

A Note from the President

My range of emotions can be very diverse when I look at them over the course of a year. From hearing about environmental protections being slashed and clenching my hands with disgust to learning of my local city making renewable energy pledges and putting my hands in the air with a cheer. I imagine this year had plenty of good and bad emotions for you, too. Let's work through the bad and celebrate the good. In 2019, MBC members learned of the destruction of an *Isotria verticillata* population (whorled pogonia, MI State-threatened) as a result of a MDNR sanctioned clear cut. Yet, staff at MDNR are working with dedicated MBC members to strengthen procedures that prevent future similar destructions. Let's get angry, but let's take positive action and applaud steps taken in a wise direction—I applaud Great Lakes Chapter (GLC) member and secretary, Ginger Cawood, and the MBC board for their initiative. Let's grieve more biodiversity being lost, but let's remember to

engage and appreciate the wonder of our floral diversity—GLC member, Nathan Martineau has documented an amazing 1,534 plant species in Michigan in 2019 (check out the iNaturalist highlights on page 8). This summer in Marquette, some GLC members enjoyed connecting in the real rather than the virtual world and then botanized together! The GLC has grown to 94 members (24 new) from 11 states and Ontario. About 60% of us reside in Michigan. As we look to 2020, we are all too aware of the divisiveness that will saturate culture's discourse. Let's remember disagreement is natural or normal; surely, all 94 of us GLC members do not see the world in the same way. So, I'll end with a challenge: stand up for your values AND sit, listen, and hold space for the contradicting voices. You'll have a positive impact. And I'd feel better knowing Great Lakes Botany enthusiasts are leading the dialogue to come.

--Submitted by Derek Shiels, President

MBC Distinguished Service Award

The MBC Distinguished Service Award was presented to Jim Hewitt during the Summer Foray held in Marquette, MI. The Award acknowledges the many contributions Jim has made to the Club as an MBC Board member and member of GLC. He was a founding member of GLC and its first Secretary, serving from 2015-2018. In addition to his duties as MBC Recording Secretary for the past five years, he was instrumental in organizing this year's Summer Foray event.

In this spare time, Jim has been active in the Wild Ones – Lansing and the Mid-Michigan Stewardship Network, and he participates in many community conservation efforts with Michigan Audubon Society and Fenner Conservancy. Vice President Dan Skean presented the award, a framed 4 x 8-inch Jack-in-the-pulpit art tile from Weaver Tile. Congratulations Jim and thank you for your dedication to the Club and for your many conservation efforts in mid-Michigan!



Jim Hewitt, Steward Extrordinaire!

2019 Joan Robb Student Foray Award

Congratulations to Ethan Jacobs, who was this year's recipient of the 2019 Joan Robb Student Foray Award. As part of the sponsorship, Ethan was able to attend the July MBC Summer Foray on the campus of Northern Michigan University, Marquette, MI. Ethan is a senior attending Central Michigan University where he is studying plant Evolution, Ecology and Conservation.



When asked about some highlights of his Foray experience, Ethan summarized, "Attending this year's foray was a truly enlightening experience! It is always fun to get out and enjoy the wonderful flora that Michigan has to offer but it is even better when you are accompanied by seasoned professionals with keen eyes. I especially enjoyed learning from Ryne Rutherford while exploring the granite bedrock glades around Marquette. While Ryne's day trip was about lichen, his knowledge of the natural world encompasses so much more. From sedges and orchids to fungus and ancient rock formations, there was never a dull moment. This opportunity also allowed me to talk to many people about many different disciplines of botany. I am currently a biology student at Central Michigan University and this aspect of the foray made me think about all the possible research topics that I could pursue as I approach my capstone project. I look forward to participating in future MBC events and field trips. I am very thankful for this wonderful experience".

GLC would like to acknowledge the generous support of the Michigan Botanical Foundation and your member donations for providing financial assistance for the student sponsorship program.

