



On The Fringe

Journal of the Native Plant Society of Northeastern Ohio

Ohio's Fairest and Rarest Plants - and How to Find Them Part I

By Perry Peskin

Author's note:

As is my custom when writing about rare and endangered Ohio plants, I use pseudonyms for many locations to avoid the triple threat of trampers, collectors, and transplanters – the bane of all plant hunters in nature preserves that lack governmental protection. For this essay I will also use pseudonyms for certain people who gave me important directions.

Since this article follows up in a general way my article on the famous Ohio botanist, Dr. E. Lucy Braun, written a quarter-century ago, I occasionally refer to her well-known book *The Vascular Flora of Ohio Vol. I, Cat-tails to Orchids (Ohio State University Press, 1967)* simply as "Lucy Braun's book."

In Ohio all plant species in danger of extinction are placed in the "Heritage List," issued every two years by the Division of Natural Areas and Preserves. I'm currently using the 2002-2003 list and its classification of rare plant categories: E, T, P, and X.

Plants marked E (for endangered) are confined to one habitat, found in very few counties, and have low populations. T plants (for threatened) are found in more than one habitat, and have a greater range with a few large populations. P (for potentially threatened), are found in a wider range of habitats, are even more

widespread in Ohio, but seem to be losing numbers. X (for extirpated) applies to species undocumented for at least 20 years. If they are rediscovered, they will be returned to the E category.

People occasionally ask me, "You've been photographing and writing about so many rare plants in Ohio; how do you go about finding them?" I usually tell them that it depends on how a person defines **rare**. When I first started hunting for plants in the beech-maple forests of northeastern Ohio near my home, any plant that I hadn't seen before was a rarity.

The first time I ever laid eyes on the cardinal-flower (*Lobelia cardinalis*) in a grassy opening near a small creek in the woods, I thought it was the rarest and most beautiful species I had ever seen in the wild. I wondered why I had never seen it before until, much later, I realized that it was a wetland plant, growing abundantly in mucky, buggy places that I usually avoided, and that it flowered abundantly in late summer, a hot humid season to be out in, especially in northern Ohio. That was when I found out that rarity depends on **habitat, population density** within a large area, and **growth habits**, especially flowering time, when even an amateur botanist can identify a species.

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Welcome

We wish to welcome our newest institutional subscriber, the British Museum of Natural History in London. One of our issues was spotted by a visiting British scientist who took it back to the Museum and requested that the library carry our publication. Other natural history museums in this country who subscribe are the Lloyd Library in Cincinnati, the Hunt Botanical Library in Pittsburgh, the Missouri Botanical Garden, the New York Botanical Garden, and others.

Annual Dinner

Save the date: Friday, October 22, for the Annual Dinner. Dr. Kathryn Kennedy, President of the Center for Plant Conservation, will be our speaker. Her topic will be the preservation of our native plants, the search for threatened plants, and the methods of saving them for posterity.

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Summer Programs

JUNE 12, Sat: Medina County Park District Paul Saldutte, Natural Resource Manager, using as an example the wetland he recently restored, will speak on wetland mitigation and restoration. He will discuss plant choices and procurement sources. Expect to see the end result of his work in the park. Plants include fragrant water lily and iris *versicolor* among others. Meet at the Wolf Creek Environmental Center in Medina. For directions, call Jean Roche at 330-562-4053. **9:00 am**

JULY 17, Sat: Beck Fen Rick Gardner of The Nature Conservancy leads this trip into the Evens R. Beck Memorial Nature Preserve. The fen is part of a network of fens along Tinker's Creek and harbors rare plants including northern bayberry, showy lady's slipper, leatherleaf, and many species of sedges. There are no maintained trails. Be prepared for some wet walking. Directions: Take St Rt 43 south to Streetsboro to St Rt 303. Head west on 303 approx 2 miles to a gravel lane on the right about 500 feet before the railroad tracks. Drive back to pull-off. Registration limited. To register call Judy Barnhart at 440-564-9151 (H) or 440-286-9516 (W). **9:00 am**

AUG 14, Sat: Walk and Talk on Prairie Restoration Guy Denny, former chief of the Division of Natural Areas and Preserves, will lead us over the prairie on his property in Mt. Gilead OH while he shares the recipe for its

restoration. From Interstate 71 take exit 151 (Mt. Gilead-Fredericktown Exit which is State Route 95). Follow SR 95 east (right) through Chesterville, Ohio, for about another 2 miles to the Knox County Line which is just under 5 miles east of the interstate. Once you cross into Knox County, his driveway is the first drive on the right (North Side). His name is on the mail box (#6021) which is about 20 feet beyond the Knox County sign. Mail box numbers in Morrow County are totally different from those in Knox County. Please bring a bag lunch. Reservations not necessary. **Gilead OH 10:00 am**

SEP 27, Sat: Late Orchids and Mushrooms and The Wilds Expect to see coral roots in both open and closed form, *Goodyera pubescens* probably past prime but with the famous colorful leaves, both *Liparis* orchids in seed pod, and *Spiranthes tuberosa* with the potential of 5 species in various conditions. An added bonus is the spectacular fungi found in the area. Meet at Spitlers Restaurant in Coshocton. **10:00 am**

After a quick lunch in the area, we will visit **The Wilds**, a conservation and education facility in Cumberland, OH where we will have the opportunity to see the animal management centers, and to meet and talk with Wilds' animal management staff. Cost \$11 per person and \$2 for parking.

Grant Announcement

The Native Plant Society of Northeastern Ohio hereby announces that it will consider applications and nominations for an Annual Grant to be awarded to an Ohio botanist that demonstrates excellence in research, conservation or education, to include land trusts, organizations and causes that clearly support the Mission of the Ohio Native Plant Society. The mission includes:

- Conservation of all native plants and natural plant communities through habitat protection and other means
- Public education and appreciation of native plants
- Proper ethics and methods of natural landscaping
- Surveys and research on native plants and publication of the information
- Cooperation with other programs and organizations concerned with the conservation of natural resources.

The amount of the grant will be \$500.00. Deadline for submissions is September 15.

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Ohio's Fairest and Rarest Plants - and How to Find Them: Part I

Later, when I started sending reports to the Ohio Department of Natural Resources (ODNR) for its annual Heritage List and contributing to The Nature Conservancy (TNC), I started receiving their newsletters, which list the schedule of field trips held in nature preserves all over the state. After going on many of these excursions, led by experienced field botanists, and often to nature preserves containing habitats I had never heard of before, I learned the first two unwritten axioms of plant hunting:

RULE I: RARE HABITATS YIELD RARE PLANTS, AND IF YOU FIND ONE RARE PLANT. THERE ARE PROBABLY OTHERS NEARBY, and

RULE II: SEEK PROFESSIONAL HELP WHENEVER POSSIBLE.

These axioms have proven true every year, and especially in May 2002, when I attended a three-day "field meeting," on what turned out to be the mother of all field trips. The sponsors of this marathon were three national botanical associations, known informally as the BotSocs: the Botanical Society of America, the Torrey Botanical Club, and the Philadelphia Botanical Club. Each of these three societies produces its own very prestigious scientific journal, but members never meet during the year except for one week in the field, and the field meeting is always held in a different place in the Northeast or Great Lakes area every year. Amateurs are welcome at these get-togethers, so when I found out that the field meeting of 2002 was in extreme southern Ohio, specifically Adams, Scioto, and Highland Counties close to the Ohio River, I jumped at the chance to attend.

Ever since I studied the career of Lucy Braun, who discovered and wrote about many of southern Ohio's rarities and their habitats, I have tried to visit the area at least every other year. This is the home of limestone, short-grass prairies; red-cedar woodlands surrounding prairie openings; limestone and dolomite cliffs and river banks; and shady, mixed-hardwood forests with many Southern trees – all sheltering a uniquely Ohio River type of flora not completely duplicated in any other part of the country.

I have been turning in rare-plant sightings to ODNR every year since 1977, but 2002 was a banner year for me: 22 new sightings from southern Ohio alone with 20 of these species new to me and most of them fairly recent newcomers to the Heritage List. I could never have found them by myself. A short rundown of the most interesting of these with their Heritage List ratings is as follows:

Limestone adder's-tongue fern (*Ophioglossum engelmannii*-E), is a tiny relative of the grape ferns with one or two unfernlike fronds growing from the base. These are shaped like the leaves of the common plantain that grows in everyone's front lawn and so are easily overlooked. Also, the fern's spore cases grow on a central stalk similar to the straw colored stalk of flowers of the plantain.

Southern black-haw (*Viburnum rufidulum*-P), a tree-sized member of the honeysuckle family, is perhaps the largest member of the *Viburnum* genus.

Silver plume grass (*Saccharum alopecuroideum*-E, formerly X) was in leaf only, but some day I hope to see it in bloom, since I've seen its red-plumed relative, the giant plume grass (*Saccharum*, formerly *Erianthus, giganteum*) on the Atlantic coast in Maryland, and it's a beauty. (When the plume of flowers goes to seed, the huge pink seed-head resembles a stick of old-fashioned cotton candy.) Since the plume grasses have been reclassified in the sugar-cane genus *Saccharum*, it would be interesting to see if any farmers in southern Ohio will start growing them as a money crop.

Perhaps the most unexpected plant seen on the BotSocs field meeting: the **Kentucky lady's-slipper orchid** (*Cypripedium kentuckiense*). It is *not* a native as yet, but since it grows across the river from Scioto County in Kentucky, it may some day soon be found in Ohio. A close relative of the glamorous large yellow lady's-slipper (*C. calceolus* var. *pubescens*) of Ohio, the Kentucky orchid has a pouch that is white rather than the bright yellow of the former, and curly brown side petals, rather than greenish-yellow.

Found from Texas and Oklahoma east to Virginia, and taking in every Southeastern state except the Carolinas, Georgia, and Florida, the Kentucky orchid was never listed in any major US flora until Gleason and Cronquist's 1991 edition. Mr. D., on whose farm we saw a huge clump with 35 flowers growing on

multiple stems, admits to obtaining the specimen outside of Ohio and transplanting it – but for educational purposes only. He hopes that plant-hunters will some day see this species growing naturally in a southern Ohio woodland, recognize it for what it is, and add it to the Ohio flora officially so that it can obtain state protection.

