The Blazing Star

Spring 2011, Volume 12, Issue 2

Newsletter of the North American Native Plant Society

Native Plant to Know

Eastern Skunk Cabbage

Symplocarpus foetidus

by John Mori

"Why do you love this plant?" they ask. "What's not to love about this plant?" I respond. This plant literally reeks of personality! Eastern skunk cabbage has been my favourite plant for (too many) decades. I have gone out in miserable March weather, lain on soggy, snow-covered ground to take close-up photos, only to return throughout its growing season to admire this unique plant.

Eastern skunk cabbage, a perennial, can often be found in wet, boggy, partially shaded areas. The plant ranges widely throughout the northeastern United States (with the possible exception of Kentucky) and eastern Canada. It is a pleasure, wet clothing aside, to enter this habitat and observe the plant, insect, and animal life.

One reason I am enamoured with skunk cabbage is that it is exotic in appearance and habit. *Symplocarpus foetidus* belongs to the Arum family and shares its pedigree with many tropical plants. This plant looks tropical. Alien, some might say. Western skunk cabbage (*Lysichilton americanus*) and bog arum (*Calla palustris*) extend the family territory exponentially but bear only a distant family resemblance.

Skunk cabbage is a monocot. Leaves originate, and unfurl from, the previous leaf. This process creates an attractive circular leaf arrangement in a mature plant. The plant grows quickly and leaves can reach three feet plus (one metre) in length and one foot or more (one-third of a metre) in width. By mid-summer a colony of skunk cabbage will clearly make its presence known in the forest.

What makes this plant so unusual in my mind? First, your attention is centered on the spathe and its accompanying spadix. In early spring you can only see small, brown, cone-shaped tips pushing up through the snow or nearly frozen ground. Eventually, the full spathe and spadix emerges and things begin to warm up. Literally. The plant deserves a place in the botanical hall of fame, if only for this. Skunk cabbage can warm the immediate area around the spathe several degrees above the air temperature. Heat is generated by the flower heads which likely use the starch stored in the roots, plus

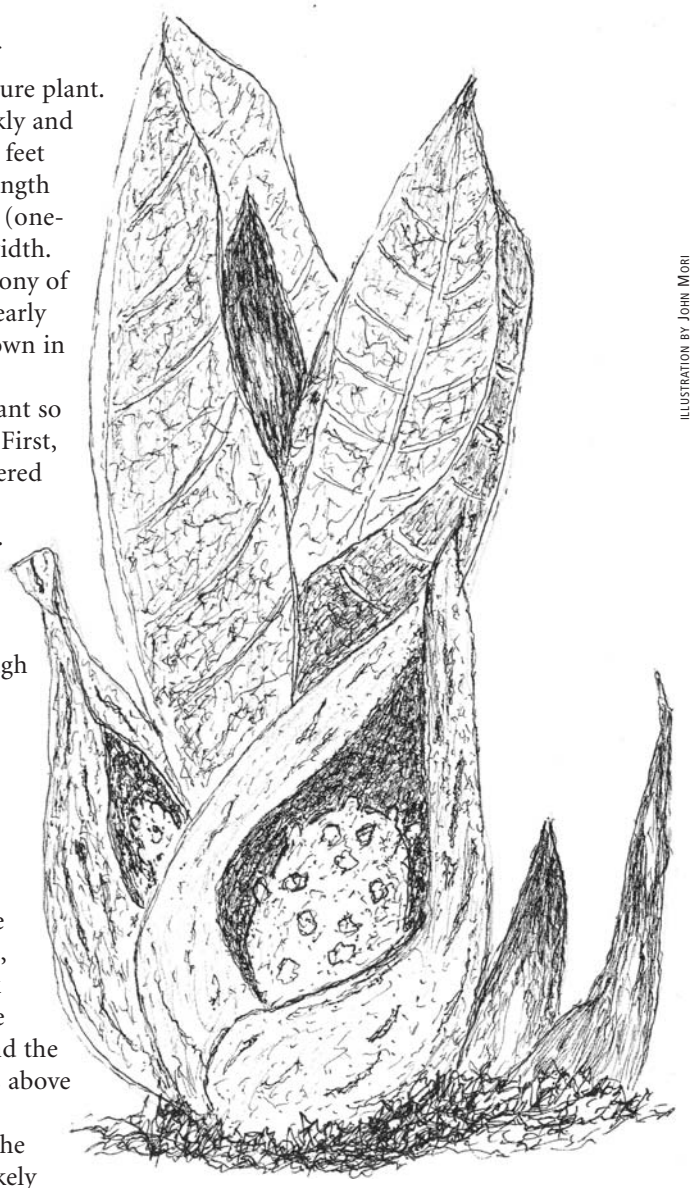


Illustration by John Mori

Continued on page 12

The *Blazing Star* is . . .

The *Blazing Star* is published quarterly (April, August, November, February) by the North American Native Plant Society (NANPS). Contact editor@nanps.org for editorial deadlines and for advertising rates. The views expressed herein are those of the authors and not necessarily those of NANPS.
The North American Native Plant Society is dedicated to the study, conservation, cultivation and restoration of North America's native flora.

Spring 2011
Volume 12, Issue 2

Editor: Irene Fedun
Production: Bea Paterson
Printed by: Guild Printing, Markham, Ontario

North American Native Plant Society, formerly Canadian Wildflower Society, is a registered charitable society, no. 130720824 RR0001.
Donations to the society are tax-creditable in Canada.

