# On The Fringe

Journal of the Native Plant Society of Northeastern Ohio


**Consider Getting Your Copy of Our Journal *On The Fringe* Electronically in 2011**.
In January you will receive your membership renewal notice and an invitation to accept the Journal of the Native Plant Society of Northeastern Ohio electronically. The electronic version will be rolled out for the March 2011 issue. As most Organizations, we are experiencing increasing costs to publish *On The Fringe* in a paper format. We see this as an opportunity to conserve paper and to apply our resources towards educating the public on native plants. Please consider receiving your copy of *On The Fringe* electronically. Thank you!

### Interested in becoming a Board Member of the Native Plant Society of Northeastern Ohio?

If you are interested in more actively supporting the mission of our Native Plant Society, we invite you to apply for membership to the board. Every organization can benefit from new ideas and new energy. If you are interested in applying, please contact Judy Barnhart and she will explain the procedure. 440-564-9151 (H) or 440-286-9516 ext 2011(W).

### Status of Ohio Native Plant Chapters

Recently the Central Ohio Native Plant Society voted to disband. The Miami Valley (Dayton) Chapter has also disbanded. Currently Cleveland, Cincinnati and Mohican are the only chapters intact in the state of Ohio. It is sad to hear this disturbing news as their contribution to the support of native plants will be greatly missed. Thank you for supporting the Native Plant Society of Northeastern Ohio. We depend and rely on you to keep our Chapter active.

## Program Schedule – Fall 2010

**Herrick Fen – Portage County - Saturday, September 18, 9:00 a.m.- Noon**. Karen Adair, Nature Conservancy Land Steward, leads this trip to the 140-acre Ohio state nature preserve. See the restoration work being done to treat cattails around the lake and restore it to a sedge meadow. In this tamarack fen with sphagnum hummocks, see Kalm's Lobelia, bayberry, alder-leaved buckthorn (*Rhamnus alnifolia*), round-leaf sundew, and water avens (*Geum rivale*). Directions: From State Rt. 14 in Streetsboro take State Route 43 south for 0.2 miles. Turn right (southwest) on Seasons Road 2.2 miles to a gravel lane on the left (east) side just past a railroad crossing. Gravel parking lot on right. Call Judy to register at 440-564-9151 (H) or 440-286-9516 ext 2011(W).

**Don’t forget to visit our new website at www.nativeplantsocietyneohio.org**

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## Program Schedule – Fall 2010, con't.

**Klyn Nursery Tour– Lake County – October 16, 9:00 a.m. – 1:00 p.m**.
Get a behind-the-scenes tour of Klyn Nurseries, which has been in business since 1921. With 550 acres in production, see over three hundred native plants they have in stock, with three houses dedicated to bog and marginals. They supply all the plants for the Cleveland Museum of Natural History's Spring Native Plant Sale. See over 10,000 trees set up on drip irrigation and how they recycle 90% of their irrigation water. Directions: Take Interstate 90 east to the Madison/Thompson exit (#212). Turn left onto SR 528. Continue approximately 3/4 mile to stop light. Turn left at light onto SR 84 (South Ridge Rd.). Continue 6 -7 miles west. You will pass two small Klyn Nurseries signs designating their fields, continue to large sign at parking lot on left (south) side of the road. 3322 South Ridge Rd., Perry Ohio 44081. Call Diane to register at 440-666-4870 (Cell).

## Annual Meeting of the Native Plant Society of Northeastern Ohio at the Cleveland Museum of Natural History

November 19, 2010 - 5:30 pm.
The Explorer Series Presentation will immediately follow.

Explorer Series Presentation will host Dr. Ryan W. McEwan, Assistant Professor of Environmental Ecology, The University of Dayton Department of Biology.

Dr. McEwan's work seeks to further scientific understanding of important ecological processes and build understanding that can directly influence natural resource management; i.e., applicable to real environmental problems. Research in his lab is focused on plants, plant communities, and ecosystem processes. Ongoing research includes studies that explore the role of historical disturbances (such as fire) in ongoing forest dynamics. He also studies the impacts of invasive species on native plant communities. Work in his lab is increasingly focused on developing methods to restore degraded landscapes, including urban ecosystems.

# Show and Tell

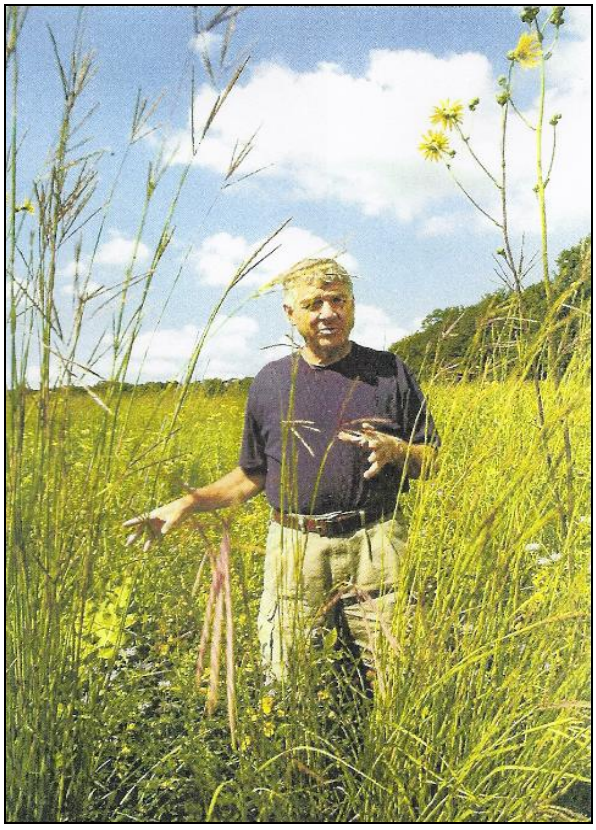
## *Speaking up for prairies in the tallgrass east*

Story and photos by Rollie Henkes

Was there prairie in Ohio?

"Yes, and we should be planting more of it," says Guy Denny as he stands in one of the more compelling examples---a 22-acre reconstruction on his land in north-central Ohio.

Not that Ohio was all that big in prairies. It wasn't until settlers had moved farther west, crossing the Wabash and the Mississippi, that they saw the fabled horizon-to-horizon vistas of the prairie. Nevertheless, Ohio gave settlers their first glimpse of the prairie as they moved out of the eastern forests in the late 18th and early 19th centuries. Ohio may have encompassed from 640,000 to over 21million acres of prairies and savannas at the time of settlement. Virtually all of it has disappeared.



Prairie promoter. "You can have one, too," Guy Denny tells visitors.

Ablaze with color and brimming with life on a mid-summer day, Denny's prairie brings back a piece of that natural heritage. Denny, a retired Ohio DNR official says it's for his own enjoyment, but he also uses it to educate and get people fired up about prairies. Some 300 people a year walk through his prairie while Denny unleashes a barrage of facts about his plantings, laced with an infectious enthusiasm. "If you plant it they will come," he tells them. "The plants attract the invertebrates---the butterflies, the dragonflies---and on up the food chain to the birds and mammals. The diversity is incredible. That's what's so great about a prairie."

**Ground floor**. Denny has been interpreting and promoting the natural world ever since he was a college kid working part-time in the Toledo parks system. He did so well that he filled in as a naturalist at the parks. He went on to hold several positions in the Ohio Department of Natural Resources, working his way up to chief of Natural Areas and Preserves. He took early retirement in 1999 to "do other things."

"His business card reads, "Naturalist, Freelance Writer, Lecturer." He's in demand to speak at the meetings of garden clubs and other groups.

"He's one of the foremost campaigners for preserving Ohio's natural heritage," says Ann Malmquist, Chagrin Falls, Ohio, who is founding president of the Ohio Native Plant Society.

Dick Moseley, Johnstown, Ohio, worked with Denny at the Ohio DNR when Moseley was chief of the Division of Natural Areas and Preserves. Now retired, Moseley has helped Denny host tour groups to Denny's place. Moseley tells how last fall, Hope Taft, the former first lady, brought in a bus load of garden club members. "Denny told the ladies they could collect any seeds they wanted," Moseley relates. "They were delighted. Denny will share seeds with anyone," Moseley adds. "A lot of people in Ohio have started their own prairies as a result."

**Land's history**. Denny bought the land 20 years ago - 50 acres in the Kokosing River Valley about 40 miles northeast of Columbus, Ohio. Flat to rolling, more than half was timber. Denny would establish a prairie on the part that had been farmed. Was this piece of glacial till ever prairie? Pre-settlement grasslands, such as the Sandusky Plains, were farther west, according to maps. The land Denny bought was a maple-beech forest at the time of settlement; then partly cleared for farming.

But Denny says that at some point in geologic time his piece of land could have been prairie. Ohio lies in a tension zone between grasslands and forests, where prairie boundaries ebbed and flowed with climate changes. Dry cycles favored grassland over forest. At one time, prairies may have intermingled with forests as far east as the Mohawk River Valley in New York.



