

# The Blazing Star



A PUBLICATION OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

## Native Plant to Know

# Tulip Poplar

*Liriodendron tulipifera*

by Peter Loewer

Two American presidents, George Washington and Thomas Jefferson, grew the magnificent *Liriodendron tulipifera* (tulip poplar), prized for its gorgeous flowers. President Washington planted a tulip poplar in 1785 at Mount Vernon, the historic home south of Washington, DC that he shared with his wife, Martha. That tree has since been designated Mount Vernon's official bicentennial tree. The glowing tulip poplar appears at least once more in the historical records of President Washington's time. He tied his horse to a 200-year-old specimen when he worshipped at Falls Church, Virginia before the start of the Revolutionary War.

The tulip poplar pops up in other historical references. Some historians claim that American frontiersman

Daniel Boone built a 60-foot (18-metre) pirogue (a dugout boat) from a single tulip tree trunk to carry his family from Kentucky down the Ohio River to the western frontier. General William Richardson Davie apparently took his lunch under a tulip tree in 1789 when he and his committee selected Chapel Hill as the site of the University of North Carolina. The tree, since named the Davie Poplar, still stands on the university campus, one of the oldest tulip



ILLUSTRATION BY PETER LOEWER

In Ann Leighton's book *American Gardens in the Eighteenth Century*, under the heading of "Plants Most Frequently Cultivated," the entry for the tulip poplar simply states: "Universally acclaimed. Catesby. Collinson. Bartram's. Prince's (Prince being The Long-Island Nursery of William Prince at Flushing Landing where he sold tulip poplars seedlings for 20 shillings each)." For anyone not familiar with these names, Mark Catesby was an 18th century English naturalist who published the first account of plants and animals in North America, and Peter Collinson was a noted botanist of the same era best known for his horticultural friendship with John Bartram, whom Carl Linnaeus referred to as "the greatest natural botanist in the world."

poplars in the United States. The massive tree has been struck by lightning and survived several hurricanes, including the widespread damage caused in 1996 by Hurricane Fran. Davie Poplar Jr., grown from a cutting, and Davie Poplar III, grown from the grandfather tree's seed, are planted nearby. And seedlings were sent to replace the tulip poplars planted by Marie Antoinette in 1783

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## The Blazing Star is . . .

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## NATURE AWAITS

Sadly, NANPS May plant sales have been cancelled for this year due to the coronavirus outbreak. Please follow our website, [nanps.org](http://nanps.org), for news about events in the fall, including the Shining Tree Woods tour and our Annual General Meeting listed below. We urge you to maintain social distancing, but spend lots of time outdoors, gardening or reveling in the wonders of nature. **Stay healthy, stay safe.**



*Tufted loosestrife (Lysimachia thyrsiflora) grows on wetland edges on Prince Edward County's south shore.*

PHOTOGRAPH BY PETER FULLER

## FALL NANPS EVENTS

### Shining Tree Woods Tour

Saturday,  
September 26, 2020

Details to follow in the  
summer 2020 issue of  
*The Blazing Star*. NANPS  
members will receive email  
reminders. You will be able  
to sign up online via  
Eventbrite or through  
traditional, non-digital  
methods.

### NANPS AGM

Saturday, October 24, 2020  
Toronto Botanical Garden

Watch [nanps.org](http://nanps.org) for  
details.



*Alberta artist Elaine Funnell paints exquisite watercolours, including this depiction of gaillardia (Gaillardia aristata) and harebells (Campanula rotundifolia).*



# Native Plants in Watercolour

by Irene Fedun

Botanic watercolour artist Elaine Funnell was surprised and delighted when independent curator and art writer Mary-Beth Laviolette asked her to do a commission depicting local native edibles for the entrance to the Calgary YWCA community kitchen and seating nook areas. Although self-taught, Elaine had demonstrated “considerable skill” as “an artist-naturalist.” Elaine knew the plants,

pastels – but when she “discovered” watercolours in 1992, she took to this painting style instantly, drawn like a monarch to milkweed. Despite warnings that it was very difficult, she started painting in Strathmore coil-bound books specifically designed for watercolours. The acid-free paper prevents discoloration over time and easily absorbs the wet paint. She never paints or makes sketches outdoors since the watercolour paper must be kept perfectly clean and dry, and she

scanning the ditches, forests and fields, checking her favourite places, clip whatever catches her eye and bring it into her studio. “I love the idea of picking something every single day, bringing home two or three samples of cattails, for example, drawing and painting them, and then looking up unknown species in my guide books,” she says. Elaine records all the details of the plant with graphite pencils, makes meticulous notations about colour and tests different pigments to



PHOTOGRAPH BY MIKE MAH

The reproduced and enlarged images for the mural at the entrance to the YWCA Hub Facility community kitchen in Calgary are supersized versions of Elaine Funnell’s delicately rendered originals. Her botanical watercolour vignettes were photographed to create a set of high-resolution digital images. These images were composed by the designers in an elevation drawing of the community kitchen entrance wall to establish their scale and relationships. The composition was then applied onto a three-dimensional scale model of the wall to show how it would appear in the corridor approaching the community kitchen entrance and from inside the room. Final adjustments were made to the composition to suit the constructed wall condition. Elaine provided her input at each stage of the process. With her approval, the production artwork files were prepared for printing. After a series of colour tests, the mural was printed in sections onto an adhesive-backed 3M vinyl. A matte-finish laminate was applied to the vinyl, creating the finished wall covering.

having set herself the joyful task of documenting the native plant life on the 2 ½-hectare (six-acre) property in rural Alberta that she and her husband purchased in 1986.

