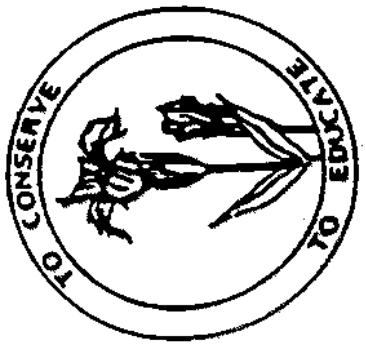
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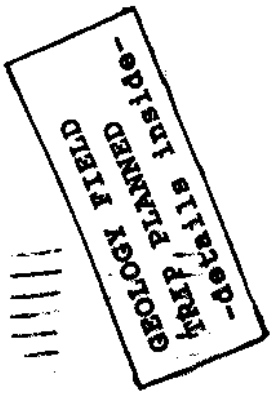
NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO

Founding Chapter of
THE OHIO NATIVE PLANT SOCIETY

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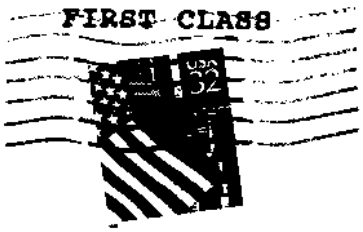
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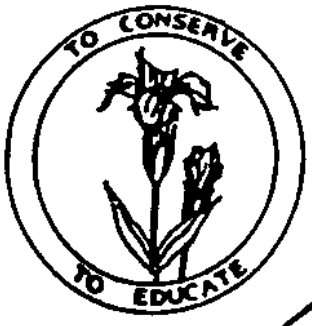


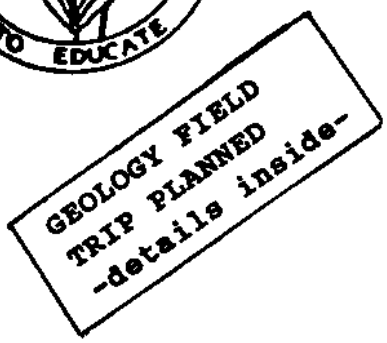


ON THE FRINGE
Quarterly Newsletter of the
NATIVE PLANT SOCIETY
OF NORTHEASTERN OHIO
2651 Kerwick Road
University Heights, Ohio 44118









Thomas A. Sampliner
2651 Kerwick Road
University Heights, OH 44118

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1997 PROGRAM SCHEDULE

by Dr. George J. Wilder
Program Committee Chairman

It is advised that all participants bring a brown-bag lunch on all field trips and to all workshops. All please call the trip leader to let him or her know you will be coming. This is very important in case of any last minute changes which participants may need to know about. A trip leader and their phone number will be listed for each event. Please feel free to invite guests.

SUNDAY, **MARCH 23**, 9:30 AM TO Mid Afternoon - GLACIAL GEOLOGY OF NORTHEASTERN OHIO. **Dr. John Szabo**, Professor of Geology at the University of Akron, will lead this trip. Activities will last for most of the day, and will be a marvelous opportunity to view with expert guidance diverse glacial features of the Glaciated Appalachian Plateau, e.g., moraines, kames, outwash terraces, and beach ridges of previous stages of Lake Erie. Participants will drive eastward to Kent and then drive to Hudson into the Cuyahoga Valley and ultimately into Lorain County. Car-pooling is encouraged. Meet at the Richfield Holiday Inn. DIRECTIONS: To get there take I-77 southward and exit at Miller Road (you can only exit onto Miller Road from the southbound lane of I-77). Go left (east) on Miller Road, after a short drive turn right (south) onto Brecksville Road (Old Route 21); proceed about 1.5 miles on Brecksville Road and you will see the Holiday Inn on the right (west) side. Park there. Depending on the weather participants will meet either outside of, or inside of the Holiday Inn. Don't register for this trip, but if especially noxious weather is forecast for March 23, telephone Tom Sampliner at (216) 371-4454 the day before, in order to ascertain whether or not this event will transpire.

