



On The Fringe

Journal of the Native Plant Society of Northeastern Ohio

The Native Plant Society of Northeastern Ohio

**Happy Anniversary
Thank you for your support over the past year**

**The 30th Anniversary Celebration picnic
Will be held
On Saturday, September 29, 2012
From 2:00 and 5:00 p.m.**

**At Look About Lodge, South Chagrin Reservation
37374 Miles Rd, Bentleyville, OH 44022**

- >Jim Bissell will speak on 30 years of change in the Lake Erie shoreline
- >Hot dogs, hamburgers, special anniversary cake
- >Coffee, tea and water will be provided; bring a side dish and beverage, if you wish
- >Nature walk on the grounds led by Wendy Weirich, naturalist

RSVP to Diane Christensen at dbpolice@roadrunner.com or (440) 666-4870 by September 15th.

MARK YOUR CALENDARS!

Annual Meeting of the Native Plant Society of Northeastern Ohio at the Pine Lake Trout Club

Saturday, November 10, 2012
5:30 p.m. to 8:30 p.m.

This year, the Annual Meeting will be held at the Pine Lake Trout Club in Chagrin Falls. Look for more details in the upcoming months.

After dinner there will be board elections, a short talk by the annual Grant Recipient, and selection of a raffle winner.

In addition the Society will give a newly created award, The Gentian Award, to a person or organization that has made a significant contribution to the study, appreciation, and conservation of the native plants and plant communities of Ohio. The first recipient of this award will be Perry Peskin.

**For more information about the NPSNEO go to
[www. nativeplantsocietyneohio.org](http://www.nativeplantsocietyneohio.org)**

Board

President	Judy Barnhart
Vice President	Kathy Hanratty
Treasurer	Bill Oberdick
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The Journal of the Native Plant Society of Northeastern Ohio is published 4 times a year at Novelty, Ohio. ISSN 8756-6087. Questions or comments are welcome and may be addressed to Diane B. Christensen, 8400 Top Rail Lane, Novelty, OH 44072; 440-666-4870, dbpolice@roadrunner.com; or Bill Oberdick, 2459 Charney Rd., University Hts., Ohio 44118, 216-371-3345, bandbober@wowway.com.

The Mission of the Native Plant Society of Northeastern Ohio is to promote the study, appreciation and conservation of the native plants and plant communities of Ohio.

Program Schedule – Fall 2012

Saturday, September 15, 2 pm – 4 pm – Burton Wetlands. Learn about the songs of crickets and katydids and search for these beautiful little musicians in their native plant setting. This program will be led by CIM music theory professor and native plant enthusiast Lisa Rainsong. The main concert hall will be the large meadow at Burton Wetlands with an additional chamber music performance at the edge of Lake Kelso. Directions: Take 422 to Rt 44. Go north on 44. Just past Lucky's Stop-N-Go, turn right onto Hotchkiss Rd. At the fork in the road, stay right onto Pond Rd. Turn left onto Old Rider Road. The parking lot will be on your right. Call Diane to register: 440-666-4870.

Wednesday, September 19, 6:30 pm – Aurora Audubon Sanctuary. This was a very well attended walk last year and everyone loved it so much, we thought we would do it again. We will be sure to see Fringed & Bottle Gentians, Ladies Tresses, and Turtlehead. Directions: From Rt 306/43 in Aurora, take Pioneer Trail East. The parking lot will be on the right just past the stop sign at Page Road. Call Diane to register: 440-666-4870.

Saturday, October 13, 9:30 am – noon – Forest Hill Park, Cuyahoga County. Wendy Weirich, Cleveland Metroparks Naturalist, leads the trip to this 235-acre oasis in East Cleveland and Cleveland Heights. Fall color, chestnut oaks, Moses Cleveland trees, and remnants of the Rockefeller Estate highlight the walk. Meet at the north end of the parking lot at the Cleveland Heights Community Center, located at 1 Monticello Boulevard at Mayfield Road, Cleveland Heights. Call Diane to register at 440-666-4870.

Botanic Gardens Conservation International

As its headline declares: "BGCI is the world's only global network dedicated to plant conservation." Accessible at <http://www.bgci.org/usa/index/> it is hosted by the Chicago Botanic Garden. On this site one can view progress being made in plant conservation by over 80 international botanical garden members. A new report "Conserving North America's Threatened Plants" is available to read or download (PDF). It is long (52pp.) but very readable and loaded with pictures. It is highlighted on the BGCI home page. Though not for the home gardener, this webpage is very useful as a source for monitoring progress in plant conservation efforts at member botanical gardens.

[The Holden Arboretum, located in Kirtland, Ohio, is listed and linked. —The OTF Editors]

Reprinted from the *Wildflowers* newsletter of the Wildflower Association of Michigan, Spring 2011, Vol. 16, Issue 2
Written by Bob Krueger.

Looking Back Thirty Years to Our Founding

Thirty years ago, on September 30, 1982, 19 people interested in wildflowers met at Holden Arboretum and formed an organization dedicated to native plants. In those early years the organization worked diligently getting other chapters started around the state. At one point there were eight chapters of the Ohio Native Plant Society. Though some other chapters have lapsed, we are happy to say the northeastern Ohio chapter of the Society has remained active over the last 30 years, each year offering a selection of workshops and field trips.

It is fitting on this thirtieth anniversary that we look back at some of our early history. The following article, reviewing the first year of the Society, was written by Ann Malmquist, our founding president, for the November 1983 edition of *On the Fringe* to summarize the achievements of that first year. (Vol. 1, No.9, pp 5-6.) We reprint it here to celebrate our beginning and to honor those founding members.

—Judy Bradt-Barnhart

President

Native Plant Society of Northeastern Ohio



29 years ago this article appeared in *On The Fringe*



Comments From the President

By Ann Malmquist

From *On The Fringe*, November 1983, Vol. 1, No.9.