Elaine had experimented with various media – oils, pen and ink,

needs consistent overhead lighting to see the fine points of her specimens. In her studio, she also has a magnifying glass on hand to see the plants’ most minute details.

Elaine’s *modus operandi* is to wander her acreage throughout the year,

get the colours true to life. If the plant is fragile and fades quickly, she will take a clear photograph. She loves capturing the essence of her subjects in spring, summer, fall and winter, watching for the right moment.

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Sometimes an image in her mind will take an entire season to materialize. Elaine and her husband spent a long time searching for the right land that would help her fulfill her vision.

Her profile from a solo exhibition titled "Seasons: A Botanic Profile of Alberta Plants" at the Kerry Wood Nature Centre in Red Deer, Alberta, described her process: "Imagine... finding a pussy willow in full bloom, taking that plant back to your studio and painting it, then waiting for the next season to collect the pussy willow in the fall and paint it drying, then winter as a bare branch and then to spring when they are just starting to bud out. That is a whole year waiting to complete one painting so the work is true to life in its size, colour, structure, and still making it a wonderful painting!"

Elaine is keenly interested in all the life around her, so, naturally, dragonflies, ladybugs, butterflies, bumblebees, moths and other insects adorn her paintings of plants, illustrating the environmental connection between native plants and beneficial insects. She has no aversion to picking up dead insects such as the

big poplar sphinx moth in the poplar study on the next page. Elaine says, "These moths are very impressive. I found one while walking alongside our country road. It looked like it had either been hit by a vehicle or sprayed. I saw where the county had been spraying the ditch area, so I suspect that's what happened. I tucked it into my fanny pack so that I could identify it at home with my insect guide."

From her solo exhibition entitled "Where Butterflies Dance: Botanical Watercolours" at the Muttart Conservatory in Edmonton: "Enjoying the precision of detail and the trueness of colour, the artist brings us to a new place with her



PHOTOGRAPH BY MIKE MAH

This corner wall at the Calgary YWCA community kitchen is also graced with a mural of Elaine's paintings.



Seasons: High-bush cranberry #4 (*Viburnum opulus*) 12" x 22 1/2" watercolour.



work. Her technique is refreshing and crisp with a touch of whimsy.”

Elaine’s work can be found in private and corporate collections in Alberta and elsewhere. She continues to show her paintings in solo and group exhibitions. She is an elected member of the Canadian Society of Painters in Watercolour and the Society of Canadian Artists, and a member of the Botanical Artists of Canada.

“Working from life... allows me to accurately capture the fine detail of wild grasses, mushrooms and leaves among other native plants, blending fine art and science reminiscent of the early 18th century botanical illustrations,” states Elaine. May her work inspire other artists, art lovers and naturalists to take a keener look at the world around them and learn to appreciate the beauty and necessity of our native plant and animal life.

*Irene Fedun is the editor of The Blazing Star.*

*All measurements given in the captions are the image sizes.*



*Seasons: Balsam Poplar #5 (Populus balsamifera) watercolour triptych*



*Transitions: Common cattails # 8 (Typha latifolia) 22 1/2" x 30" watercolour triptych*



# Prince Edward County South Shore

by Peter Fuller

On a warm June morning the mosquitoes are in full force, the sun has just emerged above the treeline and the air is full of morning birdsong. I am wading along a flooded gravel road, armed with binoculars and checklists, collecting data for breeding bird populations. I look disapprovingly at the deep ATV ruts in the meadow beside me. Suddenly I notice on the ridge of one of the ruts a

and new understanding. The south shore of Prince Edward County in Ontario is one such place for me.

Prince Edward County juts into Lake Ontario just before the lake empties into the St. Lawrence River. Part of this peninsula has been designated as the Prince Edward County South Shore Important Bird and Biodiversity Area (an unmanageably long name that I will refer to as the South Shore IBA). It encompasses 30 kilometres (18 miles)

restoration, public education and advocacy.

The South Shore IBA is a globally significant staging and wintering area for Arctic ducks, but migrating songbirds, bats, monarch butterflies and rare vascular plants also concentrate here. It is a patchwork of habitats. Thin soils over limestone bedrock with poor drainage create small, specialized habitats often characterized by seasonal extremes (spring flooding and summer



PHOTOGRAPH BY PETER FULLER

*Lighthall Marsh, early spring morning*



PHOTOGRAPH BY PETER FULLER

*A marsh vetchling (Lathyrus palustris) grows in moist pockets along the shore.*

few plain, oval leaves that look suspiciously like those of an orchid. Sure enough, a short distance ahead, on the same muddy ridge, is a spike of small white flowers with yellow lips. I have surveyed this area many times, but this is a new sighting. I snap a few pictures and continue with the survey, making a mental note to key out the species when I get home.

