The Blazing Star

Summer 2013, Volume 14, Issue 3

Newsletter of the North American Native Plant Society

Native Plant to Know

Canada Goldenrod

Solidago canadensis

by Catherine Macleod

My parents feared goldenrod. Immigrants from the United Kingdom, they were warned that this plant caused sneezing and runny noses. As an adult, I learned not to confuse *Solidago canadensis* and the many other *Solidago* species with their hayfever-provoking cousin ragweed (*Ambrosia artemisiifolia*). In fact, I have come to appreciate this joyful, abundant and useful native plant.

Canada goldenrod can grow up to 150 centimetres (5 feet) tall. Its alternate leaves are serrated, lance-shaped and triple-veined. The flower head wears 6- 12 rays of gold-coloured florets in a pyramidal panicle, blooming from August to October. The large, heavy seeds are usually dispersed by bees and other pollinating insects, not the wind, and are therefore unlikely to cause hayfever. A hardy underground rhizome system contributes to the plant's prolific tendencies and tenacious hold on the earth.

Preferring old fields, disturbed ground, roadsides or open woods, Canada goldenrod occurs throughout Canada and in almost every U.S. state.

It is perhaps the best-known species of the *Solidago* genus which comprises over 50 species in Ontario alone. Late goldenrod (*Solidago altissima*) and tall goldenrod (*S. gigantea*) are very similar to *S. canadensis* and together they form the Canada goldenrod complex. All three species have prominent veins that run towards the tip of the leaf, but the stems of *S. altissima* are hairy from top to bottom, and its leaves are hairy on the underside. *S. gigantea* has hairless, bluish green stems and can grow up to 2 metres (6 feet) high.

Often seen in the company of New England asters (*Symphyotrichum novae-angliae*), Canada goldenrod was once viewed as a weed, even by James Fletcher, a pioneer member of the Ottawa Field Naturalists Club. "New school" naturalists think of it as a valuable wildflower that sustains vast numbers of insects… unless the naturalists happen to run a native plant nursery whose less vigorous forbs planted in fields find themselves competing with Canada goldenrod.

The genus name *Solidago* comes from the Latin solidus meaning "whole" and ago meaning "to make". The origin of the name, according to *Edible and Medicinal Plants of Canada* published by Lone Pine Publishing, reflects the plant's many medicinal uses. In effect, Solidago means "to make whole or cure". Infusions made from goldenrod were used to relieve everything from intestinal cramps and gas to headaches. Compounds in the plant are believed to stimulate the immune system. The antioxidant

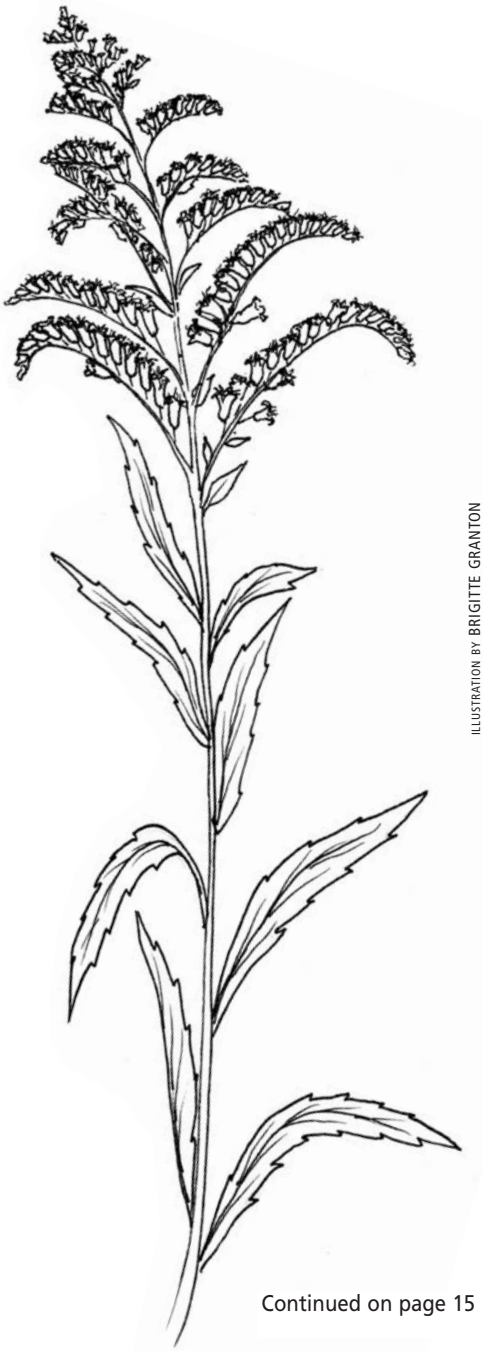


ILLUSTRATION BY BRIGITTE GRANTON

Continued on page 15

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 2013
Volume 14, Issue 3

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$25/YEAR WITHIN CANADA,
US$25/YEAR OUTSIDE CANADA

Join online or send cheque or money order to North American Native Plant Society, Box 84, Stn D, Toronto, ON M9A 4X1.
Telephone: (416) 631-4438.
E-mail: nanps@nanps.org.
Web: www.nanps.org.

NANPS BOARD RETREAT 2013: A VISION FOR THE FUTURE

The North American Native Plant Society board retreat at Oak Hills Farm generated a lot of energy and enthusiasm. We had an excellent turnout on a beautiful June day, with lupines (*Lupinus perennis*) and ninebark (*Physocarpus opulifolius*) in full bloom. We decided that future retreats will be held in November, when the weather will be more conducive to spending the day indoors!

Alice Kong lead us through the details of the new by-law (see facing page) and I presented a brief history of NANPS. It all started in 1984 when Jim French wrote a letter to the editor of the *Globe and Mail*. This generated a lot of interest and the following year the Canadian Wildflower Society was formed (which became NANPS in 1998). Within a year the society had 1,200 members, a magazine, a seed exchange, a plant sale – plus they were giving lectures. The organization bought Shining Tree Woods in 1993 and Zinkan Cove in 2003. Unfortunately, the society was unable to continue to subsidize *Wildflower* magazine and, with its loss in 2004, the membership plummeted. In recent years, the society has grown in size and strength, but it is still a long way from what it was. Similar organizations, such as the Audubon Society, are much bigger. Evergreen, which was founded six years after NANPS, now has its own campus at the Brickworks.

The Board felt that NANPS must continue to support our excellent local programs such as the plant sale and lecture series. We need to train more seed collectors so we can expand our seed exchange – this is the cheapest way to acquire native plants and it provides a tremendous sense of achievement to see them grow.

But we also want to develop relationships with other native plant societies on this continent. How much could a large, well-funded, connected and truly "North American" native plant society achieve?

Eventually we would like to have a paid executive director and a building of our own, with display gardens and a greenhouse. We could do more to investigate and promote best practices in North America, such as planting natives in public places and educating children about their value. Medium- range possibilities include hosting an international native plant conference in association with Flora Niagara in 2017 and developing a documentary.

In the immediate future, we need more members, more money (either from donors or government grants) and more ways to use our volunteers and board members who have the skills, time and interest to pursue these goals.

NANPS belongs to its members and volunteers – without you there would be no society. Please think about what you want from NANPS and how much you are prepared to contribute. NANPS has had an illustrious past, but with your enthusiasm and dedication, the best years are yet to come. Email me your thoughts at joyston@nanps.org or talk to me at the AGM on October 19th!

