

The Blazing Star



NEWSLETTER OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

Native Plant to Know

White Pine

(*Pinus strobus*)

by Paul O'Hara

Myopia is the most common affliction of the modern landscape professional. It comes from too much comfy deskwork and not enough unpaid field wandering. Sometimes I think columns like this do not help. So when asked if I would submit an article for 'Native Plant to Know' I felt there was only one plant I could consider: white pine (*Pinus strobus*).

Why? Because white pine is the Matriarch of Eastern North America. She is the native plant that knows you because she watches over the land and all its creatures from high above. Naturally, white pine is the tallest tree in the forest and Indigenous Peoples used her steeped crowns to guide their way home. To them she is the Tree of Peace.

White pine has needles soft-to-the-touch and uniquely arranged in bundles of five; other eastern pines are in twos and threes. White pine bears banana-shaped cones, and the bark moves from smooth, shiny silver to a furrowed brown at maturity. With increased age, white pine develops the dancing, windswept silhouettes that were the subject of some Group of Seven paintings.

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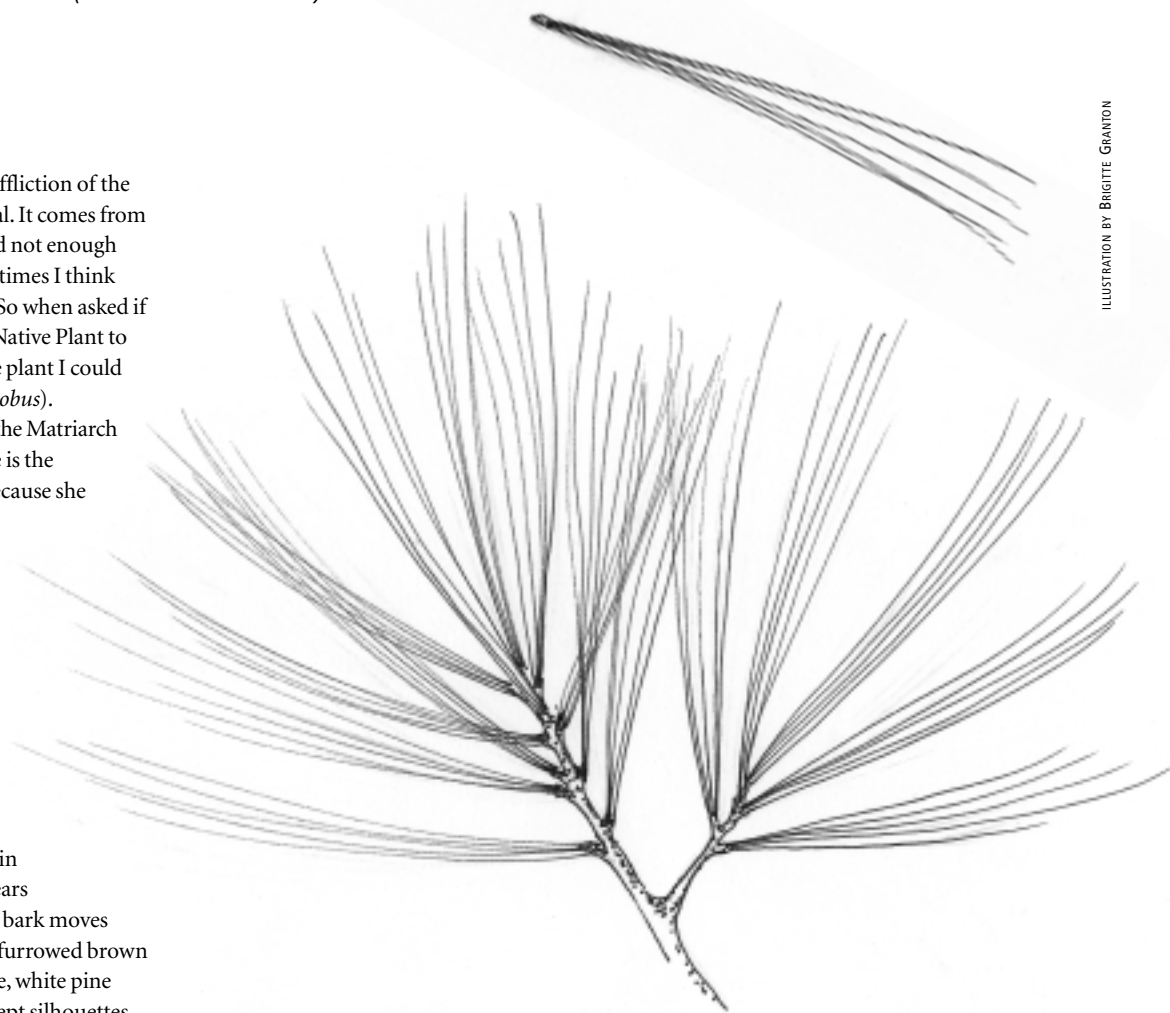


ILLUSTRATION BY BRIGITTE GRANTON

White pine: bundles of five

The *Blazing Star* is . . .

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The North American Native Plant Society is dedicated to the study, conservation, cultivation and restoration of North America's native flora.

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Letter from your President

I am now immersed in a winter botanical environment that involves a significant departure from any real contact with real plants. We have 100 or so houseplants but your NANPS President has a hard time thinking of them as real. Our winter doesn't help because it has been so mild (until now), our lawn grass so green and visible, that I feel uncertain about how I should be responding to the botanical realm.

But February is a time when real outdoor and native plants become a significant item, not only of daydreams and seed purchases, but also of plans for the activities of the North American Native Plant Society.

A very important planning meeting for our large annual plant sale has already taken place in the lovely house of board member Miriam Henriques. Her house is on the edge of one of the most spectacularly wonderful forested, deep and wide ravine landscapes in southern Ontario, near the intersection of the Don Valley and the 401 Highway. You stand on the edge of what seems to be hundreds of acres of

native trees, shrubs and, I presume, other plants. And you think – what a wonderful place for a summer excursion for the Society.

So we have planning and thinking to do: to focus on the current state of affairs in NANPS and to spend some real time examining a sensible plan for our future. All our members should feel absolutely free to participate in any way possible with this decision-making process. (Contact me with any thoughts or concerns you may have at 416-531-5183.) We will keep you informed about the discussions taking place and the help we need.

