On The Fringe

Quarterly Newsletter of

NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO



Founding Chapter of

THE OHIO NATIVE PLANT SOCIETY

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NATIVE PLANT SOCIETY
OF NORTHEASTERN OHIO
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Native Plant Society of Northeastern Ohio
1st Quarter 1999

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NEW MEMBERSHIP PROCEDURE

Effective with this issue of *On the Fringe,* Native Plant Society membership checks should be sent to the Secretary and Membership Chair of the Society:
Brian Gilbert
18212 Landseer Road
Cleveland, OH 44119-1745
Active: $10 Family $15 Sustaining $25

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1999 PROGRAM SCHEDULE
by Dr. George J. Wilder

Eight field trips plus our annual meeting and banquet are planned. Five of the trips will be broadly focused on the floras of four natural areas: Kennedy Ledges, North Kingsville Sand Barrens (two trips), Swine Creek, and the Lake Plain forests. Remaining trips will be more taxonomically oriented. The genus *Trillium* will constitute a main theme of the Society activities during the forthcoming year. Our second and third field trips will focus primarily on this genus (Sunday, May 2: Sunday, May 16). Also, Mr. Frederick W. Case, Jr. - the scheduled main speaker at our next annual meeting and banquet (to be held on Saturday, November 20, 1999) - will speak to us about *Trillium*. Mr. Case has authored two recently published books on *Trillium* and on orchids of the Great Lake region, respectively. Our final field trip, in October, will concentrate on Fall Compositae (particularly, on asters and sunflowers).

Only the first three field trips are described in this issue of "On the Fringe." We advise participants in all field trips to bring a brown-bag lunch for consumption in the field and to call the trip leader before the trip so they know you are coming.

SATURDAY, APRIL 24, KENNEDY LEDGES FIELD TRIP - 9:00 AM TO EARLY AFTERNOON. Society Board member **John Augustine** will lead this exploratory hike at Kennedy Ledges, part of the Nelson/ Kennedy Ledges State Park. Nelson/Kennedy Ledges,

popular destination for picnics and hiking in northeast Ohio, is known for its rugged conglomerate cliffs and other scenic rock formations in addition to its flora, typical of more northern climates.

Five state-listed species of plants have resided in the Park, although one, Drooping wood sedge (*Carex arctata*) has not been documented since 1960, and two others, Allegheny Vine (*Adlumia fungosa*) and Canada Fly-Honeysuckle (*Lonicera canadensis*), have not been documented since 1980. A survey by Allison Cusick and Dr. Susan Munch of the Ohio Division of Natural Areas and Preserves found a small population of Northern Rose Azalea (*Rhododendron nudiflorum*) in addition to Star Flower (*Trientalis borealis*), both state-listed as potentially threatened. However, the three previously mentioned species could not be found. The botanists' report states that the loss of these species was most likely due to the "severe impact of human visitation. The continuous foot traffic prevents the formation of soil. Rock-climbing loosens the moss in which seedlings can grow; plants growing on the rock faces are ripped out by climbers seeking hand and foot supports...". The report further stated "in 1986 we saw no evidence of even minimal enforcement of park regulations. People were literally running wild, littering and despoiling without let or hindrance."

We will primarily be exploring Kennedy Ledges, an area of the park normally closed to the public. Access is allowed only by special permit. As a result of this limited access, the flora of Kennedy has been impacted far less than that at Nelson Ledges.

Late April should be a lovely time there with many spring ephemerals in bloom. With luck we will spot one or more of the state-listed species, but even if we don't the many other species should be delightful including 201 species documented by Allison Cusick and Dr. Susan Munch in 1986. John will bring a copy of their list for participants to examine or you can call him and he'll fill you in on the species listed.

Any folks interested in this trip must call John to reserve a place. His phone number is (440) 548-2414. Due to the sensitive nature of this area group size will be limited to ten people, so call early to be sure of a guaranteed space. DIRECTIONS: Participants will meet at the public parking area for Nelson Ledges on State Route 282. A detailed map will be sent to each participant so reserve early.

SUNDAY, MAY 2, FIRST TRILLIUM FIELD TRIP - 9:00 AM TO ABOUT 1:00 PM, VICINITY OF COTTONWOOD PICNIC AREA, ROCKY RIVER RESERVATION, CLEVELAND METROPARK. **Tom Sampliner** and **Brian Gilbert**, President and Board member of the Society, respectively, will lead this field trip. Four *Trillium* species will be observed, including different color-formas of *Trillium erectum* (Ill-scented Trillium, Stinking Benjamin, Purple Trillium, Squawroot) and *Trillium flexipes*. Observed, also, will be diverse well known Spring wildflowers, including three color formas of *Mertensia virginica* (Virginia Bluebell). DIRECTIONS: From whatever direction you are traveling, enter Puritas Road, just east of the Metroparks

Parkway. Go down (west) Puritas hill into the Parkway and turn left (south). After driving briefly, enter and park in the first lot south of Puritas Road across from the Wildflower Garden. Be sure to call Tom (216) 371-4454 or Brian (216) 486-8765 to let them know you will be coming.

