

CENTRAL OHIO ORCHID SOCIETY

Reporter

August 2021



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PRESIDENT'S MESSAGE | AUGUST 2021

Well, for those that made it to the July meeting, it was wonderful seeing you in person along with your plants. The plant of the month was beautiful, it was so nice to see live orchids flourishing and blooming. Just like it used to be.

Now we are back to a more concerning time with infections rising, including in those who have received vaccinations. While their illnesses appear much less severe, the Board determined that the risk of an indoor meeting was just more than we wanted to take right now. Therefore, we are back to an **all-virtual format** for the months of **August** and **September**.

We will continue to monitor the situation and update you all on any changes. But right now, the **ANNUAL POTLUCK PICNIC** will take place at Justin and Wendy's home on Sunday September 5th from noon to 4 pm. Proof of vaccination will be required and masks must be worn in the house when you gather your food. As always, the Society will provide hamburgers and other goodies and drinks. If you plan on attending, please bring a side dish or dessert to share and any blooming plants that you would like to add to the show table. This will be the official monthly ribbon judging and no virtual judging will take place in either August or September. More detail about the picnic will be sent over email.

We hope to see you there.

Ohio Valley Orchid Fest

The Ohio Valley Orchid Fest is scheduled for **August 27-29** at the:

Emmanuel Lutheran Church
4865 Wilmington Pike
Kettering, Ohio

For those unable to attend, the Central Ohio Orchid Society is purchasing the opportunity for **ALL MEMBERS** to be able to view the two keynote speakers on each day. Both speakers will be talking at 2 pm on Saturday (Robert Fuchs – R.F. Orchids: 100 Years of the AOS, Orchid Culture) and Sunday (Brenda Oviatt – Botanica Ltd: Angraecum and Their Culture and Conservation).

Nominations for Officers

If you are interested in getting more involved with the Society, please consider putting your name in the hat to serve on the Board. It is a great group of people who are really working to make sure we maximize the experiences of each of our members. Please, get involved!

Monthly Program

This month's meeting is scheduled for 7 pm (Beginner's Corner) on Thursday, August 19th.

I look forward to seeing you on Zoom on the 19th and in person at the picnic on September 5th. I hope you are enjoying your summer safely. Stay well!

Nancy Shapiro
President
Central Ohio Orchid Society
August 2021

CENTRAL OHIO ORCHID SOCIETY

August 19 - 2021

LARRY KUEKES
Hilo Orchid Society

What's in a Name?

7:00pm - Beginner's Corner
7:30pm - Virtual Meeting



Larry Kuekes was born in Ohio but grew up in Connecticut. He graduated from Yale University and worked with computers, first at Travelers Insurance Co. in Hartford and then, with a partner, as a software entrepreneur on the Macintosh. He has been a hobbyist orchid grower since 1984. In Connecticut, he grew cool- and intermediate-growing orchids on his windowsills, and he was President of the Connecticut Orchid Society for two years. In 2010 he retired and moved to Hilo, Hawaii, where he now grows a small but diverse collection of mostly warm-growing orchids in a shade house. Although he grows some hybrids, Larry is a self-described species nut. Larry has also been President of the Hilo Orchid Society and is currently its Treasurer and newsletter editor.

"What's in a Name" is about how to read an orchid label. What does all that stuff on the label really mean? When I created this a few years ago, I thought the subject sounded a bit dull, so I spiced it up with songs and video clips (including one from Monty Python). Hopefully you'll learn something and have a little fun at the same time.

JOIN ZOOM MEETING:

<https://us02web.zoom.us/j/83827117558?pwd=NGlCcnlybUhoeksxbGNZZkl3KzZDQT09>

MEETING ID: 838 2711 7558

PASSCODE: 323989

ONE TAP MOBILE: +19292056099,,83827117558#,,,,*323989# US (New York)
+13017158592,,83827117558#,,,,*323989# US (Washington DC)

DIAL BY YOUR LOCATION:

+1 929 205 6099 US (New York) +1 301 715 8592 US (DC) +1 312 626 6799 US (Chicago)
+1 669 900 6833 US (San Jose) +1 253 215 8782 US (Tacoma) +1 346 248 7799 US (Houston)

FIND YOUR LOCAL NUMBER: <https://us02web.zoom.us/j/kdfXS8UOHD>

JULY PLANT OF THE MONTH

Den. amethystoglossum

Grown by Tessie Steelman



TIPS FOR GROWING:

Dendrobium amethystoglossum grows in warm temperature and medium light. Feed well during the growing season. They like a drier winter period, so reduce watering until the new growth appears in the spring.

JUNE 2021 VIRTUAL SHOW TABLE

CATTLEYA

GROWN BY:

1 st	Blc. Waianae Leopard 'Ching Hua'	Tennis Maynard
2 nd	Cattleya harrisoniana 'Streeter's Choice' FCC/AOS x Self	Tennis Maynard
3 rd	Encyclia tampensis var. alba 'Orchid Court' AM/AOS	Tennis Maynard
	Laelia tenebrosa	Tennis Maynard

PAPHIOPEDILUM

1 st	Paph. dianthum var. album	Tennis Maynard
2 nd	Paph. Windrush	Edna and David Markley
3 rd	Paph. coccineum	Tennis Maynard
	Paph. Transvaal	Tennis Maynard
	Paph. philippinense	Chase Leibold

PHRAGMIPEDIUM

1 st	Phrag. bessae var. flavum	Tennis Maynard
2 nd	Phrag. Living Fire	Edna and David Markley

DENDROBIUM

1 st	Dendrobium amethystoglossum	Tessie Steelman
2 nd	Dendrobium aphyllum	Tessie Steelman
3 rd	Dendrobium wassellii	Scott Bever
	Dendrobium laevifolium	Nancy Shapiro

CATASETUM

1 st	Ctsm. Dentigrianum 'SVO Excellence' x Ctsm. Chuck Taylor 'SVO Sunshine'	Jennifer Sonnenberg
2 nd	Ctsm. Melana Davison (Ctsm. Penang 'Sweetheart' x Ctsm. denticulatum 'Orange Lip')	Tom Hart

HABENARIA

1 st	Habenaria Canary	Tracy Strombotne
2 nd	Habenaria rhodocheila	Tennis Maynard
3 rd	Habenaria Tracey 'Berry Lovely'	Tennis Maynard

OTHER

1 ST	Maxillaria grandiflora	Tennis Maynard
2 nd	Lycaste Lemon Twist	Amy Stanley
3 rd	Neofinetia falcata 'Cherry Blossom x 'Purple Fantasy'	Nancy Shapiro
	Epidendrum Green Hornet	Dennis Eifel
	Goodyera pubescens	Chase Leibold
	Phal. NoID	Tennis Maunard

NOT FOR JUDGING	Encyvola Jairak Canary 'Orange'	Tracy Strombotne
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PLANT OF THE MONTH	Dendrobium amethystoglossum	Tessie Steelman
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NOTE: Only first-place plants shown in newsletter.