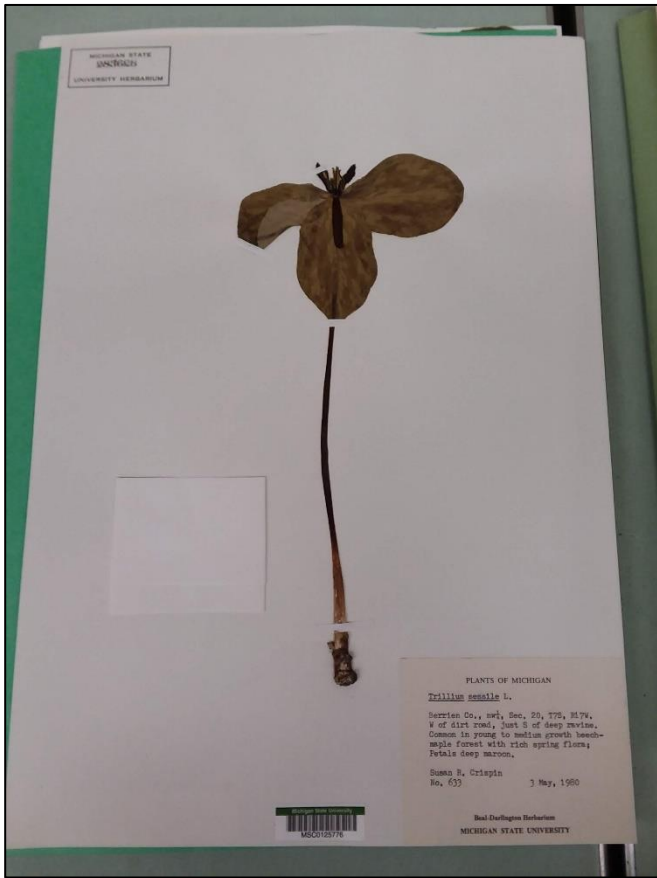
Ethan Jacobs – 2019 Student Foray Award Winner

Spring Field Trip Field Trip – MSU Herbarium and Baker Woodlot

On May 4th, twenty-five of us visited the Michigan State University Herbarium, which is among the 25 largest university-based herbaria in the country. The herbarium is most noted for its extensive collection of lichen. I combined the MBC-GLC with the Red Cedar Wild Ones group for this field trip since both organizations are into plants! We were led by Assistant Curator Matt Chansler, and his enthusiasm was contagious! So

many plant specimens were observed! After the herbarium tour, we went over to MSU Baker Woodlot on south campus to find spring ephemerals. We had Dr. David Rothstein, a Forest Ecologist, join us on our trek. Part of the woodlot was inundated with water, and a few of us waded through to see a wonderful specimen of *Carya cordiformis* (bitternut hickory).

--Submitted by Carolyn Miller, GLC Director-at-Large



MSU Herbarium specimen: *Trillium sessile* (toadshade). Photo by Carolyn Miller.



Experiencing the MSU Herbarium with Assistant Curator, Matt Chansler
Photo by Irene Eiseman



Walking through Baker Woodlot.
Photo by Irene Eiseman.



Carya cordiformis (bitternut hickory) in Baker Woodlot. Photo by Carolyn Miller.

A New Orchid Conservation Project in Michigan

by Liana May, Ecologist, Borealis Consulting, Traverse City, MI. GLC Vice President

While the orchid family has some of our most showy wildflowers such as the iconic showy lady's-slippers (*Cypripedium reginae*), it also contains some of our most inconspicuous and rare flowers. Most of Michigan's terrestrial orchid species are relatively unknown to the public and many can be elusive to even the most seasoned botanists. Their habits can be ephemeral and posture demure, making some difficult to survey for and properly manage. Additionally, they are sensitive to disturbance or changes in their habitat and often do not rebound after human activities. Of North America's over 200 orchid species, more than half are endangered or threatened somewhere in their native range (NAOCC 2019). Of Michigan's 57 species, 14 are listed rare species, one is extirpated, and many others are declining, or their populations' statistics are relatively unknown.