Visiting the same meadow, wetland or woodlot over a period of years builds a familiarity with their seasonal rhythms and a deep appreciation for the interactions of plants, animals, geology and climate. Like time spent with old friends, visits to favourite places in nature do not only evoke memories, but also reveal surprises

of shoreline, one of the few long, undeveloped strips along Lake Ontario. The area is a patchwork of ownership that includes a National Wildlife Area, a Conservation Area, Crown land, a Provincial Wildlife Area, lands owned by the local land trust and the Nature Conservancy of Canada (NCC), and private holdings.

The IBA program is a science-based initiative that attempts to identify, monitor and conserve significant habitats and their biodiversity. Although IBAs don't have consistent legal recognition or protection across Canada, the designation has increasing influence in conservation planning. Local caretakers (individuals or groups) carry out monitoring,

drought). Much of the Lake Ontario shoreline is a ridge of cobbles that forms a barrier and prevents drainage. This creates ash (*Fraxinus* spp.) swamps, sedge fens and shrub wetlands along the shore. Other permanent and seasonal wetlands and two large constructed wetlands support a wide diversity of marsh flora and fauna. Eastern red cedar (*Juniperus virginiana*) is overtaking some old pastures. Others are reverting to small woodlands, open scrubland, shallow seasonal streams, limestone cliffs and alvar-like habitats.

Many of the public lands are accessible by a network of unmaintained gravel roads and informal trails. Depending on lake

levels, the shore can be hiked for many miles. Boots are often mandatory for exploration.

#### PRINCE EDWARD POINT WOODS

The National Wildlife Area around Prince Edward Point sports diverse habitats close together. A small woodland around a harbour is composed of ironwood (*Ostrya virginiana*), shagbark hickory (*Carya ovata*), maples (*Acer* spp.), ashes and white cedar (*Thuja occidentalis*). In spring the woodland floor is a thick, white carpet of Dutchman's breeches (*Dicentra cucullaria*), bloodroot (*Sanguinaria canadensis*), white trout lily (*Erythronium albidum*) and spring beauty (*Claytonia virginica*) that later turns violet with fragrant woodland phlox (*Phlox divaricata*), purple cress (*Cardamine douglasii*) and violets (*Viola* spp.). Shrubs around the harbour include purple- and red-twigged dogwoods (*Cornus* spp.) and shrub willows (*Salix* spp.). Early-blooming buffaloberry (*Shepherdia canadensis*), with its thick, felted leaves and red fruit, grows in thickets. The nearby limestone cliffs (viewed from the cobble beach) host violet harebells (*Campanula rotundifolia*), eastern columbines (*Aquilegia canadensis*) and rosettes of rock draba (*Draba arabisans*) in a vertical rock garden.

Access to Prince Edward Point is free. There are some marked trails and the gated road around the harbour to the lighthouse makes a pleasant two-kilometre (one and a quarter-mile) hike.

#### MILLER FAMILY NATURE RESERVE

This 188-hectare (466-acre) site, which is administered by the Hastings Prince Edward Land Trust, includes old farmland and shoreline wetlands. Some very large bur oaks (*Quercus macrocarpa*) remain from old fence lines. In the spring, former pastures are filled with early buttercups (*Ranunculus fascicularis*), early saxifrage (*Micranthes virginiensis*), pussytoes (*Antennaria* spp.) and hairy penstemons (*Penstemon hirsutus*). Large shrub wetlands and ash swamps

along the lakeshore feature robust populations of arrow arum (*Peltandra virginica*), an unusual plant for eastern Ontario. A small wetland formed by a natural spring in the centre of the property contains a wet meadow with wetland sedges, grasses, marsh bellflower (*Campanula aparinoides*), tiny-flowered marsh speedwell (*Veronica scutellata*), small skullcap (*Scutellaria parvula*) and the daisy-like blossoms of threadleaf crowfoot (*Ranunculus trichophyllus*).

To obtain permission to visit the site, contact the land trust or Prince Edward Point Bird Observatory.

#### OSTRANDER POINT AND HUDGIN-ROSE PROPERTY

A block of Crown land adjacent to an NCC property has a small maple swamp at its centre and seasonal ponds and waterways where endangered Blanding's turtles breed. Thickets of young eastern red cedar provide food for caterpillars of the juniper hairstreak butterfly.

A seasonal stream at the property's north end turns into a pink river of swamp milkweed (*Asclepias incarnata*) in summer. Large patches of Indian hemp (*Apocynum cannabinum*) grow in moister areas. Clumps of brilliant orange butterflyweed (*Asclepias*

*tuberosa*) are scattered in the drier areas. Stands of shagbark hickory and ironwood have an understory of bright green mayapple (*Podophyllum peltatum*). Low thickets of fragrant sumac (*Rhus aromatica*) are surrounded by wild bergamot (*Monarda fistulosa*), woodland



*Shepherdia canadensis* (Canada buffaloberry) with early summer fruit



Early spring rosettes of leaves of *Micranthes virginiensis* (early saxifrage)

sunflower (*Helianthus divaricatus*) and orange-fruited horse gentian (*Triosteum aurantiacum*), a plain plant that grabs your attention in the fall when its fruit, which looks like miniature oranges, nestles in clusters in the leaf axils. In years of abundant precipitation, large patches of narrow-

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leaved vervain (*Verbena simplex*) form stunning purple displays in roadside ditches.

