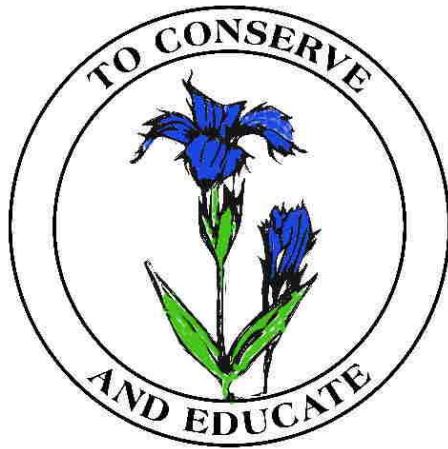


On The Fringe

NATIVE PLANT SOCIETY OF NORTHEASTERN OHIO



Founding Chapter of
**THE OHIO NATIVE
PLANT SOCIETY**

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1996 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. Also 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, JUNE 9f 9:30 AM - BOG WALK AT TRIANGLE LAKE BOG STATE NATURE PRESERVE. Judy Barnhart will lead this trip. Highlights of this .trip should include Pitcher Plant (*Sarracenia purpurea*), Three-way Sedge (*Dulichium arundinaceum*), Large Cranberry (*Vaccinium macrocarpon*), Buttonbush (*Cephalanthus occidentalis*), and Larch (*Larix laricina*). To get to Triangle Lake Bog, take 1-480 east to Route 14 in Portage County. Take Route 14 east to Lake Rockwell Road where you turn right. At Redbrush Road turn left and follow Redbrush to Route 59 where you turn right. Turn left onto Lakewood. Turn left onto Sandy Lake Road. Now look for the unmarked and unnamed dirt road on your right shortly after crossing a creek. Turn onto this road and park a the entrance sign to the preserve. Please telephone Judy at (216) 564-9151 before the trip to notify her that you will attend.

SUNDAY, JULY 28, 2:00 PM - THE FLORA OF INDIAN POINT (LAKE COUNTY). Tom Sampliner will lead this trip. Some of the plants featured on the trip may include big false hellebore (*Veratrum viride*), Canada lilies (*Lilium canadense*), hollow Joe-Pye-weed (*Eupatorium fistulosum*) and one of the finest stands of wild sarsaparilla (*Aralia nudicaulis*). To get to Indian Point, proceed east on 1-90 and exit at Vrooman Road. Turn north on Vrooman for about 1.5 to 2 miles. Indian Point is on the right hand side of the road. Please telephone Tom at 371-4454 before the trip to let him know you will attend.

SATURDAY, AUGUST 17. 9:00 AM - LATE SUMMER IN THE HOLDEN ARBORETUM. Tom Yates, supervisor of Lantern Court at the Holden Arboretum, will lead this trip. A taxonomically broad sample of available species will be observed, e.g., species of trees, herbaceous flowering plants and ferns. Take 1-90 east from Cleveland. Get off at Rt. 306 (Exit 193) and proceed south on Rt. 306 between 1 and 2 miles to the bottom of a long hill. Turn left onto Kirtland-Chardon Road; cross Booth Road and continue, approximately, 1 mile further on Kirtland-Chardon Road; turn left (north) into the driveway of Lantern Court, 9203 Kirtland-Chardon Road, Kirtland, Lake County,

Ohio. Park to the left of the mansion at the end of the driveway. Please telephone Tom at (216) 256-3463 before the workshop, to tell him you will be coming.

SATURDAY, OCTOBER 5. 9:00 AM - THE OAKS AND HICKORIES OF CUYAHOGA COUNTY. George Wilder, Professor of Biology at Cleveland State University (CSU), will lead the day's activities. There will first be a demonstration of herbarium specimens of native oaks and hickories, in the CSU botany teaching laboratory. Participants will then travel by automobile to various locations to observe up to ten species of oaks (plus one hybrid) and five species of hickories. Activities may continue until late afternoon. Participants should meet in Room 226 of the Science Building (at the northeast corner of East 24th Street and Euclid Avenue) of CSU. Please call George Wilder at 687-2395 (days) or 932-3351 (evenings), to tell him you will be coming.