NANPS Membership:
CAN$20/YEAR WITHIN CANADA,
US$20/YEAR OUTSIDE CANADA

Please make cheques and money orders payable to North American Native Plant Society and mail to P.O. Box 84, Station D, Etobicoke, Ontario M9A 4X1.
Telephone: (416) 631-4438.
E-mail: nanps@nanps.org.
Web: www.nanps.org.

NANPS Annual Plant Sale

SATURDAY, MAY 7, 2011, 10AM TO 3PM
Markham Civic Centre,
101 Town Centre Blvd.,
Markham, Ontario

11:00am - Vicki Beard,
Making it Work: How to Create Pollinator Habitat in Your City

Vicki is a Master Gardener, a wonderful gourd sculptor, a City of Guelph Councillor from 2006 to 2010 and a founding member of Pollination Guelph. She received the 2007 North American Pollinator Protection Campaign Pollinator Advocate Award as well as the 2009 NANPS Garden/Restoration Award.

12:00pm - Colleen Cirillo,
Invasive Garden Plants

Colleen, who works for Toronto Region Conservation Authority, initiated the Healthy Yards Program in 2003 and co-founded the Horticulture Outreach Collaborative in 2009. Currently she is coordinating the recently formed Green Infrastructure Ontario Coalition.

You'll have the opportunity to ask questions at the "Ask an Expert" table, or chat with Sabrina Malach, organizer of the Pollinator Festival at the Brickworks, as well as a representative from the Toronto Entomologists' Association.

Native plant donations are gratefully accepted. Please label them with species and provenance, if known. A vast selection of nature books available for sale, not to mention the thousands of native plants that will not only look good in every corner of your garden but also provide the necessities of life for our birds, bees, butterflies and other wildlife!

Volunteers needed for setup on Friday, May 6 and at the sale and for cleanup on Saturday, May 7. Email volunteer@nanps.org or phone 416-631-4438.

NATURE IN THE 905 - NANPS FALL TOUR

Saturday, September 24th 2011

Can nature survive in the suburbs? Does it have to take second place to shops and streets? Are isolated token woodlots enough? Are people part of the problem (dumping, vandalism, pets) or the solution (volunteers, guardians and planters)?

See what is happening to protect and preserve native habitat in Markham and Thornhill, meet local activists, and learn what you can do in your neighbourhood. Join the NANPS all-day car pool tour on September 24th. The cost: $10/members, $15/non-members. For more information email excursions@nanps.org

International Pollinator Week 2011

SATURDAY JUNE 25TH
8AM-1PM

The Pollinators Festival @ Evergreen Brick Works Farmers Market, Toronto
Learn to plant a pollinator-friendly garden.
Participate in a honey-tasting workshop.
Contribute to our community art exhibit.

For more information: Pollinatorweek@gmail.com
Come and learn what your parents never taught you about the birds and the bees.

NANPS WEBSITE

Solicit volunteers for your project by listing it on our website Restorations page - restorations@nanps.org.

Phenology of White Trillium

by Ron Hepworth

The woodland species *Trillium grandiflorum* (white trillium) is commonly found throughout southern Ontario. In most parts of the region it blooms during April and May. Climate change may affect plant species and result in earlier blooming dates. Maintaining annual records is the only way to establish long-term trends.

For this study a typical habitat near my home in Brantford, Ontario was selected where an established population with abundant specimens could be easily observed for two decades (1990-2010). I made the observations on a regular basis during the growing season. Dates were recorded for several phenophases in the growth cycle.

For the purposes of this study, the time series was extended back to 1971 using identical **phenophase** data which I had collected previously from other locations. A date correction was applied based on the evidence provided from overlapping records in the database. The other locations included Bronte Creek Provincial Park in South Halton County where the recorded dates were on average about one day earlier than in Brantford, and South Peel at Sheridan Park where average dates were about one day later.

The recorded **phenophases** are defined as follows:

Emergence: New growth emerging above ground by one-two centimetres (less than an inch) on average

First Flowers: The first flowers in a population (~1+%) fully open with stamens visible

Peak Bloom: Most flowers are fully open and only a few faded blooms visible

First Flowers Pink: A few flowers (~1+%) are fading to pink

End of Bloom: Most flowers faded, very few flowers still open or pink

Based on my observations collected from 1990 to 2010 at Brantford and by interpolation from observations in surrounding areas extending to South Peel and Halton Counties, including Bronte Creek, dating back to 1971 as described above (for a total span of 39 years), the following information is summarized and recorded below.

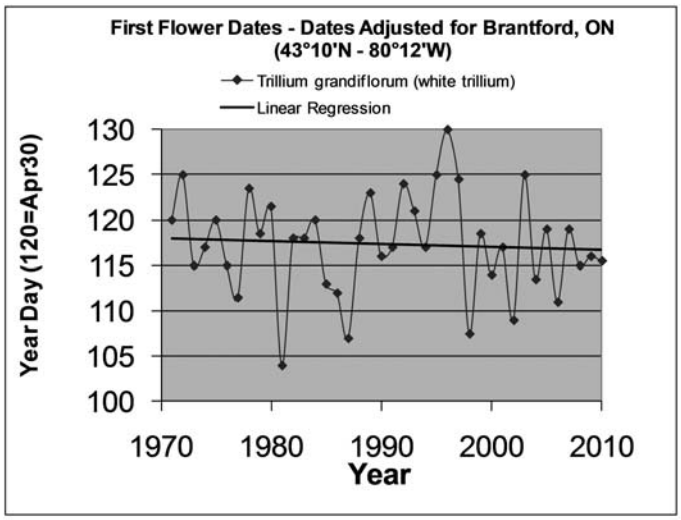
	Median	Earliest Date	Latest Date
Emergence of growth tips in spring	April 13	March 30, 1998	April 17, 1978/1996
First Flowers opening	April 27	April 14, 1981	May 10, 1996
Peak Blooming	May 8	April 27, 1987	May 18, 1996/2003
First Flowers showing pink	May 13	April 28, 1987	May 24, 1997
End of bloom for most plants	June 1	May 20, 1998	June 11, 1996