CATTLEYA



Blc. Waianae Leopard
Grown by Tennis Maynard

PAPHIOPEDILUM



Paph. dianthum var. album
Grown by Tennis Maynard

PHRAGMIPEDIUM



Phrag. bessae var. flavum
Grown by Tennis Maynard

DENDROBIUM



Den. amethystoglossum
Grown by Tessie Steelman

CATASETUM



**Ctsm. Dentigrianum 'SVO Excellence' x
Ctsm. Chuck Taylor 'SVO Sunshine'**
Grown by Jennifer Sonnenberg

HABENARIA



Habenaria Canary
Grown by Tracy Strombotne

OTHER



Maxillaria grandiflora
Grown by Tennis Maynard

Into the Wild

Tiny, Green and Unimpressive, but Rare: The Adder's Mouth Orchid, *Malaxis unifolia*



By Ken Mettler

All photo credits: Ken Mettler

One of the smallest orchids to be found in Ohio, if not the smallest, is the Adder's Mouth Orchid, *Malaxis unifolia*. As the name implies, plants of this species produce one leaf per year. That leaf is usually around the size of a fifty-cent piece. The biggest one I've found had a leaf that was about half the size of the palm of my hand. I've joked that this qualifies as a "jumbo shrimp."

The flowers are also tiny, only about 1/8th inch (3mm) across. But it does produce a lot of them. Each diminutive plant can produce up to 80 flowers over the course of a month or so. The inflorescence slowly elongates as the flowers bloom, but the whole plant rarely exceeds six inches (15cm) tall. Flowering occurs from late June to early August, so most of July is a good time to look for them.



This species is something of a conservation enigma. The total range where it grows extends from the Canadian Maritimes to Wisconsin, south to the gulf states, and down the eastern part of Mexico and into Belize. Usually, such a wide-ranging species would be able to adapt to different environments, and would maintain significant populations, even with disturbances caused by human activity. This isn't always the case. Remember the Passenger Pigeon.



Indeed, *Malaxis unifolia* used to be found in large colonies, numbering into many thousands of plants, throughout much of the eastern United States. Alas, these colonies are no more. Today it's rare to find colonies of more than a few dozen plants. No one knows why. *Malaxis unifolia* used to be on the state rare plant list as potentially threatened. Fortunately, enough new colonies have been found in recent years to warrant de-listing, and considering the Ohio population as relatively stable.

My observations of this species are that individual plants tend to be short-lived. A few years, or maybe a decade is the oldest that I've seen. For this reason, they seem to "move around" a bit. Individual plants will die out from year to year, but new seedlings pop up in new places. They prefer mesic woodlands, and can be found sporadically throughout central-southern Ohio, with a few colonies scattered in other parts of the state.



If you go hiking in southern Ohio in July, keep an eye out for these tiny denizens of rich woodlands. Other species of orchids have blooming seasons that overlap the Adder's Mouth Orchid, including the much more common Rattlesnake Plantain (*Goodyera pubescens*), Purple Fringeless Orchid (*Platanthera peramoena*), Three Birds Orchid (*Triphora trianthophoros*) and Crane-fly Orchid (*Tipularia discolor*).

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COOS CALENDAR 2021

January 21
CLAUDE HAMILTON
Hamlyn Orchids
Broughtonias

February 18
ROGER FRAMPTON
Roger's Orchids
YouTube channel - UK

March 18
FRANCISCO MIRANDA
Rupicolous Orchids of Brazil

April 15
WAYNE TURVILLE
Australian Native Orchids

May 20
CHALLEN WILLEMSEN
Guatemalan ecologist
Santuarion Natural El Tular
Reserve
*Native Orchids of
Guatemala*

June 17
KOOH-HUI WANG
University of Hawaii
*Pest Management for
Orchid Hobbyists*

July 15
DAVID HAELTERMAN
Resident botanical +
naturalist guide, Ecuador
and Colombia
Stanhopea Orchids

August 19
LARRY KUEKES
Hilo Orchid Society
What's in a Name

September 16
JIM ROBERTS
Florida Suncoast
Orchids
Encyclia Orchids

October 21
RUSS VERNON
New Vision Orchids
Lycaste Orchids

November 18
— TBD

AMERICAN ORCHID SOCIETY CORNER



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The Mid-American

Newsletter of the Mid-America Orchid Congress

Summer 2021

www.midamericanorchids.org

Ohio Valley Orchid Fest 2021 August 27 - 29

Join us for a weekend of Orchids, Food and Fun for the Entire Family!
Visit the website at www.ohiovalleyorchidfest.com

An Orchid Show Complete with Orchid Sales (Orchids, Supplies and Related Items!), AOS and Ribbon Judging, Demonstrations, Speakers, Auctions, Food Trucks and Fun Family Activities

To be held at Emmanuel Lutheran Church, **4865 Wilmington Pike, Kettering, OH**, as an **outside event** in a 12-acre parking lot with inside areas available in case of rain. In conjunction with the MAOC fall show, there will be AOS judging, however there will not be any displays. Orchids to be judged will be lined up on tables by class for the judges to view. Sponsored by Greater Cincinnati Orchid Society, Miami Valley Orchid Society, MAOC and Emmanuel Lutheran Church.