Showcase of diversity. Colorful forbs and grasses in Denny's reconstructed prairie attract people as well as wildlife, including this great spangled fritillary visiting a wild bergamot blossom

**Tallgrass east**. Scholars describe a "Prairie Peninsula" within this tension zone, a region that reached eastward from the Mississippi River across Illinois and Indiana, and into central Ohio. The peninsula followed the general footprint of the Wisconsin glacier. Prairies, however, occurred in a wide variety of soil types and terrain, glaciated and unglaciated. Climate was a more important influence, in particular the ratio of evaporation to precipitationa theory developed in the early 1900s by the renowned biologist Edgar Nelson Transeau.

Denny can get as excited as anyone over a never-plowed piece of land that has been prairie for hundreds of years. But he doesn't get hung up on it. "You can plant and enjoy a prairie as long as you have sunshine and soil ranging from sand to clay," he says. "I don't care if it's 100 acres, a quarter of an acre or even a planter in downtown Columbus. You're preserving something that's uniquely North American. You're going to increase biodiversity and get a response from wildlife at many levels. That's what's so exciting about it."

Not just prairies. Denny also crusades for bringing savannas and wetlands back into the Ohio landscape.

**Opted out**. The land Denny converted to prairie had been in the federal Conservation Reserve Program (CRP) for many years, originally seeded down to a mix of clover, timothy, orchard grass and other non-native species. He could have added some native species under CRP but Denny also knew the mix would be limited and he'd have no control over seed sources. So he opted out of program. He collected his own seed from abandoned railroad rights of way and other prairie remnants in Ohio he knew about from his years as a naturalist.

Beginning in 1992 Denny restored an acre or two at a time, depending on how much seed he had collected. He rototilled the ground after one or two applications of Roundup herbicide, then broadcasted the seed by hand out of a five-gallon bucket. He hand-raked the soil for soil-seed contact and to protect the seed from birds.

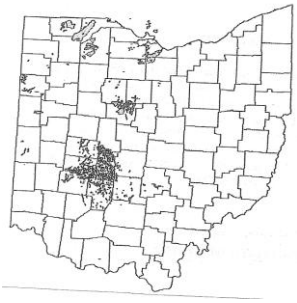
Today, visitors walk along mowed paths to ooh and aah over the native grasses (over a half-dozen species) and the forbs and sedges (over a hundred species), while fritillary butterflies and a host of other wildlife add to the spectacle.

Denny says, "When the prairie is at its peak, people are like, 'Wow! This is prairie? We have prairies in Ohio?' I tell them, yes, and you can have one, too."

Guy Denny - 6021 Mt. Gilead Rd., Frederickton, OH 43019

> Every spring and fall the prairie was covered with water so that the whole country side was a great lake. All day long swarms of water birds filled the air, and far in the night their cries sounded overhead. At the first gleam of dawn vast flights of ducks dashed to and fro and great flocks of wild geese sped swiftly across the sky. – A.W. Herre

Reprinted with Guy Denny's permission from *Woodlands & Prairies Magazine*. Summer 2010



Ohio Prairies in early 1800's, according to land surveys prior to settlement.

Map courtesy of the Ohio Division of Natural Areas and Preserves. Based on a map by Robert E. Gordon.

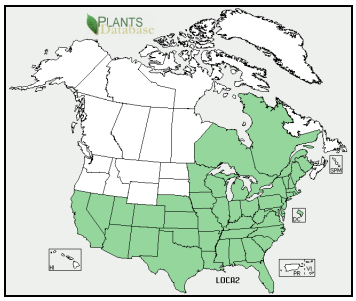
# All In The Family
## *Campanulaceae* - Bellflower Family

**by Richard J. Hull**

It is late afternoon in mid-summer, and you are walking carefully along a narrow trail skirting a small brook. The shadows along the stream bank are deep. All at once a flash of red catches your eye. You peer into the darkness and there, on a small sandy flat, is a tall spire of brilliant red flowers. Each flower is oddly asymmetrical with three partly joined lower lobes and two upper lobes. Between the two upper lobes is a red tube of fused anthers from which a dark stigma, often tipped by light colored pollen, emerges. The aspect of the flower resembles a crane or even a praying mantis. You have experienced a Cardinal Flower (*Lobelia cardinalis* L.) in the wild which is always a memorable event.



**Cardinal Flower**
One of Rhode Island's most striking wild flowers




The Cardinal Flower is one of our most striking wild flowers and is a member of the *Campanulaceae* or Bellflower Family. The Cardinal Flower does not look very bell-like which points to the significant dichotomy within this family. Many members of the *Campanulaceae* have symmetrical bell-like flowers composed of five, usually blue, partly or wholly fused petals and a sometimes protruding style with a three or five-parted stigma. The Marsh Bellflower (*Campanula aparinoides* Pursh) is our only native species in this genus for which the family is named.

World-wide, the *Campanulaceae* contains about 75 genera and 2000 species. The *Vascular Flora of Rhode Island* lists eight species in the family: six are native and two have become naturalized within the state. All our members of the Bellflower Family are herbaceous although there are a few tropical, woody species.

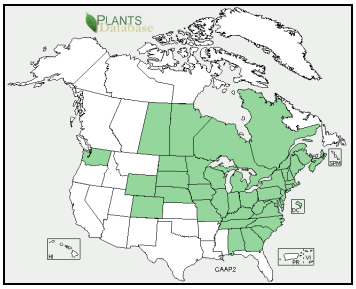
A few vegetative characteristics are common to most members of this family. The leaves are simple, often with teeth; they lack stipules and are arranged alternately on the stem. If a stem or leaf is cut, most members exude milky sap. Most species are perennial but even among our eight species three are annuals.

You need to see a flower to distinguish between the two major subdivisions within the Bellflower Family. The symmetrical flowered Bluebell Subfamily (*Campanuloideae*) is represented in Rhode Island by the naturalized Creeping Bellflower (*Campanula rapunculoides* L.), the native Marsh Bellflower, the native Venus' Looking-glass (*Triodanis perfoliata* [L.] Nieuwl). Sometimes listed as (*Specularia perfoliata*), and the naturalized Sheep's Bit (*Jasione montana* L.*).* The latter has small flowers arranged into a spherical head instead of in the axils of leaves, which is more common for the family. Cultivated members of this subfamily include several Campanula species typified by Carpathian Harebell (*Campanula carpatica*). Also cultivated as ornamentals are Climbing Codonopsis (*Codonopsis vinciflora*), a mat-forming ground cover (*Edraianthus pumilio*), Sheep's Bit (*Jasione laevis*), a low growing tufted perennial (*Phyteuma scheuchzerii*), Balloon Flower (*Platycodon grandiflorus*), and the alpine New Zealand Bluebell (*Wahlenbergia albomarginatai*) to name a few.

The asymmetrical flowers of the Lobelia subfamily (*Lobelioideae*) make these members of the family rather easy to recognize. In Rhode Island, this subfamily is represented by four native members of the genus Lobelia: Spiked Lobelia (*L. spicata* Lam.), Indian Tobacco *(L. inflata* L.), Water Lobelia *(L. dortmanna* L.), and Cardinal Flower all of which are fairly common except for Water Lobelia which is rare. All members of the Lobelia subfamily have petals organized as three lower and two upper lobes. Because the pedicel supporting each flower makes a 180° twist as it elongates, the flowers are actually upside-down. Thus, the



*Campanula aparinoides Pursh*
marsh bellflower




three lobes should be above the two often smaller lobes, which would make the flower more like that of the legume family. Many lobelias are cultivated, including the low-growing border plant *Lobelia erinus*.

In most field guides, the Bellflower Family is placed just before the Sunflower Family (*Asteraceae*), which is generally regarded as the most advanced dicotyledonous family. This often is puzzling because members of the Bellflower Family are very unlike most sunflowers. Aside from the inferior ovary, which is an advanced characteristic, all members of the Lobelia Subfamily also have an unusual manner of pollen presentation, which is common within the Sunflower Family. The anthers and sometimes the filaments are fused into a cylinder through which the style grows. Before this happens, the anthers release their pollen into the cylinder, and as the style elongates it pushes the closed stigma and the pollen out of the cylinder where pollinators can reach it. After it emerges from the anther cylinder, the stigma opens and is receptive to pollination, usually by that carried from another plant.

It appears that this method of pollen release evolved separately in the Lobelia Subfamily of the bellflowers and reflects no real relationship with the Sunflower Family. Nevertheless these two families often find themselves neighbors in plant manuals because of this similarity. Because the Lobelia Subfamily exhibits two major distinctions from the Bluebell Subfamily – asymmetrical flowers and an unusual method of pollen presentation – some taxonomists have placed them in separate families. This is probably legitimate but most authors have elected to keep the Bellflower Family intact. After all, it is sad to see a family broken apart.