On September 30, 1982, nine people convened at Holden to form the Native Plant Society. With the writing of this newsletter, we are completing our first year, and what a year it has been!! As of October 30, 1983, we have 81 active, 31 family, 12 sustaining, 15 patron and 3 honorary lifetime members for a total of 142 memberships, or approximately 190 members. In addition, we interact with 20 other organizations in Ohio, Michigan and West Virginia. We have co-sponsored two extensive enterprises: the highly successful Second Annual Native Plant Symposium; and the Prairie Weekend, which raised approximately \$1,500.00 for the expansion of the Wildflower Garden. Our personal part of that sum was \$575.00 from the Harm print raffle. We have published nine newsletters containing some outstanding articles by our professional members. We have had speakers from all over Ohio, who have spoken to us on every aspect of the botanical world. It seems that they have had as much fun being with us as we have had listening to them, because most of them want to come back again. We have taken thirteen field trips to highly interesting areas, some of which we could not have seen otherwise. A full year, a busy year, certainly a year of accomplishment, learning and enjoyment. One of the bonuses was getting to know so many fine people with knowledge in areas many of us had never explored. I would particularly like to acknowledge the contributions of our members who have led field trips: Brian Parsons, Tom Yates, Nate Finck, Jack Selby, Jay Beswick, Emliss Ricks, Bob Bartolotta, Barb Andreas, Jim Bissell and Kent Scott. All of these people gave of their time and expertise for our benefit and pleasure. In addition, many of our programs and lectures were given by members and their generosity has made it possible for us to end the year on a sound financial note. The monetary contributions of Gretta and Hugh Pallister, Ruth and Laurence Schwartz, Maureen Bartel, Tod Hull, Kevin Mattingly and Donald Dean kept us going through the year.

And last, but certainly not least, my undying gratitude to those of you who served so diligently on the Executive Board. No one person can do it alone, and you have made the NFS the success it is today. I'm not going to list all of the names—you know who you are and the people who care about our Society know who you are. I think we are in an excellent position to start the new year in January and aggressively work toward our goals. Great plans are afoot for some stimulating programs and activities.

24 years ago this article appeared in *On The Fringe*

Woody Plants and the Drought of '88 (and 2012)

By Charles Tubesing

Reprinted from *On The Fringe*, Vol. 6, No. 5, September 1988

Woodsman, hold that chain saw!! Do NOT cut down the trees that seem dead. It is very possible that some are only dormant and will come back next spring.

The following article gives you tips on what to do now and next year. — The OTF Editors

When the first substantial rains of fall arrive, many of us will heave a large sigh of relief. In many areas, this has been the driest summer in half a century. At the Holden Arboretum, we recorded one inch of rainfall in June, and two inches in July. The first signs that the drought was affecting woody plants were wilting and scorching/yellowing of leaves, followed in some cases by defoliation. Among the worst-affected trees and shrubs were those with shallow root systems or those planted in shallow soils or on berms or south-facing slopes. Plants which were set out within the last two years are especially vulnerable, and our maintenance crew has been kept very busy trying to water all such plants at the Arboretum.

What seems amazing is that there are so many trees and shrubs in the landscape which are not scorched or defoliated. This suggests that the "average" tree or shrub has been able to tolerate the drought so far. If we were to examine closely those plants which have actually died during the drought, we would likely find that they had been afflicted with some other problem, such as girdling or damaged roots, insect infestation, disease, or a combination of these factors. Drought simply administered the *coup de grace*.

The most effective thing that you can do during the drought to protect your valued landscape plants is to water thoroughly once a week. By thoroughly, I mean slowly and deeply. With bare soil baked as hard as it is on the surface, large volumes of water applied with a water breaker or hose end will largely run off and be wasted. Break up that surface crust and apply organic mulch such as wood chips or grass clippings. Then apply water slowly with a sprinkler if a sizable area must be covered. Set out a tin can for an irrigation gauge, and apply at least two inches of water. For watering individual plants, place a trickling hose at the base of the plant and let it run all day or overnight. An alternative if a number of widely spaced plants must be watered is to punch a one-eighth inch hole in the bottom of each of several five-gallon buckets, and place each bucket next to a plant to be watered, with the hole near the base of the stem. By filling each bucket one or more times, a trickle of water is provided which will soak in deeply, with little runoff. The last is an especially efficient method to use if your water supply is restricted.

In the unlikely event that fall rains are deficient, it will be essential to continue periodic watering until the ground freezes. Desiccated plants are much more subject to winter injury than are those with an adequate supply of water.

Effects of the drought can be expected to carry over into next spring and summer, no matter how congenial the rainfall and temperatures are then. From previous drought experiences, arborists predict that a host of problems affecting trees will appear next year. In many cases, the culprits will be what are referred to as secondary agents, insects and diseases which can only attack weakened plants. Examples of insects in this category are stem borers. Some of the fungi responsible for stem cankers are similarly opportunistic. Insects and diseases which typically attack vigorous plants every year have more significant effects in the year following a drought because of the weakened state of the host plants. A tree which sustained root damage in a drought may lack the vigor to leaf out again after being defoliated by caterpillars or fungal leaf spot.

Through the rest of next spring and summer, control of insects and diseases will have to be based on early detection, and identification of the causal agent. It may seem sensible to fertilize plants injured by drought the previous year, in order to increase their vigor, but this is not advisable. Application of a water soluble or granular fertilizer may further damage root systems reduced by drought. Topdressings of compost or well-rotted manure will supply nutrients at safe levels. Above all, do not fertilize at this time.

It may seem that the drought has only created problems, but it has provided opportunities, too. When you are out assessing the damage, look for plants that appear unaffected by drought, particularly those on problem sites. Check promising species again next summer for delayed symptoms of injury. Your observations will provide you with better choices for replacing drought casualties and for planting on new sites where conditions are rigorous or irrigation is inconvenient.