SUNDAY, MAY 16, SECOND TRILLUM FIELD TRIP - MORGAN SWAMP (ASHTABULA COUNTY). **Tom Sampliner** and **Brian Gilbert** will lead this field trip. Morgan Swamp contains diverse plants, partly including many kinds of boreal (northern) wildflowers. This swamp thereby represents unusual habitat for our area. Observation of Painted Trillium (*Trillium undulatum*) will be the highlight of the trip. Also, to be observed will be Star Flower (*Trientalis borealis*), Goldthread (*Coptis groenlandica*), gorgeous clumps of Cinnamon Fern (*Osmunda cinnamomea*), and much more. DIRECTIONS: Since Morgan Swamp is an access restricted site, directions will be sent to you when you sign up. Be certain to call Tom (216-371-4454) or Brian (216-486-8765) before the trip to let them know you will be attending. Come prepared for very wet terrain.

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Do you have an idea or article for the next issue?
Please contact Jean Roche
Phone: 330-562-4053
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STORY BEFORE THE STORY

By Tom Sampliner

EVERYONE KNOWS ya' can't just break out into a story. You need an occasion, an excuse, a stiff drink or something. With or without some or all of the above, here goes.

A sense of adventure and discovery is too often missing from what we do these days. Interesting discoveries and pioneering work should be inspiration. My finding an admittedly European adventive in a new place may be saying there are observations to be made by all of us. We all belong to various societies, but how much do we really contribute in meaningful fashion to those who have the talent and position to perform the vital field-work now done by so few? Perhaps each of us owes something to the endeavors of the intrepid botanical field workers. We are certainly beneficiaries of their knowledge which in turn gives rise to field trips, articles and books of interest, and eventually, commercial import.

As I leave my soapbox, or fall off, whichever occurs first, one further pre-story remains. As I tracked backward back through literature that, in anyway, made reference to the aquatic plant the story will speak of, a historical volume, now considered a book for reference, was discovered. A strong local connection will be obvious.

The book, THE WATER GARDEN, is by William Tricker, 1897, A. T. Delamare Printing & Publishing Co.

LTD. If such name sounds familiar in our area, it should. These aquatic plant specialists located in Independence, Ohio, are still one of the foremost commercial sources. This well written and very readable volume by the founder of the business contains photographic plates and plant lists as well as how-to instruction. Based upon his own work, Tricker became a foremost cultivator of aquatics. His first catalog of aquatics became available in 1897. The business took its corporate form in Ohio in 1927.

From this now 100-year-old work, I was able to find mention under hardy aquatics of our subject species, though referred to in older botanical nomenclature, (*Limnanthemum nymphoides)* or floating hearts. A brief description confirms it is the yellow aquatic at issue. This is interesting since there are apparently only three reported sightings since that time including mine, here in Ohio.

Early in the first chapter, Tricker comments that with most aquatics expect flowers to open for either three successive days or nights, obviously depending upon which that species does. After flowering, expect the remnant to submerge and if seed is produced and viable, dispersal takes place. I also found worthy of note that he finds no class of plants to offer greater color diversity, ranging from red, yellow all the way through blue. Fragrance is also noteworthy among aquatics. While the book is sometimes too short on information, I think you'll appreciate at least taking a glance at this early work.

One final word on this author; in 1913 he authored another volume called, MAKING A WATER GARDEN,

which is locally available at the Kent State research library.

And now as radio voice, Uncle Paul, would say, time for the rest of the story.

* * * * *

STRANGER IN A POND

By Tom Sampliner

Curious how plants appear, disappear, reappear and disjunctively arrange themselves across the globe. It was one of those rainy, cold, all too dreary for this time of year, nights when these somber thoughts ran through my mind. It's as if some force far beyond human comprehension was orchestrating a performance without an audience.