John Oyston, NANPS Vice President

PHOTOGRAPH BY JOANNE FALLOWFIELD

From left to right: *Adam Mohamed, Paul LaPorte, Miriam Henriques, Harold Smith, Cass Stabler, John Oyston, Janice Keil, Gillian Leitch, Heidi Eisenhauer, Alice Kong and Eileen Atkinson*

NANPS NEWS

NANPS 2013 EVENTS

SEPTEMBER 21st **Fall Excursion to Shining Tree Woods**

A bus tour to this unique Carolinian ecosystem featuring tulip trees (*Liriodendron tulipifera*), pawpaws (*Asimina triloba*) and other unusual species. Contact excursions@nanps.org.

OCTOBER 8th, 2013 **Gardening: Planting the Right Seeds for Biodiversity**

7 p.m. – 9 p.m.
Toronto Botanical Garden
777 Lawrence Avenue East, sw corner of Leslie

Explore the intricate connections between native plants and insects/pollinators throughout the garden food chain with Paul LaPorte, NANPS President. Learn how to establish a native plant garden with minimal effort and no chemicals. TBG and NANPS members $25, the general public $32. Visit www.nanps.org for more information.

OCTOBER 19th NANPS Annual General Meeting
Noon to 4 p.m.

Canada Room, Markham Civic Centre, 101 Town Centre Boulevard, Markham

Moritz Sanio of the Grand River Conservation Authority will make a presentation about Seed Collecting.

PHOTOGRAPH BY EILEEN ATKINSON

Kathy Edgar preparing native plants for NANPS 2013 Plant Sale

OCTOBER 22nd **Creating a Prairie Garden**

Presentation by NANPS Vice-President John Oyston at Toronto Botanical Garden from 7 to 9 p.m.

Find out about short and tallgrass prairies, meadows and savannahs in Ontario, and their historical and present-day ranges. Speaking from his experience planting a three-acre (one-hectare) prairie at Oak Hills Farm, John will discuss typical prairie grasses and forbs, site preparation, sourcing seeds, planting, controlled burns and how to incorporate prairie species into a suburban garden. Cost: $10 for NANPS members, $28.25 for TBG members and NANPS guests. Details at www.nanps.org/index.php/events/208-prairie-talk-at-tbg.

Check the NANPS website frequently for more updates: www.nanps.org

NANPS PROPOSED BYLAW AMENDMENTS

NANPS was incorporated under Part II of the Canada Corporations Act in 1986, shortly after our beginnings. This Act has governed federally incorporated not-for-profit corporations in Canada for nearly a century. Recently, new legislation was enacted establishing a new set of rules. We are required to modify our articles of incorporation and bylaws to conform to the new Canada Not-for-Profit Corporations Act.

The board encourages all members to look at the proposed Articles of Continuance (Form 4031) and proposed new bylaw which are on our website at www.nanps.org. The next step will be membership approval at the Annual General Meeting on October 19, 2013 and filing with Corporations Canada. Once Corporations Canada has accepted our documents, our Letters Patent will be replaced with a Certificate of Continuance.

Our statement of purpose will remain the same and changes have only been made to be consistent with the new Act and to reflect our current practices. We have had the proposed articles and bylaw reviewed by a lawyer with not-for-profit experience on a pro bono basis. Any questions and comments can be directed to info@nanps.org or 416-631-4438.

NEED SEEDS

Have you ever thought about becoming a native plant seed donor for NANPS? We are so grateful to those good folks who keep our member-only seed exchange program stocked with native plant treasures (www.nanps.org/index.php/plant-sources/nanps-seed-exchange). But we always need more donors. FYI, seed donors get first pick of the seeds and can order twice as many packets as seed buyers (up to 30 packets for donors). Although orders are on a first-come, first-served basis, seed donor orders always go the front of the line!

If you've never done it before and you're anxious about how to collect the seed visit the article at www.nanps.org/index.php/plant-sources/159-seed-collection-reaping-what-you-sow to learn all about it. The seeds have to be collected properly in order to stay viable. A common error for beginners is not allowing the collected seed to sit a while and lose some of the moisture content so that it can be stored.

The link to the seeds available for this year's exchange is www.nanps.org/index.php/plant-sources/177-2012-2013-seedex. Email seeds@nanps.org if you have questions or concerns.

Seeds are maturing all season long – start collecting now!

Canoe Planting at Fort York

This spring, the David Suzuki Foundation, in conjunction with the North American Native Plant Society and other partners, held a Homegrown National Park event at Fort York National Historic Site in Toronto to boost urban green space. Lost River Walks (a program of Toronto Green Community and Toronto Field Naturalists designed to encourage understanding of Toronto as a part of nature) brought an old canoe and NANPS volunteers filled it with sand, gravel and compost then planted a variety of native plants that could survive and thrive in this harsh mini-environment. Chosen plants included prairie smoke (*Geum triflorum*), little bluestem (*Schizachyrium scoparium*), beardtongue (*Penstemon hirsutus*), eastern columbine (*Aquilegia canadensis*), Canada anemone (*Anemone canadensis*) and many others.

PHOTOGRAPH BY JOHN OYSTON

*Canoe garden plants include dense blazing star (*Liatris spicata*), lance-leaved coreopsis (*Coreopsis lanceolata*), blue-eyed grass (*Sisyrinchium *sp.), a dwarf chinquapin oak (*Quercus prinoides*) and lots of other good stuff.*

EDITOR'S NOTE

The Virginia Spring Beauty Plant to Know cover article that appeared in the spring 2013 Blazing Star was erroneously credited only to Stephen Johnson. He shared the credit with Mary Stark; she's the one who studied the works of Ralph Waldo Emerson.

VOLUNTEER CORNER

In 2013 thus far, in my capacity as Volunteer Chair, I think I have sent out over 5,000 emails. I compiled a new volunteer list from various sources and began sending out requests for help last fall. It started off badly. I got the date wrong in my first email about a garlic pull! Some emails went nowhere (a call for t-shirt storage was met with stony silence) but others offered positive opportunities for volunteers to help NANPS fulfill its mission.

You, our valued volunteers, responded enthusiastically when asked to help in staffing booths at the Guelph Organic Conference, Get the Jump on Spring and Canada Blooms, contributing to our seed exchange and helping with lectures given by NANPS President Paul LaPorte and VP John Oyston. You did a wide variety of jobs at the plant sale. You researched other native plant societies in North America. You assisted with mailing and administration. You tweeted and posted on Facebook. You helped with planting and garlic pulls and you researched specific plants for our database. We are immensely grateful for your time and your support.

If you want to volunteer and haven't been receiving emails, please contact me at volunteer@nanps.org and I will gladly add you to my list. I appreciate any and all feedback. Together we will keep NANPS, and our beloved native plants, growing!

Joanne Fallowfield

The Naturalization of the Loretto Maryholme Spiritual Centre

by Sister Mary Mallany

After the War of 1812 ended, York (now Toronto, Ontario, then the capital of Upper Canada) was considered vulnerable to further attack. Roches Point, then called Keswick, "was deemed to be a safe haven" and Sir Peregrine Maitland, the Lieutenant Governor, proposed it as the capital designate for Upper Canada. In 1822, Maitland purchased 80 hectares (200 acres) at Roches Point and laid out a town plan. But his idea never came to fruition since no one wanted to move from York. Loretto Maryholme, a spirituality centre since 2001, is located on the highest five hectares (12 acres) of Maitland's former lands.