Vendors:

- **Botanica Ltd** -- Missoula, Montana
- **Little Frog Farm** -- Lansing Michigan
- **Mei's Creations** -- Grand Rapids, Michigan
- **Natts Orchids** -- Naperville, Illinois
- **New Vision Orchids** -- Yorktown, Indiana
- **Oakwood Orchids** -- Dayton, Ohio
- **Orchid Outlet** -- Cincinnati, Ohio
- **Orchid Inn Ltd** -- Bloomington, Illinois
- **Roberts Flower Supply** -- Columbia Station, Ohio
- **Ten Shin Orchids** -- Taiwan
- **Windswept In Time Orchids** -- Broadview Heights, Ohio
- **Windy Hill Gardens** -- LaBadie, Missouri

Links to the websites for each vendor are found at: www.ohiovalleyorchidfest.com

All Vendors are happy to take **pre-orders**.

The host hotel is 1 Mile from the event location and is near many dining and shopping places:

Holiday Inn Express - Dayton-Centerville

5655 Wilmington Pike, Dayton, Ohio 937-424-5757

Ticketed Events: While the Orchid Fest is open to the public with a suggested \$2 entry donation, there are a few parts of the event which require tickets.

Friday's Preview Party - \$5 per person; first shot at the sales area and a free drink ticket Saturday

Keynote Speaker: Bob Fuchs current president of the AOS at \$10 per person

Sunday Keynote Speaker: Brenda Oviatt - Botanica Ltd at \$10 each per person

Full Registration: \$35 per person includes:

Preview Party, both Keynote Lectures, Admission to the event both days, access to the registrant hospitality room, including tickets for beverages and a goody bag with an orchid to take home

See the webpage for updated lists of vendors, food trucks, schedule, attractions in Dayton and Cincinnati and more!

www.ohiovalleyorchidfest.com

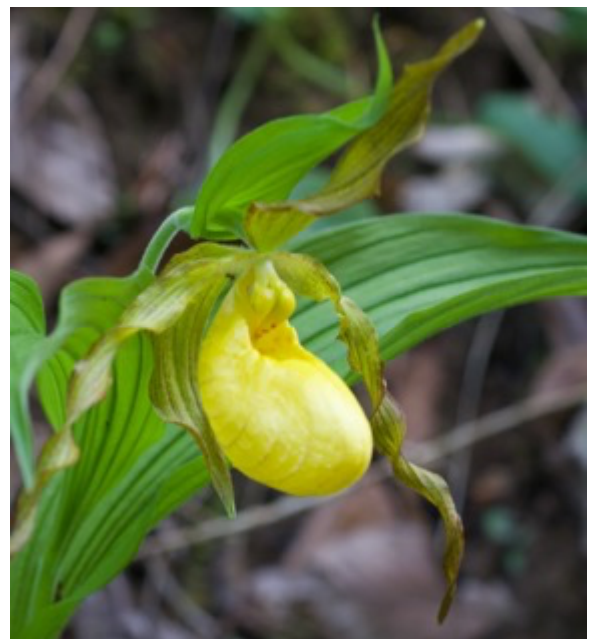


Members Corner Articles

Cypripedium parviflorum (Salisbury) – Native Orchid Preservation and Education Society - Jeanne Rhinehart

When we first started NOPES and discussed the education portion of our mission statement, we agreed that in addition to educating others about native orchids we would also be educating ourselves. Having an orchid of the month in the newsletter does both and I especially enjoy educating myself while doing the research. My original plan was to start with the yellow lady's slipper, having seen the spectacular displays in the Bruce Peninsula in comparison with the sparse number found locally in Ohio. When I started this research, my first questions revolved around how the three I knew of were different. The small lady's slipper eluded me, so I started with an easier orchid. Now I've finally decided to bite the bullet and summarize all that I've learned about this orchid species and its four varieties.

On my first trip to the Bruce Peninsula, John Lamey showed me examples of *Cypripedium parviflorum* var. *pubescens* with different petal shading, and on my second trip we found *Cypripedium parviflorum* var. *makasin*. Seeing *Cypripedium parviflorum* var. *pubescens* growing like dandelions do at home was just unbelievable, and every day Jan Yates had us stopping at the next large clump which must have been the biggest yet. I do think she finally found it!



Cypripedium parviflorum var. *pubescens* Bruce Peninsula, Ontario.
Photo by Jan Yates



Cypripedium parviflorum var. *pubescens* in the Bruce Peninsula, Ontario
 Photo by Jan Yates

In North America the genus has three or four varieties (depending on what you reference and its date of publication), *Cypripedium parviflorum* var. *pubescens*, *Cypripedium parviflorum* var. *parviflorum*, *Cypripedium parviflorum* var. *makasin* and *Cypripedium parviflorum* var. *exiliens*. There are descriptions of each of the varieties and some feel there are enough differences to call them separate species. Others think they are one species whose differences are caused by environmental conditions.

So as usual I start my search with my local bible *Orchids of Indiana* by Michael Homoya. I next check Go Orchids, goorchids.northamericanorchidcenter.org, followed by Flora of North America and the USDA Database of Plants and then several of the books referenced below. For this species I also check the Royal Botanic Gardens Kew-database and *Orchids* articles. This is followed by an internet search by species and, in this case, variety and hybrid names. An extensive reference is listed below. This article explores what I found starting with the points of agreement followed by the parts that differ and shows what a varied and spectacular species *Cypripedium parviflorum* is.

Lady's slipper orchids (*Cypripedium*) are the best known of North America's wild orchids. There are more than 45 species of *Cypripedium* across the northern hemisphere. They belong to the *Cypripedioideae* subfamily of orchids (*Orchidaceae*). This subfamily includes *Paphiopedilum* in southeast Asia, *Phragmipedium* and *Selenipedium* in Central and South America and *Mexipedium* in Mexico. This group of orchids has a distinctive pouch giving it the name Lady's slipper, or slipper orchid.

The genus name *Cypripedium* comes from Greek Κύπρις (Kýpris), which is a reference to Aphrodite from Greek myths and from πέδιλον (pédilon), meaning sandal. The specific Latin name "parviflorum" means "small flowers." Pubescens means pubescent, ripening or hairy in Latin. The earlier name *calceolus* is the Latin meaning "little shoe," in reference to the slipper-like shape of the labellum. In 1740 Linnaeus named the yellow lady's slipper, which had been recognized as an orchid in the 1600's, *Cypripedium calceolus*.