The ecology of orchids is complex, and all of the information needed to develop protocols for propagation, conservation and restoration is not known for *any* species native to North America (NAOCC 2019). Recognizing this gap in research, and that there was no centralized conservation effort to understand or preserve native North American orchids, the Smithsonian Environmental Research Center (SERC, Maryland) and the United States Botanic Garden (Washington, D.C.) established a coalition of like-minded organizations: The North American Orchid Conservation Center (NAOCC). By collecting samples of orchid roots for fungal DNA and propagation, orchid leaves for DNA analysis, and seed capsules for propagation, the NAOCC is putting together the pieces for successful propagation and reintroduction of *all North American species*. Propagated plants will eventually be re-introduced to habitats where these species have been extirpated or are declining. NAOCC is based in the Plant Ecology Lab at SERC, though work is carried out at multiple labs, conservation organizations, and botanic gardens around the country.



***Malaxis unifolia* (green adder's-mouth)**

In the summer of 2019, the Grand Traverse Regional Land Conservancy, the Leelanau Conservancy, and the Huron-Manistee National Forest collaborated with NAOCC and Borealis Consulting LLC, to pilot this project in Michigan. For this pilot, leaf, root, and seed samples were collected from relatively common species within their counties: rose pogonia (*Pogonia ophioglossoides*) and grass-pink (*Calopogon tuberosus*) from Kalkaska County, hooded and nodding lady's tresses (*Spiranthes romanzoffiana*, *S. cernua*) and green twayblade (*Liparis loeselii*) from Leelanau County, slender lady's-tresses (*Spiranthes lacera*) from Crawford County, green adder's-mouth (*Malaxis unifolia*) from Oscoda County, and fall coralroot (*Corallorhiza*



Spiranthes cernua (nodding lady's-tresses)

odontorhiza) from Benzie County. Root material was sent to Dr. Zettler and his students in the Orchid Recovery Program at Illinois College, and seed and leaf material was sent to SERC. The material will go towards their research in creating propagation methods for these species in Michigan.

While the 2019 collecting season progressed, the plant laboratories continued to make new ground on native orchid germination. In the fall NAOCC newsletter, Dr. Dennis Whigham (NAOCC) reported that in June 2019 he had received seeds that had been buried in nylon packets for four years in West Virginia. This "seed-packet" burial method is one approach to understand how long seeds remain viable in the soil, and also, what fungi may be associated with any developed embryos or protocorms. This seed packet was of the small whorled pogonia (*Isotria medeoloides*), which researchers have never been able to germinate, and is listed as federally threatened



Spiranthes romanzoffiana (hooded lady's-tresses)

and extirpated in the state of Michigan. Upon examination, Dr. Whigham saw that the seeds were intact with embryos, but no germination – however, one seed packet did have *protocorms*!

Protocorms are tiny balls of embryonic orchid cells growing with symbiotic fungi. Tiny coils of fungal hyphae (peletons) penetrate the orchid cells and enable nutrient exchange. Orchid seeds do not have nutrient packets, such as the large cotyledon leaves of bean sprouts, so successful germination relies on a symbiotic fungal relationship in which the fungi provides the nutrients to enable germination. This makes identification of the fungus essential for developing propagation techniques.

Visiting SERC researcher Hye Woo Shin (University of South Korea) isolated and cultured the mycorrhizal pelotons from the protocorms, and Melissa McCormick (NAOCC) identified the fungus. The protocorms are now being grown on agar with



Spiranthes lacera (slender lady's-tresses)



Liparis loeselii (green twayblade)



Calopogon tuberosus (grass-pink)



Pogonia ophioglossoides (rose pogonia)

tulip-poplar wood! They now hope that this work, along with Peter Zale’s expertise (collaborator with Longwood Gardens, PA), will eventually “break the seed germination code.” In the future, it could become possible to reintroduce the small whorled pogonia to southern Berrien County or adapt methods to the whorled pogonia (*Isotria*

verticillata) for its reintroduction to Kalkaska County where the population has been lost.