**Principal Characteristics of the Bellflower Family:**

- Stems and leaves of most have white sap
- Leaves are simple and arranged alternately on the stem
- Leaves have no stipules
- Flowers are radially symmetric or asymmetric (bilabiate)
- Flowers have five sepals, which are leaf-like
- Flowers have five petals, which are at least fused at their base and often are tube-like or fused into lobes
- Pistil has an inferior ovary (epigynous flower)
- Flowers have five stamens alternating with the petals
- Fruit is a capsule, which opens by basal or terminal pores

Reprinted from The Rhode Island Wild Plant Society Newsletter, September 1999, Vol 13, No.2

# Eastern Red Cedar
## *Juniperus virginiana*

**By Robert L. Tener**

Given enough time and a decent location, the Eastern Red Cedar grows tall and conically slender. I used to wonder why it was called the "poor man's evergreen." Inexpensive if purchased as a seedling, over time it gives a yard the luxurious feel of a large green estate. Clearly the French Canadians liked it well enough to give it a descriptive name, Baton Rouge, meaning "red stick." It is also called Red Juniper, Virginia Juniper, Savin, Virginia Cedar, Pencil Cedar, Red cedar, and Carolina Cedar. *Virginiana* is the species' name because the first specimens described came from a colony in Virginia. In the South it is called Pencil Wood because pencils are made from its wood; it is also called "Vagabond Tree" because it tends to wander. As for the term "Cedar," it acquired that name because its wood is like that of the true Cedar of Lebanon which is fragrant and durable. There are over 30 horticultural forms of this particular species.



This is a medium sized evergreen tree that can vary from a shrub in its extreme northern range to a stately southern tree usually 20 to 50' tall with a trunk diameter up to 2', but choice specimens may reach 100' with diameters up to 3 or 4'. As a young tree it tends to have a handsome conical, or columnar shape; as it grows older it develops an open rounded crown and often a buttressed twisted trunk. In exposed conditions as on northern lake shores, it assumes a variety of gnarled and twisted shapes.

The leaves are opposite, dark blue-green, often becoming bronze in the winter. There are two kinds, usually on the same tree, each being stalkless. One found on seedlings and vigorous twigs is needle-



shaped, 1/2 to 3/4" long, sharply pointed; the other occurs on older branches and trees as minute scale-shaped leaves closely pressed in 4 ranks on the slender branchlets. These remain on the tree for 4 or 5 years and have a fragrant odor. The small male and female flowers appear on separate trees at the ends of small twigs from February to May. The golden pollen from the male catkins is wind blown to the female violet colored flowers. But if there is a slight rain or excessive wind, none reaches the female flowers and the fruit is absent or scarce. Occasionally both kinds of flowers may appear on the same tree. The fruits are dark blue fleshy berries 1/4 to 1/3" in diameter and are aromatic. About the size of small peas, when totally ripe they are quite sweet and resinous and persist on the tree throughout the winter.

The Eastern Red Cedar is tolerant of many different kinds, of soils and climates, from swamps to dry ridges, being common in open stands on poor barren soil. It does not like shade, but prefers sunny slopes, exposed rocky ridges, and will grow readily on limestone lands. In Ohio it usually occurs singly in Adams and Highland counties rather than in stands. But in the south it may constitute 30% of the forest growth in a stand. Young Cedars can be

overtopped or crowded out by hardwood saplings. As a result it likes to grow in borders of fences, neglected pastures, open woodlots, tumbled fences, edges of cliffs, limestone outcroppings, rocky shorelines, pasture borders, and even in rich bottom and swamp lands. There are no Junipers south of the equator, all known species belonging to the North Temperate zone of the Old and New Worlds. It is, however, one of the widely distributed trees in North America. It ranges from Nova Scotia and New Brunswick on the Atlantic to southeastern North Dakota and the Rockies, south to northern Florida and eastern Texas. In Ohio it occurs in almost all of the counties. It is a slow growing tree whose natural reproduction is by seeds only. It may take 130 to 150 years to reach a diameter of 16 or 24" and it may live to be 130 to 150 years old. On good soil, however, it may reach 55 or 60' in 50 years.

It is a difficult tree to transplant. It is best to move it when it is small, under 6' tall. Yet it is a fine plant for landscaping in backgrounds and where tall accents are needed. Unfortunately it is a host plant for the serious apple rust disease. This fungus lives part of its life cycle on the apple tree producing characteristic spots on the leaves and fruits.

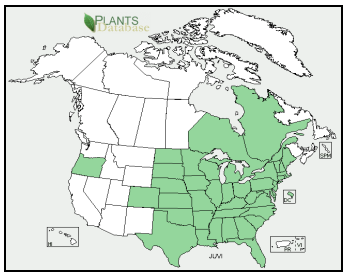
Its wood is soft, fragrant, strong, fine grained, red-brown heartwood and white sapwood, straight, free from knots, light, 31-33 lbs. per cu.ft., brittle, easily worked, capable of a high polish, and extremely durable in contact with the ground. Its heartwood not only resists decay but also resists termites and if unfinished will repel moths. It is used for poles, posts, ships, canoes, pai1s, moth proof chests and closets, pencils, cigar boxes, rai1road ties, window sills, and wooden ware. Its wood is so fine for rai1road ties that for many years railroad companies had the trees planted. It has also come to be a symbol of faithful remembrance as it is often used for windbreaks in rura1cemeteries. Indeed it is of great value both to men and animals. Robins like its berries and have the same range as the tree. Indeed Robins as well as the Cedar Waxwings are the chief planters of the tree in the wilderness. The tree also provides them with fine shelter for their nests.

A decoction of the berries is used in medicine; its berries are used to flavor gin; and a volatile Cedar Oil is distilled from the twigs and leaves for use in the manufacturing of certain perfumes. Its oil is also used in different floor sweeping compounds. The word "gin" comes from the French word "*genievre"* which means Juniper berry. Gin .may get its name from the fact that in its preparation the alcohol is distilled over Juniper berries to produce the characteristic taste. According to the Bible, Elijah f1ed into the wilderness and lay down under a Juniper tree to sleep. There an angel gave him food and drink for his long journey to Mount Horeb.

**References:**

Braun, E. Lucy. *The Woody Plants of Ohio*. 1961.
Dirr, Michael A. *Manual of Woody Landscape Plants* 1990.
Vannorsdal, Harry H. *Trees of Ohio*. 1958.

Robert L. Tener is a member of the Native Plant Society of Northeastern Ohio and a regular contributor to *On The Fringe*. He lives in Rootstown, OH.



## American Lotus

### By Gordon Mitchell

When observing aquatic vegetation, one may notice a plant with large leaves and yellow flowers. That plant may be the American Lotus (*Nelumbo lutea* [Willdenow] Persoon).

Depending upon the references, American Lotus is either a member of the Order *Nymphaeales* or of the Order *Proteales* and of the Lotus Lily Family (*Nelumbonaceae*) or of the Water Lily Family (*Nymphaeaceae*). The generic name, *Nelumbo,* is from *nelumbus*, which is a Ceylonese name for "lotus". *Nelumbo* also means "sacred bean", referring to its seeds. The specific epithet, *lutea,* is from *luteum* or *luteus*, which are both Latin for "yellow", which refers to the color of the flowers.

A previous scientific name for this plant was *Nelumbo pentapetala* (Walter) Fernald. At different times and places, other common names for this species have been Alligator Buttons, Alligator Peas, American Lotus Lily, American Nelumbo, American Water Lotus, Big Bonnet, Bonnet, Can-Dock, Duck Acorn, Elephant's Ear, Great Yellow Water-Lily, Knock-Knocks, Lily Nut, Lotus, Lotus Lily, Macoupin, Monaca Nut, Nelumbo, Pond Nut, Rattlenut, Sacred Bean, Wampapin, Wankapin, Water Bean, Water Chinkapin, Water Chinquapin, Water Lotus, Water Nut, Yankapin, Yawk Nut, Yellow Lotus, Yellow Pond Lily, Yellow Water Lotus, Yockernut, Yonkapin, and Yonkapin Bonnet.

## Description of the American Lotus

Perennial

**Height:** Because the American Lotus is an aquatic plant its height varies with the depth of the water. Both the leaves and the flowers are often located about 1-6 feet above the water.

**Leaves:** American Lotus only has 1 simple, blue-green, basal leaf. This leaf is about 7-36 inches wide, rounded or shield-shaped, concave, and bowl-, funnel-, or umbrella-shaped. It has an entire margin. These leaves are not notched or indented. It is smooth on the top and is slightly hairy on the bottom. Its strong, thick, porous, cylindrical, and flexible petiole is attached to the slightly depressed center of the leaf. If the leaf is floating, it is nearly flat. If the leaf is emergent, it is more conical. One acre of American Lotus plants may have about 75,000 leaves.

**Flowers:** The flower is yellow or light yellow, cup-like, showy, fragrant, solitary, radially symmetrical, and about 4-10 inches wide. The petals and the sepals both number about 20-30 and are obovate, have blunt tips, and are curved upwards and around its large center. Each flower has up to 200 stamens and a large, green-yellow, flat-topped, convex or conical, spongy receptacle in its center. This receptacle is about 3-4 inches long and has many holes. Each hole contains a single pistil.