I would like to acknowledge information provided in talks and bulletins by members of the OSU Extension Service, which was the primary resource consulted for this article.

Charles Tubesing is a Propagator with The Holden Arboretum.

Forest Ecology and Earthworms

Ask anyone on the street if earthworms are good for ecosystems and you will undoubtedly receive a resounding “YES!”. When asked why, they may say something like “earthworms mix and aerate the soil”. It is a basic ecological concept that we may have learned as early as kindergarten. However, recent research on invasion of these seemingly benevolent creatures into previously earthworm-free hardwood forests of the Great Lakes Region has seriously challenged that belief. Researchers at the University of Minnesota, and elsewhere, have documented dramatic changes in native hardwood forest ecosystems when exotic earthworms invade. These changes including losses of native understory plant species and tree seedlings, changes in soil structure and declines in nutrient availability. There is also fascinating evidence emerging that the changes caused by exotic earthworms may lead to a cascade of other changes in the forest that affect small mammal, bird and amphibian populations, increase the impacts of herbivores like white-tailed deer, and facilitate invasions of other exotic species such as European slugs and exotic plants like buckthorn and garlic mustard. These results suggest that exotic earthworms may pose a grave threat to the biodiversity and long term stability of hardwood forest ecosystems in the region. Much more research is needed.

Since 1998, two studies examining the effects of exotic earthworm invasion on plant diversity and tree seedling abundance have been conducted in the Chippewa National Forest in northern Minnesota and the Chequamegon National Forest in central Wisconsin.



Typical understory plant community in a sugar maple forest before earthworm invasion.



An extreme example of the remaining understory plant community in a sugar maple forest after earthworm invasion.

So, which earthworms are native in the Great Lakes Region?

None! Native earthworm species have never been documented in most of the Great Lakes region of North America. Any native North American species of earthworms (in the family *Megascolecidae*) that may have been living in the region was extirpated when glacial ice sheets covered the Upper Midwest 11,000 to 14,000 years ago, leaving the glaciated areas of North America earthworm free. Natural re-colonization by earthworms happens very slowly, with earthworms spreading less than ½ mile in 100 years. So, forests of the Great Lakes Region developed in the complete absence of earthworms. For thousands of years, no earthworms existed in this region until European settlers began arriving around the mid 1800's.

All of the earthworms you have come to know and love in the Great Lakes region are exotic, most are European (in the family *Lumbricidae*) and initially arrived with European settlement. But they continue to be transported, intentionally and unintentionally, through a range of human activities such as the dumping of unused fishing bait, transport of compost & mulch, and anything else that moves soil.

So, how do exotic earthworms affect forested ecosystems?

Lacking a powerful detritivore such as earthworms, decomposition of the annual leaf litter in earthworm-free hardwood forests is controlled by fungi and bacteria. In this situation, decomposition is slower than accumulation of new litter and the result is the formation of a thick, spongy forest floor, often called a “duff layer”. The duff

layer can be up to 10 cm (4 or 5 inches) thick in very rich sites dominated by sugar maple and basswood trees. Dozens of understory plant species are native residents of the forest floor including the much loved Trilliums and other spring flowers. The duff layer provides protection from predation and extremes in temperature and moisture to the seeds of understory plant species, many of which take up to 2 years to fully germinate and begin to grow. These understory plants and tree seedlings root almost exclusively in the thick forest floor since this is where most of the available nutrients are found.



Sugar maple forest before earthworm invasion.



Sugar maple forest after earthworm invasion

Different plant species respond to earthworm invasions differently. Some native plants appear to be very sensitive, so much so, that they can rapidly disappear when earthworms invade a forest. Some examples of these plants include:

Life Form	Latin (scientific) name	Common Name
Herbaceous plants	<i>Aralia nudicaulis</i>	Wild Sarsaparilla
	<i>Aralia racemosa</i>	Spikenard
	<i>Streptopus roseus</i>	Twisted Stalk
	<i>Uvularia sessilifolia</i>	Wild Oats
	<i>Uvularia grandiflora</i>	Large-flowered Bellwort
	<i>Polygonatum pubescens</i> or <i>Polygonatum commutatum</i>	Solomon's Seal
	<i>Aster macrophyllus</i>	Virginia Waterleaf
	<i>Hepatica americana</i>	Round-lobed Hepatica
	<i>Trientalis borealis</i>	Star Flower
	<i>Thalictrum dioicum</i>	Early Meadow Rue
Ferns - Fern Allies	<i>Lycopodium obscurum</i>	Round-branched Ground-Pine
	<i>Dryopteris</i> species	Shield-Fern
Tree Seedlings	<i>Acer saccharum</i>	Sugar Maple
	<i>Acer rubrum</i>	Red Maple
	<i>Ostrya virginiana</i>	Ironwood
	<i>Quercus rubra</i>	Red Oak
	<i>Tilia americana</i>	Basswood / Linden
Shrubs	<i>Amelanchier</i> species	Serviceberry



Typical understory plant community in a sugar maple forest before earthworm invasion.



An extreme example of the remaining understory plant

In contrast, there are a few native plants species that do very well in the wake of earthworm invasions. Such as:

Life Form	Latin (scientific) name	Common Name
Herbaceous plants	<i>Arisaema triphyllum</i>	Jack-in-the-pulpit
	<i>Smilacina racemosa</i>	False Solomon's Seal
Grass-like plants	<i>Carex pensylvanica</i>	Pennsylvania sedge
Tree Seedlings	<i>Fraxinus</i> species	Ash

The reasons for the different responses by different plant species to earthworm invasion is not completely clear, but evidence suggests that several other factors contribute to the effects we see following earthworm invasion including:

- ✚ changes in mycorrhizal fungi
- ✚ the impact of deer herbivory may increase after earthworm invasion
- ✚ secondary compounds that may protect plant roots
- ✚ changes in the seedbed conditions
- ✚ changes in light levels on the forest floor
- ✚ other exotic species may be facilitated by earthworms



Intact forest floor before earthworm invasion.