Your Board of Directors meets once a month – usually on a Tuesday, but not always the same one. This year the future of the organization will always be a major item on our agenda.

I look forward to working with you to help our organization endure - and thrive.

Grif Cunningham

NANPS PLANT SALE

SATURDAY, MAY 6, 2006 – 10AM – 3PM
Markham Civic Centre
101 Town Centre Blvd., Markham
(north of Hwy 7, west of Warden)

- purchase perennials, grasses, ferns, shrubs and trees native to your area for sun, shade, wet and dry conditions
- all plants from ethical growers approved by NANPS
- talk with experienced native plant enthusiasts
- explore the many benefits of membership in NANPS
- visit booths put on by like-minded groups including the Oak Ridges Land Trust which

will offer a display of native trees
• attend a workshop on organic lawn care (followed by a question and answer period) offered by Janet May of the York Regional Environmental Alliance from 12-1

Volunteers needed for Plant Sale (including high school students wishing to fulfill their 40-hour community service requirements.) Contact nanps@nanps.org if you wish to volunteer.

NANPS Members can order their plants in advance at www.nanps.org. Not all species will be available and substitutions may be necessary if plants don't arrive on time.

Canada Blooms

Volunteers needed for three-hour shifts at Canada Blooms which will be held from Thursday, March 8th to Sunday March 12th at the Metro Convention Centre in Toronto. Please contact Grif Cunningham if you would like to take a shift – 416-531-5183. NANPS members who volunteer get into the show free on the day of their shift.

Correction

In the fall 2005 issue of the *Blazing Star* article entitled *Downspout Gardening*, the editor incorrectly identified the enormous storm that hit southern Ontario as the residue of Hurricane Katrina.

Clear Creek Forest Revisited

Dust off your hiking boots and get ready for a new season of excursions!

After three years, and by popular demand, we will be returning to the much-loved Clear Creek.

This time out experience the *spring* face of this most spectacular old growth forest.

Watch our website, www.nanps.org, in late February, for final details and ticket information.

Seating will be limited. Clear Creek is truly an Ontario treasure. Don't miss out!

Alderville Savanna & Prairie

by Irene Fedun

The burning of vegetation remains a vibrant tradition of the Native community on the Rice Lake Plains east of Toronto. Fire was used here as a management technique as far back as 10,000 years ago.

The 44 hectares (109 acres) of the Alderville Black Oak Savanna and Tallgrass Prairie is what remains of the once-vast expanse known in Native lore as the Lake of the Burning Plains or “Pamitaskwotayong”. Sweeping fires on the south side of Rice Lake were reflected in the water making it look as though the lake were alight.

Burning off woody growth provided the Natives with good hunting opportunities. The elk and caribou that once roamed the area were attracted to the lush new growth that emerged after a burn, making them easier targets for hunters. Burns later cleared land for agriculture as well.

Without burning the Alderville savanna and prairie might not exist; it depends upon fire to maintain its delicate balance of ecosystems. In this part of Ontario, forests would soon reclaim open spaces if allowed free rein. Fire retards the encroachment of successional forest, creating patches of fire-resistant trees, grasses and forbs.

Amanda Newell, Natural Heritage Coordinator for Alderville First Nation, says the fire management plan remains flexible, but burning usually happens every year to set back the growth of non-native species, while encouraging prairie and savanna species. To ensure the safety of neighbouring homes and to fulfill the management goals, the burns are usually controlled and limited to specific areas, but last spring local tradition took hold once again as an unknown fire-bug set wildfires on the edge of the site. Almost the entire site burned; only in the deeper woodlands did the fires put themselves out. The Fire Department made an appearance, but extinguished the flames only after the fire had done its job.

The previous year’s dessicated grasses and forbs burn quickly. Fire gallops through the prairie, licks at the trunks of the taller trees and leaves the smaller shrubs burnt ragged. For deeply-rooted native plants fire is a superficial experience. Take native grasses as an example. Their primary biomass is below the surface of the soil; two-thirds of their growth – in the form of fibrous roots – is underground. Fire actually benefits them: it black-



PHOTOGRAPH COURTESY AMANDA NEWELL

Early autumn little bluestem (*Schizachyrium scoparium*) with a few tall big bluestems (*Andropogon gerardii*) poking out and a mature black oak (*Quercus velutina*) in the background

ens the soil allowing it to warm more quickly (most native grasses need warmer temperatures to kick-start their above-ground growth) and supplies concentrated nutrients in the form of readily-assimilated ashes.

In the oak/pine savanna which melds seamlessly with the prairie, the predominant black oaks (*Quercus velutina*) respond differently. Fire typically reaches up two metres (six feet) blackening the lower part of the trunk and suffocating the leaf-producing lower branches (as well as removing competing vegetation). Younger trees burnt by a particularly hot fire may die off at the crown. In this instance, the nutrients in the root system that were preparing to feed a large tree may be pumped into the production of massive leaves. Very young trees, along with shrubs such as sumacs (*Rhus typhina*), serviceberries (*Amelanchier* spp.), and the grey dogwoods (*Cornus racemosa*) that would become invasive if not for the fires,

are killed off aboveground, forcing them to push new bushier growth up from the base.

Only in old age, when their bark has become dry and brittle, are oaks likely to succumb to fire. Healthy bark serves as their defence against attacks from the outside world.

Shallow-rooted non-native species, such as the highly-problematic spotted knotweed (*Centaurea maculosa*), can be partially controlled by fire. Still, a chemical exuded by the knotweed’s roots has recently been proven to be toxic to susceptible native grass species, inhibiting the germination of their seeds. Other aliens, such as smooth brome (*Bromus inermis*), have been pretty well wiped out in certain areas by burning at specific times. Unfortunately, white sweet clover (*Melilotus alba*), the other major problem plant, remains immune to the destructive powers of fire. Other management techniques, such as mow-

Continued from page 3

ing, may be necessary to keep it under control.