Additional information on orchid propagation can be found on the SERC and USBG websites:

<https://serc.si.edu/>

<https://www.usbg.gov>

Some Highlights from the 2019 Botany Foray



Dryopteris expansa

(Expanded woodfern); northern and mixed-hardwoods; typically on slopes and ravines



Dryopteris fragrans

(fragrant woodfern); cliffs or talus of non-calcareous rock. Special Concern



Moerhinga macrophylla

(big-leaf sandwort); rock outcrops, west UP, Isle Royale, State Threatened

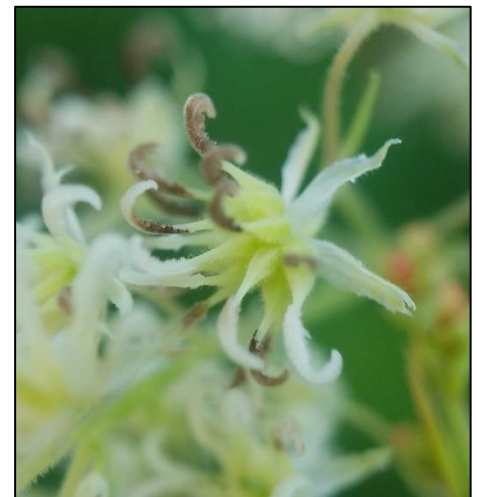
--Photos by Liana May



Pogonia ophioglossoides (rose pogonia)
deciduous forests, hummocks in cedar



Mitchella repens (partridge-berry)
dry to boggy forest, rocky opening, thickets



--Photos by Bob Kahl
Clematis virginiana (virgin’s bower)
coniferous or deciduous forests