These flowers are opened at morning and are closed at night. The younger flowers open to expose the center receptacle and its pistils. These younger flowers are pollinated by insects, which have just visited the older flowers that have been opened to expose their stamens. This method assures cross-pollination of the flowers. These flowers are only opened and closed for about 2 days.

The flower and the leaf are borne upon separate stalks. The flowers are above the water.

After the petals and sepals drop, this center receptacle dries and turns brown. Flowering season is usually June to September.

**Fruit:** The fruit consists of a 4-inch wide, woody, inverted conical, flat-topped seedpod with small mounds and several holes. Each hole has a single, embedded seed.

These mature seedpods bend over about 180 degrees, break away from the plant, and float to different locations. Eventually, these seedpods absorb water, rot away, and release their seeds at their new locations.

**Seeds:** Each seed is dark brown, dry, hard, globular or ovate, and is about ½-¾ inches in length. Its tip has a sharp, hard point. One acre of American Lotus can produce about 500-600 lbs. of seeds. Songbirds (Suborder *Passeri*) and Waterfowl (Family *Anatidae*) often eat these seeds. These seeds may remain dormant for up to 200 years.

**Rootstocks:** The rootstocks are nearly 1 inch thick and may grow up to 50 feet long. They are horizontal and creep within the mud at depths of up to 18 inches and/or below the frost line. This plant often reproduces asexually through its root system.

These rootstocks have swollen, porous, rhizome tubers that may be about 10 inches long and weigh about ½ lbs. Beavers (*Castor canadensis* Kuhl) and Muskrats (*Ondatra zibethicus* L.) eat these tubers.

**Habitat:** American Lotus inhabits ponds, lakes, and slow, quiet, sluggish rivers. They can inhabit the water from the shoreline to a depth of about 8 feet. They prefer areas with sufficient sunlight. They may inhabit a variety of sediments. They can even tolerate some turbidity. If the habitat is ideal, this plant may form dense colonies of several acres. These large colonies provide habitats for various aquatic fauna.

**Range:** American Lotus range across most of the eastern United States, usually from the Appalachian Mountains to the Great Plains. Their northern limits are the Great Lakes, southern Ontario, southern New York, and southern New England. Although their range is extensive, they are not a very common species. They are more common in

the South than in the North. They may have originated in the southeastern U.S., Mexico, Central America, and the Caribbean. They were believed to have been transported north by the Native Americans.

### Uses:

American Lotus is edible to humans. Both the Native Americans and the early European settlers consumed parts of this plant. The Native Americans cultivated this plant long before the arrival of the Europeans.

Both the young, unrolling, and unopened leaves and the petioles can be gathered in the late spring to early summer. They are said to have a bitter taste, but can be boiled in several changes of water and eaten like a potherb.

The rootstocks' starchy tubers are gathered in the fall to early spring. When eaten raw, they have an acrid and unpleasant taste. They should be peeled and baked or be boiled repeatedly. They are said to taste like Sweet Potatoes (*Ipomoea batatas* [L.] Lamarck). These tubers can also be dried out and stored for the winter.

The seeds are like Oak (*Quercus* sp.) acorns. They are gathered in the summer or in the fall. They can be eaten when mature or immature. The immature seeds have no shells and can be eaten raw, boiled, or roasted. They are said to taste like Chestnuts (*Castanea* sp.). The mature seeds have hard, thick shells that need to be removed before they are eaten. They can be dried, boiled, roasted, or ground into flour. These seeds are highly nutritious and contain about 19% protein.

The dried seedpods have a non-edible use. They have decorative uses in dried flower arrangements.

This plant should not be over-harvested. Too much harvesting can extirpate this plant from an area.

### Poetry:

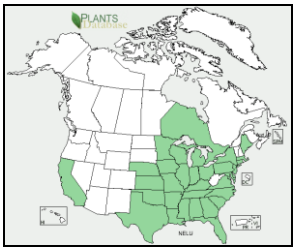
The Lotus has been a subject of many poems. However, most of those poems were written about our non-native species.

During the 1840's, American poet Henry Wadsworth Longfellow wrote the poem *Evangeline: A Tale of Acadie*, which tells of the plight of the expelled French Acadians from Canada by the British in 1755. One of the lines in that poem mentions the American Lotus:

*Resplendent in beauty, the lotus*
*Lifted her golden crown above the heads of the boatmen.*



American Lotus



Reprinted from *The Catchfly*, newsletter of the Central Ohio Chapter of the Ohio Native Plant Society.

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## Flower Fireworks In Northern Ohio

## By Tom Sampliner

Early morning four of us headed west out of Cleveland on a warm, humid day. We were bound for a state scientific preserve called Lewis W. Campbell, slightly west of Toledo. At the preserve we met up with Dan, who had obtained the mandatory entry permit.

Near the entrance gate we were greeted by a multi-stemmed welcoming committee featuring bright orange florets of butterfly weed, (*Asclepias tuberosus*). Despite a weak growth habit for many of the stems, this did not

deter great interest from among the insects. Butterflies and solitary bees were numerous, and most conspicuous of all had to be the fritillaries. Minute traffic jams occurred everywhere.





*Asclepias tuberosus*
butterfly weed

Just a short walk into the prairie we saw thin stalks holding aloft racemes of short tubular white florets of the colic root (*Aletris farinosa*). Taller and more robust but not yet blooming were the tall coreopsis (*Coreopsis tripteris*). More stoutly stalked with linear leaves and cylindrical flower heads hinting at the pink color to come were the blazing stars; this one the spiked *Liatris spicata*. We would not need to wait to see fully open the snapdragon-like florets of the racemes of a beardtongue (*Penstemon digitalis*). There was plenty of one of the mountain mints to go around, *Pycnanthemum virginianum*, but none were yet open.






*Aletris farinosa*
Colic root





*Penstemon digitalis*
Beardtongue

In such a place it would be hard to ignore the fern species present. Sensitive fern (*Onoclea sensibilis*) was everywhere. In fairly good supply were genus mates royal and cinnamon ferns respectively, (*Osmunda regalis*) and (*O. cinnamomea*). Being quite wet early in the season, the expected marsh fern (*Thelypteris palustris*) was standing up straight at attention.

The real reason why we were here was to see and photograph the electric, neon pink of the grass pink orchids (*Calopogon tuberosus*). We were not disappointed. Each flowering stalk waved in the breeze with one to several hot pink florets open. The color would make any sign company proud as they lit up even the most open sunny areas. Most had at least several of the raceme's bottom-most flowers in perfect bloom. Each flower has a nonresupinate but bifurcated lip. The upper-most strap-shaped portion has a brush of white hairs emerging from a yellow spot. These hairs play a deceitful game with insect visitors promising a reward of nutritious pollen, but in fact giving nothing except for a free amusement park ride. This upper lip is hinged at the base so when an insect of suitable bulk weighs down the hinged lip, it throws the unsuspecting visitor upon its back. It then slides down the strap-shaped lower lip accomplishing pollination in the process. We saw no ticket taker so we did not learn if the plant charged for this great fun.





*Calopogon tuberosus*
Grass pink orchids

Before we knew it everyone had expended copious quantities of film or flashcard space. We were done here and bound to move on to other places. Nearby, a railroad right-of-way was briefly inspected. I knew it from some twenty years ago, but it has fallen upon neglect and no longer is home to some interesting prairie species.

Next on our hit parade would be a visit slightly northward to a nature conservancy property called Kitty

Todd. Later in the year, I knew this was home to one of the few populations in state for the yellow fringed orchid, (*Platanthera ciliaris*). It was here today that we would enjoy our second encounter with the beautiful grass pinks. A word though about some of the other residents of this preserve. Our native prickly pear cactus (*Opuntia humifusa*) must have known we were coming as the many large ground-hugging clusters were showing off their lemon yellow flowers to best advantage. Besides attracting a number of insects, the occasional touch of orange in some of the blossoms kept our cameras whirling. Clusters of native lupine (*Lupinus perennis*) were well represented. This plant is host to the rare Karner Blue Butterfly. Lupine blooms in Ohio during May. A couple more of the blazing star species were present. At this early stage my guess is *Liatris spicata*, *L. aspera*, and possibly *L. scariosa*. What I can be certain about was the bright orange widely flaring six lobes of the Michigan lily (*Lilium michiganense*). Dark brown spots dotted each petal surface made more dramatic by a yellowish wash going deep into the throat. Most flowering stalks had at least one lily open along with one or more buds. Our timing could not have been better. Something pink besides the orchids had to be in bloom here. Sure enough, we caught some duller pink similar to common clover coming from wild bergamot (*Monarda fistulosa*). Just as fascinating as the tubular pink flowers, take a closer look at the splotches of red on the uppermost leafy bracts just below the flower clusters. One hazard of each of these places has to be the often unseen thorns of roses blending in with the other vegetation. Needless to say, this is hard on the clothes and any exposed skin. In that regard, before entry, take a liberal spraying of repellant to keep local irritants like flies, mosquitoes and ticks at bay.