SUNDAY, **APRIL 6**, 10:00 AM - Afternoon - THE FLORA OF FOREST HILL PARK (CLEVELAND HEIGHTS, OHIO) - **George Wilder**, Professor of Biology at Cleveland State University, will lead this trip. Observed primarily (if not entirely) in winter condition will be numerous herbaceous species and woody species. Examples of highlights of the Park evident at this time of year are *Hieracium canadense* (Canada hawkweed) and *Quercus coccinea* (Scarlet oak). Forest

Hill Park is one of the very few locations bordering Cleveland which still contains apparent remnants of original plant communities (and even these remnants are now threatened by Cleveland Heights' recent plans for development within the Park.) Please telephone George to make arrangements for this trip. His work number is (216) 687-2395 and home number is (216) 932-3351.

SATURDAY, **APRIL 19,** 10:00 AM - Afternoon - WILDFLOWERS OF FURNACE RUN METROPARK (AKRON METROPARK DISTRICT). **Tom Sampliner**, President of our Society, will lead this trip. Within the Akron Metroparks, along Furnace Run Creek there exists a lovely wet bottomland rich in wildflowers, including many common species of Spring ephemerals. Likely to be observed are wild ginger (*Asarum canadense*), two-leaved toothwort (*Dentaria diphylla*), cut-leaved toothwort (*Dentaria laciniata*), squirrel-corn (*Dicentra canadensis*), Dutchman's-breeches (*Dicentra cucullaria*), Harbinger-of-Spring (*Erigenia bulbosa*), common blue phlox (*Phlox divaricata*), all of the common species of *Trillium* and about six different species of violets (*Viola*). DIRECTIONS: From the intersection of Route 21 and Route 82, head south on Route 21. Pass under I-77 and immediately turn right on Townsend Road (this entails making an almost 180 degree turn). Follow Townsend Road for about 1 mile to the Furnace Run Metropark parking lot. Park there. Please telephone Tom within one week of the trip. His phone number is (216) 371-4454.

SATURDAY, **MAY 3**, 10:00 AM - ABOUT NOON- SPRING WILDFLOWERS OF SULPHUR SPRINGS AREA AT SOUTH CHAGRIN RESERVATION. **Nate Finck** will lead this

trip. Nate is a part-time Instructor of Biology at Lakeland Community College and he has also served as a Naturalist at the Cleveland Metroparks and at the Geauga Park District. Highlights of this trip will include a variety of wildflowers, e.g., purple bittercress (*Cardamine douglassii*), ill-scented trillium (*Trillium erectum*), large-flowered trillium (*Trillium grandiflorum*), and diverse species of violets (*Viola*) such as yellow violet (*Viola pubescens*), sweet white violet (*Viola blanda*), and long-spurred violet (*Viola rostrata*). DIRECTIONS: Take I-271 south to the Richmond Road (Rt. 175) exit. Take the Richmond Road exit and turn left (south) and travel south on Richmond less than 1 mile to Miles Road. Turn left (east) on Miles Road and travel a little over 4 miles to Chagrin River Road. Pass Chagrin River Road and take the first road on the right (south) which is Sulphur Springs Drive. Follow Sulphur Springs Drive to the Sulphur Springs Parking Area and met Nate there. Be sure to call Nate at (216) 247-6949 to let him know you plan to attend.

AN ABBREVIATED NATURAL HISTORY OF KENT AND TRIANGLE LAKE BOG STATE NATURE PRESERVES

by Tom Sampliner

Two million years ago, Northeastern Ohio sustained the first of four major glacial inundations. It was only within the last 10-12 thousand years that the glaciers left Ohio for the forseeable future. These glaciers came in

waves; but not at a constant or rhythmic rate such as the waves upon a seashore. Instead, they came in spurts and did not all penetrate to the same latitude. In between periods advancement, there were warmer periods of climate. In chronologic order, Ohio's four glaciations were named: Nebraskan, Kansan, Illinoian and lastly the Wisconsin.

This period of time is commonly called the ice age. In scientific circles it has been dubbed the Pleistocene Epoch. These glaciers were often one mile thick and came to cover as much as 2/3 of state. The unglaciated 1/3 of Ohio is at the extreme southeastern portion of the state and is nicknamed the Hill Country.