PHOTOGRAPH BY RON HEPWORTH

First Flowering Date Response Charts

The first flower data plotted below trend toward earlier bloom over the study period from 1971 to 2010 (*Chart A*). The first flower median date over the period is April 27 as shown in the distribution (*Chart C*). There exist a few additional blooming records from the same general area going back as far as 1854. Dr. Wm Craigie was the first known to have recorded flowering dates in the Hamilton area and later there were records kept by a network of observers in a number of Ontario schools coordinated by the Meteorological Service in Toronto under F.F. Payne and later by E. G. McDougall in 1922. A few of these dates have been estimated and added to the series to show the continuing trend towards earlier blooming dates, about eight days per century (*Chart B*).

Chart A



Continued on page 4

Continued from page 3

Chart B

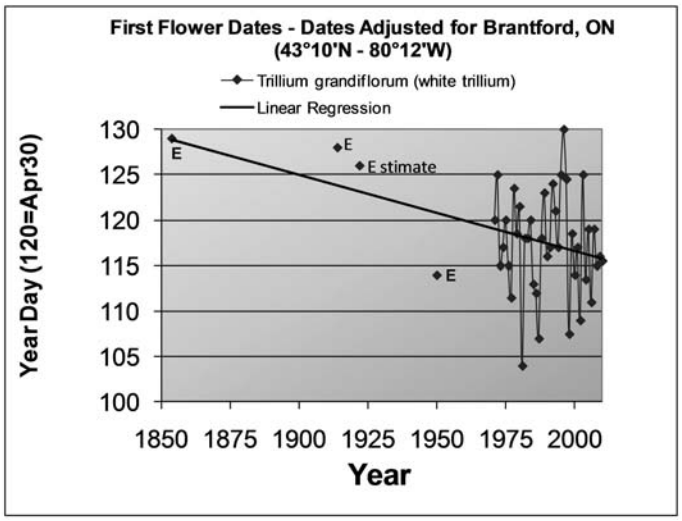
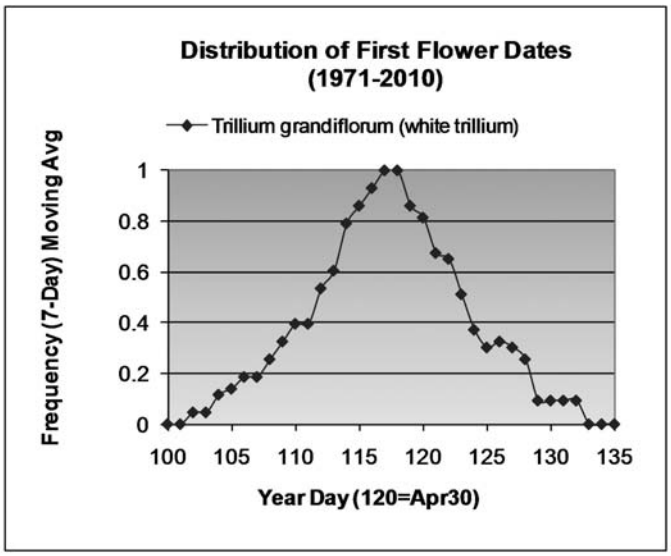


Chart C



Mean Temperature Record & Climate

The response of seasonal plant growth is dependent upon a number of climate variables such as sunlight and day length, soil temperature, wind, moisture and humidity, and air temperatures – both night minimums and daytime highs. The timing of certain growth phases can point to differences in climate from region to region or to subtle changes in local climate when observations are maintained over many years at one location. In the case of the *Trillium* one of the main factors may be air temperatures experienced in April and May (and, in some years, March) as the soil is warming up.

Observer networks were first established in Nova Scotia schools around 1900, then later in several other provinces, recording various phenological events such as first flowering of native plants, bird migration dates, ice breakup and first appearance of frogs and snakes. This network was later combined with the meteorological network and coordinated by the Canadian Meteorological Service up until World War II. Today, only the physical weather data is recorded across a scattered network of observer stations maintained by Environment Canada.

In this study a record of daily temperatures and precipitation was maintained over most of the period at my home location within two kilometres (1.2 miles) of the observation sites. To compare with the flowering record, the mean temperatures during the growing months of April/May were determined from these records and plotted in *Chart D*.

As expected in a warming climate, the April/May mean temperature trend slowly increased over the period which is probably one of the main factors resulting in observed earlier blooming times. When the temperature record is pushed back to 1854, the same warming trend is evident over the entire period (*Chart E*).

In summary, the blooming time of *Trillium grandiflorum* seems to be advancing on average at the rate of about eight days per century responding to an April/May mean temperature increase of 1.6° C (34.9° F) per century. Another way of expressing the result is that an increase of 0.2° C (32.4° F) in the April/May mean temperature will advance the first flower date by one day on average.

The response of another species may be quite different under the same conditions since there are many factors that determine growth rates. Soil temperatures do not warm as quickly in a woodland setting and do not fluctuate as much from day to night as in an open situation directly exposed to the sun.