#### LIGHTHALL WETLANDS AND SHORE

This large area of diverse wetlands is where I encountered the orchid mentioned in my introduction – shining ladies' tresses (*Spiranthes lucida*). The disruptive behaviour of ATVs has created what appears to be the ideal microhabitat for these orchids: a gravelly, well-drained hummock fed by a constant supply of moisture to their roots.

A large constructed wetland lies at the centre of the area. Overflow from a control dam feeds a stream that flows through woods and meadows into Lake Ontario. In late spring, banks of white Canada anemone (*Anemone canadensis*) are succeeded by brilliant red spikes of cardinal flower (*Lobelia cardinalis*). Fuzzy clusters of meadowsweet (*Spiraea alba*) attract a host of butterflies and bees while clumps of bright yellow swamp candles (*Lysimachia terrestris*) and tufted loosestrife (*Lysimachia thyrsoifolia*) hide in the grasses. The hooded blooms of Jack-in-the-pulpit (*Arisaema triphyllum*) grow on the shaded banks and produce red fruit in the fall.

South of the berm, cracks in an exposed limestone pavement are filled in the early summer with a floral carpet of hairy penstemons, summer bluets (*Houstonia longifolia*), golden-fruited sedges (*Carex aurea*) and wild strawberry (*Fragaria virginiana*). Delicately pale blue Kalm's lobelia (*Lobelia kalmia*), nodding ladies' tresses (*Spiranthes cernua*) and the butterfly magnet swamp milkweed follow later in summer.

Swamp rose (*Rosa palustris*), fragrant sumac and buffaloberry grow in thickets where there is a bit more soil, accompanied by a few patches of yellow rattle (*Rhinanthus minor*), whose fruit is a dry capsule full of loose, rattling seeds. Birds are drawn to the berm, which is lined with silky and red osier dogwoods (*Cornus*

*obliqua* and *C. sericea*), downy arrowwood (*Viburnum rafinesquianum*), ninebark (*Physocarpus opulifolius*) and other shrubs.

Large cattail beds (*Typha* spp.) surround open water enlivened by

surface and old tree stumps provide habitat for stands of blue flag (*Iris versicolor*) and violet monkey flower (*Mimulus ringens*).

The Lake Ontario shoreline is made up of ridges of smoothed pebbles, but on the upper beaches silverweed



Swamp milkweed (*Asclepias incarnata*) is an attractive nectar source for many pollinators, including the American lady butterfly.

PHOTOGRAPH BY PETER FULLER



Butterfly milkweed (*Asclepias tuberosa*) welcoming a native Augochlorine bee

PHOTOGRAPH BY PETER FULLER

patches of water lily (*Nymphaea odorata*) and water shield (*Brasenia schreberi*). The bright yellow flowers of bladderworts (*Utricularia* sp.) dot the

(*Potentilla anserina*) and the evergreen golden corydalis (*Corydalis aurea*) have found a foothold.

This site is easily accessed on foot



along a series of seasonal gravel roads (sometimes drivable, but puddles can be big!).

#### SIMPSON ROAD EXTENSION AND WETLAND

This gravel road gives access to the Lake Ontario shore and passes

Dutchman's breeches, spring beauty, yellow violet (*Viola pubescens*) and smaller numbers of white trillium (*Trillium grandiflora*). Around the edges of the woodlands in early summer are patches of soft pink wild bergamot and wild geranium

dot the banks of a seasonal stream over which the road passes. By the lakeshore, masses of common milkweed (*Asclepias syriaca*) are magnets for migrating monarchs late in the season.

Short clumps of hardy serviceberry (*Amelanchier humilis*) seem to thrive in dry, rocky areas around the wetland and produce masses of spring bloom. American bittersweet (*Celastrus scandens*), a twining woody vine that produces orange fruits in the fall, scrambles through the thickets.

#### THREATS AND PROTECTION

As with many natural areas in southern Ontario, the South Shore IBA is threatened by invasive species. Yellow iris (*Iris pseudacorus*) is present in some shoreline wetlands. Buckthorn (*Rhamnus cathartica*) has invaded woodlands and open shrubland. The access routes followed by people on foot and in vehicles have opened paths for dog-strangling vine (*Cynanchum rossicum*), which is related to our native milkweeds and fools monarch butterflies into laying their eggs under its leaves. Unfortunately, the plant does not provide nutrients for the larvae. Also transported inadvertently by humans is *Phragmites australis* var. *australis*, which has wiped out large areas of native vegetation, forming thick mats unsuitable for native fauna.

