



Native Plant to Know

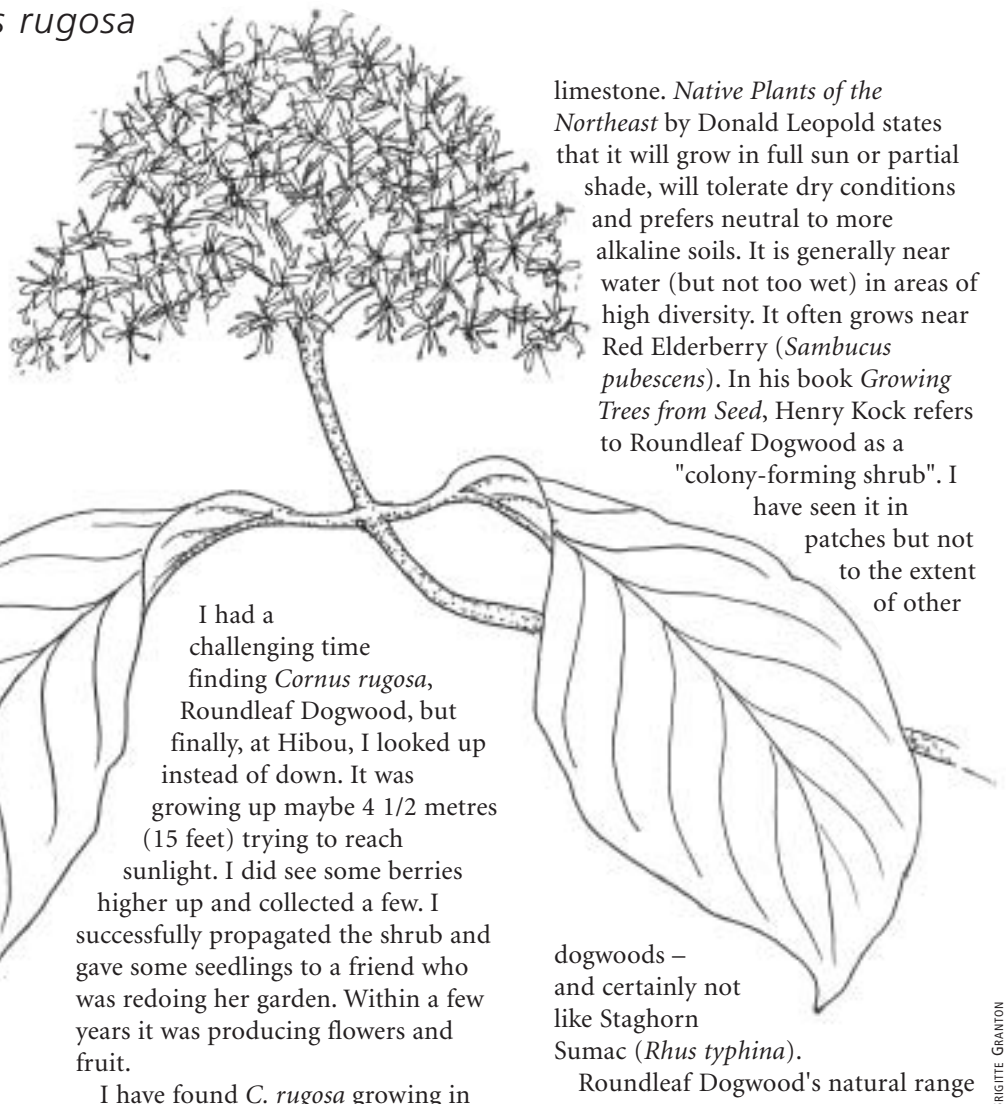
Roundleaf Dogwood

Cornus rugosa

by Bill Moses

About six years ago, I took up the hobby of propagating woody plants from seed. With references in hand I set about methodically locating the species and collecting seeds. I was partial to shrubs because the seeds were more abundant and easier to gather, and, when propagated, the plants reached maturity in just a few years. As a part of this venture I tackled the dogwoods (*Cornus* spp.). There were five woody ones near Owen Sound, Ontario where I live.

