

The Blazing Star

SPRING 2010, VOLUME 11, ISSUE 2



NEWSLETTER OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

NANPS 25TH *Anniversary* I S S U E



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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Joyce Etsuko Cho - Cover Artist

The North American Native Plant Society is pleased to feature the work of Joyce Cho on the cover of our 25th Anniversary issue of *The Blazing Star*. This watercolour painting was created as part of the Temagami 22 project, an exhibition of 38 original works of art created by artists from across North America to help preserve Temagami, a sacred wilderness in Ontario's north. (This was a Canadian Wildflower Society initiative.) A frequent contributor to *Wildflower* and other botanical magazines, Joyce was a natural choice for the Temagami project and for this special NANPS cover.

Joyce Cho was born in British Columbia, studied at the Ontario College of Art in Toronto, married and settled in St. John's, Newfoundland. An avid gardener, Joyce was asked to serve on the Board of Directors of the Memorial University of Newfoundland Botanical Garden when it was re-

organized in 1994, and continues to serve with the Women's Association of the university. She inspired and organized a small group of artists who have met weekly at the garden for the past 15 years. During an extended visit to Japan, Joyce received private lessons in the traditional Japanese arts of *harie*, *sumie* and *saganishiki* weaving.

Joyce's work has been widely displayed in Newfoundland, and internationally as far afield as Tasmania, Australia where three of her paintings were accepted into the juried exhibition entitled "Island Botanical Art". Joyce is on the Board of Directors of the American Society of Botanical Artists, and she's a member of Botanical Artists of Canada. She has done volunteer work for several local organizations including Wildflower Society, Horticultural Society of Newfoundland and Labrador, St. John's Guild of Embroiderers and others.

NANPS Annual Native Plant Sale

SATURDAY, MAY 8, 2010, 10AM - 3 PM
MARKHAM CIVIC CENTRE, ATRIUM
101 TOWN CENTRE BLVD (HWY 7 AT WARDEN AVENUE)
MARKHAM, ONTARIO

Enjoy free presentations:

11:30 a.m. - Rachel Gagnon: Identifying and Controlling Invasive Plants
12:30 p.m. - Gavin Trevelyan: Prairie Plants for your Garden

Paul Heydon of Grow Wild! and Ashley Baron of Native Plant Source along with Master Gardeners Jennifer Walton and Valerie Liney will be on hand to field your questions.

Native plant donations (properly identified please) are always appreciated. Give them up to good homes and help raise funds for NANPS projects.

Volunteers are revered. Without you there would be no plant sale! Come have fun with us and help the native plant movement! Contact info: plantsale@nanps.org or 416-631-4438.



PHOTOGRAPH BY ERIKA THIMM

Letter from NANPS Honorary President

In January, 1985, we launched The Canadian Wildflower Society with the premier issue of *Wildflower* magazine. Ours was the first national native plant society in Canada.

Our timing was perfect. The response by the public was immediate and enthusiastic. Poets, artists, writers, gardeners, botanists, people from all walks of life were delighted to have a venue to share their talents and love of nature.

In 1998, we renamed ourselves The North American Native Plant Society. This was the reality of our continental interest in native flora "from the Panama Canal to the North Pole". And it reflected the fact that one-third of our membership was from the U.S.

There have been many significant achievements in 25 years – too many to count – and I will cover only my personal favourites.

We believed the best way to help conserve our ecosystems was to support the growing of them in our

home gardens and public places. In *Wildflower* we offered articles on all aspects of native plant gardening, restoration and wildlife habitat preservation initiatives. In my opinion, *Wildflower* magazine became the finest botanical publication in the world. Our current newsletter, *The Blazing Star*, continues providing information and inspiration on our treasured native flora.

With our Native Plant Sale we started locally offering nursery-grown plants from reputable native plant growers to an eager public and we continue to this day. Our two conservation properties, Shining Tree Woods and Zinkan Island Cove, are home to hundreds of native plants, many rare in Canada. They are now protected for future generations to enjoy. Thousands of gardeners have grown native plants from the seeds offered in our Seed Exchange.

There are too many to thank here but I must acknowledge Sir David



PHOTOGRAPH BY ERIKA THIMM

Attenborough CBE, FRS who has been our Honorary Patron almost from the beginning. His conservation reputation along with those of our Honorary Directors gave us recognition and credibility.

2010 is the International Year of Biodiversity. At NANPS, we have shown how we can all play a small part in healing Mother Earth while beautifying our landscapes and providing a healthy ecosystem for all nature's creatures.

Happy 25th Anniversary, Everyone.

James French

CWS Co-founder and NANPS Honorary President



Pamela Meacher, a founding director of the Canadian Wildflower Society, created the original logo. Pamela is passionate about the conservation of native flora and this passion shines through in her exquisite watercolour paintings. She was exposed to "the profound mysteries and beauty of

nature" as a child growing up in England, developing a deep appreciation for the natural world. Sometimes, "faeries will mischievously pop themselves in one of her paintings" of botanically styled flora, reminding us of the magic and awe we felt as children.

Pamela's paintings have been displayed in North America and the United Kingdom; they are held in public and private collections around the world. Pamela won the Moonbeam Children's Book 2007 Bronze Award for Best Illustrator for her book *Emily's Enchanted Guardians*, then in 2009 went on to garner a gold award for *Emily's Perils and Poisons*. She is working on the third book of Emily's adventures in the trilogy.

Pamela is a member of the American Society of Botanical Artists and the Botanical Artists of Canada.

To learn more about her work, visit www.pamelameacher.com.



In 1994, the CWS Board of Directors decided to change our logo to a design that more accurately reflected our coast-to-coast flora and membership, and was more eye-catching in its simplicity. To this end, the Society sponsored a continent-wide contest in *Wildflower* to solicit designs, offering \$500 as first prize. From 30 designs submitted, the Board of Directors chose this lovely woodcut by professional artist Beth McEachen of Toronto. It depicts three genera of native plants found in North America: the arums, the cyrtopodiums and the blue-eyed grasses.

Jim Hodgins

The Blazing Star Spring 2010

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PHOTOGRAPH BY ERIKA THIMM

Pasqueflower (Anemone patens)



PHOTOGRAPH BY ERIKA THIMM

Michigan Lily (Lilium michiganense)

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NANPS Ever Onward

In 1984, James French, a budding native plant gardener, replied to a reader's request in a gardening column in Canada's national newspaper, *The Globe and Mail*. The reader wanted to know where to get wildflower seeds or plants. Over the next few weeks Jim received a dozen requests from others wanting the same information. He decided that this was an opportunity to meet and mingle with those who shared his passion. He wrote back to these folks, with a copy to the columnist, suggesting they meet and call themselves The Canadian Wildflower Society. The next *Globe* gardening column was headlined *Wildflower Aficionados Wanted*. "To my amazement," says Jim, "the phone rang off the hook and mail arrived in great numbers! I held a wine and cheese party at my home, we formed our first Board and the rest, as they say, is history."



PHOTOGRAPH BY ERIKA THIMM

NANPS outgoing presidents, Harold Smith and Miriam Henriques

The Canadian Wildflower Society (CWS) went on to scale dizzying heights. With co-founder biologist James Hodgins at its helm, CWS published *Wildflower*, a glossy quarterly magazine dedicated to the study, conservation and cultivation of North America's wild flora. It featured



PHOTOGRAPH BY RUTH ZNUGG

NANPS Carden Alvar trip in 2006

articles, poetry and reviews from renowned botanists, unassuming gardeners and everyone in between. Art Director Zile Zichmanis chose stunning artwork for each cover and to accompany the text.

The Society organized wildly popular annual plant sales and seed exchanges, purchased an old-growth, 20-hectare (50-acre) Carolinian woodlot, known as Shining Tree Woods, instituted the Paul McGaw Memorial Conservation Award, and conducted much-loved native plant garden tours. Other publications followed *Wildflower*: a booklet about growing Canada's provincial floral emblems and a compendium of original artwork from 22 of North America's best wilderness artists about Temagami, "a forest of great trees", as Grey Owl referred to Canada's vast woodlands, as well as *Plants of Carolinian Canada*. Recognizing the value of developing a bioregional strategy, CWS became very much involved with the Eastern Native Plant Alliance and contributed to the work of like-minded groups. A network of affiliated chapters was set up across Canada. Now operating independently, these groups continue to support native plants.

As with many endeavours

undertaken by passionate people, the Society was eventually shaken up by differences of opinion and finally morphed into the North American Native Plant Society (NANPS) with a vision of international partnerships and broader influence.



PHOTOGRAPH BY BOB BARNETT

Anne Marie Roussy and her daughter Zoe find fascinating things to examine at Zinkan Cove.

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NANPS excursion to Arthur Langford Reserve

PHOTOGRAPHS BY CHARLES ISCOVE



A shortage of paid staff has challenged the organization, with most work done by volunteers. Still, the society has persevered and continues to garner successes. In 2003, we purchased a small but significant parcel of alvar on the Bruce Peninsula, Zinkan Island Cove. We created one of the earliest native plant websites.... and now we've introduced the third version (visit www.nanps.org).

Directors, such as Past President Lorraine Johnson, and other members

NANPS Director Howard Meadd photographing Indian paintbrush (*Castilleja coccinea*) at the Carden Alvar



PHOTOGRAPH BY DARCIE MCKELVEY

give talks across North America. In 2005, we began conducting regular seminars around Ontario. Our talks this year include seminars at the Toronto Botanical Gardens and a longer series on invasive flora in partnership with the Town of Markham. Three years ago we initiated native plant garden awards to celebrate gardens that create or restore natural habitats. Prairie and woodland restorations and plant rescues figure among our activities, the conservation award thrives, and the plant sale and seed exchange continue to provide plants and seeds for newly converted gardeners and old hands.

The more modest *Blazing Star* has taken over from *Wildflower* as our society's quarterly. In 2008, we started sending out an e-newsletter, *The Local Scoop*, which has a refreshingly chatty and often "digging" approach to goings-on in the native plant world. (thelocalscoop.org). Most recently, we landed on Facebook (facebook.com/group.php?v=wall&ref=nf&gid=371308547931) and on Twitter (twitter.com/tnanps).

Our influence has reached many corners of society. Founding Director Larry Lamb points to the number of native plant nurseries that have sprung up over the years and gives examples where even governments have "gone native": Ontario's Waterloo Region has

PHOTOGRAPH BY DARCIÉ MCKELVEY



NANPS members Graham and Wayne Buck standing in front of a glorious Tulip Tree (Liriodendron tulipifera).

stipulated in its official plan that native plants must be used in all regional initiatives such as roadways plantings and landscaping around government buildings. Native plants are almost mainstream today. And despite the setbacks (some municipal governments are still causing grief for naturalized gardeners), the trend has been firmly established.

Our original mission statement, written 25 years ago, recognized the need to conserve and restore indigenous plants. Today, as climate change escalates, habitat continues to be lost, biodiversity diminishes and alien invasive species increase at an alarming rate, we can easily become overwhelmed. But we cannot lose hope. Our mission has not changed, nor should it, but it will require a focused effort to make headway in preserving and restoring native habitats. The Canadian Wildflower Society was launched by individuals passionate about the beauty and

PHOTOGRAPH BY ERIKA THIMM



Paul Heydon and Amanda Billard, owners of Grow Wild! and former NANPS Directors, in front of their table of goodies at the 2009 AGM.

wonder of nature, and concerned for the future of our environment. NANPS is fortunate that the passion and concern are as strong as ever! Let's bring that passion for protecting Nature onto NANPS Board of Directors and committees, to our existing projects and to new ones.

In our 25th year, NANPS looks forward to its future roles. In the

when making nursery purchases – this will help shape changes in the horticultural industry. Awareness of invasive plants is increasing – and none too soon. NANPS is working with the Ontario Invasive Plant Council and the nursery trade to recognize and limit the growing, sale and distribution of invasive plants. This is the year we take a stand on this



PHOTOGRAPH BY DEBORAH DALE

NANPS restoration crew installing native plants on Sheppard Avenue in Toronto.



PHOTOGRAPH BY ERIKA THIMM

Clear Creek Forest outing 2003.

promotion of indigenous flora, public outreach will be increasingly important. Our annual plant sale and displays are great opportunities to connect with the public and encourage them to request indigenous plants

issue, raising public awareness with our print resources, presentations, excursions, and hands-on learning opportunities for the control of aliens and restoration of native habitat.

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Frequently, political decisions have influenced the acceptance (or lack thereof) of native plants in urban landscaping and habitat conservation. Connecting with different levels of government (especially municipal) and helping them see the value and beauty of native plant gardens is crucial for



PHOTOGRAPH BY ERIKA THIMM

Nancy Pancheshan, president of Friends of Ojibway, speaks passionately about the need to preserve the Ojibway Prairie Complex in Windsor, Ontario. The Friends of Ojibway won the Paul McGaw Conservation Award in 2009.

habitat expansion. This continues to be a prime area of focus for NANPS.

Many communities are developing Sustainability Plans (they are a requirement in British Columbia). They are invaluable for municipalities that want to promote their involvement in environmental sustainability...and they are an opportunity for NANPS and our members – wherever you live – to request policies that identify, protect

and enhance natural areas and include native plants in new developments. By promoting NANPS idea of The 100-Mile Garden, which means growing plants that are indigenous to within 160 kilometres of your home, we'll be expanding public awareness even more.

For our continent-wide membership, we are expanding our speakers' database so that groups from across North America can contact local speakers (or put their own names on the list!), and we are recruiting garden locations and restoration projects so that people can experience native plants more readily.

It doesn't matter where you live in North America – all these ideas and initiatives have relevance. And the work that you do, contributing to the health of your corner of the planet, is



PHOTOGRAPH BY ROBERT BARNETT

The gang at Zinkan Island Cove, a provincially designated Area of Natural and Scientific Interest on the Bruce Peninsula purchased by NANPS in 2003.

important for all of us.

NANPS is positioned to build on its achievements of the past 25 years. But we need all our members to get involved, whether planting their own indigenous gardens, giving presentations, exchanging seeds or plants, writing about gardening experiences... The key is involvement. Help us make the next 25 years prolific for NANPS and Nature!

NANPS Board of Directors

WE WELCOME
nominations for NANPS
Garden/Restoration
Awards until July 31st.
Please contact
garden@nanps.org with
your submissions of
wonderful native
plantings.



PHOTOGRAPH BY JANET HARRISON & CHARLES ESCOVE

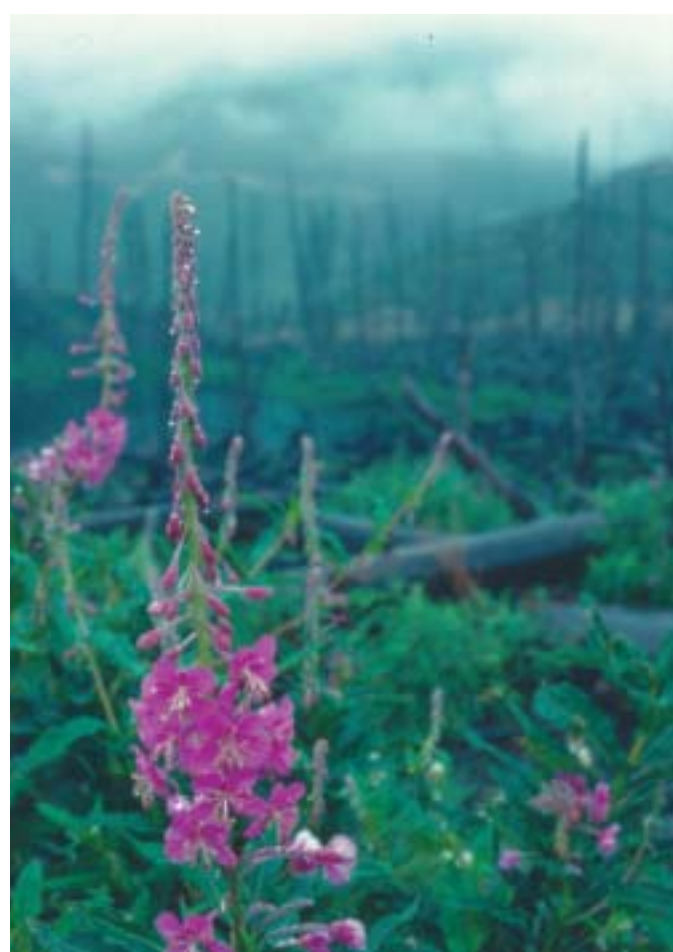
The Local Scoop staff takes time out to work in the garden.

Wildflower Ways of Seeing

By Laird R. Blackwell

For me, as for many of you, wildflowers are a passion. Maybe we should just accept passion as a gift and not examine it too closely, but I just can't help myself – it's my analytical nature, I guess. I think the human responses to wildflowers are fascinating!

Over the many years of following my love of flowers, of writing wildflower field guides, and of teaching wildflower field classes, I have experienced in myself – and have observed in others – several different ways of relating to the flowers. I believe all of them have great value and delight, though each by itself has potential limitations.



PHOTOGRAPH BY LAIRD BLACKWELL

Fireweed (Epilobium angustifolium) on Mount St. Helens

One of the more familiar ways might be called aesthetic: experiencing a field of flowers as a living Monet painting of patterns and colours and fragrances, and seeing individual flowers as Georgia O'Keefe wonders of form and colour. We can stand in awe, amazed and enraptured by the beauty of flowers, their intricacy, and their sensuality. This response is usually accompanied by appreciation, care, and gratitude, though by itself can also promote a rather human-centred

view of flowers (and all of nature) as natural resources, of value only to the extent that they can do something for us.

Another, more cerebral way might be called taxonomic: the urge to identify, to categorize, to name. Identifying plants is a central function of my field guides and is, I think, a fundamental human impulse. There is such joy in knowing names and family associations, and such a potential personalizing of relationship and deepening of interest when a name is known: "Johnny" or "*Gentiana calycosa*" or "Explorer's Gentian" is so much warmer than "Hey you!" or "that blue flower over there." However, adopting this perspective alone can be limiting. I have seen people use names to "bag the flower" and then lose interest in the flower itself once identification was made: "Okay, we've got that one.... next." Also, names can come to replace the actual being in our minds, so that when we encounter a flower we "project" the name and what we know about it onto the particular flower we are looking at. This can lead us to see our "idea" of the flower instead of the actual flower in front of us, a disservice, I believe, to the flower and to us as well.

Another, perhaps less common way to experience a flower might be called soulful: seeing the flower as a fellow being and companion on this life journey with its own nature, its own personality, its own shaping of the life energies, its own way of living in relationship to the world, its own wisdom. Although this might sound a bit strange, I believe that this type of relationship with flowers is profoundly natural and deliciously familiar and enlivening. In this view, the flower has intrinsic value independent of what it can do for us, though it still serves us – as a symbol, a guide, and a mentor. We can learn a lot about ourselves and about life from the flowers and from how we respond to them. All by itself, this way of relating to flowers can be a bit abstract; it might miss the warmth of the earthy and the fascination of the functional.