If a plant hunter wants to find a particular species that is not known to be protected in an ODNR or TNC nature preserve open to the public, RULE III may apply: ASK A FRIEND; GET INTO A NETWORK; AND DON'T FORGET TO RETURN A FAVOR. This applies also to organizations of friends, such as the Native Plant Society of Northeastern Ohio or the Cleveland Museum of Natural History's NEON (Northeast Ohio Naturalists), run by the curator of botany, Jim Bissell. These and similar organizations also have newsletters and schedule field trips.

In late July of 1986, I had a great experience looking for featherbells (*Stenanthium gramineum*-T, of the lily family); one of the most striking plants in Ohio, although I didn't know that at the time. I was in southern Ohio, talking to a longtime friend from TNC, Marilyn Ortt, about the rare Virginia mallow, information that would be useful for my article on this colorful family of plants, when somehow the conversation got switched to featherbells, also a plant confined to the southern counties. Marilyn did not know of any location for this species but had a friend Brian who could give me more definite information. When I spoke to Brian, he was very helpful: "You want to find featherbells in bloom? Well, go down Chinaberry Road, and after it crosses Potluck Creek, park and look over the mudflat on the other side of the bridge."

Chinaberry Road? Potluck Creek? Driving down the narrow county road, I kept wondering whether I was still in Ohio, and not Kentucky. I had no problems finding the little bridge or the mudflat, but at first all I could see were the spikes of scaly blazing-star (*Liatrix spicata*) a handsome, pink-flowered species in the daisy family, often found in wet prairies or meadows, and the pink-purple heads of spotted phlox (*Phlox maculata*) in great abundance. It wasn't until I passed a grove of river birch (*Betula nigra*), which provided a dark background, that I saw six plants almost eight feet tall, each covered from top to bottom with tiny white flowers, like a small tree spangled with ice crystals. I had been expecting a plant no more than

three feet tall with a few flower stalks, but not this giant with hundreds of narrow-petaled flowers all blooming at once. But it was really featherbells—of the tall variety named *robustum*, and all its bell-shaped blossoms constituted a single, many-branched inflorescence, called a **panicle** that was breathtaking.

According to some authorities, featherbells is the only species of its genus and occurs from Texas to Virginia, mainly in the Appalachians. The Ohio populations represent the northernmost extension of the species, and this distribution pattern was noted long ago by Lucy Braun for dozens of plants native to southern Ohio, some of them of ancient origin. She too was interested in variety *robustum* and observed that it and the normal-sized variety never bloomed at the same time, always separated by two to four weeks, and never occupied the same patch of wetland together. However, middle-sized hybrids were known. In her day, the species was reported from 9 counties, with variety *robustum* found only in 3; at present (2003) the species is down to 6 counties, and it is unknown how many *robustum* may occur in. In the coming decades ODNR may have a double problem: saving this unique, seldom-seen species from human encroachment of its wetland habitat as well as preserving the tall variety from the genes of its commoner cousins.

If ever a plant-hunter needs a friend, as in rule III, finding the fringed orchids of the genus *Platanthera* (formerly *Habenaria*) will provide a real test case. With their large lip petal divided up into many fringelike segments, the showy members of this group of orchids have often been compared to ballerinas wearing fringed skirts; but to find them in the wild is a different story. Lucy Braun's book lists 13 native fringed orchids in Ohio: 3 are rated X, 2 are E, 2 are T, 1 is P, and only 5 are common. But "common" is a relative term, because fringed orchids have the disconcerting habit of moving around, being abundant in one year at a given place, the next year gone. A fringed orchid may become common only in very specialized habitats--open areas, usually wet, with poor soil over a substrate of sand, clay, gravel, or peat, but these habitats themselves are rare in Ohio, occurring mostly in the sand prairies of the northwest (Lucas and Ottawa Counties especially) or in bog or fen country of northeast Ohio (Summit, Geauga, Portage, or Wayne Counties especially). If a fringed orchid is found at the east end of a bog in, say, Portage County in a certain year, it may have

disappeared from that spot the following year, only to turn up at the west end of the bog, or perhaps in another bog in the same or neighboring county. This is where "hot tips" from a network of friends really help.

One of the most notorious movable orchids I know of is the prairie fringed orchid (*Platanthera leucophaea*-T), with its beautiful, creamy-white fringed lip petal as elegant as a magnified snowflake. It is so rare nationwide that it is also placed on the federal Heritage List, issued by the Department of the Interior, as T. I first saw it in 1987, thanks to a hot tip from friends in Wayne County who saw a colony growing in a marshy area near a cemetery. Naturally I was delighted to hear the news, so I informed long-time orchid-hunting friends Jack and Florence Selby, and we drove down together. When we arrived, we spotted 60 specimens scattered through a wet prairie, which is the ideal habitat.

Ten years later, I heard that the orchids were no longer in or around Wayne County, and that the center of abundance had moved to the northwest counties and the area around Sandusky Bay, into poorly drained areas that now occupy former lake bottoms, dating back to a larger incarnation of Lake Erie in preglacial times called Lake Warren. The last time I saw this species, a numerous colony of perhaps 100 plants, I had to wear boots and wade into ankle-deep water. It's anyone's guess where this wandering orchid will turn up next.

While the prairie-fringed orchid usually occurs in wet **marl**, a crumbly soil composed of limestone, clay, and sand, its glamorous relative with yellow-orange petals and a white-fringed lip – the yellow fringed orchid (*Platanthera ciliaris*-T) prefers a wet, acid, sandy soil, only common in treeless isolated spots in northwest Ohio.

In late July of 1982, I heard of a large colony of the yellow fringed growing in an extensive TNC preserve that I was fairly familiar with, having visited parts of it on field trips. However, the part I wanted to visit was surrounded by private land, and I had heard that near the only entrance a local rifle club had set up a firing range. I had hoped that there would be no target practice scheduled for that day, and I was lucky. As I walked past the entrance, not a sound could be heard.

Proceeding down the path, I encountered several circles marked by a ring of stones, painted white, and

littered with spent shell casings. These were the firing positions where the riflemen would stand and aim at the targets. From constant use, the sandy soil within the circles had become compressed into wet, shallow pits. I had been told to look into these pits for bog plants, and sure enough, I found some Heritage species: the cross-leaved milkwort (*Polygala cruciata*-E) and two kinds of carnivorous plants – the spatulate-leaved sundew (*Drosera intermedia*-E) and its abundant relative, the round-leaved species (*D. rotundifolia*). The milkwort was new for me and, as it turned out, is found in only 3 counties in the state. It looks like the common milkwort (*P. sanguinea*), but its pink flowers are larger and in larger heads, and its leaves are in whorls of four.

I could see that this was going to be a good day for me. As I walked slowly down the path, I noted that the vegetation resembled that of southern New Jersey, except for one big difference: sand replaced sphagnum moss. Thirteen bog plants on the Heritage List were here, notably the beautiful grass pink orchid (*Calopogon tuberosus*-T), with its lip petal arranged like a brush to spread pollen on a bee's body. Also present were the colic-root (*Aletris jarinosa*), a lily with tiny white flowers on a single stalk, and a strange little plant with a single yellow, three-petaled flower shaped like a ship's propeller, the twisted yellow-eyed grass (*Xyris torta*-E) in its own family. It's not a grass but has grass-like leaves.

The big show of the day was provided by the yellow-fringed orchid itself, with 12 specimens in full bloom and others in bud, extending in large yellow heads above the grasses and ferns of the sandy wetland. Looking at this ethereal vision of yellow-orange in perfect symmetry, I knew that the next thing I had to do when I returned home was to contact some nature photographers in my "network" and share the vision with them.

The return trip, occurring three weeks later, went off as planned—the orchids were still in bloom, and my three buddies got some good pictures. But there was one hitch: the gun club. There was no sign or sound from them when we entered the sand wetland, but as we approached the exit, it was "POW!" every ten seconds. Target practice had resumed in earnest. We debated whether we should just wait, but that might take hours. Then I had an idea. Years before, when I was in the Army and taking basic training at Fort Knox, I remembered that during target practice, all

shooting stopped when the sergeants yelled, "Hold your fire!" It might work here. As loudly as I could, I shouted the three words, and after several moments, strangely enough, the shooting stopped. Some Army veterans among the gunners, perhaps? When we passed the firing pits, no one was in sight. We never

did find out how many gunners were there, and why they left so suddenly.

Perry Peskin is a long-time member of the Native Plant Society of Northeastern Ohio and a frequent contributor to the Journal.

WOW, WHAT A SPRING!

Jean Roche

Winter seemed to hang on and on then suddenly, spring exploded into color. The NPS purposely planned more trips during the spring of 2004, and I, for one, am delighted that we did.

On April 24, Judy Barnhart and folks from the Chagrin River Land Conservancy offered us the opportunity to visit a beautiful property in Geauga County/Russell Township. Trilliums were just budding, serviceberry was blooming, violets were up and in flower, and the promise of spring was very much in evidence. Bill Oberdick did a commendable job making a list of the plants we encountered. We were fortunate to have another member, Don Howell, along as well. He is our resident tree expert and happily identified the woody species.

On May 8, a group drove to Poland, Ohio to visit Poland Woods with Randy Jones, its very knowledgeable and charming caretaker. It was my first view of blue-eyed Mary, and it was there by the hundreds. Swamp saxifrage was a special treat along with Greek valerian. The spreading globe flower was, alas, not to be found. However, with everything we did get to see, we were still very happy to be able to spend part of the warm and sunny day in these beautiful woods.