Susan Slottow and I visited the site in late August in the midst of another painfully dry summer. Flowering had peaked for most wildflower species a few weeks before so only occasional blooms were to be seen, among them thin-leaved and woodland sunflowers (*Helianthus decapetalus* and *divaricatus*, respectively), azure asters (*Aster oolentangiensis*), and the only two tick-trefoils at Alderville – showy (*Desmodium canadense*) and pointed-leaf (*D. glutinosum*). Field thistles (*Cirsium discolor*), much loved by goldfinches, were also in bloom. We had missed the striking orange umbrella-like blossoms of butterfly milkweeds (*Asclepias tuberosa*) but were much impressed with the size of the remaining seedheads scattered throughout the open prairie. Monarch butterflies responded gratefully to this bounty – their numbers were much higher in 2005 than they had been the year before.

Susan had told me from a previous visit that this land reminded her of "a contented, well-loved cat basking in the sun". Amanda echoed this, saying that most of the Native community and the landowners whose properties about the site feel pride in its renewal and do their bit to preserve it. But the man responsible for its creation is Rick Beaver, a local Native artist and biologist. In 2000, he and other concerned Band members persuaded the Chief and Council of Alderville First Nation, which owns the land, to designate it as a Natural Heritage Site under a Band Council resolution.

In the 1700s European settlers had converted much of the land into pasture or used it to grow cereal crops, and there had been some gravel extraction. At the start of this century, a portion of the site was overrun with alien weeds and mostly abandoned or used for sheep grazing. Various options for development had been considered including a quarry. It turned out the gravel was of poor quality. "Thankfully," laughs Amanda, "we have crappy gravel."

At the eastern edge of the Oak Ridges Moraine, these rolling hills of sand and gravel, carved out by glaciers, provide ideal conditions for prairie plants. Likewise for oak/pine savanna, another endangered habitat in Ontario. Through a combination of benign neglect, fire and reseeded of prairie species, the Alderville site is returning to some semblance of its historic self. Many native grasses are recovering on their own, including big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*) and little bluestem



PHOTOGRAPH COURTESY AMANDA NEWELL

Male great spangled fritillary on old field thistle (*Cirsium discolor*)

(*Schizachyrium scoparium*) which appears in patches throughout the site.

Nine colonies of blue lupines (*Lupinus perennis*), a flowering plant characteristic of tallgrass prairies, are growing at Alderville. The experimental plots scattered around the site will determine where lupines do best. Last spring, those planted in 2002 and 2003 bloomed beautifully, offering up their seeds for future plantings. Some, like the roadside colony, did not fare as well.

Lupines are critical to the Alderville restoration. Not only is this a plant species at risk in Ontario, it is also the host plant for the internationally endangered – and Ontario-extirpated – Karner blue butterfly. Over 6,000 plugs of lupines have been planted in four years but probably only half have survived. They are hampered by low germination rates and low survival rates once germinated. When the population is stable, and the rest of the site is ready, Alderville First Nation will work with the Metro Toronto Zoo to release captive-bred Karner Blues onto the site. (This project is sponsored by the Habitat Stewardship

Program of Environment Canada that contributes to groups involved in the recovery and protection of habitat for species at risk.)

Wildlife of all stripes (meadowlarks, towhees, woodpeckers, merlins, foxes, porcupines, dragonflies, damselflies, copperbelly snakes and treefrogs are just a small sampling) have been drawn to the site, but perhaps the most notable are the 52 species of butterflies and 13 species of moths recorded to date. The combination of soil type, location, terrain, and varied microclimates has contributed to nurture the unique grouping of plants at Alderville that provides food and habitat for many insect species.

Another "testament to the uniqueness of the site", as Amanda puts it, is the presence of two species of rare panic grasses, the white-haired (*Panicum villosissimum*) and the long-stalked (*Panicum perlongum*), both delicate, feathery species. They both grow in the open prairie and can be glimpsed along the path leading from the open prairie to the more shaded savanna.

The Hog's Back, a hot, dry esker that runs

north/south on the site, plays host to another notable plant, the prairie buttercup (*Ranunculus rhomboideus*). It's a provincially rare species but, luckily, abundant here. One of the earliest spring bloomers, prairie buttercup carpets the top of the hill with its pretty yellow flowers.

Although protection and restoration of rare and endangered species remains a priority here, the more common plants continue to fascinate. Historically and culturally the site has much to offer. The long fibres of spreading dogbane (*Apocynum androsaemifolium*), a common grassland plant closely related to milkweeds (*Asclepias* spp.), were once used to make rope, jewellery and nets to catch fish. Acid-loving bearberry (*Arctostaphylos uva-ursi*) was known as minagunj, "berries with spikes", to the Ojibway. The leaves were harvested in the fall to treat a wide range of ailments including diabetes, sprains and dysentery. The young shoots of fireweed (*Epilobium angustifolium*) were eaten like asparagus, while the roots and leaves were brewed into teas to treat asthma,

whooping cough and hiccups.

While the savanna and prairie remain the two habitats of greatest concern here, the Alderville site is also home to woodlands and old fields that are slowly recovering with the help of fire and hand-broadcasted seeds. In the woodlands the predominant species are the red, white and black oaks (*Q. rubra*, *alba* and *velutina*), of which the red and black species often interbreed, and white ash (*Fraxinus americana*). Delightful rarities include black ash (*Fraxinus nigra*) and mountain maple (*Acer spicatum*) which prefer mixed woods, and black willow (*Salix nigra*) which occurs at the wetland edges in the low-lying parts of the site. The quaking aspens (*Populus tremuloides*) have become a bit of a problem. They have grown too large to manage with fire and threaten to take over the outer edges of the woodlands so many of them are now being cut down to be used as wood chips. The chips are laid down as a thick mulch for the paths in the hopes of keeping poison ivy (*Rhus radicans*) at bay.

Arguably the most intriguing plant in the woodlands is the carrion flower (*Smilax herbacea*), a vine whose small white flowers smell like rotting meat. This ploy is used to attract flies and beetles to pollinate the plant. In the summer fat globules of blue-green berries turning dark blue bounce up and down in the breeze.

The ever-changing palette of colours and textures, not to mention the parade of wildlife - 35 bluebird chicks fledged on site last year, foxes build dens in the woodland, and a pileated woodpecker pair continue to make their home here - encourage repeat visits and instill a desire to learn more about this "contented cat" place.

To arrange a visit or to obtain a copy of the recently-published second edition of *To Know This Place: The Black Oak Savanna/Tallgrass Prairie of Alderville First Nation*, contact Amanda Newell at 905-352-3051 or amandadnewell@hotmail.com. Visit www.aldevillesavanna.ca for more information.