DESERT WILDFLOWERS

The desert can swallow man's pride and man's prime,
For it's deeper than thought and older than time.
But if you go to the desert with wide-open arms,
It will speak ancient wisdom and bestow precious charms.
Though the dreams of the Pharaohs lie dead in the tombs,
The dreams of the desert live on in its blooms.

UNANTHERED QUESTIONS

What does it take to be a real man?
Do you have to beget your very own clan?
In penstemon blooms, the one stamen bare
Is unable to contribute to making an heir,
But does that imply that his maleness is nil,
And it's beyond hope his life to fulfill?
There may be no anther that quickly emerges,
But surely a real man is more than his urges!

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Of course there are other ways to perceive flowers, (for example, as embodiments of function, as parts of ecological

systems, as metaphors for emotions), and I think they all are part of the wonder of the flowers and the human/flower connection. One of my hopes in teaching and writing is to encourage many ways to appreciate the flowers – to bathe in their beauty, to admire their functionality, to enjoy a “first-name-basis” relationship, to see ourselves reflected, to respect them as creatures with their own lives and rights, to appreciate their companionship and wisdom. Perhaps our ways of relating to flowers reflect and influence our ways of relating to all of nature and even to our ways of relating to each other. I may be blinded by rose-colored (or phlox-scented!) glasses, but I’ve never met a true wildflower lover I didn’t like! Perhaps, the wildflowers can open a pathway for us to become more fully and healthily human.

A RESOUNDING “YES”

Wildflowers have tenacity,
A quenchless zeal for life,
They bloom in joy unceasingly,
Even through hard times and strife.

It's not the events that shape our lives,
It's the beliefs that we profess,
So let's respond as flowers do,
And proclaim a resounding “yes”!

Laird R. Blackwell is Professor of Humanities and Social Sciences at Sierra Nevada College in Incline Village, Nevada.



PHOTOGRAPH BY LAIRD BLACKWELL

Magenta Paintbrush (Castilleja parviflora)

OUR GENEROUS DONORS

A HEARTFELT THANK YOU TO HONORARY DIRECTOR CAROL RYKERT, THE FOUNDATIONS LISTED BELOW, AND ALL NANPS MEMBERS WHO CONTRIBUTED TO THE PUBLICATION OF THIS 25TH ANNIVERSARY ISSUE OF **THE BLAZING STAR**, INCLUDING MEMBERS WHO VOLUNTARILY INCREASED THEIR 2010 MEMBERSHIP FEES TO \$25. WE SINCERELY HOPE THAT THIS ISSUE FULFILLS YOUR EXPECTATIONS AND MORE!

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foundation



Toronto's First Native Plant Garden: 34 Years Later

by Jim Hodgins

Can you believe I live in downtown Toronto and for the last 34 years have been surrounded by hemlocks, Eastern White Cedars, Juneberries, Striped

display of big, white, morning glory-like flowers. These are some of the plants that grow happily in my front and back yards at 90 Wolfrey Avenue, near Broadview and Danforth.

The site wasn't always this beautiful.

naturalistic in appearance. The aluminum doors are all gone.

Since our front yard was the first on the street to convert from a landscape in bondage to one in harmony with Nature, I like to think it acted as an

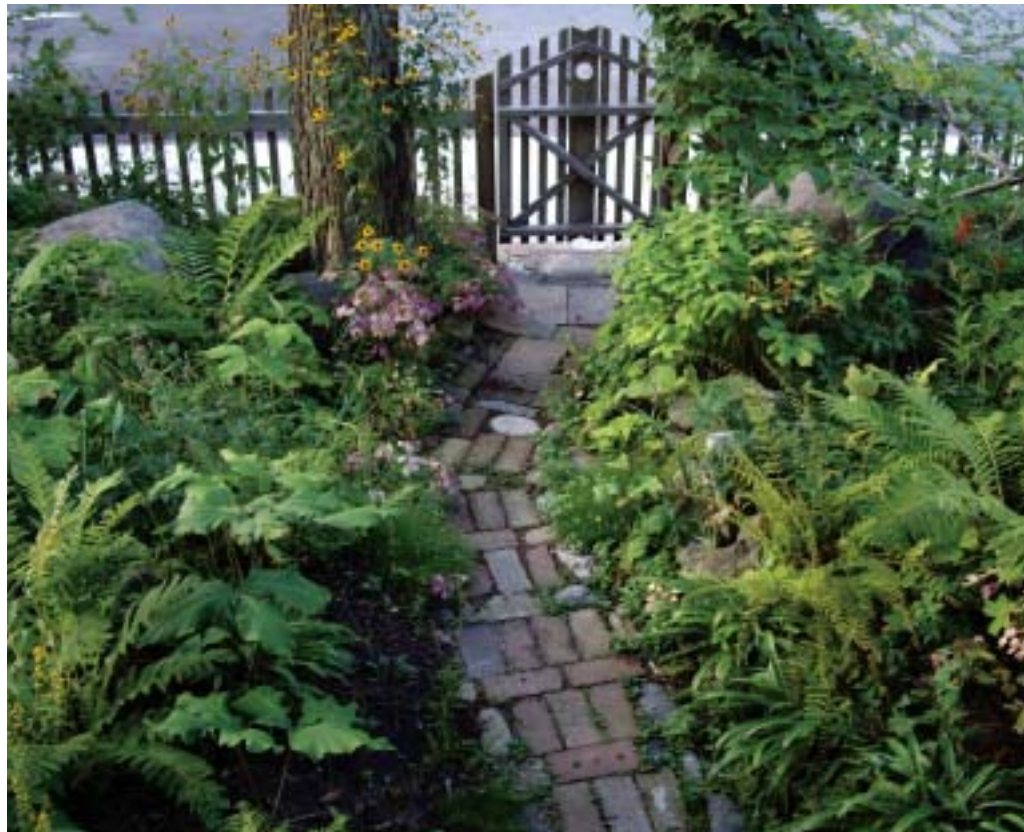
exemplary catalyst for change. Why did I chuck our front and back green lawns? Primarily because I felt divorced from Nature. Having spent every summer of my formative years working or vacationing in Ontario's "Rock and Lake Country", Nature's presence became something my body and spirit craved on a daily basis. With a family, full-time job and limited funds, I could no longer drift off to the wilds at leisure. So I decided to bring the wilds to me. Hence, I planted a mini forest ecosystem on my doorstep.

At this time, the public and press appeared to be generally hostile to lawn removal being replaced by landscapes that appeared weedy to them. It was perceived by many to be unneighbourly, suspicious and guaranteed to reduce adjacent real estate values.

My new forest appeared in the form of seeds, seedlings, cuttings, and saplings, acquired from friends, plant rescues and nurseries. It takes at least three years for a native plant garden to settle in and look naturalistic. Patience is a necessity otherwise this genre is not for you. Passersby would frequently stop and ask gardening questions and offer praise for what they saw. I seized each encounter as an opportunity to proselytize for the native option.

As the seasons passed and the gardens began to resemble patches of the Bruce Trail or the Rosedale ravine, I began to appreciate a living connection to human history and the maple/beech

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PHOTOGRAPH BY ZILE ZICHMANIS

Jim Hodgins' front yard with ferns, Jack-in-the-pulpit (*Arisaema atrorubens*), Cardinal Flower (*Lobelia cardinalis*), Zig-zag Goldenrod (*Solidago flexicaulis*), sedges, Eastern Columbine (*Aquilegia canadensis*) and a glacial erratic, among others.

Maple, Hackberry, Leatherwood, Witchhazel, American Hazelnut, Chokeberry, Spicebush and Pawpaw? These trees and shrubs are all native to my Don River watershed, except Pawpaw which is native to southwestern Ontario and Chokeberry which kicks in at the Lake Simcoe watershed. As well, among these woody plants there is a herbaceous ground cover of native wildflowers including Wild Ginger, Eastern Columbine, Red and White Trilliums, sedges, *Dicentra* spp., Wild Strawberry and numerous ferns and mosses. Framing this oasis of nature are six species of native vines including the perennial, herbaceous, wild sweet potato vine with its magnificent

When my wife Zile and I moved into our semi-detached home in 1976, all 75 homes on the street had front grass lawns with attendant production-line exotics, to compliment the omnipresent aluminum storm door with the owner's initial on it. The streetscape was an example of corporate monopoly and monotony of the petrochemical pesticide, sod and nursery industries that could be found on any street from Vancouver to St. John's. That was then, but sometimes things do change for the better. Today on my street only six lawns remain. The rest have all converted to creative gardens of exotics and sometimes natives mixed in, often with accents of rock, logs and sculpture. Most are

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forest ecology. Previously I had only read of the various plants which the Ojibway and Iroquois had used in their daily lives. Now I saw many of these plants on a daily basis at my own doorstep. Similarly, native species cited in the early works of Euro-pioneers such as Simcoe, Moodie, Traill and Scadding were scattered throughout my gardens. The Euros learned their plant lore from the indigenous people who used many of our native plants for food, medicine and tools. Catherine Traill planted a native plant garden at her homestead near Peterborough in 1836.

And now I sit in my native oasis with a glass of shiraz, ruminating on all these connections. My garden now has meaning and I have ceased to feel alienated from Nature. Others appreciate this patch too, especially crickets, grasshoppers, butterflies, sowbugs, green flies, bees, juncos, chickadees, Purple Finches, cardinals and Blue Jays which use this site for breeding, feeding and roosting.

Over the decades, I have given away thousands of seeds and plants to deserving friends and neighbours. Never have I used biocides or commercial fertilizers. Each fall, the night before City garbage pick-up, I clandestinely gather bags of leaves from my neighbours' curbs and scatter them on my garden's leaf cover. Neighbours do all the work, my garden gets all the nutrients.

A few years ago, I did an exhaustive literature search to determine if any native plant gardens in Toronto pre-dated mine. The only reference I found was the rockery garden of Adele

Austin who was the daughter of a wealthy banking family that lived in "Spadina" house opposite Casa Loma. In her book, *The Canadian Garden Book*, written under the *nom de plume* Dorothy Perkins, she describes her rockery garden in 1918 consisting of woodland natives and some exotics.

As in Nature, all is not Georgian Bay

deter cats and dogs from depositing.

This, of course, is quite insignificant compared to the damage wreaked upon our planet by my species. I like to think my native plant garden mimics the maple/beech forest which formerly occupied this site, from the shower of pale yellow flowers on the Leatherwood in early April to the



PHOTOGRAPH BY ZILIE ZICHMANIS

Jim Hodgins' spring backyard

sunsets or seductive nodding white trilliums. Death lurks in every garden. Raccoons occasionally break branches on my robust 25-year-old Leatherwood, squirrels do the same on my hemlocks. My native viburnums, Dwarf Chinquapin Oak and redbud were killed off by winter extremes. Bees monopolized my back porch last summer and I was forced to build a picket-fence for my front garden to

dazzling display of darker yellow flowers on the witchhazel in mid-October.

And that's what I like.

Jim Hodgins is the former editor of Wildflower magazine. He is currently completing a book on the art of northern Ontario and is very partial to Shagbark Hickory, shiraz, Leatherwood, El Dorado rum and hepaticas.

NANPS HONORARY DIRECTORS

Sir David Attenborough

One of the best-known conservationists in the world today, Sir David Attenborough has produced books and natural history series, such as *Planet Earth*, *Life on Earth*, *The Living Planet* and *The First Eden*, that have been distributed worldwide. His unflagging efforts to promote sound conservation practices and policies have had a major impact on the global conservation movement. Trained as a zoologist and anthropologist, he has visited countless countries, fulfilling his life's mission. His contributions to worldwide conservation have been recognized with the order of the Commander of the British Empire and Fellow of the Royal Society. In 2005 Queen Elizabeth II awarded him the Order of Merit, which recognizes distinction in the arts and sciences.

Robert Bateman

The most familiar name in wilderness art in Canada, Robert Bateman is also a lecturer and author on art, nature, conservation and the environment. He has earned an international reputation for the vivid, haunting beauty of his art and for his contributions to conservation causes. In 1984 he was enrolled as an Officer of the Order of Canada, and in 1987 he was given the Governor General's Award for Conservation. His list of accolades and exhibitions spans several pages including the Ideas for Life Award given him by the Canadian Environmental Awards in 2006 and the Human Rights Defender Award from Amnesty International in 2007.

Frederick W. Case, Jr.

A Life Fellow of the Cranbrook Institute of Science and formerly an adjunct research investigator at the University of Michigan's Matthaei Botanical Gardens, Fred Case, Jr., is now retired. He gave a photographic tour of his favourite Great Lakes forests at NANPS 2005 AGM. With his late wife, Roberta, they hiked through swamps and woodlands to photograph North American *Trilliums*. Together they studied methods of propagation and cultivation of rare native plants, especially orchids. He wrote *Orchids of the Western Great Lakes Region* and books and journal articles on other wildflowers of the northeast.

The Right Honourable Adrienne Clarkson

A journalist and stateswoman, Adrienne Clarkson served as the 26th Governor General of Canada. A refugee from Hong Kong, she came to Canada as an infant in 1941, and went on to become a producer and broadcaster for the Canadian Broadcasting Corporation. While in residence at Rideau Hall as Governor General, she created a native plant garden with species from across Canada. In her post-viceregal life, she is The Right Honourable Adrienne Louise Clarkson, Companion of the Order of Canada, Commander of the Order of Military Merit, Commander of the Order of Merit of the Police Forces.

Mary Ferguson

A Fellow and Life Member of the Photography Society of America, Mary Ferguson is a photographer, teacher, lecturer and judge. Her work has been featured in many books including *Canada: A Year of the Land*, *The Art of Canadian Nature Photography* and *Wildflowers of the United States*. She is a pioneer in the native wildflower appreciation movement in Canada, co-authoring *Canadian Wildflowers* and *Canadian Wildflowers through the Seasons*.

Dr. Adrian Forsyth

President and co-founder of the Amazon Conservation Association, Adrian Forsyth received his PhD in tropical ecology from Harvard University and has gone on to spend 30 years doing conservation work in the Amazon. He also serves as president of the Friends of Osa, a not-for-profit organization in Costa Rica and he is research associate at the Smithsonian Institution and VP for Programs at Blue Moon Fund. One of North America's finest writers on natural history, he has authored nine books.

Glen Loates

Acclaimed worldwide for his exquisite paintings and drawings of the natural world, Glen Loates captures the essence and vitality of his subjects. An avid environmentalist, he has supported hundreds of wildlife preservation projects. His painting, *The Bald Eagle*, was accepted in 1982 by President Ronald Regan on behalf of the American people, making Glen Loates the first Canadian artist to be represented at the White House. Three major volumes of his work have been published and he continues to exhibit widely, with works in Le Centre Culturel Paris, The British Museum, the Royal Ontario Museum and the McMichael Canadian Collection.

Farley Mowat

One of Canada's best-loved authors, Farley Mowat is famous for his environmental advocacy work. He first achieved recognition for his books about the Canadian North such as *Never Cry Wolf*, written to change prevailing attitudes of fear and revulsion towards wolves. The Governor-General's Award-winning author has written over 40 books of which 14 million copies have sold worldwide. He was made an Officer of the Order of Canada in 1981.

Freeman Patterson

Internationally acclaimed photographer, writer and visual design artist Freeman Patterson was awarded the National Film Board's Gold Medal for photographic excellence in 1967. His exhibitions, awards and honours both in Canada and abroad are too numerous to mention.

Freeman Patterson makes this Art Statement on his website: "I believe that the ability of human beings to be creative depends fundamentally on the health and well-being of our biosphere, the few kilometres of air, water, and soil that surround our planet like the skin of an apple. Quite simply, they are the physical and spiritual bases of our lives, and the only source of materials and tools that enable us to express our responses to questions and feelings about ultimate things. Creation and creativity are inextricably linked."

Carol Rykert

A wilderness lover and generous donor to NANPS, Carol Rykert and her family have preserved two islands in Temagami in perpetuity. She offered financial support to the Temagami 22 project, where artists converged on the sacred wilderness in 1998 to paint, photograph and draw the beautiful wild places, thereby helping to protect our splendid natural heritage. In 1967, as her family's Centennial project, Carol Rykert introduced many native plants to their property in Collingwood, Ontario.

Calendar of Events

May 8, 2010

NANPS NATIVE
PLANT SALE
10AM - 3 PM
Markham Civic Centre Atrium
101 Town
Centre Blvd.
(Hwy 7 at
Warden Avenue)
Markham, Ontario
Visit www.nanps.org for details.

May 20-23, 2010

FLORIDA NATIVE
PLANT SOCIETY ANNUAL
CONFERENCE
Tallahassee, Florida
Visit www.fnps.org for
information.



PHOTOGRAPH BY RUTH ZAUGG

Kawarthas' forest floor



PHOTOGRAPH BY ROBERT BARNETT

*Fringed Gentian (Gentiana crinita)
at Zinkan Cove*

May 28-30, 2010

EXPLORING
OUR WATERSHEDS
Sarnia, Ontario
This event at Lambton College
will showcase the rich diversity
of Carolinian Canada's coasts
and Lambton County's
watersheds through workshops,
presentations, field trips and an
evening cruise on the St. Clair
River. Visit
www.ontarionature.org
for details.

June 2-5, 2010

FIFTH LONE STAR REGIONAL NATIVE
PLANT CONFERENCE
Nacogdoches, Texas
In association with the
Cullowhee Native Plant
Gardening Conference, hosted
by the Pineywoods Native Plant
Center. Contact Dawn Stover
at 936-468-4404 or
dparish@sfasu.edu.



Prairie at Carden Alvar

June 3-5, 2010

NATIVE PLANTS IN THE LANDSCAPE
Millersville, Pennsylvania
The 20th annual conference
will include a native plant sale:
www.millersvillenativeplants.org.

June 13, 2010

SAVANNAH PLANTING AT
SCULPTURE GARDEN SITE
Toronto, Ontario
High Park's Forestry Crew
will lead volunteers from the
Volunteer Stewardship Program
in planting natives in the park's
famed oak savannah. Contact
vsp@highpark.org for more info
or to find out about other bi-
monthly events planned.

June 14-19, 2010

ISLE ROYALE BOTANY WORKSHOP
Houghton, Michigan
Workshop participants (limit of
12) will travel by boat to Isle
Royale on Lake Superior to learn
about its native plants. Contact
Jill Burkland at 906-482-7860 or
jburkland@irnha.org.

PHOTOGRAPH BY RUTH ZAUGG

June 20-24, 2010

JOINT FIELD MEETING OF THE
BOTANICAL SOCIETY OF AMERICA,
NORTHEASTERN SECTION
Williamstown, Massachusetts
Contact: Chairperson Nan
Williams, 413-339-5598 or
nnwrowe@gmail.com.

August 6, 7 & 8, 2010

SECOND ANNUAL MIDWEST NATIVE
PLANT CONFERENCE
Dayton, Ohio
Keynote speakers Julie Zickefoose
and Will Herschberger will
discuss Connecting People and
Nature. Visit
cincinnatibirds.com/mwnp.