Photograph by Jane Malloy

Maryholme is a sacred space. In this place of peace, beauty and contemplative spirit, individuals and groups are encouraged to explore and restore the energies needed for personal and communal transformation. The Loretto Sisters, in collaboration with the volunteer Friends of Maryholme, offer facilities and programs for faith development, ecological awareness, retreats, days of reflection and community-building activities.

As a spirituality centre it is important for us to offer the sacredness of beauty to our guests and participants. In our planning, every effort is made to enhance that beauty and encourage a sense of wonder in nature, all in the most ecologically sensitive manner possible. It is our belief that the land wants to be a vital ecosystem. Without preaching ecology, we demonstrate this philosophy in our programs, policies, sacred walks and plantings.

In 1946, when the Sisters purchased the property, it was the estate of wealthy folks with a large staff. If rumour is to be believed, the property had become a private playground with a mini golf course. For the Sisters it became a place to re-energize for the coming school year. We thought we had arrived in Paradise and made few changes. We were the proud owners of a 1.2-hectare (three-acre) woodland, a savannah, a mini orchard, a very long, naturalized and largely inaccessible waterfront on Lake Simcoe, a mini arboretum as well as several garden beds around the buildings.

The soil at Maryholme is glacial till, a drumlin perhaps or what was once an island in glacial Lake Algonquin. The soil base is shallow. Property records indicate that the land was cleared in the early 1800's. In the 1920's the highest points were planted with non-native Scots pines (*Pinus sylvestris*) and native eastern white pines (*Pinus strobus*). This was a common practice along the southern shores of Lake Simcoe to keep the soil from blowing away. By the time this property had become a spirituality centre in 2001, many of the Scots pine were diseased and dying and the entire wooded area was impenetrable with dog-strangling vine (*Vincetoxicum rossicum*).

Each of the various ecosystems has its own challenges. The first major action we undertook was to have a managed forest plan drawn up by a local forester. He included the savannah area in his report. We began our restoration work by beginning to rescue the woodlands from the invasive dog-strangling vine (DSV) and protecting the grassland.

Woodlands & specimen trees

Loretto Maryholme is entirely ringed by trees. In addition, there are 1.6 hectares (four acres) of white pine and Scots pine plantation stands between the house and the road. By 2001 the most recently planted plantation (in 1945) was in severe decline. More than 300 of these Scots pines were blown down by the wind over three years. This turned out to a good thing since our plan was to diversify the area with native trees. We thinned out the stands that remained overcrowded and, in the newly open spaces, 500 white pines found a home. The pines provide the framework for trees that are naturally seeding themselves: maples (*Acer* spp.), oaks (*Quercus* spp.), ashes (*Fraxinus* spp.), locusts (*Robinia* spp.) and cherries (*Prunus* spp.). We are adding other natives to the understorey: Kentucky coffee trees (*Gymnocladus dioicus*), basswoods (*Tilia americana*), dogwoods (*Cornus* spp.), nannyberries (*Viburnum lentago*) and elderberries (*Sambucus* spp.).

However, the most labour-intensive task – the bane of student workers and volunteers – is the control of DSV, garlic mustard (*Alliaria petiolata*) and celandine (*Chelidonium majus*), a prolific native of Europe and western Asia. These plants steal light, moisture, nutrients, soil and space from woodland ephemeraIs. In the last 10 years we have tried cutting, burning, seed removal and digging of the invasives. Cutting and seed removal help to keep the plants from spreading

Continued on page 6

Continued from page 5

further. Burning seems effective at first, but within a week the plants are back. Repeated digging works the best for DSV. The others are pulled. In the area first weeded, we now have healthy plantings of jaunty Jack-in-the-pulpits (*Arisaema atrorubens*), early-blooming pasqueflowers (*Anemone patens*), false Solomon's seals (*Smilacina racemosa*), Canada anemones (*Anemone canadensis*) and white trilliums (*Trillium grandiflorum*) among other woodland plants. This is very encouraging since one of the effects of garlic mustard is to prevent trilliums from growing. Our aim is to fill the understorey with natives and other shade-loving plants.

It was our good fortune to have a place for many of the plants rescued from the woods flattened by the controversial extension of Highway 404. The bounty included ferns, sedges and forbs. We've found a home for dainty lady ferns (*Athyrium filix-femina*), ostrich ferns which provide the much-prized fiddleheads as a spring treat (*Matteuccia struthiopteris*), marginal wood ferns (*Dryopteris marginalis*) and the waxy-leaved, evergreen Christmas ferns (*Polystichum acrostichoides*). Other treasures included Dewey's sedge (*Carex deweyana*), drooping wood sedge (*Carex arctata*), the aforementioned trilliums, blue cohosh whose yellow-green flowers produce blue seeds (*Caulophyllum thalictroides*), Jack-in-the-pulpit, wild ginger with its low-to-the-ground, heart-shaped leaves and hidden flowers (*Asarum canadense*), both baneberries (*Actaea pachypoda* and *rubra*), diminutive violets that provide early spring nectar for native bees (*Viola* spp.), early-flowering bloodroot whose delicate blossoms disappear all too soon (*Sanguinaria canadensis*), the spectacular yellow lady's-slipper (*Cypripedium calceolus*), tasty wild leeks (*Allium tricoccum*) and the charming, ephemeral round-lobed hepatica (*Hepatica americana*), among others. We were thrilled to give these precious plants a place to flourish and to add all that precious soil to our previously barren woodlands.

Our woods, no longer impenetrable, now include wide trails bordered by the logs from fallen pines and mulched with their wood chips. There you can relax on benches and enjoy the shade, the small animals and birds, the fragrances. The ecosystem is coming alive again.

Savannah

Three hectares (seven acres) of the site is dry, open meadow with widely spaced oaks, black walnuts (*Juglans nigra*), apple (*Malus* spp.) and basswood trees. As the land slopes down from the driveway it affords a beautiful vista of meadow, lake and gardens. The dry sandy soils give us a wonderful opportunity to simulate a savannah landscape here but progress has been slow to date. We discontinued mowing half the area, leaving the likely non-native grasses for now. We've planted more oaks, pin oak (*Quercus palustris*) and bur oak (*Q. macrocarpa*), adding big bluestem (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*) near the new oak trees. The colonization is slow; the fragrant yellow bedstraw or *Galium verum* (a pretty but persistent invader in the meadows) is very hard to evict.

Our hopes for a tallgrass prairie remain unchanged but they've become a long-term goal. For now the work in this area centres on preventing the incursion of dog-strangling vine by collecting and disposing of the seeds. Disposal of invasive plant material is another challenge. Our own compost does not get hot enough to break down the material sufficiently. I have tried baking it in black garbage bags but found this unsuitable for the quantity we produce. In conversations with the company that does the local composting, I was assured that putting it out for municipal collection and composting would destroy the seeds and roots, so that is our current solution.