SATURDAY, NOVEMBER 2, 9:30 AM - LAST-FLING WILDFLOWER WALK. George Wilder will lead this trip in, or near downtown Cleveland. Encountered will be species of Compositae (Sunflower Family), Gramineae (Grass Family), Chenopodiaceae (Goosefoot Family), and of numerous other families. Participants should meet in Room 226 of the Science Building (situated at the northeast corner of Euclid Avenue and East 24th Street) of CSU. Please telephone George Wilder at 687-2395 (days) or 932-3351 (evenings) before this trip to let him know you will be coming.

SATURDAY, NOVEMBER 9. ANNUAL MEETING AND DINNER. CLEVELAND BOTANICAL GARDEN, 11030 EAST BLVD. CLEVELAND, OHIO. We are extremely pleased to announce that Dr. Jane Forsythe, Professor Emeritus of Geology at Bowling Green State University, will be our speaker for the evening. She has long been interested in the relationship between Ohio's bedrock and flora and she will speak to us about this relationship. Her presentation is entitled "GEOLOGY'S CONTRIBUTION TO PLANT DIVERSITY IN OHIO." The evening will begin with a social hour starting at 5:30 PM. A buffet dinner will begin being served at 6:30 PM and Dr. Forsythe will begin her presentation at 8:00 PM. Members are encouraged to bring guests. The Cleveland Botanical Garden is located along Cleveland Oval, across from the Cleveland Museum of Natural History. Additional details on cost and reservations will be included in the next newsletter.

BOTTLE GENTIANS
by Dr. James S. Pringle
Part II of II

One naturalist told his readers that one could tell whether or not bottle gentian flowers had been visited by bees, because as the bee left a flower, it pushed the fringed portions of the corolla summit out where they could be seen; until the flowers had been pollinated, he said these fringes were concealed. Actually, this naturalist must have observed two species of bottle gentian. The minutely fringed corolla summit is

characteristic of *G. andrewsii*, even in the early stages of development before the flowers become attractive to bees; a smooth, rounded corolla summit without exposed fringes distinguishes *G. clausa* from its better-known relative. *Gentiana andrewsii*, which is sometimes distinguished as the prairie closed gentian or finger-tip closed gentian, is found in the interior or North America, whereas *G. clausa*, the meadow closed gentian, is restricted to the eastern part of the continent.

Gentiana andrewsii is frequently reported outside its actual range, because the bizarre flowers readily attract the attention of beginners, who learn "closed or bottle gentian, *Gentiana andrewsii*" almost as soon as they learn that plants have scientific names. There are, however, other gentians with equally tightly and permanently closed corollas. In addition to *G. clausa*, there is *G. austromontana*, the Roan Mountain or Blue Ridge gentian, a companion of the Catawba rhododendron in the high-altitude "balds" of the southern Appalachians — a species of conservation concern because of its limited range and the vulnerability of its habitat. Several other species have corollas nearly as completely closed, including *G. saponaria*, the soapwort gentian, which is widespread in the southeastern United States, in swamps and wet or dry woodland openings; *G. villosa*, the striped gentian, a less common species in the southeastern United States, usually in dry woods; *G. linearis* is, the narrowleaved or bog gentian, in bogs in eastern Canada and the northeastern United States; *G. rubricaulis*, the red-stemmed or Great Lakes gentian, in fens and similar calcareous wetlands from the Great Lakes region north to James Bay; and *G. alba*, the yellowish or pale gentian, in the tall grass prairies. Those familiar with the principle of priority in botanical nomenclature may find it interesting that, although *G. andrewsii* is the name that is widely misapplied, all of these species except *G. austromontana* were given their scientific names before *G. andrewsii*.