August 21-22, 2010

WETLAND PLANT IDENTIFICATION
WORKSHOP
Keweenaw Peninsula, Michigan
Sponsored by Gratiot Lake
Conservancy. Features botanist
Janet Marr. Advance enrolment
required; download form at
www.mlswa.org/Gratiot-Lake-
1508/

September 25, 2010

NANPS PRAIRIE EXCURSION
Alderville, Ontario
Excursion to Alderville Black Oak
Savanna and Tallgrass Prairie,
Red Cloud Cemetery, and a
private prairie restoration, John
Oyston's Oak Hills Farm. Watch

the website, www.nanps.org,
or contact excursions@nanps.org
for details.

October 2, 2010

NANPS ANNUAL GENERAL
MEETING & PLANT SALE
Markham, Ontario
Ornithologist Dr. Bridget
Stutchbury, author of the soon-
to-be-released book *The Bird
Detective*, will be the keynote
speaker at the Markham Civic
Centre event. Presentation of
Paul McGaw Memorial

Conservation Award and
NANPS Garden Awards.
Visit www.nanps.org.

October 27, 2010

TBG SPEAKERS' SERIES
Toronto, Ontario
Douglas Tallamy, author of
Bringing Nature Home, will be
speaking at the Toronto Botanical
Gardens. Stay tuned to
www.nanps.org for details as they
become available. NANPS
members receive \$10 off
admission price.



Zinkan Island Cove

PHOTOGRAPH BY ROBERT BARNETT

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www.lpblt.on.ca



My Approach to Growing Native Trees

by John Oyston

A tree planting project can be divided up into three equally important stages: Planning, Planting, and Tending the trees. People tend to place the most emphasis on the planting stage, which is the most dramatic, ignoring the crucial planning and tending stages.

PLANNING

How much space is available? Is it sheltered or exposed, wet or dry, sunny or shady? Is the soil rich and loamy or dry and sandy? These factors

do you have a more prosaic issue, such as creating a wind break or hiding an ugly view? Do you want blossoms, winter interest, or nuts to feed wildlife? How fast do you need the trees to grow? Do you want to be able to harvest the trees for fruit or firewood? Do you want predominantly conifers or deciduous trees?

In general, conifers grow faster and require less care. Consider using them as fast-growing nurse trees to provide shelter while deciduous trees get established. You may even harvest the conifers as Christmas trees. I

Designing the plantation

This is where the excitement begins! Try to map out the site as accurately as possible. Think about which species work best in given locations. Are there particular things you want hidden, or views you need to keep open? Are some areas wetter or more shaded than others? How do you want to arrange your trees? If you are after a natural look, it is tempting to plant the trees in a random pattern, but I advise against this. You will have to tend the trees, either by mowing, cutting or spraying. If they are in a random pattern you might have difficulty finding them as the grass or weeds start to grow, so you will end up mowing, cutting or spraying some of the seedlings. If you set up a square grid and plant trees at the intersections you will have a very regimented plantation: it will be easy to tend and eventually harvest, but most people do not want such an artificial look.

Here's my way of resolving the issue: determine what the sightline will be, then lay out gently curved lines at right angles to this direction. For example: if you are planting to the north of your house, mark out curved lines which run east to west and plant your trees along these lines at roughly (but not exactly) equal intervals. Begin each row so that the trees in that row are roughly in the gaps between the trees in the adjacent row (see diagram). This will give most people the impression that your trees are planted in a naturally random fashion.

How far apart should your trees be? When you plant trees which are maybe 15 centimetres (six inches) tall, putting them three metres (nine feet) apart seems ridiculous, but when they are 15 metres (50 feet) tall, they will look packed together. In commercial forestry, trees are often planted close together to encourage tall trees with minimal side branches. For fruit production, trees are planted further apart to encourage low-hanging side branches for easier picking. I prefer to



PHOTOGRAPH BY MEG LLOYD-JONES

John Oyston mulching one of the trees at his Oak Hills Farm with Rice Lake in the background.

will determine the best type of native tree to plant. Plenty of resources specify which species of tree works best in which area, but many native trees are very resilient, as long as you do not try to grow something which usually lives in a swamp on a dry rocky slope, or a sun-loving tree in deep shade.

Why are you planting? Do you want to recreate a particular habitat, like a black oak savanna or a deer yard? Or

plant some hybrid poplars (*Populus* spp.), even though they are not native, for rapid satisfaction and to provide shelter for native trees. Poplars I planted five years ago are already over six metres (20 feet) tall, while White Pine (*Pinus strobus*) and Silver Maple (*Acer saccharinum*) seedlings, which were the same size when planted, are only two metres (six feet) tall.

plant trees close together, accepting that some will die and that I may have to harvest or transplant some others later. This means that the area begins to look like an established wood earlier, the trees shelter each other and the site needs less tending at an earlier stage.

One factor to take into consideration is the width of your tractor or lawnmower. The space between rows should be enough to allow you to drive your tractor between them at a reasonable speed, but not more than twice the width of your tractor. This means that you can mow between the rows by doing one pass in each direction. I have a tractor with a 122-centimetre (48-inch) mowing deck, so I usually have two metres (six or seven feet) between rows. I tend to plant one seedling every spade length, which is about every two metres (six feet).

How many trees are needed? There are standard charts based on spacing available (cta.ornl.gov/bedb/appendix_a/Number_of_Trees_per_Area_by_Spacing_Combination.xls). For the spacing I have suggested, you will need 2,500 trees per hectare (1,000 per acre) or roughly one tree for every 3.7 square metres (40 square feet). Nurseries will provide tree seedlings which vary in size, so it's often best to buy 10% more trees than you need. The smallest specimens can be potted up or planted in a nursery bed and used in later years. I can never bring myself to throw out a living tree, no matter how small!

Sources for trees

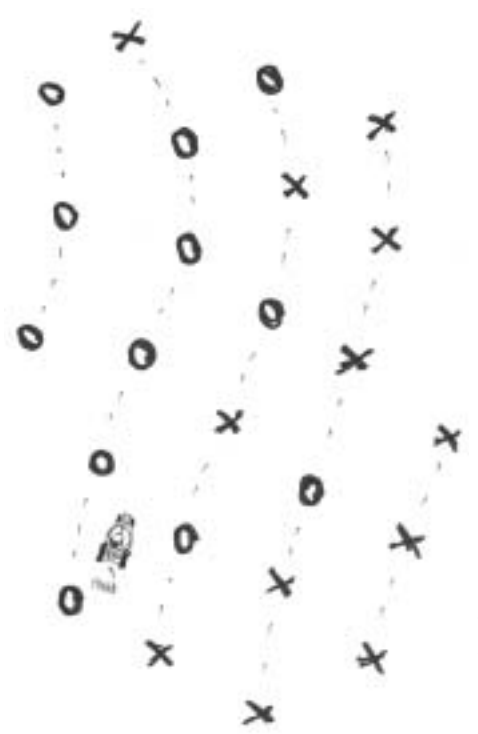
Find out if there is government support for tree planting in your neighbourhood. In Ontario, the local Stewardship Councils will often provide landowners with seedlings for less than 50 cents each. Tree nurseries will typically charge about \$1 each for 50, and the price goes down further with larger orders. It is ideal if you can pick up the seedlings personally the day you plan to plant. Let the nursery know when you are coming and they should have freshly dug seedlings ready for you.

Bare-rooted trees do survive being posted, with the roots covered in a damp mulch and the whole tree adequately packaged. Typically seedlings are bundled in tens, held together with twine or an elastic band, with the roots covered in damp peat moss or old, damp, shredded newspapers. Bundles are then put in plastic bags which commonly contain 50 trees, and then these bags are put into large brown paper bags. It is easy to get over 500 tree seedlings in the back of a small mini-van. Keep the trees in a cool, shady, draught-free environment, and shake or handle them as little as possible. When you take them out into the field, try to keep them in their bags and in a shady spot until ready for planting.

Site preparation

I like to mark out exactly where I will plant trees in advance, so that on planting day I don't have to waste time thinking. I have even been known to dig the holes a couple of weeks in advance, but this may not be a good idea, as the removed soil tends to dry out.

I commonly spray herbicide on an area about a metre (three feet) in diameter before planting,



DRAWING BY JOHN OYSTON

Designing a plantation with curved rows.

then plant in the middle of the circle. If you do this a week or two in advance you can see the brown area and plant in the middle of it. Spraying herbicide even a few hours before planting allows it to be absorbed into the surrounding vegetation so that it will die off over the next few days.

Many people have objections to the use of pesticides. I make a large distinction between herbicides, which are designed to kill plants, and insecticides, which are designed to kill animals. I also distinguish between chemicals which are absorbed into plants through the leaves and which have little residual activity in the soil, and ones which remain active in the soil. Glyphosate (Roundup®) is a herbicide which is absorbed into plants. It interferes with enzymes which are not present in animals, and when used properly it is extremely safe.

If you choose not to use a herbicide, you must put much more time and effort into mulching and tending your seedlings.

Continued on page 18

Inglis Falls Native Plant Nursery

Grey Sauble Conservation
237897 Inglis Falls Road, RR 4,
Owen Sound, Ontario, N4K 5N6
Contact: Bill Moses (volunteer)
Phone#: 519-371-4559
email: bill.mosesos@gmail.com
www.greybrucewoodyplants.ca/
Hours of operation:
by appointment

% Native Plants: 99
We propagate woody plants that are indigenous to Grey and Bruce Counties from seed. The nursery is 100% organic (compost and water), all pots are recycled and the nursery operation is entirely run by volunteers.

PLANTING

In southern Ontario, the usual time to plant bare-rooted trees is end of April or early May – before bud break. Trees grown in containers can be planted whenever the ground is workable.

How to plant

The usual method for small bare-rooted trees is to take out a wedge of soil by turning the blade of the spade towards the digger and inserting it in the soil then turning it through 180 degrees and reinserting it at an angle, to remove a wedge of soil. The tree seedling is then inserted, the wedge replaced, and the soil tamped into position. If one person digs and a second person holds the seedling in the correct position, with the tree replanted at exactly the same depth as it grew at, this can be done very quickly. Professional planters can plant over 2,000 trees a day, single-handedly! It is important to plant all the tree roots: don't leave some sticking up above ground level, and don't have them curling round the tree, as they will eventually girdle the tree and stop it from growing. I take the extra time to extend the hole as necessary to get all the roots planted properly. Sometimes I take the removed wedge and turn it upside down, so that the

larger and smaller specimens, and make sure to hold back some larger specimens for the end of the row.

Additives

I use Myke®, a commercial mycorrhizal preparation (www.usemyke.com). Mycorrhizal fungi have a symbiotic relationship with plants. They help plant roots extract nutrients from the soil in exchange for getting carbohydrates from the plant. They are important for tree growth, especially if they are planted in soil which has not previously been wooded and probably lacks these organisms. I usually sprinkle a small amount of Myke directly onto the tree roots immediately before planting.

I refill clean, empty windscreen washer bottles with a mixture of transplanter fertiliser and water. Transplanter fertiliser contains phosphorus which is needed for root development. I dilute it more than it says on the bottle, partly to save money and partly because heavy usage of phosphorus fertilizer inhibits mycorrhizal colonization and growth. A couple of cups of this mixture is the only watering my seedlings ever get! The liquid helps to compact the soil and provides hydration as the seedling

Larger trees

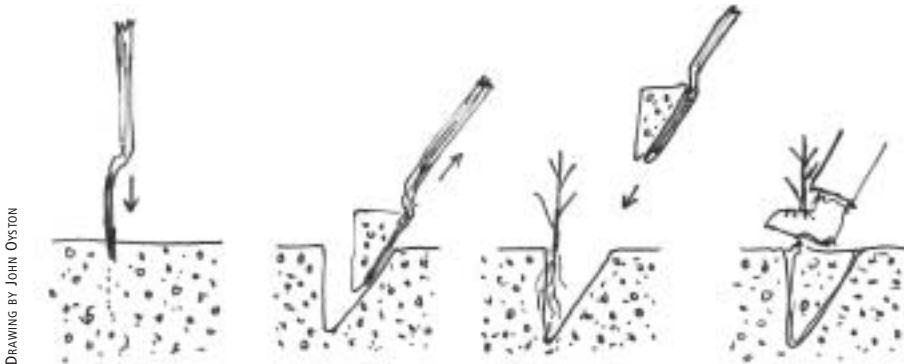
Sometimes it's necessary to plant larger trees, although I try to avoid it. Larger nursery-bought trees often do not grow as rapidly as smaller trees, which eventually exceed them in height. Larger trees are often sold in containers or in burlap balls. Since they come with their roots in a soil ball, they can be planted at any time of the year, provided they are adequately watered during dry weather. There are two contradictory principles involved in planting trees which come with their own soil. On the one hand, it is better not to disturb the roots, so that the very fine root hairs at the tip of the roots are not damaged by movement. On the other hand, you need some mixing between the soil in the container and the native soil around the tree, so that water and nutrients can mix and the roots are encouraged to spread outwards. Roots which wrap round the tree can eventually girdle it and prevent further growth.

My approach is to begin by making sure the hole is exactly the right depth so that the rootball rests on undisturbed soil and the tree is buried at the same height as it was when it grew. The hole should be wider than the plant. Decide which way round the tree should go before disturbing the package. I cut plastic or fibre containers if that's necessary to get the tree out, then gently untangle the roots at the edge of the container, encouraging them to radiate outwards from the trunk. For ball and burlap, I open the top and allow the burlap to remain in place underneath the tree.

TENDING

After planting, my next task is to mark each tree. For this I use a 15-centimetre (six-inch) piece of fluorescent marking tape, which I tie around the tree so that it will be conspicuous when I'm mowing or spraying. Sometimes I write the species on the tape before tying it around the tree, often just using an abbreviation.

Each tree should be mulched. Mulch spread around the base of the tree



DRAWING BY JOHN OYSTON

Wedge planting sketch

grass is buried at the bottom of the hole. This requires more work to tamp down the removed soil to ensure the tree is securely planted, but prevents the grass from competing with the seedling. Try to alternate planting

adapts to its new location. I believe that putting any other fertiliser in the hole is unnecessary and possibly harmful. It encourages the roots to grow near the tree instead of spreading out into the surrounding soil.

deprives competing weeds of daylight, encourages water to remain trapped around the tree rather than evaporate away, and may provide nutrients as it decays. I hate the black plastic sheets some people put around trees. They are hard work to position as they need fixing at all four corners and often in the middle. They get caught up in mowers and weed whackers, and then they eventually break up into messy scraps of plastic. I like Tassucol™ tree collars, a triangular cardboard mulch mat. They have a slit to allow them to be pushed up against the tree stem. They are quick and easy to put in place, but they do not look natural and some of them blow off. I like to put them in place, then cover them with wood chippings to weigh them down and make them look more natural. A local landscaper sells me wood chips by the truckload, but if you need smaller quantities cedar mulch from a garden centre works well. Ideally I spread half a shovelful around each tree in a rough circle, then pull it away from around the trunk. If you just use a particulate mulch like wood chippings without any cardboard or plastic it is harder to exclude all daylight and make a complete weed barrier.

Bare-rooted trees under 1.5 metres (five feet) tall do not need staking. Larger trees should be staked, but only about half way up the stem and for a maximum of two years. (Longer or more secure staking just discourages the development of a strong trunk.) Tree protectors are useful on deciduous trees to make them visible when spraying or mowing, and to protect the trunk from small rodents and weed whackers. I use the spiral type which can open up as the tree grows. To save money I often divide one into 15-centimetre lengths.

Any vegetation that grows near the seedling competes with it for water, nutrients and sunlight. Eventually flowers and grasses can overwhelm the seedling, collapse on top of it, and kill it. There are several ways to prevent this from happening. Site preparation



PHOTOGRAPH BY JOHN OYSTON

This photograph shows the benefits of careful tree tending. The seedlings were planted at the same time, in the same soil, and were the same age and size. The taller one on the left was carefully tended on a regular basis while the other one was only occasionally tended.

and mulching works for the first few months but gradually the competing vegetation recovers from this disturbance and encroaches on the tree. The quickest and simplest response is to mow around the trees, if the ground is relatively level and accessible. If not, then a weed whacker or scythe can be used.

Another option is spraying, but one has to be very careful not to spray the trees. For conifers, which tend to have flexible trunks, I made a device consisting of a large inverted planting pot attached to a broomstick with wire and duct tape. I put this over the seedling and press down firmly, bending the trunk if necessary, so that the pot fits firmly against the ground. I then spray around it using a backpack sprayer loaded with Glyphosate. This creates a doughnut of dead vegetation around each tree. The vegetation which survives because it was next to the tree is not too much of a problem, as it helps shelter and support the tree, and eventually falls away from it, not on top of it. When the tree is big enough it will shade and out-compete the vegetation growing next to it.

Young trees need watching and tending for about three to five years, until they grow taller than the

surrounding vegetation. Depending on how effective the site preparation and mulching has been, this ongoing tending might just involve a little hand weeding or trampling down of some grass. Usually it will require mowing several times each summer or spraying once a year.

If you are looking for more work, or perhaps just an excuse to spend more time among your trees, I recommend doing an annual survey to measure each tree and undertaking a program of photography in each season from a series of standard viewpoints. It's fascinating to see how well your trees are doing, and gratifying to witness their steady growth under your care.

Dr. John Oyston (john7@oyston.com) is a specialist in anesthesiology. He also graduated from the University of Guelph with an Ontario Diploma in Horticulture in 2005. He has planted over 2,000 native trees at his recreational property, Oak Hills Farm. He has established an arboretum with over 100 different native Ontario trees and shrubs. This project won a NANPS Garden Award in 2009. Further details of the Oak Hills Farm Prairie and Arboretum are available at www.oakhillsfarm.ca.

Good Walk Spoiled or Hike With A Purpose?

by *Evan Cantor*

“*Golf is a good walk spoiled.*” Mark Twain
“*Golf is like taking a hike with a purpose.*”
My Brother-In-Law

I have always sided with Mark Twain when it came to golf. As a boy, I played miniature golf in a maze of windmills and Paul Bunyan statues. I learned new language skills every time the ball boomeranged to the far end of some green labyrinth. I tried the driving range once and pulled a muscle. I was not enthused. My brother-in-law tried to explain it in terms that I could understand, but his description only made me question those hours of apparently purposeless hiking. Clearly some people are really into this game and others just don't get it.

Whether you regard golf as an ecological nightmare or an environmentally sensitive industry appears to depend on this distinction. If you're really into it, golf courses are a welcome alternative to shopping centers and sprawling suburbs, providing open space for wildlife and an opportunity to create jobs and revenue with minimum impact on the natural world. If you “don't get it”, you're more likely to regard a golf course as an ecological abomination displacing native species, hogging water and sending a nightmare of toxic chemical runoff into the earth. Which one is it?

Ecological nightmare is well documented, from the despoliation of Lake Bessie, Florida in 1987 by secret nitrate-laden runoff from the Isleworth Club to the 1983 death of a Navy Lieutenant from an allergenic reaction to chlorothalonil at a country club in Virginia. Most of the chemical pollution that causes such results comes from trying to maintain putting greens in the pristine condition demanded by players. Shaved as short as one-tenth of an inch (2 1/2 millimetres) to billiard table smoothness, putting greens lead a precarious existence, fighting insects, mold, wind, moisture and heat

extremes. The aesthetic of the putting green infects the course as well as the culture.