It is fascinating to contemplate the panorama that must have been looking north toward the advancing front of a glacier. The huge wall of ice stretching so high would be awsome. In the foreground, imagine the animal life of that bygone era. Grazing before the ice upon vegetation would have been mastodon, mammoth, musk ox, and giant beaver, while predatory saber-tooth tigers, wolves watch.. No doubt, hiding in the vegetation and the shadows would be the earliest state residents of our species; hunters and gatherers hoping to snare a steak dinner.

We know glaciers are a dynamic force that drastically alter the landscape as the ice grinds and scours and pushes across the landscape. We must stop to think, however, when it comes to the dramatic alteration of the river systems that drained our state. Prior to glaciation, Ohio was drained by a mighty river system called the Teays. It originated in the Appalachian highlands of North Carolina and Virginia. From there it flowed north and west through West Virginia entering Ohio somewhere

around the Portsmouth area and continued north turning west before Columbus. From Ohio the river headed west into Indiana then Illinois before joining up with the ancestral Mississippi. Other major river systems also flowed north at this time such as the Dover, which was precurssor to the Tuscarawas. Upon blockage by ice dams, these rivers had to change course. It was during such times that the Ohio River formed as an alternative to the ancient Teays.

Along the edges of glaciers, geologic reminders of our past were created. Features still evident in Ohio such as kames, eskers, fens, bogs, moraines and glacial grooves come into being. At both Triangle and Kent we are concerned with the classic kettle-hole bog. A bog is created when a chunk of glacier breaks off and remains in place to slowly melt over time upon ground so high in clay content as to be impervious to disapation of the meltwater by runoff. Think of it as a natural swimming pool with the liner being this sedimentary origin layer of clay that holds water in the depression formerly occupied by the chunk of ice.

Around the deep, cold water, concentric layers of vegetation develop. Sphagnum mosses are one of the pioneer plants that form mats and hummocks that surround the open water. Eventually, this will completely fill in the open water leaving only a wet meadow. Subsequently shrub zone arises and then eventually climax conditions. For now, we can enjoy the bog. Viewed from the air, it appears to be a giant green bulls eye with the open water the eye and concentric vegetation rings lesser point scores out to the tree line. Kent Bog is notable for having ten different species

of sphagnum moss.

These mats play host and nursery to other plants than can tolerate the harsh conditions of a bog. Speciality plants that can tolerate the cold, oxygen and nutrient poor acidic water out compete all others. Among these rugged specialists are the carnivorous plants. Their elaborate schemes to supplement meagre fare of the hostile environment almost seem like purposeful intelligence. At Triangle observe the northern pitcher plant (*Sarracenea purpurea*) entice insects into an odoriferous vase guarded by downward pointing sword-like hairs. Upon reaching a slippery point of no return the insect falls into the vase full of liquid wherein digestive enzymes will recycle the protein into pitcher plant. Or, observe the giant bladder wort (*Utricularia vulgaris*) featuring under the water clear tubes that use a vacuum to capture small aquatic creatures for supper. Perhaps you would prefer the more direct approach of the round-leaf sundew (*Drosera rotundifolia*) which has each leaf pad surrounded by stalked tentacles that have a sticky clear globe at the end. Insects alighting on the pad will brush tiny trigger hairs that signal the tentacles to close around the bug in a final love embrace as digestive enzymes emerge onto the trapped insect.

Quite different plant specialists that thrive on the highly acid bog mats are the cranberries. At Triangle see the large cranberry (*Vaccinium macrocarpon*) which forms lush dense clusters on the sphagnum hammocks. At Kent, the rarer small cranberry (*Vaccinium oxycoccos*) can be seen. This is one of it's three currently known Ohio sites. If you have never tried wild cranberry, don't be eager to try. The sharp sour taste is a long way from

what is on the Thanksgiving table.

Sphagnum mosses soak up prodigious quantities of water. Only one site in Ohio contains these fascinating plants as a floating mat; that would be Cranberry Bog located on Buckeye Lake which is operated as a state nature preserve by the ODNR. All other Ohio bogs are farther along on their current mission to become a trampoline like wetland so much more common up north. Currently, our bogs contain several shrubby species of plants such as swamp loosestrife (*Decodon verticillata*) that act as builders out into the water. Adventitious branches bend out over the water and upon contact will swell up at that point enabling a new plantlet to form. Not quite so aggressive a builder, leatherleaf (*Chamaedaphne calyculata*) does rapidly assert itself onto the hummocks. In spring their terminal branching lines of bell-shaped, white flowers in a one-sided raceme are quite striking. Look underneath the small dull green elliptical leaves for rusty dots. Too bad some of the other heath family members like Bog Rosemary and Labrador Tea couldn't hang on here in our local bogs, though they probably were closer to the last glaciations.