After leaving Poland, we met Gordon Vujevic in Youngstown and went on to his farm in Burghill. Gordon has an amazing garden combining horticultural species and wildflowers. Yellow trillium, at least two types of ginger, cowslips and primroses abounded. Phacelia, lilies, an incredible variety of ferns, daphne and dogwoods – everywhere you looked was a special treat. We followed our meanderings over the garden with a potluck lunch. We want to thank Gordon and Mrs. Vujevic for their hospitality.

May 15th, we joined Jim Bissell and the Northeast Ohio Naturalists in Presque Isle PA for a day of stewardship and botanizing. After clearing an area filled with Bicknell's geranium, we hit the trails. The lupines were just beginning to bloom as was the hoary puccoon. We discovered another rare geranium and spent time trying to coax wolf spiders from their holes. It was a delightful day that we shared with migrating warblers at this extraordinary park.

Next time, join us as we move into summer at the Wolf Creek Environmental Center for a very special program.

Backyard Habitat Workshop

On June 25th, Envirotech Consultants, Inc. will be holding a Backyard Habitat Workshop to promote conservation through native landscaping. At 10 am, Guy Denny, retired Chief DNAP, will be conducting a presentation on prairie habitats, and John Kiertscher will present a workshop on planning a Backyard Habitat to attract butterflies and birds using native prairie plants. After the workshop, a tour of the prairie will be led by Guy and John, including identification of prairie plants, birds, and butterflies. Throughout the day, Envirotech Nursery will be holding a 20% off plant sale on their native prairie and wetland plants. Come join us and learn how you can help restore habitat, one backyard at a time.

Please RSVP if planning to attend.

Carla Stimmel, Nursery Manager, Envirotech Consultants, Inc. 740-743-1669
nursery@envirotechcon.com

Botany 101 – fifteenth in a series**Plant Hormones****by Dr. Rebecca Dolan**

A lot of people are surprised to learn that, just like animals, plants have hormones. Hormones are substances made in one tissue that have an action on another tissue. Hormones influence the size, shape, and flowering of plants.

Auxins are plant hormones that have a wide variety of functions that vary from time to time, species to species, and tissue to tissue. One of the most obvious actions involving auxin is known to every gardener who trims a plant to make it bushy. Recall that the permanently embryonic tissue in terminal or apical buds, those at the ends of twigs, is called apical meristem (apex referring to the tip). Cells in the meristem divide and enlarge as twigs grow in length. Auxins produced by cells of the apical meristem diffuse through twig tissue to lateral buds. Auxins inhibit cell division and elongation in lateral buds, thus providing apical dominance. Once the apical bud is removed, say, when you trim a hedge or pinch back an aster, lateral buds are released from inhibition and cells of lateral meristems divide and grow.

This phenomenon can be demonstrated with a classic plant physiology lab experiment. Control plants with apical dominance are allowed to grow as usual. Experimental treatment plants have their apical buds, containing apical meristem cells, removed. One set of plants gets an application of auxin (commercially available) mixed with lanolin dabbed on. Lanolin is a carrier for the auxin. A second set of plants just gets plain lanolin. The drawings provided by Jan Glimn Lacy in her book *Botany Illustrated* demonstrate what happens when the plants have been allowed some time to grow. Can you explain the results?

In naturally growing plants, apical dominance is also influenced by a second hormone, cytokinin, that is produced in the roots. As plants grow in length, that is, as the apical bud grows more distant from the

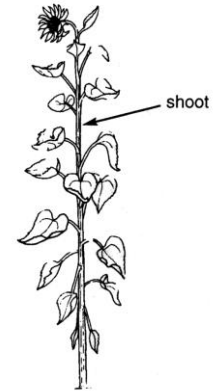
earliest lateral buds on a twig, those lateral buds are released from dominance by the apical bud, and the plant grows laterally. Cytokinins trigger this cell division when the ratio of auxin to cytokinin is reduced; that is, when there is less auxin with its inhibitory effect, lateral growth occurs.

Auxins are also involved with leaf drop in the fall. A special layer of cells in leaf petioles dies, allowing leaves to be shed from stems.

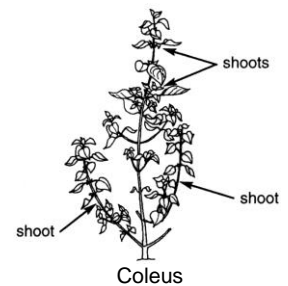
This abscission is related to a drop in auxin production in leaf tissue.

Auxins have two very important commercial applications. Rootone, the powder used to promote root growth in cuttings contains an auxin. It promotes the growth of adventitious roots, especially in woody plants.

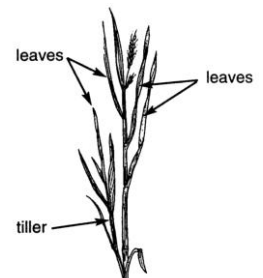
The weed killer 2,4-D is an auxin. It triggers imbalances in cell metabolism that literally cause plants to grow themselves to death!



Sunflower (*Helianthus*) has strong apical dominance

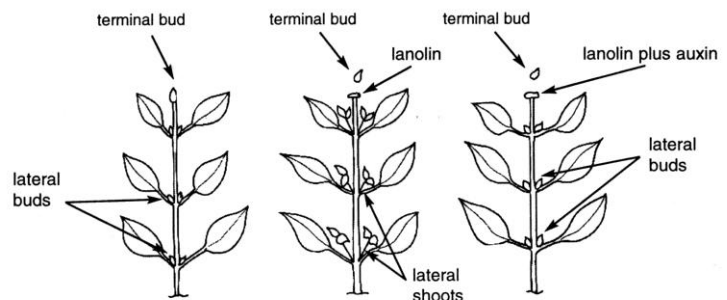


Coleus



Rice

Becky Dolan is Director of the Friesner Herbarium at Butler University. Illustrations by Jan Glimn Lacy, INPAWS charter member and botanical illustrator, from her book **Botany Illustrated**.

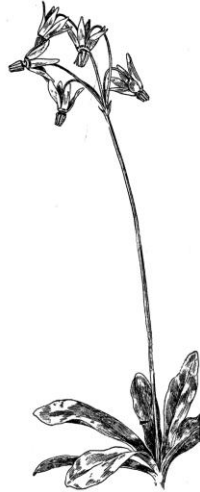


Shooting Stars (*Dodecatheon meadia*)

Barry Glick

"Shooting Stars"! What a perfect choice of a common name for an uncommon plant. The fragrant white flowers do have kind of a meteoric look of movement as they point pendulously to the ground. As one of my favorite plants in one of my favorite families, *Dodecatheon meadia* has never disappointed me as a reliable bloomer and an easy keeper. I grow it under a canopy of *Robinia pseudoacacia*, "Black Locust" trees. This tree is very late in the Spring to refoliate. Is that a word? Well, you know what I mean. My point is that *Dodecatheon meadia* gets a good bit of bright, dappled sunlight early in the season and then, as it is going dormant, more shade. The flower stems emanate from a basal plant that dies back soon after flowering, but you then get secondary interest from the 12"- 24" stems that bear the seed pods. These stems persist all Summer and Autumn as the seeds ripen.

In Greek, the word *Dodeca* means twelve and *Theos* means God. I was always under the erroneous impression that this reference was to twelve of some floral part or seed capsule or some other botanical aspect of the plant. But I now find that it is a name given by Gaius Plinius Secundus, better known as Pliny or Pliny the Elder, 23-79 AD. Wow, they had nicknames even back in those days! Pliny was a Roman encyclopedist and author of *Historia naturalis*. He was a soldier, biographer, historian, collector, and student of the natural world in all its aspects, stars and planets, plants and animals, land and sea. It turns out that he actually gave this name to the Primrose which was believed to be under the care of the "twelve superior gods". You can read more about Pliny at: <http://www.abila.org/pliny.html> The specific epithet *meadia* is in honor of Dr. Richard Mead, 1673-1754, an English physician who was physician to King George III and an intimate of Sir Isaac Newton.



Dodecatheon meadia doesn't seem to be fussy about soil fertility and as far as moisture goes, it occurs naturally in Mesic soils. I've been waiting to use that word to describe soil moisture conditions. It is a word used to describe "average" or "moderate" moisture as Xeric describes dry and Hydric describes wet.

You can see the similarities in the flowers when you compare them to Cyclamen, another member of the Primulaceae family. By the way, I know I get a lot of taxonomists upset when I use a phrase like "Primulaceae family", because the "eae" ending signifies family, but most people don't know that and now you do.

Propagation by seed is very easy and copious amounts of seed are produced without the intervention of humans. If you don't collect the seed and leave the plant to its own devices, it will soon produce a populous colony. Another way to have a colony even sooner is to take a mature plant, bareroot it and wash the rootstock clean. Where the long white roots connect to the basal plate of the plant, you will notice a brownish-black "dot". Sometimes you will have to use a 10x hand lens to see it, but it's there, trust me. That "dot" is a dormant bud. This is nature's way of proliferating the species and insuring its survival. This "bud in waiting" is ready to take over should some peril strike the main plant. If you're not too greedy and only remove every other one of these roots, like magic, you can get a new plant to grow from each. Pull them straight up and then down in a snapping motion. You must get the bud on each tip. Lay them flat in a pot or a tray and cover with about 1/4" - 1/2" of soil. New plants will soon emerge. Pot your new plants up and nurse them along for a season. They can then be planted out.

What fun!