PHOTOGRAPH BY MARY MALLANY

*A meadow of lance-leaved coreopsis (*Coreopsis lanceolata*), native grasses and spiderwort (*Tradescantia ohiensis*) in the background*

Lake Simcoe Shorelands

Most of the shoreline is naturally treed. At the extreme northeast, the ground is a swampy bog of Japanese knotweed (*Fallopia japonica*), garlic mustard and poison ivy (*Rhus radicans*) under some towering white pines and maples. Gradually, the land rises about five stories; there's a steep drop where junipers (*Juniperus* spp.), ash, basswood, sumac (*Rhus* spp.) and non-native lilacs (*Syringa* spp.) cling. There is no beach. Huge willows (*Salix* spp.) overhang the water and shelter

the ducks, minks and other creatures who enjoy the water more than we do. Our work here is to stabilize these hills by planting shrubs: junipers, elderberries, red osier dogwood (*Cornus sericea*) and nannyberries.

Another section was seriously eroded and we used willow fascines or bundles in trenches to encourage the willows to stabilize the hill. We cut a wild clump of overgrown sumac back to soil level so we could get at the undesirable plants below, then we spent two full summers trying to eradicate the DSV, motherwort (*Leonurus cardiaca*) and orange daylilies (*Hemerocallis fulva*) by digging them out and planting buckwheat (*Fagopyrum sagittatum*) instead. The result? The non-natives have retreated somewhat and the sumacs have grown back and look spectacular! We've also created a path along the brow of the hill with hidden lookouts so our guests can enjoy glimpses of the lake.

Sacred Walks: Wildflower Meadow

In 2003, we began the process of creating a wildflower meadow. A lot of thought went into choosing the best location and how large to make it. We needed indigenous plants that would grow in this sandy gravel without irrigation. Then it took a full year to prepare the planting bed following the advice of the staff of Wildflower Farms. Finally, in 2005 we were ready to plant.

These native plants thrive in our dry soils: bright yellow lanceleaf coreopsis (*Coreopsis lanceolata*), upland white aster (*Oligoneuron album*), pale purple coneflower (*Echinacea pallida*), spring-blooming smooth penstemon (*Penstemon laevigatus*), showy goldenrod (*Solidago speciosa*), three-petalled, mauvey-blue spiderwort (*Tradescantia ohiensis*) and black-eyed Susan (*Rudbeckia hirta*) mingle with sideoats grama (*Bouteloua curtipendula*), little bluestem and prairie dropseed (*Sporobulus heterolepsis*). A curving path winds through the meadow to a bench in the centre where you can sit amid the incredible hum of insects and birds feasting on our wildflowers.

While working to restore our varied ecosystems, we have planted a rock garden, a sensory garden and a courtyard garden – an ever-changing kaleidoscope of spring ephemerals, bulbs, perennials and herbs. We could not have managed all of this in 10 years without the enthusiasm, knowledge and hard work of our volunteers. We employ two summer students and a permanent lawn maintenance worker but so much of what gets done from creating beds to labelling plantings is done by volunteers. To them and everyone who has contributed to our vibrant landscape or quietly enjoyed it, we extend our deepest thanks and blessings.

PHOTOGRAPH BY MARY MALLANY

False blue indigo flowering profusely

Sister Mary has been the Grounds Manager of the team at Loretto Maryholme for 10 years. The Loretto Sisters are members of the Institute of the Blessed Virgin Mary who came to Toronto from Ireland as teachers for the immigrant Irish in 1847.

The Loretto Maryholme Spiritual Centre received the 2012 Restoration Award from the North American Native Plant Society.

"Come with a chaos of wildflowers, grouped in a lovely disorder,
To shame all your gardens of maddening, cloying perfection."

Wilson MacDonald, *Out of the Wilderness*, 1926

Creating a Pollinator Paradise

by Victoria MacPhail

Pollination is the transfer of pollen from male to female parts of a flower, and is necessary, in most cases, for seed and fruit production. As plants cannot move to search out a mate and reproduce, they must rely on external vectors for pollination to happen. While wind, water and gravity can help move the pollen of some species, animal pollinators are responsible for the reproduction of 75-90% of all flowering plants, including two-thirds of the world's crops. This means that one out of every three bites of food we eat, from the obvious fruits like apples and tomatoes, to the less obvious seed-derived chocolate and coffee we enjoy, are reliant on pollinators. Even milk products and beef can be tied to pollination as cattle need to eat alfalfa and other forage plants which grow from seeds set by pollinators. If we were to lose all our pollinators, we would be left with a bland diet composed primarily of wind-pollinated grains and rice.

Pollinators are thus critical to success in agriculture. When crops are not pollinated sufficiently, fruits may be shrunken, lumpy, misshapen, or the flowers may fall out and not set fruit at all. In 2005, the value of pollinators to Canadian agriculture was estimated to be $1 billion/year and globally, $400 billion/year. However, these values do not consider the role of pollinators in natural ecosystems and the ripple-effect throughout the whole food chain. Birds and mammals eat the fruits and seeds that are produced. Even the pollinators themselves – caterpillars, in particular – are a great source of protein.

Animal pollinators include groups such as bees, flies, butterflies and moths, beetles, hummingbirds and, in some parts of the world, even unexpected ones like mosquitoes, slugs, bats and geckos. These animals do not consciously set out to pollinate a flower. They pick up pollen accidentally as they visit a flower for food (either pollen, a protein source, or nectar, an energy source) or other resources (e.g. oils, scents), and then they transfer it as they visit another flower. Bees are generally considered to be the best pollinators because they usually have very hairy bodies that pollen will stick to and they are vegetarians; bees visit many flowers to collect pollen for themselves and to provision their nests. Some types of flies also collect pollen. Beetles will eat pollen and a variety of other floral tissues. Wasps generally do not collect pollen or transfer it on their bodies so are not very good pollinators. Moths, butterflies and hummingbirds concentrate on removing nectar, which they are often able to do while avoiding getting dusted in pollen, so they too are not very good pollinators (although there are exceptions).

Photograph by Victoria MacPhail

*A native bee (likely a mining bee) on common milkweed (*Asclepias syriaca*)*

Unfortunately, every continent with pollinators (all except Antarctica) has reports of pollinator declines in at least one region. In Europe, these declines and extinctions have been better documented, but in North America long-term population data are lacking and knowledge of pollinator basic ecology is incomplete. Still, the signs of declines have already been noted. Butterfly species richness has declined by as much as 37% in some Canadian regions. A comparison of bumble bee studies that occurred in the 1970s and the 2000s in Guelph, Ontario found that although four species increased in numbers and three species had no change, four species decreased in numbers, and most concerning, three species were absent. One of these latter species, the rusty-patched bumble bee, was the fourth most common species in the 1970s, and has only been found at one in site in Ontario in recent years; it is now listed as an Endangered species.

The causes of these declines can vary depending on the area and the species, but the biggest factors are habitat loss and fragmentation, pesticide use (especially a group called neonicotinoids), parasites and pathogens, exotic species, and climate change. In the countryside today many roadsides and field edges are mowed or sprayed to control "weeds", hedgerows have been removed to allow for wider machinery to be used,

and wetlands are drained to increase crop area. A walk in the city may provide more flowers, yet pristine lawns – deserts for pollinators – persist. Add in diseases escaping from managed bumble bee pollinators to wild ones, resistance building to the treatment of mites in honeybees, and unusual weather (late frosts, long droughts) that may destroy or limit the food resources available, and it is no wonder pollinators are having a hard time surviving.