A nice selection of local fern are present at the two bogs. Both are well endowed with Virginia chain fern (*Woodwardia virginica*), Cinnamon fern (*Osmunda cinnamomea*), and marsh fern (*Thelypteris palustris*). The first species bears spores in a chain link fence pattern on the bottom of fertile pinna. The second grows in distinct vase-like groupings and is noteworthy for having separate fertile fronds all tawny in color. Since several local ferns have a similar appearance bipinnate -pinnatafid, it is good to know that even

absent the fertile frond just look at the point where each pinna branches off the main rachis for a tell-tale trait of a cluster of tawny hairs. The last named species lacks the taper at both ends of each frond that it's look alike cousin, the New York fern (*Thelypteris noveboracensis*) will exhibit. Only at the perimeters of the bog just before the land begins to rise to where the woodland starts, do I notice the common wetland species, sensitive fern (*Onoclea sensibilis*). This is another dimorphic species featuring separately stalked fertile fronds that look like fronds of nothing but tiny black spheres.

Mother nature has not forgotten about food for the birds and critters that frequent these bogs. Both contain highbush cranberry (*Vaccinium corymbosum*), huckleberries (*Gaylussacia baccata*), Catberry (*Nemopanthus mucronata*) and winterberry (*Ilex verticillata*). In the fall the blueberry leaves turn a glossy fire engine red. The huckleberry are similar both in fruit and leaf color; however, we are provided once dependable distinguishing feature called glands, which do secrete substances just as the human counterpart does. These clear dots found on huckleberry leaves are aptly referred to by Clara Weishaupt when separating blueberry and other vacciniums from *Gaylussacia* as blade-resin dotted versus not. Catberry can be spotted by the bright red fruits while the winterberry are more orange to yellow. Leaves of the former will be the smaller and less broad. All named shrubs are liberally spread throughout both bogs.

Some very handsome members of the sedge family show off in these bogs. As one might expect, given the rareness of the habitat in our area, so too are the species mentioned.

However, prior to any descriptions of species, we had best set forth at least a basic terminology, lest our readers need to learn to juggle a glossary in one hand with article in the other.

The basic flowering unit is a spikelet, which we can consider to be an axis to which the florets are attached. The stalk providing the elevation off the ground is called the culm. Rest assured that to the untrained eye such as mine, grasses, sedges and rushes appear to be all members of a closely related single grouping, only close up careful inspection discerns some differences.

One helpful set of distinguishing traits would be that the sedges are distinctly three angled culms while grasses are round. Furthermore, sedges are leaved in three ranks to grasses two. Then we can say that sedges are generally solid culmed while not so for grasses.

Leaves of grasses and sedges consist of the blade or flattened portion away from the culm as well as the lower leaf which encircles the culm and is called a sheath. In sedges the sheath will completely encircle the culm is therefore called closed, while in grasses the sheath tends to be open. The upper innermost surface of the sheath can contain a thin layer of tissue extending upward of the sheath. This is a ligule.

Each spike consists of several florets. When empty bracts underlie a spikelet, these are called glumes and numbered consecutively from the bottom. Next upward are more scales that differ in function. Each scale open end facing the rachis is a lemma while the scale back to the rachis or rachilla and subtended by a lemma is a palea. It is from between these

two that extremely simplified florets spring forth. Flowers can be either male or female. They can be found in the same spikelet or in different ones, this feature often being helpful in working the keys. Staminate flowers are generally 3 stamen subtended by a scale while pistillate are single pistils having either a 2 or 3 cleft style protruding and often persisting after fruit develops. Cleft count and style shape and persistence are diagnostic in the keys. The fruit is an achene. Floret parts and fruit are enclosed in a sac called the perigynium. Achenes are very important for the keys. Nerve pattern and shape should be determined.