In a parallel study observing the introduced species *Taraxacum officinale* (dandelion), which has a similar blooming season to *Trillium grandiflorum* but prefers a sunny open location, the advance in first bloom is found to be about 22 days per century or 2.8 days on average for an increase of 0.2 °C in the April/May mean temperature (*Chart F*).

Chart D

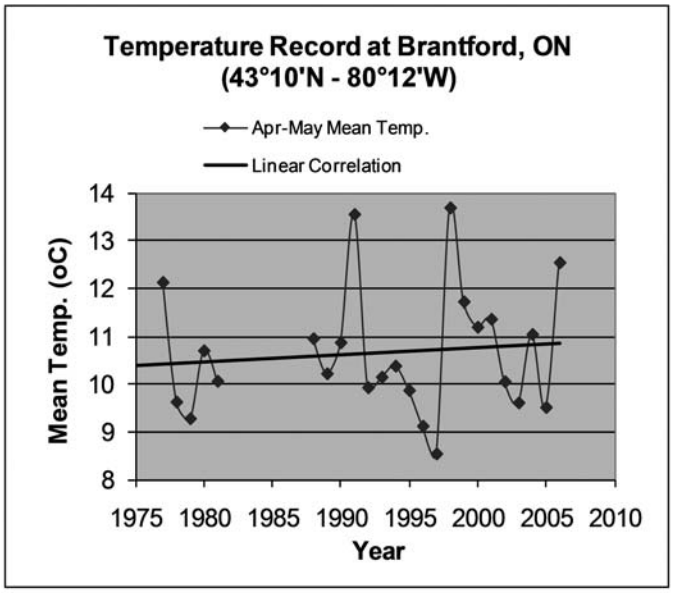


Chart E

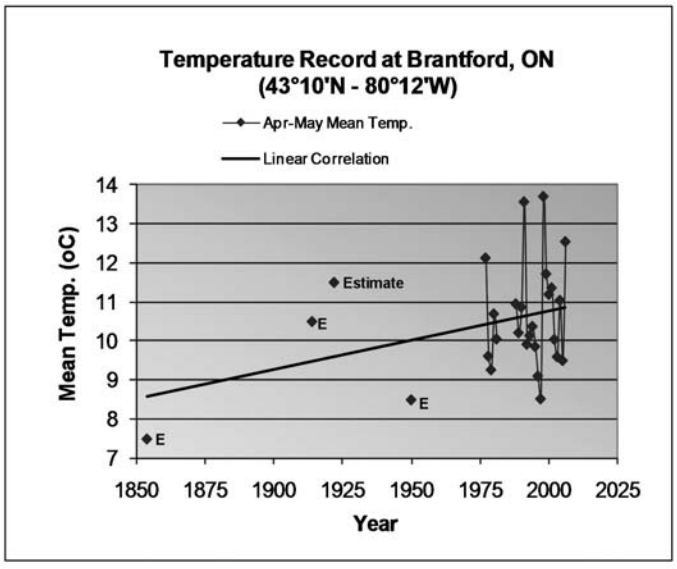
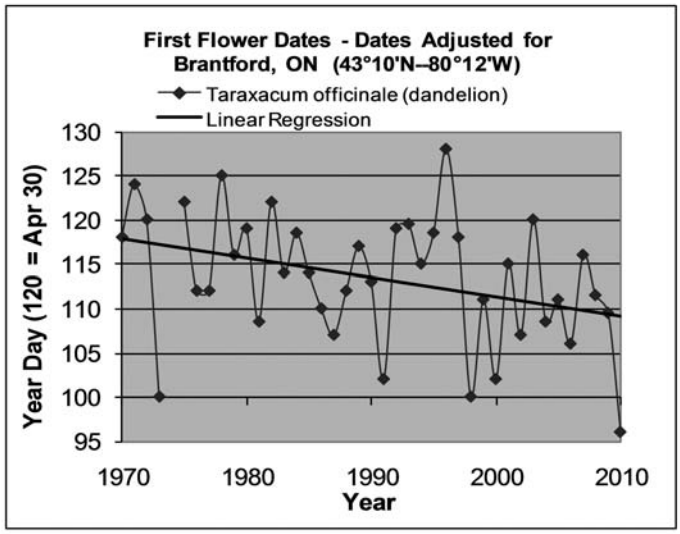


Chart F



Ron Hepworth, who compiled all the data for this study, is a keen nature lover and photographer who has developed a particular interest in plant phenology – the effect of weather and climate on the blooming sequence of local plant species. His photos and notes are posted each season at www.deanswildflowers.com.

A Gentle Push Towards Greater Diversity

by Paul O'Hara

Interventions on the land and with people are much the same – a gentle push that honours the intelligence of the subject is all that's needed.

This type of thinking was applied to Vale's research facility – otherwise known as Base Metals Technology Development – in Sheridan Business Park in Mississauga, Ontario. This four-hectare (10-acre) property had 2.4 hectares (six acres) of turf that was, for many years, neatly mown, irrigated, fertilized and sprayed. Two years ago that all changed.

This facility is located at the headwaters of Sheridan Creek which flows through the suburban neighbourhood of Clarkson before exiting into Lake Ontario at Rattray Marsh, a Provincially Significant Wetland and Environmentally Sensitive Area.

Vale's leadership wanted to change their landscape management practices to align with their sustainable development principles that promote efforts to enhance the local environment through responsible land use planning and the protection of biodiversity. Vale attracted the support of the Credit Valley Conservation Authority, the Rattray Marsh Protection Association and the City of Mississauga's Environmental Advisory Committee, and they hired me as their lead consultant.