Cultivating Community: Presenting the third annual Naturalized Landscape Conference

Presented by the Naturalized Habitat Network, in conjunction with Ontario Nature in recognition of their 75th Anniversary!

Take part in a day of discussion and insights on ecological restoration, naturalization, sustainable living and community action! Including...

- Wendy Francis, Ontario Nature's director of conservation & science – "Ontario Nature's Greenway: A Vision for Connecting People and Nature in Ontario".
- Craig Willette, Native plant expert - Trends in the native plant industry
- Dan Dufour, Point Pelee National Park - Perspectives on parkland restoration
- Jerry DeMarco, Environmental lawyer – Citizen advocacy and the environment
- Paul Morris, Ecologist – Prairie potential: creating large and small prairies
- **Plus** presentations on the organic food industry, alternative energy and more, along with a variety of regional environmental groups and businesses.

Saturday, April 1 in Windsor, Ont.

\$48 per person, which includes lunch & refreshments.

Ask about our 'bring a friend' discount, \$90/pair.

Please indicate your choice of chicken or vegetarian lasagna.

Registration is required by March 27.

To register, call us at 519-259-2407.

To learn more, visit us at www.naturalizedhabitat.org.

Presented with the support of the
TD Friends of the Environment Foundation.



Seed Collection: Reaping What You Sow

by Natalie Helferty

The law of harvest is to reap more than you sow. Sow an act and you reap a habit. Sow a habit and you reap a character. Sow a character and you reap a destiny.

James Allen

Although James Allen's quote was directed toward people, it can be adapted to native plant propagation; in fact, it should be, if we are to restore our connection with Nature. Consider this: Sow a seed and you reap a habitat. Sow a habitat and you reap a community. Sow a community and you reap an ecosystem...one teeming with natural wonders and life! That is our salvation for this planet...sowing one small seed at a time.

Before we can sow, we need to know how to collect. Timing the collection of seeds is a skill of observation. We need to ensure the seeds are ripened to be viable, so patience is necessary. Yet also, we cannot wait too long after the ripening or else we will miss the seeds as they get eaten by birds, insects or mammals, or are scattered by the wind or water.

The spring ephemeral flowers in woodlands are the first to produce seeds. They take advantage of the limited sunlight available to the soil that filters through the bare boughs of the trees. They must bloom early and set seed quickly before the sun's energy dissipates with leaf-out of the forest canopy. For that reason, you need to be quick in order to collect woodland wildflower seeds. You're also competing with ants that will carry off the seed to eat the fleshy elaiosome (also called aril) when the seed casing first cracks open. This happens in Trillium species, bloodroot (*Sanguinaria canadensis*), and twinleaf (*Jeffersonia diphylla*). These seeds need to be sown immediately or stored in moist conditions to ensure the seeds don't dry out.

Vigilance is necessary to spot seeds for some species as they may be inconspicuous. Examples are trout lily (*Erythronium americanum*) whose leaves die out quickly after flowering and bloodroot, whose fruiting capsule is enveloped by the leaves. These plants should be marked and seed capsules checked about four weeks after flowering and every few days thereafter. Seeds will darken at maturity and are only two to three millimetres (1/8 inch) long, contained in capsules. Seeds may be mature before the capsule cracks open,

so if there are lots of capsules, split one open to check the darkness of the seeds in the population. If they are beginning to darken, and you can't come back to get them, collect the capsules at that time. Keep them intact in a damp setting (like a moistened paper towel) for the seeds to continue to ripen. Once the seeds are dark, break open the capsule, rake out the seeds and sow them immediately. If you wish to preserve the capsules or seeds for later sowing, keep them in a damp environment in the fridge. A small amount of their native soil collected from the forest floor will help them germinate.



Capsules of seeds of the blue-eyed grass (*Sisyrinchium* sp.) wrinkle slightly before falling indicating mature seeds.

Some woodland species, such as Jack-in-the-pulpit (*Arisaema triphyllum*), have bright red juicy fruits in the fall that are easier to spot. Be sure that juices from the seed collection do not get onto your hands as they are noxious to people. If ingested, they leave a burning sensation on your lips and tongue. Mice and voles, on the other hand, relish these seeds and bury them in their overwintering larders thus helping to propagate the plants.

Some plants have seeds that can withstand drying and, in some cases, prefer it. Columbine (*Aquilegia canadensis*) and harebell (*Campanula rotundifolia*) both have tiny seeds that require desiccation and full sunlight for germination, and can withstand some heat stress. The light, round seeds of these resilient yet delicate-looking plants tend to bounce around on rocky barrens or alvars

(flat limestone outcroppings) and find their way into crevices where soil has collected. These plants are ideal for urban areas and could likely be grown in the cracks of sidewalks and in rock gardens, provided you avoid winter salting of your sidewalk and use sand or grit, which aids in soil development.

For these hardy species, watch their developing capsules as they turn from moist green to dried brown and collect them just before they burst open. To capture the seed, you can also tie old pantyhose or other light mesh around the seed capsule with some thread or thin elastic band when they are almost dried. In your garden, if you want the plant to self-propagate, be sure to leave some seed in the capsules and they will fall on the surface of the soil as the capsule dries. Most "weedy" species in gardens are those that are most tolerant of harsh conditions. Keep them in nutrient-poor soil and they won't become a nuisance. Planting them beside open ground will also enable smaller mammals and birds to find the seeds in the fall, which will also keep the plants' fecundity in check.

Wetland seeds can be collected in late summer when flowers have turned into seed capsules. Watch insect and dragonfly activity from the shoreline and you'll be able to tell when the small sedges, rushes and grasses are in bloom (lots of insects and dragonflies buzzing around) and when they are in seed (few to no insects and dragonflies). This is helpful since the seed heads are usually non-descript and difficult to tell from the flower heads, especially without a good, close-up, in-the-hand specimen to examine.

Wetland plants may have lots of tiny floating seeds, like cardinal flower (*Lobelia cardinalis*). Or they could have larger floating seeds with air pockets such as pickerelweed (*Pontederia cordata*). These eventually sink to the bottom as they get waterlogged in late fall (after migrating ducks and geese have had their fill). Floating seeds will be distributed across the surface of the water often in late summer over a long period, so urgency in collection is not needed, unlike with forest plants. A seed capsule that starts drying out from the top down to the stem, like monkeyflower (*Mimulus ringens*), can be cut off the plant as soon as it is mostly dried. The remaining seeds will mature, i.e. dry out, if kept inside the capsule in a container.