For three growing seasons now I have been following the progress of an aquatic plant within South Chagrin reservation. The first year I was not sure what I was looking at. I only knew it was somehow different from other local and familiar aquatics. Since the pond became immediately deep to at least knee level on me, I was neither equipped nor then motivated to wade in for the necessary closer inspection. I'm also aware I was in part dismissing it as just some strange manifestation of a local common aquatic species; yet something told me there was a difference here beyond all of that. As the park is one of my haunts, the more I returned, the more curiosity piqued my desire to investigate. These initial casual observations disclosed roundish, floating leaves with an undulating or scalloped like margin. Flowering stalks were stout and at least one inch

above the leaves. Held thusly, were bright yellow five-petaled flowers that were frilly and very different from other local species of aquatics. These plants must be content with their digs as they spread somewhat over the second and currently third growing season. The spreading put them in better position for the shoreside observer not anxious to wade.

I began to pull out the usual local flora books for clues for identification. As it was to turn out, the quick type references such as, VASCULAR PLANTS OF OHIO, third edition, by Clara G. Weishaupt, as well as the ever popular, NEWCOMB'S WILDFLOWER GUIDE, by the aforementioned Lawrence Newcomb were not particularly useful. Though both contain reference to the correct genus and species, I could not tell so upon initial readings due to the lack of appropriate botanical description to enable the first time viewer to discern what was critical.

Progress for this detective first came with the use of a publication from the U.S. Dept. of the Interior, Fish & Wildlife Service, entitled, UNDERWATER AND FLOATING-LEAVED PLANTS OF THE U.S. AND CANADA, by Neil Hotchkiss, wildlife biologist. His work was intended to be the third in a series to be called AQUATIC PLANTS OF EASTERN NORTH AMERICA. This reference dates to May 1967, has a key and is user friendly to the layperson. It also has the most accurate and distinctive line drawing of the species I have encountered. The tenth grouping contained without any doubt what I was seeing. The first grouping description is so general that it did little to gain my attention other than to realize "plants with lance-shaped to round floating leaves which are deeply

notched at the base" was clearly where our subject would have to fit. In beginner like fashion, I thumbed through each listed species until I did find the excellent line drawing. I knew I had probably solved the mystery only to have a strong case of self-doubt due to a complete lack of botanical description for the species. He calls the species European floating hearts. He attributes it to fresh, calm, inland waters, rarely coastal, and native to Europe. As of his writing, the plant had made itself at home in North America with records from Washington, New York, New Jersey, Missouri, Oklahoma and Arkansas. Since there was no mention of Ohio, I was unsure of myself and had yet to uncover any meaningful botanical description to confirm that my sighting was what I was now reading about.

My next step was to consult an Ohio reference text with more depth and scholarly treatment than what I had consulted heretofore. I eagerly plucked from the bookshelf, Dr. Tom S. Cooperrider's volume in the Ohio flora series, THE DICOTYLEDONEAE OF OHIO, PART II: LINACEAE THROUGH CAPANULACEAE, 1995, O. S. U. Press. With such reference, I could now truly put on my deerstalker hat and, with pipe in hand, begin real detective work. This volume informed me that Ohio did indeed have a history with this plant. In fact, it went back to 1930 when the species was collected from near the mouth of the Conneaut River in Ashtabula County. It was next seen and collected in 1971 at a farm pond in Delaware County. Dr. Cooperrider was kind enough to inform me both specimens reside at the O.S.U. herbarium.

From this reference I was fascinated to learn that though this plant seems like just another aquatic, it is less like one

of the water lilies and more closely related to members of the gentian family. Yes, this is a floating gentian, for our purposes. Most authors, I was to learn with more reading, place the species within *Gentianaceae*. Some have a subgrouping under *Menyanthaceae*. Under this latter category, most of us are probably familiar with the springtime-blooming buckbean, (*Menyanthes trifoliata)*. When one does observe the two, with the exception of color and the frilliness, it becomes strikingly similar.

In our exchange of communication, Dr. Cooperrider also enlightened me as to the curious two ways I was seeing the species name spelled either *peltata* or *peltatum*, with the former being the most common. *Peltata* is also the one employed by a prominent reference from the area of the globe the species seems to originate from, FLORA EUROPAEA. Woll. Watson, nomenclature won't stop us. It's just another device to hide identity. Quick, Watson, the chase is afoot. Get me some more of those references off the shelf. Since we are determined to persevere over differences in nomenclature, it is also beneficial to check out the worldwide listed ranges to make sure there are not several different species look alien.

One of the most widely recognized and respected authorities applicable would have to be, GRAY'S MANUAL OF BOTANY, as rewritten and expanded by MERRITT LYNDON FERNALD, Eighth Edition, Dioscorides Press, 1950. Range for the genus is, of course, broader in this work. It places this perennial aquatic in American, Eurasian and African quiet waters.

