plant was the state special concern yellow evening primrose *(Oenothera serrulata)*. Corey found the plant near La Crosse while searching for a different rare plant.

Photo credit: Doug Fields

Doug Fields has long been conducting botanical inventories in Wisconsin, so we were really excited to see him get involved in the Rare Plant Monitoring Program in 2018. Doug especially enjoys searching for ferns as his "pteridomania" handle on iNaturalist implies. Doug relocated a few populations of rare ferns in the Chequamegon National Forest near Mellen.

Photo credit: Raymond Roberts

Raymond Roberts found a population of rough buttonweed *(Diodia teres)* in Madison. Despite there being a voucher specimen in the Wisconsin State Herbarium from the early 1990s, the Department of Natural Resources staff were unaware this population existed. Raymond found the population in late 2017 and returned in 2018 to collect more data. This is the only known population of this sand-loving species in Dane County.

Rare Plant Monitoring Program

Photo credit: Ben Bomkamp and Kerstyn Perrett.
Rare Plant Monitoring Program volunteers in 2018 discovered new populations of rare native plants including new locations of rare milkweeds, like this purple milkweed (Asclepias purpurascens).

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