Meadow plants tend to bloom most

PHOTOGRAPH COURTESY RON HEPWORTH

prolifically late in summer to late fall. Since meadows are open habitats, wind is the preferred method of seed dispersal. Many tiny airborne seeds (goldenrods or *Solidago* spp., and *Aster* spp.) are blown off seed heads during fall storms. Many grasses and other fall seed-producing plants like cattails (*Typha latifolia*, *T. angustifolia*), common milkweed (*Asclepias syriaca*), and Joe-pye weed (*Eupatorium fistulosum*) also disperse their seeds this way. Capture the seeds when fluff first appears and before the seeds are all wind-dispersed. Fall-migrating birds searching for food help greatly in seed dispersal, so seeds from the Compositae (daisy or sunflower) family, including black-eyed Susan (*Rudbeckia hirta*) are plentifully produced with open faces and stiff stems making them ideal landing pads. The seeds are mature when the seed head dries and the seeds change from dark brown to ashen gray. Vigorous rubbing will pop the square-sided seeds out of their head.

Treat all seeds with care so they don't go to waste in your fridge or a bag. As well, when seeds are collected, be sure to collect less than 10% of any population and never collect seeds from plants that number fewer than 10 in a population. If the plant is listed as a Species At Risk in your area, do not collect its seed. Qualified propagators for recovery programs will need access to these seeds under the



PHOTOGRAPH COURTESY RON HEWORTH

Thimbleweed (Anemone virginiana) seedheads dry similar to cattail so seeds remain intact for some time. Slight tugging will pull mature seeds off just before they burst into a fluffy mass.

Canadian Species At Risk Act (SARA) as recovery plans are finalized in 2007. In the United States the collection of these seeds is prohibited under the Endangered Species Act. Seeds from cultivated specimens of threatened plants are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers.

Many plant species have become endangered due to over-collection by native plant enthusiasts, so always check the origin of any plants or seeds you buy. On the other hand,

propagation of a species in captivity can be sufficient to keep a species alive, so don't feel that you can't sow a rarity; just be sure that your activities are promoting its recovery.

Be a collector - and disperser - of Mother Nature's seeds and we'll all reap the benefits.

Natalie Helferty has collected seed from her "postage stamp" townhouse garden from almost 30 species planted along a wet-to-dry gradient made by her buried rooftop downspout.

In Memoriam

Henry Kock, tireless environmental crusader, native plant advocate and Interpretive Horticulturist at the University of Guelph, died on Christmas Day of brain cancer. His unorthodox views rarely hit the mainstream but gained him many admirers. In an article Henry wrote for the *Blazing Star* two years ago, he argued against the accepted "search-and-destroy" method used to eradicate the Asian long-horned beetle that involves felling not only affected trees but potential targets as well. He recommended inspecting trees, developing a tree stethoscope to listen for "munching sounds" and applying "a systemic insecticide to the very best trees that are at risk". His approach to environmental issues was thoughtful, wholistic and based on an intimate knowledge of natural systems. The legacy he leaves behind includes a remarkable backyard woodland and native plant garden, and the first draft of a book on growing native

trees from seed, a project to be completed by his colleagues.

Deepest condolences to his wife Anne and family. Henry will be very much missed.

Nelson Maher, affectionately known as the Fern Man, passed away last August after a long battle with cancer. Nels was out near his fern garden picking elderberries for his annual wine-making when the end came. Nels was a gifted naturalist with an eye for distinguishing plants and a memory for their locations. From his earliest days he explored around Owen Sound, his love of nature fostered by his devotion to the Scout movement.

An ardent conservationist, Nels was especially influential in the preservation of Black's Park in Owen Sound with its galaxy of ferns. He was also one who recognised the uniqueness of the Galbraith Natural Area near Chatsworth - now a nature preserve. Nels worked tirelessly to educate others about ferns and the ecosystems

they inhabit. He graciously consented to write an article for the *Blazing Star* a couple of years ago about one of his favourites, walking fern (*Asplenium rhizophyllum*).

We join all fern lovers and conservationists in mourning his death and sending our deep sympathy to his wife Jean and his family.

Dame Miriam Rothschild, who passed away last year at the remarkable age of 96, was one of the first Honourary Directors of the Canadian Wildflower Society, now the North American Native Plant Society. Although primarily known for her work as an entomologist, Dame Rothschild was also a wildlife rehabilitator, breeder of prize-winning cows, and native plant enthusiast. She re-created 60 hectares (150 acres) of wildflower meadows at her home in Ashton Wold, England, and was known to give her guests a packet of seeds she called Farmer's Nightmare.

Quebec's Boreal Forest

by *Andre Lapointe*

A territory as large as Quebec cannot be captured within a single vegetation zone. Three zones dominate in the province: arctic, boreal and northern temperate. Within these zones, almost 3,000 vascular plant species exist, of which one-fifth are considered rare or uncommon. Many plants, however, are not indigenous as early settlers in the 16th century intentionally or unconsciously introduced plants. Since Europeans were not familiar with the native species of this new land, many of the plants were intended to ensure their survival.

The northern temperate zone, which represents the southern part of the province, with 95% of the population, has been well-surveyed by botanists, especially the renowned Marie-Victorin. This simple cleric wrote the as-yet-unsurpassed botanical manual for the province called *La Flore Laurentienne*. In this colossal work, he captured the essence of the plant life, adding brief notes on traditional uses and biochemical properties of many plant species.

Until the latter part of the 20th Century remote regions like the arctic and the boreal zones had barely been studied by curious naturalists, who mainly traveled along traditional waterways. However, in the late 1970's, major developments such as hydroelectric projects, mining and logging opened access and created opportunities to explore these territories. Still, it remains difficult to offer a complete picture of native plant life since invasive and introduced plants inevitably follow human footsteps, and significant shifts in climate and soil conditions have already had a negative impact on many natural ecosystems.