My plan was simple and modeled on the meadow, thicket and early successional forest habitats of southern Ontario: to plant native trees, shrubs and flowers and let the grass grow.

In April 2009, 70 native trees and 400 shrubs chosen for their hardiness and winter interest were planted in natural groupings: evergreen clusters of white pine (*Pinus strobus*) and red cedar (*Juniperus virginiana*); white birch (*Betula papyrifera*) to play off the white brick on the building; red osier dogwood (*Cornus sericea*) for their winter interest and tolerance of moist, heavy soils; staghorn sumac (*Rhus typhina*) for their fall colour and structural interest; and a few splashes of Carolina rose (*Rosa carolina*), serviceberry (*Amelanchier laevis*) and nannyberry (*Viburnum lentago*) for their high wildlife value.

PHOTOGRAPH BY PAUL O'HARA

May 2009 – freshly planted trees and shrubs and staked-off pathways at Vale's research facility

After the woodies were in, wildflower seed was broadcasted that included tough, colourful, bread-and-butter natives of roadside meadows such as common milkweed (*Asclepias syriaca*), evening primrose (*Oenothera biennis*), New England aster (*Symphotrichum novae-angliae*) and heath aster (*S. ericoides*). By early summer many seedlings had germinated in the pockets of bare soil exposure in the growing turf. In June, 1,500 wildflower plugs of these same species and others, such as wild bergamot (*Monarda fistulosa*), sweet ox-eye (*Heliopsis helianthoides*) and field strawberry (*Fragaria virginiana*), were planted in the no-mow area.

The creation of the no-mow area was the most enjoyable part of the design process. The grass was not let go in a reckless manner. Instead, mow lines were planned in natural curving patterns with wide, sweeping walking paths cut through that matched the scale of the building. To avoid a sense of encroachment, the naturalized areas were kept a safe distance back from the building envelope and curb lines. All these design qualities gave the project a tidy and purposeful look – critical factors if you are going to build a conversation with a nature-deficient citizenry.

Within weeks of hitting the mower kill switch, insect activity went through the roof! Ant hills pushed up, cicadas buzzed, dragonflies hovered, mantids hunted and orb spiders wove their webs. Songbirds gathered, rabbits hopped, raptors scanned, groundhogs dug and foxes scampered through the growing grass. It didn't matter that non-native turf grasses such as Kentucky bluegrass (*Poa pratensis*) and fescues (*Festuca* spp.) were growing up – it's about increased surface area, about creating more places to hide for prey and predator alike. Besides, most efforts to erase turf and create pristine planting areas in large-scale, urban areas are cost-prohibitive, and a pipe dream at best.

Another positive outcome was that many violets (*Viola* spp.), field strawberries, asters (*Symphyotrichum* spp.) and goldenrods (*Solidago* spp.) – suppressed from years of mowing – also had a chance to grow.

Since the project began, the irrigation has been turned off, greenhouse gas emissions from lawn-mowing activities have been cut in half, and, of course – since the 2009 ban – cosmetic pesticide use has ceased. Furthermore, Vale's ground management costs have decreased. Not only is the naturalization project good for the environment, Vale's employees enjoy the new look of their corporate grounds and are using the paths for lunchtime walks. In March 2009, Vale received a Conservation Award from Credit Valley Conservation Authority for their role in helping to improve biodiversity and the health of the Sheridan Creek watershed.

Problems were few and manageable. A Japanese beetle outbreak on the birches was curtailed with the use of pheromone traps and a bucket of soapy water. Canada thistles (*Cirsium arvense*), an alien species despite their

PHOTOGRAPH BY PAUL O'HARA

September 2009 – growing grass

Continued on page 8

Continued from page 7

common name, were weedwhipped and/or smothered with cardboard and woodchips to create further plug planting areas. And Norway maple (*Acer platanoides*), buckthorn (*Rhamnus cathartica*) and white mulberry (*Morus alba*) seedlings were manually removed.

2011 will be the third growing year of the Vale Naturalization Project. The woodies are settled in now, so the stakes are ready to come off the trees and the shrubs are all poised for flowering and fruiting. In June we will be planting 4,000 wildflower, sedge and grass plugs in the cardboarded areas. I am eager to see what new surprises are in store this field season – what ground-nesting birds make a home in the no-mow area, what new insects move in, what new wildflower seedlings germinate in the areas of bare soil exposure. In the meantime, I will continue to monitor and control invasive species with a little elbow grease.

Imagine if these restoration techniques were applied to every corporate park in the Greater Golden Horseshoe, every schoolyard in the Great Lakes Region, every un-walked stretch of manicured grass in the inner city. The habitat creation potential would be enormous! More than funding, faith in Mother Nature is what's needed.

PHOTOGRAPH BY PAUL O'HARA

*September 2010 - Flowering New England asters (*Symphotrichum novae-angliae*) and arrow-leaved asters (*Symphotrichum urophyllum*)*

The Vale Naturalization Project demonstrates that exciting and beneficial things can happen when the grass starts growing; it serves to dispel the belief that costly, heavy-handed interventions are always warranted, and encourages us to find comfort and curiosity in the uncertainty of the experiment. By providing a gentle push to the most ecologically bereft areas, we can bolster the health of the entire landscape.

Paul O'Hara is a botanist, landscape designer and native plant gardening expert. He is the owner/operator of Blue Oak Native Landscapes (www.blueoak.ca) and lives in Hamilton, Ontario.