Elimination of the forest floor and development of thick black topsoil after earthworm invasion.

But I thought earthworms were good for plants!?

We know, anecdotally, that many native plants of the hardwood forest can grow in soils with earthworms since we grow them in many of our gardens. However, recovery of the native understory plant species and tree seedling regeneration following earthworm invasion has not occurred in most invaded forests, even sites in the southern parts of Minnesota that have been invaded for a decade or more. The factors that might prevent re-colonization of understory plant species could include the loss of appropriate germination or rooting environment when the duff layer is eliminated. Earthworms may graze on the plant roots and eat seeds in the soil. The rate and intensity of disturbance associated with an advancing leading edge may be so severe as to eliminate the standing populations of most understory species and with no local seed source the plant populations cannot reestablish. More research in this area is needed.

Reprinted from the Great Lakes Worm Watch website, University of Minnesota, Duluth. For more information go to Great Lakes Worm Watch (GLWW: <http://greatlakeswormwatch.org>).

Johnson Woods State Nature Preserve

Welcome to Johnson Woods State Nature Preserve. When the first European settlers came to Ohio, around 90% of the land area was forested. There are few remnants of this primeval forest left in our state. Johnson Woods is probably the largest, least disturbed, old-growth forest currently known to remain in Ohio.

The 155-acre tract on the south side of Fox Lake Road was a gift to the Division of Natural Areas and Preserves from Mrs. Clela Johnson and her family in memory of her late husband, Andrew C. Johnson. In addition to the gift, Mrs. Johnson sold 51 acres of adjacent old-growth woods on the north side of the road to the Division. This tract was purchased with State Income Tax Checkoff donations.

The combined 206-acre woodlot is administered by the Division of Natural Areas and Preserves as a dedicated state nature preserve, representing one of the finest remaining examples of Ohio's natural heritage. Visitation and use of this preserve is primarily for research, education, and low impact activities such as nature study and appreciation, bird watching, hiking, and photography. Thus, Johnson Woods will be protected for generations to come.



The Big Woods

After Jacob Conrad, Andrew Johnson's great grandfather, left France in 1823, he bought land in section 7 of Baughman Township and settled in Ohio. This property included what is now known as Johnson Woods. At that time, many of the trees were already



200 years old. Having sprouted before the Pilgrims came to America on the Mayflower, these trees flourished through a time when clearing the landscape was one of the most important objectives of the settler. Establishing tillable acreage and making lumber for shelter and transportation were reason enough for the axman to make his way across Ohio.

The woods probably survived the onslaught of the pioneer because of the existing wet conditions. Later, it survived the sawmills of the Depression era of America due to Anna (Graber) Johnson, the mother of Andrew Johnson.

During the last few decades the woods became a stable feature of the local landscape. Stories abound concerning hunters, wildflower bouquets, the Johnson boys' treehouse, poison ivy and even people getting lost.

Neighbors referred to the property as the "Big Woods".

Today, a 1.5 mile long boardwalk trail system allows the visitor to enjoy the preserve without destroying the integrity of the old-growth forest. The boardwalk is constructed of Trex®, a recycled plastic/wood composite.



Some of the trees in Johnson Woods are over 400 years old.

The Forest

This woodland historically was known as Graber Woods and was studied by the renowned ecologist, Dr. E. Lucy Braun, who recognized its significance. The largest trees, then and now, are white oaks, red oaks, and hickories. Many of the larger oaks and hickories are now dying out as they have reached the end of their biological lifespans. As these older trees die, they are being replaced by more shade-tolerant trees such as sugar maple and American beech. As a consequence of this natural succession from an oak-hickory community to a beech-maple community, the maples and beeches are becoming more prominent members of the forest at Johnson Woods. In the more poorly drained sections of the woods are found the swamp forest communities dominated by red maples and pin oaks. Several button bush swamps may also be found in depressional areas, which are frequently associated with the swamp forest community.

In addition to its importance as one of the few old growth forest stands remaining in Ohio, Johnson Woods is also significant for its size. At 206 acres, Johnson Woods is large enough to act as a self-supporting ecosystem. Its large size makes it less vulnerable to storm damage and

threats from disease. Birds such as the pileated woodpecker, scarlet tanager, Acadian flycatcher, wood thrush, ovenbird, and hooded warbler are found nesting at Johnson Woods along with many other species that are dependent upon larger tracts of forests. In an area of Ohio where large woodlots of any age class are rare, Johnson Woods' size, age and history combined make it one of the most significant forest communities in Ohio.

An impressive display of wildflowers flourishes in the spring, including trout lilies, large-flowered trillium, several species of violets, and windflower. Summer brings the cathedral-like canopy of leaves which become more colorful as autumn has its effect on the woods. Winter emphasizes the massive trunks and the height of the huge trees. We hope you enjoy your visit to Johnson Woods State Nature Preserve.



Dames Rocket

State Nature Preserves

Dedicated state nature preserves represent the finest examples of Ohio's natural features. Public visitation is encouraged but closely regulated to protect the natural integrity of the preserve so that it may be passed on, unimpaired, to future generations. Please help protect this special place by observing the rules and regulations posted near the entrance. Please hike only on the boardwalk. Off-trail use and collecting are prohibited, unless a written permit is obtained from the Division.

Reprinted from the Division of Natural Areas and Preserves' brochure. Photos taken from the ODNR website. (See http://www.dnr.state.oh.us/dnap/location/johnson_woods/tabid/898/Default.aspx.)

Two Colorful Wetland Plants: The Cardinal Flower and the Great Blue Lobelia

By Gordon Mitchell

Many wetland plant species have colorful flowers. One of those wetland species has bright red flowers and the other has blue flowers. The former is the Cardinal Flower (*Lobelia cardinalis* L.) and the latter is the Great Blue Lobelia (*Lobelia siphilitica* L.).