Photograph by Carol Pasternak

*Monarch on New England aster (*Symphiotrichum novae-angliae*)*

We can play a big role in protecting and sustaining our pollinators by providing our winged friends with the three essentials of life: food, water and shelter. Our gardens are their grocery stores where they find a meal of protein and nectar from a flower or the leaves of a specific plant, "the only kind their kids will eat". Pollinators need a continuous succession of plants flowering throughout their entire lives which, for some, extends from early spring through fall. For instance, bees that emerge early in spring rely on plants like willows (*Salix* spp.), wild strawberries (*Fragaria* spp.), and serviceberries (*Amelanchier* spp.), while those that are long-lived rely on late-blooming plants like goldenrod (*Solidago* spp.) and some asters (*Symphyotrichum* spp. et al).

Bees eat the same type of food throughout their lives, although the species visited may change. Adult hover or syrphid flies also need pollen and nectar but their larvae often feed on aphids or decaying materials (a good reason not to eradicate aphids from your garden). Beetles will eat pollen, nectar and floral tissues – they are not picky. Adult butterflies and moths rely on nectar (no pollen for them) but often need specific host plants for their larvae to feed on: the most famous example is the monarch butterfly whose caterpillars can only feed on milkweed plants (*Asclepias* spp.).

How do you create that diverse grocery store that caters to every ethnic group? Plant a diversity of plants so that there are flowers in some part of your garden from spring through fall. Choose several colours of flowers, and include flowers of different shapes, as these will attract different types of pollinators. Plant each type in clumps so that they are more visible to pollinators and more energy efficient to visit (would you drive all around town picking up a single item at each shop, or would you rather do it all at one place?).

Native plants are usually preferred over ornamental or highly cultivated varieties since they are accessible to more pollinators, produce more seeds or fruit for wildlife, and can be easier to grow. If you have a lawn, allow the "weeds" to persist, such as non-native dandelions (*Taraxacum officinale*) and clovers (*Trifolium* spp.) which are important to pollinators, particularly in the spring when little else is blooming.

Not only can your property be a grocery store for pollinators, it can also be a diverse housing complex. 70% of our native bees nest in the

Continued on page 10

Wild for Monarchs Campaign

Wild Ones: Native Plants, Natural Landscapes, a U.S. not-for-profit environmental education and advocacy organization based in Wisconsin, wants everyone to be successful in planting a native plant butterfly habitat garden. We can help conserve native plants, reduce habitat fragmentation and increase biodiversity in landscapes, while providing food and shelter for monarch butterflies and other pollinators. For helpful hints, suggested plants and encouragement, go to wildones.org, and help spread the word.

Continued from page 9

ground, either in old rodent holes (as bumble bees do) or they dig their own tunnels in the dirt (as different bees, including mining bees, do). Provide areas of exposed soil, such as around plants in your garden, edges of flower beds or less dense patches where bees can nest. Avoid mulching your garden (or at least leave a section unmulched) as bees cannot dig through it to reach the ground. Be careful when digging even at the base of plants to avoid damaging bees' nests.

Other bees live in rotting wood, old stems or tree cavities. Mason and leaf-cutting bees make their homes in beetle tunnels while the shiny green *Augochlora* bees nest in rotting logs. For them, you can leave a standing snag or stump in place or put some downed branches along the edge of your property to decompose naturally.

Photograph by Alice Kong

*Andrena bee on twinleaf (*Jeffersonia diphylla*)*

The carpenter bee will chew the pith out of old stems and then lay its eggs inside. Include plants with hollow or pithy stems in your garden, such as golden Alexanders (*Zizia* spp.), blackberries and raspberries (*Rubus* spp.), currants (*Ribes* spp.), elderberries (*Sambucus* spp.), roses (*Rosa* spp.), sumacs (*Rhus* spp.) and reeds (*Typha* spp.), among many others. When cutting back the dead stems, leave the lower 15-20 centimetres (6-8 inches) in place, and/or cut the stems into 15-20-centimetre sections, bundle them and leave them in the garden. Directions on how to make bee nests and butterfly rearing cages can be found online.

While hummingbirds and a few butterflies migrate, most pollinators need a safe place to spend harsh winters. They overwinter as adults, juveniles or pupae in leaf litter, long grass, plant stems, rotten logs, tree cavities and rock piles. Don't "tidy up" your garden in the fall – if you do, you will likely kill many beneficial insects. Leave the stems and the leaves where they fall or at least leave some in a corner or out-of-the-way area.

Don't have a large property? Don't worry! Pollinator-friendly gardening can be done on any scale, including window boxes, balcony planters, green roofs, commercial grounds, landfills, parks and more! Try to change the landscaping practices at your place of work, place of worship, child-care centre or other community gathering place. For instance, Pollination Guelph, a non-profit organization, has been working with Hospice Wellington and Guelph Hydro to slowly add pollinator-friendly landscaping to their properties. They have also done small- and large-scale plantings at other areas throughout the City of Guelph and are working to create a pollinator park at a decommissioned landfill.

Erect a sign that advertises your garden or plot as pollinator or wildlife habitat and help to educate passers-by. Take every opportunity to inform people about the importance of pollinators and their habitat requirements. You may run into people who are worried about attracting bees because they are scared of getting stung. Contrary to popular belief, bees do not sting unless they feel the need to defend themselves or, in some cases, their nests. In fact, many do not have stingers or they cannot pierce our skin. If the bee is visiting a flower, it is only interested in getting food and will ignore you even

Celebrating Wildflowers

A great new place to visit on the Internet is the Celebrating Wildflowers website, dedicated to the enjoyment of the thousands of wildflowers growing in American national forests and grasslands and to educating the public about the many values of native plants.

Celebrating Wildflowers Emphasizes:

The aesthetic value of plants – wildflowers are a beautiful sight

The recreational value of plants – picking berries is fun for everyone

The biological value of plants – native plants support other life

The medicinal value of plants – chemicals from plants help combat sickness

The economic value of plants – plant material is commercially valuable

The conservation of native plants – protecting and maintaining native plant habitat

Visit www.fs.fed.us/wildflowers/nativeplantmaterials/reports.shtml. Pay special attention to the Native Plant & Pollinator Gardens within the U.S. Forest Service Eastern Region!

if you walk right by it.

Another concern that can come up is related to hay fever. Many individuals suffer from seasonal allergies and blame their scratchy and watery eyes on the bright, colourful flowers in bloom at the time. However, these showy plants are almost always animal-pollinated and produce small amounts of heavy, sticky pollen, while wind-pollinated plants produce copious amounts of light, dry pollen in inconspicuous flowers. Allergies are caused by breathing in airborne pollen from grasses, ragweed (*Ambrosia* spp.), and selected trees which triggers our immune system and causes misery-inducing symptoms.

*A small halictid bee on a red osier dogwood blossom (*Cornus sericea*)*

PHOTOGRAPH BY VICTORIA MACPHAIL

The rewards of pollinator-friendly gardening and planting are long-lasting for pollinators, plants, wildlife, ecosystems, for our planet and for us. So plant away!

For more information on creating your own Pollinator Paradise, visit www.pollinationguelph.ca. This site contains links, sorted by category, to over 200 other websites.

Victoria MacPhail is an ecologist with a Masters of Science degree from the University of Guelph, specializing in pollination biology. She is a founding member, and current board member, of Pollination Guelph, a charitable non-profit organization that works to protect pollinators and their habitat. Victoria is currently working as a biologist with Wildlife Preservation Canada on their Pollinators at Risk Initiative.