The Red Osier Dogwood (*C. sericea*) and Alternate-leaf Dogwood (*C. alternifolia*) were abundant on my own property. The Hibou Conservation Area on the east shore of Owen Sound Bay coughed up Silky Dogwood or *C. obliqua* (look for blue berries) and Bunchberry (*Cornus canadensis*), the tiny, ground-hugging plant noted for its bunches of scarlet berries.



I had a challenging time finding *Cornus rugosa*, Roundleaf Dogwood, but finally, at Hibou, I looked up instead of down. It was growing up maybe 4 1/2 metres (15 feet) trying to reach sunlight. I did see some berries higher up and collected a few. I successfully propagated the shrub and gave some seedlings to a friend who was redoing her garden. Within a few years it was producing flowers and fruit.

I have found *C. rugosa* growing in open or partially shaded areas with good (not too dry) soil and on relatively shallow soils underlaid with

limestone. *Native Plants of the Northeast* by Donald Leopold states that it will grow in full sun or partial shade, will tolerate dry conditions and prefers neutral to more alkaline soils. It is generally near water (but not too wet) in areas of high diversity. It often grows near Red Elderberry (*Sambucus pubescens*). In his book *Growing Trees from Seed*, Henry Kock refers to Roundleaf Dogwood as a

"colony-forming shrub". I have seen it in patches but not to the extent of other

dogwoods – and certainly not like Staghorn Sumac (*Rhus typhina*).

Roundleaf Dogwood's natural range extends from Manitoba to Prince Edward Island and south to the mountains of Virginia. It blooms in

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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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The Dilemma of Dealing with Invasive Plant Species

While Toronto's Urban Forestry Department discourages planting Norway Maples (*Acer platanoides*), a local nursery's online catalog features six varieties of this invasive alien tree! Commercial nurseries regularly sell invasive plants including Goutweed (*Aegopodium podagraria*) and Periwinkle (*Vinca minor*). Accidental introductions such as Dog-strangling Vine (*Cynanchum nigrum*) and Giant Hogweed (*Heracleum mantegazzianum*) continue to aggressively outcompete native plant treasures.

At **Shining Tree Woods**, NANPS 20-hectare (50-acre) Carolinian nature reserve famous for its Cucumber Magnolias (*Magnolia acuminata*, a species at risk in Canada), we are facing the nightmare of dealing with the invasive Garlic Mustard (*Alliaria petiolata*).

Garlic Mustard releases long-living glucosinolate toxins into the soil which interfere chemically with the mycorrhizal associations plants have developed with fungi, disrupting normal plant/fungus symbiosis. This has a profound negative impact on most native forest plants, potentially destroying entire ecosystems.

Most methods of control are extremely labour-intensive and we need the assistance of our members in 2010 to push back the invader before it takes hold of our beloved Shining Tree Woods. We have organized an **invasive species removal outing for March 27th** and we hope you will join us. It's a

wonderful opportunity to visit this glorious woodland and see for yourself why we're so keen to preserve it!

Within the Greater Toronto Area, NANPS has organized an invasive species removal workshop at **Charlie Clifford Memorial Park in Markham** on May 15th. This secluded ravine woodland contains an impressive array of native species for a suburban park...but it is being overrun by Garlic Mustard, Goutweed and Periwinkle. Many hands will help restore this beautiful area. Refreshments provided for hungry and thirsty workers at these important outings! Please let us know if you plan to join us: volunteer@nanps.org.

NOTE: Since weed seeds can be carried on the footwear and clothing, we ask that anyone going on these excursions or visiting wilderness areas in general take a precaution to protect the native vegetation. Take along a second pair of shoes or boots that have been scrubbed clean with water and the upper surfaces brushed off. Check your clothing for seeds that have hitched a ride as well. We thank you for caring for our wild spaces.

We welcome input and offers to help from our membership. Please contact Gerry Stephenson at volunteer@nanps.org if you would like to contribute to the effort to keep Shining Tree Woods or Charlie Clifford Park as shining examples of healthy forests.