Consider rolling green waves of manicured lawn punctuated by bone-white sand traps and glistening blue pools. Located beside the sea, a lake, or a fantastic geological formation, the course is spectacularly beautiful. Indeed, golf course design is an art. This is the image of golf as it has evolved in the United States. In the sport's homeland, the courses are far more natural and rugged. As a result, they use far fewer chemicals in the maintenance of their turf. Is the game that different at Scotland's St. Andrews? Players flock to it like a pilgrimage, proof that a course does not need to be a uniform green carpet to succeed.

Take Carmel Valley, California's The Preserve as an example. In 1990, the Santa Lucia Conservancy organized the Rancho San Carlos from old Mexican land grants and created a 20,000-acre (8,000-hectare) “preserve”, an area comparable in size to the entire Monterey peninsula. The vision was for 300 resident families to share and protect the preserve, a huge swath of oak woodlands, riparian wetlands, chaparral and savanna ranging in elevation from nearly sea-level to 3,000 feet (900 metres) above. Sharing the preserve meant including a 70-acre (28-hectare) golf course with irrigated turf and other facilities.

No golf course in the midst of a nature preserve would be ecologically preferable to an “environmentally friendly” one. The Preserve represents a trade-off. A nature preserve surrounding a golf course is better than yet another suburb. With real estate skyrocketing in the urbanized Carmel Valley, the Santa Lucia Conservancy saved a huge chunk of land from seemingly inevitable “Californication”. But even The Preserve maintains emerald fairways and putting greens. The challenge is to reduce the ecological footprint.

Buffalograss (*Bouteloua dactyloides*), native to the middle-south of the

United States, is used on some prairie and plains courses in conjunction with Blue Grama (*Bouteloua gracilis*) to encourage year-round “greening” on fairways, but generally does not provide the kind of surface superintendents want on their fairways and greens. Meeting this challenge requires an integrated approach.

David Brown, superintendent of Flatirons, Boulder, Colorado's municipal golf course, does just that. Water flowing out of the course is cleaner than the intake, is sold to downstream users for additional municipal use, and testing goes on year round to make sure there is no groundwater pollution. How does he do it?

Brown is operating Flatirons as a riparian filter zone. The course is adjacent to and within the flood plain of South Boulder Creek, so a native cohort of Plains Cottonwoods (*Populus deltoides* varieties), Willows (*Salix* spp.) and other riparian brush already existed on the location at the time of establishment. Dry Creek runs through the west side of the course and provides sufficient water to support a riparian zone as well as several ponds and small wetlands. All of the water running into the course has already flowed through the city of Boulder, so it has collected residential and storm drain run-off. It is essentially “gray water”, yet Brown sells his runoff for downstream municipal use.

The “push-up” greens were constructed from extant soil collected from the site and pushed into place. Brown has planted a mix of native grasses and plants in all the buffer zones around the ponds, as well as in the roughs and non-play areas of the course. In October 2007, he planted nearly 1,000 individual plants, including American Plum (*Prunus americana*), Chokecherry (*Prunus virginiana*), Golden Currant (*Ribes aureum*), Peachleaf and Whiplash Willows (*Salix* spp.), Canada Goldenrod (*Solidago canadensis*), Nuttall's Sunflower (*Helianthus*

nuttallii) and Swamp Verbena (*Verbena hastata*), all native to Colorado's plains region. Also in this mix were native grasses Alkali Sacaton (*Sporobolus airoides*), Blue Wildrye (*Elymus glaucus*), Green Needlegrass (*Stipa viridula*) and Switchgrass (*Panicum virgatum*).

None of these native grasses would function for a putting green, though. Flatirons' fairways and greens are a 60/40 mix of non-native Bentgrass (*Agrostis* varieties) and "Poa Grass", which are bluegrass (*Poa*) varieties. Brown uses no herbicides, preferring cultural practices such as "deep-tine aeration, verti-cutting, slicing and rolling" in addition to mowing. He sprinkles sand on worms and grubs, while grumbling about Canada geese drilling new holes in the greens. He fertilizes with organics such as bloodmeal, poultry waste and bonemeal. He applies a minimum of synthetics such as potassium and ammonium nitrates once or twice a year.

Among golf course superintendents in North America, Brown is part of a growing movement away from the classic American model. They are looking at saving money, improving the "green" profile of their courses and at how the game gets played. For the players, it's all about how the ball bounces. And rolls. Outside the direct play areas, native plantings create interesting landscapes, use less fertilizer and water, and require less intensive maintenance. Native landscapes might not be green all year round, but they don't need to be in order to facilitate the playing of the game.

The golf industry recognizes that it has an uphill battle with environmental regulation. Many in the industry are asking: Why fight the inevitable? Environmental regulation will only grow stricter in the future. But arguments over gray areas persist. How much water use is too much? How much and what kinds of fertilizer and herbicide are appropriate? Should we be going organic? Which

compromises are acceptable and which are not?

Even environmentally sensitive designers want to use some degree of fertilizer and herbicide as part of an integrated approach. But the "precautionary principle" asserts that if there is even a one percent chance that a fertilizer or herbicide is carcinogenic or toxic in some way, we should eliminate its use. The industry argues that there are safe thresholds and that chemicals used currently are safer than ones used in the past. Like most arguments, there are many sides to the story.

Golf industry professionals are under pressure to keep their courses visually attractive and are willing to make compromises that environmentalists are not. But the environmental argument is difficult to refute. This is the only Earth we have. How much poison poured into it is too much? Should we accept such compromise? The good news is that there are ways to keep golf courses attractive, making fewer deals with the devil. Flatirons and The Preserve are two examples of what can be done to minimize the ecological footprint of the game and protect habitat as well. The key lies in identifying the local ecology and working with it instead of trying to impose the classic model over or against it.

The challenges facing the business of golf are synonymous with the bigger picture. The game has fascinated generations of players and it is not going away. Just as there will always be environmental activists pushing the business towards more sensitive practices, there will always be business interests resisting such progress. Eventually, the issues will be focused by resource availability. When water becomes prohibitively expensive,



Buffalograss

PHOTOGRAPH BY ROBERT SORENG, COURTESY OF SMITHSONIAN INSTITUTION, ©USDA-NRCS PLANTS DATABASE

most of golf's other boogeymen will likely dry up. Even traditionally wet and green places have suffered devastating droughts in recent years and the industry will necessarily adjust to native vegetation models to survive meteorological excess. The industry admits that golf courses in arid regions like the American southwest are already at risk as water becomes an ever more precious commodity. Many courses will figure out how to use gray water. Some will simply close when the price of water shuts them down. Remaining courses will be forced to accommodate local vegetation models and rethink the traditionally American freakish-green aesthetic.

Golf isn't the worst environmental nightmare that ever happened, but economies of scale are at work here. There are over 16,000 golf courses in the United States alone, each one facing the challenges of water use, species displacement, habitat destruction and the question of chemical treatments. The industry knows that it cannot continue as in the past. Change is in the air and the future of golf belongs not to hidebound traditionalists, but to the visionary environmentalist.

Evan Cantor is an artist and musician living in Boulder, Colorado. His work has graced numerous books and periodicals. In 2006, he was recognized by the Colorado Wilderness Coalition for his contributions through art and music to wilderness preservation in the southern Rockies region.

Old Man Creek Nursery Native Plant Garden

by *Cherry Dodd*

Some of us at the Edmonton Naturalization Group (ENG) envision a future where urban prairies exist, similar to the urban forests that are now found in most cities. Of course these urban prairies would be very



PHOTOGRAPH BY CHERRY DODD

The Bog Garden at Old Man Creek Nursery

different from the real thing, but they would still provide far more diversity and habitat for bees, butterflies, birds and other species than that which currently exists. Urban prairies will become a reality when enough gardeners include native species in their yards.

ENG is working to help this process along. We do this in several ways. We grow out native plants and reintroduce them to natural areas. We also encourage gardeners to take the plunge and go wild. There is an urgency to this work because we are

rapidly losing our local native species.

Within Edmonton's city limits several species, such as Meadow Blazingstar (*Liatris ligulistylis*), have already been extirpated, and other species such as Prairie Crocus (*Anemone patens*), Western Wood Lily (*Lilium philadelphicum*), Gaillardia (*Gaillardia aristata*) and Slender Blue Beardtongue (*Penstemon procerus*) are rare. Our natural areas, the river valley and ravines, were all farmed at some point before finally being preserved, so only scattered populations of native plants remained within the city limits. Some of these populations have recently been lost to development and others are threatened.

Fortunately for us, the City has been very supportive of our efforts, and has given us the use of a large plot of land at Old Man Creek Nursery, the city's tree nursery. It is here that we grow out native plants and seeds rescued from construction sites, and also seeds collected

from three remnant prairies. Most of the surplus plant material is donated to schools, community groups and city restoration projects. The main plant populations are tended as a seed source. We also donate seeds to greenhouses and garden centres that wish to grow them out and sell the resulting plants. We find that this is an easy way for us to introduce these wonderful flowers and grasses to gardeners.

Native flowers and grasses are well suited to gardens. These plants flourish once freed from the intense

competition that occurs in the wild. They are taller, more luxuriant, and have many more blooms. For example, Prairie Buttercups (*Ranunculus rhomboideus*) look like tiny yellow stars in the grass in the wild. The same plant in the garden is a low mound of leaves studded with masses of small bright yellow blossoms.

We are very lucky to have three small remnant prairies close to Edmonton. These are Fort Saskatchewan Prairie, Nisku Prairie, and Van Es Prairie. They are each a little different in habitat, with a different mix of species, and, as a result, are invaluable places to collect seeds.

We have discovered that some of the locally rare species will also flourish in a garden setting. This was the case with the Lilac-flowered Beardtongue (*Penstemon gracilis*) that we first found at Fort Saskatchewan Prairie. It was such a small population that only three plants were in seed, but we collected enough seeds to grow out a few plants, and from those plants we collected plenty of seeds to start introducing this delicate flower to gardeners.

Can three plants form the basis of a healthy population? We don't know, but it will be interesting to find out. So far the population is very healthy. We have around 50 plants, but 100 or 200 would be a better population to ensure good genetic diversity. One of ENG's goals is to grow out large populations of the more rare species.

Our growing plot at Old Man Creek Nursery consists of four long rows of native plants. The row closest to the fence is shaded by the shelterbelt trees, and so is used to grow woodland species. There are also two rows of vegetables for the volunteers. We have a great volunteer crew and I try to keep them happy with good snacks, free veggies, free garden plants and seeds, and lots of first-hand information and experience with growing native plants.

When asked, some people have

given very personal reasons for volunteering. Beth Hunter said, "The garden plot at Old Man Creek Nursery is a salve for my soul. It is peaceful, yet social, unruly and still somehow orderly, simple and still beautiful. I had no idea such a place existed, or even that I was looking for it. I don't get the opportunity to go out to the Nursery nearly as often as I would like, but the time I do spend there carries me through many days chained to a computer." Suzanne Benoit, our oldest volunteer at 85, puts it another way. "The highlights of the year for me were the awesome sight of thousands of Sandhill Cranes, flying high above us calling all the while..... the beautiful Crowfoot Violets growing profusely from seed from Fort Saskatchewan Prairie.....the awesome number of volunteers helping at the garden plot.....finding a rabbit leg in the garden, the rabbit might have been preyed on by a Great Horned Owl, or a coyote.....the butterflies seen fluttering over the flowers."

Everyone's experience of the garden plot is different. I love the peace and quiet and openness, and I love the satisfaction of seeing the plants grow and bloom. I love the birds – the cheeky Goldfinches that steal our native sunflower seeds, and the antics of the Tree Swallows and House Wrens in the birdhouses that we put up along the railway fence line. I love the constant surprises. Life is never routine or boring out at the garden plot.

To give you a better idea of our challenges and triumphs, here is a snapshot of one year.

LANDMARKS OF THE 2009 SEASON

Spring

- Last spring, city staff agreed to stop spraying the pesticide Dursban in the ditch that borders the road close to the garden plot. Instead they will use Bt. to control mosquitoes. This is an important change, as we have young children, people with chronic

health conditions, and several dogs among our volunteers, and I feel responsible for their health and safety while they are on site.

- Nursery staff were able to find a large old shed for us to store our tools in. They hauled it into place and set it up for us. What luxury to have a place to store stuff!
- The resident herd of deer ate a few plants as usual, but, as usual, the

spaces and we were able to give away a lot more plants. One species that was particularly plentiful between the rows was Crowfoot Violet, *Viola pedatifida*, a rare violet originally grown from seeds from Fort Saskatchewan Prairie. We also discovered a large crop of edible Purslane (*Portulaca oleracea*), growing between the rows. It seemed to appear out of nowhere.



PHOTOGRAPH BY CHERRY DODD

The Western Wood Lily (Lilium philadelphicum) is enclosed in a tomato wire cage to protect the dormant bulb from accidental damage when weeding. The abundant composite flower in the foreground is Balsam Groundsell (Senecio pauperculus).

plants recovered nicely with no permanent damage.

Summer

- Early summer was very dry and the soil between the rows was hard packed and fairly weed-free, so we asked the nursery staff to stop rototilling between the rows. This worked out so well for us that we are going to try this system again in 2010. An abundance of native seedlings popped up in the empty

We weeded some out and kept some to harvest. A native grass species, Salt Grass (*Distichlis stricta*) also took advantage of the extra space and formed a large mat of turf between two rows. It remained a lush patch of green even through the worst of the drought, so next year we are going to experiment with using it as a native lawn or groundcover. It is fairly short, so it wouldn't need much mowing and it has definitely proved itself to be

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drought-tolerant. Despite its name, it seems to adapt to regular garden soil with no problems.

- In mid-summer a big windstorm destroyed a section of our shelterbelt of mature poplar trees (*Populus* spp.). The entrance to the plot was covered by tree trunks and

established native plants didn't need water. We transplanted seven new species and we would have planted more if conditions had been wetter.

- In late summer, we discovered where some of our native bees go at night. One evening when the sun was just about to set I was looking

Fall

- The late fall allowed us to harvest far more seeds than usual, though we did leave the Silvery-flowered Sedge for the native bees. We have invested in a freezer so we can store surplus seeds over the long term and build up a seed bank of local native species. It always amazes me just how abundant nature is. One plant can yield hundreds, or thousands, of seeds.

Conclusion

It was a very good year in spite of the various challenges and obstacles. We do not have the staff to conduct scientific research – in fact we don't have any paid staff – but we learn a tremendous amount just from working with the plants. They continually surprise us. We have discovered that native plants are unpredictable. The same species will have an 80% seed germination rate one year and only 10% the next year. In the wild, plant populations will fluctuate from year to year, sometimes disappearing altogether and reappearing in an entirely new spot. Plants and seeds seem to sense whether conditions in the coming season will be favourable.

Will we be able to revitalize Edmonton's native plant population and create an urban prairie? We don't know, but we are certainly going to try. We do know that native plants on the whole are very adaptable. They are excellent survivors and, given a chance, they will flourish in gardens and in the wild.

Cherry Dodd is the project leader of the native plant garden at Old Man Creek Nursery. The Edmonton Naturalization Group was formed in 1999 in response to the continual loss of native plant populations and habitat to development in and around Edmonton. The garden plot was created in 2002 and moved to its present location in 2005.



PHOTOGRAPH BY CHERRY DODD

Bog Violets (Viola nephrophylla) rescued from the peatland along with an assortment of other species including sedges, grasses, bunchberry (Cornus canadensis) and two Harebells (Campanula rotundifolia)! A wet shaded peatland is the last place you'd expect to find Harebells. All these species are now thriving in a fairly dry, but shady place.

fallen branches. What a huge tragedy! We really miss those sheltering trees. Several of our woodland beds are no longer shaded and we will have to find another shade solution for these plants.

Because of the danger from falling branches, it was three weeks before it was safe enough for us to work at the plot again. The weeds were really out of hand by that time and it took a while to catch up.

- The drought continued through mid-summer. Nursery staff kindly kept our rain barrels filled. Most of the water went to the vegetables and the new little transplants. The

at some Silvery-flowered Sedge (*Carex aenea*), with an eye to harvesting the seed heads, and they seemed plumper and more bumpy than usual. Peering closer, I spotted a dozen native bees sleeping among the seed heads. Smaller than honey bees, their colouration allowed them to blend in perfectly. Only their long black antennae looked out of place. They were later identified as male Long-Horned Bees. It was wonderful to see so many clustered in one place and interesting to note that they chose only one native species as a sleeping place. We looked for them on other days and they were always in the same spot.

It's Not Easy Being Green

by *Deborah Dale*

Over 40 years ago, the Bayside, Wisconsin wildflower garden of Lorrie Otto was mown down by city officials. Since then, numerous ecologically oriented gardeners have followed her example and sought legal protection in order to be allowed to improve the environment. Today, the benefits of native plant gardens are recognized worldwide by environmentalists, biologists, scientists, politicians, and a growing proportion of the general public...yet resistance persists.

In the early days of this gardening movement, officials cited concerns about “natural” gardens attracting rats, fueling fires, or breeding mosquitoes. Since these arguments were proven in every instance to be false, some people now attempt to disparage the gardeners by stating that “there is a difference between neglected and natural gardens”...leaving the impression that the disputed garden is, of course, in the former category.

Amazingly, four Directors of the North American Native Plant Society have been among the thousands continent wide receiving official complaints about their choice of plant materials or design.

Larry Lamb (University of Waterloo professor, Director and President of NANPS under its former name, the Canadian Wildflower Society) received a complaint in the 1980's about his famous prairie garden in Kitchener, Ontario. In that instance, the bylaw officer investigating the complaint toured the property with Larry and no further action was taken.

Sandy Bell was not so fortunate. In 1996 she was forced to defend a tiny biodiverse front yard garden in the courts. The Ontario Superior Court found that “the objective of creating neat, conventionally pleasant yards did not warrant a complete denial of the right to express the values and beliefs reflected by naturalistic gardens.” In an attempt to clarify its position, the City altered its bylaw during the course of

the trial, moving from the unduly vague “excessive growth of weeds and grass” to setting a height limit of 20 centimetres (eight inches). According to Jim Hodgins, who gave evidence at the trial, a 20-centimetre height restriction would be “bizarre, incomprehensible and arbitrary” and would “sterilize and devastate naturalized gardens, both aesthetically and ecologically.” Justice Fairgrieve agreed, stating, “It is apparent that the effect of s. 7(c) [of the offending bylaw] is to impose a total ban on wild or naturalized gardens in private residential yards.”

“Since there appears to be no obvious correlation between a height restriction for plants and any health, safety or environmental hazards posed by them, I think the new by-law makes it even clearer that the City's concern with weed control is primarily motivated by aesthetic considerations.”

Justice Fairgrieve, Bell vs. Toronto

Douglas Counter took his battle to protect his widely celebrated front yard prairie and swale garden to the Ontario Superior Court in 2001 winning an important admission that residents have the right to tend the City-owned medians adjacent to their homes. Today, his garden and swale continue to flourish.

“The City can and ought to avoid problems of this sort by developing and implementing coherent plans with specific guidelines to deal with the critical issue of natural gardens & their enormous environmental significance.”