Reprinted from "This Week's Glick Pick,"

<http://www.sunfarm.com/picks/>

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Kingdom - Plantae - Plants
Subkingdom - Tracheobionta - Vascular plants
Superdivision - Spermatophyta - Seed plants
Division - Magnoliophyta - Flowering plants
Class - Magnoliopsida - Dicotyledons
Subclass - Dilleniidae
Order - Primulales
Family - Primulaceae

Genus - Dodecatheon
Species - meadia
Common name - genus - "Shooting Stars"
Common name - species - "White Shooting Stars", "Pride of Ohio"
USDA Hardiness Zone - 5, maybe 4
Light preference - Open bright shade
Soil fertility preference - Average to rich
Soil pH preference - neutral to slightly acidic
Soil moisture preference - Mesic

Bloom time - Early - Mid Spring
Bloom color - White
Fragrance - Yes
Foliage - Medium green
Spread - 6" - 12"
Height - 12" - 24"
Deer palatability - Seems deerproof
Landscape uses - Colonize in shade garden
Medicinal uses - None found

EASTERN HEMLOCK: A NORTHERN REMNANT

By Gordon Mitchell

About 10,000 years ago the Ice Ages of the Pleistocene Epoch ended and the last of their glaciers retreated north from Ohio. As the climate in Ohio became warmer, vegetation from the southern part of North America began their northward migration into Ohio. Because these newer southern plants were more adaptable to the warming Ohio climates than were the previous northern vegetation, they were able to displace these northern plants

However, there were some parts of Ohio that were still able to maintain cooler microclimates and could still support some of these remnant vegetation species from the north. One such northern remnant species is the Eastern Hemlock (*Tsuga canadensis* [L.] Carriere).

The Eastern Hemlock is a member of the Pine Family (*Pinaceae*). The generic name, *Tsuga*, is Japanese for "cedar" or "hemlock", and the specific epithet, *canadensis*, means "Canada". Other common names for this tree are Canada Hemlock, Canadian Hemlock, Hemlock, Hemlock Fir, Hemlock Pine, Hemlock Spruce, Hemlock Spruce Pine, Red Hemlock, Spruce, Spruce Pine, Suga, Tanbark Tree, Water Spruce, Weeping Spruce, White Hemlock, and White Hemlock Pine.

The Eastern Hemlock is not related to the Poison Hemlock (*Conium maculatum* L.), which is a member of the Carrot or the Parsley Family (*Apiaceae* or *Umbelliferae*). The Poison Hemlock, which is an herbaceous plant, is not even native to America.

The Eastern Hemlock is native to the northeastern states, the eastern Canadian provinces, and to the Appalachian Mountains. It is the state tree of Pennsylvania. In Ohio it is usually found in stands within the eastern half of the state (from Lorain County to Adams County), which usually has acidic sandstone bedrock. However, there are a few native stands in western Ohio (especially in both Auglaize and Greene Counties), which have alkaline dolomite or limestone



bedrock. The best place to observe the Eastern Hemlock in Ohio is in the Hocking Hills region.

The Eastern Hemlock prefers cool, moist, shaded habitats. It is frequently found on north-facing slopes or in deep valleys and ravines. It is a highly shade tolerant tree and actually prefers deep shade.

Because the Eastern Hemlock is shade-tolerant, it is considered a climax tree in the final stage of plant succession. Its thick foliage creates its own microenvironment and very few plants can tolerate it. This tree may sometimes be found in pure stands.

Height: Usually 60-80 feet. Can even reach heights of up to 160 feet.

Diameter: Usually 1-4 feet. Sometimes up to 6 feet.

Crown: Conical or pyramidal. Usually wider and is more ragged or rounded than Firs (*Abies*), Pines (*Pinus*), or Spruces (*Picea*).

Branches, which were once used for brooms, are frequently seen drooping downwards. Many bird species, including the Golden Crowned Kinglet (*Regulus satrapa*), the Dark-eyed Junco (*Junco hyemalis*), the Veery (*Catharus fuscescens*), and numerous Wood Warblers (*Parulidae*), will nest within the foliage of Eastern Hemlock. The Eastern Hemlock is sometimes used as an ornamental tree and as a shade tree.

Leaves: Needles. Each needle is flat, about ¼-¾ inches long, about 1/16-1/10 inches wide, and has blunt or rounded and notched tips. The needles are dark green, reflective, and grooved above and are light green below with one whitish streak located on each side of the midvein. These streaks are actually the stomata. The margins of the needles are very finely toothed. Each needle is tapered at its base. There is also an accompanying 1/32 inch-long petiole. When the needle falls, the petiole remains on the twig. The needles appear to be 2-ranked upon the twig but are actually spiraled around the twig. There is actually a third, but

much smaller, row of needles growing upon the top of the twig. These needles may remain upon the tree for up to 3 years or more.

Whenever the weather is dry, the needles may fall off of the tree. Because of this, the Eastern Hemlock makes for a very poor Christmas tree.

These needles have medicinal uses. They can be boiled into a tea, which was used for treating respiratory ailments or was used as a diaphoretic and as a diuretic. The needles should first be boiled, and then covered and seeped for about 10 minutes. These needles are best harvested when young. The Iroquois tribes first introduced this tea to the European explorers. This tea is high in vitamin C and was used to prevent scurvy. This tea has saved many European expeditions, such as Frenchman Jacques Cartier's 1534 expedition to the St. Lawrence River, from this affliction.

The needles have some edible uses as well. Some Native American tribes used the needles as spices when cooking meat.

Twigs: Slender. Flexible. After the needles fall, the petioles remain and give the twigs a rough surface. These twigs are usually yellow-brown and pubescent their first year and are gray-brown glabrous the following years. The twigs can also be boiled into a tea or can be used as an ingredient in making root beer. The White-tailed Deer (*Odocoileus virginianus*) and the Cottontail Rabbit (*Sylvilagus* sp.) may browse upon the twigs during the winter months. The buds upon the twigs are brown, pubescent, obtuse, ovoid, and are about 1/16 inch long.

Flowers: Monoecious. Male flowers are about ¼-inch long, rounded, yellow, clustered, and are located at the tips of the branches. Female flowers are about ½-inch long, oblong, light green, solitary, leathery, have bracts that are shorter than the scales, and are also located at the tips of the branches. These flowers are all wind-pollinated. Flowering season is usually April and May. The Eastern Hemlock will usually begin producing flowers after about 20 years of age and may continue producing them for up to 450 years of age.

Fruit: Cones. Each cone is light or red-brown, woody, oblong or ovoid, and is about ½-1 inch long. Each cone is also pendulant and has only a few scales. Each scale is broadly ovate, flattened, has smooth or finely toothed margins, and has 2 seeds per scale. These scales are imbricated and are spirally arranged upon the cone. Each scale is also subtended with a larger bract. These scales are closed when wet and open when dry. The



cones ripen in the fall, drop their seeds in the winter, and then drop from the tree in the spring.

Seeds: Each seed is light brown, lightweight, is about 1/16 inch long, and has wings of about 1/3 inch long. A single tree usually produces a good seed crop about every 2-3 years. Like the pollen, the seeds are usually carried by the wind. The seeds will only germinate in a cool, moist site with soil of decomposing litter. These seeds are a favored food of many bird and mammal species, such as the American Goldfinch (*Spinus tristis*), Black-capped Chickadee (*Parus atricapillus*), Pine Siskin (*Carduelis pinus*), Ruffed Grouse (*Bonasa umbellus*), White-winged Crossbill (*Loxia leucoptera*), Wild Turkey (*Meleagris gallopavo*), Red Squirrel (*Tamiasciurus hudsonicus*), and the White-footed Mouse (*Peromyscus leucopus*).

Bark: The young bark is dark silver, thin, and scaly. The older bark is thick, deeply furrowed, and broadly ridged. In older trees, the thick bark may cover up to 20% of the tree's total volume. The bark is also fire-resistant. The outer bark is a dull purplish red- or gray-brown and the inner bark is a bright purplish red or a cinnamon brown.

The bark has had several uses. It was used as a brown dye for wool or as a red dye for wooden eating utensils. To avoid detection, hunters sometimes rubbed this bark upon their bodies to mask their odors.

Because the bark contained about 10-12% tannic acid (tannin), it was often used in the tanning industry during the 19th Century. The whole bark was often peeled from the tree while the rest of the tree was then left to rot. At one time this bark was so valuable that the tanning industry nearly depleted the Eastern Hemlock. This tannin contained catechol which deposited red sediments known as phlobaphenes upon the leather and gave it a reddish color. Because leather

was once sold by weight, the tannin from the Eastern Hemlock bark made the leather heavier than the tannin from the bark of other tree species. Until the 1880's, when leather was sold by the square-foot, this heavier tannin greatly benefited the leather dealers. The outer bark can be harvested year-round. The inner bark had some uses, too. It was sometimes dried and ground into flour. This flour can be used as a thickener in cooking or as emergency food. It can also be used for treating burns, cuts, sores, swellings, and for other types of wounds. A tea made from the inner bark was used it for bladder, intestinal, and kidney ailments. The tea was also used as an external wash for various external injuries and as a gargle for canker sores and for sore throats. However, the inner bark tea should not be consumed during pregnancies. The best time to harvest the inner bark is in the late winter or in the early spring.

Seeping fluid from the bark can be distilled to make pitch. This pitch was once used externally for treating rheumatism.

At certain times of the year the White-tailed Deer bucks will rub their antlers upon the bark. This rubbing could cause damage to the tree.

Sap: The sap contains resin. The resin had some medicinal uses and was used to induce skin blistering. However, the Yellow-bellied Sapsucker (*Sphyrapicus varius*) likes the sap and will drill many holes in the tree to obtain it.

Wood: Light yellow to red-brown. Coarse-grained. Non-durable. Brittle. Splintery. This wood is considered inferior and has few commercial uses. Although it can hold nails and spikes, its hard knots can dull or chip a saw or an axe. It is sometimes used for coarse or rough lumber, beams, boxes and crates, railroad ties, shingles, and for pulp (especially in Michigan and in Wisconsin). The wood is also able to resist both rot and termites. This wood makes poor firewood because it throws sparks when burned.

Roots: Shallow and spreading. These roots are highly sensitive to droughts, ground fires, windthrows, and compaction. The roots frequently straddle large rocks and boulders. The roots also prefer cool, running water. A red dye for wooden eating utensils can be made from these roots.

Pests: There are 3 major insects pests that attack the Eastern Hemlock: the Hemlock Woolly Adelgid (*Adelges tsugae*), the Hemlock Looper (*Lambdina fiscellaria*), and the Hemlock Borer (*Melanophia fulvoguttata*).

The Eastern Hemlock is able to withstand very cold weather. It has been known to survive in temperatures below -100 degrees F. Unfortunately, the Eastern Hemlock cannot tolerate heat or pollution.