According to Weishaupt in E. Lucy Braun's "Monocotyledoneae" there are 4,000 species worldwide separated into 75 genera. Sedges do not have the commercial importance of some of the cereal grasses such as wheat, barley, rice, etc. However, one middle eastern native should be familiar; that would be the papyrus (*Cyperus papyrus)* from ancient Egypt from which the ancients developed paper. The species can still be sound in aquatic gardens as an ornamental.

Now equipped with a vocabulary, we can return to the bogs. Kent hosts a state endangered species, the few flowered sedge (*Carex oligosperma*). The experts write this species is associated with acid swamps and peat bogs. The culms, cauline blades and bracts are so wiry as to be called filiform. They are also involute, which is merely a fancy term for edges rolled inward. Within this species sub-genetic grouping, called Vericariae, there are additional traits that set this sedge apart. However, before further such

description, it may be worth commenting that this grouping all grow in such northern wet habitats as: swampy woods, wet meadows, and bog. In over all appearance you can rely upon no group member exceeding 1 meter in height.

Resuming the distinguishing traits of *oligosperma*, look for 1 to nor more than 3 pistillate spikelets each being extremely globose shaped of few flowers per spike. A single staminate spike will be bourne upon a peduncle. This past December, a trip to the site allowed my small group to enjoy this sedge at one of it's most handsome stages. The long white feathery bristles obscure the remnant scales. To my eye, the spikelet at this point resembles an old fashioned shaving brush with the still green culm being the handle. The next species resembles *oligosperma* at this time of year, but should be easily distinguished because *oligosperma* will be the more erect stronger culm while the next species bends closer to the sphagnum mats.

Appropriately, we now turn to a member of another sedge grouping, the three-seeded sedge (*Carex trisperma*). This species is grouped in the Helonastes, which E. Lucy Braun in her "Monocotyledoneae" tells us is yet another group of cold climate sedges which inhabit wet mossy woods, swamps and sphagnum bogs. The distribution map for *C. trisperma* is interesting as the counties are all in the northeast quadrant of the state with one lonely exception in the extreme northwest.

Three-seeded sedge is another filiform species, but as earlier mentioned, far weaker culmed than *oligospema*. I will not get into differentiating among species within the grouping because we would need to examine the

lowest bract length as compared to that of the entire spikelet, the number and location of the staminate flowers, and finally features of the perigynium.

However, to distinguish the species from other groupings as well as other species that have overall similar appearances, turn to Gray's "Manual of Botany", as rewritten and expanded by Merritt Lyndon Fernald, wherein he observes that the terminal 1 or 2 spikes diverge at a peduncle like summit with the lowest spike subtended by a bract many times the spikelet's length. This should be a highly visible trait and very user friendly in the field. This past December, at both sites, we observed the remnant spikelets looked very much like the *oligosperma;* perhaps a bit more feathery and certainly a more lax growth pattern due to the weaker culms, as earlier stated.

Though the habitat is restricted here in Ohio and the counties were distributed are few, the species does not even qualify for listing upon the state heritage list.

Eriophorum is a northern sedge genus commonly referred to as the cotton grasses; though a grass it is not. Fernald lists 10 separate species and some varieties of which Ohio has but three, according to Braun and Weishaupt in "Monocots." Once again the habitat is bogs. It was interesting to read that those Ohio does not have are more northern species found in such habitats as: peat lands, inundated shore as well as the expected fens and bogs.

The overall appearance from which the common name was derived is due to soft silky bristles that achieve such length as to greatly

exceed the height of the flower scales. The florets are so densely packed in spikelets that the long bristles present a ball of cotton impression.

Ohio's three species, all heritage listed, have leafy involucral bracts. Two species have more than one of these leafy bracts. If the florets are single stamened and the scales 3 to 5 nerved, you have separated out the subject species, tawny cotton grass (*Eriophorum virginicum*). The state listing is potentially threatened. In the "Monocots." book we are cautioned that the appearance greatly differs at flowering time from seed; those greenish to straw colored scales are obscured in fall-just as in the other species already discussed.