The species we are concerned with is stated to be locally spreading throughout the Southern states, North to the

Hudson Valley, through N.Y. and Missouri. Acknowledgment is given for cultivation and that the origin was Europe. Other listed *Nymphoides* species all have white flowers.

Gray's botanical description is helpful though not as complete as one may wish for. Important is the observation that the species is coarse, extensively creeping and branching; petioles without spur-roots; blades suborbicular, coarsely undulate-dentate; calyx 1-1.3 cm. long; corolla yellow, 2-3 cm. broad, segments fringed, capsule strongly beaked, 1.2-2.5 cm. long, seeds with fringe-like margin.

Additional trait description worthy of note may be found by consulting MANUAL OF VASCULAR PLANTS OF NE U.S. & ADJACENT CANADA, by GLEASON & CRONQUIST, 1963, N.Y. Botanical Garden. Basically, they follow Gray's getting us to the species in a last key choice which sets forth, "fertile stem with pair of opposite leaves subtending the umbel, often extending beyond the umbel and bearing one or more umbels, flowers bright yellow." Taken directly from the species description, we have additional important observations as follows; "stem stout 2-3mm. thick, opposite leaves subrotund 5-15 cm. long and wide, anthers 4-5mm., seeds flat and narrowly winged with ciliate margins."

You can see that as more authorities are consulted, additional description comes in each expert's contribution of his observations.

By this time you might think that we have identification well in hand. I thought so too until I referred back once

more to another reference from the global point of origin. It was in, FLOWERS OF EUROPE, a field guide by OLEG POLUNEN, 1969, Oxford U. Press wherein I was being offered a red herring, no doubt by that evil incarnate, Dr. Moriarty. Apparently the leaves of our subject species as manifest in Europe) do not match up with what we are seeing here. Polunen describes the European leaves as being: 3-10 cm. rounded, deeply narrowly cleft at the point of attachment with the stalk, however, purple blotched blades above and purplish beneath. Maybe in Europe, but not here!

In trying to make sense out of this, habitat has no impact upon the visual difference. Neither will one see any difference manifest in bloom period across the globe; generally listed as June through September, I have yet to locate any information on differences in growing substrate. Furthermore, no information seems to pinpoint when differences in leaf coloration in Europe versus North America first arose. A very recent European reference is worthy of consultation. This is a work entitled THE NEW FLORA OF THE BRITISH ISLES, 2nd edition, by CLIVE STACE, Cambridge University Press, 1997. It confirms the habitat and botanical descriptions heretofore. As with the other sources from this part of the globe, the purple tones for both upper and underneath the leaves is reaffirmed. It would be nice to gain some explanation as to why leaves differ based upon where on the globe you are observing from.

Perhaps one of you will be the one to discover why this is so. If we may return to references from our part of the globe, some additional observations are worthy of note

taken from THE NEW BRITTON AND BROWN ILLUSTRATED FLORA OF THE NE U.S. AND ADJACENT CANADA, by HENRY A. GLEASON, Hafner Press, 1984. Here a comment is made as to the opposite leaves being usually unequal. This trait never made it into the earlier work by GLEASON & CRONQUIST from 1963 cited earlier in this article. Preceding the key choices that separate the species under this genera, he comments that worldwide there were 20 species chiefly in the tropics of both hemispheres; yet by looking at either the European or North American references one does not get that impression. I appreciated the comment that the genera name derivation was for NYMPHAEA, the water Lily combined with the suffix-oides, for resembling what would be a reference to leaf similarity. However, we have just seen that depending upon where you are observing from, color is not the similarity but the floating leaf shape and contour is.

It may be well to list other references to this species from elsewhere on the globe before going on. From Britain & Europe you may wish to consult some of the following: THE ILLUSTRATED FLORA OF BRITAIN & EUROPE, 1989 by Marjorie Blamey; PLANTS & FLOWERS OF GREAT BRITAIN & EUROPE, 1993 by Denis Jean Godet; THE ALPINE FLOWERS OF BRITAIN, 1986 by Christopher Grey-Wilson. From a more exotic area, FLOWERS OF THE HIMALAYA by Oleg Polunin & Adam Stanton, 1984, Oxford U. Press. The range of this work is from Pakistan's eastern border to the border of western Sikkim and on the north adjacent to southwestern China. I like the new version of a common name they give as "fringed waterlilly." They describe the climate as tem-

perate and habitat as shallow water including ditches. They proclaim it as common in the Kashmir Valley from May-June.