Typically, the corollas of *G. andrewsii* are deep blue, with white tips on the fringes at the summit. In Ontario, plants with white corollas, called *forma albiflora*, are most frequently encountered. Usually only one of these colour-forms occurs at any one locality. The much rarer *forma rhodantha* has pinkish-violet corollas. Similar variation occurs in the soapwort and bog gentians, and in several of the other species that usually have blue corollas. As some of the names indicate, however, not all gentian species normally have blue corollas. The corollas of *G. villosa* are pale green, often with some purplish suffusion on the lobes, and those of *G. alba* are white or faintly yellowish. *Gentiana mirandae*, a Mexican species, has tubular scarlet corollas, open at the summit, that doubtless attract hummingbirds.

The North American species of *Gentiana* are remarkable in the extent to which diversity in floral form has evolved unaccompanied by the development of genetic barriers to interspecific hybridization. Nevertheless, although the species with closed or nearly closed corollas are interfertile, hybridization among them is uncommon, because each species is restricted to a different habitat or geographic region. For example, in the Lake Superior region, *G. linearis* is associated with acid bogs and the strongly acid soils of the Canadian Shield, whereas the closely related *G. rubricaulis* grows in calcareous fens and soils formed from limestone and basic intrusive rocks. Likewise, where the ranges of *G. andrewsii* and *G. clausa* overlap in northeast Ohio, *G. andrewsii* grows where the soils are nearly neutral and high in calcium, derived from the limestones of the Interior Low Plateaus, and *G. clausa* grows where the soils are acid and low in calcium, derived from the granites and similar rocks of the Appalachians. Conversely, the hybrids

between *G. andrewsii*, with tightly closed corollas, and *G. puberulenta*, the downy gentian, which has the wide-open corollas, are relatively frequent, because both species grow in the tall grass prairies and savannas.

There are 27 species of *Gentiana* native to North America north of Mexico, plus two others that have rarely escaped from cultivation. In contrast to the closed gentians, several species have corollas that open widely on sunny days, more of those species occurring in western North America than in the East. Most species, including the bottle gentians, are fairly tall, perennial plants with showy flowers, but two alpine species in western North America are biennials, often less than 6 cm tall and rarely over 15 cm, with flowers less than 1.5 cm long. The corollas of these biennial species close when touched and when the stem is jarred, as well as at night and in cloudy weather.

These 27 species do not include the several much admired and wide-spread species of fringed gentians, nor the stiff gentian that is a showy part of the autumn roadside flora in the Great Smoky Mountains of North Carolina. In the genus *Gentiana*, usually circumscribed in modern manuals, the five corolla lobes alternate with appendages that look like a second set of lobes of a different shape. In *G. andrewsii* these appendages extend above the true corolla lobes and form the fringes at the summit, whereas in *G. clausa* they're about the same length as, and tucked under, the corolla lobes. Also, as noted above, the nectar glands are borne on the basal part of the pistil. The fringed gentians and stiff gentians have simply four-lobed corollas, without such appendages between the lobes, and the nectar glands are in little pockets on the inner corolla surface. These gentians therefore appear to be more closely related to *Halenia*, the spurred gentians, and *Swertia*, which includes the American columbo, monument plant, and green gentians, than they are to *Gentiana* in the strict sense. Recent biochemical studies have supported this interpretation. To reflect this concept of their relationships, the fringed gentians have been transferred to *Gentianopsis* and the stiff gentian and its nearest relatives to *Gentianella*.

As noted above, some species of *Gentiana* are rare, and all are probably declining in frequency near urban areas. Even in their natural habitats, gentians are sometimes stressed by summer droughts, and the greenhouse effect may have accelerated their decline in recent years. These factors should, of course, be considered if one plans to cultivate any of these species. Unfortunately for those who might attempt to rescue gentians from construction sites or to propagate them from seed, the genus presents difficulties, like North American orchids, and quite possibly for similar reasons. The roots of many species appear to lack root hairs, and mycorrhizae are believed to have a major role in their ecology. Although seedlings germinate readily following stratification, I was never able to maintain seedlings much beyond the cotyledon stage. The editor has informed me, moreover, that he knows of no one who has been able to keep mature plants of *G. andrewsii* alive for more than three years in cultivation in mesic sites — that these plants appear to require constant seepage of moisture. On the other hand, where I grew up in New Hampshire, we had *G. clausa* in a partially shaded site in the garden for decades, and they produced attractive clusters of flowers each year, although the plants were watered during the hot, dry spells of summer.