* * * * *

NATIVE GARDENS FOR THE PRAIRIE STATES

Sally and Andy Wasowski

Garden writers Sally and Andy Wasowski (*Requiem for a Lawnmower, Native Gardens for Dry Climates,* etc.) are working on a new book tentatively titled ***Native Gardens for the Prairie States*** (University of Minnesota Press). They'll be traveling throughout the Midwest and into Canada this spring and summer and are on the lookout for photogenic landscapes. They may be residential or commercial and should be composed of at least 50% indigenous plant materials. A brief description and, if possible, a few non-returnable photos would be appreciated. Contact the Wasowskis at: P.O. Box 607, Arroyo Seco, New Mexico 87514 or call them at (505) 776-1499.

* * * * *

A REVIEW
"Wild Ohio"
by Art Weber
Northword Press, 1995
by Tom Sampliner

Any attempt to popularize as well as summarize as large and complex a body of knowledge such as Ohio's natural history faces an almost insurmountable task. With this caveat in mind, it is with congratulations that I welcome Art Weber's "Wild Ohio", published by Northword Press in 1995 and recently available through libraries. This is not for the professionals. It is a thoroughly enjoyable and excellent summary for the interested layperson.

This 128 page work was penned by a man who for 20 years was public information manager of Toledo's Metroparks. His skills as a freelance nature writer and photographer will be be quite evident. As a modest local competitor, I must applaud his highly readable style and excellent quality images that are liberally sprinkled throughout the work.

His acknowledgements for credits and resource persons reads like a Who's Who among Ohio naturalists. He approaches the subject via chapters divided among the different ecosystems. Though each is very brief and basic, it is surprising how much information can be conveyed. The reader should come away with a feel for each area. The layperson will appreciate not having to have a technical background or ever prior acquaintance with any ecosystem. The observations made and literary style are accurate, educational, yet pleasantly dispensed. Any reader will have a better

understanding and appreciation for our natural heritage have read the book and enjoyed the beautiful photographs.

* * * * *

A REVIEW
"Seed Germination Theory and Practice"
by Norman C. Deno
self-published, 2nd Edition, 1993
by Brian D. Gilbert

Any review of the literature on how to germinate the seeds of wild plants will produce a large array of conflicting information. Norman C. Deno, Professor Emeritus of Chemistry at Penn State University, appears with his self-published book, "Seed Germination Theory and Practice" to have brought much of this confusion to an end. In less than 250 pages he presents anyone interested in native plant preservation with simple, straight forward and inexpensive ways to germinate many native plants from seed. The Second Edition of his book lists germination protocols for about 2,500 species of plants. He has also self-published a First Supplement to the Second Edition which adds information on an additional 1,100 species and updates earlier work on 282 species. He plans to publish additional supplements about every two years.

His basic premise is that "every species has some mechanism for delaying germination until after the seed has been dispersed. The challenge in germinating seeds is to overcome these delay mechanism(s)..." He prefers to call the processes of overcoming the delay mechanisms "conditioning." Almost all the book and its first supplement is identifying the requirements of proper "conditioning."

Anyone seriously interested in propagating native plants from seed will find his work indispensable. I hope to use his work myself to turn a failed attempt to germinate trillium seeds into success.

Among the issues which effect conditioning which he deals with are: temperature, drying, light, gibberellic acid and, perhaps most important, multiple and the interrelationship of conditions. He has discovered that "most species have at least two delay mechanisms, one being in the nature of a chemical time clock."

My one and only criticism of the book is that because it is self-published it may not reaching the hands of interested native plant growers as quickly as it should. If not for fellow Society member Diane Lucas, I might never have found this book and my efforts at propagating trillium would have ended in failure. His work has breathed new life into my experiments and renewed my hope of success.

If you are interested in learning of Dr. Deno's recommendations for germinating your favorite plant from seed his book can be found at the Holden Arboretum Library or you can call me at (216) 486-8765. But if you have an interest in propagating many native plants from seed, I strongly urge you to purchase his books. They can be ordered directly from Norman C. Deno, 139 Lenor Drive, State College, PA 16801. The Second Edition costs $20 and the First Supplement costs $15. Prices include prepaid postage.

I will conclude with what could be called the slogan from his books because it concisely summarizes Dr. Deno's philosophy..."Propagation is conservation."

* * * * *

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