Finally, the Eastern Hemlock is a slow-growing, long-lived tree. The average annual growth rate is about 12-18 inches. At least one tree was believed to have lived over 900 years.

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Gordon Mitchell is employed by the Columbus Metroparks and a member of the Columbus Native Plant Society

Landscaping for Wildlife

by Greg Oskay

With all of the various lists of native Indiana wildflowers, trees and shrubs that can be planted to attract wildlife, how do you figure out which ones will be their favorites? You might go for a walk around the neighborhood and see a flock Cedar Waxwings gorging themselves on berries from a hawthorn. Okay, that may seem a little too easy. Or it may really be quite difficult, getting out in all seasons of the year to see what the birds are feasting on. Then you have to find a source for all of the assorted plants.

Why not let the birds help you out with the seed gathering and planting. They are perfectly content to help set their own table. Never seen a thrush in your garden wielding a shovel and hoe? They will help out with the dirty work (please excuse the pun) all the same.

When the birds chow down on berries from several species of trees and shrubs, the pulp nourishes them but the seed pit passes on through their digestive system. In fact some seeds require this acidic digestive tract treatment in order to sprout. If the bird makes its deposit on fertile ground, up comes another plant for future generations to feed on. It may not sprout where you want it but there is no law that says you can't transplant it to where it would fit into your landscape design.

Eastern red cedar, various dogwoods, elderberry, hackberry, hawthorn, pokeberry, numerous viburnums, and virginia creeper are just some of the beneficial wildlife plants that may be brought into your habitat by the birds. Northern mockingbird, gray catbird,

American robin, hermit thrush, Swainson's thrush and cedar waxwing are among the birds that will spread seeds in this manner and in turn be attracted by the plants that come up in our habitats. Red fox, opossums, raccoons and chipmunks will also distribute seeds far and wide through their droppings.

I wanted to plant elderberries in our backyard wildlife habitat. The blossoms are attractive to butterflies and the berries will attract a variety of birds. I was unsure how to get an elderberry bush since none of the local nurseries sold them. Elderberry is quite common in rural areas but at the time I did not know anybody from whom I could get a start. One day Bill Brink was over for a tour of our habitat. I asked him about a seedling that I did not recognize that had sprouted in the middle of the wildflower plot, He identified it as elderberry. The birds had planted it for me. Didn't particularly want the elderberry in the middle of the wildflowers, so I transplanted it for use as a backdrop for the wildlife pond where it has prospered for many years.

Seed-eating birds will invariably drop some seeds when picking apart wildflower seed heads. These will not be scattered as far and wide as berry pits but will provide crops just the same in future years.

Not everything that comes up wild in the backyard habitat will be beneficial. Birds love the white berries of poison ivy. They will also spread the seeds of bush honeysuckle, one of our worst woody weeds. The wind distributes the seeds of many other plants. Who knows what all will sprout in your yard? Try to identify plants that come up voluntarily rather than instinctively pulling them. Selective weeding will eliminate the pest species yet save some of the birds' favorite wildlife food plants.

Reprinted from the *Indiana Native Plant and Wildflower Society News*, Summer 2002



Elderberry (*Sambucus canadensis*)

Bigelow Cemetery State Nature Preserve

The Prairie

Like the weathered tombstones that are present-day reminders of a vanished way of life, the special community of plants at Bigelow Cemetery provides a glimpse of the beauty of a vanished landscape – the native Ohio prairie.

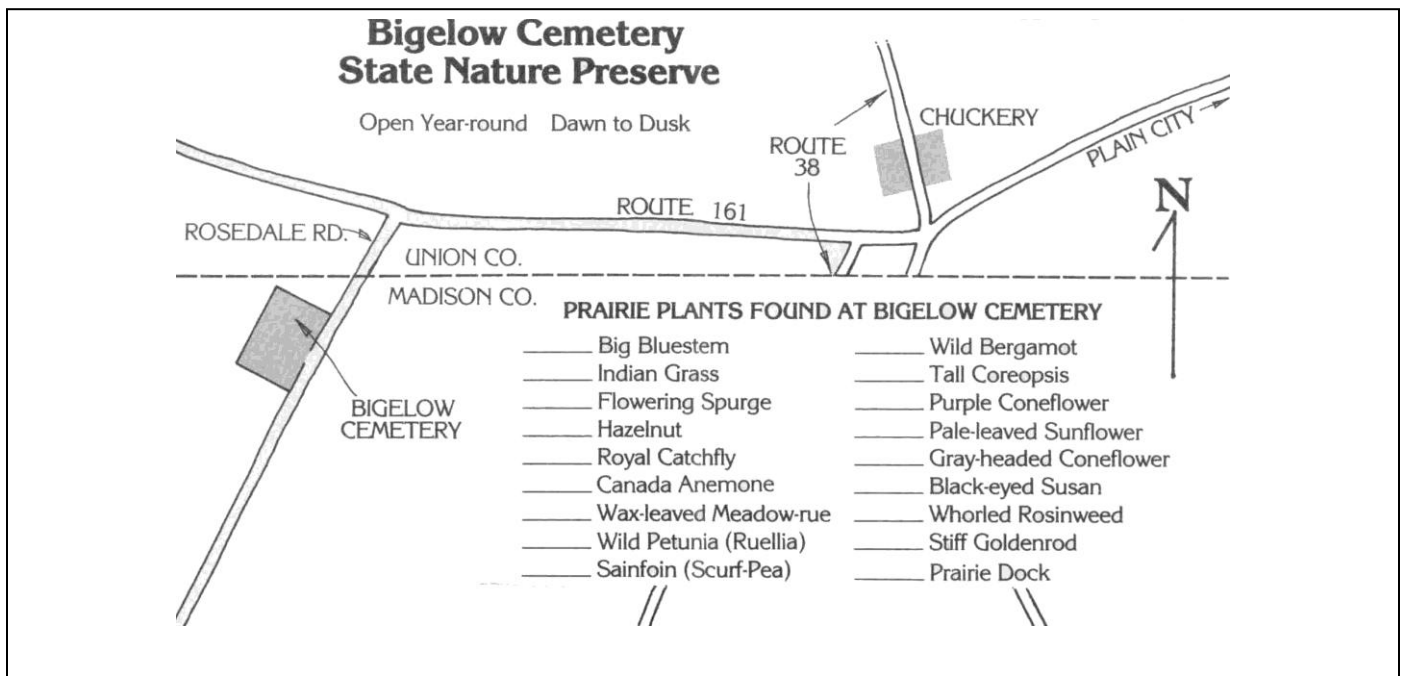
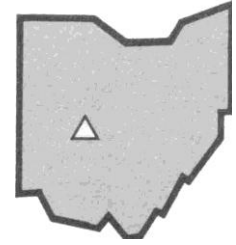
When settlers came to the gently rolling glacial plains around Big Darby Creek they encountered large, open expanses of grassland in an otherwise densely forested wilderness. These prairies (the French word for “meadow”) were collectively known as the Darby Plains. Thousands of years ago when the climate was much warmer and drier, fingers of the great western prairies had extended eastward to Ohio and become established. The pioneers quickly discovered the hidden wealth of this strange, treeless landscape. Under the dense sod lay deep, fertile, black prairie soils. The prairie grasses – big bluestem, little bluestem, cord grass and Indian grass – slowly gave way to another grass of the Indian: corn.

What the prairie farmer did not plow he used to pasture his livestock. The wild prairie was soon reduced to scattered remnants along roadsides, fencerows and railroad tracks. With the advent of modern farming practices and herbicides, many of these outposts also disappeared. One tiny patch of prairie remained. A scant half-acre of prairie sod, originally set aside as a final resting place for members of the human community, Bigelow Cemetery also

became a refuge for the plants of the prairie community.

Bigelow Cemetery has never been plowed or grazed. It appears to be perched above the surrounding farm fields, a reflection of how much of the original prairie soil from these fields has been lost to wind and water erosion over the decades. Although weedy species have invaded the cemetery, it still contains healthy colonies of the prairie grasses and beautiful prairie wildflowers that once carpeted the Darby Plains. Some are considered rare, threatened or endangered in Ohio. For many years Bigelow Cemetery was the only known location in the state for the royal catchfly, the cemetery’s rarest plant. Other colonies have since been discovered elsewhere within the Darby Plains.

The summer-blooming prairie wildflowers are at their peak from late July through August. Waist-high masses of flowers color the cemetery with brilliant yellows, flaming crimson, and soft purple and lavender. Later, clumps of big bluestem 6 to 8 feet tall and the smaller Indian grass take on the burnished red-golds and oranges of the fall prairie. Here, on this small plot of ground, the Ohio prairie still flourishes, a treasured relict of the wilderness.



The Preserve

Sept. 13, 1978, after careful consideration and discussions with the Ohio Biological Survey and the Ohio Department of Natural Resources, the Pike Township Trustees, official custodian of the cemetery, dedicated Bigelow Cemetery as an interpretive state nature preserve. This provided permanent protection for the cemetery under the provisions of the Ohio Natural Areas Act of 1970. Management of the cemetery was also transferred to the Division of Natural Areas and Preserves, Ohio Department of Natural Resources. A special management program for the preservation of the historic tombstones, perpetuation of the prairie species and elimination of noxious weeds was initiated following dedication.

The Pioneers

The cracked and weathered gravestones remaining in Bigelow Cemetery bear mute testimony to the hardships of pioneer life in the vast wilderness of the Darby Plains. Early accounts of the first settlements in this area indicate that most of the people buried here were part of a colony largely from Vermont and Pennsylvania. They settled along the "Post Road," the early name of State Route 161, in the spring of 1813 and began the backbreaking labor of carving a livelihood out of the native prairie.

Oct. 21, 1815, Benjamin Hough, veteran, was given a deed to 172 acres of prairie under a military land grant. On this tract of land a tiny cemetery had already

been established. Just over one year later Hough sold his land to Russell and Lucy Bigelow who would homestead the prairie for at least the next six years. During that time, they buried four children in the prairie cemetery and Lucy herself was buried here in 1824. The cemetery was given their name when it was dedicated as a state nature preserve in 1978.