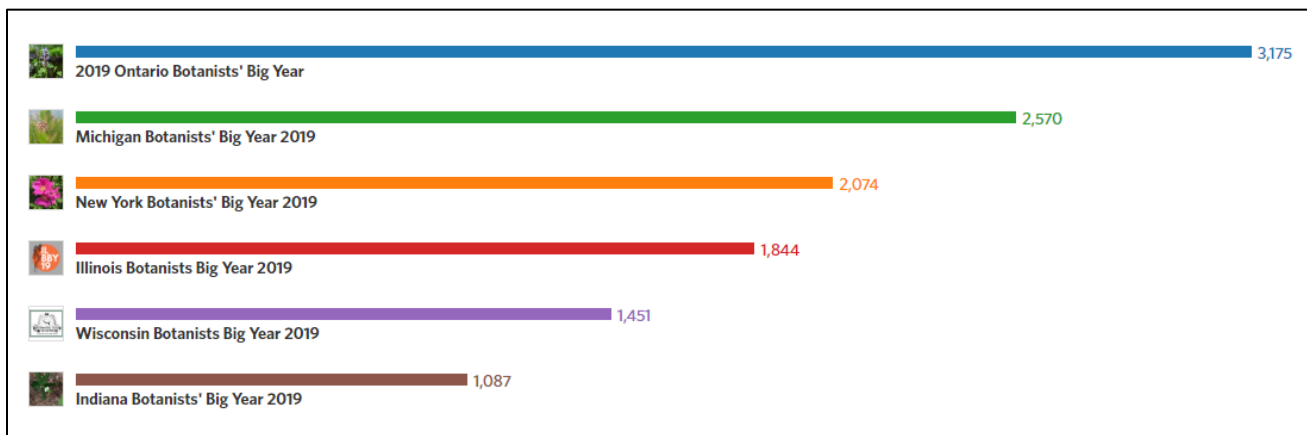
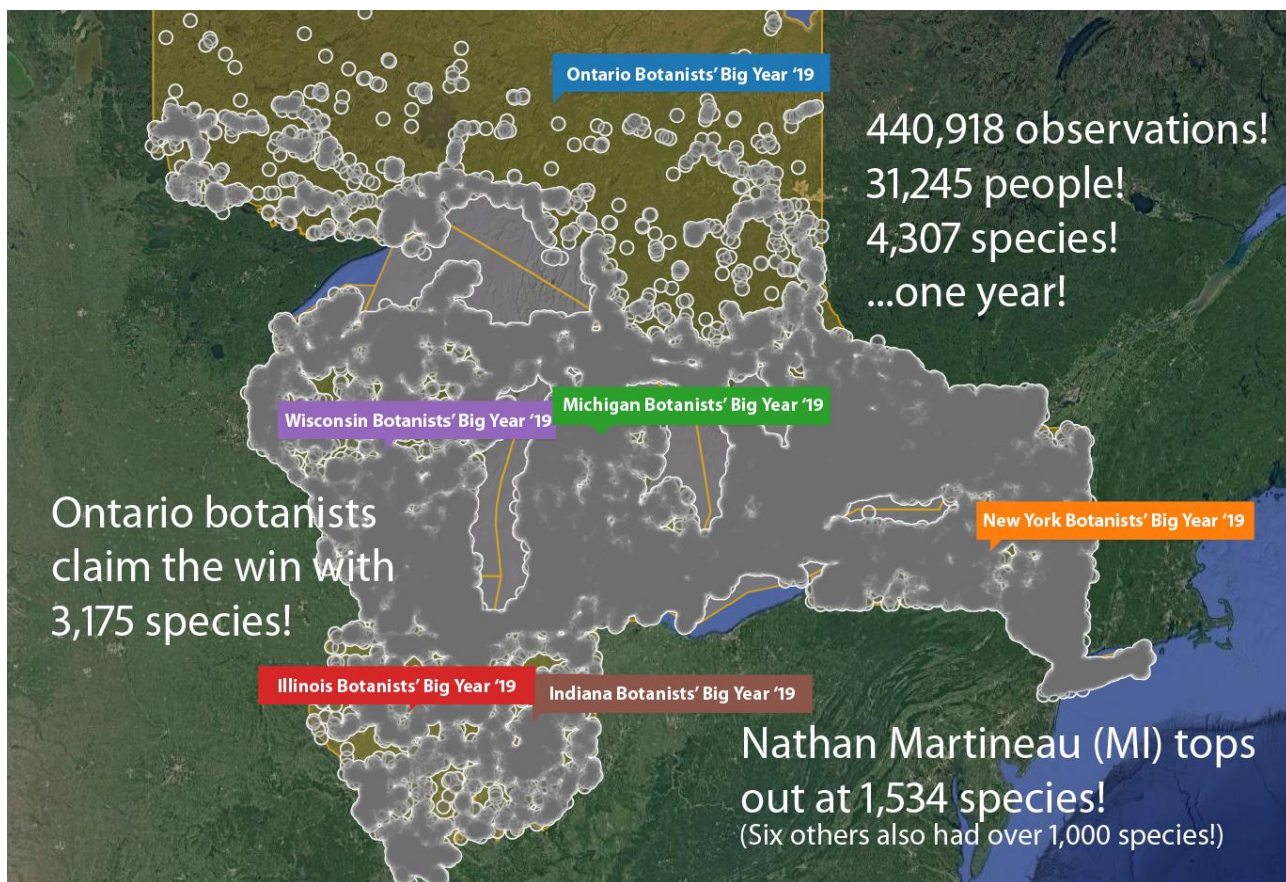
Highlights from iNaturalist

There continues to be lots of activity and friendly competition on iNaturalist. Below are the 2019 stats. Meet the botany explorers by checking out this webpage:

<https://www.inaturalist.org/projects/great-lakes-botanists-big-year-2019?tab=observers>

Michigan Contest		Great Lakes Contest	
Number of Observers	5,437	Number of Observers	31,245
Number of Species documented	2,570	Number of Species documented	4,307

All Observations in the Great Lakes Region:



Mark your Calendar for the 2020 MBC State Spring Foray!

The Spring Foray will return to its usual time over the Memorial Day Weekend in 2020. It will be at

the UAW Black Lake Conference Center near Onaway, MI on May 22-25. Mark your calendars!