Calendar of Events

September 12-13, 2013
ASTER AND GOLDENROD IDENTIFICATION WORKSHOP AT ROYAL BOTANICAL GARDENS
Hamilton, Ontario
http://www.rbg.ca/Page.aspx?pid=473#a

October 6-11, 2013
FIFTH WORLD CONFERENCE ON ECOLOGICAL RESTORATION
Madison, Wisconsin
Covering the science and practice of ecological restoration, large-scale ecosystem restoration, natural resource management, climate change, biodiversity conservation, environmental policy and sustainable development. To learn more visit http://www.ser2013.org.

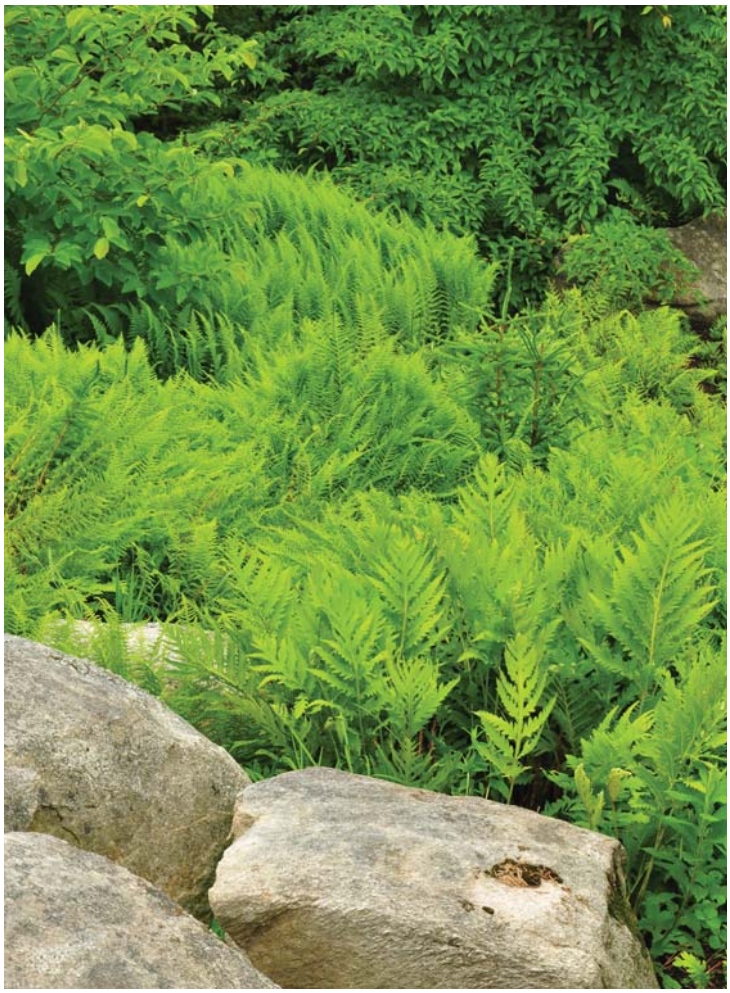
November 4-5, 2013
TRACKING THE BIG PICTURE: ECOLOGICAL CHANGE IN CAROLINIAN CANADA
Hamilton, Ontario
Carolinian Canada and Royal Botanical Gardens are partnering for the 2013 Ecosystem Recovery Forum. The theme: monitoring ecological change across the Carolinian life zone. The forum will explore the rapid advances in remote sensing tools, flowering of citizen science initiatives, monitoring of rare species populations and habitats and much more. Watch www.carolinian.org for updates.

See page 3 for NANPS Events.

Ferns in the Garden

by William Cullina

In the late 1990's, a 200-million-year-old fossil fern was discovered in Antarctica that is nearly identical to the interrupted fern (*Osmunda claytoniana*) growing in my front yard. When you think about the hundreds of thousands, or perhaps even millions, of plants that have gone extinct since then, it is incredible to me that this uncomplicated species has survived virtually unchanged to witness 700 million sunrises. Ferns are evolutionary survivors – spore-bearing plants that, unlike horsetails (*Equisetum* spp.) and clubmosses (*Lycopodium* spp.), have held their own through the sands of time. There are ferns native to every place in North America save the driest deserts and coldest mountain tops but they reach their greatest diversity in the temperate forests of the eastern U.S. Here in Maine we are blessed with dozens of native species and I try to work ferns into every design here at Coastal Maine Botanical Gardens.



PHOTOGRAPH BY WILLIAM CULLINA

Osmunda claytoniana

Ferns can be loosely divided into two groups based on their growth habit. Clumping species have wrist-thick, shaggy rhizomes that creep ever so slowly outward at about two inches (5 centimetres) per year. Other ferns have far more aggressive rhizomes that spread quickly. Clumping ferns are perfect for interplanting with wildflowers or other ferns, while the running or spreading types are best used as groundcovers under shrubs and trees or where large areas need covering.

Clumping species

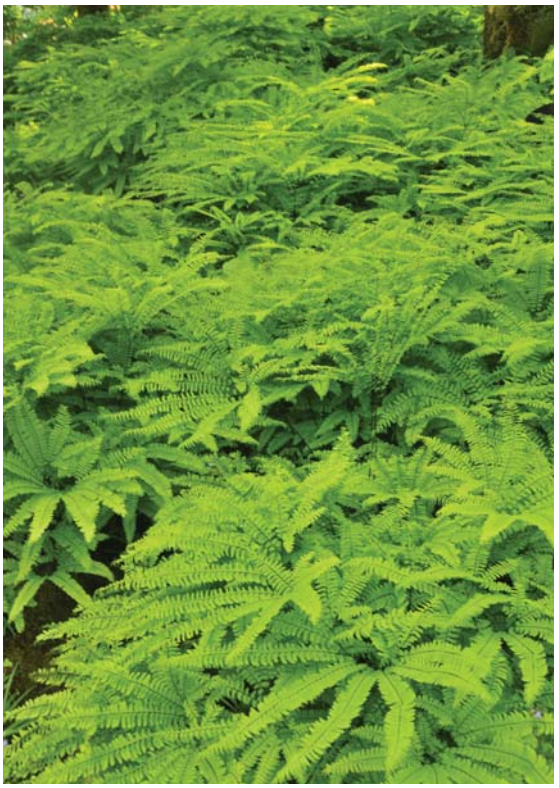
Interrupted fern is one of three osmunda ferns native to the United States, and my personal favourite. The fronds emerge covered in dense wool, unfurl vertically and then arch over as the blades mature. The fronds are "interrupted" by a few ranks of fertile leaflets (pinnae) covered in small capsules containing dark green spores that appear black en masse. I find unfurling interrupted ferns to be one of the most beautiful sculptural elements in my spring garden. They are fairly sun-tolerant, at least here in New England, and we use them much like ornamental grasses in our sunnier perennial beds for their soft textural effect. Like its relatives, *Osmunda claytoniana* takes several seasons to mature and a few more to reach its ultimate size, so have patience and give it some breathing room to get established. When fully mature, clumps stand 26-40 inches (66-100 centimetres) tall and at least as wide. Interrupted fern thrives in moist to fairly wet, fertile soil in USDA hardiness zones 3-7.

