ON THE FRINGE

NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO

Founding Chapter of
THE OHIO NATIVE PLANT SOCIETY

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MESSAGE FROM THE PRESIDENT

Weather and water tables are playing their unpredictable games of recent years. Records from past years with notes recording such data show you can't tell what to expect out in the field; speaking of which field is exactly what I found upon my return home memorial weekend from leading a small group to northern Michigan. Why we even had a minute or so of snow one morning up at Grand Marais along the southern shore of Lake Superior. But the orchids were magnificent. It would have been nice to get the full show of ram's heads at Grande Sable Dunes, but they're coming slow this season. Can you blame them? These areas had over ten feet of snow and 40° below and on several occasions frosts occurred within a week of our trip up.

Stapled into this issue is a pocket calendar of our events; remove it and use it. No more excuses, Oh I haven't read or misplaced my journal with all the events. In each issue I'll also provide cryptic summary reminders of upcoming events.

If you plan on attending an event, especially if you are calling for car travel of any length, I strongly advise you to call me to confirm the day prior. Too many things can happen, leaders get sick, have accidents, etc.

In July, I join my friend, Paul Martin Brown, of New England's Wildflower Society for a two week two day trip to New Foundland. I am promised great wildflowers including tundra plants, lots of orchids, sea and shore bird colonies and much more.

I guess one can overdo. On the way back from Resthaven with one of Paul's New England students as I tried to keep up with their car on a Saturday night, sleepiness caught up to me. I dozed for a second, just long enough to hit the concrete bridge over the Huron River. Blew a tire and scratched a line along the passenger's side. It could have been much worse. So be careful out there. Those field trips can get you in ways you don't suspect.

Tom Sampliner

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A WALK BY ROOTBEER COLORED WATER

By Tom Sampliner

Michigan's Upper Peninsula offers many (over 100) spectacular waterfalls. Tahquamenon upper and lower are as spectacular as any. Not only is there the majesty of these powerful, colorful cataracts, but also the trails at each offer spectacular spring wildflower displays.

First, to describe the locale, I take you to the Upper Michigan Peninsula by crossing the mighty Mackinaw Bridge. Follow I-75 north and turn northwest onto M 123 up to Paradise, Michigan. This small town serves as jumping off point for both Whitefish Point and the falls. The former is home to the excellent Great Lakes Shipwreck Museum and a bird observatory and small museum. The falls lies in Hiawatha National Forest. Follow M 123 from Paradise and it turns back south and west. First you reach the lower falls. From the parking lot you walk to the close by divided lower falls. Immediately you are impressed with such early spring bloomers as carolina spring beauties (*Claytonia caroliniana*), clintonia or blue bead lilly (*Claytonia borealis*) and star flower (*Trientalis borealis*). Also present in generous quantities are canada mayflower (*Maianthemum canadense*) and sarsparilla (*Aralia nudicaulis*). Many of these flowers act almost like cultivated flower beds surrounding the trees. Even in the cleared picnic grounds the trees typically have a ring of some of these plants.

From the picnic area with a frontal view of the lower falls, a trail runs westward bordering the river. It takes you to a viewing platform on the west side of the falls.

Unfortunately, the state is covering this portion of the trail with a boardwalk. While that provides handicapped with easier access and keeps everyone dry, it seemed to our

group that needless destruction of flowers and habitat to each side of this walkway was not warranted.

The path takes one right through some fabulous stands of marsh marigold (*Caltha palustris*) well seasoned with such ferns as cinamon, interrupted and royal (*Osmunda cinnamomea, claytoniana*, and *regalis*). Also mixed in to perhaps more modest extent were ostrich fern (*Matteuccia struthiopteris*), oak fern (*Gymnocarpium dryopteris*) and broad beech fern (*Phegopteris hexagonoptera*).

The wet path also contains forget-me-nots (*Myosotis laxa*), blue bead lilly (*Clintonia borealis*) and several different equisetum.