The land and cemetery changed hands many times in the intervening years. At least six of the former owners or members of their families are buried here. The two earliest known tombstones date to December 1814. The last known burial took place in 1892 and the cemetery has been unused since. Many of the gravestones have collapsed and the stones have toppled and broken, but a 1977 survey of the stones and inscriptions showed that 78 of the old markers were still wholly or partly legible.

The tombstones often impart tragic stories: many children did not survive infancy; wives died young, often during childbirth; and epidemics sometimes erased entire families. But there are also gravestones of hardy individuals in their 60s, 70s and 80s, a remarkable testimonial to human survival in times when adult life expectancy rarely exceeded 45 or 50 years.

Reprinted from "Bigelow Cemetery State Nature Preserve", ODNAP.

Top Ten Native Hummingbird Plants

Operation RubyThroat is an international project studying the behavior and distribution of the ruby-throated hummingbird (*Archilochus colubris*)—the most widely distributed hummingbird in the world. It's run by the Hilton Pond Center for Piedmont Natural History, in York, South Carolina (803-684-5852). For full details, visit the project's web site at www.rubythroat.org.

Although there is a wide range of plants that gardeners can use to attract hummingbirds, the following "top ten" plants were judged by Operation RubyThroat on the basis that they occur naturally within the breeding range of the ruby-throated hummingbird.

1. *Campsis radicans* (Trumpet creeper)
2. *Monarda didyma* (Bee balm)
3. *Lonicera sempervirens* (Trumpet honeysuckle)
4. *Lobelia cardinalis* (Cardinal flower)
5. *Impatiens capensis* (Spotted jewelweed)
6. *Aquilegia canadensis* (Red columbine)
7. *Lilium canadense* (Canada lily)
8. *Spigelia marilandica* (Indian pink)
9. *Aesculus pavia* (Red buckeye)
10. *Rhododendron catawbiense* (Rosebay rhododendron)

Reprinted from *Plants & Gardens News*, Spring 2002, Brooklyn Botanic Garden

BARBERRY (WITHOUT THE PIRATES) IN OHIO

By Tom Sampliner

As a family, barberry is represented in Ohio in both shrubs and herbaceous plants. It is the shrub portion of the family that gives rise to the name for the genus, *Berberis*. These woody shrubs have sharp stem thorns and small yellow flowers that ripen into red fruits which are easily dispersed by birds. They are highly aggressive and frequent escapees into the landscape, fully qualifying them for the epithet, invasive. Enough said about this pesky genus and on to the more memorable family species, the herbs.

I predict it will surprise most readers to learn that these family members are related, considering their lack of physical similarity. Our cast of characters includes: *Jeffersonia* (twinleaf), *Podophyllum* (mayapple), and *Caulophyllum* (blue cohosh).

Fortunately, we have a dichotomous key for Ohio that may be referred to in separating these three genus. Naturally, I refer to Clara G. Weishaupt's *Vascular Plants Of Ohio*. She writes as follows:

- Leaves all basal, leaflets two; flowers on leafless scapes = twinleaf
- Flowering stem with two palmately divided leaves = mayapple
- Leaves two, alternately compound or decomposed = blue cohosh

Twinleaf, (*Jeffersonia diphylla*) named in honor of our third president, seems to be the least common species in our area. Supplementing the key description above, the single flowers are one inch across with eight white petals. Neither Weishaupt nor Lawrence Newcomb's *Wildflower Guide* provide much in the way of habitat description. Based upon personal observation, I will say rich woods as does Newcomb, and add little recent disturbance but plenty of humus. To my mind, the most appealing stage is while the flower as well as the leaflets are just starting to unfurl and are held erect, showing a purple-greenish color. And, I've got the photographs to prove it.

Mayapple (*Podophyllum peltatum*) is probably the most widespread of the group and most highly recognized. The deeply cleft leaves look very much like a picnic table umbrella. Each plant has a single boom about 1-2 inches wide, white and waxy-looking.



Mayapple

Blue Cohosh

Twinleaf

The yellow reproductive parts ripen into a round fruit that begins as all green and ripens into orange. Fruits are edible but try to beat the critters to one. Only those plants with two leaves will bloom; single umbrellas are sterile. I wonder if forest creatures like toads make use of the picnic leaf umbrella by pulling up, say, a toadstool at snack time. Farther north, mayapple is replaced as a common forest ground cover by sarsaparilla, (*Aralia nudicaulis*). Curiously, this plant also holds compound leaves over the flowers. It would be fascinating to learn if this tells something about the respective pollinators and what forces acted to develop the similar growth patterns.

Last but not least from our group is blue cohosh, (*Caulophyllum thalictroides*). In our area this is the earliest bloomer of the group, appearing during early to mid April. The compound leaves are gently lobed. In earliest stages the color is purple gray which somehow combines to produce a blue cast to the plant. However, I doubt this is what gave the plant its common name; rather it is the mature fruit, a blue berry that did the job. A cluster of florets atop each plant often goes unnoticed. At ½ inch wide or less these florets are a rich brown with yellow reproductive parts. The sepals are often mistaken for petals and the petals, if seen at all, are assumed to be reproductive parts. Look for these guys in rich mature forests. Wherever you are from, even the Barbary Coast, feel free to "pirate" this article--or simply go out into our forest and enjoy these fascinating herbaceous relatives.

Tom Sampliner is a past president of the Native Plant Society of Northeastern Ohio, a photographer, and natural areas tour leader.

Native Shrubs for Wildlife Great Lakes Bioregion

by Tom Atkinson

Each shrub described here provides food or nesting comfort for wildlife. In turn, we are enriched by the visitors to these plants over the four seasons. The numbers and variety of wildlife increase in direct relation to the numbers and variety of native shrubs planted. I have observed this in my own garden, which I've been naturalizing for more than three decades.

It is easy to propagate new plants from the seeds of many of the shrubs on this information sheet.

Some of the shrubs described in this information sheet may also be considered trees.

Juneberry *Amelanchier* species

Juneberries, or Shadbush, are shrubs and small trees. Their beauty smooth, grey-striped trunk, flowers, berries, and autumn colour – will turn anyone into an admirer. For those who garden in areas where the soil is not heavily acidic and blueberries are not easily cultivated, Juneberry is a great alternative. Flowers are white, on dense racemes in spring. Fruit is a juicy, blue-black berry, ripe in summer. Ranges from southern New Brunswick to Minnesota, and south to Oklahoma and northern Florida. Fall leaf colour is burgundy to scarlet red. Grows in sun or shade.

American hazelnut *Corylus americana*

American hazelnut will never be the belle of the ball. Its strong suits are delicious nuts, favoured by humans and wildlife, beautifully understated leaf colour in autumn, and its ability to form a hedgerow that is bountiful and thick, providing shelter for birds and other creatures. The leaves are very coarse in texture, and the shrub can attain heights of 2 to 3 metres. Flowers are catkins (male), while the female ones are in tiny clusters with red stigmas protruding. It grows from Maine and southwest Quebec to Saskatchewan, and

south to Oklahoma and Georgia. Tolerates dry soil; sun or shade.

Purple-flowering raspberry *Rubus odoratus*

An erect shrub, 1 to 1.5 metres tall. Bumblebees pollinate the lovely, rose-coloured flowers. In summer there is a large, raspberry-red fruit which is insipid in taste to humans but perhaps not to birds or squirrels. The leaf is similar to that of a sugar maple tree. The bark is cinnamon coloured, and peels or exfoliates. In winter these stalks are a delight as they poke out of deep snow banks. Purple-flowering raspberry favours very moist sites in nature. In a garden setting, it is not so demanding, and grows in sun or shade. It spreads via underground runners. The range is Nova Scotia to Michigan, south to Tennessee and Georgia.

Pawpaw *Asimina triloba*

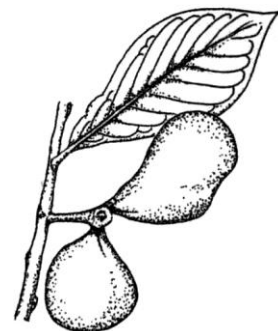
Pawpaw is a true delight, and rare when found in southern Ontario. In Indiana and southwestern Michigan it is more abundant. In the wild, it is most prevalent on moist, fertile, alluvial soil; the closer you match those conditions, the faster and more robust the growth. In youth, it requires shade to simulate its understory nature. After a few years, increased sunlight will stimulate growth. This shrubby tree can attain a height of 3 to 5 metres, and often suckers. Flowers are 3-lobed, maroon and pollinated by carrion flies. Growers sometimes will leave a dead animal in a grove of Pawpaws to increase flower pollination and fruit yield. The fruit has a custardy banana flavour (some people have a severe allergic reaction to the fruit). Autumn leaf colour is a deep, rich yellow. This is the most northern of the tropical custard apple family. Possums and squirrels adore the fruit. Get two for your garden!



Amelanchier



Rubus Odoratus



Asimina triloba

Witch-hazel *Hamamelis virginiana*

Witch-hazel is the latest flowering shrub in the Great Lakes region. In its denuded state, it is structurally interesting; its yellow flowers in late autumn are balm for the soul. A large shrub, it grows up to 6 metres and spreads as much laterally. It is a plant for a larger garden. But what a plant it is, ranging from Nova Scotia to Minnesota, and then south to Missouri, Tennessee and Georgia. Seeds, held in separate chambers in a single capsule, are literally shot several metres from the plant as its means to disperse the progeny. Grows in sun or shade.

Canada elderberry *Sambucus canadensis*

This is a delightful, underused shrub. It is found throughout the southern half of the Great Lakes region, in cool, moist to-wet situations. Its full range is Nova Scotia to southeast Manitoba and south to Oklahoma and Georgia. (*Sambucus pubens*, or red-berried elder, ranges farther north.) It grows 2 to 4 metres in height and bears many fragrant cymes of white flowers in early summer. The fruit – juicy, purple-black, berry-like drupes – is a treat for birds and squirrels in late summer. In the wild, it is found by stream banks or in river valleys. Under cultivation, it is not particular about soil, and grows in sun or shade.