Miriam Henriques and Harold Smith

NANPS Annual Native Plant Sale

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

- Wildflowers, grasses, woody plants, ferns, books, free talks and free parking
- Advance ordering is open to current members for pick-up at the sale. Order at www.nanps.org. **Online plant sales for members will run to April 18th.**
- Volunteers needed to receive and sort orders Friday night. On Saturday the jobs include greeters, carpoolers, plant sellers and clean-up crew (volunteers can work for as many hours as they wish.) Contact Gerry Stephenson at (416) 631-4438 or volunteer@nanps.org to be slotted into the schedule.
- **Thank you to all members who volunteer their time to make our fundraising sale a success!**

I Came, I Saw, I Ate Some Dirt: The Truth about Earthworms

by Michael Henry

We think of the earthworm as a wonderfully beneficial soil organism, a natural roto-tiller that incorporates organic matter into the soil. We rarely think of earthworms as an invading army that followed close on the heels of European settlers in Canada, and among the most dramatic, even catastrophic, species introductions to North America. A little digging, however, will reveal that one and all of these things are true.

Believe it or not, almost no earthworms are native to Canada – with the exception of Vancouver Island. All those pink wriggly critters that turn up in our gardens and lawns are descendants of worms imported from Europe and elsewhere in the world over the past few centuries. Horticulturists, farmers, tree planters, and fishermen all participated in the inadvertent inoculation of earthworms into Canada's soils.

If we dig deep into history, we discover that earthworms were extirpated from what is now Canada, and the adjacent United States, during the last glaciation some 10,000 years ago. For the most part they never made the return journey, and the closest critters to earthworms that are native to most parts of Canada are the enchytraeid worms – tiny, white worms that play a relatively small role in decomposing organic matter.

Because no soil organisms were regularly in the habit of burying organic matter, as many earthworms are, the soil profile of forests was historically much more obviously stratified, with a thick mat of undecomposed litter and organic humus on the surface, and unenriched mineral soil below. A variety of arthropods, such as millipedes or mites, and fungi, would have played a larger role in helping things decay, eating and living in the mat of leaves on the soil surface. In this context, it's hard to imagine a greater home-wrecker than an earthworm, and it's easy to believe that at least some soil

organisms must have become extinct following the arrival of earthworms.

Plant people know that what happens in the soil affects the plants. Earthworm encroachment has been shown to reduce the abundance and diversity of native species as a whole, and, in particular, has negative impacts on forest herbs in the genera *Aralia*, *Botrychium*, *Osmorhiza*, *Trillium*, *Uvularia*, and *Viola*. It changes the patterns of tree seedling establishment and recruitment, so earthworms are likely changing forest composition! One study found that earthworms reduced the number of fine roots and the mycorrhizal establishment on Sugar Maple (*Acer saccharum*) trees. And earthworm invasion can lead to increased erosion and nutrient loss. Not quite the good guys we were led to believe, at least not in forest soils!

Surprisingly, the colonization of forests by earthworms is far from complete, new species are still colonizing many forest areas, and many more remote forest areas still remain completely earthworm free. Finding and protecting these areas from colonization has rarely, if ever, been a priority for conservationists and resource managers; but in recent years we have learned a lot about the effects of earthworms, and we now need to develop policies to reflect this new understanding. Roads, cabins, trails and campsites are good predictors of earthworm invasion, and human introduction has been shown (using genetic techniques) to have far more impact than the earthworms' own slow rates of dispersal. Only in the last decade or so has much study on the effects of earthworms been

undertaken, and large gaps still remain in our knowledge.

Marauding earthworms shouldn't be underestimated. Charles Darwin examined the role of earthworms in burying the stones of Stonehenge, and found that worms can add up to a half centimetre (one-fifth of an inch) each year to the soil surface, thereby gradually undermining large stones, causing them to sink as though they were in quicksand, though altogether less quickly. In the same way, earthworms may help to preserve



PHOTOGRAPH BY BILL MOSES

Before earthworms were introduced to North America forest floors had much thicker mats of leaf litter and organic humus.

archeological treasures by quickly burying them under a protective layer of soil.

Earthworms are simultaneously underestimated and overrated. Next time you see one, remember that's not just a red wriggler, it's also an archeological curator, a roto-tiller, an "ecosystem engineer," and one of the ground troops in an invading army...