Calendar of Events

May 3-5, 2011
JOINT MEETING OF THE SECOND KENTUCKY INVASIVE SPECIES CONFERENCE AND 13TH ANNUAL SOUTHEASTERN EXOTIC PEST PLANT COUNCIL CONFERENCE
Lexington, Kentucky
Visit www.ca.uky.edu/invasives/

May 7, 2011
NANPS ANNUAL PLANT SALE
Markham Civic Centre,
Markham, Ontario
Visit www.nanps.org for details.

June 3-5, 2011
CARDEN NATURE FESTIVAL
Hosted by the Carden Field Naturalists. Visit www.cardenguide.com/festival.

June 10-11, 2011
GREAT CANADIAN BIOBLITZ 2011
Lost Bay Reserve, Gananoque Lake, Ontario
Organized by the Kingston Field Naturalists. Contact janis.grant@kos.net.

June 19-23, 2011
JOINT FIELD MEETING OF BOTANICAL SOCIETY OF AMERICA, TORREY BOTANICAL SOCIETY & PHILADELPHIA BOTANICAL CLUB
Ithaca, New York
Contact Larry Klotz, Chair lhklot@ship.edu or Robynn Shannon, Co-chair rndshannon@cox.net.

June 25, 2011
THE POLLINATORS FESTIVAL @ EVERGREEN BRICK WORKS
Toronto, Ontario
For more info: pollinatorweek@gmail.com.

September 24, 2011
NATURE IN THE 905 - NANPS FALL TOUR
Toronto, Ontario
For more info: pollinatorweek@gmail.com.

Marion County's Cliffs

by Mary Stark

I often walk in the woods with a quotation from Henry David Thoreau in my mind: "I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived."

One area around Pella, Iowa that has much to teach is The Cliffs at Cordova Park. What most people in Marion County (and even some contiguous counties) think of when they hear "The Cliffs" is an exposed precipice of Pennsylvanian epoch (305-318 mya) sandstone with red and yellow bands and swirls with a scenic view of Lake Red Rock Reservoir. The cliffs here, along with similar cliffs upriver at Ledges State Park, represent a grand delta of a mighty coal-age river that once emptied freshwater into the sea and flowed on a course perpendicular to the modern Des Moines River. In some places the exposed sandstone is a red stain from groundwater leaching; it gives this reservoir its name.

Cliffscape

Photograph by Stephen Johnson

These cliffs are also a backdrop to early 19th century history of the land that would become Iowa as it was a probable gathering place for Sac and Fox nations during hunting trips and performance of sacred rituals. According to local historical account, one such site not far from these cliffs holds the drowned remnant of a 200-year-old sycamore tree (*Platanus occidentalis*) that may be where the Sac and Fox once congregated.

The Cliffs seem to draw people "like fruit flies to a ripe tomato" as my colleague, Stephen Johnson, suggests. Especially on weekends in fair weather, people come for family pictures, panoramic photos of cliff views and candid first-date shots. Kids horse around while parents chat. Graffiti artists carve smiley faces and pentagrams in stone while other graffitists declare their undying love for another. Even now students tell me that despite the hefty fine for jumping off the cliffs, some still leap on Tuesdays when nobody from the Iowa Department of Natural Resources might be around!

But what I and others might miss is the unique flora. Fortunately, Stephen, a biologist with a PhD in plant ecophysiology, helps me see the many wonders of these natural areas. These plants represent a variety of soil and moisture level affinities and interesting origins, biogeographical distributions, and migratory histories.

The trail to Cliffs is the length of a football field and provides a nice transect through the surrounding forest. Along the trail, the roots of the canopy dominants (trees with a diameter at breast height greater than 22 inches or 56 centimetres, as Stephen measured) such as shagbark hickory (*Carya ovata*), eastern white oak (*Quercus alba*) and northern red oak (*Q. borealis*) spread into the trail. At first they are running perpendicular to the main trail – thus providing a series of natural, if somewhat tall, steps. Closer to the cliffs, most exposed roots run parallel, and within the confines of the trail, and create an obstacle course.

I try to be more observant of the flora which represents some northern and many eastern and southern species as well as some whose ancestry is chiefly tropical. Species with northern distribution are few. The most noticeable are putative black maple (*Acer nigrum*) and sugar maple (*Acer saccharum*) hybrids. Black maple seems to grow best where Wisconsonian glaciers once covered the land. The sugar maple is famous as a maple sugar producer in the northeast. At the time of settlement in Iowa the first adventurers simply called it "sugar tree." The maples are uncommon at the Cliffs site and are only members of the subcanopy at this time in history.

As Stephen helps me with identification, I learn that the dominant shagbark hickories represent a species with more southern affinities. Bitternut hickory (*Carya cordiformis*) is a true southerner and its fruits are even common components of beach wrack in Florida. Here at the cliffs, however, bitternut is uncommon, preferring

moister lowlands in Iowa. Other common eastern trees are sparingly represented in the subcanopy or as saplings. Hackberry (*Celtis occidentalis*) with a dbh (diameter at breast height) of 17 inches (43 centimetres) probably arrived a few years after the oaks and hickories. Basswood (*Tilia americana*) is rather sparse and the trees spindly, showing little effort at fruiting, indicating they are either suffering a degree of stress on the dry slopes or are losing a competition for light with the oaks, hickories and hackberries. White ash (*Fraxinus americana*) and green ash (*F. pennsylvanica*) apparently occur only as saplings; this would suggest that mature trees are close by and that their arrival here is fairly recent.