There are a couple more references from our country. First, there is brief mention and photo in THE RANDOM HOUSE BOOK OF PERENNIALS, VOL. 2 LATE PERENNIALS by Roger Phillips & Martyn Rix, 1991 Random House. A better reference with some more tidbits of information can be found in, THE N.Y. BOTANICAL GARDEN illustrated ENCYCLOPEDIA OF HORTICULTURE, by Thomas H. Everett, 1981, Garland Publishing Inc. Other common names for the genera add some interest, if nothing more with additions such as, water snowflake and banana plant. This work has the first continental mention I can find to any leaf coloration; namely reddish-brown mottling. This trait takes on import when compared to a variety "bennettii" which is described as bearing plain green leaves. The implication may be that this is what has escaped into local flora since green leaves are what you will be seeing at the pond at South Chagrin. A disturbing observation is set forth here, confirming one going all the way back to William Tricker's 1897 work. I refer to the statment that *N. peltata* can overpower, outcompete and take over. Yet, though I see this in writing, why is Ohio only manifesting three reported naturalized sites going back to 1930? Is it possible the release of aggressive tendency is dependent upon some yet to be observed variable? Was the tendency habitat, varietal, climate stimulated? Tricker wrote that if winter did not kill back the species, it was liable to become a pest. I am anxious to follow our local population to see if this is so.

A reference called "BAILEY'S MANUAL OF CULTIVATED PLANTS" offers some interesting observations.

First it lists only two species which makes one question how much or little investigation the authors did considering the much larger number mentioned elsewhere. For some reason they also reverse the usual order of categorization by placing Nymphoides before Menyanthes. A valuable observation is the reference to a closed sinus at the base of each leaf; this is the pie-shaped opening manifested by many aquatic plant leaves and which is so slim in this species. This work also comments that the runners spread rapidly. This comports with my observations for three growing seasons. The stated range is also among the widest as they list Europe, Asia and naturalized into much of eastern U.S.

Surprisingly, this is broader range for the species than that stated in GRAY'S MANUAL OF BOTANY, as rewritten and expanded by Merritt Lyndon Fernald, 1950. Gray's does tender a much broader global range for the entire genus, but here again I am surprised to find only three species listed as opposed to up to 20 by other authors. This conflict as to ranges and species numbers is very troublesome to a layperson such as myself. Do the various authorities communicate with one another? By sheer weight of the available literature, it seems clear that this European adventive perennial has not only been introduced but also established itself here as one among many from afar that now belong to the local flora. Perhaps as long as the tendency is not to aggressively spread like some other things we can all name, this handsome member of the gentian group should be a welcome member of the summer blooming aquatics in Ohio. So, welcome back, floating hearts, I look forward to your show again next year.

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AMERICAN FRIENDS OF THE HEBREW UNIVERSITY – January 11, 1999

RESEARCH SHOWS WATER LILIES ARE WATER PURIFIERS

Water lilies may prove to be a secret weapon in the fight against water pollution. Recent experiments have shown water lilies to be capable of absorbing great quantities of heavy, poisonous metals through their leaves and roots. This could allow water lilies to be used both to restore the purity of rivers and water sources polluted with poisonous heavy metals and as a means for treating waste water originating from household or industrial sources.

The research was conducted by The Hebrew University of Jerusalem's Department of Agricultural Botany. The research team showed that water lilies thrive in water containing high concentrations of heavy metals, such as cadmium, and are capable of absorbing metals to up to 16% of their dry weight.

The research team responsible for the discovery is headed by Prof. Elisha Tel-Or and includes doctoral student Noa Lavid and three master's degree students: Eldad Sokolovsky, Tamar Shor and Zvi Keilen.

Water lilies, which grow naturally in swampy areas, have in recent years become popular as decorative plants. Noa Lavid, a member of Kibbutz Hazorea, participated in the establishment of a water-lily farm there, where the plants are grown in fresh water for export. In her doctoral studies at The Hebrew University, she has focused her research on testing the water lily's ability to purify waste and stagnant water of heavy metals.

Last year, a pilot operation was established at the Haifa municipal waste water treatment plant to test the purification capabilities of the water lily. Results showed a marked reduction of the amount of cadmium in the sludge following exposure to the water lilies. Other experiments with industrial sludge also showed promising results in removing heavy metals such as mercury, nickel and cobalt. Experimental work is still going on by the Hebrew University researchers to improve and optimize the purification techniques.

The Hebrew University was founded by leading statesmen and scholars, including Chaim Weizmann, Sigmund Freud, Martin Buber and Albert Einstein. Its cornerstone was laid in 1918, and the University opened in 1925. The scholarship and research done at the University formed the basis for Israel's science, technology, medical systems, education, agriculture and economy. Today, more than 24,000 full-time students from Israel and over 70 countries around the world attend classes at its four campuses.

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