Justice Pitt, Counter vs. Etobicoke 2001

I am the fourth – and hope to be the last – NANPS Director charged. Moving into a neighbourhood of weedy short grass lawns in 1992, I slowly chipped away at my own turf, gradually transforming it into a mixed meadow of over 200 species of wildflowers, grasses, ferns, sedges, shrubs, and saplings. By 2003 over one half of the front yard was meadow, including the median between the sidewalk and roadway. At the time, the City had distributed a brochure – designed by none other than Doug Counter – encouraging residents to plant native flora on their boulevards. Seeing a variety of full native plant gardens in other areas of the City, I enthusiastically joined them. My new neighbours apparently did not share my zeal. On August 21, 2007 the City of Toronto cut my front yard mixed meadow to the ground. That case is now before the courts.

Despite the difficulties, native plants are gaining footholds in urban and suburban areas across the continent. In 1994, Bill Clinton issued a Presidential Executive Memorandum on landscaping practices requiring that native plants of local origin be used where possible by all Federal Agencies and in all federally funded projects. Native flora is now proudly displayed around post offices, highway rest stops, prisons and demonstration projects across the United States.

Canada has been slower to embrace this movement, although long-time NANPS member and Honorary Director the Right Honourable Adrienne Clarkson added a native plant garden to the Official Residence of the Governor General in Ottawa, Ontario during her tenure.

As a whole, the country takes pride in its diversity and its principle of pluralism, a system whereby people holding differing beliefs are able to co-exist. Somehow, that principle, which reaches into virtually every other aspect of our society, has not yet reached into our gardens.

Many bylaws relating to private

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properties across North America share the mistaken idea that municipalities have the right to dictate the appearance of our gardens. That assumption generally has not extended to the appearance of our homes, beyond designated historical districts, although some areas do face an additional layer of restrictions from homeowner associations. Painting your home with purple polka-dots or gluing bottle caps over the siding, may raise eyebrows, but seldom the ire of the City bylaw inspector.

Most often, these regulations take the form of height limitations. Nominally these restrictions are geared toward the lawns that have dominated our yards since the end of World War II's Victory Garden vegetable patches. For the most part, the restrictions fail to take into account the growing unpopularity of the lawn as residents increasingly opt to plant perennial gardens, food crops, or – for those not environmentally predisposed – asphalt parking pads.

Under these regulations, plants as common as petunias could be found to be in violation. Nevertheless, these ordinances tend not to be enforced against petunias or the other alien species that typify “traditional” gardens. Usually, in order for the wheels of municipal standards departments to begin to turn, a complaint must be lodged. In other cases, the inspector may choose to act based on his or her own observations.

Brett Rappaport, a Chicago area defender of native plant gardens, insists that traditional weed ordinances are enforced out of ignorance. “It’s not really surprising,” he says. “We all grew up with the conventional lawn landscape. It never occurs to most people to try anything else.”

What is it about native plants that arouses such passion on both sides? Unusual yards have been around since gardens began. People have tut-tutted the appearance of new gardening styles such as vegetable gardens, raised gardens, “big fat Greek wedding”



PHOTOGRAPH BY DEBORAH DALE

Deborah Dale's "miscreant garden"

gardens, or colour-cacophony gardens for decades. Yet, only native plant or “natural” gardens appear to invite open hostility and seemingly socially acceptable retaliation.

Aesthetic appeal? Gardens are supposed to be beautiful, but the idea of beauty is not universal, particularly in today's world. Our cultures are too intermingled, our individuality too entrenched to hold to a single ideal of beauty...yet Ozzie & Harriet's garden still seems to have the strongest influence over North American yards.

Some of the key ideas that permeate planning principles are usually counter to “natural” garden ideologies. Hard edges, defined boundaries, symmetrical designs, tightly trimmed

and manicured sculptures of greenery are seldom found in nature and, consequently, are rarely part of “natural” gardens. Without these visual cues, the casual observer may have difficulty understanding the purpose and inherent beauty of the landscape, especially in a space where “natural” is unexpected...our yards.

Still, different styles of gardening have come to be accepted, if not universally admired. Vegetable plots had some historical help via wartime Victory Gardens and the sharing of bountiful crops between neighbours. Statuary, sometimes viewed with disdain or chuckles, is allowed by virtue of the obvious expense of the installation. The presence of invasive

species is tolerated or even enjoyed as they conjure memories of overseas childhoods or visits to the local nursery where the plants are all-too-readily available. Shrubs trimmed into shapes that make their species almost unidentifiable are respected because of the work that went into their creation. Dominion over the space is the one unifying concept.

None of this is readily apparent in a successful “natural” garden. The idea is to make the space appear almost unaltered by human hands, a suggestion that is anathema to some urban dwellers. When locally obtained, ethically propagated, native species are used, the concept faces additional difficulties. These plants aren't usually found “landscape-sized” at the corner nursery. Sometimes, it may take years to obtain a particular species, the searcher thrilled with the discovery of a few seeds or tiny specimens. Growing to “fit” the design plan can take many more years. Gardening with natives can try the patience of even the most dedicated gardener...but the rewards are well worth the time and effort.

What can we do to heal the rift? The Internet Age has made gathering opinions from a wider audience easy. Each article that appears in online media coverage garners dozens or even hundreds of positive and negative comments. Surprisingly, whether the disputed garden is in Toronto, Ottawa, or Orange County, California, the observations are similar.

The basic arguments centre around the right to express ourselves freely, especially on our own property, versus the rights of others to impose standards. Freedom of expression is covered under the First Amendment to the US Constitution and under

Canada's Charter of Rights & Freedoms. The right to garden according to one's environmental beliefs has been upheld by Courts on both sides of the border.

Some feel that “natural” gardens must be hidden away in backyards to be acceptable, an idea echoed in the “Backyard Habitat” signs offered by several environmental associations. But, even backyard habitats have run afoul of municipal ordinances.

It's not about aesthetics. It is about misunderstandings, fear of change or of the unfamiliar, and perhaps a sense of righteousness. Some people legitimately see the elimination of lawn or the appearance of strange vegetation as neglect. Some people see bees or rabbits visiting a garden and assume that the garden is responsible for every errant raccoon or squirrel or wasp in the neighbourhood. Some people assume that their way of doing things is the only right and proper method and feel it their personal duty to retain the status quo. Some have learned their way around municipal ordinances to the extent that the City becomes an essential part of their arsenal based on complaints beyond a desire to change the neighbour's garden. Some people just need a chance to experience and understand nature, and given time and exposure to naturalistic landscapes may come to appreciate them...if they are allowed to co-exist.

It is incumbent upon municipalities and other levels of government to protect and celebrate these miniature re-creations of nature. Rather than encouraging neighbourhood discord by aiding specious claims against native plant gardens, government resources would be better spent in educating the public about the tremendous value of

these remarkable spaces.

“Ecosystems are critical to human well-being – to our health, our prosperity, our security, and to our social and cultural identity.”

UN Ecosystem Assessment 2005

Native plant gardens, like other gardens, are as varied as their owners. Native plant enthusiasts encompass an increasingly broad range of personalities, age groups and occupations from retirees to young urban professionals, botanists, lawyers, school children, and even municipal officials. (In 2009 Councillor Vicki Beard of Guelph, Ontario won a NANPS Garden Award.) Garden styles include mini re-creations of deciduous forests, prairies, meadows, wetlands and deserts. Some match conventional styles, some are more natural. Some are professionally designed. Some are not.

Like our gardens, our strength is in our diversity and, like our gardens, our numbers are growing. It does take time for the unusual to become the familiar, but there is no question that native plant gardens are essential to the health of our communities and our planet. Let's work together to encourage our elected officials to actively promote rather than discourage these vital components of our urban ecosystems.

Acceptance will come with exposure. Share your gardens by bringing them up front.

Deborah Dale, biologist and former President of the North American Native Plant Society, continues to try to share her views of nature with her neighbours in Scarborough, Ontario.

History of Bylaws

Weed laws were initially formulated to protect agricultural crops and livestock. Far more recently weed laws have entered urban areas in a

misguided attempt to protect property values. By regulating conformity these laws have resulted in the cookie-cutter suburbs that are so often ridiculed in

modern culture.

The following cases represent only a fraction of the thousands of native

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plant gardens that have been affected by inappropriate bylaws. For each case that receives media attention, hundreds more ecologically oriented gardens are harmed by out-moded ordinances. Despite the lengthy and fruitless history of litigation, ecological gardens continue to be attacked, needlessly costing governments and taxpayers time and money.

1930's Land Ethic Movement founded by **Aldo Leopold**, the "spiritual father of conservation", added to the voices of Henry Thoreau, John Muir and Grey Owl inspiring a shift to bring nature back into urban areas. The US Environmental Rights Act essentially gave this land ethic the force of law.

1960's Bayside, Wisconsin native plant garden of **Lorrie Otto** was cut by municipal bylaw officials. She sued the town and won compensation and the right to garden ecologically. Lorrie then went on to become a director of Wild Ones – one of the largest native plant groups in the United States.

1974 New Berlin WI vs. Donald Hagar. A landmark case in which the court recognized that native plant gardens are not fire hazards, the cause of windblown allergens or a cause of reduced property values. Moreover, the court determined that the ordinance in question violated the Equal Protection clause of the US Constitution since it did not apply to surrounding undeveloped lands. The court also found that the ordinance was counterproductive in that cutting the garden would encourage the growth of weeds and invasive flora.

1985 Stephen Kenney became one of the few gardeners "in the Thoreau tradition" to lose in court. Fortunately, a New York Appeals Court reduced his fine from \$30,000 to \$500. He was later forced to move to a more receptive community after he and his wife were repeatedly threatened by neighbours who vandalized his garden and shot birds in his meadow.

1988 Myrdene Anderson, Purdue University Anthropology professor, **West Lafayette, Indiana.** A petition was filed with 68 signatures asking the city to make Myrdene mow down her prairie grass and wildflower meadow to what they considered an acceptable height. By 1996, at a rate of \$500 for every day that she refused to mow, she was looking at a fine of over \$1 million. The City subsequently dropped the fine and Myrdene enjoys her garden today which she reports "continues to thrive intact, despite several waves of legal action by the municipality, fueled by conservative neighbours." Like countless other planet defenders, Myrdene found "the defense of my rights was costly in every respect, but I felt I had no option."

1991 Chicago Five: Jack Schmidling, Mike Regenfuss, Larry Clark, Debra Petro, Rich Hyerczyk all grew versions of native Illinois ecosystems on their properties. In order to end a continuous cycle of weed notices, they banded together in 1991 to file suit in Federal Court to have the Chicago Weed Ordinance declared unconstitutional. A key argument in their application was that the same city that persecuted them created similar projects on public lands. Today Chicago not only allows native plant gardening, it encourages it: the City offers an annual award to the best native landscape.

1992 Dr. Robin Hart, Assistant Director, Natural Resources Department for **Sarasota County, Florida** was ordered to mow her newly created wildlife garden within 20 days or the County would do it. Explaining the difference between perennial native species and the annual weeds listed under the bylaw to County staff allowed Dr. Hart to protect her garden.

1994 Evelyn Connor, Tulsa Oklahoma. An anonymous neighbor had phoned in a complaint about Evelyn's front yard, calling her wildflowers "weeds," and demanded that they be mowed. The City's

response was to charge the 82-year-old widow with violating Tulsa's weed ordinances. Faced with a horde of complaints from angry citizens and the media, the City withdrew its complaint and apologized to Evelyn.

1996 Sandy Bell vs. Toronto, Ontario

2001 Douglas Counter vs. Etobicoke (now amalgamated into Toronto)

2007 Deborah Dale vs. Toronto

2008 Miscreant gardens continued to be investigated by the City of Toronto. Seven separate cases appeared at a single Community Council meeting in September causing Councillors to demand a report from staff. That report has yet to be submitted and native plant gardeners continue to receive violation notices.

2008 Joel Robinson's native plant garden in **Orange County, California** had a challenge not faced by northern gardeners. In California, many natives go dormant during the long dry summers, but lacking a concealing snow cover they may appear dead to the uninitiated. Orange County demands a live ground cover in yards, despite the enormous consumption of water used to maintain a live lawn under such conditions. In August 2008 Joel was given a choice by County officials – pay a \$1,000 fine or spend six months in jail. Fortunately, his attorney was able to demonstrate that the plants were merely dormant and therefore not in contravention of bylaws. "This is a tricky gray area, and we haven't run into this area too much before," Assistant City Attorney Wayne Winthers said at the time. "We all have to figure it out." Unfortunately for Joel, his neighbours were not so understanding. After enduring years of nasty anonymous notes and surreptitious herbicide use, Joel has left his beloved garden and long-time home.

2009 Native plant gardeners Hank & Vera Jones, and Judith O'Grady in Ottawa, Ontario, were charged under Property Standards Bylaw 2005-207, which states that "heavy undergrowth

shall be eliminated from the yard so as to be consistent with the surrounding environment.” The gardens were highlighted by the media when that City attempted to have them mown down. Receiving national attention, the City reluctantly agreed to cede to the Charter and allow the gardens - promising to make appropriate amendments to their Property Standard bylaw. The fulfillment of that

promise has now been delayed until at least 2011 leaving native plant gardens across Canada's capital open to prosecution.

2010 Quan and Angelina Ha, Orange County, California. The couple tore out their water-hungry lawn and replaced it with a variety of native plants. Since the seedlings had not yet grown to cover a requisite 40% of the

yard, the county launched a lawsuit threatening the couple with heavy fines or jail time. Although the charges have now been withdrawn, the couple plan to petition the County to change the law to allow for more water-efficient gardens.

For more info on weeds and the issues, check out the April issue of The Local Scoop (thelocalscoop.org).

What a Native Plant Garden is NOT

Most of you reading this newsletter are already convinced of the beauty and value of native plants. What may come as a surprise to you, however, are some of the arguments that have been used against “natural” gardens. Municipal bylaws are enacted to enforce health and safety standards in protection of the public good. To that end, a variety of claims have been made to try to prove that native plant gardens pose some sort of hazard.

- **Fire Hazard** This claim was disproven in one of the earliest court cases defending a native plant garden, *New Berlin WI vs. Donald Hagar* 1976. United States Forest Service expert David Seaberg testified that a grass fire can sustain high heat for only 20 seconds. In order to ignite wood and sustain a fire potentially damaging to a home, a grass fire must burn within one metre (four feet) of the home for 7 1/2 minutes. Judge Gramling agreed, finding no rational basis for the claim that natural landscapes create a fire hazard.
- **Mosquito / chigger haven** Mosquitoes require standing water for at least 10 days to breed and complete their life cycle. Prairie and meadow areas tend to absorb water quickly and consequently are less likely than frequently watered lawns to contribute to the presence of mosquitoes. Similarly harvest mites (chiggers) can be found in any type of vegetation, including lawns. Although tiny, they are easily

brushed or washed away.

- **Allergenic** Expert testimony by Dr. Stanwyn Shetler of the National Museum of Natural History at the Smithsonian Institution in the 1976 case of *Board of Supervisors of Fairfax County, Virginia vs. Willis & Van Metre, Inc.* indicated that wind-borne pollen can travel hundreds of miles so that local weed laws have virtually no effect on reducing allergy-causing pollens. Toronto's Board of Health publications also state that Kentucky bluegrass (*Poa pratensis*), a popular non-native turf grass, is one of the worst known allergens. Goldenrod (*Solidago* spp.) is pollinated by insects, not wind, and so is not a culprit, despite its reputation.
- **Property Value Decimator** Urban access to nature increases property values 4-10% according to K. Wolf in *Urban forest values: Economic benefits of trees in cities*. Some of the wealthiest neighbourhoods in

Toronto, for example, have full front-yard gardens versus the turf lawns that characterize social housing complexes. Execution, not plant choice, seems to be the determining factor.

- **Health & Safety Hazard** Native



PHOTOGRAPH BY MYRDENE ANDERSON

“Wherever I live, I tend to encourage (sans effort) the Pacific Northwest to surround me. And trees provide privacy and screen noise and air-borne pollution. I don't like curtains!”
Myrdene Anderson

plant gardens are neither more nor less likely to pose a health and safety hazard than any other style of garden. This was not always the case. The use of biocides for cosmetic purposes is now prohibited in many municipalities because of the profound health impacts. Ecological gardens do not use biocides.

A presentation given by the City of Toronto lists three reasons to justify
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removal of a “natural garden”:

1. Threatens a person's health (i.e. causes hayfever, skin rash or is poisonous)
2. Threatens native plant communities, ravines, parks (i.e. invasive species)
3. Potential safety hazard (i.e. has thorns, blocks sight line of traffic etc.)



PHOTOGRAPH BY LARRY LAMB

Larry Lamb's garden in Kitchener: one of the earlier (if not the first) full backyard prairies in Canada.

Obviously any garden could potentially harbour such dangers, except that ecological gardeners do not grow invasive plants and – given the extra attention their gardens tend to receive – are usually very cognizant of growing thorny or poisonous plants near public areas, or creating sight line hazards. One must question whether the gardens of residents initiating complaints could pass such stringent scrutiny. A single stem of ragweed (*Ambrosia artemisiifolia*) has been used to condemn Toronto ecological gardens while periwinkle (*Vinca*

minor), an invasive though lovely groundcover, flourished next door.

- **Neglected, Easy or Lazy** Native gardens are managed landscapes. It takes time and effort to prepare weed-free planting locations and keep them free of weeds until the plants can establish their dominance, and to find ethical

sources of locally grown native species or to grow your own from ethically collected seed.

Taller vegetation tends to catch more wind-blown trash, which may make for a cleaner neighbourhood since you will be picking it from your garden. Mowing and watering are largely eliminated from full native plant gardens, but weeding and monitoring continues. Cutting back of old stems – sometimes later in the spring than our neighbours would prefer, in order to allow overwintering insects time to escape dormancy – and the occasional prescribed burn may be necessary.

The most difficult and most rewarding job of all, however, is educating your neighbours.

Children, especially, will be curious about what you are doing and likely to ask questions. Watching them explore your yard flower by flower is a great gift.

- **Ugly** To ecological gardeners, beauty extends far beyond the two-dimensional, photo-ready world seen by those who call native plant gardens ugly. Our yards are to be experienced with all five of our senses and in four dimensions - the fourth being time. The gardens change on a daily basis, unlike the more accepted gardens that are punctuated by the same lines of



PHOTOGRAPH BY DEBORAH DALE

Vicki Beard hosting a tour of her award-winning garden.

pink and white annuals throughout the season. Sometimes these changes come in the form of new insects attracted; sometimes whole sections of the garden come ablaze with colour overnight. Change becomes the one constant of our urban oases.

Their real beauty, however, lies in their utility. Native plant gardens have the power to fight climate change, one yard at a time. They provide green links of biodiversity and food to a host of wildlife. They conserve and clean water. They conserve power (pumping municipally treated water can be the single largest use of electricity in a City, and ecological gardeners seldom rely on power yard equipment). They clean the air. They prevent erosion. They repair soil and provide all the physical and psychological health benefits attributed to access to nature.

It's true that in a streetscape dominated by empty green lawns they may appear startlingly out of place. Viewed in the larger context of the world, however, the artificially maintained lawn is the landscape that doesn't belong.