The Cardinal Flower is a member of the Bluebell Family (*Campanulaceae*) or of the Lobelia Family (*Lobeliaceae*), and of the Lobelia Subfamily (*Lobelioideae*). The generic name, *Lobelia*, is named for the 16th-17th Century Flemish botanist Matthias (or Mathias) de l'Obel (also von Lobel or Lobelium), who was the personal physician of England's King James I. The specific epithet, *cardinalis*, is Latin for "of a cardinal." It was named for the bright red robes and caps worn by the Roman Catholic cardinals. The flower's shape also resembles the cardinals' miters.

Previous scientific synonyms for this species were *Lobelia fulgens* Humboldt & Bonpland ex Willdenow and *Lobelia splendens* Humboldt & Bonpland ex Willdenow. At different times and places, other common names for this plant were Cardinal Lobelia, Highbelia, Hog Physic, Queen-of-the-Meadow, Red Bay, Redbelia, Red Betty, Red Cardinal, Red Lobelia, Scarlet Lobelia, and Slinkweed.

The Great Blue Lobelia is also a member of the Bluebell Family (*Campanulaceae*) or of the Lobelia Family (*Lobeliaceae*), and of the Lobelia Subfamily (*Lobelioideae*). The specific epithet, *siphilitica*, was given because this plant was once used for fighting syphilis.

This species had no other scientific synonyms. At different times and places other common names for this plant were Big Blue Lobelia, Blue Cardinal Flower, Blue Cardinal Lobelia, Blue Lobelia, Blue Lobelia Cardinal, Great Lobelia, Highbelia, and Louisiana Lobelia.

Cardinal Flower *Lobelia cardinalis* L.



Lobelia cardinalis L.
Cardinal Flower

DESCRIPTION

Perennial

Height: Its height is about 1-6 feet.

Stem: Its stem is upright, unbranched, stout, and is smooth or hairy. These stems arise from a basal rosette of leaves.

Leaves: Its leaves are simple and alternate. Each leaf is about 2-6 inches long and about 1½-2 inches wide, with the lower leaves being longer than the upper leaves. Each leaf is also dark green; lanceolate, oblong, or oval; has finely, irregularly toothed margins; and has pointed ends. The lower leaves have short petioles and the upper leaves are sessile.

Flowers: Its flowers are alternately scattered upon showy, elongated, spiked, terminal, loose, racemous clusters. The slender spike is about 3-20 inches long. Some of the lower flowers are found within the upper leaf axils.

Each flower is about 1-2 inches long and about ¾-1 inches wide; scarlet red, pink, or white; bilaterally symmetrical; tubular; and has a 2-lipped corolla. The upper lip has 2 narrow, pointed, and narrowly deep cut lobes that flare upward. The lower lip has 3 narrow, pointed, and deeply cut lobes that curve downward. The calyx is 5-parted.

These flowers have 5 long stamens that project through the split in the upper lip. These stamens have white "beards" at their ends. These 5 stamens are united to form a tube around the style. There are 5 pistils.

Both the stamens and the pistil's style compose the central red column.



Lobelia cardinalis L.
Cardinal Flower

These flowers are protandrus. The stamens often develop before the pistils. This encourages cross-fertilization. The flowers at the bottom of the cluster bloom first.

Ruby-throated Hummingbirds (*Archilochus colubris* L.), who



are attracted to red flowers, a few Swallowtail (Family *Papilionidae*) butterfly species, and some Bumblebees (Genus *Bombus*), Andrenid Bees (Family *Andrenidae*), and Halictid Bees (Family *Halictidae*), all pollinate these flowers. However, the lower corolla lip is often too weak to support the weights of the insects.

These flowers are unscented. The younger flowers have more nectar than the older flowers. Flowering season is usually July-October.

Fruits: Its fruits are 2-celled, seed capsules. These capsules open at the top and release numerous small brown seeds into the wind or into the water.

Roots: Its taproots are coarsely fibrous and are widespread. These roots develop slender offshoots for new plants.

Habitat: Its habitat consists of wet grounds, wet woods, streambanks, swamps, marshes, pond edges, wet ditches, roadsides, wet prairies, and damp meadows.

Range: Its range covers much of southeastern Canada, the eastern U.S. as far west as the Great Plains, and the southwestern U.S.

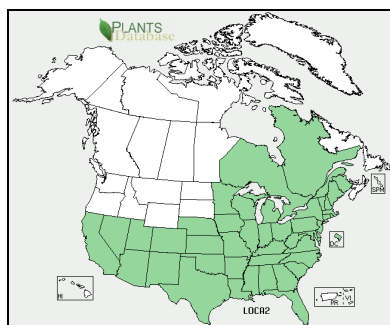
Uses:

Cardinal Flowers had a few medicinal uses. A root tea was used for treating stomach and intestinal troubles, syphilis, typhoid, and intestinal worms. A leaf tea was used for treating common colds, croup, fevers, headaches, nosebleeds, and rheumatism. Crushed leaves were used as a poultice for headaches. This plant also treated cramps and was used as a nerve tonic.

This plant had some other uses. The dried and crushed plant was thrown into the wind to ward off storms. This plant was scattered over gravesites as a final ceremonial rite. The roots were also ground and used as a "love potion" for quarreling couples.

Toxicity:

All parts of this plant contain numerous toxic pyridine alkaloids, such as lobelamine and lobeline, and a volatile oil. Human toxic symptoms may include dizziness, irregular heartbeat, sweaty palms, salivation, pupil dilations, headaches, sweating, nausea, vomiting, exhaustion, weakness, paralysis, tremors, convulsions, coma, and death. Livestock toxic symptoms, which may begin 3 days after consumption, may include salivation, runny nose, ulcerations, hemorrhages, and stomach disorders. Its sap is milky, which can irritate human skin.