The day was fleeting by. Surely we could force in another stop or two. Next would be the nearby state nature preserve called Irwin Prairie. If we were going in, then there had to be an orchid present. Sure enough, right along the boardwalk were a few of the grass colored stalks and flowers of the northern tuberculed orchid, *Platanthera flava*. According to the authorities this would have to be variety herbiola. By this time, out in the open with heat and humidity having built up considerably, neither the lighting, my energy level or other conditions warranted my getting out all the photographic equipment-unless someone was feeding me cold beers nonstop. Years ago this preserve was much wetter than what we saw today. Perhaps this visit was later in the season or water tables have changed or this was just a bad year. In any event, wherever we looked, the substrate appeared way too dry. Perhaps the state's lack of money for stewardship is in evidence.

We had a choice to make now. Either continue to explore in the greater Toledo area in either the diverse Oak Openings or at remnants of the Great Black Swamp, or travel back eastward to Pickerel Creek. Since the latter is home to what has to be the most freely easily accessible population of the Eastern Prairie Fringed Orchid, the choice was unanimous and easy. Orchid time it was. We headed toward Castalia but stopping only some ten-twelve miles west for the state wildlife area called Pickerel Creek. Hopefully it was not either hunting or fishing season. After all, none of us were wearing orange nor were we collectors of spent shell casings. In the golden glow of the late afternoon sunshine briefly obscured by fast moving clouds, we searched for orchids in good bloom. We were not disappointed. The peak count was year 1996 when some 5600 stalks were counted. The following year the population was down by some 3000 stems. Each year thereafter this finicky species has not bloomed in high numbers. In recent years the counts have been quite low. For us orchid hunters, the couple dozen prime blooming specimens this year would do just fine. The lower lip is divided into three parts, each deeply fringed. Hot white is contrasted with a soft greenish cast to the rear of the sepals and petals. The frontal aspect of the orchid flower looks to some lay folks as if they were looking at a person all dressed up in hot white. Here I resorted to some photographic gimmickry. The use of a dark black background made each flower or raceme of flowers just jump out at the viewer. This wetland-prairie alongside Sandusky Bay puts on quite an aerial show as well. Eagles, osprey, and other raptors swoop and bank overhead. If anyone had any film left after this, I am mystified. Now it was late. Light was fading and we were all hungry and tired. We stowed our gear in preparation for the two hours journey back home. What a day it had been. We enjoyed flower fireworks on the third in preparation for the fourth.

Tom Sampliner is a member and former President of the Native Plant Society of Northeastern Ohio.



# Natural Meadows: Challenges and Charms

**By Carry Plunkett**

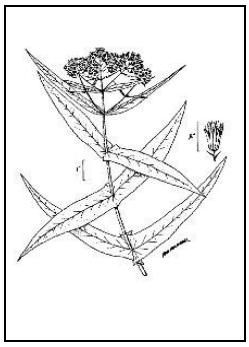
Natural meadows offer an inviting alternative to the "great American lawn," particularly in suburban areas where lot sizes are larger and social pressures (neighborly ire as your manicured lawn goes to brambles and goldenrod) are less menacing. Also, having an acre or two to work with gives a homeowner two options - keeping a more conventional lawn around the house, and also having a significant-sized remaining area as a natural backdrop. The contrast is a very appealing landscape feature.

The aesthetics of natural meadows can be attractive, as is the philosophical satisfaction of doing something positive for the environment, not just in terms of lowering fertilizer pollution and conserving water, but also in terms of creating microhabitats and preserving biodiversity. Obviously, a single suburban meadow represents a small scale environmental effort, but if you believe in "thinking globally and acting locally," the natural meadow is a pretty good local act. My own meadow is about two-thirds of an acre, the back end of a two-acre house lot subdivided from a family farm. Yes, there was some guilt in contributing to a serious environmental problem — loss of habitat to development – but that was a part of the mindset leading to the landscaping decisions we made after the house was built.

The land had been a cow pasture in its former life, and as a house lot it could have been the resource-consuming, habitat vacuum we call the American lawn. For both practical and environmental reasons, the road we took was to leave the rear half "natural". The result has been our fourteen-year love affair with a piece of nature that has been totally gratifying, co-exist alongside the grasses. The result is positive, adding beauty, diversity, and ecological interest without domination.

With an understanding of natural succession, invasive control, and clonal management, one is prepared for the fun part of natural meadows - becoming absorbed in the endless variety, identifying microhabitats that inevitably exist, then supplementing nature's creative forces to add aesthetic quality and greater diversity to the landscape. I believe this works best if one is not in a hurry, taking time to develop a really deep sense of the natural "personality" of the area. Over time, walking down paths at sunset listening to cricket choruses produces empathy for a particular parcel of land. Then decisions become easy – the meadow is telling you what it wants. Here are two examples from my own meadow. There was a low area that retained water during wet seasons, and I eventually realized the spot wanted to be a wetland but needed help. A small pond and "wet meadow" were created with some excavating and low tech drainage alterations, and the results have been dramatic. In only one growing season the emergence of a plant community typical of hydric soils has been noticeable and fascinating. A few scraggly Joe-Pye Weed and Boneset plants have now grown into sizable populations. Soft Rush has appeared and other wetland species have been introduced from a neighbor's pond (with permission, of course).

Another area was quite dry and had poor soil. At first we viewed this as a problem, but it became an opportunity for a different group of meadow plants. I encouraged Little Bluestem grass which had been scattered and fairly unnoticeable. In this more suitable location it flourished and offered a beautiful contrasting splash with its characteristic orange color during fall and winter. These changes accentuated what was already happening in the meadow. They did not occur to me when I first began the project, but over time a growing awareness of the subtleties of the meadow's natural conditions and seasonal dynamics led to these improvements.

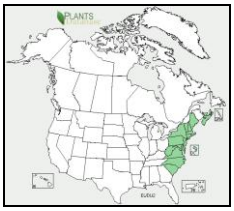


Boneset



Joe-Pye weed





The natural meadow alternative to a traditional lawn is an ideal model for native plant advocacy. It suggests a land ethic paradigm that calls on the disciplines and values that native plant enthusiasts embrace. Natural meadows are about knowing individual plants and plant communities, preserving rather than replacing them, and about sustainable landscaping with native plants without fertilizers. Best of all, meadows are about doing all these things where you can best do them — on your own property.



Little Bluestem



Reprinted from *Notes of the Pennsylvania Native Plant Society*, Jul.-Sep. 2006.

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## Prairie Smoke (*Geum triflorum*)

### by Emony Nicholls

The most delightful characteristic of prairie smoke (*Geum triflorum*) is its downy pink seed head that creates the effect of smoke rising on an early summer breeze. Growing 15-45 centimeters (six to 18 inches) tall, these little plants pack a visual punch throughout the year.



The petals of the small flower heads open only slightly and range in color from red to orange. Obscuring the petals are the triangular maroon sepals, providing relief in mid-May for the color-hungry native-plant gardener. On each stem there are two to four dainty drooping flowers with some reduced leaves at the base of the floral shoot. The hairy basal leaves are pinnately compound with the lateral leaves increasing in size towards the tip. In winter, the rosette of leaves turns a deep red at more northern latitudes but remains "evergreen" in warmer climates.

Clustered together in front of a perennial bed, the bobbing red flower heads provide a visually striking treat in the spring. With advancing years, the flowers will bloom more and spread well, but not aggressively.

As an early bloomer, prairie smoke provides vital nectar for insects emerging from hibernation. Mind you, small bees have their work cut out for them, having to force their way into the tight blooms. Once pollinated, the flowers raise their drooping heads to the sky and allow their silky styles to elongate waiting for the wind to carry their seed away. When the flower goes to seed in mid-June it lends the beds a beautiful softened texture low to the ground, a lovely complement to taller plants.

Prairie smoke prefers sandy, well-drained soils and sunny conditions, but will also tolerate loamy wet soil and partial shade, and even more extreme conditions. Found across North America, these plants range from Eastern Ontario, south to Illinois, across the central prairies of Manitoba and South Dakota to California. They also extend north into Washington and British Columbia, east of the Cascade Range. An adaptable species, *Geum triflorum* has even

been documented on the mountains of Utah!

Although it's commonly found on short-grass prairies, prairie smoke has adapted to the rare and difficult conditions of alvars. Alvars are limestone pavements scraped clean of almost all soil by ice, wind and water action to leave a black stone pavement of open terrain. A patchwork community of wildflowers, mosses, lichens, grasses, shrubs and even a few ancient stunted trees softens this landscape of extremes. Alvars are found primarily near the Great Lakes in North America and the Baltic region of northern Europe. They were formed by warm tropical seas more than 370 million years ago.




In alvars, *Geum triflorum* survives parts of the year in waterlogged depressions or baking in the intense summer sun and freezing in the winter with little insulation from the thin calcareous soil. Other flowers found growing in alvars include Indian paintbrush (*Castilleja coccinea*), lance-leaved coreopsis (*Coreopsis lanceolata*), balsam ragwort (*Senecio pauperculus*),harebell (*Campanula rotundifolia*), early saxifrage (*Saxifraga virginiensis*), false pennyroyal (*Isanthus brachiatus*) and the rarest of them all, lakeside daisy (*Hymenoxys herbacea*). These ecosystems are also home to Ontario's endangered loggerhead shrike as well as myriad other birds and creatures from frogs and snails to butterflies and snakes.