When Melissa and I got married, I grew 150 northern maidenhair ferns (*Adiantum pedatum*, zones 2-8) from spores to give as favours to our guests. Our wedding fern has been moved a few times, has waned and waxed, and is still growing in our front garden. Northern maidenhair and its close cousin, western maidenhair (*Adiantum aleuticum*, zones 3-8), are unlike any of our other ferns in appearance, with fronds that split and curve in a semicircle so the pinnae orient like spokes on a wheel. If grown in partial sun, the leaflets turn upward, giving the frond a ruffled appearance it does not have in shade. Since Melissa views our fern as a bellwether for our marriage, I have had a few tense transplanting moments. I've learned that this species needs some coddling to get established but once it becomes a clump of 20 stems, it is surprisingly resilient and easy to grow. The fronds of both northern and western maidenhair grow 16-20 inches (40-50 centimetres) high and look wonderful when paired with coarser-leaved perennials. Plant maidenhair fern in moist, slightly acidic to neutral soil in partial sun to full shade.

Another delicate but easy-to-grow clumping species I would not be

without is the widespread lady fern (*Athyrium filix-femina*, zones 2-10). It is a remarkably cosmopolitan fern found throughout the Americas and Eurasia, and within the U.S. it is recorded from every state except Nebraska. A soft, strongly clumping species, it will keep producing new fronds through the summer if moisture remains plentiful. I really appreciate the fresh spring green of these young fronds during the dog days of summer, when much of the shade garden begins to look tattered. There are four geographical varieties of lady fern in the U.S.; three are similar, with light green, triangular fronds growing 18-26 inches (45-66 centimetres) high. Western lady fern (*Athyrium filix-femina* var. *cyclosorum*) is the giant of the group and mature specimens may grow as high as six feet (two metres) in the temperate rainforests of the Pacific Northwest. All varieties of lady fern prefer moist to wet soils and partial to full shade and are great companions for woodland wildflowers and groundcovers.

The genus *Dryopteris* includes a dozen strongly clumping native species that are found primarily in wooded habitats, hence their common name of wood fern. When several species grow in proximity, they frequently form natural hybrids, so field identification can be challenging. Some of these hybrids have made their way into gardens; one I particularly like is the Dixie wood fern (*Dryopteris* × *australis* zones 4-9). Its parents are the stately, broad-fronded Goldie's wood fern (*Dryopteris goldiana*, zones 3-8) and the tall, stiffly upright southern wood fern (*Dryopteris ludoviciana*, zones 7-9). The hybrid combines winter hardiness with vigour and vertical carriage that makes it a great designer's subject. We grow this aristocratic 3 to 4-foot tall fern (1 metre to 1.2 metres) in partial sun and moist soil.



Photograph by William Cullina

Adiantum aleuticum

Photograph by William Cullina

Athyrium filix-femina

Though Dixie wood fern might be considered partially evergreen, the fronds look pretty brown and tattered in spring before it receives its vernal haircut (trimming of the dead or tattered fronds from the previous year). However, there is one hardy, widespread native that is completely evergreen here in Maine. Christmas fern (*Polystichum acrostichoides*, zones 3-10) is so named for its past use as a holiday decoration. An adaptable plant, it can be found in a variety of wooded habitats throughout eastern North America. Christmas fern thrives in acidic as well as slightly alkaline soils and tolerates more shade than just about any other species. In cool-summer areas such as coastal Maine, we also grow it in partial sun. When grown thus, the fronds are more dense and strictly upright – much like a half-sized version of the giant western sword fern (*Polystichum muticum*, zones 5-8). I prefer to plant Christmas fern in large groups under shrubs or amid lower groundcovers such as barren strawberry (*Waldesteinia fragarioides*) or creeping phlox (*Phlox stolonifera*). It tolerates more dryness than most of the ferns mentioned here but prolonged drought will prove harmful.

Spreading species

Before planting one of the spreading ferns, consider the location carefully,

Continued on page 14

Continued from page 13

as they will quickly overtake less aggressive neighbours. That said, running ferns are useful in situations where there is much ground to cover and cost is an issue.

In 2008 and 2009, we planted about 100 ostrich ferns (*Matteuccia struthiopteris*, zones 3-8) on a steep, shaded bank about a quarter acre (.1 hectare) in size. Within two years the patch had grown into a verdant swath of rich green that is a joy to behold. Taller perennials such as wild spikenard (*Aralia racemosa*) and pagoda dogwoods (*Swida alternifolia*) provide visual counterpoint amid this soft expanse. Of course ostrich fern is also the source of edible fiddleheads, and a patch this large can support an abundant harvest with no diminution in size. Ostrich fern grows from 2 to 4 feet tall (.6 to 1.2 metres) in moist to wet, fertile soil and sun to shade. The tall, plume-like fronds are arrayed in vase-like whorls atop knobby vertical rhizomes. These rhizomes send out wire-like runners during the summer that form new plants several inches from the "parent."

Sensitive fern (*Onoclea sensibilis*, zones 3-9) gets its name from its susceptibility to frost, not from a fragile constitution. Like lady fern, it will continue to produce lime green crosiers (fiddleheads) though the summer if moisture is available, and the coarse, 2 to 3-foot (1-metre) fronds have a texture and undulating quality that is ruggedly handsome. Sensitive fern will grow in shade, but it also thrives in moist to wet soils in full sun. In such situations, it grows so thickly that most weeds do not stand a chance. I am encouraging volunteers in a low, wet area unfit for lawn grass. Once a month, I snip back the competition with hedge shears to let the fern get a foothold; after two seasons I have several patches 6 feet (2 metres) in circumference with others well on their way. Chunks of shallow rhizome can be easily transplanted in spring just as the first fronds appear.

When I need a plant for dry, acidic soils of questionable fertility, I often turn to a fern that many would consider a thug. Hayscented fern *(Dennstaedtia punctilobula*, zones 3-8) is a soft-textured, rapidly spreading species that grows from a rope-like, shallow rhizome. Individual fronds rise in series from the rhizomes as they creep, so a patch looks like an assembly of individuals rather than a series of clumps. I would not plant hayscented fern anywhere near my treasured rarities but, when I need to cover a piece of barren ground with little effort or expense, it never fails to please. Transplant sections of rhizome any time during the growing season and keep them well-watered until established. The plants reach heights of 14-18 inches (35-45 centimetres) in sun to shade and moist to rather dry soil. Hayscented fern is effective at smothering weeds and, once well-established, requires only an annual mowing in late autumn when the fronds turn from pale yellow to brown.

Though this is just a sampling of the well over 100 species of ferns native to North America, it gives a glimpse at diversity within this remarkable group of plants. Though they come with their own botanical terminology, ferns are still a small enough group to make field identification possible for the novice botanist once terms like pinnule, stipe and sori are mastered. Fortunately for those of us who garden in cold climates, many ferns are exceptionally winter hardy and thrive in the cool, damp conditions prevalent across much of Canada and the northern U.S. Whether in the field or in the garden, I hope you will give these incredible survivors a try.

William Cullina is the Executive Director of Coastal Maine Botanical Gardens – one of North America's newest and most exciting public gardens – in Boothbay, Maine. He is the author of six books, including Native Ferns, Mosses and Grasses *(Houghton Mifflin, 2007).*

Manitoba Introduces Ecosystem Protection Law

On Earth Day, April 22nd, 2013, Manitoba announced that it would be the first jurisdiction in North America to enact legislation to protect essential habitats for rare plants and wildlife. The legislative amendments comprising the Endangered Species and Ecosystem Act will allow the listing of ecosystems as Endangered or Threatened and protect them on provincial Crown land.