One of the other objectionable results of the boardwalk is that the viewing platform frustrates photographers, who previously had a natural view of the falls frontally from the picnic concession areas as well as the freedom to go anywhere on the western rock border to select their own perspective. Perhaps accidents led to the Park's desire to foreclose such wandering.

It was also fascinating to observe plants going in one direction you walked right by going the other way. Tricks of light and angle make even the same path an experience each time you walk it.

If you're up in the Upper, be sure to give both falls at Tahquamenon your visit.

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CAUTION: POLLINATORS AT WORK

By Tom Sampliner

On Saturday, May 7, 1994, a handful of hardy souls attended a walk at Holden Arboretum led by Dr. L. Walter Macior of the University of Akron's Department of Biology.

Those fortunate few were treated to revelations about plant pollinators at work on their favorite flowers.

The first example I recall that day was the swamp buttercup (*Ranunculus deptentrionalis*). Dr. Macior explained that pollination was by water droplets wherein a meniscus of water becomes the vehicle for pollen to ride upon.

(*Caltha palustris*) offered an opportunity to discuss reproductive parts. Dr. Macior explained that petals are an evolutionary conversion of what had been stamen. In the example of Caltha, however, we were seeing only sepals. Observations of this kind can be difficult.

Another pollination mechanism was the vibration technique. Our first view of this was bluebells (*Mertensia virginica*) where we saw bumble bees shake the very fine grains of pollen out of the flower tubes. This early in the growing season, there are no workers yet. Dr. Macior told us we can expect them early in June. For now, it is the queen bumble bees who do that whole lotta shaking to dislodge the pollen particles.

I found it interesting to learn that most trees are wind pollinated. Flowering of most trees occurs prior to the opening of leaves. This allows the fullest exposure of the flowers to their pollinating mechanism, the wind.

We next examined some violets. Apparently their nectaries are attached to stamen which secrete deep into the spur. The latter is the elongation of the connivent petals which form the corolla tube. The nectaries are then visited by insects, particularly small solitary bees, which proceed to get at the nectaries while hanging mostly upside down on the corolla. Hairs on the lateral petals keep the bee upside down and directed toward the nectaries. Color lines on the petals are thought to act as landing lights.

One puzzle was wild ginger (*Asarum canadense*). It seems little is known about either the pollinators or mechanism at work in this species.

Perfoliate bellwort (*Uvularia perfoliata*) provided an elegant mechanism for pollination. Bumble bees in the Bombus genera push their way into the corolla tube and seek to vibrate pollen out. Additionally they will pierce the tube with outer mandibles leaving a crescent hole at the tube base. Then the inner mandibles are used as a tube for the nectar to flow through as the bee's bristle tongue drives in and out like a piston. This is the same method used to extract nectar from Pedicularis species as well as the Mertensia mentioned earlier. Not all flowers will open at the same time. The queen bees climb in from a side of a flower and pollen grains stick to the bee at the neck joint near the midline.

With all this pollination at work, why are there self pollinating (cleistogamous) flowers? This process assures reproduction of the species despite what may happen to the pollinators in a given year, unusual weather, or other catastrophe.

This short article merely scratches the surface of a most fascinating area of study. Despite rain and cold, our small group's eyes were opened to poetic movement of pollinators at work.

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ORCHID NOMENCLATURE OR "YER STILL YELLA"

By Tom Sampliner

In the Cuyahoga Valley National Recreation area there exists a colony of yellow ladyslipper orchids of at least 100 flowering stalks scattered on a slip bank in singles to small groups. Unfortunately bank erosion seems to be literally taking the population on a steep downward ride from which there may be no recovery or future population.

To reach the area under discussion, one must follow a portion of the Buckeye Trail. Along the way some interesting plants can be observed. On the steep, well drained slopes I saw yellow pimpernel (*Taenidia integerrina*) along with some more commonly observed companions such as (*Phlax divericata*) and plenty of (*Geranium maculatum*). On the lower slopes be sure to enjoy the Ohio Buckeye trees especially in May while they are in flower.