Deborah Dale

IF OUT-OF-DATE, OUT-OF-TOUCH WEED BYLAWS CONCERN YOU, PLEASE JOIN NANPS PETITION AT WWW.NANPS.ORG "IN SUPPORT OF NATIVE PLANTS". ORIGINALLY INTENDED TO ADDRESS THE SITUATION IN TORONTO, THE PETITION WILL NOW BE USED WHEREVER MUNICIPAL OFFICIALS NEED A REMINDER THAT NATURE BELONGS EVERYWHERE.

WILDFLOWER 1985-2004: A Full and Worthy Life

by Jim Hodgins

1985 was a watershed year for native plant enthusiasts in the Greater Toronto Region. The traditional style of gardening began to be challenged by individuals and groups. For almost half a century the petrochemical industry which manufactures herbicides, insecticides, fungicides and synthetic fertilizers, in co-operation with the nursery industry which created and flogged anything which would sell such as plant freaks in size, colour, double flower parts, and out-of-region genetic stock, had a stranglehold on the minds and pocketbooks of North American gardeners. At this time almost every yard from Vancouver to Houston, Halifax to San Diego, had some cookie-cutter variation of lawn and production-line shrubs and annuals. From within this continental culture of garden sterility, arose a few gardeners, (who were often naturalists as well), a few seed companies, botanical gardens, and garden clubs that believed that Nature, especially native plants and wildlife, should be an integral part of all landscaping. The rallying cry was "Garden with Nature, not against Nature!"

From this climate of change, there arose like an overnight puffball, *WILDFLOWER* magazine and two months later, the Canadian Wildflower Society. Jim French of Unionville, Ontario and myself of Toronto, Ontario were the prime movers behind this new Canada-wide gardening movement.

Our goal was firstly to publish a popular quarterly magazine devoted to Canada's native flora. Its intended audience was primarily the neophyte native plant gardening community and the long-established field botany community. The two groups would be united by a magazine and a formal society.

The mandate of *WILDFLOWER*

was to promote Canada's native botany in all its glorious facets including art, photography, literature, horticulture and poetry. The style was to be highly visual, the content was intended to be meaty...no dumbing-down of articles to appear trendy. The content was designed to appeal to your average high school graduate. At first the articles were only Canadian content, but this soon expanded to North America.

To give us the visual edge in recruiting members for the Society and maximizing store sales, our intrepid Art Director, Zile Zichmanis, selected and commissioned original botanical art for all 78 issues of *WILDFLOWER* including the cover. For 20 years, hundreds of artists and poets were given first-time exposure in our pages.

Our skyrocketing membership and environmentally radical message encouraged numerous visionary writers to contribute to *WILDFLOWER*, including: Alice Munroe, David Suzuki, Dame Miriam Rothschild, Michael Pollan, Edward Abbey, Pierre Trudeau, Robert Bateman, Sally and Andy Wasowski, Sigurd Olsen, Gary Snyder, Lorrie Otto, Jack Sanders, and Professors Richard Howard and Peter Wild.

Much of *WILDFLOWER*'s high-voltage creative input came from our carefully chosen roster of 30 field editors from all corners of North America. They included professional writers, authors, landscape architects, ecologists, botanists, librarians, artists, gardeners, photographers, lawyers, teachers, historians, and biologists. These visionaries were a never-ending source of news, ideas, support, articles, and direction. Similar praise can be given our artists who supplied thousands of graphics and were never paid a cent, as we never had surplus funds beyond printing and mailing costs.

Our popularity and influence spread to diverse corners as our database revealed that seniors' homes, convents, monasteries, museums, nurseries, botanical gardens and prisons were among our peak-year 3000 subscribers.

Perhaps our success spawned the seeds of our demise? The Board of Directors of CWS and later NANPS, had to spend more and more time dealing with the basic and complex business issues of running a magazine and, therefore, less time on gardening and field botany planning. In the winter of 2000, the Board voted to cease publishing *WILDFLOWER* and to commence publishing the less-demanding *Blazing Star*, which has successfully carried on the mandate of the Society. At this juncture, I purchased *WILDFLOWER* from NANPS for \$2.00 CAN and published it myself for the next five years, when I decided it was time for me to move on to other projects. An extensive search for a new publisher yielded no takers and *WILDFLOWER* expired, having lead a full and worthy life.

Possibly the highest praise for *WILDFLOWER* came from the International Association for Plant Taxonomy, *TAXON* 49(3): 611., in which Professor Rudolf Schmid wrote, "*WILDFLOWER* is on the endangered serials list. To my knowledge only one library in California, the University of California at Davis, gets *WILDFLOWER*, and that is not only a pity but also part of the problem – lack of institutional support." As Professor Richard Howard remarked in 2000, "The magazine is too good to wither away. I sincerely hope that this engaging and fine 16-year-old serial does not become extinct and that it manages to avoid indexing in this column under 'serials deceased'."

Jim Hodgins was editor of WILDFLOWER for 20 years.

Florida Blazing Stars

by Craig Huegel

Florida is home to more species of blazing stars (*Liatris* spp.), or gayfeathers, than any other state or province in North America. Of the 37 distinct species currently recognized, 17 reside somewhere within our state's borders. We also have five endemic species (if you count the semi-tropical Garber's Blazing Star, *Liatris garberi*, which also occurs in the Bahamas), another North American record. The rare Georgia Blazing Star (*L. patens*) occurs in one Florida county, but is endemic really to its namesake state. When I first moved here more than 20 years ago, I was surprised by this great diversity, but as I've come to know Florida better I realize that the state has a wide diversity of habitat types that has given rise to the third greatest plant diversity of any state or province north of Mexico.

Since my childhood growing up on the edge of the tallgrass prairie, I have been fascinated by blazing stars. Their tall spires of rich purple flowers in the late summer and fall attract butterflies and other pollinators; watching them kept me fascinated for hours. Blazing stars were to my young mind the signature wildflower of that community. My wildflower gardens have always held blazing stars – as many species as I could adequately nurture.

Blazing stars are members of the aster family, one of the largest families of wildflowers. They are long-lived perennials that die back to the ground and over-winter each year as semi-woody "bulbs", correctly termed corms. In the spring, blazing stars produce a basal rosette of grass-like leaves and by summer the long thin flower stalk has emerged and elongated. Most species bloom in late September through early November though a very few may start earlier. This is true in Florida as it is elsewhere in North America.

Blazing stars bloom from the top down, a trait that has made them

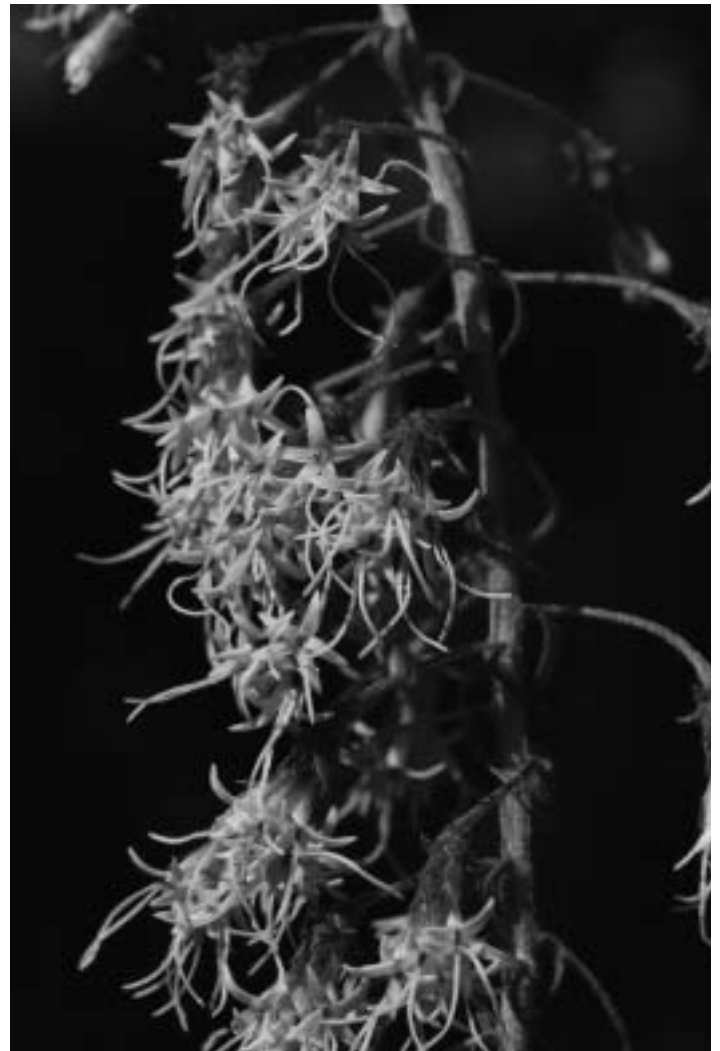
invaluable to the cut-flower trade. For months, their flower stalks grow upwards, but no flowering occurs until the last bud is formed. Then, what was last becomes the first to open.

As in so many other parts of North America, most of Florida's species are native to well-drained sandy soil. We have a few exceptions. The common Dense Blazing Star (*L. spicata*) tolerates very moist soil as well as drier conditions and can be seen nearly anywhere statewide. Garber's and Savannah Blazing Stars (*Liatris savannensis*) occur in the flat seasonally wet pinelands of the southern Florida Peninsula. These species, however, are extremely adaptable to most landscape settings. Our most difficult-to-grow species are those native to the deep well-drained soils of coastal dune and interior scrub ecosystems as these require almost pure sand and perfect drainage to survive.

In a sense, Florida has three distinct groups of blazing stars: those that are rather widely distributed throughout the eastern portion of the continent, but find their southern terminus here; those that are distinctly restricted to

the Southeastern Coastal Plain; and those that have essentially evolved in Florida. Each group contains some beautiful and interesting members.

Some of the most widely distributed species north of Florida are exceedingly rare in our state. With one exception, members of this group



PHOTOGRAPH BY CRAIG HUEGEL

A close-up of one of Florida's rare endemics, *Liatris gholsoni*, taken in the author's yard.

sneak across our border and persist in small pockets where the microclimate is a bit more northern. Species in this group include Rough Blazing Star (*L. aspera*), Scaly Blazing Star (*L. squarrosa*), and Appalachian Blazing Star (*L. squarrulosa*).

Rough Blazing Star is sometimes referred to as Tall Blazing Star, despite

the fact that it is one of the shortest blazing stars in Florida, rarely exceeding three feet (one metre) in height during its early fall blooming period. This species occurs in well-drained soils in open woods all across the eastern half of the U.S. and in Ontario, but is found in only four counties along the Georgia border and in a disjunct population near Gainesville, Florida. Scaly and Appalachian Blazing Stars are even less common here. The former occurs in four counties along our northern border with Alabama and Georgia, while the latter is present in only two. All three of these wonderful blazing stars are poorly known in Florida and none are currently being propagated by members of our native plant nursery organization, the Association of Florida Native Nurseries (AFNN).

The fourth species, Dense Blazing Star, occurs throughout most of eastern North America (including



Chapman's Blazing Star

Ontario and Quebec) and is common throughout Florida as well. In our state, Dense Blazing Star can be found at the upper edges of open marshes as well as in drier pinelands. It is an

especially robust species and may reach five feet (1.5 metres) tall during its late summer blooming season.

L. spicata produces large numbers of deep purple flowers along most of its flower stalk for up to three weeks – very showy! Dense blazing star is the most commonly propagated *Liatris* in Florida.

Most blazing stars in our flora – and those most commonly grown – fit well into the southeastern species category. They are common throughout much of the state and also occur in states immediately adjacent to us (Georgia and Alabama) and nearby (such as South Carolina, Mississippi, and Louisiana).

After Dense Blazing Star, our second most abundant species is Graceful Blazing Star (*Liatris gracilis*). It too is found nearly statewide, but is more restricted to better drained sites. Graceful Blazing Star may stand four

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PHOTOGRAPH BY CRAIG HUEGEL

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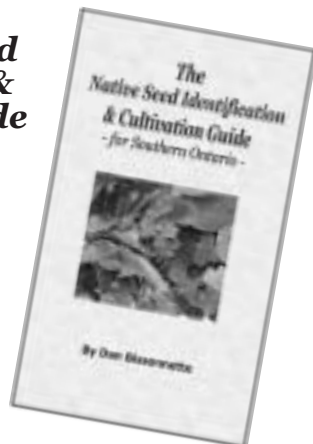
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to five feet tall. It produces huge numbers of very small flowers along the length of its flower stalk in early fall. Each bud is attached to the main stem by a distinct pedicle that is perhaps one-quarter inch (six millimetres) long. This arrangement makes the flower stem appear wide and a bit “fuzzy”.

Some of our other most popular species occur over much of the state, but are restricted to areas where the sandy soils are deep and well-drained.

are available to homeowners and others interested in adding wildflowers to their home landscape.

As mentioned earlier, Florida is home to a number of unique species found only here. A few of these are exceptionally beautiful, but most are not being propagated commercially and are poorly known by most of our native plant enthusiasts. For the most part, these species have exceedingly restricted ranges and occur only in habitats with well-drained sands and

central Florida, known as the Lake Wales Ridge. This part of Florida was once a small chain of islands when much of the state was below water and it contains many of our most unusual and rare plant species. Florida Blazing Star produces very little foliage and few flower heads, but each head is enormous (maybe 1.5 inches or four-tenths of a centimetre across) as is each flower itself. Gholson's Blazing Star (*Liatris gholsoni*) is restricted to the few counties that surround the Apalachicola River bluffs region of the state, the other area of Florida full of endemic species.

Other endemics include Godfrey's Blazing Star (*L. provincialis*) which is resident to only a few Panhandle counties in coastal scrub, and Savannah Blazing Star which was only recently described in a few counties in the west-central Peninsula.

With so many beautiful and interesting species, Florida is an ideal place to be a wildflower gardener in love with blazing stars. My wife, Alexa, and I have modified different parts of our landscape to accommodate as many species as possible. We have created a sandhill/scrub in our front yard by removing the top two feet (two-thirds of a metre) of typical Florida sandy soil and filling it with pure native sand so that we can grow the more habitat-sensitive species. We have also modified a portion of our side yard to hold more moisture so that we could grow those species best adapted to our savannahs. The other blazing stars do well in the soil we inherited. All told, we have collected 14 of our 17 species and now grow them in our home landscape. We continue to look for the others.

Craig Huegel, PhD, has been an active member of the Florida Native Plant Society for more than 20 years and has authored several books for them. His newest book on creating habitat for wildlife with Florida's native plants is scheduled for a summer 2010 release through the University of Florida Press.



PHOTOGRAPH BY CRAIG HUEGEL

Liatris elegans with a few *Liatris gracilis* taken in the author's home landscape

This limits their use in a home landscape to those areas with the right types of soil and full sun. If given less than these ideal conditions, their corms will rot. Members of this group include Elegant Blazing Star (*L. elegans*) with its thick robust flower stalk, light lavender sepals and white flowers, Chapman's Blazing Star (*L. chapmanii*) with its small, but thick flower stalk and exceptional deep lavender flowers, Scrub Blazing Star (*L. tenuifolia*) with its thin wand of a flower stalk and very late blooming season, and Clusterleaf Blazing Star (*L. laevigata*) with its nearly evergreen leaves. These species are being propagated by members of AFNN and

lots of sun. One exception is Garber's Blazing Star which occurs throughout the southern peninsula. This rather diminutive species grows in areas that can be quite dry during our traditionally droughty period in April and May and have shallow standing water during the summer rainy season. Garber's Blazing Star rarely stands taller than two feet (less than a metre) and blooms earlier than most species, usually in September. Unlike our other species, its corm is not bulb-like, but has numerous “fingers”.

Perhaps the most beautiful of our endemic species is Florida Blazing Star (*L. ohlingerae*). This amazing plant is found only within the central spine of

Artists Gallery

Kim Du

“As long as I can remember, I’ve loved to draw. It’s a cliché, but sometimes the truth is. I am a second-year animation student at Sheridan College in Toronto, and it

can become tedious, so sometimes I need to take time out to do something I believe in. And I believe that the environment is one of the noblest causes. What we do to our natural world has deeper-rooted effects than we could even imagine. So when my father, a scientist in

forestry, asked me if I wanted to be a part of NANPS, it was an easy answer. So even when I should be too busy, I do what’s important to me. And then use it as an excuse for my project that was due two weeks ago.”



Artists Gallery

Brigitte Granton

“My interest in art and nature began at an early age. As a young child, my life's ambition was to be an artist but my love of nature directed my education and I pursued a graduate degree and a career in biology.

My passion for gardening and nature spawned my interest in native plants. I have given up fighting drought and pests in my garden and now blend native plants with other low-maintenance, wildlife-attracting, drought-hardy plants. In the 15 years that I have lived in my current home in King City, Ontario, there has been a dramatic increase in the number of bird and animal species that I have attracted to my garden – until I adopted a golden retriever puppy. Gardening and birdwatching have never been the same since!”



Artists Gallery

Ron Hepworth

"My interest in plants and nature has been there since childhood. I remember a particular camping trip to the Bruce Peninsula when I came upon so many flowers I had never seen before, especially the orchids. From that time I sought to learn more about the different species – when did they bloom and where could they be found?

I have been recording first flowering dates of local species since the early 1970's and the photography has followed from this study. I established a home garden with a variety of species which I can observe from year to year. While first flowering dates for some species can vary by more than a month in early spring it is only after many years of observation that long term climate trends can be established."

Long-spurred Violet
(*Viola rostrata*)



Brooklyn Botanic Garden

by Uli Lorimer

A step through the gates of this 99-year-old ecological garden transports the visitor from the hustle of modern-day Brooklyn to an era long forgotten. Under the canopy of mature oak, maple and beech, birds twitter and flitter about among the shrubs and a lone squirrel picks his way through the wildflowers and ferns in search of last year's long-lost acorns. Perhaps the most magical quality of this garden is the feeling of isolation and peaceful tranquility it elicits, reminiscent of the forests of our ancestors.

Due in part to the vision of the Brooklyn Botanic Garden creators, the Native Flora Garden is a unique feature among American botanic gardens. Originally dubbed the Local Flora Section, this garden was the first "garden within the garden" to be laid out back in 1911, a year after Brooklyn Botanic Garden (BBG) was carved out of farmland and a coal ash dump. It is the showcase for the region's diverse and varied flora, containing over 500 taxa many of which were grown from seed collected in the wild by the garden's staff. The Native Flora Garden is not only a display garden but also a research collection for the New York Metropolitan Flora Project (NYMF), a groundbreaking study of urban flora.

NYMF has been the main focus of the garden's Science Department, for nearly 20 years now. Created by the late Dr. Steven Clemants, it was the first project to study local flora in an urban context and has served as a model for numerous other projects. The study area encompasses a 50-mile (80-kilometre) radius from Columbus Circle in Manhattan and the area has been divided in five-kilometre-square (approximately two square miles) voucher blocks. Garden taxonomists and botanists have visited each block several times over the past two decades to record and observe which species are growing, which have disappeared, and which have been introduced. All the data has been, and continues to be,

analyzed to show how the flora of the region has reacted to the loss of habitat, to the introduction of non-native and exotic invasive species, to human land use, and to changing soil and environmental factors.