Common names follow the manuscript for the Flora of North America North of Mexico, which in turn follows existing standard floras plus the most highly regarded field guides. This paper is based largely on my own observations, including the studies on

which my doctoral dissertation was based, adapted for publication in *Brittonia* as cited below as well as later studies by myself, some represented by publications, others being unpublished observations and experiments. A few publications by other authors were also useful, notably the one by Costelloe, and also those of Robertson and Windus & Snow. It would generally not be feasible to associate specific passages in the text with individual references.

References

- Costelloe, B. H. 1988. Pollination ecology of *Gentiana andrewsii* *Ohio J. Sci.* 88: 132-138.
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- Robertson, C. 1895. Flowers and insects, XIV. *Bot. Gaz.* 20:139-149.
- Windus, J. L. & A. A. Snow. 1993. Fruit set and seed predation in an Ohio population of *Gentiana saponaria*. *Amer. Midl. Nat.* 129:346-351.

Dr. James S. Pringle is a plant taxonomist at the Royal Botanical Gardens in Hamilton, Ontario.

A REVIEW
Orchids of Indiana
by Michael A. Homoya,
Indiana Academy of Science, 1993
by Tom Sampliner

Michael is a botanist by profession employed by the Indiana Dept. of Natural Resources since 1982. His degrees of B.A. and M.S. in Botany are from the Southern Illinois University. His life long love affair with plants is obvious throughout this enchanting essay depicting the orchids of Indiana. Over 100 color plates of superb quality will attract orchid hobbyist and nature photographer alike. The line drawings are so good that they show what words have difficulty conveying.

A set of appendix include: a checklist and pronunciation guide, a list of scientific and common names for plants cited in the text, and an all important glossary for us layfolk, the reference literature, and an index.

Each species is named with historical references noted. Name derivation is explained, a thorough description of traits, bloom period, range and habitat are also given. Both the U.S. and Indiana range maps are provided along with the interest catching color plates.

What really sets this work apart from the usual book on orchids, is a lengthy introduction which acquaints even the novice with orchids and their features and habitats. Homoya excels at this type of communication. First is a history of Indiana orchidology. Next is a section on morphology and reproduction so clear any lay person may follow.

Homoya has this rare gift of being able to communicate scientific principles using technical language in a fashion we can all understand. I am sure you too have seen authors struggle with such communication. Orchid reproduction includes a set of line drawings depicting orchid capsules: this is unique and priceless in literature available for the layman.

Another section on pollination followed with phenology will clear up many ambiguities for you as it did for me.

Sections on ecology and distribution are provided. Then comes seedling development and mycorrhizae. He discusses environmental effect on populations including the impact of disturbance.

The next section is Indiana habitats. This is outstanding and a must read for those serious about understanding state populations and their distribution. Habitat categories are set forth and defined and employed into a color coded state map. A thorough discussion on each follows: some even illustrated. A clever quick reference line drawing shows likely habitat distribution for orchids in north and southern halves of the state.

In short, Homoya has made an outstanding contribution to the literature for both layperson and I dare even say the professional. Perhaps Homoya will share his communication skills by electing to teach sometime in the future.

MESSIN' WITH MINTS

by Tom Sampliner

Part I of II

It's that time of year again. Do I use a pre-emergent granular chemical, hand weed, or just leave alone and enjoy the wide assortment of local mints that call our northeastern Ohio lawns and gardens home? I can see going in any direction. A natural beauty, an ability to attract interesting and valuable pollinators pushes me in the leave 'em alone approach. An aggressive weedy tendency of many species pushes me in the direction of gettin' 'em while the gettin' is good approach. Perhaps I should just sit back and mince mints rather than words when it comes to these fragrant common members of our local flora. So what are mints anyway?