I also learn that southeastern and tropical associated species are fairly common. Two good examples are smooth wild petunia (*Ruellia strepens*) and clearweed (*Pilea pumila*). Many species of both genera occur in the southeastern U.S. and are well represented in the flora of the neotropics. In contrast, in North Carolina there are 10 species of *Ruellia* including *R. strepens*, and Stephen tells me that according to the late tropical botanist Alwynn Gentry the genus *Ruellia* is represented in the neotropics by as many as 50 species and *Pilea* by 400 species.

Another surprise to me is that most of the forest flora is eastern in affinity. The aster family is well represented by late boneset (*Eupatorium serotinum*), a species common to forest edges in Iowa but also found growing east all the way to the margins of coastal salt marshes. Because this cliffside forest is rather dry, a common aster is woodland sunflower (*Helianthus divaricatus*), with scabrous leaves that feel like coarse sandpaper; it grows in dry forests all the way to Saskatchewan. More common by far is the pair of heart-leaved aster (*Symphotrichum cordifolium*) and elm-leaved goldenrod (*Solidago ulmifolia*). Farther from the trail Steve

PHOTOGRAPH BY STEPHEN JOHNSON

Lobelia inflata

located two clumps of a non-flowering purple meadow rue (*Thalictrum dasycarpum*) and scattered clumps of a dry-loving fern, *Cystopteris protrusa*.

Fortunately here at The Cliffs, the understorey shrubs are sparse (rather than choked with invasive species) which gives the forest an open airy feel – perhaps what the Sac and Fox or early settlers might have seen before invasive species arrived. Steve and I see the common shrub buckbrush or coralberry (*Symphoricarpos orbiculatus*) first because it is very abundant in other natural areas and because here, though it isn't common, it is chiefly found trailside. More common and found sporadically far from the trail is toothache tree, or, in Quebec, clavalier (*Zanthoxylum americanum*). We are happy to see this shrub because we know that it may attract the giant swallowtail butterfly. Here the toothache trees are small, suggesting stress from moisture limitation or a fairly recent introduction.

One key difference, however, between the Cliffs' forest and most natural areas nearby is the apparent lack of orchids. As my search image abilities improve, I look for the orchids that Steve has found at other natural areas. There we find late coral root (*Corallorhiza odontorhiza*) and oval ladies tresses (*Spiranthes ovalis*), but they are missing from their typical trailside habitat here. Steve was ready to declare the Cliffs orchid-free until a surprising discovery.

Stephen tries to eradicate the invasive honeysuckles and autumn olives (*Eleagnus alternifolia*) by hand-pulling seedlings and saplings and anchoring them in the branches of nearby trees so that the invasives will die. While he was pulling one young amur honeysuckle (*Lonicera maacki*), an orchid fell from the roots into the cavity left beneath; its shiny leaves

indicated it was a small and healthy-looking oval ladies tresses. In Gray's *Manual of Botany* Stephen found a more colourful name for the orchid from the great botanist Merritt Lyndon Fernald: pearl twist. This little oval pearl twist was likely once part of a larger cluster of plants since one edge of the tuberous root was ragged and brown. Perhaps the rest of the clump succumbed to the unexpected shade of the honeysuckle and only this small fragment received enough light to continue life.

The cliff face flora represents a radical increase in light levels and corresponding reduction of soil moisture levels. From my lessons about tallgrass prairie, I recognize some old friends: little bluestem (*Schizachyrium scoparium*) and a xerophilous blazing star, Liatris aspera. Here we find leadplant (*Amorpha canescens*) and partridge pea (*Chamaecrista fasciculata*). Species such as field goldenrod (*Solidago nemoralis*) and broad-leaved panic grass (*Dicanthelium latifolium*) grow in tight rock crevasses and their seeds almost certainly acquired their positions by Aeolian means. This deposition reminds us of Henry David Thoreau's observations, described in *Faith in a Seed*, where he talks about white pine seeds deposited onto a frozen pond surface and wind subsequently driving the seeds into the pond margin. The cliffs also sport a few more interesting, but less noticeable, grasses such as plains muhly (*Muhlenbergia cuspidata*) and a three-awn grass (*Aristida basiramea*). Diminutive forbs such as rough pennyroyal (*Hedeoma hispidum*) stud the lichen and moss hummocks. Even here it is possible to find moisture-loving species. The seeps that still stain the Cliffs provide enough moisture for tall beggar ticks (*Bidens vulgata*) which love to be pond-side. These little wet seeps aside, the dry areas amaze me with their diversity.

These prairie species were probably more numerous and perhaps dominated this site 100 years ago or more but, in the absence of fire, trees inevitably conquered everywhere but the hardest rocky cliff margin. The appearance of the trees also gives a clear picture of dispersal methods. Fox squirrels trotted in the first viable acorns and nuts of the dominant oaks and hickories. A host of frugivorous birds deposited viable seeds of hackberry, buckbrush and clavalier. Wind eventually deposited the samaras of elms, ashes, and maples.

Photograph by Stephen Johnson

Solidago ulmifolia

In addition, the connection between the flora of China and eastern North America intrigues me. Here that relationship is found in the commonly occurring lopseed (*Phryma leptostachya*). *P. leptostachya* is found in the flora of mainland China and as of 2005 made its record appearance in Taiwan. Other species that are part of this connection are tulip tree (*Liriodendron tulipifera*) and Kentucky coffeetree (*Gymnocladus dioica*). Though *L. tulipifera* is not native to Iowa, one can be found growing on the campus of University of Iowa. At the University of Iowa Museum of Natural History, a fossil leaf of a tulip tree ancestor that once grew in Iowa is in a Cenozoic flora display in Iowa Hall. Kentucky coffeetree also doesn't grow at the Cliffs but a mating pair is located in another county park just a few miles down the road. It is also at Ledges State Park which Steve says might simply indicate that no dispersal agent has carried it to this particular site.