The results are stunning, supporting many theories that our natives are under attack and that many rare species are already gone. For example, historical evidence shows that White Cedar Bogs (*Chamaecyparis thyoides*) once existed in parts of the New York City (NYC) borough of Queens and supported a varied flora including Slipper Orchids (*Cypripedium* sp.) and Sundews (*Drosera* sp.). The last vestiges of this unique habitat were recorded in the early 1900's and they have all since been extirpated. The

ornamental berries, used as Christmas decorations. Certainly, changes in land use – in addition to suppression of natural events like fires and floods – have played a huge role in the disappearance of these species.

More alarmingly however, this study shows the rapid spread and radiation of exotic invasives, many of which can be found in any city park or natural area and which are quickly engulfing less robust natives. Although the data paints a rather dim picture of the health and status of natives, not all is bad. The range of species like Pin Oak (*Quercus palustris*), Red Maple (*Acer rubrum*), and Virginia Creeper (*Parthenocissus quinquefolia*) are readily expanding over the study area in part due to the lack of regular fire



PHOTOGRAPH BY ULI LORIMER

*The Limestone Ledge displays plants which prefer alkaline soil conditions. Like a swath of sunshine, Heart-Leaved Groundsel (*Packera aurea*) drifts towards the path in front of the graceful arching stems of the Great Solomon's Seal (*Polygonum biflorum*). On top of the rock wall, from right to left are colonies of Northern Maiden Hair Fern (*Adiantum pedatum*) and Wild Ginger (*Asarum canadense*). In the far left corner and out of focus are the red lanterns of the Wild Columbine (*Aquilegia canadensis*).*

Dragon's Mouth Orchid (*Arethusa bulbosa*) was once common on the land where JFK Airport now sits. The American Bittersweet (*Celastrus scandens*), once abundant, was nearly collected into extinction for its

events. Several herbaceous species like White Snakeroot (*Ageratina altissima*, formerly *Eupatorium rugosum*) and Heart-leaved Aster (*Symphotrichum cordifolium*) are likewise on the move. We can also see how the range limits

of certain species are changing. Plants whose northern limit reaches into southern New Jersey are beginning to move northwards, perhaps due to milder winters and warmer summers. Conversely, several of our boreal species are contracting northwards and to higher elevations in response to the long-term changes in the region's climate.

The ecological arrangement of the Native Flora Garden reflects the different habitat types and associations found within a 100-mile (160-kilometre) radius of New York City. These habitats are determined by environmental factors such as topography, geology, moisture, drainage, and light. The Native Flora Garden features nine distinct plant communities which have been shaped and influenced by the factors previously mentioned. There are two geologic communities, the Limestone Ledge, which features plants adapted to alkaline soils and the Serpentine Rock area, featuring plants which grow in the nutrient-poor serpentine barrens found on Staten Island.

Limestone areas found in the region are located in mountains of northern New Jersey and into the Catskill Mountains of southern New York. The Limestone Ledge highlights a diverse collection of spring wildflowers and ferns native to these soil types. Bulblet Fern (*Cystopteris bulbifera*), Maidenhair Fern (*Adiantum pedatum*) and the rare Hart's Tongue Fern (*Phyllitis scolopendrium*) can be found here in addition to the dainty Rue Anemone (*Anemone thalictroides*) and the always bright and cheerful Heart-Leaved Groundsel (*Packera aureus*). Wild Columbine (*Aquilegia canadensis*) blooms among drifts of Wild Ginger (*Asarum canadense*) under the shade of an Eastern Hophornbeam (*Ostrya virginiana*).

The Serpentine Area gets its name from a peculiar type of rock that has a greenish colour due to high levels of magnesium, causing the soil conditions to be toxic to all but the hardiest of plants. Shooting Stars



PHOTOGRAPH BY ULI LORIMER

Looking across the Dry Meadow, early May finds the garden bursting with lush, new growth. The earliest of the Azaleas to flower, the Pink Shell Azalea (*Rhododendron vaseyi*) blooms amidst carpet of Confederate Violet (*Viola sororia* var. *priceana*) and Mayapples (*Podophyllum peltatum*) in the foreground. A nurse log from the oldest tree in the garden, a more-than-century-old Black Cherry (*Prunus serotina*) provides habitat and authenticity to the display.

(*Dodecatheon meadia*), Curly Heads (*Clematis ochroleuca*) and the Vervain Thoroughwort (*Eupatorium pilosum*) all thrive here. There are two meadow habitats each delineated by different moisture regimes. The Dry Meadow receives no supplemental water other than that which falls from the sky and it changes quite drastically as the season progresses. In early spring, the meadow is awash with Common and Confederate Violets (*Viola sororia* and *Viola sororia* var. *priceana*) and slowly gives way to large colonies of Wingstem (*Verbesina alternifolia*), Hollow Stem Joe Pye Weed (*Eupatorium fistulosum*) and various species of *Solidago* (goldenrods) and asters. Anchoring the center of the meadow is an old specimen of Sweet Azalea (*Rhododendron arborescens*) which infuses the summer air with its enticing fragrance. The edge of this planting is also home to the garden's oldest tree, a roughly 135-year-old Black Cherry (*Prunus serotina*).

The Wet Meadow is fed by a small stream which courses through the length of the entire garden and terminates in the Bog/Swamp area. Several hummocks of Tussock Sedge (*Carex stricta*) punctuate the southern

end of the meadow along with Smooth Alder (*Alnus serrulata*), Swamp Doghobble (*Eubotrys racemosa*, formerly *Leucothoe*), and Possumhaw (*Viburnum nudum*). The Bog/Swamp area is a blaze of color come summertime with large stands of Cardinal Flower (*Lobelia cardinalis*), Blue Lobelia (*Lobelia siphilitica*), Swamp Candles (*Lysimachia terrestris*), and Swamp Milkweed (*Asclepias incarnata*). These gorgeous flowers emerge among Rice Cut Grass (*Leersia oryzoides*) and stands of Ostrich Ferns (*Matteuccia struthiopteris*) and Cinnamon Ferns (*Osmunda cinnamomea*). The Bog and Swamp lie adjacent to the Kettle Pond, a low depression created during the last glacial period which features emergent aquatic life like Goldenclub (*Orontium aquaticum*) and Blue Flag Iris (*Iris versicolor*).

In the center of the Native Flora garden lies the Pine Barrens area. This unique habitat is found chiefly in southern New Jersey but also on Long Island. It is dominated by Pitch Pine (*Pinus rigida*) and Scrub Oaks (*Q. marilandica* & *Q. ilicifolia*). It is home to many federal and state

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endangered plants and as such provides ample opportunity for conservation and public education. One of our success stories involves such a plant, the Northern Coast Violet (*Viola brittoniana*). This diminutive charmer is only found in a few locations in southern New Jersey and on Long Island. Seeds and a handful of plants were collected by BBG staff a few years ago and the plant was introduced into the Native Flora Garden where it has begun to drop its seed and spread on its own!

The north end of the garden features an upland deciduous woodland with several species of oaks, American Beech (*Fagus grandifolia*), hickory (*Carya* spp.), walnut (*Juglans* spp.), maple (*Acer* spp.), and Sweetgum (*Liquidambar styraciflua*) providing a shady canopy for carpets of spring ephemerals such as Trout Lily (*Erythronium americanum*), White Wake Robin (*Trillium grandiflora*) and Yellow Toad Shade (*Trillium luteum*), Dutchman's Breeches (*Dicentra cucullaria*), Virginia Bluebells (*Mertensia virginica*), and Bloodroot (*Sanguinaria canadensis*). Lastly, the Border Mound, which provides a visual and auditory barrier to adjacent Flatbush Avenue, supports examples of the region's conifers with Eastern White Pine (*Pinus strobus*), Eastern Red Cedar (*Juniperus virginiana*), White Spruce (*Picea glauca*), and Atlantic White Cedar (*Thuja*



Bloodroot (Sanguinaria canadensis)

occidentalis) represented.

The flora of the New York Metropolitan Region has been shaped over millennia by successive periods of glaciation. The terminal moraine of the last ice age ran clear through the middle of Brooklyn and Long Island. The region also features the confluence of three major bioregions of the eastern United States. The Atlantic Coastal Plain, the Piedmont, and Catskill Highlands all converge surrounding the mouth of the Hudson River and New York Bay. The dynamics of these forces has had a profound impact on the composition of the region's flora. Although the changes occurred slowly over many thousands of years, some processes like plant succession can still be witnessed today. The Native Flora Garden is an excellent example of that process in action. Unlike many of today's garden installations, meant to look mature and grown together immediately, the original planners used small-caliper trees and shrubs, with the understanding that they

would mature and interact with each other as the years rolled past. The original garden featured wide open, sunny areas with mown grass paths. After nearly a century, the tree canopy has closed, the soil conditions have changed and the garden has become shaded. It is truly an honor and privilege to work in such a garden and to witness these changes on a daily basis.

I am frequently asked whether this is what Brooklyn looked like thousands of years ago and the answer is more complex than can be summed up in a few sentences. With habitat being lost at a furious pace, it becomes that much more important that we strive to preserve our natural heritage for future generations. I believe that this is the true power of a garden like the Native Flora. It is a living laboratory and classroom. Our visitors leave inspired and intrigued, fascinated and amazed by a world which lies just beyond their doorsteps. With over a million visitors annually, we can continue to spread this important message. So can you. I urge you to share your passions with others, teach the next generation to cherish the natural world, help preserve regional character for the future and continue to be champions of native plants!

Uli Lorimer is Curator of Native Flora at the Brooklyn Botanic Garden.

PHOTOGRAPH BY ULI LORIMER

Members' 25 Contributions for our 25th

Our 25th Anniversary is here and we invite you to submit your list of 25. Visit our website at www.nanps.org and record 25 things you have done to fulfill the NANPS mission statement whether they apply to the study, conservation, cultivation or restoration of North America's native flora...or all of the above.

Did you plant 25 wetland species in your garden or write 25 articles about native plants or talk to 25 people about habitat restoration?

Can you name 25 silver native plants?

Did you donate seeds of 25 native species to the NANPS Seed Exchange?

Did you donate \$25 to NANPS this year?

Send in your list today and watch for the results online.

Applying Ecological Restoration Guidelines to Naturalization

by *Graham Buck*

For me, it became a natural progression from gardening with native plants to naturalizing the two-hectare (five-acre) parcel of land where my passion for native plants first took root. However, like a lot of people



"Black locust's native range follows the Appalachian Mountains from Pennsylvania to Alabama, and a secondary population exists primarily in the Ozark Mountains." National Center for Conservation Science and Policy

engaged in naturalizing, I did not come from an ecological restoration background. No one told me there were "rules that should be followed". More than 10 years into the project I

learned the best way to do things. Luckily, I made the effort to find as much seed from local wild populations as I could right from the start.

However, I didn't know about the potential negative impacts associated with growing all the rare plants I had. As more people like me start down the

path of naturalizing, I think it is important to share some of the ideas I have gleaned from the field of ecological restoration.... so that at least some people avoid the mistakes I made.

Naturalizing, the art of using plants to imitate a natural ecosystem, is akin to ecological restoration. But ecological restoration has a more specific goal: to restore the indigenous ecosystem that occurred at that location.

Naturalization with native plants can have many purposes: aesthetics, biodiversity, wildlife habitat, soil and water conservation, to list a few. An example of a naturalization

project is planting a hedgerow in an agricultural field. The goal is not to create the climax hardwood forest that grew there, but to use trees and other plants to conserve soil and water, and

provide habitat for wildlife.

There are merits to both ecological restoration and naturalization, but the former is the preferred approach in places where there is a degraded but restorable system, or where the natural system has been destroyed but can be rebuilt, such as when the land is adjacent to an existing natural system. However, in a lot of instances naturalization is the best option. Sometimes the conditions required for supporting the original indigenous ecosystems have been so dramatically altered that it is no longer possible to recreate them. Sometimes it is not feasible to restore the original ecosystem because of a constraint created by the use of the land. An example is a transportation or utility corridor where a meadow might be suitable but reforestation of the land is not an option.

The first thing to consider is the definition of a native plant. A native plant is a plant that existed in a given state or province before the arrival of Europeans. It is important when selecting plants for naturalization that they all be native to the state or province – as with all things, there are many myths out there about what's native and what isn't. For example, Purple Coneflower (*Echinacea purpurea*), Osage Orange (*Maclura pomifera*) and Black Locust (*Robinia pseudoacacia*), although commonly referred to as natives by Ontario landscapers and garden centres, are all considered by ecologists as not native to this province.

Ecologists have developed an elaborate, but useful, way of tracking native and non-native plants. Every state and province in North America has a Conservation Data Centre (CDC). The job of CDC staff is to gather, solicit and maintain the data that is used to define the status of every plant that grows in the wild of that state or province. In Ontario it is the Natural Heritage Information Centre or NHIC (nhic.mnr.gov.on.ca/). All the data

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maintained by CDCs across North America is fed into NatureServe, which is the mother ship CDC. You can access a lot of good information through the local CDC or the NatureServe website (www.natureserve.org/explorer). An interesting aspect of NatureServe (so far not available at NHIC) is a range map for every plant.

The Evergreen Foundation also has an excellent native plant database (nativeplants.evergreen.ca/). This website has the advantage of providing many useful lists where plants are grouped under a theme. Another popular search is the United States Department of Agriculture plants database (plants.usda.gov/), but it does contain some errors which make it unreliable.

The term “indigenous plants” has an even narrower definition than native plants – it refers to the plants that are found within the project area. Using indigenous plants is the preferred option because they have the closest fit to the naturalization site’s climate and soils.

Resources to assist with finding plants indigenous to your area are now becoming available. Typically this information is organized by county. An example is Planting the Seed, available online at www.on.ec.gc.ca/wildlife/docs/doc-planting-prairie-e.html. This document contains lists of meadow and prairie plants organized by county. The not-for-profit organization Tallgrass Ontario is in the process of reviewing this information and will make their amended list available on their website or by request. Although the review process has been started, a lot more work is required to help people select indigenous plants.

Another important issue to consider is the planting of rare native plants. In both naturalizations and restorations, planting provincially rare is not recommended without checking to find out whether that plant is

indigenous to the immediate area. This is a mistake I made in my naturalization, and one that I see others making frequently. If you plant rare natives where they never occurred originally, this may result in the movement of plants to new areas of Ontario, unnaturally expanding the range of the plant. The CDC and/or NatureServe are also excellent resources for determining the rarity of a plant. This information is listed by S rank, with S5 plants as the least rare and S1 the rarest. Any plant that is S3, S2 or S1 is considered provincially rare. On the NatureServe maps these codes correspond to different colours.

In Ontario under the Endangered Species Act (ESA), and perhaps in other jurisdictions as well, it is now illegal to buy, sell, possess, transport, harm or kill any plant listed as Threatened or Endangered. (Under special circumstances plant propagators and people engaged in the planting of the species for recovery can receive an authorization from the Minister of Natural Resources to allow these activities to continue.) On the Threatened/Endangered list are plants such as Hop Tree (*Ptelea trifoliata*), Flowering Dogwood (*Cornus florida*), American Chestnut (*Castanea dentata*), Dense Blazingstar (*Liatris spicata*), Wood Poppy (*Stylophorum diphyllum*), White Wood Aster (*Eurybia divaricata*, formerly *Aster divaricatus*) and others. For a complete list of species at risk in Ontario and the new ESA, visit: mnr.gov.on.ca/en/Business/Species/2CcolumnSubPage/276722.html.

I have also struggled with the issue of planting regionally rare plants. Waterloo Region, where my nursery is located, has now produced a comprehensive list of regionally rare plants. Even if a plant is not provincially rare, it can still be regionally rare and introducing it to new parts of the county is akin to introducing provincially rare plants to new areas of the province - you are doing more harm than good. Some

regions do not yet have a comprehensive plant list but tracking of plants regionally is becoming more common, and we hope that every municipality will have a list soon.

Another thing to consider in a naturalization project is to buy locally sourced indigenous plants and seeds. Using locally adapted plants and seeds will probably result in better naturalization because the plants are more likely to survive if they are suited to local conditions. It also reduces handling and transport costs and helps support local businesses. Introducing native plants from distant areas is not recommended because it can bring new genes into the local populations, whereas using local stock maintains natural plant distributions and gene pools. Since patterns of genetic variation change throughout a plant distribution, by moving plants we upset these patterns. Using locally sourced plants will be of benefit to any site, including backyards, but especially in naturalization projects close to wild populations.

Much of the landscape in northeastern North America has been altered by humans. Naturalization – along with restoration – plays an important part in maintaining the remaining biodiversity, whether you are naturalizing a park or roadside or creating a new wetland, prairie or meadow. Whatever the case, the guidelines developed for ecological restoration can increase the success of naturalization projects and have a tremendous positive impact on biodiversity.

Graham Buck is passionate about the preservation of native landscapes and their recovery through ecological restoration and naturalization. To this end he owns and operates Nith River Native Plants, in New Hamburg, Ontario, a company that specializes in native plants, seeds and ecological restoration. Over 15 years he has assembled a large collection of plants from southwestern Ontario.

OHIO'S INVISIBLE PRAIRIES

by Perry Peskin

**To make a prairie it takes a clover
and one bee –
One clover and a bee,
And reverie.
The reverie alone will do
If bees are few.**

Emily Dickinson might have been writing about the state of present-day prairies in Ohio when she penned this observation. Lately it takes not only reverie in visualizing the huge tracts of prairie now turned into farmland; it also takes a great deal of imagination to recognize a prairie remnant even when standing within it.

In the nineteenth century the prairie plants of Ohio, like those of some other Midwestern states, retreated to unlikely-looking refuges, where they still survive as holdover species from the past and as colonizer species for a dubious future. In effect, like tough guerilla fighters hiding out from an oppressive government, they have chosen an “invisible” type of habitat – unusable parcels of land, abandoned fields, railroad rights of way, old cemeteries, and even islands of rocky soil on the tops of cliffs. To determine if sites, far-flung as well as more obvious, were prairie, the compilers of the 1978 Ohio Biological Survey looked to eight typical prairie indicator species. To qualify as prairie, an area needed to have at least four of the eight indicator species. Three of the indicators are grasses – Little Bluestem (*Schizachyrium scoparium*), Big Bluestem or Turkeyfoot (*Andropogon gerardii*), and Indian Grass (*Sorghastrum nutans*) – and five composites – Prairie Dock (*Silphium terebinthinaceum*), Gray-headed Coneflower (*Ratibida pinnata*), Saw-toothed Sunflower (*Helianthus grosseserratus*), Purple Coneflower (*Echinacea purpurea*), and Blazing Star (*Liatris* spp.).

Exactly what sort of habitat is congenial to prairie plants? In Ohio it must be a grassland where trees and shrubs cannot gain a foothold and

become dominant, shading out the herbaceous plants or using up precious ground water. Thousands of years after the retreat of the last glacier, during the dry, warm climatic era called the Xerothermic Period (from about 6,000 to 2,000 B.C.), conditions favored the expansion of

struggle between the two habitats ended when the settlers removed both prairie and forest for farmland. Until that time about 300 prairies took up 1,000 square miles (2,600 square kilometres) of Ohio's territory, or 2.5 percent of its land area.