The proposed amendments would also create a new designation called "Special Concern" for species at risk of becoming Threatened in Manitoba and require plans to prevent these species from further loss; expand the role of the Endangered Species Advisory Committee to provide recommendations on Endangered or Threatened ecosystems; add protection orders that empower conservation officials to pre-emptively stop activities that would endanger habitat and ecosystems; and increase fines and penalties for violations under the legislation.

The legislative amendments are part of a commitment in TomorrowNow - Manitoba's Green Plan, the government's eight-year strategic plan for protecting the environment while ensuring a prosperous and environmentally conscious economy.

In addition, the province is providing funding to support the efforts of the Nature Conservancy of Canada to acquire and preserve ecologically significant lands in southern Manitoba. Projects include protection of Crown land at the Tall Grass Prairie Preserve, the largest intact tallgrass prairie in Manitoba and 3,925 hectares (9,700 acres) of alvar, a rare ecosystem flourishing on thin soils that cover limestone bedrock in the Interlake.

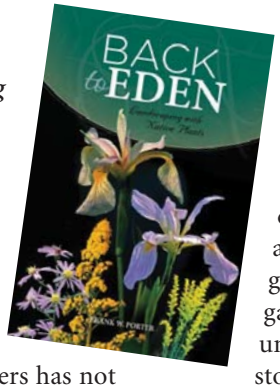
Continued from page 1 – **Canada Goldenrod**

quercetin, present in Canada goldenrod, is currently being studied by natural health promoters in the hope that it will help combat chronic malnutrition and diabetes around the world. However, some people (especially those with urinary tract or heart disorders) may be allergic to goldenrods and should consult their doctor of choice before using the plant. Also, upon touching the plant, some may experience a skin reaction (allergic contact dermatitis).

"Have a nice cuppa," my Scottish grandmother used to say when we visited her. I would return her hospitality today (if I could) by inviting her to try a cup of anise-like Canada goldenrod tea, maybe with a teaspoonful of goldenrod honey to make it extra-sweet.

Catherine Macleod co-authored the book Grass Scapes: Gardening with Hardy Ornamental Grasses with her husband Martin Quinn (Whitecap Books/Ball Publishing), cmacleod@hurontel.on.ca. Visit www.gingerpress.com for Asters, Goldenrods and Fleabanes of Grey and Bruce Counties *by the Owen Sound Field Naturalists.*

New & Noted



Back to Eden: Landscaping with Native Plantss
By Dr. Frank W. Porter
Wilmington, Ohio: Orange Frazer Press, 2013
ISBN 978-1939710000
Soft cover, 160 pages, $20
www.orangefrazer.com

Who among us nature lovers has not dreamt of a world where prairies and woodlands, meadows and shale barrens spread out in every direction, a time when human disturbance was just a blip upon the landscape? In his inspiring book, *Back to Eden*, Dr. Frank Porter helps readers rediscover and re-create those glorious vistas that once covered the eastern United States, each on his or her own small corner of land.

Bolstered by sobering arguments against the planting or careless proliferation of alien species (apparently, 4,500 species of plants and animals of foreign origin are now established in the U.S.), Dr. Porter offers native alternatives that gladden the eye, feed and shelter wildlife, and re-establish a sense of place.

Useful chapters describe how to use native grasses, sedges and rushes to good effect in sandy areas, how to beautify potential problem spots such as waterlogged areas, gravelly soils and perpetually eroding slopes, and how to select groundcovers – not just one, but a diverse, limitless mix of native species from grasses, ferns and sedums to irises, vines and other flowering plants.

Dr. Porter, a historical geographer by profession who now runs Porterbrook Native Plants Nursery on the banks of the Ohio River, moves with the confidence of a passionate amateur from prairies to rain gardens to tiny hypertufa gardens. (Hypertufa, for the uninitiated, is a handmade stone made from cement, peat moss and sand that can easily be molded into containers that enable small-scale gardening.)

Individual chapters, small but blooming with suggestions and vivid with photographs, are devoted to blazing stars (*Liatris* spp.), goldenrods (*Solidago* spp.), asters (*Symphiotrichum*, *Eurybia* and *Ionactis* spp.), milkweeds (*Asclepias* spp.) and lobelias (*Lobelia* spp.).

Unexpectedly and delightfully, in a book concentrating on the hows and whys of native plant and landscape recovery, there is a chapter entitled "Unsung Heroines in the Movement to Preserve Native Plants". The author celebrates four women, Lilla Leach, Emily Hitchcock Terry, Eloise Butler and Marianne North, pioneer botanists who made significant contributions to the knowledge of native plants in the U.S. during the last two centuries.

Frank Porter's focus may be on the plants of Ohio, Virginia and West Virginia, but the principles outlined and the philosophy espoused in his book apply everywhere.

Review by Irene Fedun, editor of The Blazing Star.

Ask an Expert

Would you have any suggestions for deer-proof species that are hardy (and suitable) for a cottage between Lakefield and Bancroft in Ontario?

VS, Toronto, Ontario

In a woodland setting, *Maianthemum canadense* (Canada mayflower), *Actaea rubra* (red baneberry), *Actaea pachypoda* (white baneberry or doll's eyes), *Smilacina racemosa* (false Solomon's seal), *Smilacina stellata* (starry false Solomon's seal), *Erythronium americanum* (trout lily) are all ignored by deer. In addition, ferns and horsetails (*Equisetum* spp.) are left alone.

In a wetland setting, I am fairly certain of *Cypripedium parviflorum* (yellow lady's slipper), jewelweed (*Impatiens* spp.), marsh marigold (*Caltha palustris*), Joe pye weed (*Eupatorium* spp.), aster (*Symphyotrichum et al*) and goldenrod (*Solidago*) species.

In a prairie setting, it would be milkweeds (*Asclepias* spp.), asters, goldenrods and many more.

The link cottagelife.com/13980/environment/plants-trees/top-native-plants-for-deterring-deer will provide others.

Paul LaPorte
President
North American Native Plant Society

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.**

_____ $10 / 1-year full-time student membership – digital version only of *The Blazing Star* (All other members now have the option of receiving the digital version of *The Blazing Star* in colour or the mailed version in B&W. Memberships are for a calendar year from Jan.1 to Dec. 31)

_____ $25 / 1-year regular membership

_____ $40 / 2-year regular membership

_____ $60 / 3-year regular membership

_____ $200 / 5-year Sustaining Membership includes a $100 tax receipt

NAME: _____

ADDRESS: _____

_____

PHONE: _____

EMAIL: _____

Do you wish to receive *The Blazing Star* electronically? _____

Join online at www.nanps.org or complete this form and mail with cheque to NANPS, Box 84, Station D, Etobicoke, Ontario M9A 4X1. For info, call (416) 631-4438; e-mail nanps@nanps.org.

NORTH AMERICAN
NATIVE PLANT SOCIETY

P.O. Box 84, Station D
Etobicoke, Ontario, Canada
M9A 4X1

CANADA POST / POSTES CANADA

Postage paid / Port payé
Publications Mail / Poste-publications
PM41578532