The Canadian Shield constitutes one of the oldest geological features of the Earth's crust. It even underlies more recent sedimentary rock since it stretches to the southwest as far as Texas. It is mainly composed of hard, but slightly acidic, rock with roots deep into the Earth's crust. This hard shield "bounced back" or rose in elevation after the disappearance of the glaciers, revealing a scarred surface landscape with abundant glacial deposits. Considering that Quebec geomorphology* averages 300 metres (330 yards) in elevation, the shield's presence enhanced the land's water-holding capacity, and led to the appearance of the greatest mono-climatic

forest in the world, the boreal forest (which stretches across northern Canada).

Harsh conditions characterize the Shield but some plant species have adapted. They have become specialized. Soil composition and climate greatly determine species distribution, and remain the controlling site factors.

Even though water is everywhere in the boreal forest its acidic range often inhibits the colonization of many plant species. Black spruce (*Picea mariana*) dominates the forest. Plants from the Ericaceae family (acid lovers) such as the blueberry (*Vaccinium* spp.) and sheep laurel (*Kalmia angustifolia*) are common in land ecosystems. They can withstand either long drought periods or prolonged submersion.

During the long days of the short summer, the sun can be extremely hot. Many plants compensate by developing a waxy cuticle on their leaves that inhibits transpiration or loss of moisture. Sheep laurel is an example. This species is most abundant on dry morainic deposits, and often accompanies Jack pine (*Pinus banksiana*), which grows sporadically throughout the boreal forest. Jack pine is a pyro-climatic species, which means that its cone requires a high temperature to open and spread its seeds. This occurs as a result of forest fires.

The boreal region is also characterized by bog lakes scattered in poorly defined watersheds. The watersheds host a variety of acidophilic plants such as mosses and sedges. Leather-leaf (*Chamaedaphne calycata*) often dominates the mossy pads. The pitcher plant (*Sarracenia purpurea*) inhabits string bogs where numerous insects, mainly mosquitoes, swarm continuously during the decline of warm summer days. Together with the sundew, (*Drosera rotundifolia*), these carnivorous plants survive in the nutrient-poor ecosystem from the minerals provided by trapped insects.

In the boreal region, many great rivers such as the Ottawa and Temiscamingue, and Abitibi Lake were trading and migration routes for aboriginal peoples and fur traders. First Nations - the Cree, Innu, Algonquins and Naskapi - lived in this barren land. Many species of plants were necessary to fulfill their survival needs. (The quest for food, shelter and medicines dictated a nomadic existence.) Cloudberry (*Rubus chamaemorus*) and the tuberous roots of all orchids (*Cypripedium* spp.) provided food. Northern valerian (*Valerian dioica*) was used by the Cree to treat



insomnia, hysteria and depression. A tea made from the appropriately-named Labrador tea (*Ledum groenlandicum*) was rich in Vitamin C and helped to treat stomach and kidney complaints. Balsam fir (*Abies balsamea*) boughs were used to make shelter. The leaves of common cattails (*Typha latifolia*) were woven into baskets, chair seats and mats. All parts of the plant were used for food as well.

One of the great rivers of the boreal region is the Rupert, flowing from Lake Mistassini to James Bay. This sheltered river meanders, often creating bays with deciduous stands of poplar (*Populus* spp.) and birch (*Betula* spp.). These rare ecosystems benefit from the misty air where rapids form. A more clay-like soil and adequate drainage provide habitat for a greater variety of perennials and woody plants.

Along the border of the shield, the glacial valleys often form a well-defined U-shape. A meander colonized by alders (*Alnus* spp.) and willows (*Salix* spp.) sits on a bed of morainic debris that had long ago surrounded a glacial bloc and created a kettle lake. Mixed vegetation occupies the mountain slopes.

The boreal forest is a vulnerable part of our global heritage. As we strive to preserve it, we slowly uncover its secrets.

André Lapointe is a member of FloraQuebeca, an organization that promotes understanding of Quebec's flora and tries to protect threatened or vulnerable species and their habitats. Visit www.floraquebeca.qc.ca.

* geomorphology – study of the physical features of the Earth's surface and their relation to its geological structures

Study the Native Plants of an Arctic Oasis



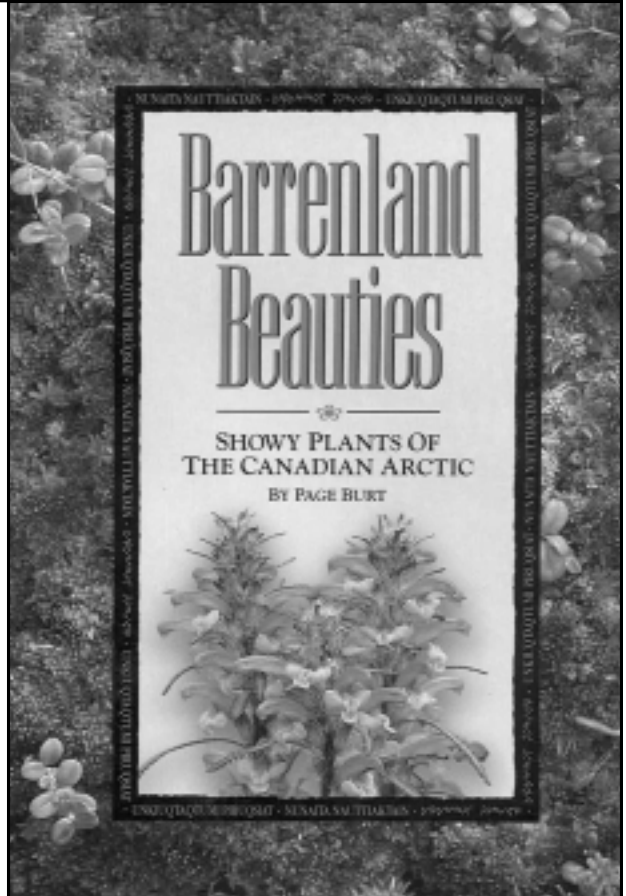
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Page Burt,
author of *Barrenland
Beauties* and Senior
Naturalist at
Bathurst Inlet Lodge,
invites you to join
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the arctic tundra in full bloom but also Bathurst's spectacular tundra scenery, wildlife, history, and Inuit culture. A botanist, educator from the Cincinnati Nature Centre, resident of Rankin Inlet, Nunavut and an expert on the Kitikmeot Region of the arctic, Page along with local Inuit, have guided trips around Bathurst Inlet for close to 30 years.