*Michael Henry is a naturalist and writer residing in Peterborough, Ontario. He is the lead author of **Ontario's Old-Growth Forests: A Guidebook Complete With History, Ecology, and Maps**. To learn more about the effects of earthworm invasion go to Great Lakes Worm Watch publications page: <http://www.nrri.umn.edu/WORMS/research/publications.html>.*

Silver Plains Project, Manitoba

by Robert G. Mears

So, what did you do with your summer? I spent mine weeding. I wasn't alone in this. I was joined by my spouse – lucky girl. We decided a few years ago to replant our two-hectare (five-acre) rural property with native flora. Seemed like a good idea at the time, one that evoked a sense of joy in us. But, as former urbanites, we had no idea what we'd signed up for. Not to suggest that we regret the decision. You haven't really lived until you've spent three hours a day for a couple of months digging rhizomatous grasses out of argillaceous soil.

We're in southeastern Manitoba, famous for Manitoba gumbo which is properly called black chernozemic, a clay loam mix that is one of the most productive soils on the planet. Unfortunately, the soil's strength is a former ecosystem's downfall. The Great Plains of North America were originally seen by European settlers as a barren wasteland to be crossed – at great risk – to get to the rich and fertile lands of the foothills and coasts on either side of the continent. During the 1840s and '50s (just seven generations ago) the newcomers realized that grain could be grown on the flatlands. The rest is history. Today, less than half of one percent of virgin tallgrass prairie remains, only because scattered patches are littered with boulders from a receding glacier; the remnants were (and still are) too much work to make them tillable.

Being neophytes, we heeded the advice of a local restoration specialist when we started clearing introduced vegetation: He recommended herbicides and cultivation. But, as we started researching what to plant, we learned about the

deleterious effects of chemicals and decided to stop using them.

Not everyone in the restoration business recommends using herbicides. But, "keep the soil black for a year," is common advice. "Good luck with that," they should add. Cultivation is an effective removal method. But it's not that simple. Subsequent wind- and bird-deposited seed, plus the now stirred-up seed bank, make this ecological demolition different from, say, renovating a house. In the latter the wall does not grow back once you've torn it down!

For example, in 2008 we seeded Blue Grama Grass (*Bouteloua gracilis*) on top of the ring dike around the property that had been kept black for a summer and a half. After diligently watering the seed (Blue Grama requires a lot of water to start) we got a fine crop of Wild Mustard (*Sinapis arvensis*) which really liked the extra moisture. Well, we re-cultivated the top of the dike before the end of that season and then switched to harrowing on this and other regions in the summer of 2009. After cultivating areas a couple of times, harrowing works better if you can get the plants while they're small, and it doesn't stir up the seed bank as much.

However, both techniques are dependent on weather: Wet black soil and tractor tires don't get on well. Fortunately, following a wet spring (complete with record-setting flood), there were enough dry spells that we kept slightly ahead of the game. Or so we thought.

But first, I have to backtrack.

The winter of 2008/09 was very cold whenever snow fell; this makes for powdery snow. It was also very windy. Nothing impedes the wind on our site which is surrounded by farmers' fields with an almost 360 degree view to the horizon. The top 2.5 cm (1 inch) of exposed soil freeze-dries. We were not happy to see snow drifts on either side of exposed areas turn black. None of the advice we got – both online and in person – mentioned that black soil does not collect snow. (To prevent more soil erosion this winter we set up snow fences in two large areas and placed railroad ties around the top of the dike. When this didn't work, we started piling snow on exposed areas with the tractor. Then, during a warm spell in January, sticky wet snow fell for two days leaving a white blanket over the entire site.)

While cultivating removes rhizomatous plants, like Quackgrass



Silver Plains Project, West Yard, August 2009

(*Agropyron repens*) and Canada Thistle (*Cirsium arvense*), it can also make them spread. There is nothing to do but dig them out when they reappear. (Obviously this is best done before areas are seeded, although invariably, bits of root get missed.) We could be using landscape fabric but the cost to cover more than a hectare (several acres) is prohibitive, and, while covering a patch of soil eliminates plants growing there it also kills micro-organisms that make soil productive. We are left with weeding by hand. And, from what we saw this year, clovers (*Trifolium* spp.) will be an added challenge next year. Meanwhile, a farmer friend mentioned to me that organic farmers use large “burners” to kill weeds. I am going to experiment with using a propane torch on individual undesirables this coming summer.