Sadly, many alvars are under threat or already damaged by a number of factors. Development is a culprit. Recreational vehicle enthusiasts also enjoy the open terrain, and the disturbed areas they leave behind provide an opening for invasive species. Likewise, wildflower collectors damage this delicate environment. As a result, *Geum triflorum* is classified as uncommon in Ontario, threatened in Michigan and rare or extirpated in New York where it is on the eastern edge of its range and, therefore, more vulnerable.

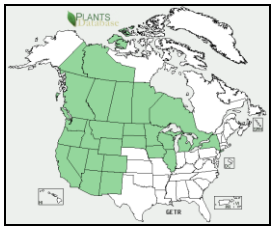
Growing prairie smoke from seed is easy. Plant the seed as soon as it's ready (early to mid-summer) and it will bloom the following spring. The seed also stores moderately well, up to two years, although this is not ideal. It is better to either plant *Geum triflorum* unstratified in the fall or treat it with a cold, moist stratification for the spring. There is no need to remove the trailing plume. The plant also colonizes by rhizome and can be divided in the fall or early spring.

Various First Nations Peoples used prairie smoke for medicinal purposes. The Blood Indians and Blackfoot used to dry the roots, then brew a tea tonic for sore eyes, snowblindness, sore gums, chapped nipples from nursing, sore throats and even split lips. It was fed to horses as a general tonic; it was also used to treat sores and encourage the horses to gain weight. Apparently, the crushed seeds exuded a wonderful perfume!



The genus name of *Geum* is an old one said to have been used by Pliny the Elder (23-70 AD) and simply meant plant. *Triflorum* means 'three-flowered' in Latin. Other common names for prairie smoke include purple avens, prairie avens, old man's whiskers (for obvious reasons), torchflower or maidenhair. *Geums* are part of the Rosaceae or rose family that includes over 3,000 species, from Spiraeas to Fragarias (strawberries).

Enjoy this lovely little plant and, if you have the opportunity, search out an alvar and learn something about this fascinating ecosystem.



Emony Nicholls is the owner of Wild Ginger Native Plant Nursery (www.wildginger.ca). She is constantly humbled by the amount she still has to learn about ecology, wild plants and propagation.

Reprinted from *The Blazing Star*, Summer 2005. Newsletter of the North American Native Plant Society

**"The Buckeye Lady Beetle Blitz Volunteer Network"**

http://www.ladybeetles.osu.edu/

This is a network of volunteers who collect lady beetle diversity and abundance data in Ohio

## Chaparral Prairie
## State Nature Preserve - 67 Acres

### Main Feature:

A blackjack-post oak prairie opening with outstanding summer prairie wildflowers and butterflies.

This is an outstanding cedar barren prairie with post and blackjack oak. It supports one of the most extensive populations of rattlesnake-master in the state. Prairie dock and spiked blazing-star are also unusually abundant at this site.

Eleven state-listed species have been recorded at the preserve including spider milkweed, prairie false indigo, pink milkwort and Carolina buckthorn. Little bluestem is the dominant prairie grass.

Several rare lepidoptera, such as Edward's hairstreak butterfly, have been observed.





### Location:

Located east of Cincinnati in Adams County about 3 miles northwest of West Union. Follow State Rte 247 north to Chaparral Rd (County Rd 22-C), then go west to Hawk Hill Rd (Township Rd 23). The entrance is on the left side of Hawk Hill Rd. the parking lot and trailhead are on the west side of the road. The Hawk Hill Loop Trail is 3/4 mile in length and features interpretive signs.

Reprinted from the Ohio Department of Natural Resources, Division of Natural Areas and Preserves web site: http://www.ohiodnr.com/location/dnap/chaparral_prairie/tabid/926/Default.aspx.

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## Botanizing in Greene County, Pennsylvania

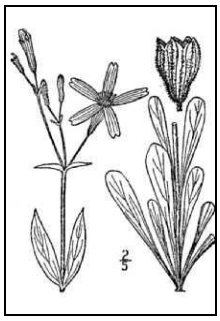
### By Dr. Mary J. Haywood

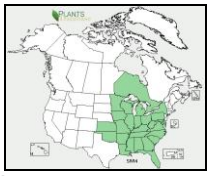
Greene County is located in the Southwest corner of Pennsylvania. It is bordered on the South and West by West Virginia and, on the North by Washington County and on the East by Fayette County. Its southern range (Waynesburg Hills Section) in the State enables some plants not usually found elsewhere in Pennsylvania to grow. Geologically, it was created during the Permian Period (250-290 mil. years ago). The area is underlain by flat-lying, generally thin, but locally thick limestone beds, which are discontinuous in many places and are

commonly embedded with shale. Greene County is known for its high-volatile bituminous coal, sandstone, and siltstone. The rainfall and water supplies are quite adequate for good plant growth.

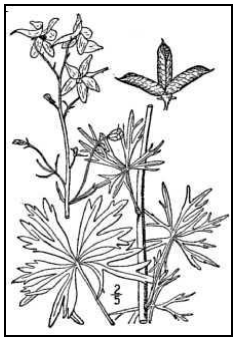
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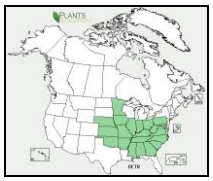
Yearly invitation by the Wheeling Creek Watershed Conservancy to lead a botanical field trip to the beautiful Enlow Valley, located at the border of Washington and Greene Counties and owned by the Pennsylvania Game Commission (State Game Lands #302 in Richhill) depicts an array of beautiful Spring ephemerals. This trip, and many others in Greene County in which I have participated, identifying and collecting specimens for the Herbarium of the Carnegie Museum of Natural History, awakened two possible dilemmas in me. The first, being the beautiful flowers found in Greene County, and the second, and probably more important, is the fragility of protecting our wild flowers, or rather the environmental area where they are growing. In 2001, Antoinette Fitch, writing in the Pittsburgh Post Gazette, described this area as "a pristine region devoid of buildings. Here, nature sweeps a bold palette of hot reds from the fire pinks and yellows from the buttercups against the emerald of the emerging pawpaw, maple, and sycamore leaf buds into the cool pastels of the blue-eyed Mary's, dwarf larkspur, phlox, and wild geraniums. This creation is framed with blue sky above and umber-colored sandstone outcrops."





Fire Pink
*Silene virginica*





dwarf larkspur
*Delphinium tricorne* Michx.

In the mid-1980's CONSOL Energy began longwall mining beneath the area. Over the years, the company subsided eight miles of the fragile stream valley. At first, changes went unnoticed, but as more of the stream changed from a bubbling waterway to sluggish pools, people began to pay attention. After environmentalists complained, the State Department of Environmental Protection issued an emergency permit for permission for CONSOL to dredge a section of the stream in an attempt to restore its flow. The work was done under the direction of the State Game Commission, Fish and Boat Commission and the Department of Environmental Protection (DEP). Environmentalists say the repairs have only damaged the area more by leaving ruts in the flood plain along the creek from heavy equipment, a sharp, unnatural stream bank and a pile of sediment along the stream.

Considering these incidents, I was quite surprised to find a new deep coal shaft (CONSOL Energy's Enlow Fork Mine) constructed half-way down the hill to the old meadow, and miles and miles of coal conveyer mechanism. In 2007-08, a complete cut through the hillside where many of the wildflowers grow was made by the U.S. Fish and Wildlife Service, paid for by Ducks Unlimited. The purpose for this cut is to develop a wetland. The white trout lily, *Erythronium albidum*, classified as a rare plant in Pennsylvania, was barely clinging to the edge of this cut. In dialog with Mr. David Griffin of the game commission, he stated that he would see that topsoil would be added to the cut.

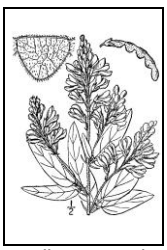
On April 10, 2010, CONSOL slurry spills into Enlow tributary and the DEP is investigating and cleaning up. According to Joe Cerenzia, "the situation is under control." The spill affected about two miles of the tributary and entered Enlow Fork which is stocked with trout by the Pennsylvania Fish and Boat Commission.

In 1990, the Western Pennsylvania Conservancy documented 378 varieties of flora at Enlow. There are four rare and endangered species found here. They are the blue-eyed Mary, Curtis' Goldenrod, American gromwell, and hedge nettle.