Lady's slipper orchids origins exist in North American native myths. One of these is:

"An old Ojibwe legend tells of a village visited by plague. It was the dead of winter and many died, including the village healer. To save the community, a young girl made a dangerous journey through the snow to find medicine for the sick. She succeeded, but on the way lost her moccasins, leaving a trail of bloody footprints in the snow. When spring arrived, the bloody footprints put forth moccasin flowers, better known today by their Western name, the lady's slippers." 1

D. S. Correll, who is credited with lumping our North American yellow lady's slipper species into the group *Cypripedium calceolus* along with the European and Asian species, gave it the name *Cypripedium calceolus* Linnaeus var. *pubescens* (Wilde) Correll. This name held for half a century." 2

Along with his practice of lumping names, Correll recognized the complex as having four "ecological entities" 2: 1) A northern group which was the smallest was called by some *Cypripedium parviflorum*. It ranged across northern North America in calcareous swamps and was quite fragrant.; 2) A northeastern group given the name *Cypripedium calceolus* var. *planipetalum* Fernald was found in the barrens of Newfoundland. He considered them more closely related to European species.; 3) The most widely found, larger, less scented was called *pubescens*.; 4) A lesser-known group growing in semi shade in rich moist hot temperatures in the Gulf States was known as *kentuckiense*.

By the mid 1900's recognition for two varieties based on plant size became accepted: *Cypripedium calceolus* Linnaeus *pubescens* (Wild.) Correll, the Large Lady's Slipper and *Cypripedium calceolus* Linnaeus var. *parviflorum* (Salisb.) Fernald, the Small Lady's Slipper. These names were used in most books published then.

At present the species is accepted to consist of four varieties and they are different than the four Correll listed. The next section will be the taxonomic description of three varieties along with the accepted ranges as found in the Flora of North America database. 3 They do not list the fourth variety as it was accepted after the database was last updated. The fourth more recently described follows.

***Cypripedium parviflorum* (Salisbury) var. *pubescens* (Willd.) Knight**

"Bracts: abaxial surface of distalmost sheathing bract (and often the next) densely and conspicuously silvery-pubescent when young (later sometimes glabrescent). Leaves 3–5, on proximal portion of or more evenly



Cypripedium parviflorum var. *pubescens* showing hairs on petals and bracts. Photo by Jan Yates



Cypripedium parviflorum var. *pubescens*
Bruce Peninsula, Ontario

spaced along stem, alternate, erect to spreading; blade orbiculate or broadly ovate to elliptic-lanceolate or oblanceolate, 7.9–20.9 × 1.5–12 cm. Flowers 1–2, large to rather small (very small in some boreal and northern cordilleran specimens), scent moderate to faint, rose or musty; sepals commonly spotted, striped, and reticulately marked with reddish brown or madder, rarely extensively blotched or wholly unmarked; lip oblance-ovoid to calceolate or subglobose, 20–54 mm; orifice 10–23(–27) mm. 2n = 20”



***Cypripedium parviflorum* var. *makasin* (Farwell) Sheviak**

“Bracts: abaxial surface of distalmost sheathing bract (and often the next) sparsely and inconspicuously pubescent or glabrous when young. Leaves (2–)3–5, on proximal portion of or more evenly spaced along stem, alternate, erect to spreading; blade orbiculate or broadly ovate to elliptic-lanceolate, 5.2–18.5 × 1.6–14.3 cm. Flowers 1–2(–3), small, scent intense, sweet; sepals and petals usually suffused with dark reddish brown or madder, or in west often spotted and blotched; lip oblance-ovoid to calceolate, 15–29 mm; orifice 10–17 mm. 2n = 20.”





Cypripedium parviflorum var. *makasin*, Manitoba.
Photo by Ben Rostron



Cypripedium parviflorum var. *parviflorum*, Kentucky
Photo by Angela Carter

Cypripedium parviflorum* Salisb. var. *parviflorum

“Bracts: abaxial surface of distalmost sheathing bract (and often the next) densely and conspicuously silvery-pubescent when young (later sometimes glabrescent). Leaves 4–5, rather evenly spaced along stem, alternate, spreading; blade orbiculate to lance-elliptic to ovate or obovate, 9–19 × 2.5–9 cm. Flowers 1–2, small, scent moderate to faint, rose or musty; sepals and petals usually minutely but densely spotted with reddish brown or madder and appearing uniformly dark, rarely only coarsely spotted and blotched; lip oblance-ovoid to calceolate (slipper-shaped), 22–34 mm; orifice 12–19 mm.”



Cypripedium parviflorum var. *exiliens* Sheviak



Cypripedium parviflorum var. *exiliens*,
Alberta. Photo by Ben Rostron

“Perennial herb from slender rhizomes and coarse, fibrous roots; plants small, slender.



Lanceolate-elliptic, ribbed, ascending, arched and spreading from the lower stem with sheathing base. Bracts 2 (rarely more), sheathing, tubular; uppermost bract glabrous to sparsely pubescent if not leaf-like, pubescent in the lower-half if leaf-like; flowers 1 (rarely 2), intensely sweet-scented when young, becoming rose-scented at maturity; lip (16) 20 to 24(26) mm long, golden yellow; sepals and petals pale, dull, green-tan, finely marked with clusters of red-brown spots; petals (23) 27 to 45 (52) mm long. Capsules erect, ellipsoid, ribbed.” 4

Ben Rostron’s description for identifying it “I believe this to be an example of *C. parviflorum* variety *exiliens*, following Sheviak (2010). These are small plants, smaller than the typical “YLS” that we commonly see in our area. These have a distinct lack of colouration on the petals and sepals. And, most importantly, these are growing in mostly dry, rocky habitat, in rubble of limestone and dolostone. Normal “YLS” grow in wet to intermediate calcium rich soils. I was not

able to check the stems when they emerged for hairs but will try better next time!

[I went to this location June 2019 to check on them but was unable to get past the mother black bear and her 2 cubs right at this spot!!]” Excuses! Excuses!

A Flipping Book on *Cypripedium parviflorum* var. *exiliens* <https://fliphtml5.com/ylgt/gdbn/basic/> gives a great description and information on this variety.