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So You Wanna Start a Native Plant Landscaping Biz?

by Paul O'Hara

This article is a modest response to the increasing number of post-secondary grads that I meet who are interested in native plant landscaping.

Start small.

Be patient. Increase your shovel- and plant-handling mileage by seeking related employment. Help friends and families with their natural gardening plans and get involved with local naturalization and gardening projects. When it comes time to start your business don't run out to buy a front-end loader and a new truck. Supplies can be delivered, and a little elbow grease can move almost anything. When in over your head, partner with others to get the job done.

Take a landscape design course.

Knowledge of landscape design and drawing principles is a must. Computer Assisted Design (CAD) drawing is nice but unnecessary. Besides, there is a cozy, grassroots quality to hand-drawn designs. Excellent continuing education courses on landscape design are available at most community colleges.

Promote yourself.

You don't need a lot of money to look professional. Photo-document your work so you can build a portfolio and do presentations at local environmental events. Afraid of public speaking? Don't sweat it. It's ok to stumble, be nervous and look silly. I have a gaudy, custom-made lampshade I wear at talks now.

Obtain plants.

Support your local native plant nurseries. Even conventional nurseries carry a good selection of native plants now. If you live in Ontario, get the latest Native Plant Resource Guide (www.serontario.org) to find out about the native plant nurseries near you. If you have space to grow your own plants, be a little choosy and don't grow too many - believe me, the landscaping will keep you busy enough.

Know your home.

I cannot stress this point enough. True learning doesn't occur in the classroom. Until you get out into the field and do the sometimes-frustrating/always-fascinating work of getting to know your home you might as well be building the gardens blindfolded. Cultivating a relationship with the land is one of the most important things citizens can do. So wade through the meadow, stumble through the thicket, and stroll through the forest; the more you understand your home the greater your vision, the wider your design palette, and the more successful your plantings will be.

Have faith in the land.

Building a beautiful native plant garden is half knowledge and half magic. It is believing in the power of the land to respond to your little push. After all, it is the land that does most of the work. This is the next big learning curve for the landscape industry as the frozen smile of the formal garden cracks at the corners. All across North America there are



Lovingly-planted pale woodland sunflower (*Helianthus strumosus*) under lovingly-planted sugar maple (*Acer saccharum*).

PHOTOGRAPH COURTESY PAUL O'HARA

increasing numbers of citizens who intuitively understand that the jig is up. They want to recapture what has been lost. They want to celebrate their local natural heritage and surround themselves with the beauty of Mother Nature. I hope you can help.

Paul O'Hara owns Blue Oak Native Landscapes in Hamilton, Ontario.

Calendar of Events

March 15, 2006

HUMMINGBIRDS, NATURALLY
Guelph, ON

A seed workshop sponsored by the Waterloo-Wellington Wildflower Society where participants take home a flat planted with seeds from native perennials known to be hummingbird favourites. Contact Barbara at 519-821-7766 or bhallett@sympatico.ca.

March 17, 2006

BOTANICAL ILLUSTRATION OF DESERT FLORA
Big Morongo Canyon Preserve, Riverside, CA
Registration deadline: March 10,
sciences@ucr.ucr.edu or 951-827-5804.

April 7-9, 2006

BOTANICAL ILLUSTRATION OF NATIVE
DESERT FLORA
Mojave National Preserve, San Bernadino, CA
Registration deadline March 31,
cel@csusb.edu or 909-537-5975.

May 6, 2006

NANPS ANNUAL PLANT SALE
Markham Civic Centre
Markham, Ontario
Visit www.nanps.org for further info

June 6-9, 2006

BILLINGS LAND RECLAMATION SYMPOSIUM
Billings, Montana
For more information about this mining and
land restoration/reclamation conference visit
www.billingslandreclamationsymposium.org.

July 14-16, 2006

WILD ONES AGM/CONFERENCE
Napierville, Illinois
Contact Marie Herman at
mrhenterprises.com for more information.

New & Noted

Geology and Plant Life: The Effects of Landforms and Rock Types on Plants

By Arthur R. Kruckeberg

Seattle: University of Washington Press, 2002
362 pages, hardcover, \$35US, ISBN 0-295-98203-9

Heard of the science of geobotany? As Arthur Kruckeberg argues so forcefully in *Geology and Plant Life*, landforms and rock types play a crucial role in producing the unique geographical distribution of plants: "Before any other influences began to fashion life and its lavish diversity, geological events created the initial environment—both physical and chemical—for the evolutionary drama that followed."

This is an in-depth treatment of a complex subject, but Kruckeberg's writing is engaging, so the reader doesn't get bogged down. Using examples from diverse landscapes around the world—from mountains to sand dunes, and lots in between—Kruckeberg describes the ongoing evolutionary consequences of the geology-plant interface and the often-underestimated role of geology in shaping climate.



City Bountiful: A Century of Community Gardening in America

By Laura J. Lawson

Berkeley: University of California Press, 2005
363 pages, hardcover, \$55US,
ISBN 0-520-23150-3

I'll devour anything written on the subject of community gardening, and I almost always find it of interest. But what a treat Laura Lawson's *City Bountiful* is!

Lawson is an academic and she approaches her subject—a comprehensive history of community gardening in the U.S. from the late 1800s to the present—with a researcher's keen eye for precision. But she's also a storyteller who brings history alive. It is a delight to read the stories of community greening projects that make a real difference to people's lives.

Because of their nature (as community projects, mainly run by volunteers), few community garden projects place a strong emphasis on documenting their history.

Hence, this book provides not only a permanent and thoroughly engaging record of a rarely studied corner of social history, but it also inspires.

Reviews by Lorraine Johnson, a former president and long-time Board Member of the North American Native Plant Society.

Members' Comments

I was just looking through the fall 2005 issue of the *Blazing Star* and noticed Tom Atkinson's review of *Orchids of Manitoba: A Field Guide* in which he proclaims that 38 is a remarkable number of orchids to find in one province.

I should like to point out that the Bruce-Grey Plant Committee's publication *The Orchids of Bruce and Grey Counties* describes and illustrates—in colour—46 species (77% of the orchids found in Ontario). We have sold over 4,000 copies since its publication in 1997. The latest version came out last summer. It costs \$18.95 and is available from the Ginger Press, 848 2nd Avenue East, Owen Sound, Ontario N4K 2H3 (maryann@gingerpress.com).