Visits to Ohio prairies reveal the



PHOTOGRAPH BY PERRY PESKIN

Sullivan's Milkweed

prairie habitat at the expense of forests. Many of Ohio's prairie plants may have entered then from centers of distribution in the Midwest.

As the climate became wetter and colder, up to the present day, the forests started to regain their lost territory except in a few places where shallow, soggy, rocky, or sandy soil limited the growth of trees. The slow swing back to forest habitat was complicated by fires, either set by lightning or by Ohio's Indians, seeking to maintain prairies as hunting areas. In fact, many authorities in plant ecology maintain that all the tallgrass prairies east of the Mississippi survived mainly through fire. In the nineteenth century the see-saw

impressive variety this habitat may assume, given the differences in groundwater, soil, elevation, and human disturbance. What at first glance looks like a vacant lot or a weedy wasteland often turns out to be a prairie community of great complexity, with plants and animals markedly different from those of the usual disturbed areas. Take Irwin Prairie in northwestern Ohio, for example. One of the wettest of Ohio prairies, its high water table supports not only the usual prairie species but also a remarkable meadow community dominated by Twig Rush (*Cladium mariscoides*), a close relative of the Saw-grass of the South

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(*C. jamaicense*). These plants are neither rushes nor grasses, but sedges. When the wind ripples across the acres of Twig Rush at Irwin Prairie, the scene looks vaguely familiar. Then it hits the viewer: This is a northern version of the Florida Everglades, with Twig Rush replacing Saw-grass, and groves of oaks replacing hummocks of palmettos.

Late summer and fall are the best times to view prairie plants. "The later, the taller" might be a rule of thumb in prairie ecology because the flowering plants have to keep their heads up above the maturing prairie grasses; otherwise, they may be skipped by the

(three metres) off the ground, but it breaks the rule about prairie plants having narrow, compound, or finely dissected leaves. Rivaling those of Skunk Cabbage (*Symplocarpus foetidus*) in size and shape, the leaves of Prairie Dock establish a beachhead early in summer while its grass rivals are relatively small and weak. This strategy, like that of dandelions taking hold in a lawn, gives it an advantage in obtaining living space, which it never loses. In a prairie, as in every natural community, the beauty of form and color masks the fierce struggle for existence.

At the other end of the size scale,

better adapted to grasslands than any others of its genus. However, it is declining in numbers throughout its range, and has been placed on the national endangered-species list. Apparently the wet prairie habitat where it feels most at home has become too desirable for farmland in recent years and is being cleared and drained. Formerly found in nine Ohio counties, the orchid is now confined to four.

The scarcity of prairie sites in the central part of Ohio is probably due to the high value of agricultural land. In the rich Darby Plains west of Columbus, for example, the prairies

have undergone transformations into cemeteries and railroad rights of way. Bigelow Cemetery is a case in point. Used by farm families of British stock and Episcopal persuasion, the cemetery fell into disuse when the old families died off or moved away. After German Lutherans moved into the township and chose another site for their burial ground, Bigelow Cemetery became overgrown with weeds for lack of proper maintenance. However, the weeds were almost all native prairie plants seeking living space. Now, with state protection, Bigelow Cemetery is being maintained as a historical site without

harming the native flora. Walking through the cemetery gate in mid-August, the visitor is greeted by a large stand of the Royal Catchfly (*Silene regia*), fire-engine red in colour and endangered in three U.S. states. This tall relative of the carnation is a southern species that prefers prairies and dry woods. Bigelow Cemetery is



PHOTOGRAPH BY PERRY PESKIN

Royal Catchfly

insects, their chief pollinators.

The giant composite, Prairie Dock, is a good example of a non-grassy herbaceous plant, also known as a forb, which has evolved to compete with the tallest prairie grasses, even Big Bluestem, on their own terms. Not only does it lift its large, yellow, sunflower-like blossoms up to 10 feet

the Small White Lady's-slipper (*Cypripedium candidum*), which five U.S. states have declared endangered within their borders, also makes the prairie environment its home. Since it blooms early, it follows the rule of matching height to season by growing only six to 12 inches (15-30 centimetres) high. This species is

apparently the northernmost point of its range. Here it stands cheek to jowl with Purple Coneflower and rare prairie grasses and legumes.

A few miles away in the next county, utility corporations have proven that they too can be enlightened custodians of prairie plants. Here in a long narrow strip between cornfields, prairie species have taken refuge in the only land available to them – a railroad right of way. Here is another location of Royal Catchfly as well as the single Ohio station of Wild Pea (*Lathyrus venosus*). Endangered in three U.S. states, this purple-flowered sweet-pea prefers a dry habitat. After the railroad abandoned the right of way, a utility company took title and strung power lines, with an understanding with the state that no disturbance, such as mowing or spraying with herbicides, would be permitted. Through such enlightened land management, 39 prairie species are being protected, including six endangered in Ohio.

No description of Ohio prairies would be complete without mentioning the hillside or “hanging” prairies of Adams County. This rural county on the Ohio River east of Cincinnati is a sort of physiographical crossroads where portions of the Appalachian Plateau, the blue-grass region, and the central plains meet. Long studied by the Ohio botanist Dr. E. Lucy Braun, Adams County has proven to be a natural botanical garden, where, in the hilliest terrain of the state, different forest and prairie habitats have attracted a varied assortment of plants from the Deep South, the Appalachians, the Midwest, and the arid Southwest, all mingling with a native Ohio River Basin group.

One of Adams County's most inaccessible prairies, Buzzardroost Rock, sits on a steep cliffside overlooking a wide valley in a setting reminiscent of the Skyline Drive of Virginia. Beginning incongruously in a farmyard, the path climbs steeply and enters a thick woodland. At the summit, where the trees thin out to reveal a panorama of farmland and

low hills, stands Buzzardroost Rock, a treeless cliff separated by a four-foot (1.2-metre) crevice from the rest of the hilltop. True to its name, the rock attracts, as its only wildlife, ominous, low-flying Turkey Vultures.

From Buzzardroost Rock in the south to Irwin Prairie in the north, Ohio is preserving its prairie remnants. Like a natural greenhouse, they may serve to restock depleted grasslands in other parts of the Midwest.

Currently there has been much discussion about using prairie grasses and forbs to tie down the soil in and around superhighways. Adaptable to dry soil, these plants will not brown out in the summer and will provide an eye-pleasing spectacle in the fall. Unless we want a one-crop flora, such as the imported crown-vetch, lining our median strips and road shoulders, mile after monotonous mile, use of the state's native prairie plants makes a great deal of sense.

Equally or more importantly the psychological effects of prairies cannot be ignored. By saving what is left of Ohio's prairie flora, perhaps our most handsome and eye-catching wild plants, Ohio's protective agencies are contributing to the variety and the spirit-lifting qualities of the environment. Ohio's invisible prairies that have been preserved for posterity are adding a new twist to Emily



PHOTOGRAPH BY PERRY PESKIN

View of Bigelow Cemetery, near Columbus, Ohio, with prairie plants forming a colourful backdrop to the tombstones in front.

Dickinson's observations:

***To make a prairie it takes space
That corn and soybeans must not
replace.
Reverence for nature's plan will do
If spaces are few.***

*Perry Peskin is an avid birder, amateur botanist and retired English teacher who has written on native plants for Wildflower, the Cleveland Plain Dealer, Explorer Magazine and newsletters of local native plant societies. His material comes from his botanical journeys that have spanned the globe and include his own illuminating photos. More recently Peskin has co-published a book of his work entitled **The Search for Lost Habitats** (Wilmington, OH: Orange-Frazer, 2007). This concentrates on the Upper Great Lakes region most dear to Peskin, a longtime Cleveland resident.*

A Small Native Pond Planting

by Paul Sakren

Where I grew up in northwestern Connecticut, we had a small pond dug out on our farm. It was fed by natural springs and went through all the seasonal changes of a wild waterhole, becoming overgrown over the years to become a teeming jungle wetland. That was my only intimate experience with ponds until 2005 when our landscape gardening firm took over a large project which included a small pond.

More precisely, this small pond is a catch basin for most of the runoff from the property and serves as a bioretention system to filter out sediment and impurities before it drains into the adjacent lake. The previous architect had installed a large number of native shrubs around the pond in tightly packed clusters of the same species, with a number of Sweetbay Magnolias (*Magnolia virginiana*) scattered around the perimeter in groups of two or three. We were not happy with much of the planting because not only did it not look natural, it was also aesthetically unpleasing and unfinished-looking. We began by moving some of the large magnolias (they were up to 10 feet high or three metres) in late spring before they leafed out. We wanted to create more of a grove along one side of the pond. Then we moved other shrubs that were not working in their positions.

Next, we had to address a problem with erosion of soil and mulch which heavy downpours would carry into the pond. I did a thorough riparian buffer using plugs of native material such as *Carex lurida* (Sallow Sedge), *C. crinita* (Fringed Sedge), *C. comosa* (Bristly Sedge), *Juncus effusus* (Common Rush), *Eleocharis obtusa* (Blunt Spikerush), *Chasmanthium latifolium* (Northern Sea Oats), and *Schizachyrium scoparium* (Little Bluestem).

A third problem presented by the site was an extensive planting of Yellow Flag Iris (*Iris pseudacorus*), a

banned alien species that spreads rapidly by seed. We removed the yellow flags and replaced them with native Blue Flag Iris (*Iris versicolor*). Then I started adding a variety of native perennials to address the lack of a herbaceous layer in the landscaping. These included wetland plants like *Chelone lyonii* (Pink Turtlehead), *Filipendula rubra venusta* (Queen of the Prairie), *Lobelia siphilitica* and *L. cardinalis* (Great Blue Lobelia and Cardinal Flower), *Scutellaria lateriflora* (Mad Dog Scullcap), *Osmunda regalis* (Royal Fern), *Asclepias incarnata* (Swamp Milkweed), *Liatris spicata* (Dense Blazing Star), *Mimulus ringens* (Alleghany Monkeyflower), *Verbena hastata* (Blue Vervain), *Camassia leichtlinii* (Indian Hyacinth), *Vernonia novaeboracensis* (New York Ironweed) and upland plants like *Asclepias tuberosa* (Butterflyweed), *Baptisia*

have done well on the raised sloping ground surrounding the pond, as it contains a lot of sandy material.

Once the buffer planting was growing, I had to address a severe filamentous algae problem and the issue of murkiness. First, I had to adjust the pH of the water by adding gypsum to make it more neutral, since it was on the acidic side. I used small barley bales at the points where the drains fed into the pond. I made these up by breaking up large bales of barley straw, fluffing up the straw so that it was loose, packing it into mesh bags or rolling it in plastic mesh or chicken wire, and weighting them down with stones or bricks to keep them just below the water's surface. These would be replaced every couple of months. I also began using a product called Pond Saver to deal with the murkiness in the water. All of these measures



PHOTOGRAPH BY PAUL SAKREN

This planting shows Butterfly Weed (*Asclepias tuberosa*), Swamp Azalea (*Rhododendron viscosum*) and Fringed Sedge (*Carex crinita*) on the pond's bank under a *Magnolia virginiana* with water lilies (*Nymphaea* spp.), Pickerelweed (*Pontederia cordata*) and Bur Reed (*Sparganium americanum*) in the background behind a large stone.

australis (Wild Blue Indigo), *Lupinus perennis* (Wild Lupine), Northern Sea Oats and *Salvia azurea grandiflora* (Wild Blue Sage). The upland plants

worked and in the second year there was no murkiness and a minimum of algae to control.

Part of my strategy in dealing with

the algae included planting hardy water lilies (*Nymphaea* spp. hybrids) around the edges of the pond. This was a bit problematic, first of all because the water level could vary dramatically between wet and dry seasons, from five feet (1.5 metres) deep in the centre in early summer to barely two feet (.5 metre) during late-summer droughts. This required me to plant the lilies in two-gallon (7.5 litre) squat pots and move them periodically as the level changed.

Secondly, I found that deer loved to browse the shallow water munching on the water lily leaves and buds, as well as on the Pickerelweed (*Pontederia cordata*) that grew all around the water's edge. I resolved this problem without having to use repellents in the second year by retaining much of the luxuriant growth of Water Purslane (*Ludwigia palustris*), Vasey's Pondweed (*Potamogeton vaseyi*, a threatened species), and other plants which grew in the shallow areas. The deer apparently don't like to walk where there might be risky footing or they can't clearly see the bottom.

In the first year I put in both hardy and tropical water lilies to see how they would do, but the deer munching kept the tropicals from performing well. The next spring only the hardy ones emerged with flowers of creamy yellow, peachy pink and red. I removed them from their pots at this point and let them root in the pond muck. By the third year, without the deer damage, they had begun to colonize a large portion of the pond and will no doubt spread further in coming years. Their foliage blocks



PHOTOGRAPH BY PAUL SKREIN

Great Blue Lobelia (Lobelia siphilitica) and Pink Turtlehead (Chelone lyonii) with Swamp Azalea (Rhododendron viscosum) in the foreground. You can almost make out some of the Swamp Milkweed (Asclepias incarnata) just behind the turtlehead. In the distance: Joe Pye Weed.

sunlight from reaching the pond bottom. Sunlight stimulates algae to sprout which it starts to do earlier in the season, getting ahead of the lilies. A certain amount of manual labour is necessary to keep it in check.

The original landscaping of the pond included groupings of White Swamp Azalea (*Rhododendron viscosum*), Buttonbush (*Cephalanthus occidentalis*), Highbush Blueberry (*Vaccinium corymbosum*), Crampbark (*Viburnum trilobum*), Spicebush (*Lindera benzoin*), Northern Bayberry (*Myrica pensylvanica*), Summersweet (*Clethra alnifolia*), Joe Pye Weed (*Eupatorium maculatum*), and the magnolias mentioned. The majority of these have grown at a moderate rate since I began feeding them the year we took over. The previous landscaper and architect didn't believe in initial feeding and good soil preparation based on some contemporary landscape architecture philosophy, and the plants had begun to deteriorate when we came on the scene. Since it is not a good idea to use much, if any,

phosphorus near bodies of water (it causes algae blooms among other things), and not good to use any quick-release fertilizer at all in such places, I used a low-phosphorus, multi-nutrient, slow-release organic mixture in the spring with a light topdressing of Osmocote® (it also breaks down slowly) in the summer. By the third year the plants were growing so well I stopped feeding them. Their root systems were now able to glean nutrients from the surrounding soil and water table.

We created a mowed path around the circumference of the pond and added a screen of native Yellowstem Dogwoods (*Cornus sericea flaviramea*) at one end. As all the plantings matured and the giant Joe Pye Weed spread, little alleyways formed which gave an architectural feel to the space. The walls of Summersweet, Buttonbush, Spicebush, bayberry, Crampbark, Swamp Azalea, blueberry, magnolia, Yellowstem Dogwood, Joe Pye and ironweed created a diversity

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of native hedges thick with branches, foliage, flowers and fruits for a multitude of native creatures to use as habitat and food.

The pond life is ruled by huge bullfrogs which croak in deep voices and breed continuously, creating enormous multitudes of pollywogs in all sizes that wiggle through the pondweed. There are minnows up to five or six inches (12-15 centimetres) long who dart among the Vasey's pondweed as if it were an underwater forest. In the second year, when I had worked the pond to a balanced ecological condition, a painted turtle moved in and bore some progeny the following year. Then a small water snake made his appearance, but was soon found strangled in the netting used to cover the blueberries to protect them from the birds.

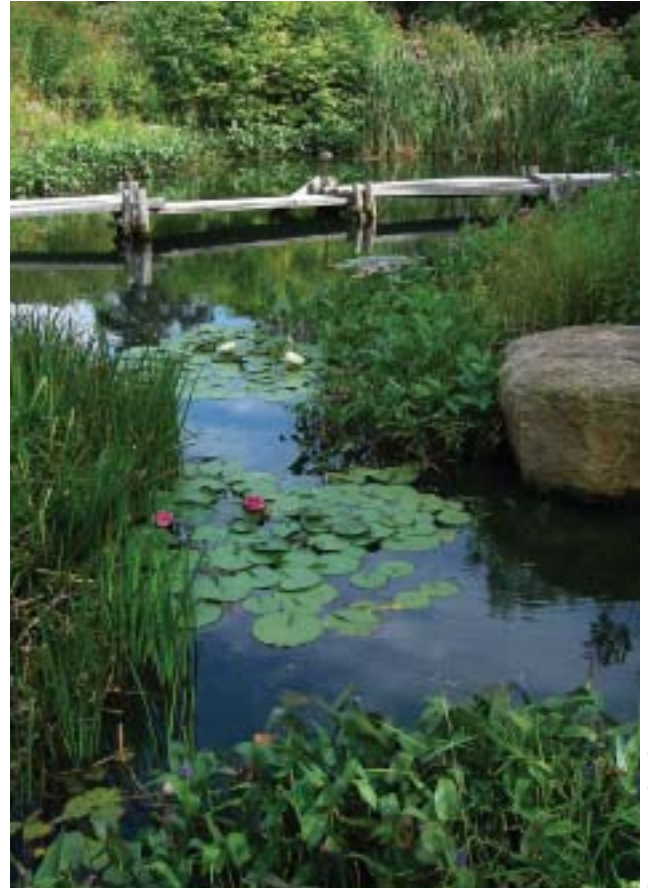
Many songbird species frequent the pond area, because it is also surrounded by a wildflower meadow of native plantings like *Echinacea purpurea* (Purple Coneflower), *Rudbeckia hirta* (Black-eyed Susan), *Penstemon digitalis* (Foxglove Beardtongue), a variety of aster and goldenrod (*Solidago*) species, and our usual alien weeds. This meadow is in turn surrounded by trees and woodland edges for nesting. Dragonflies are numerous on the pond in summer, hummingbirds hover around a variety of nectar plants from azaleas to lobelias, a Red-tailed Hawk surveys the site from overhead on warm, still days, and a pair of mallards has been known to stop by for visits in spring.

There is a rustic, almost Japanese bridge that crosses the pond, consisting of thick oak planks set on cedar crossbraces and posts. It allows you to look down into the deeper part of the pond and check out the action. The fish love to huddle under the bridge during very hot days. It also provides a wonderful aspect from which to appreciate the water lilies and the seasonal blooms appearing at different spots around the pond. Maintenance is easier from the bridge

as well. I made my own tool for cleaning, consisting of a spring rake attached to an eight-foot (2.5 metre) length of metal conduit which gives me a reach of almost 15 feet (4.5 metres).

The pond is about 25 by 60 feet (7.5 metres by 18 metres), an irregular oval or kidney shape, and has numerous large rocks set around the perimeter and one in the pond itself. These rocks are a great place to sit and enjoy the pond's complexity and varied vistas, and contemplate creating another native pond garden...

Paul Sakren is a landscape gardener, photographer and botanical herbalist.



PHOTOGRAPH BY PAUL SAKREN

A closer view of the water lilies, Pickerelweed and Bur Reed.

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