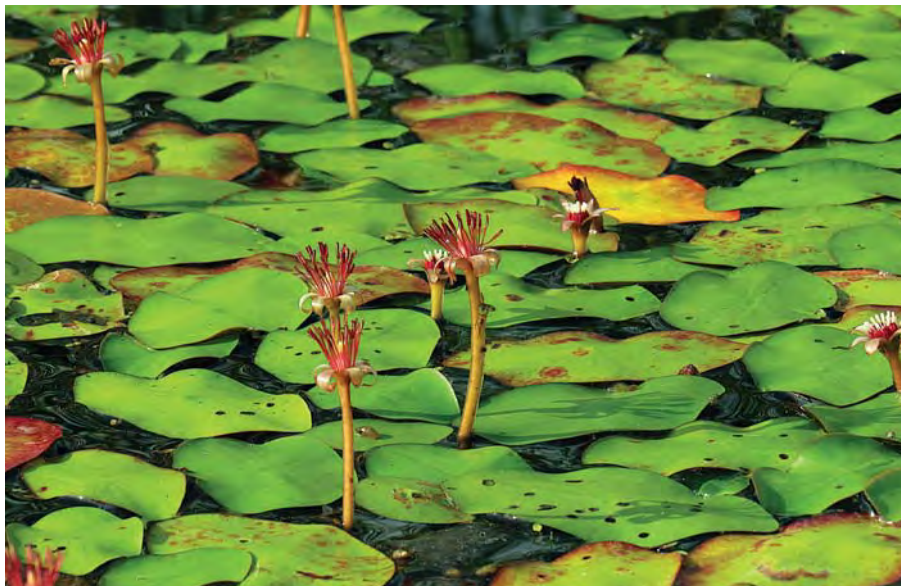
Nature and environmental groups have recently formed a partnership to increase protection for these valuable habitats. Visit [ibacanada.com](http://ibacanada.com) and [ssji.ca](http://ssji.ca) (South Shore Joint Initiative) for more information, and come visit these wonderful places. Just remember to clean your shoes first so that you don't accidentally introduce invasive plant seeds.

*Peter Fuller* owned and operated *Fuller Native and Rare Plants*, a nursery dedicated to the propagation of plants native to the Great Lakes region, for 10 years. As a member of the Prince Edward Point Bird Observatory, he volunteers with a variety of conservation initiatives.



PHOTOGRAPH BY PETER FULLER

Low serviceberry (*Amelanchier humilis*) flower buds in early May



PHOTOGRAPH BY PETER FULLER

*Brasenia shreberi* (watershield) forms floating mats on calm waters

through small patches of woodland often swampy in the centre. Spring flowers grow in isolated patches of single species: white trout lily,

(*Geranium maculatum*). A patch of uncommon yellow pimpernel (*Taenidia integerrima*) blooms around the woodland edges. Cardinal flowers



# Big Rock Park Under Siege

by Mary Stark and Stephen Johnson

When we first met over two decades ago, we explored an 83-acre (34-hectare) natural park at the north end of our hometown of Pella, Iowa called Big Rock. The name is a natural fit

because at the centre of the park is a granite boulder dragged from Canada by a glacier 500,000 to 750,000 years ago. The park has five open meadows and marked trails embedded in a forest. This forest shows aspects of a savannah past, with large, old bur oak

(*Quercus macrocarpa*) and spiny-trunked honey locust (*Gleditsia triacanthos*). Also present are white oak (*Quercus alba*) and shagbark hickory (*Carya ovata*) that colonized in the absence of fire. Sadly, these native trees were soon followed by a host of woody, non-native, invasive species.

Twenty years ago, we reveled in the native flora, fungi and fauna of the park. At the time there were four species of orchids. The park's south end hosted the most beautiful among them, showy orchis (*Galearis spectabilis*). We'd seen showy orchis at other natural areas close by where plants were typically sparse and diminutive, but at Big Rock many showy orchis plants were twice the size of typical, out-of-park individuals. As a bittersweet surprise, a cluster of showy orchis three times the average size were trapped between a mown trail and imminent annihilation by encroaching Amur honeysuckle (*Lonicera maackii*). Most of these non-native honeysuckle vines were spreading at the south end of the park along with other invasives such as Asian bittersweet (*Celastris orbiculatus*), common buckthorn (*Rhamnus catharticus*) and Guelder rose (*Viburnum opulus*).

The south meadow harboured oval ladies' tresses orchid (*Spiranthes ovalis*), a plant designated as threatened in Iowa. August mowing preserved this orchid for a few years by keeping grass short before the orchids emerged. On the western edge of the west meadow, where the glacial boulder rested, we found the largest clump of autumn coral root orchid (*Corallorhiza odontorhiza*) occupying a three-square-foot space: amazing! In the north-central meadow along the southern woodland edge, we saw two or three large twayblade orchids (*Liparis lilifolia*) in flower. But not far away was a 50-foot (15-metre) phalanx of Japanese barberry (*Berberis thunbergii*) that would eventually, by physical displacement and shading,



PHOTOGRAPH BY STEPHEN JOHNSON

White trout lily (*Erythronium mesochoreum*)



obliterate the orchids.

We discovered other native wonders: a clump of uncommon American ginseng (*Panax quinquefolius*), a hillside pink with wild geranium (*Geranium maculatum*) and a lone Iowa crabapple (*Malus ioensis*) in glorious full flower in the spring. At the end of summer, another hilltop was white with boneset (*Eupatorium perfoliatum*) flowers, serving up nectar to dozens of monarch butterflies.

On one of those delightful early explorations, we ran into an older man walking his dog. He told us of times past when the savannah was so open that a piano could easily be moved through it. He remembered many picnics in the open meadow. It was sad for him to see it so overgrown.

We began to see evidence of the more open history of the area in the statuesque but visibly ailing bur oaks dispersed throughout the park. On the edge of the park were a few honey locusts and an easily overlooked spring ephemeral called common white fawn lily (*Erythronium albidum*). This *Erythronium* is a typical forest-dwelling plant with attractive mottled leaves.