Key

This key is taken from two sources: Charles Sheviak’s key in *Orchids* June 1994 5 and 2b from Ronald Coleman’s article modifying Sheviak’s earlier key of only the first three varieties to include the fourth variety In *Orchids* July 2019. 6

1. Abaxial (outer) surface of uppermost sheathing bract densely and conspicuously silvery-pubescent when young (later sometimes glabrescent;); flowers large to small, lip 20-54 mm long; sepals and petals variably spotted,

striped blotched and reticulately marked with reddish brown or madder (dark purplish brown) (rarely unmarked); scent moderate to faint, rose or pungent-musty

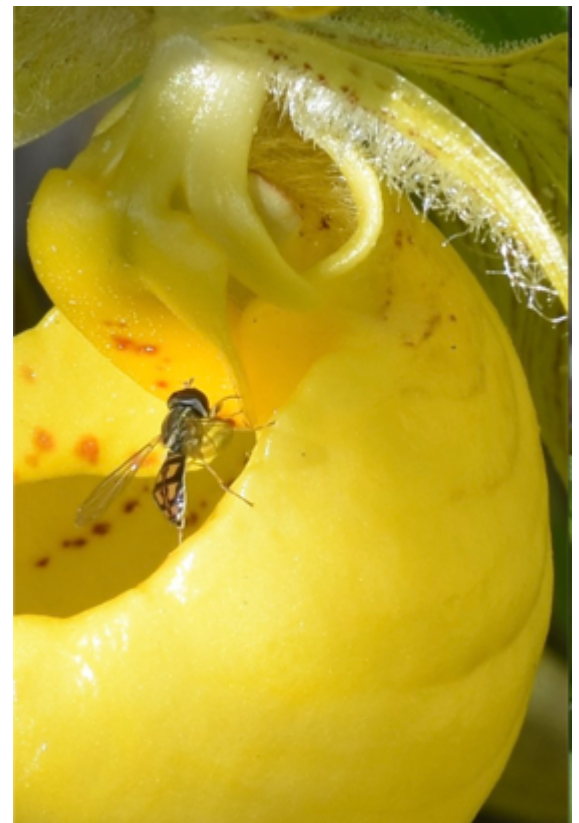
.....go to 2

1. Abaxial (outer) surface of uppermost sheathing bract sparsely and inconspicuously pubescent to glabrous when young; flowers small, lip 15-29 mm long; sepals and petals usually suffused with dark reddish brown or madder, or in the West often spotted and blotched; scent intense, sweet
..... var. **makasin**
2. Flowers commonly large, lip to 54 mm long, but very small in some boreal and northern cordilleran plants, (as small as 20 mm); sepals and petals unmarked to commonly spotted, striped, and reticulately marked with reddish brown or madder, rarely extensively blotched; throughout the range of the species
..... var **pubescens**
2. Flowers small, lip 22-34 mm long; sepals and petals usually densely and minutely spotted with dark reddish brown or madder and appearing uniformly dark (rarely coarsely spotted and blotched); southern New England to Kansas and southward..... var **parviflorum**
- 2b. Flowers small; pouch 16- 26 mm; sepals and petals dull green tan with small clusters of rust colored spots; scent intense, sweet.....var **exiliens**

Cypripedium parviflorum var. *pubescens* blooms from April until August depending on its location. It is generally found growing in deciduous and coniferous forests, prairies meadows and fens. *Cypripedium parviflorum* var. *makasin* blooms from May until August and is found in mesic to wet fens, prairies, meadows, coniferous and mixed forests. *Cypripedium parviflorum* var. *parviflorum* blooms from April until June in mesic to dry deciduous forests. *Cypripedium parviflorum* var. *exiliens* flowers in early June until mid-May. It is found in open forests of spruce and aspen. Fred Case ⁷ found through studies that the flowering times of the various strains were fixed. Strains from warm woodlands with early blooming times compared to those in blooming later in cold bogs when moved to the same location kept their original bloom times. Michael Homoya ⁸ discusses comparative growth habits in South Dakota with *Cypripedium parviflorum* var. *pubescens* growing more abundantly in limestone soil regions than in sandstone or granite regions.

Like one third of orchid species, *Cypripedium parviflorum* uses deception to trick pollinators into pollination. It is a food-deceptive orchid which tricks the pollinator into the trap (pouch) of the orchid flower. The pollinator must find the escape holes located near the anthers and to get there, pressure is exerted on the stigma. Studies have shown pollinators from *Hymenoptera* including *Andrenidae*, *Apidae*, *Halictidae*, *Megachidae*, *Agapostemon*, *Andrena*, *Apis*, *Ceratina*, *Eristalis*, *Osmia* and *Lasioglossum* pollinate *Cypripedium parviflorum* and that bee size matters for successful pollination. The more successful at pollination were small to mid-size female bees. Not all pollinators have been spotted on all varieties.

Mycorrhizal fungi are necessary for germination in many orchids and may be necessary in adult orchids. Some plants have specific fungal associations. *Cypripedium parviflorum* association is found with the *Tulasnellaceae* family of mycorrhizae fungi. This fungal relationship is the reason plants taken from the wild usually will not survive a year and/or produce viable seeds when planted in an area



Cypripedium parviflorum var. *pubescens* showing one of the syrphid flies of the family *Syrphidae*. Also note pubescent hairs. Photo by Jan Yates

where the fungus does not exist. If you want to grow these plants, buy from a responsible vendor.

While *Cypripedium parviflorum* is the best known and widest spread of North American native orchids, it or one of its varieties is threatened or endangered over much of its range. The various states do not all recognize which of the varieties they list with some naming them by the older synonyms *Cypripedium calceolus* var. *parviflorum* and *Cypripedium calceolus* var. *pubescens*. The *Flora of North America* list *Cypripedium parviflorum* var. *exiliens* as threatened in Alaska. It lists *Cypripedium parviflorum* var. *makasin* as threatened in Connecticut and Kentucky; endangered in Illinois, Massachusetts, New Hampshire, New York, Pennsylvania and Washington. It lists *Cypripedium parviflorum* var. *parviflorum* as endangered in Illinois, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island, and Washington; threatened in Kentucky; unusual in Georgia; rare in Indiana. It lists *Cypripedium parviflorum* var. *pubescens* as endangered in Illinois, New Hampshire, New Mexico, Washington, and Rhode Island; threatened in Kentucky; and vulnerable or unusual in Arizona, Connecticut, Georgia, New York, and Pennsylvania. Again, because of naming issues, exactly which variety is really meant is not necessarily up to date. Because of the confusion over the names of the representative plants for each species, these lists are confusing and probably inaccurate. So, whereas the yellow slipper is spread over a large portion of North America it is still threatened in many areas. Most state department of resources show information about what is found in their state along with varying levels of updated naming accuracy.