Lobelia cardinalis L. Cardinal Flower



Great Blue Lobelia *Lobelia siphilitica* L.

DESCRIPTION

Perennial. They only live about 2-3 years.

Height: Its height is about 1-5 feet.

Stem: Its stem is upright, unbranched, stout, and is either smooth or hairy. These stems arise from a basal rosette of leaves.

Leaves: Its leaves are simple and alternate. Each leaf is about 2-7 inches long and about 1½-2½ inches wide, with the lower leaves being longer than the upper leaves. Each leaf is also light green; lanceolate, oblong, or oval; is smooth or hairy; has slightly irregularly toothed margins; and has pointed ends. The lower leaves have short petioles and the upper leaves are sessile.

Flowers: Its flowers are crowded upon showy, elongated, spiked, terminal, racemous clusters. The leafy spike is about 12-20 inches long. Some of the lower flowers are found within the upper leaf axils.

Each flower is about ¾-1½ inch long and about ½ inch wide; deep blue, purple, lilac, lavender, or even white; bilaterally symmetrical; tubular; and has a 2-lipped corolla. The upper lip has 2 erect, upright, and diverging lobes. The lower lip has 3 spreading lobes. The tube is split down the middle between the upper lobes. The inflated tube is striped underneath and the lower lip has a white stripe. The calyx is 5-parted. These flowers have 5 stamens, 2 of which have tufted or hairy anthers. The stamens are united to form a tube around the style.

These flowers are protandrus. The stamens often develop before the pistils. This encourages cross-fertilization. The flowers at the bottom of the cluster bloom first.

Bumblebees (Genus *Bombus*), Andrenid Bees (Family *Andrenidae*), and Halictid Bees (Family *Halictidae*), all pollinate these flowers. Blue may be at the high end of the evolutionary progression of flower color and Bees (Superfamily *Apoidea*), which are attracted to blue, are the most highly evolved Insect (Class *Insecta*). The lower corolla lip is often strong enough to support the weights of the insects.

These flowers are unscented. The younger flowers have more nectar than the older flowers. Flowering season is usually July-October.

Fruits: Its fruits are 2-celled seed capsules. These capsules open at the top and release numerous small brown seeds into the wind or into the water.



Roots: Its taproots are coarsely fibrous and white.

Habitat: Its habitat consists of moist woods and thickets, marshes, swamps, streambanks, pond edges, wet grounds, and wet ditches.

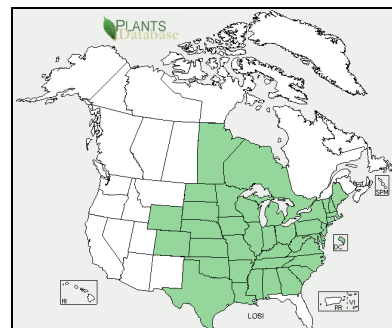
Range: Its range covers most of southeastern Canada and the eastern U.S. as far west as the Rocky Mountains.



Lobelia siphilitica L.
Great Blue Lobelia

Uses:

Great Blue Lobelia had some medicinal uses. A root tea was once believed to cure syphilis. However, that has since been disproven. A leaf tea was used for treating common colds, coughs, croup, fevers, nosebleeds, stomach and intestinal troubles, and worms. Crushed leaves were used as a poultice for treating headaches and various sores. This plant was also used as a diaphoretic and as a diuretic. Great Blue Lobelia had other uses as well. The roots were ground and were used as a “love potion” for quarreling couples.



Lobelia siphilitica L.
Great Blue Lobelia

Toxicity:

Great Blue Lobelia has the same toxicity as described above for the Cardinal Flower.

Gordon Mitchell works for the Columbus, Ohio Metroparks and was a member of the Central Ohio Native Plant Society, which merged with the Columbus Historical Society in the Spring of 2010.

Photos in this article were added by *OTF* editors.

Invasive Plants:**Salt Cedar*****Tamarix ramosissima*, *T. parviflora*****DESCRIPTION**

Salt cedar is a small tree or shrub that can grow 1.5 to 7 m tall and will often form a dense thicket. Branches are slim with grayish green leaves that alternate and overlap. The bark, when young, is reddish-brown and smooth. Flowers are pale pink or white and bloom in a dense mass on 1 cm long spikes on branch tips from March until September. Petals occur in groups of fours and fives. One adult plant can produce thousands of seeds, which are easily dispersed by the wind. The seeds can germinate within one day and though they are slow to grow, once established they can grow 0.3 m per month. Salt cedar is also capable of re-sprouting from roots and cut stems, and can also grow from burned stems (a process called Layering). “Pink Cascade” is one of the ornamental names for salt cedar when it is sold to nurseries.



T. ramosissima flower



T. ramosissima leaves

REASON FOR CONCERN

Salt cedar is a massive consumer of water. It has a long taproot that goes down into the water table, making it very resilient. It can also clog watercourses, resulting in flooding. Adult plants can absorb dissolved salts to store in their leaves. When the leaves fall these salts are deposited on the soil, which inhibits other plant growth.

DISTRIBUTION/HABITAT

Salt cedar is native to parts of both Northern Europe and Asia. In the 1800's it was introduced into the western United States as an ornamental. Salt cedar is able to adapt to many environmental conditions, though it grows best in moist, saline soil and can be found by waterways, rangelands, pasture, and water bodies.

CONTROL

Prevention is key to controlling salt cedar. Chemical control is effective at removing the plant but the top growth of salt cedar should be removed for 3 years following application of herbicides.

Burning or bulldozing has not been successful, but bio-controls such as the leaf beetle, *Diorhabda elongata* have been. The larvae of this beetle feed on the young leaves while the adults eat the twigs, which cause the twigs to die.



Diorhabda elongata



Diorhabda elongata Larva

Reprinted from the 2012 *Prairie Invasive Species* calendar, a joint effort between The Native Plant Society of Saskatchewan and The Invasive Species Councils of Manitoba (ISCM). It is intended to raise awareness and understanding of new invasive species that threaten their Prairie's natural environment, economy and society.