By November, we can clearly see the green chest-level haze of what looks so out of place and belongs to more recent arrivals from Asia. Alien invasives such as autumn olive and amur honeysuckle are appearing more commonly now. We watched a red-bellied woodpecker rapidly consuming honeysuckle fruits a few years ago. Native birds are probably the chief means of dispersal of these two species alien to the park.

So while Steve and I hand-pull honeysuckle and olive, the wild petunias and hickories will hold out a while longer. And for me, I am learning to live more in accord with Henry David Thoreau – a bit more "deliberately."

Mary Stark is a professor of English at Central College in Pella, Iowa.

Photos of Plants Good for Bees

This new website, www.NetworkBees.com, is dedicated to helping bees by creating photo collections of bee-friendly plants for all ecoregions of the continental United States. Donations of photos requested to: NetworkBees@gmail.com or send them by postal mail to: NetworkBees, c/o Alice McCombs, PO Box 573, Shawano, WI 54166, USA.

Congratulations

Congratulations to Ann Boyd of Woodville Ontario, winner of a free year of membership.

Remember to renew your membership each year before January 31st to be eligible for the next year's draw!

Continued from page 1

a lot of oxygen, to create the heat.

It has been suggested that the heating action serves to spread the foul odour that the spadix and, eventually, the leaves generate. The odour attracts early insects such as the blue bottle fly, and the honeybee to pollinate the plant. The fact that skunk cabbage uses odour to attract small insects struggling to survive at this time of the year gives the plant another star in my book. Other animals that use the plant for food and shelter include the whitetail deer, the eastern forest snail and the eastern worm snake.

Propagation is by seed only although their dense colonies might suggest otherwise. Skunk cabbage can be cultivated, but its seeds need to be stratified. In order to do this you need to plant the seeds approximately one centimetre (two-fifths of an inch) deep in a pot with soil that will hold moisture as the seeds cannot dry out. Place the pot outside in mid-winter in a cold frame or a protected area. The freezing and thawing will eventually allow germination to occur. The plant will likely require deep watering in the summer if your soil is not naturally wet. Since much of the plant is poisonous and can be irritating to the skin, children and curious adults should be cautioned to stay away. When you see skunk cabbage in the forest, look but don't touch.

Almost every part of this plant is unusual. The root system is very large for a single plant. The roots branch from a rhizome. The roots will grow and then contract. In so doing, they actually pull the plant downward. Each year, the plant's root system establishes a firmer grip on the surrounding soil.

Another unusual (and star-worthy) characteristic of *Symplocarpus foetidus* is its transition to dormancy. Because the plant tissue stays in its initial watery phase, the plant does not form woody tissue. In the fall, the plant structure simply disintegrates. This is not a pretty sight and the plant appears in a dismal state at this time. In mid-July to August skunk cabbage disappears from view only to await the next spring.

Skunk cabbage is an unusual and mysterious plant that graces our forests that have wet soils. As I said, "What's not to love about this plant?"

John L. Mori, Ph.D. spent much of his professional life as the director of a national technical center in the United States devoted to assisting small communities preserve their local water quality. Now retired, John has had a life-long passion for the natural world. An amateur artist for many years, he is now devoting his time to drawing plants. His sketches may be seen at: www.idrawplants.com.

Letter to the Editor

In the last issue of *The Blazing Star*, Bill Moses wrote that *Diervilla lonicera* is "reported to be hardy to zone 2b". *Plants of the Western Boreal Forest and Aspen Parkland* agrees with that statement. In addition, my wife Mary & I can attest that *D. lonicera* is hardy to zone 1b where it grows in at least two locations on the rocky outcrops of Flin Flon, Manitoba.

We found the first location while botanizing on the extensive outcrops in a friend's neighbourhood. The rocks are "smelter burned" by 80 years of fugitive sulphur dioxide emissions from a former smelter and do not have much vegetation. So the *D. lonicera* was easy to find because it was one of the few things growing on the outcrops. Latitude-longitude location from Google Earth: 54.783311° -101.843673°.

A friend working on the Green Project, a community-wide effort to accelerate restoration of forests in Flin Flon and Creighton to their original condition (www.greenproject.ca), brought me to the second. He asked me to identify a plant unknown to him – it was *Diervilla lonicera*. [54.782930° -101.861722°].

Edgar & Mary Wright, Flin Flon, Manitoba

JOIN NANPS

Your donations and membership dollars help NANPS to study, conserve, cultivate and restore North America's native flora. Members receive our quarterly newsletter, the *Blazing Star*, and are eligible for NANPS-sponsored excursions and the Seed Exchange. NANPS is a registered charitable organization (no. 130720824 RR0001) founded in 1984. **Donations to the Society are tax-creditable in Canada. Tax receipts will be issued for donations of $20 or more.**

___ $20 / 1 calendar year (Jan.–Dec.) or Family membership ___ $25
___ $40 / 2 years
___ $60 / 3 years (___ send me a free issue of *Wildflower* or ___ *Growing Canada's Floral Emblems* as a bonus for my 3-year membership)
___ $200 Sustaining Membership (includes a Canadian tax credit for $100 and a 5-year membership)

NAME: _____
ADDRESS: _____
_____
PHONE: _____
FAX: _____
EMAIL: _____

Please make cheque payable to NANPS and mail to Box 84, Station D, Etobicoke, Ontario M9A 4X1. For info, call (416) 631-4438; e-mail nanps@nanps.org.