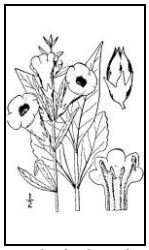
As a native of Greene County, interested in the flora, I began to collect and document the wildflowers of Greene County. The plants I collected have been added along with other collectors' specimens to the Herbarium of the Carnegie Museum of Natural History. A list of some of the interesting plants I collected are: False foxglove (*Aureolaria laevigata*) the noxious

weed Purple loosestrife (*Lysimachia lanceolata*),Water speedwell (*Veronica anagallis-aquatica*), Carrion flower (*Smilax herbacea*), Horse-nettle (*Solanum carolinense*), Sweetbriar (*Rosa eglanteria*), Meadow-sweet (*Spiraea alba*), Agrimony (*Agrimonia gryposepala*), Yellow avens (*Geum aleppicum*), Tall or common meadow buttercup (*Ranunculus acris*), Hairy buttercup (*Ranunculus hispidus var. nitidus*), Blue phlox (*Phlox divaricata*), Yellow wood-sorrel (*Oxalis stricta*), Violet wood-sorrel (*Oxalis violaceae*), Celandine (*Chelidonium majus*), Hay-scented fern (*Dennstaedtia punctilobula*), Cut-leaf grape fern (*Botrychium dissectum*), Fragile fern (*Cystopteris fragilis*), Marsh fern (*Thelypteris palustris var. pubescens*) and Field horsetail (*Equisetum arvense*). Also, growing quite prolifically were

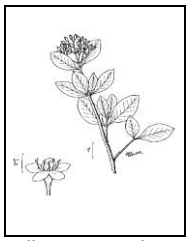
Arrow-leaved violet (*Viola sagittata*)
Asiatic dayflower (*Commelina communis*)
Barnyard grass (*Echinochloa crus-galli*)
Biennial Gaura (*Gaura biennis*)
Bitternut hickory (*Carya cordiformis*)
Bitternut hickory, (*Carya cordiformis*)
Blue Marsh Violet (*Viola cucullata*)
Brown Knapweed (*Centaurea jacea*)
Brown knapweed (*Centaurea jacea*)
Bur-Marigold or Sticktights ( Bidens cernua)
Burning bush (*Euonymus atropurpurea*)
Butterfly-Weed (*Asclepais tuberosa*)
Cat's Ear (*Hypocharisradicata*)
Clearweed (*Pilea pumila*)
Colt's Foot (*Tussilago farfara*)
Comfrey (*Symphytum officinale*)
Comfrey (*Symphytum officinale*)
Common periwinkle (*Vinca minor*)
Cow parsnip (*Heracelum maximum*)
Dandelion (*Taraxacum officinale*)
Early Blue Violet (*Viola x palmata*)
Early Goldenrod (*Solidago juncea*)
Enchanter's nightshade (*Circaea lutetiana*)
*Eurbyia schreberi*
Evening primrose (*Onethera perennis*)
Field Pussytoes (Antennaria neglecta)
Fountain grass(*Pennisteum glaucum*)
Fox grape (*Vitis labrusca*)
Germander or Wood-sage (*Teucrium canadense*)
Golden Alexander (*Zizia aurea*)
Golden corydalis (*Corydalis aurea*)
Great Burdock ( Articum lappa)
Great lobelia (*Lobelia siphilitica*)
Groundnut (*Apios americana*)
Henbit (*Lamium amplexicaule*)
Hollow Joe-Pye Weed (*Eupatorium fistulosum*)
Horseweed (*Conyza canadensis*)
Indian tobacco (*Lobelia inflata*)
Ironweed (*Vernonica gigantea*)
Jerusalem artichoke (*Helanthius tuberosus*)
Meadow-parsnip (*Thaspium trifoliatum*)
Meadow-sweet (*Spirea alba var. latifolia*)
Mountain watercress (*Cardamine rotundifolia*)
Mountain watercress (*Cardamine rotundifolia*)
Mouse-ear hawkweed (*Hieracium pilosella*)
Ninebark (*Physocarpus opulifolius*)
Perfoliate bellwort (*Uvularia perfoliata*)
Pokeweed (*Phytolacca americana*)
Possum-Haw (*Viburnum nudum*)
*Potentilla canadensis*
Purple boneset (*Eupatorium perfoliatum*)
Purple or spiked loosestrife (*Lythrum salicaria*)
Red Maple (*Acer rubrum*)
Showy Tick-Trefoil (*Desmodium canadense*)
Silky dogwood (*Cornus racemosa*)
Sneezeweed (*Helenium autumnale*)
Spikenard (*Aralia racemosa*)
Spotted or St. John's Wort (*Hypericum punctatum*)
Swamp milkweed (*Asclepias incarnata*)
Swamp thistle (*Cirsium nudicum*)
Sweetbriar (*Rosa eglanteria*)
*Symphotrichum prenanthoides*.
*Symphyotrichum lateriflorum*,
*Symphyotrichum novae-angilae*,
Thin-leaved sunflower (*Helianthus decapetalus*)
Three- seeded Mercury (*Acalypha rhomboidea*)
Three-seeded Mercury (*Acalypha virginica*)
Tick trefoil (*Desmodium perplexum*)
*Valerianella radiata*
White trout lily (*Erythronium albidum*)
Wild Carrot or Queen Anne's Lace (*Dacus carota*)
Wild leeks (*Allium tricoccum*)
Wild Lettuce (*Lactua canadensis*)
Wild strawberry (*Fragaria virginiana*)
Wingstem (*Verbasina alternifolia*)
Wood vetch (*Vicia caroliniana*)
Woodvetch (*Vicia caroliana*)
Woodvetch (*Vicia caroliniana*)
Yellow trout lily (*Erythronium americanum*)
Zig-zag or Broad-leaved Goldenrod (*Solidago flexicaulis*)



*Desmodium canadense*
Showy Tick-Trefoil



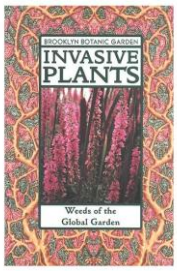
*Aureolaria laevigata*
False foxglove



*Viburnum nudum*
Possum-Haw

Dr. Haywood has a Ph.D. from Michigan State University in Botany and Plant Pathology and taught at Carlow University for twenty-six years. Co-author of the book, *Wildflowers of Pennsylvania*.

## Book Review




### Invasive Plants: Weeds of the Global Garden

John M. Randall (Editor), Janet Marinelli (Editor)

Brooklyn Botanic Garden, 1996
Paperback, 112 pages
ISBN: 978-0945352952

According to a recent study conducted by the Brooklyn Botanic Garden, one-half of the 300 most serious invasive plants now driving out indigenous species and devastating wildland ecosystems throughout North America were introduced to this continent for their horticultural value. Despite their deleterious impact, many of these non-native plants continue to be widely sold by nurseries and garden centers.

The study was based on an analysis of the two most comprehensive natural area weed lists: one compiled by The Nature Conservancy of problem plants on their preserves, and the other by the National Association of Exotic Pest Plant Councils, an umbrella organization of state groups concerned about the ecological impact of invasive non-native species. The combined list was then submitted to state weed authorities for their comments

The results of this study are presented in *Invasive Plants: Weeds of the Global Garden*. Highlighted are 82 species causing problems in the 49 continental states and Canadian provinces: these include the most serious and widespread invasives, including purple loosestrife (*Lythrum salicaria*). Some, such as baby's breath (*Gypsophila paniculata*), are problematic in a geographically limited area Great Lakes dune systems in the case of baby's breath, but seriously threaten unique habitats or rare plants. Several of the profiled plants are only slightly invasive right now, but are regarded as potential serious threats for the future.

In an introductory chapter that sums up the leading hypotheses on what makes an introduced plant become invasive, co-editor Dr. John Randall, invasive weed specialist for The Nature Conservancy, points out that many decades often pass between the first introduction of a plant and its eventual rapid spread The impressive roster of contributors to Invasive Plants includes many of the countries leading weed experts, both scientists and land managers from 20 states and the District of Columbia.

The 82 invasive plants covered in-depth in the study are predominantly woody species. They include 24 trees, 29 shrubs, 13 annuals and perennials, 7 vines, 8 grasses and one aquatic plant, the water hyacinth (*Eichornia crassipes*).

Reprinted from *The Harbinger* quarterly newsletter, Illinois Plant Society. September 1998 Vol. 17, No. 1.

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## Partridge-berry

### Cultivation Notes on a Rhode Island (and Pennsylvania) Native Plant

**By Ann Mitchell Seemann**

Perhaps your first introduction to this lovely little groundcover was similar to mine. In fourth grade our class made a terrarium. I was so taken with the project that I made one for myself at home. All it took was an old fish bowl, a glass cover cut carefully by my father, some charcoal, sand, soil, moss, one rock, and a small planting of Partridge-berry. Cheeriness in a bowl.







Partridge-berry (*Mitchella repens* L.) is a small, creeping, evergreen herb with leaves in pairs and tiny waxy, very fragrant flowers, usually white, but sometimes pale pink. The edible berries are wintergreen-scented and often last throughout the winter. The plant grows in mats which may be three feet across. Once established, Partridge-berry grows unhurriedly across the forest floor. It roots easily from the stem nodes. Partridge-berry likes acid, well-drained, moist, and humus-rich soil, preferably in the shade, although it can be established with care in drier soil.