The yellow ladyslipper orchids appear to be of at least two different types. This brings us to the very recent writings of Charles Sheviak, botanist with the New York Biological Survey, New York State Museum in Albany, New York.

In Sheviak's recent articles, he gives us a concise summary of the taxonomic history of North American yellow ladyslippers. We are informed that over fifty years ago D.S. Correll lumped all the North American yellows in with Europe's (*Cypripedium calceolus*). For our purposes we can next consider M. L. Fernald's adoption of Correll's (*Cypripedium calceolus* var. *pubescens*) with the proposed recognition of a smaller flowered plant of the northern fens, identified as (*Cypripedium calceolus* var. *parviflorum*). Without getting into all the crosses and back

crosses, it suffices to say that names are applied differently by various writers due in great part to inadequacies in the existing taxonomic treatments.

Sheviak proceeds to explain that all North American orchids in the yellow group are more similar to each other than to any European species and vice-versa. Sheviak's primary example of this is in the shape of the staminode. He explains that all North American species of the yellow manifest a staminode conduplicate in shape (V shaped as when two pages of an open book meet or the shape of a turkey vulture's wing profile in flight) whereas the European varieties exhibit a trough or U-shape. Furthermore, staminodia of American plants are yellow and broadest towards the base or middle while European are white and broadest near the apex. There are some variations from this in European orchids but we'll not go into that much detail.

Sheviak argues that North American orchids as a species should bear the name parviflorum based on taxonomic priorities. He recognizes three varieties which he describes and provides a key for. The three varieties are parviflorum, pubescens and makasin (pronounced like the word moccasin).

So that you may all have Sheviak's key I reproduce it here and quote his discussion verbatum.

Key to Yellow Cypripedium Varieties in New York:

1) Abaxial (outer) surface of uppermost sheathing bract glabrous to sparsely and inconspicuously pubescent 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

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 (rarely unmarked); scent moderate to faint, rose or pungent-musty 2

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 and reddish brown or madder and appearing uniformly dark (rarely coarsely spotted and blotched); southern New England to Kansas and southward ..... var. parviflorum

This species is extremely variable, reflecting individual phenotypic plasticity, infraspecific differentiation, and hybridization with related species. In particular, var. pubescens is difficult to delimit. In exposed situations, especially in calcareous soils, plants are low-growing with ascending, often narrow leaves and rather small flowers, in exposed boreal and arctic sites, plants and flowers may be very small with weakly spiralled to flat petals. Such plants from Newfoundland were originally described as C. parviflorum var. planipetalum. When grown under less severe conditions, these often develop into larger plants with larger flowers of a more common shape; indeed,

the holotype sheet of var. planipetalum includes a range in habit and floral morphology and includes a plant rather typical of boreal var. pubescens. The lips of smaller flowers often are markedly compressed laterally, with parallel sides, but when larger flowers are produced by the same plant, the proportions of the lip often change, the lip then being very broad below and tapering toward the adaxial surface (trapezoidal in cross-section) or sometimes dorsoventrally compressed and broader than high.

The southeastern var. parviflorum differs from var. pubescens primarily in flower size and color, and the two might be merely forms. Most works dealing with this species have treated the primarily boreal var. makasin as var. parviflorum, either including all small-lipped plants within var. parviflorum, or in some cases restricting the name to the northern variety and excluding the southeastern plants described by Salisbury as C. parviflorum. Fernald's original publication on C. calceolus var. parviflorum actually treated var. makasin, citing a description of this variety, and clearly discussing the northern plant. Additionally, although geographically accomodating Salisbury's plant, Fernald excluded most of the range of the southeastern var. parviflorum, thereby referring most plants of var. parviflorum to var. pubescens, and further restricted var. pubescens to the East, thereby assigning most plants of this variety to his northern var. parviflorum, i.e., var. makasin. Consequently, most published illustrations of var. parviflorum are in fact var. makasin. Variety parviflorum has been dealt with primarily in publications on the southeastern flora. In the East, var. makasin is quite distinct, but in the West it becomes difficult to separate from very small plants of var. pubescens that are common there; in that area fragrance is often the least equivocal character.