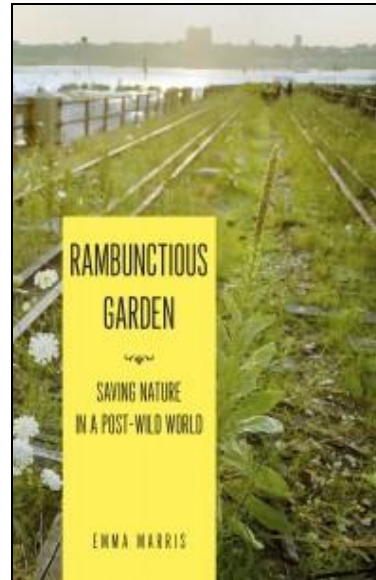
Book Review:***Rambunctious Garden:
Saving Nature
in a Post-Wild World*
by Emma Marris****Reviewed by David Keifer**

ISBN 978-1-60819-032-4

Publication Date: August 30, 2011

Hardback

210 pages, no color illustrations



How do we "manage" natural areas and wilderness? What are natural areas and wilderness? What should our objectives be for these areas? Those are some key questions that Emma Marris addresses in her book *Rambunctious Garden*. Our society has brought in many foreign species, both intentionally and inadvertently. Some have reproduced and spread far beyond their place of original introduction. As good citizens we need to be concerned with the problem this creates for the native species and local ecosystems. This book helps us understand how to approach this problem.

Often we attempt to "restore" such areas. But restoration means we need a vision or goal. Goals often include returning the area to: what it was before the invasive arrived; what it was before European settlers arrived; or what it was like before humans altered the area. There are fallacies with these goals. The most basic is that they all assume the environment is in a steady state. Instead it is constantly changing in response to disruptions and our returning it to a previous state may be

counterproductive. Other problems include not knowing exactly what was here at earlier times, or the assumption that humans did not interfere with the landscape before European arrival. Additionally, we could not recreate the pre-human ecosystem as the climate is now different and mega-fauna, like mastodons, are permanently gone. Consider in our own lifetime the environmental change: increased CO2 levels, increased warm-season lengths, and global warming. Our natural areas have to respond to these on-going changes; we cannot restore them to what they were. Emma Marris's point is that we need to pick better goals than restoration.

She considers several alternate goals. 1) Aldo Leopold's "land ethic" focuses on protecting the rights of other species. This goal is hard to implement in practice due to conflicts between the rights of different species, making it difficult to apply to a specific piece of land. 2) Protecting just the charismatic megafauna fails as these large species can exterminate lesser species when they themselves are protected from predation and their population

increases. 3) Slowing the rate of species extinction requires tough decisions in allocation of our limited resources (triage) as so many species need help. Additionally, how valuable is a saved species if its habitat is gone or it only exists in a zoo? 4) Protecting genetic diversity if taken to extreme can result in the protection of the weirdest species or to the absurdity of saving DNA in a freezer. 5) Defining and defending biodiversity is a focus on a combination of: species, genetic variation, and the variety of ecosystems. This embraces the whole ecosystem at once. This approach sometimes means the most beautiful sites may not be the focus of attention, but instead that we preserve the humble local bog. Biodiversity is a slippery concept. It does come closest to capturing what people appreciate in nature, largely because it encompasses so much. But the breadth makes it challenging to implement. 6) Maximizing ecosystem services, like water filtration, flood mitigation, and flower pollination, is an approach currently in vogue. Placing economic value on these benefits gets society to value their

protection. Assigning value requires making assumptions and may place zero value on species not directly contributing to the evaluated benefit. Since ecologists have not been able to show that higher biodiversity, by itself, improves the ecosystem services, they often resort to assigning *existence value* to nature or diversity. This approach is probably better as a tool to accomplish preservation rather

than a goal in and of itself. 7) Protecting spiritual and aesthetic experiences of nature gets public buy-in but does not guide us on how to proceed with any given site.

Marris concludes that no one goal is best. We need to pursue multiple goals and be willing to compromise. We need to give up romantic ideas about a "stable Eden" and just go out and try almost everything to learn what

works. We should designate multiple sites and manage each for different ends to cover all the bases.

I suggest you read this book for yourself as Emma Marris is far better at presenting her ideas than I have in this brief summary. If you are involved with nature, care about the natural world, are concerned with invasive species or the disappearance of native species, then this is a book for you.

Reprinted from *Solidago*, the Newsletter of the Finger Lakes Native Plant Society. Vol. 13, No. 2, April 2012.

New Botanical Nomenclature Rules Are Now In Effect

By Shirley Mah Kooyman

When a new plant species is discovered and named, it is published with a scientific name in the binominal system of a genus and species along with a description of the plant written in Latin and a supporting "Type" specimen of the species described.

This practice began in 1753 with the publication of *Species Plantarum* by Carl Linnaeus. Plant name changes are not decided at random by botanists with little to do, as some people presume.

Instead, there is an International Code for Botanical Nomenclature that outlines the rules for when a name is accepted or rejected.

Every six or seven years the International Botanical Congress meets to make decisions regarding plant names. The decisions are then published in a book for all to see. The earliest plant name, for a particular species that is validly published, is the accepted name unless other evidence indicates differently. Since 1908, descriptions had to be written in Latin as required by the International Code for Botanical Nomenclature. Now, all of that has been changed effective at the start of the year 2012.

In July 2011, members of the International Association for Plant Taxonomy and the International Botanical Congress met at the nomenclature conference in Melbourne, Australia. It was voted on and accepted that beginning January 1, 2012, plant descriptions no longer had to be written in Latin. Instead, the descriptions could be in English or Latin. It was also voted and approved that electronic publications would count as being "validly published." The scientific name concept (genus and species) would stay intact and not be changed by the new rule. The decision to make these changes came about as a method to facilitate a quicker way of getting new species described. Habitats are rapidly being destroyed, and species are becoming lost before they are officially acknowledged.