MBC – Great Lakes Chapter Board Members (Effective January 2019)

President	Derek Shiels	d.r.shiels@gmail.com
Vice President	Liana May	liana.n.may@gmail.com
Secretary	Gin Cawood	231-825-8279
Treasurer	Emily Douglas	emsuedouglas@gmail.com
Director-at-Large	Irene Eiseman	eisemani@gmail.com
Director-at-Large	Phyllis Higman	higmanp@michigan.gov
Director-at-Large	Carolyn Miller	carolynjmilller43@gmail.com

MBC Great Lakes Chapter – Membership

Our membership is growing – we currently have a membership of 94, an increase of 24 since last year! Among are members are seven students and sixteen families, and we have representation from 11 states and from Canada:

State	#	State	#	State	#	State	#
Michigan	57	Illinois	4	Minnesota	3	Iowa	1
Wisconsin	12	Indiana	4	Ohio	2	Texas	1
Canada	4	Arizona	3	Pennsylvania	2	Virginia	1

Sustaining Members Recognition

The Great Lakes Chapter of the Michigan Botanical Club gratefully acknowledges the generous support of the following members who have provided additional funding through their memberships.

John P. Case	Phyllis Higman	Dana L Richter, PhD
Irene and Tim Eiseman	Robert A. Kahl	Ruth E. Schmitter
Steven Garske	Linda Rehorst	Anita Scussel
Steve Grund		

MBC-Great Lakes Chapter Treasurer’s Report, November 15, 2019

Balance carried forward from 2018:	\$2,694.55
Income:	
Membership Dues and Donations:	\$3,224.80
Student Foray Sponsorship Reimbursement from MBCF:	\$220.00
Total Income:	\$3,444.80
Expenses:	
State Membership Dues:	(\$665.00)
Great Lakes Botanist:	(\$492.00)
Newsletter Postage and Photocopying:	(\$47.55)
Canadian Check Processing:	(\$20.00)
Check Order (for new account):	(\$17.00)
Student Foray Sponsorship:	(\$238.75)
Total Expenses:	(\$1,480.30)
Current Balance:	\$4,659.05

--Submitted by Emily Douglas, GLC Treasurer, November 16, 2019.

2019 MBC – Great Lakes Chapter Dues

A New Year is here, and **it is time to pay your Chapter dues!** As of January 1, 2020, a slightly larger portion of your dues (\$12) will go to the state board than previously; this includes your subscription to the Great Lakes Botanist. However, there is no change in your overall dues, it remains the same as last year. Please see the instructions below including a new option for on-line payment and join us for another memorable year!

New Payment Option for Membership Dues

The Great Lakes Chapter now has another way to pay for yearly membership dues. We started this quest looking for an alternative option to process international monies without a big cost as some of our members come from Canada. We also figure, in this day in age, paying online is a pretty regular activity for folks. Starting this year, we’ve set up an account through *Cheddar Up* which allows members to pay by credit card online. If one chooses this route, there’s an easy membership form to fill out along with the membership/

payment option. Just to note, *Cheddar Up* also charges a small convenience fee of 3.5% plus \$0.45 which comes out to \$1.50 if one is paying for the \$30.0 Individual Membership option. We’ll send out a reminder email with the *Cheddar Up* link in January for 2020 dues.

Of course, any member can still submit their yearly dues by filling out the form on the last page and mailing a check to Emily Douglas at the address noted on the form.

Michigan Botanical Club – Great Lakes Chapter 2020 Membership Dues

Name: _____

Address: _____

City: _____ State/Province _____

Zip code + 4-digit code _____ + _____

Telephone: _____ Email: _____

Do you prefer to receive the *Arisaema* newsletter in paper format? _____

Sustaining membership _____ \$50.00 (or more)

Individual membership _____ \$30.00

Family membership _____ \$40.00

Student membership _____ \$15.00 Name of University _____

US members make checks payable to: **Michigan Botanical Club - Great Lakes Chapter**

Or try the 'Cheddar Up' online payment option: <https://my.cheddarup.com/c/michigan-botanical-club-great-lakes-chapter>

Canadian members please send a check or money order in U.S. funds or try out 'Cheddar UP'.

Mail to:

Emily Douglas, Treasurer
MBC-Great Lakes Chapter
13420 S. Cedar Road
Cedar, MI 49621

Thank you for your continued support!

Please let Emily know if you have any questions about *Cheddar Up* or dues in general and we hope you enjoy the convenience of having another option for paying dues!