Mints constitute a family called the Labiatae. Fernald in his 8th edition of *Gray's Manual of Botany* (1950) describes the basic family traits as being

"Chiefly herbs, ordinarily with square stems, opposite aromatic leaves, more or less 2-lipped corolla, didynamous (in 2 pairs of unequal length) stamens or only two, and a deeply 4-lobed ovary, which forms in fruit 4 little seed-like ; nutlets or achenes surrounding the base of the single style in the bottom of a persistent calyx, each filled with a single erect seed."

Fernald further comments that the foliage is mostly dotted with small glands containing volatile oil giving rise to both warmth and aroma.

For our area, it is helpful to next look at Tom S. Cooperrider's, *The Dicotyledoneae of Ohio, Part 2: Linaceae through Campanulaceae* (1995). Tom provides

us some historical perspective of the family as well as botanical description, key and nomenclature. During introduction he observes Ohio mints can be either annual or perennials, leaves opposite, flowers perfect, often in clusters. We learn there are some 3200 species worldwide. References relied upon by earlier writers in the area for both native and alien species are given.

Besides some unusual findings, mention is made of those mints intentionally cultivated for flavoring, seasonings, and fragrances: English lavender (*Lavandula angustifolia*); common basil (*Ocimum basilicum*); and Rosemary (*Rosmarinus officinalis*). Also frequently encountered is a European invitee, basil thyme (*Satureja acinos*).

PART ONE: THE BAD GUYS

With this brief introduction, I turn to my yard for a sample, not necessarily representative, of what is growing mint-wise around here. Among the early risers in lawn and garden is catnip (*Nepeta cataria*), a Eurasian genus of some 200 species. This mint has been widely cultivated; perhaps overly so, and has fashioned a niche for itself in disturbed habitat all over Ohio. It is perennial putting forth an erect densely pubescent stem opposing long petioled ovate leaves, coarsely toothed and truncate at the base. A zygomorphic tubular calyx (outermost flower parts) shows off a bilabiate corolla (innermost flower parts) of white with pink to purple dots. The uppermost lip is two parted while the lowermost is three. Despite the reputation, my three cats are unimpressed and desire it not. I certainly wish the feeling was mutual causing the catnip to depart the premises. Fortunately, when you dig it out, it usually stays out-er for a while.

A companion bloomer but bigger pest is ground ivy (*Glechoma hederacea*). Axillary flowers easily distinguish this Eurasian genus of some 5 species from the preceding. This ubiquitous alien forms creeping mats from which flowering stems arise. The reniform (kidney shaped) leaves are slightly pedicillate. Actinomorphic flowers are blue, tubular, bilabiate in the axils. This guy is a real pain to eradicate. However, that mat forming tendency gives me an idea — a cat's footwipe or doormat. In wet spring weather that would be welcome.

Continuing our journey higher up the scale of pests, we find self heal or heal-all (*Prunella vulgaris*). Unless you want to spend a fortune on chemicals and spray each individual several times, just give up on eradicating this northern hemisphere native and local example of some 6 or 7 species. If your neighbor had dandelions, he probably has this one too and so will you. After naming these two, the only greater pests that come to mind are city work crews and free roaming dogs. This perennial ascends up to 6 dm. Leaves have petioles and are opposite with blades being lanceolate to elliptic. Flowers are in dense head-like spikes. Each floret is bilabiate, blue, purple or white. A readily distinguishing feature are the large reniform (kidney shaped) bracts subtending the florets. As in the old west, when you see this guy, grab a spray and shoot first, asking questions later.