The other white fawn lily (*E. mesochoreum*) has light green, unmottled leaves. Since it needs more light, it inhabits open grassland, indicative of a savannah ecosystem. The relative ubiquity of *E. mesochoreum* at Big Rock Park is further evidence that the glacial boulder sat in a wide savannah. Another rare representative of the park's historic savannah was the cheerfully sunny yellow star grass (*Hypoxis hirsuta*) in a cluster of five plants mid-trail. All this bountiful diversity encouraged us to



PHOTOGRAPH BY STEPHEN JOHNSON



PHOTOGRAPH BY STEPHEN JOHNSON

Iowa crabapple

lead nature walks for third graders, college students and community members.

But the park's future suddenly became uncertain in 2000. As the witch of Shakespeare's *Macbeth* said:

“by the pricking in my thumbs, something wicked this way comes.” First it was the paintball commandos, dressed in camouflage and ranging in

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age from 10 to 30. They were well armed and careless as they charged through the brush. On their “battlefield”, we later found unspent multi-coloured paintballs scattered hither and yon. But worst of all, the twayblade orchids had been trampled! Right on the heels of the paintball wizards, the City of Pella cut a ditch for a new sewer line to the houses springing up around the perimeter of the park. This development potentially encouraged invasive species to move in by disturbing the ground cover which many invasive species are adept at exploiting.

We strove to create a Friends of Big Rock Park organization, making presentations and appeals to various groups. There was some interest, but not enough to blossom into an organized body. Soon career moves took us away from our frequent visits to the park. We left most of the invasive species removal and regular maintenance to others, but still came to the park with college students on annual service days to root out Amur honeysuckle. This arrangement worked reasonably well at first. But on an autumn visit in the early 2000s we found the metre-square autumn coral root orchid site barren and the Iowa crabapple gone! We checked other sites and found autumn coral root orchids scattered, but still present. Three years later, garlic mustard (*Alliaria petiolata*), which originated in Europe and Asia, was growing at the entrance to the park. We alerted city officials and volunteers who had helped with honeysuckle removal. The city installed a boot brush that visitors could use to remove the seeds of invasive plants from their footwear before entering and leaving the park, but that was the extent of their involvement. By then garlic mustard had ventured further into the park and we went several times to remove it by hand. Sad to say, some citizens turned to prayer and a laissez-faire approach over active removal – garlic mustard now pervades the park.



PHOTOGRAPH BY STEPHEN JOHNSON

*An Andrena bee on a native orchid*

Big Rock still offered a naturalistic setting for quiet contemplative walks, but in 2019 the city gave a green light to the construction of an 18-hole disc golf course! By the time Pella citizens noticed it, attended council meetings and succeeded in temporarily halting construction, 10 concrete slabs and chain buckets were already in place. The upshot: we now have a fledgling Friends of Big Rock group and a city-sanctioned hold on disc golf development pending a possible environmental study. We are



PHOTOGRAPH BY STEPHEN JOHNSON

*Large showy orchid*



hopeful that the park will be designated as a protected natural wildlife sanctuary. A few discoveries have strengthened our case: last year, during summer and autumn visits, we came across a specialist bee, *Andrena gerani*, on Virginia waterleaf

(*Hydrophyllum virginianum*). Together with the 14 oval ladies' tresses orchids we saw last October on a walk with the Friends of Big Rock Park, these sightings represent an emblem of hope.

*Stephen Johnson is an ecologist, artist, writer and photographer who appreciates native ecosystems. Mary Stark is a literature professor who enjoys learning about plants and their ecosystems.*