When we turned our attention to planted areas we realized a case of mistaken identity would cause trouble. Neither my spouse nor I are botanists; what we thought was Rush-like Sedge (*Carex scirpoidea*) is actually Timothy (*Phleum pratense*), an introduced grass which we let spread in the sedge meadow of the west yard in 2008. By the time we realized our error, in 2009,

it was too late to dig it out; all we could do was pluck seed heads to stop seed from setting. Plus, we've been surprised by how rapidly some native species spread: Nuttall's Alkali Grass (*Puccinellia nuttalliana*) apparently thinks it owns the west yard. Four tiny bunches from 2007 now cover a fifth of a hectare (half an acre). It's shallowly rooted so we hope other material planned for the region will displace it. Similarly, Narrowleaf Sunflowers (*Helianthus maximiliani*) threatened to take over the front yard and Scratch Grass (*Muhlenbergia asperifolia*) has spread over half of the east yard.

Some things have worked out though. About a quarter of the yard has native material growing on it. About 90 species have been seeded, planted, or germinated spontaneously. Some of them appeared after we thought seed had rotted or been eaten. We had heard about high dormancy but until you see Helenium, formerly Sneezeweed, (*Helenium autumnale*) coming up two years after the seed was sown, the term doesn't mean much. In a society accustomed to instant gratification, seed dormancy is a hindrance to planting sites with native flora. Most conventional landscaping

projects take a year or two to develop (except for trees). But, even though native plants are well worth the wait, such a planting requires five to 10 years before starting to become established.

From 2005 to 2009 we've traveled around the vicinity taking photographs and scouting seed sources. We began collecting seed in earnest in 2009 and were able to sow portions of four regions of our site in early December to early February. (It took so long because of waiting for snow and near windless days.) We've had some success with spring seedlings and summer seeding but we cannot seem to remember to cold-stratify seed that requires it and have often seen seedlings wither and die after being planted out. We were told, by the specialist mentioned above, that forb seed especially is susceptible to being eaten by organisms that live in the ground; he recommended using grow mix and small pots. But we have seen forbs appear from scattered seed long after we thought they would not. We decided to take our chances and switch to frost seeding.

On one excursion, to Whiteshell Provincial Park, we noticed how urban escapees consider wilderness to be wonderful. When we returned home, our yard – which is far from fully planted – felt like the park. Our nascent sedge meadow has frogs jumping across the path and a host of insects – that we never knew existed – buzzing and crawling among the various plants seeking food and engaged in life and death struggles (or, ahem, salacious acts). It is more interesting, to us at least, than crossing an expansive, vapid lawn dotted with pocket



PHOTOGRAPH BY ROBERT G. MEARS

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gardens. And, with over 50 avian species on site (choruses of birds having replaced the din of humans) our postage stamp of earth is becoming quite the place.

I must confess though that we didn't start all of this for the noble purpose of restoring habitat. We began this project because indigenous flora is beautiful. Which is not to say that introduced species are not beautiful. But native material has something that all the introduced and/or cultivated stuff doesn't: subtlety. It's like the difference between gold and brass. It probably has something to do with the soil. Indigenous material has evolved with and contributed to the soil – of whichever region it is from – for millennia. And it shows. It's surprising that a culture obsessed with beauty has missed this.

Since starting the Silver Plains Project we have learned of some similar projects and of efforts, continent-wide, by many individuals and groups to save and restore native ecosystems. In southern Manitoba there are a couple of native seed and plant vendors and several protected areas. But, perhaps because there is no local Native Plant Society, general awareness of native flora is very low and few people seem to notice that tallgrass prairie is almost gone.

While I am not an ecologist I am a bit of a wordsmith. If there is one thing I might add to the efforts of so many others, it is to put a label on what we are doing. In developing the website about our project I coined a word: "yardigen". It means an



PHOTOGRAPH BY COLEEN ZEBELUK

Sedge meadow detail with Olive, the cat.

expansive indigenous garden with pocket lawns. The activity is "yardigening". Names advance concepts. It would be great to one day overhear the neighbours asking each other, "So, how's your Big Bluestem* doing?"

Robert G. Mears is joined in this effort by his spouse Coleen Zebeluk. They live

in the flood plain of the Red River of the North. The website for the Silver Plains Project is at www.silverplains.ca.