Spicebush *Lindera benzoin*

The understory of a woodland in spring with spicebush all a-flower is a sight to cherish. This shrub is one every gardener should have. Each flower is small, but the numbers of flowers more than compensate for this. In the wild, spicebush is found in moist woods; it also grows in sunny conditions. The leaves, if rubbed, emit a pleasant fragrance. It has red berries in late summer. Spicebush is vase-shaped and can grow to 3 metres. It is a rapid grower once established. Ranges into southern Michigan and southern Ontario. Birds and squirrels eat the berries.

*Hamamelis virginiana**Lindera benzoin**Cephalanthus occidentalis***Black chokeberry *Aronia melanocarpa***

A low to medium-sized shrub, 2.5 metres high. Its habitat is varied: from wet woods through sandy or rocky ridges. Ranges from Newfoundland west to Minnesota, and south to northern Georgia. The flowers are white, 5-parted and are held in stalked clusters. In autumn the fruit is a purple-to-black pome (fleshy fruit). Buds are an interesting dark red, and are appressed against the twig or branch, an appealing characteristic. Leaves turn a reliable scarlet in autumn. Grows in sun or shade.

Nannyberry *Viburnum lentago*

Nannyberry is a large suckering shrub, and is one of the first to flower and leaf out in spring. In a delightful act of symmetry, it is one of the last to provide leaf colour – a wonderful blend of yellow through burgundy – in late autumn. Flowers are terminal clusters, white, sweet-scented. Over the course of the summer, blue-black drupes form and ripen, and are eaten by squirrels and birds. Ranges from southwestern Quebec to southeastern Saskatchewan, and south to Colorado and Georgia. Grows in sun or shade.

Buttonbush *Cephalanthus occidentalis*

Do you have a reliably wet spot in your garden or on your property? Then consider Buttonbush. It is a large, spreading shrub, and grows to 3 metres in height. It has an extensive range: from Nova Scotia to Minnesota, southwest to California, and south to Mexico and Florida, even in the West Indies! The flowers are perfect spheres, whitish, consisting of many tubes. Butterflies love the flowers. The spheres metamorphose to seedheads come autumn. Birds such as Goldfinches will consume the seeds. Prefers sun.

Sumac *Rhus* species

Sumac in fall: the glory of the field and verge. Leaf colour: red, red, red! Staghorn sumac *Rhus typhina* has a velvety leaf. Smooth sumac *Rhus glabra* has a smooth leaf. Winged sumac *Rhus copallina* has shiny green leaves turning to a shining scarlet in autumn; along the leaf midrib are "wings" connecting adjacent leaflets. All Sumacs have male and female flowers borne on separate shrubs. The female ones turn a dusky red-to-burgundy in autumn. Birds and squirrels eat the fruits. A lemon-like beverage may be made from the fruit. The range of Staghorn sumac is Nova Scotia to Minnesota, and south to Iowa and North Carolina. Prefers sun.

References

Forest Plants of Northern Ontario, by Karen Legasy & Shayna LaBelle-Breadman, ISBN 1-55105-064-1
Michigan Trees, by Burton V. Barnes and Warren H. Wagner, Jr., ISBN 0-472-08018-0
The New Ontario Naturalized Garden, by Lorraine Johnson, ISBN 1-55285-200-8
Shrubs of Ontario, by James H. Soper & Margaret Heimburger, ISBN 0082-5093

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Nettles - Lean, Green, And Mean

by Evert Broderick

It's springtime and you have a hankering for the taste of fresh, wild greens. Naturally you go looking for a plant that is covered by stiff, almost invisible, skin-penetrating bristles. You locate a dense stand of just such a plant growing near a creek, reach out to pick one, let flow a stream of invective and recoil your hand and calmly observe the burning red rash erupting on your skin. Yup! These are nettles, all right, the perfect choice for a tasty and nutritious lunch.

Nettles have a global distribution with the greatest concentration of species in the tropics. The nettle family, Urticaceae, is comprised of 45-50 genera and 700 plus species with the genus *Urtica*, stinging nettle, being the best known member of the family in western North America. In Nevada the common stinging nettle is *Urtica dioica* ssp. *holosericea*, also known by the common name of hoary nettle, that is found almost without fail growing in damp or drenched soil.

The sting in nettles is produced by a fascinating mechanism that, as far as I know, is unique in the plant kingdom. The stems and underside of the leaves are covered by tiny, stiff, hollow spicules made of silica. At the base of each glass-like "hypodermic" needle is a fluid-filled, pressure sensitive ampule. The sharp tips of these spicules easily penetrate the skin then break off, allowing the fluid to be pumped out of the ampules and into the skin. There doesn't seem to be a consensus among the authorities as to the composition of this fluid. Some researchers state it is primarily formic acid, the same chemical that causes the bite of a



Stinging nettle (*Urtica dioica*)

red ant to burn so intensely. Other experts say it is a histamine compound which causes the skin to break out in an anti-histamine, allergic reaction. Whatever the chemical make-up, stinging nettles are very capable of causing an irritating rash that lasts from 2 to 6 hours. Nettles are so strongly associated with their painful red bumps that in medical terminology a general term for any swollen, red, itchy rash, regardless of its cause, is urticaria.

So, you're still interested in dining on nettles? No, problem! Just wear gloves while picking them and

cook the plants before putting them in your mouth. Heat melts the silica spicules and neutralizes the irritating fluid, making nettles completely safe for consumption. I have found that nettles need very little heat to render them edible. My preferred method of cooking them is in a steamer basket; the greens are ready to eat after only three to four minutes on the stove. The taste is somewhat bland although supremely palatable. I can think of nothing else that is more like cooked nettles than cooked spinach, both in flavor and in texture. Any way that you can imagine enjoying cooked spinach, go wild by substituting nettles. Since time immemorial nettles have been consumed by various cultures around the world - and for good reasons. Modern nutritional research has qualified traditional dietary wisdom by discovering that nettles are vitamin rich, especially in C and A, and also high in calcium and numerous essential trace minerals. Nettles are also one of the few plant greens that contain a significant percentage of high quality protein that can be assimilated by our non-herbivorous gut.

The best time for harvesting nettles for food is in the spring when the entire young, tender plant is edible. As the plants grow, the lower stems become too tough and fibrous but the mature leaves can still be stripped off and steamed or boiled. By mid- to late-summer leaves may have a grittiness to them due to minerals crystallized in their tissues. These insoluble minerals, known as cystoliths, are suspected of causing urinary tract irritation if ingested in quantity. Save the cooking water - and the leached-out minerals it contains - and drink it, use it as a liquid in recipes or as a hair rinse. It is purported to make hair soft and shiny and even to promote hair growth. Thorough drying of the herbage also renders nettles safe for consumption. Dried and powdered nettles have been used as a feed supplement for many kinds of animals, yielding claims of more rapid growth and weight gain, increased milk and egg production, and thicker, glossier fur. For a nutritional boost this same powder can be used as an herbal seasoning or added to recipes prepared for human fare. Nettles also have ability to coagulate milk and are sometimes used as a substitute for rennet in cheese-making.

Nettles have been used worldwide since prehistoric times as a fiber plant. In fact, the words net and nettle stem from the same linguistic root meaning to twist or knot. Nettle stalks, usually harvested in late summer or autumn, are dried then subsequently soaked

in water. This process yields a fine, strong fiber that can be twisted into cordage and rope or woven into cloth. Ramie, a commercially produced fiber, comes from another plant in the nettle family, *Boehmeria nivea*. The Scottish poet Thomas Campbell wrote, "in Scotland, I have eaten nettles, I have slept in nettle sheets, and I have dined off a nettle tablecloth."

Nettles have been widely used and respected in the world of botanical medicine, both traditionally and contemporarily. The medicinal uses of this plant are far too numerous and varied to delve into in this short treatise so only two notable uses will be mentioned. Traditionally, nettles have been valued as a hemostatic herb, a plant that reduces or stops the flow of blood from wounds, internal or external. Michael Moore, a respected herbalist from Arizona, states that nettles are highly effective in stopping uterine bleeding after childbirth. Simon Mills, a British herbalist and researcher, provides information on clinical studies linking nettle root extract to positive results in the treatment of benign prostatic hyperplasia.

All this from a plant that frequently is categorized as a weed or an untouchable pariah of the plant kingdom. Despite all of their bristling defense mechanism and tough outer appearance, nettles are really sensitive, delicate creatures. So remember to handle them with kid gloves.

Reprinted from the *Nevada Native Plant Society Newsletter*, April 2002



Recent Reprints

A wonderful resource for nature lovers and gardeners is finally back in print. *Field and Forest: A Guide to Native Landscapes for Gardeners and Naturalists*, by Jane Scott, is both inspirational and instructive, teaching gardeners how to capture the essence of natural landscapes in their gardens. Published by the Blackburn Press, this paperback book is a classic, and can be ordered through your local [independent, please] bookstore (ISBN 1-930665-61-X, 195 pp, \$23.95).

Another classic returned to print by Blackburn Press is *The Flora of Indiana* by Charles C. Dean, a 1,236-page reference book and the primary source of information for those seriously involved in field botany in Indiana (ISBN 1-930665-59-8, hardcover, \$124.95).

Reprinted from the *Newsletter of the North American Native Plant Society*, Fall 2002.

Meadow-in-a-Can or More Weeds?

Sandra Hines

The seed packets have labels with romantic-sounding names such as meadow mixture and wedding wildflowers, while others tout backyard biodiversity and make reference to Earth Day. When growing 19 such packets of wildflower mixes, however, University of Washington researchers found that each contained from three to 13 invasive species and eight had seeds for plants considered noxious weeds in at least one U.S. state or Canadian province.