D. S. Correll, also described historical medicinal uses for *Cypripedium calceolus*. In 1907 the roots were used as the drug “Cypripedium”. The root powder was used as a sedative and can still be found for sale by some herb companies. Cherokee Indians were said to use it to get rid of worms. The plant itself can irritate the skin of some people who come in contact with its glandular hairs.

Correll considered the rust, *Puccinia Cypripedii* to be a natural enemy of *Cypripedium calceolus* causing minor plant decline. Slugs also have a definite fondness for the plants.



Cypripedium x andrewsii, Castalia, Ohio
Photo by Jan Yates

Other sources mention that its flowers when individually picked, partially filled with sand, and floated in water were used as play boats by Native American children.

The *Cypripedium parviflorum* complex has five natural hybrids. Three are hybrids of *Cypripedium parviflorum* varieties with *Cypripedium candidum*. The other two natural hybrids are crossed with *Cypripedium montanum* and *Cypripedium reginae*.

***Cypripedium x andrewsii* A. M. Fulle**

“Perennial herb 10 - 60 cm **Stem**: one, erect, green, leafy, hairy. **Leaves**: two to five, alternate, ascending, stalkless, green, 5 - 20 cm long, 1 - 10 cm wide, somewhat elliptic, non-toothed, folded lengthwise, strongly ribbed, and hairy. **Inflorescence**: of one or two, erect, terminal, stalked flowers with each

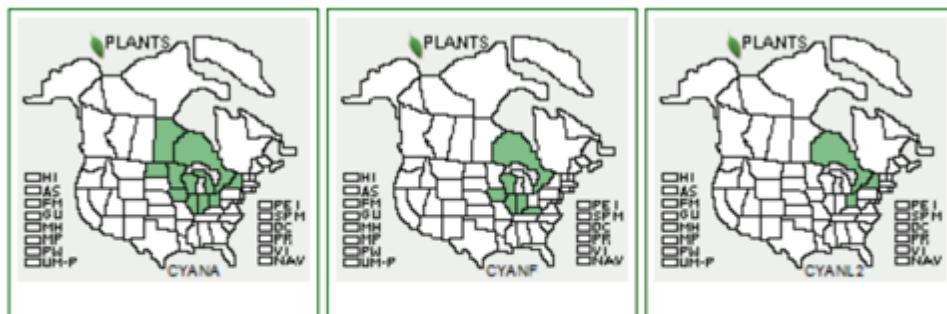
flower closely subtended by a stalkless, erect, green, hairy, leaf-like, 5 - 10 cm long, 1.5 - 4 cm wide, somewhat egg-shaped bract. **Flowers:** showy, variously colored, often ivory-white or pale cream fading to dull yellow, hairy, bilaterally symmetric with highly modified, very inflated, egg-shaped lip petal. Unlike other orchids, the reproductive parts of stamens and stigma are not fused into a column above the inferior ovary, but instead at the basal opening of the lip petal there are two separate anthers, one large, sterile, modified staminode, and a lobed stigma above the hairy inferior ovary. **Sepals:** three, but two lower fused together into synsepal positioned behind and below lip petal, with single upper, central, more or less egg-shaped sepal above inflated lip petal. Both the synsepal and upper (dorsal) sepal are hairy, and the same color as the lateral petals, namely either maroon to dark purple-brown (from one variety of parent species) or greenish yellow and streaked with brown (from the other variety of parent species). **Root system:** of slender, fleshy, fibrous true roots arising from rhizomes. **Lateral petals:** two, more or less spreading, either maroon to dark purple-brown or greenish yellow and streaked with brown, hairy, 2.3 - 6 cm long, under 1 cm wide, spirally twisted, lance-shaped to more linear. **Lip petal:** one, central, lowermost, predominantly dull off-white (either ivory-white, or pale cream then fading to dull yellowish), 1.5 - 6 cm long, 1 - 3 cm wide, greatly inflated, pouch-like, more or less egg-shaped, and hairy. On the inner surface of the pouch the veins are usually colored dark purple, which is faintly visible on the outside especially along the bottom, and there is typically purple spotting surrounding and inside the basal opening (orifice) of the petal. Basal orifice with outer edge (opposite staminode) either forming somewhat pointed acute angle, or more blunt obtuse angle. **Staminode:** one, prominent, yellow with purple spots and sometimes green streaks, more or less broadly triangular, and positioned below upper sepal and pointing down to basal opening (orifice) of lip. On the back side of the staminode the two anthers are positioned on each side of the central lobed stigma.” The Morton Arboretum 9



Cypripedium candidum forms three hybrids one with each of the *Cypripedium parviflorum* varieties. Different parents crossing with *Cypripedium candidum* produce variations in color in the hybrids. Crossed with *Cypripedium parviflorum* var. *makasin* the hybrid had maroon to dark purple brown sepals and lateral petals and its lip is dull white or ivory. When crossed with *Cypripedium parviflorum* var. *pubescens* the sepals and petals are greenish yellow streaked with brown and the lip cream fading to dull yellow. Below the ranges are given for the different hybrids and their variety names. When both parents are not found in the same area as the hybrid, it is difficult to



Cypripedium x andrewsii
Castalia, Ohio



Cypripedium x andrewsii var. *xandrewsii* [*candidum* x *parviflorum* var. *makasin*]
hybrid ladyslipper

Cypripedium x andrewsii var. *favillianum* [*candidum* x *parviflorum* var. *pubescens*]
hybrid ladyslipper

Cypripedium x andrewsii var. *landonii* [*x andrewsii* var. *favillianum* x *parviflorum* var. *parviflorum*]
hybrid ladyslipper

determine which of these varieties may be present. I was not able to find any photos defining these three varieties.

The following pictures are at sites in Michigan and Ohio. The Ohio site is a sunny meadow and so far, we have only found *Cypripedium candidum*. along with the hybrid. Most references for the site refer to the cross being with *Cypripedium makasin*, but we have not to be able to find the other parent.