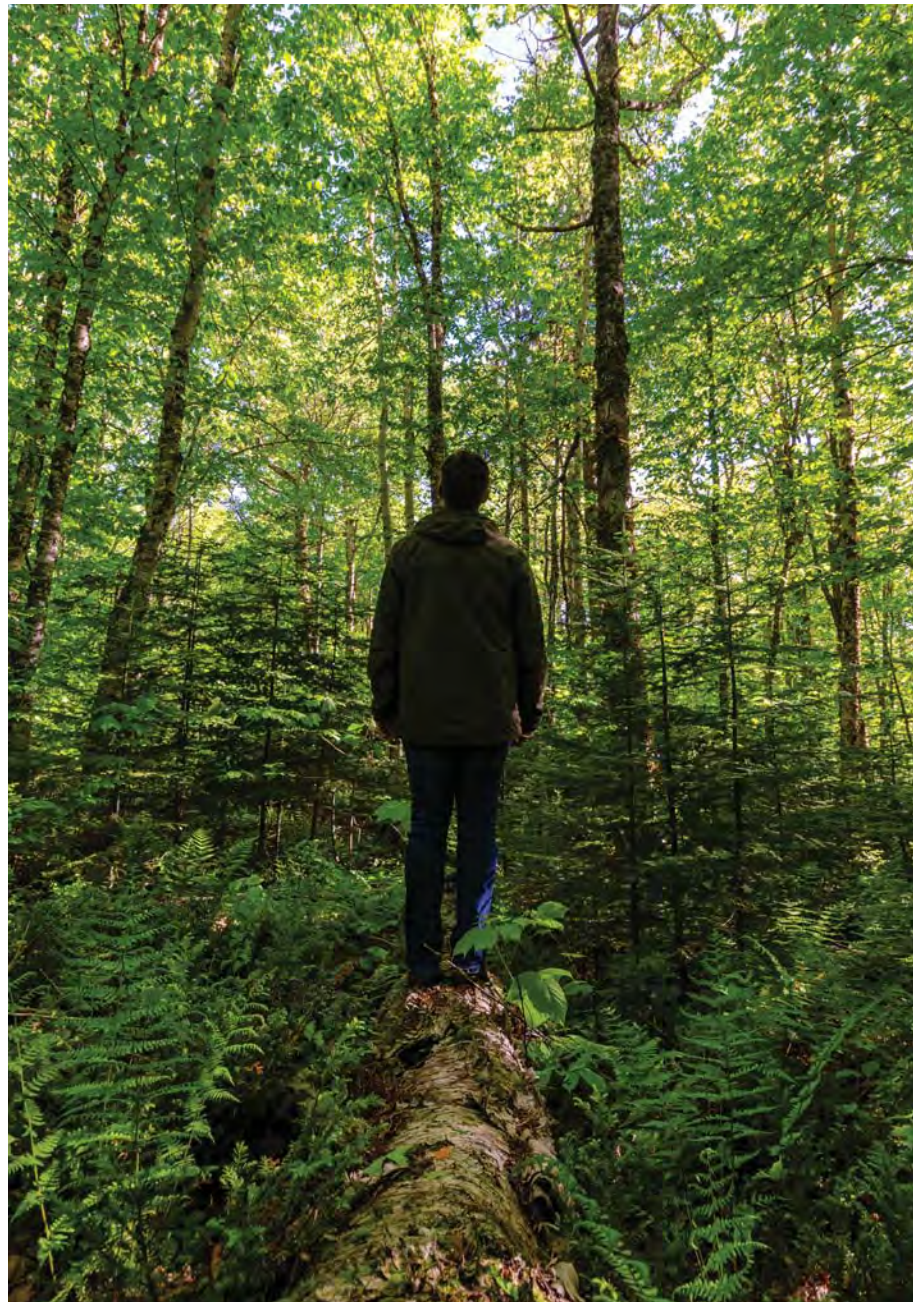
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## Nature Conservancy of Canada Celebrates New PEI Nature Reserve

Prince Edward Island's newest protected natural area, the Camilla and Melvin MacPhee Nature Reserve, located in Kingsboro, features 91 hectares (226 acres) of undisturbed peat bog and an older-growth forest dominated by red maple (*Acer rubrum*), sugar maple (*A. saccharum*) and yellow birch (*Betula alleghaniensis*). Rare species such as the Canada warbler, eastern woodpecker, nodding trillium (*Trillium cernuum*) and the provincially imperilled dwarf ginseng (*Panax trifolius*) occur here. Dwarf ginseng is a shade-tolerant plant that grows in the rich, well-drained soils of deciduous forests. First Nations, notably the Cherokee, used it to treat many ailments, including chest pains, headaches, hives, colic, gout, rheumatism and liver complaints. The tuber can be eaten raw or boiled.

The new nature reserve is valuable for conservation because it is located about halfway between East Baltic Bog and Basin Head Marine Protected Area, and creates a larger network of protected areas in eastern PEI. Peat bogs are significant ecosystems as they perform multiple functions: they provide habitat for plants and wildlife, purify drinking water, minimize flood risks and help address climate change by storing carbon.

The rare wetland and hardwood forest property was donated to the Nature Conservancy of Canada by Camilla MacPhee and her family in honour of her late husband, a community-minded business leader who died in 2010.



PHOTOGRAPH BY SEAN LANDSMAN

*The Camilla and Melvin MacPhee Nature Reserve near Kingsboro, Prince Edward Island*



that were destroyed in the 1999 hurricane at the Palace of Versailles, southwest of Paris.

*Liriodendron tulipifera*, a member of the magnolia family despite its given genus, has many common names, including yellow-poplar, blue-poplar, tulip tree, tulip poplar and yellow wood. The genus name is taken from the Greek *leiron* meaning “lily” (referring to the flowers) and *dendron* meaning “tree.” The species name means “tulip-bearing.”

Oh, the flowers! They are showy and handsome, with orange tints brushed

over greenish-yellow corollas, thus marked to attract bees. They appear in late spring or early summer. In one of John James Audubon’s great bird lithographs he shows the upper reaches of a blooming tulip poplar with a flock of Baltimore orioles flying about their nest, which is nestled among attractive leaves and two glorious flowers. The blossoms resemble those of magnolias (*Magnolia* spp.), except that the central spike splits open to reveal the seeds. Upon maturity, magnolia seedpods open up at the back, but

tulip tree fruits are dry and don’t open. A flat wing rises above the seed box and the contraption flies away on the autumn breezes.

Tulip poplars usually start flowering only after the tree has reached 15 or more years of age. They only bloom at tree-top – and most bees fly only up to 50 feet (15 metres) high – so the United States National Arboretum in Washington, DC has been manually pollinating its trees using a lift bucket and Q-tips since 1989. Their tendency to flower so high means that the only way many people get to see the flowers is on open-grown trees with large branches that extend closer to the ground or when they are scattered beneath a blooming tree buffeted by winds the night before. Or someone builds a house with a deck that overlooks a grove of tulip poplars.