- Joan Crowe, Owen Sound, Ontario

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Backyard Wetland Conservation Webcasts

Join the Izaak Walton League of America for two live Webcasts that will help you conserve wetlands and provide a home for wildlife while landscaping your home, office or schoolyard. Wetland-Friendly Lawn and Garden (March 28, 8:00-10:00pm, EST) will show how to create rain gardens, install rain barrels, landscape with native plants, and reduce pesticide and fertilizer use. Wet Spots into Wonderlands (April 25, 8:00-10:00pm, EST) will show the benefits of having wetlands on your property, how to protect those wetlands, and how to create vernal pools or bog gardens. In addition to the live programs, hundreds of resources are available on the League's Web site to help you get started. The programs will also be broadcast on cable and satellite television stations in North Carolina and may be broadcast on stations across the US. Visit <http://www.iwla.org/> and click on Wetland Webcasts to register.



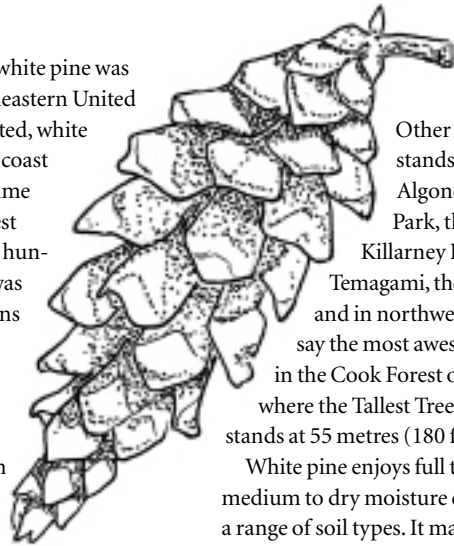
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Ten thousand years ago, white pine was cornered down in the southeastern United States. As the glaciers retreated, white pine moved up the Atlantic coast spreading east across maritime states and provinces and west across the Great Lakes. Two hundred years ago, white pine was reaching into the Great Plains when she met the axe. The Brits, for one, went gaga for white pine securing vast stands for their Navy ship construction. For her role in our early communities, white pine was named the Provincial Tree of Ontario and the State Tree of Michigan and Maine.



In spite of widespread logging, white pine is still a prominent tree in today's landscape. She can be found walking into meadow habitats. She works in thickets and early successional woods. She stands with the oak and hickory in dry woodlands and wades through water to perch on hummocks in broadleaf and conifer swamps. [This past summer I visited a newly discovered kettle lake northwest of Toronto and there she was mingling with the black spruce (*Picea mariana*) and tamarack (*Larix laricina*) in the heavily-needled, acid duff]. White pine dances with all the Great Forest Trees - red oak (*Quercus rubra*), white oak (*Quercus alba*), chestnut (*Castanea dentata*), shagbark hickory (*Carya ovata*), white ash (*Fraxinus americana*), yellow birch (*Betula alleghaniensis*), basswood (*Tilia americana*), black cherry (*Prunus serotina*), sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), eastern hemlock (*Tsuga canadensis*) - and after hundreds of years rises to stand watch above the old-growth forest canopy.

Pine-oak, maple-oak-pine, pine-oak-chestnut, maple-beech-pine, pine-basswood-elm: these are just a few of the tree associations documented from original surveys in the Toronto area. Even areas of historical prairie (read: old-growth grasslands) mentioned the presence of "small pine" or "pine plains" over whole concessions torched by the fire of the native hunter.

In the primeval woods, 45-metre (150 foot) white pines were common and some soared to 60 metres (200 feet). Today, it can be difficult to find white pines over 30 metres (100 feet) and remnant old-growth white pine stands are few and far between. I saw the 50-metre Thessalon, Ontario white pine before she fell down, and similar-sized pines at Achigan Lake

just north of Sault St. Marie.

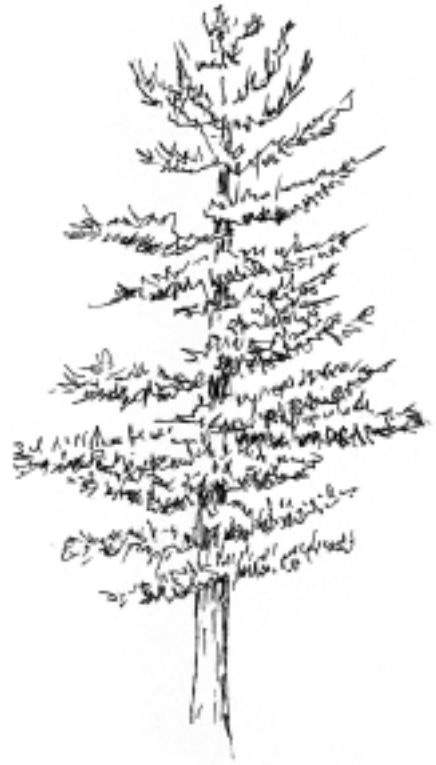
Other Ontario old-growth stands can be found in Algonquin Provincial Park, the Parry Sound area, Killarney Provincial Park, Temagami, the Algoma Highlands, and in northwestern Ontario. They say the most awesome white pines are in the Cook Forest of Pennsylvania where the Tallest Tree of the Northeast stands at 55 metres (180 feet).

White pine enjoys full to part sun and medium to dry moisture environments over a range of soil types. It makes a wonderful specimen tree in open landscapes, planted in clusters for windbreaks and screening, or as an evergreen anchor in a residential design. Along with asters, goldenrods and milkweeds, white pine is one of my first thoughts when choosing plants for the garden or restoration project.

But many modern landscape professionals believe white pine is a poor choice for urban environments. They say "it doesn't tolerate urban conditions" and that "it is sensitive to air pollution and salt." Perhaps. But it would be juvenile to believe the story ended there. **Question:** If white pine cannot survive on Bay Street in the Toronto Financial District is it a problem of the white pine or a problem of Bay Street?

Answer: Close the books. Step away from the desk. Walk into the woods. Look up. Listen to Mother.

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



ILLUSTRATIONS BY BRIGITTE GRANTON

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