So, what do we have in Cuyahoga Valley? Trying to use Sheviak's key, my best guess is 1) cyp parviflorum var. parviflorum and 2) cyp parviflorum var. pubescens. But why take my word - go out and look for yourself. Happy hunting.

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BALANCE OF THE YEAR SCHEDULE

NOTE: Do not assume events occur without checking with the leader, especially for out-of-city/county trips. Call first or you may be by yourself. Leaders can cancel even for a lack of a group to warrant the travel.

Sunday, JULY 10, 10AM TO 3PM - BORROW PIT at Cuyahoga Valley National Recreation Area. George Wilder will lead this field trip. The borrow pit, created when soil was removed to aid in construction of Rt. 80, has an extremely diverse flora including many species which are uncommon or rare elsewhere within our area. Meet at the intersection of Boston Mills Rd. Cross the bridge over the Turnpike (Rt. 80), and immediately thereafter park along either side of Boston Mills Road.

Sunday, AUGUST 21, 11:00AM TO 5:30PM - MARBLEHEAD AND KELLYS ISLAND. We can expect to see a diverse flora unique to the alkaline soils of this area. Meet with Tom Sampliner at the Newman Boatline Ferry Landing at Marblehead.

Sunday, SEPTEMBER 18, 11AM TO 2PM - NORTH KINGSVILLE SAND BARRENS. Tom Sampliner will lead this trip. It is expected that we will observe blue curls, Spiranthes ochroleuca, striped maple, pin cherry, and Lycopodium tristachyum. Drive east on Rt. 90; then exit Rt. 193 to the north; drive north on Rt. 193; turn right on Rt. 20 East; turn left on street.

Saturday, OCTOBER 1, 10AM TO 2PM - IDENTIFICATION OF TREES IN SUMMER. George Wilder, Professor of Biology at Cleveland State University will present this two-part program. The first part will be a laboratory exercise pertaining to structural features of foliage leaves and branches of native trees. The second part will be a field trip to Shaker Lake (Shaker Heights, Ohio) and possibly, also to North Chagrin Reservation. Meet in room 226 Science Building in Cleveland State University (located in Cleveland, on the northwest corner of the intersection of Euclid Ave. and E. 24th St.); park in the parking lot on the south side of Euclid Ave., across the street from the Science Building and immediately east of the Barnes and Noble Bookstore.

MEETINGS

Saturday, NOVEMBER 12, 5 PM - CLEVELAND BOTANICAL GARDEN, Garden Center of Greater Cleveland, Annual Banquet and Annual Meeting. Our speaker will be Dr. Tom S. Cooperrider (Professor Emeritus of Biology at Kent State University). He will discuss his forthcoming book pertaining to the flora of Ohio. The Cleveland Botanical Garden is located in Cleveland, along the north end of Wade Oval, just north of the Cleveland Museum of Art and the Cleveland Museum of Natural History. (Wade Oval is situated immediately east of the intersection of E. 105th St. and Martin Luther King Drive). There is a parking lot next to the building, and another parking lot beneath the building.

January, 1995 - TALK AND SLIDE SHOW BY INVITED SPEAKER. Details to be arranged.

Thursday, FEBRUARY 16, 1995 - MEMBER'S SLIDE SHOW at CHAGRIN FALLS LIBRARY. Travel to downtown Chagrin Falls; proceed east on Orange St. for ca. one-quarter mile. The library is on the south side of the street, opposite the large church.

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P.S. Brian Gilbert should have been given credit for last issue's book review. Sorry Brian.

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