The bark on old trees is gray and closely ridged. Younger trees have smooth, dark green or brown bark, often with a speckled pattern of white or grey flecks. The distinctive, truncate, four-lobed leaves are shallowly notched at the end. The leaves’ summer palette of smooth dark green above and light green below turns a beautiful yellow in the fall. In silhouette, the leaves suggest a tulip. The trunks of old, forest-grown trees are often branchless almost two storeys up. The specimen in my front yard shoots straight up with the first lateral branch 20 feet (six metres) above the ground.

Second only to sycamores (*Platanus occidentalis*) in trunk diameter, tulip poplars are difficult to transplant. They should be moved while still saplings and in active growth, taking as much root as possible. (Note: Always carefully transplant any seedling, because no matter how hard you try, there will be damage to the burgeoning root system – and never do it in a heat wave.)

Fast-growing and able to live over 400 years, with a trunk that approaches five to 10 feet (one and a half to three metres) in diameter, the



PHOTOGRAPH BY KEVIN KAVANAGH

*Tulip tree trunk and canopy at Niagara Gorge*



tulip poplar inhabits eastern North America, ranging from southern Vermont, west through southern Ontario and Michigan, south to Louisiana and east to central Florida. It can grow up to 160 feet (50 metres) tall in virgin cove forests in the southern Appalachian Mountains.

It's rare for a tree that sends up fast-growing seedlings to become one of the finest symbols of our natural heritage, but *Liriodendron tulipifera* is the state tree of Indiana, Tennessee and Kentucky.

There are only two species in the genus worldwide, one in North America and the other in China (*Liriodendron chinense*) and, for a change, our tree grows taller and has larger flowers.

The wood has long held prominence for construction lumber and plywood. The grain is straight, there's little shrinkage and it has excellent gluing qualities. In Jefferson's time it was used for carriage bodies and shingles while today it's used for cabinets, furniture and pulp.

Deer browse the seedlings and bucks seem to single out the saplings to rub their antlers; hummingbirds visit the flowers for nectar; and small mammals and songbirds feed on the winged fruits called samaras (few of whose seeds are fertile). The caterpillars of eastern tiger swallowtails and magnificent tulip tree silk moths eat the leaves. Mature tulip trees often have an abundance of cavities that provide nesting sites for birds, mammals and reptiles. Even black bears occasionally hibernate in the huge hollows that often form in the base of old trees.

In the 1800s, a heart stimulant was extracted from the inner bark of the roots and a rheumatism tonic came from the stem bark.

According to the honey industry, the flowers from a 20-year-old tree produce enough nectar to make four pounds (two kilograms) of honey.

The tulip poplar is a noble lawn and shade tree. Said William Cullen

Bryant: "Heed not the night; a summer lodge amid the wild is mine, 'Tis shadowed by the tulip-tree, 'tis mantled by the vine."

*Peter Loewer is a botanical illustrator who writes books about gardens and*

*natural history. He is especially fond of our native flora, including the wondrous variety of trees that make North America their original home. However, it took a few falls to convince him to always view them at ground level.*

## Carolinian Canada's Tulip Trees

*by Kevin Kavanagh*

The tulip tree is one of the most emblematic symbols of Ontario's Carolinian Canada, a northward extension of the mixed deciduous forest types that dominate much of the eastern and southeastern United States. In Ontario, tulip trees prefer areas with deep sandy loams where their canopies, supported by tall, upright trunks, punch through the surrounding forest canopy like giant heads of broccoli. Their superior height, matched only by white pine (*Pinus strobus*), Ontario's provincial tree, ensures that their leaves receive the full sunlight they need to grow. Large trees are impressive and many fine specimens remain on less disturbed sites within private woodlots and protected areas.



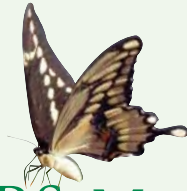
*Tulip tree flowers in Kevin Kavanagh's backyard in southern Ontario*

Veterans well over 200 years old can be found in places such as Rondeau Provincial Park, Backus Woods and the Niagara Gorge. The oldest trees are never numerous but scattered throughout the forest, their stems appearing like giant Roman columns.

Recently, on a beautiful winter's day, I invited a friend for a walk through Shining Tree Woods (STW), a secluded Carolinian nature reserve protected by the North American Native Plant Society. Although this site is celebrated for its stand of cucumber magnolia (*Magnolia acuminata*), this diverse forest patch also retains a healthy population of tulip trees, with the two species often growing side by side. This happens in only a handful of natural areas in Canada. The tulip trees at STW are still relatively young and some are growing in multi-stemmed clumps suggesting that they may have re-sprouted from selective logging of the forest decades earlier. They are, however, sufficiently mature to be producing abundant seed, which is dispersed by winds to an adjacent old field on the reserve; a few younger tulip trees have become well established there now. Such regeneration ensures that this iconic native tree will maintain its presence at Shining Tree for centuries to come.

*Kevin Kavanagh is the owner of South Coast Gardens and Consulting, a small nursery and landscaping business in the heart of Carolinian Canada.*

PHOTOGRAPH BY KEVIN KAVANAGH



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