And what makes it nearly impossible for gardeners who want to be conscientious is that a third of the packets listed no contents and a little more than another third had inaccurate lists. Only five of the 19 correctly itemized everything. "I can't recommend using any wildflower seed mixes," says Lorraine Brooks, who did the work at the UW's Center for Urban Horticulture while earning her bachelor's degree.

The seed mixes in this experiment were produced at or distributed from a variety of U.S and Canadian locations. Firms with catalog or web site sales could be selling wildflower mixes to gardeners all across North America and not just to gardeners in the area where the mix is produced.

Brooks found the least unruly of the wildflower mixes was a packet from which only 30 of the 106 plants that sprouted and produced flowers were invasive – that's 28 percent of what grew. From another packet all the species identified were invasive in at least one part of the country and, although the three species in the packet labeled "native" are native to North America, it doesn't mean they are native to all regions. For example, only one species is believed to be native to the Pacific Northwest and it represented 1 percent of what grew. Among the worst mixes were two that each contained two noxious weed species.

Brooks and Sarah Reichard, UW assistant professor of forest resources, say gardeners are better off using their favorite plants, or seeds for their favorites, in order to control what's grown in their yards.

In Washington, the state and 49 local weed control boards maintain lists of invasive species and noxious weeds. Depending on how serious a threat is posed by a species and how widespread it already is, weed managers may prohibit its sale and demand landowners eliminate it. Other species fall into categories in which landowners must prevent the plant from going to seed, for instance by deadheading spent blossoms, to prevent it from spreading.

Gardeners might be surprised at the flowers and seeds that are readily available for sale that are considered invasive or noxious. For instance, the wildflower most commonly observed as part of the mixes was the popular bachelor's button (*Centaurea cyanus*), germinating in beautiful hues of pink and blue from three-quarters of the packets tested. Bachelor's button might be fine if kept confined to one's own yard but it's invasive; that is, it out-competes other plants when it gets into native grasslands and prairies.

Even labels that refer to wildflowers as native should be avoided because everything is native to someplace, but that place may not be where you live, Reichard says.

There are, of course, many other firms that distribute wildflower seed mixes not tested as part of this experiment. Handed out as favors or fund raising thank-you's by environmental and charitable groups, and bearing labels that refer to pastures, meadows, and native flowers, these mixes may even make people think they are suitable for areas next to woodlands, fields or prairies, Brooks says. "But that would be a big mistake."

Sandra Hines, The University of Washington, e-mail: shines@u.washington.edu

Reprinted in *Chinquapin*, newsletter of the Southern Appalachian Botanical Society, Spring 2003. Originally from a University of Washington news release at web site: <http://www.washington.edu/newsroom/news/2002archive/04-02archive/k041802a.html>

[ed. note: visit this site – there is a list of the sometimes surprising plants found in common commercial wildflower mixes, as well as a lot of good links to invasive and noxious plant information.]

Sweetspire *Itea Virginica* Sweet Pleasures

by Catherine Siddall

When I hear myself sounding like a used car salesman, I know I have gone too far. In my defence, I am spouting the virtues of a wonderful, useful, hardy – there I go again! – shrub, not some polluting consumer item. *Itea virginica* is a North American native, and I have convinced many people to buy it simply by showing them a photograph featuring a grove with gracefully arching reddish stems (about three to four feet tall) covered with rich, burgundy-coloured leaves in full autumn splendour. The other trees and shrubs in the photo are all bare. That this shrub holds its fall-coloured leaves very late is confirmed by my experience of it in my yard.

Itea virginica has lovely, lightly scented white flowers appearing at the end of each branch on drooping racemes in June, giving this plant its common name Sweetspire. It thrives in semi-shade under deciduous trees, and I am even testing it in very shady conditions where I don't expect the fall colour to be quite as spectacular. When you purchase a potgrown plant you will see that it is inclined to sucker. I have seen plants so eager to escape the confines of their pots that they have sent out suckers from the holes at the base of the pots. In such cases, I cut the plastic pot away and gently tease the sucker away from the mother plant and plant it so that the new one will come up at a discreet distance from the main plant. (This is one case where a plant's tendency to sucker is a bonus, in my opinion.) It should be watered deeply during droughts, especially in its first years, and rich soil is best.

I became the proud owner of an *Itea* shrub three years ago. During its first winter in my garden, about nine feet of snow was unceremoniously piled on top of my new shrub by my son before I could suggest another location for his mountain. After enduring the ongoing insult of my son having a glorious time sliding down his snow hill (right over the shrub's head) all winter, the *Itea* emerged slowly in the spring, branches all broken and bent but still clinging to its fall leaves. I despaired of it ever recovering, but it managed to produce a few flowers and by the end of the summer had regained some of its height and structure. In the following years it has continued to grace a difficult spot against a north-facing fence as a testament to its tough, resilient habit. If you site the shrub where there might be a chance of seeing it during the winter, you



will no doubt enjoy its reddish winter bark, especially if shown against some evergreen plant.

My woody plant guru, Michael Dirr, author of *Manual of Woody Landscape Plants*, raves about this plant, suggesting that in addition to the attributes I have mentioned, the plant is “amazingly adaptable and has displayed drought tolerance: appears pH adaptable.” He reports that it has no serious diseases or insects, which I can confirm. 'Henry's Garnet' is the selection that is usually available at nurseries and Dirr affirms that both its fall colour and flowers are superior to the species.

I have also seen a dwarf form offered but as I am not concerned about the shrub getting too tall I haven't bought this one. (I don't expect it will much surpass four feet, especially if it is constantly set back by difficult winters.) Dirr informs us that *Itea* is found in the wild in pine barrens in New Jersey to Florida, west to Missouri and Louisiana. Some day I hope to seek it out in its natural setting. For now, though, I will be content to enjoy its four seasons of beauty in the confines of my small backyard, as I sing its praises to all who will listen.

Catherine Siddall lives and gardens in Toronto, where she is a longtime member of the Toronto and Parkdale Horticultural Societies. Catherine's garden design, build and maintenance business is thriving and she has successfully insinuated many native plants into clients' landscapes. She is also a partner in Siddall and Cope, which offers services to groups wanting to establish community gardens or naturalization projects. She can be reached at (416) 531-2253 or rc.siddall@sympatico.ca

Reprinted from the *Newsletter of the North American Native Plant Society*, Fall 2002

ELECTRONIC RESOURCES

University of Colorado Database

The University of Colorado at Boulder database of vascular plant specimen labels from Colorado, housed at the University of Colorado Museum (Herbarium COLO), is now searchable online at

<http://cumuseum.Colorado.edu/Research/Botany/Databases/search.php>.

Of the ca. 90,000 Colorado specimens, approximately 70,000 records have been entered to date. Questions and comments may be directed to Tom A. Ranker, Associate Professor and Curator, **ranker@colorado.edu**.

Ethnobotany of Native America

Dan Moerman's Ethnobotany of Native America online database has received a new, simpler, and more attractive interface, new functionality, and a new URL. Search results will now yield links to the USDA PLANTS database, which has botanical, taxonomic and distributional data on most of the plants of the United States, many with photographs. The new address is

<http://herb.umd.umich.edu>.

For further information, contact Professor Moerman, **dmoerman@umich.edu**.

New Image Gallery, Native Plant Information Network

The Lady Bird Johnson Wildflower Center announces a new plant image gallery as part of its Native Plant Information Network,

<http://www.wildflower.org/?nd=npin>.

The gallery (<http://www.wildflower.org/?nd=gallery>) contains over 11,500 plant images, representing 174 families and 4,322 species. Users access images using a variety of search features, including Latin, common, and family name searches, or simply by selecting a category from one of the pull-down menus. Look for the gallery and other sections of the Native Plant Information Network to grow in the near future.

Anyone who wishes to contribute to the image gallery, or who has questions or comments, may contact Dr. Damon Waitt, **dwaitt@wildflower.org**.

Kew Herbarium Catalogue

Users may now access some basic data from Kew's fledgling Herbarium Catalogue (database of herbarium specimens) via the ePIC (electronic Plant Information

Centre) information resource discovery service. Initial steps have been taken toward digitizing the over seven million collections, and about 78,000 specimens are now available, the bulk of which form the spirit collection. From the Web interface at

<http://www.kew.org/epic/>

users can query plant information from nine databases held at Kew, including IPNI, bibliographies, collections and taxon datasets, and the Kew Web site, in one action. For more information, contact Mar Jackson, Applications Development Manager, **Mjackson@rbgkew.org.uk**.

G. W. Clinton Botanical Correspondence Online

The botanical correspondence of George W Clinton (1807-1885), first president of the Buffalo Society of Natural Sciences, with Elizabeth Atwater (1812-1878) and Charles Mohr (1824-1901) is archived at

<http://ridgwaydb.mobot.org/resbot/hist/corrauth/CorrAuth.htm>

The correspondence was edited by P. M. Eckel of the Missouri Botanical Garden, and questions may be directed to her at **patricia.eckel@mobot.org**.

Monograph and Serial Information

Researchers who need information about botanical monographs and periodicals have two excellent online resources at their disposal. The Karlsruher Virtueller Katalogue (KVK), a service of the University Library Karlsruhe, is a database of 75 million books and serials in library and book trade catalogues worldwide. Entries are available in German, English, and Spanish. For the English language site, see

<http://www.ubka.uni-karlsruhe.de/hylib/en/kvk.html>.

The Zeitschriftendatenbank (ZDB) is the world's largest specialized database for serial titles (journals, annuals, newspapers, etc., including e-journals) and contains over a million bibliographic records of serials dating back to the 16th century, from all countries and in all languages, held in 4,300 German (and some foreign) libraries, with holdings information. The ZDB does not contain the contents of journals, but it is an outstanding source of bibliographic information. It may be found at **<http://zdb-opac.de>**.

Reprinted from the *Flora of North America Newsletter* of the Missouri Botanical Garden, July-December 2003



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On The Fringe

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Shooting Stars – Barry Glick

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Botany 101: Plant Hormones
Native Shrubs for Wildlife
Electronic Resources

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