The plant was named for Dr. John Mitchell (1711-1768) who was born in Virginia and died in England. Educated at the University of Edinburgh, he practiced medicine in his home state, but his leisure time was spent studying the local flora and fauna. He was a botanist and a map maker as well as a regular correspondent of Linneaus.

Manasseh Cutler wrote, "the leaves are much celebrated by the common people as a diuretic and sweetener of the blood, but are of very little efficacy." Pregnant Native American women took frequent doses before giving birth, hence one of its thirty possible common names, "Squawvine"

## Plant Characteristics and Cultivation Notes:

**Perennial**. Height: 1 inch. Flowering time: late spring. Fruiting time: late summer to winter. Zones: 3-9. Leaves dark green, opposite, ovate-orbicular, and blunt at the apex, 1/4- to 7/8-inch long. Leaf veins may be white. Flowers very small, l/4- to 1/2-inch. Flowers, with their funnel-shaped corollas, vary: some have stamens longer than the pistil, or vice versa. After pollination, the flower pairs fuse, and their two ovaries produce a single red drupe containing 4-8 nutlets.

**Habitat:** Cool boreal and acid deciduous forest. Nova Scotia to Ontario and Minnesota, south to Florida, Arkansas, and Texas. Usually found in combination with mosses and lichens.

## Propagation:

**By division:** Cut a fairly large piece of mat from a leading tip. Roots are fragile, so work carefully. Plant in well drained soil, enriched with compost and peat moss. Keep cuttings moist until rooted. Will often bear flowers in the second year.

**By seed:** Moist stratification at 40 degrees F. for at least 6 weeks. Plant l/4-inch deep in mix of sand, compost, and peat moss. Cover flats with l/4-inch layer of pine needles and leave outdoors over the winter. Germination will occur in spring, 2-3 weeks after the temperature gets above 60 degrees F. Transplant seedlings in the fall.

**Cultivation:** Best used in woodland gardens. Once established, the plants spread well into large mats. Prefers moist shade with humus-rich, well-drained, acid soil. Maximum growth in spring before temperatures reach 60 degrees F.

**Companion plants:** Pink Lady's Slipper, Bloodroot, Bunchberry, Clintonia, Hepatica, and Canada Mayflower. *Never dig Partridge-berry, or other native plants, from the wild*

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This article has been reprinted from the March 1999 Vol. 13, No. 1 Cultivation Notes of the *Rhode Island Native Plant Society*

# Invasive Plants of Ohio
# Eurasian Water-Milfoil
*Myriophyllum spicatum*

**DESCRIPTION**:

Eurasian water-milfoil is a non-native rooted aquatic plant with long stems that branch near the water's surface to create a canopy of floating foliage. The leaves are in whorls of four with 14-20 pairs of feathery leaf divisions. A spike of pink flowers emerges above the water and then falls horizontally when in fruit. Eurasian water-milfoil closely resembles the native northern water-milfoil (*M. exalbescens*). A reliable distinguishing characteristic is the number of leaf divisions; northern water-milfoil has fewer (5-12) than the non-native species.

**HABITAT:**

Eurasian water milfoil can grow in a variety of aquatic habitats, but prefers fertile, fine-textured inorganic sediments. It is an opportunistic species that invades disturbed lake beds, recreational waterways and slow moving streams. Optimal growth occurs in alkaline systems with high concentrations of dissolved inorganic carbon.

**DISTRIBUTION:**

Native to Europe, Asia and northern Africa this plant was introduced to the United States by the aquarium industry. It has been spread both purposefully by fisherman who introduced it to lakes for fish habitat and accidentally when caught in boat propellers and carried to a new body of water. In the last five decades it has spread throughout much of North America from Florida to Quebec in the east and California to British Columbia in the west. Eurasian water milfoil was first found in Ohio in 1950 and is now common throughout the state.

**PROBLEM:**

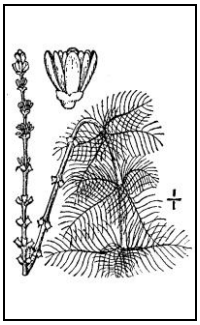
Dense canopies of Eurasian water-milfoil shade out native vegetation, alter the species composition of aquatic invertebrates and may impair the ability of some fish species to spawn. As an opportunistic species, this plant starts growing early in the spring and is capable of rapid dispersion through fragmentation of plant parts. Each fragment is able to grow roots and develop into a new plant. Due to the plant's ability to form dense growths, water recreation activities such as swimming, boating and fishing are inhibited.

**CONTROL:**

Mechanical: Mechanical cutters and harvesters as well as hand-pulling are the most common methods of Eurasian water-milfoil control. To be effective, all fragments must be collected and removed from the site to eliminate new establishments. Manipulations of the water level, where feasible, may have an effect on the plant. Low water levels can desiccate and high levels will "drown" the plants by not giving them access to enough light.

Chemical. Fluridone is a selective herbicide for Eurasian water-milfoil and other aquatic weeds that may be useful.

Biological. A native weevil (*Eurhychipsis lecontei*) has been found to feed and reproduce on Eurasian water-milfoil. This insect may be an excellent control method in that it is selective to this plant and does not appear to feed on native water-milfoils. Other biological control methods including a fungus (*Mycoleptidiscus terrestris)* are currently being researched.





**ADDITIONAL INFORMATION SOURCES**:

Boylen, C.W.L.W. Eichler and J.D. Madsen. 1999. Loss of native aquatic plant species in a community dominated by Eurasian water-milfoil. Hydrobiologia 415:207-211.

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Reprinted from *Invasive Plants of Ohio*, A series of fact sheets describing the most invasive plants in Ohio's natural areas. Resources, Division of Natural Areas and Preserves, May 2000.

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## New Program Certifies Forage and Mulch Free of Noxious Weed Seeds

*A niche hay and straw market promises higher profits for Indiana growers if they can leave one ingredient out of each bale: invasive weeds.*

The Indiana Noxious Weed Seed-Free Forage and Mulch Certification Program offers producers an opportunity to enter a market heretofore available only to growers in western states. Indiana is one of the first states east of the Mississippi with such a certification program. Developed in cooperation with Purdue University, the program is administered by the Indiana Crop Improvement Association (ICIA).

"Demand for noxious weed seed-free hay and straw is growing", said Keith Johnson, Purdue Extension forage specialist. He has had calls from people who want to ride park trails and need forage that won't create horse manure with these noxious weeds. Interest also comes from contractors wanting weed-free straw for erosion control in highway construction.

For hay and straw to be certified "noxious weed seed-free," the pre-harvested crop – and areas where it will be stored – must not contain the seed of 67 invasive weeds. The noxious weed/undesirable plant list is a who's who of problematic vegetation, including Canada thistle, musk thistle, wild ginger, wild onion, cocklebur, johnsongrass, giant foxtail, buckthorn, pennycress, field pepperweed and eastern black nightshade.

Certification inspections are conducted by ICIA personnel ten days before a crop is harvested. ICIA determines whether any noxious weeds have reached the flowering stage where seed maturation has occurred. If so, those fields or areas will not be certified. To become a certified noxious seed-free producer, growers must pay a $500 lifetime ICIA membership fee and nominal application and inspection fees. But the return on investment can be worth the added expense. Depending on the market, a noxious weed-free bale of straw might bring $1-2 more per bale. Noxious weed-free hay sold by the national parks is said to bring twice the typical value of hay sold at Indiana markets.

For more information about this certification program, visit www.indianacrop.org/weedfreeprogram.htm or contact the ICIA toll free at 866-899-2518 or icia@indiancrop.org.

Reprinted from the INPAWS Journal, Spring 2006, Indiana Native Plant and Wildflower Society.


cocklebur



johnsongrass


pennycress



field pepperweed

## Chapters of the Ohio Native Plant Society

Cincinnati Wildflower Preservation Society
Dr. Vic Soukup
338 Compton Road
Wyoming OH 45215
http://www.cincywildflower.org

The Mohican Native Plant Society
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440-564-9151
bunchberry1@windstream.net
http://www.NativePlantSocietyNEOhio.org

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- Raise awareness of the ethical issues regarding native plants
- Encourage surveys and research into native plant species and the publication of findings
- Promote cooperation with other programs and organizations concerned with the conservation of natural resources

# On The Fringe

**In this issue**:

Show and Tell – Rollie Henkes
All in the Family – Richard J. Hull
Eastern Red Cedar – Robert L. Tener
American Lotus – Gordon Mitchell
Flower Fireworks in Northern Ohio – Tom Sampliner
Natural Meadows: Challengers and Charms – Carry Plunkett
Prairie Smoke – Emony Nicholls
Chaparral Prairie State Nature Preserve
Botanizing in Greene County, Pennsylvania – Dr. Mary J. Haywood
Book Review - Invasive Plants: Weeds of the Global Garden
Partridge-berry – Ann Mitchell Seemann
Invasive Plants of Ohio - Eurasian Water-Milfoil
New Program Certifies Forage and Mulch Free of Noxious Weed Seeds

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