Cypripedium candidum
Castalia, Ohio

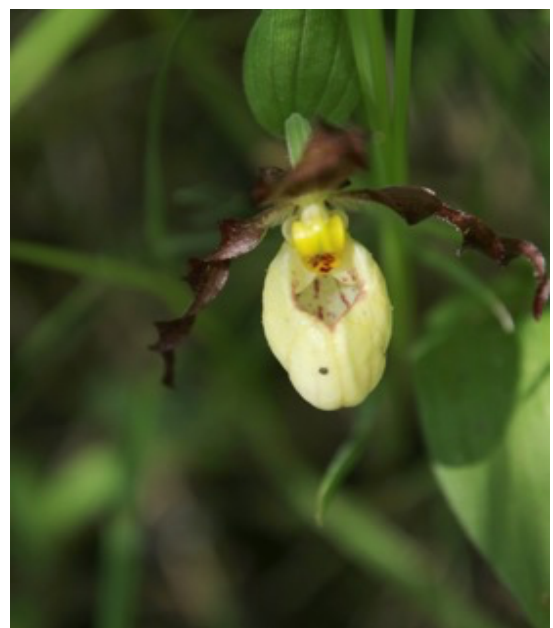


Cypripedium x andrewsii
Castalia, Ohio

The second site is in Michigan and again this time we only found one parent, *Cypripedium parviflorum* var. *makasin*. This site is much more shady and almost swampy. The plants are mostly found on raised sunny hummocks in the surrounding swamp.



Cypripedium parviflorum var.
makasin. Waterloo, Michigan



Cypripedium andrewsii
Waterloo, Michigan

Cypripedium x columbianum Sheviak

The only plant description I could find was from Dr. Charles J. Sheviak published in the *American Orchid Society Bulletin*, June 1992. “Plant intermediate between *Cyp. montanum* and *Cyp. parviflorum* in habit and floral color, or with the features of the species intermixed; in particular the lip commonly ivory or pale-yellow fading to white.” **10**

In writing this article I have been lucky to get some fantastic photos from Chelsea Kieffer and Ben Rostron for the orchids I have not yet been able to see.



Cypripedium x columbianum, Washington. Photo by Chelsea Kieffer



Cypripedium montanum, California
Photo by Chelsea Kieffer

Most of our group have not been able to see one of the parents of this hybrid *Cypripedium montanum* Dougl., ex Lindl., the Mountain Lady’s Slipper, as it is found in western North America from California to southern Alaska at the edges of deciduous forests.

Cypripedium montanum is 25 to 71 cm in height and *Cypripedium parviflorum* is from 12 to 80 cm in height so the hybrid should also be in this range and easily seen when hiking.

The following photos are examples of its parent species together for comparison.

The lower left is Chelsea's photo from California of *Cypripedium montanum*, a spectacular example of a multiple bloom inflorescence. This species is known to have multiple blooms while the other parent seldom does. The picture on the lower right is of the other possible parent *Cypripedium parviflorum* var. *pubescens*. This photo belongs to Ben Rostron and is representative of the variety in Canada. This photo is from Alberta. Comparing the parents with the hybrid you can see how it fits Dr. Sheviak's description.



Cypripedium montanum, California
Photo by Chelsea Kieffer



Cypripedium parviflorum var. *pubescens*, Alberta. Photo by Ben Rostron

***Cypripedium x herae* Ewacha, Sheviak**

“Flower dull yellow tinged with brown, suffused with very pale pink. Lip and inflated sack forming a semi-globose slipper, dull yellow, somewhat more golden above, suffused with whitish pink below and extensively marked with brownish red spots and lines. Petals linear-elliptic, the margins with a few broad undulations, dull yellowish apically, otherwise suffused with whitish pink. Dorsal sepal ovate, dull yellow, suffused with whitish pink at the base, somewhat marked with brownish red spots. Synsepal mostly whitish pink.” 11



Cypripedium x herae and *Cypripedium reginae*, Manitoba. Photo by Agnes Ryckman



Cyripedium reginae, Bruce Peninsula
Photo by Jan Yates

The photograph at right **12** is of *Cyripedium x herae* and *Cyripedium reginae* found in a field in Manitoba. *Cyripedium x herae* is a hybrid of *Cyripedium parviflorum* var. *pubescens* and *Cyripedium reginae*. This hybrid is a rare find as the two parents' bloom times rarely overlap making pollination difficult. The name *Herae* comes from the name of the Greek queen of the gods, Hera who walked in golden slippers. It was chosen because the cross was with the queen of the orchids *Cyripedium reginae* and has golden coloration.

Much of the information available is historical discussions about the *Cyripedium parviflorum* complex as found in books on native orchids and online in the Flora of North America and state natural resource departments. Unfortunately, many of these references do not have the funds to keep the information up to date. Finding more recent scientific articles is more difficult. I am thus referencing many *Orchids* articles especially those from

Dr. Charles Sheviak along with some articles from academic thesis studies. References are below.

Taxonomy is the language of describing things. Giving names to objects (plants, animals, etc.) along with an understanding of the meaning of the name allows us to discuss and recognize what is being discussed without the object being present. Names are especially important in identifying endangered species. The history of the naming of *Cyripedium parviflorum* like all scientific studies involve hypotheses and theories which are developed and tested and accepted or discredited until other evidence is found for new theories to be tested. At one time some taxonomists argued that the plants with pouches were not orchids at all and proposed a separate family group for them called *Cyripediaceae*!

Is *Cyripedium parviflorum* a single varied species with its various morphology determined by its habitat, four separate species (made difficult by the scientific definition of a species) or a single species with four defined varieties? Looking at *Cyripedium parviflorum* from its first description and history of its name changes along with taxonomic naming requirements and adding to that the choice of plants named for description helps to explain issues with its identification.

Recognized throughout the world for over three hundred years as an extremely variable plant, the yellow lady's slipper has had various names over the same time period. When the exact name of a plant cannot be determined, discussion about the plant is difficult. Thus, an agreed upon name is vital. Because of the variation in *Cyripedium parviflorum*, people naming the plant have given it different names. The following is a short summary of how this has contributed to the naming and variation issues. I am not going to list all the names of people contributing to the naming problem. Philip Cribb **13** and Charles J. Sheviak **14** have more in-depth coverage.