For additional information, the following references are cited.

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Mah Kooyman is a plant taxonomist and vice president of MNNPS.

Reprinted from *the Minnesota Plant Press*, The Minnesota Native Plant Society Newsletter, Vol. 31 No. 2 Spring 2012.

Bottle Gentians

By Anne S. Bahl

Bottle Gentians are wily flowers. They keep their treasure behind closed doors even as they invite visitors with their fragrance. The closed doors are the five lobes of the united petals that draw together at their apices (tips). Folded, wedge-shaped, translucent, white, tissue (pleats) between the apices has two purposes. It closes any remaining spaces yet allows light to enter.

The light enables the pollinators, bees, to see when they force their way inside.

Pennsylvania has two bottle Gentians. They are Prairie Closed or Bottle Gently and Meadow Closed or Bottle Gently. Both species prefer moist to wet areas in meadows, thickets, woods, and similar habitats. Five other Gentians in the state are rare; one of them may be extinct.



Gentiana andrewsii
Closed bottle gently

Prairie Closed or Bottle Gently is *Gentiana andrewsii* for the English botanical artist and engraver, Henry C. Andrews. (Some publications use the genus name, *Dasystephana*.) It grows on alkaline soil in the

southern half of the state, more so in the east and the west. Height to 2', leaves to 6", flowers to 1 ½" with lobes that are narrower and shorter than the pleats. Flowers are blue to purplish, sometimes white to pink, and bloom from mid-summer into November.



Gentiana clausa
Bottle gently

Meadow Closed or Bottle Gently is *Gentiana clausa*, Latin, *clausus*, closed. It grows throughout the state in non-alkaline soil. It has been confused with *G. andrewsii*, but it is smaller. Its flower lobes are as wide and as long as the pleats. Flowers are blue with blooming time mid-summer into October.

The family name, *Gentianaceae*, honors King Gentius, King of Illyria (Greece) from 180-167 BC. Pliny, the first century AD Roman natural-historian, credited him with discovering the medicinal value of Gentian.

Gentian plants, especially the roots, are the source of the best bitters. Their quality is so pure that they are the standard by which other bitters are scientifically compared. Since their discovery by King Gentius, they have been used for many health problems especially those involving digestion. The bitters are put into aperitifs, liqueurs, medicines and tonics.

Reprinted from *The Bulletin of the Botanical Society of Western Pennsylvania*, August-September 2010. Photos added by OTF editors.

Plant Lore

By Thor Kommedahl

What is speckled alder?

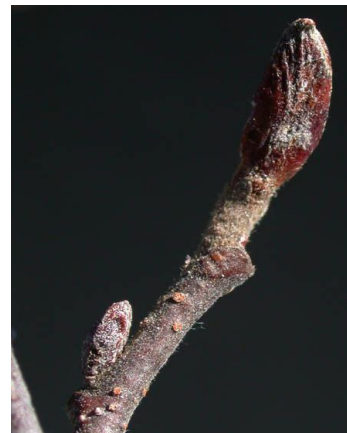
Speckled alder is *Alnus incana* subsp. *rugosa*, and native to Minnesota. It belongs in the birch family.

How did it get its names?

Alder is an ancient name for tree. The Old English name was *alor*. *Alnus* is the Latin name for alder. *Incana* means gray (stem color), and *rugosa* means wrinkled (network of sunken veins on undersides of leaves). It is called speckled because of the numerous warty lenticels on the stem that are pale yellow or orange.

What does the plant look like?

It is a thicket-forming shrub, occasionally a small tree, with simple and alternate leaves. The terminal bud is stalked. It produces yellowish male flower clusters (catkins or aments) and reddish female, cone-like inflorescences bearing small, one-seeded, winged fruits (samaras). Wind disperses samaras. This female catkin remains on the plant in winter — useful for identification.



Stalked speckled alder terminal bud.



Male and female speckled alder catkins, in winter.



Leaves, female catkins of speckled alder.

Where does the shrub grow?

It grows in wetlands or moist lowlands in the wooded areas of Minnesota, often as an understory in forests.

Is it poisonous or medicinal?

It is not poisonous or edible, but American Indians used a bark tea for diarrhea treatment, as a diuretic, for toothache, anemia, and many other problems.

Is it ecologically significant?

Alder roots fix nitrogen comparable to that by legumes. As an understory plant in forests, alder promotes growth of many deciduous and coniferous trees. Songbirds eat the “seeds,” and it is the larval host for the green comma butterfly; it also attracts the tent caterpillar moth and other moths.

Is it part of any other “lore?”

Henry Wadsworth Longfellow, in his *Midnight Ride of Paul Revere*, wrote:

“And under the alders that skirt its edge,
Now soft on the sand, now loud on the ledge,
Is heard the tramp of his steed as he rides.”

Reprinted from the *Minnesota Plant Press*, The Minnesota Native Plant Society Newsletter. Vol. 29, No. 4 Fall 2010. Photos are by Peter Dziuk.



Chapters of the Ohio Native Plant Society

Cincinnati Wildflower Preservation Society
Christine Hadley, President
445 Ward-Koebel Road
Oregonia, OH 45054
513-850-9585
cncywildflower.org
<http://www.CincyWildflower.org>

The Mohican Native Plant Society
Joanne Wrasse
1633 St.Rt.603
Ashland OH 44805
419-281-3690
jwrasse@zoominternet.net

The Native Plant Society of Northeastern Ohio
J. Bradt-Barnhart, President
10761 Pekin Road
Newbury OH 44065
440-564-9151
bunchberry1@windstream.net
<http://www.NativePlantSocietyNEOhio.org>

The Botanizers
The Wilderness Center
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