A frequent garden invader are dead nettles, especially the purple (*Lamium purpureum*). This European genus has 40 species with three in our local flora; all pests. Purple visits my place without invitation. Sessile flowers cluster in the axils of the crowded upper leaves or bracts. The bilabiate corolla has the expected four stamen. Florets are straight tubes with color range from red to purple. Leaves in this species lack

a white blotch along the midrib while those in the large flowered (*Lamium maculatum*) have the blotch. The third local species, henbit, (*Lamium amplexicaule*) has sessile reniform leaves. I am pleased to say that with all three, if you dig them out getting roots rather well, you can keep this pest at bay. A crowded garden of intended planting is another good control.

PART TWO: THE GOOD GUYS

Amidst our rich heritage of native mints are some highly desirable species for your garden as well as natural or even disturbed areas on your property. As with all natives as opposed to cultivars, you have greater resistance to disease, attract by insects or fungus and greater tolerance for the extremes in local weather. Some species are wanted for attractive flowers. Others for their pleasant odor. Some make useful additions to food flavoring. Others may even find themselves used as food. Herbal and pharmacological uses are many.

Three bugleweeds, *Ajuga*, grace local roadsides and on into yard and garden. These European natives have been and remain frequently sold cultivars. The most commonly encountered naturalized escapee is the carpet bugleweed (*Ajuga reptans*). This perennial spreads upon creeping stolons with obovate sessile leaves showing off the 5 part calyx of blue to purple flowers. Lower lip has three lobes with the central being two cleft. This species is not as aggressive as those in the previous section, but it volunteers frequently enough to be called adventitious. Their tight spikes of deep blue especially in a colony, make an impressive show from spring to summer. They do well in a variety of habitats and light conditions but seem to really thrive in partial shade. Once present, their creeping habit makes a nice fill in of any bare space. Based on size they can be a ground cover.

A flavorful widespread native is germander. This large temperate climate genus has principally one local flora representative; common wood sage (*Teucrium canadense*). Each floret has the expected 5 part calyx, but the corolla has four upper lobes so equal in length and turned forward as if to appear that there is no upper lip. The lower lip is clearly the larger. The terminal raceme of this stoloniferous perennial features flowers ranging from purple, pink into cream. Short petioled serrate leaves taper to the base. These mints are used in salads, beverages and as spices. Their colony growth habit fills in nicely those areas of vacant or between plantings. They are tolerant of disturbances and a variety of sun/shade and soil conditions. While speaking of colonization and space filling, let us look at a little known native with a wonderful lemon citrus odor. The richwood genus, *Collinsonia*, is an eastern North American group of 5 species with one in our local flora; that being horsebalm (*Collinsonia canadensis*). These erect perennials can attain one meter in height with glabrous square stems, leaves are oval, opposite with serrated margins, petioled to the stem. The yellow corolla perfectly matches the lemon odor. Stamens are long and emerge beyond the floret tube kind of azalea in appearance. Blooms last all summer into fall. For shaded areas, as an understory into deep woods why not horsebalm?

Salvia is represented in Ohio's flora. This large genus of some 750 species worldwide was named from the old Latin for sage. Species grown for ornamental as well as for culinary purposes have escaped to become naturalized. One such example is the common European sage (*Salvia officinalis*) used so widely in kitchen and garden.

Flowers appear on spikes or racemes. They are often quite showy having a distinctive gaping aspect for the two lips (called ringent). Species can have leaves in basal rosettes or on the stem (cauline). Keys employ measurement of pedicel length to that of the calyx in helping distinguish among species. Most of Ohio *Salvias* are in southern or western parts of the state.

Now we turn to the group of plants for which the family was named; I refer to the genus *Mentha* for mint. This is an old world grouping which contains some 25 species as well as many additional hybrids. Obviously, a key trait is pleasant fragrance. Keys use the presence of leaf petiole as well as it's length to begin separating the species.

Under the no petiole (sessile) species, spearmint (*Mentha spicata*) can be found. It was brought over from Europe and has always been widely cultivated, now frequently

Part II will appear in the next issue.