Cyripedium parviflorum var. *pubescens*, Ohio

Accepted plant classification recognizes the person having first named a species recording his name after the species name so the dates listed for the name become important. *Cypripedium parviflorum* (Salisb.) refers to Richard Anthony Salisbury (1761 – 1829). He was a controversial British botanist who was first credited with the name *parviflorum* for a plant collected in Virginia. His description of the plant appears to describe the small yellow lady's slipper. Apparently, *Cypripedium calceolus* Linnaeus had been the historical name in Europe for the yellow lady's slipper Linnaeus considered var *pubescens* within it. Salisbury did not like the Linnaeus system of naming plants and is credited with the name of *Cypripedium parviflorum*.

In 1828, while many taxonomists considered the group to be two species *Cypripedium pubescens* and *Cypripedium parviflorum*, C. S Rafinesque felt that the large and small lady's slipper should be one species and named them one species *Cypripedium lutescens* (incorrectly claiming it the earliest name). He even recognized six varieties in this group!

Correll considered his second ecological entity found in Newfoundland more closely related to the European *Cypripedium calceolus* and some consider it a species *planipetalum*. Jim Fowler has phenomenal photos from Newfoundland showing the forma *planipetalum*. Thanks to Jim for permission to link to these plants to see why some think they might be a fifth variety. (Click the blue below for link)

https://www.flickr.com/search/?user_id=22032600%40N04&sort=date-taken-desc&text=pubescens%20newfoundland&view_all=1&fbclid=IwAR1_dCGHRdeEswP9KFeUy8YL2G35WY5H60mhewY14UsWqhNnzPZUUVyZf08

Correll kept the name *Cypripedium calceolus* for North American yellow Lady's slipper when he made the four ecological entities listed above. The fourth ecological entity, the southern group he listed is now considered its own species *Cypripedium kentuckiense*. *Cypripedium kentuckiense* Reed is found in more acidic areas with sandstone as the underlying rock than *Cypripedium parviflorum* which has limestone as the underlying rock.



Cypripedium parviflorum var. *pubescens* Newfoundland, Canada, Photo by Susan J. Meades 14 (be sure to check website)



Cypripedium kentuckiense from Kentucky

In the 1970's and 1980's taxonomists were still arguing single species versus two species, the large and small lady's slippers or the single species *Cypripedium calceolus* arguing the number of varieties and which were species. The main arguments for a single species were: 1) the variation observed is due to hybridization among the various forms or, 2) as Carlyle A. Luer thought, a single species complex undergoing active speciation with three varieties: *pubescens*, *parviflorum* and *planipetalum*. In 1985 J. T. Atwood separated the North American group into four species based on flower differences: *Cypripedium pubescens*, *Cypripedium parviflorum*, *Cypripedium planipetalum*, and *Cypripedium kentuckiense*.

In 1995 Dr. Charles J. Sheviak separated the North American *Cypripedium* species from the European based on the differences in the morphology of the plants. Following naming conventions, the

new name was *Cypripedium parviflorum* Salisbury following the earliest use of the name by Salisbury. At this time the accepted names still separated the large varieties from the small, so he further separated the small into two groups delineating their differences and creating a key to tell the three apart. Finally, he named a new variety separating a group from Alaska. The fifth group of plants from Newfoundland he does not consider a variety so has the forma name *planipetalum*. He feels their appearance differences are caused by their environment as similar plants are found in New York and other areas with a similar environment. *Cypripedium kentuckiense* remains a separate species. So, for now, this is where it stands. An interesting side note, because of taxonomic naming conventions if *Cypripedium parviflorum* var. *pubescens* is named a species it will be *Cypripedium flavescens* because A. de Candolle in 1802 first called it a species with that name.

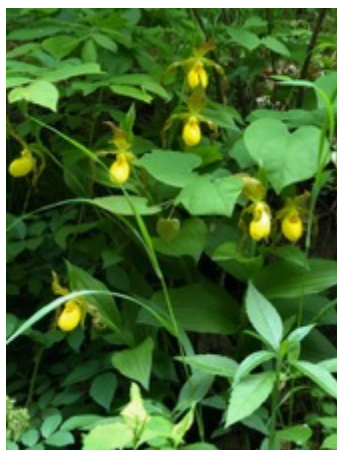
So, the question of identification can still be seen in the variety observed among the plants in the species. Some appear to be accurate examples of their named variety and others growing nearby show differences. While some of this variance may come from the growing environments of different plants, consideration must be given to the fact that pollinators do not pay attention to plant names as they go about their life. So, some of this variation may be breeding related. Ben Rostron has extensive examples in photos from plants found in Canada. The links will show this. I'm so envious of the people living where these plants grow in abundance

https://www.flickr.com/photos/ab_orchid/albums/72157647414476446 -----

https://www.flickr.com/photos/ab_orchid/albums/72157718189598138



Cypripedium parviflorum var. *pubescens*, Ohio Photo by Jan Yates



C. parviflorum var. *pubescens*, Ohio and not always found in a sunny environment.



C. parviflorum var. *pubescens*, Bruce Peninsula Photo by Jan Yates



C. parviflorum var. *pubescens*, Bruce Peninsula Photo by Jan Yates

It can be fun listening to taxonomists discuss (argue?) about lumping and splitting and the reasons for each labeling. Keeping all these sources in mind in this summary on the history of this species, I will bow to the conclusions of Kew (Phillip Cribb) and Dr. Charles J. Sheviak for determining them to be four varieties ... until such time DNA studies are done that change this. It will be interesting knowing how these studies determine which species/variety/hybrid they are testing when they pick specific plants and from how many different sites. Will they consider substrate, temperature and other environmental conditions, fungal specificity, morphological appearance, or descriptive nomenclature? (taxonomical historical custom) It will also be interesting to see how possible changes will be accepted after observing the uproar over the renaming of the orchids in the *Cattleya* Alliance and *Oncidiinae* groups.

So, in researching this species I discovered that nature does not read the books and it produces beauty and variety in amazing ways. It shows us the need to protect this beautiful complex along with our other native

orchid treasures. The species *Cypripedium parviflorum* is a fabulous representative of nature in all its glory and shows how much it can teach us if we just take time to explore.

References and Endnotes

Because of the large amount of information available, I decided to include an extensive list of resources that can be checked in more detail. Endnote numbers are in front of sources are in bold.

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