**Andropogon gerardii*

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Native Woodies in an Ontario Garden

by Anna Leggatt

Every garden needs trees, shrubs and vines. They form a framework for other plants and give structure even to the smallest lot. Trees and shrubs form barriers to the wind, block out unpleasant views and, above all, provide protection and food for wildlife. Native woody plants are best as they have evolved with our indigenous fauna.

Most woodies have a season where they have outstanding garden or wildlife attributes. The very best – in my view – are attractive all the year round.

My garden is in Toronto, in the former borough of East York. It is long, narrow, and flat, having been levelled with clay fill above the original sand when the area was developed in the late 1940s. There is a hard clay layer below the sand. To the south, Curity Creek flows in a degraded woody ravine. Several seeps emerge from the sandy layer making a muddy swamp above the stream. Purple-flowering Raspberry (*Rubus odoratus*) used to grow in profusion. However, the trees and mud have repressed it.

The genus *Amelanchier*, which contains several trees and shrubs mostly native to North America, is my favourite. All species have multi-season interest and are great for wildlife.

The buds break in May with clusters of delicate white apple-like flowers surrounded by unfolding leaves which have a bronze tinge. Bees swarm the blossoms (if it isn't too cold). Summer brings fruit. The clusters of small red, darkening-to-purple, berries (saskatoons) are delicious. The birds agree. I usually get a taste before the robins and cardinals arrive, and if I'm lucky I manage to make some jam and pies. The leaves turn red in the fall dropping to reveal smooth grey bark with light striations.

I have several *Amelanchier* shrubs. I don't know the species. They grow well in light shade under deciduous

trees or in full sun in ordinary soil. They are trouble-free.

Cornus alternifolia (Pagoda tree or Alternate-leaved Dogwood) is another all-season small tree. Its common name comes from the branches which grow in layers, reminiscent of a Chinese pagoda. This gives an interesting structure in a shrub border for every season.



Tulip Tree in flower

Clusters of small whitish flowers appear in umbels just after the leaves have unfurled. These are followed by blackish berries in the summer. Fall colour can be spectacular but variable depending upon light exposure. *Cornus alternifolia* will grow happily in alkaline soil, in deciduous shade or in full sun. My plant has not had any diseases.

There are some disadvantages: raccoons love the berries and break branches with their weight, spoiling the pagoda shape. The tree also self-seeds. My plants all moved in from the ravine or seeded from an existing tree. However, they are easy to transplant.

Cornus florida (Flowering Dogwood), which is native to southern Ontario's Deciduous Forest

Region, is not reliably hardy in the Toronto area. It is a beautiful small tree with large four-petaled white "flowers." These apparent petals are actually deciduous bracts (modified leaves); the yellow flowers are in a small cluster in the centre. These are followed by red drupes. The opposite leaves turn a spectacular red/red-purple in the fall.

My small tree is descended from a group near St Catharines, Ontario. It has flowered most springs for the last 20 years and is less than three metres (10 feet) tall with a somewhat wider spread. It should be grown in moist acid soil with some shelter from the afternoon sun. My soil is slightly alkaline. My Tulip Tree shades it and is now perhaps stunting the growth.

Early this January, fat flower buds are giving promise of a spectacular show in May. These buds may be damaged by frost if they start to open early. The bracts do not reach their full size if the soil is not moist. Watch out for signs of anthracnose. This fungal disease is a problem in the

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PHOTOGRAPH BY ANNA LEGGATT

United States.

Cornus florida is a splendid tree and a good source of food for birds. I rarely see any of the attractive fruit.

Liriodendron tulipifera (Tulip Tree) is one of my favourite trees, though it is really too big for my garden. I should have known better since I have seen their beautiful conical shape towering above the other trees in the woods of West Virginia. I did not account for the speed of growth. I bought my tree at a Canadian Wildflower Society sale 20 years ago. It initially died back. Now it is about 20 metres (65 feet) tall, rapidly catching up to a Sugar Maple (*Acer saccharum*) that is maybe 150 years old – the maple was here when the area was still forested.

I like the shape of the Tulip Tree, the strange cut-off leaves and, above all, the greenish, tulip-like flowers with soft orange-red in the centre of the petals. These are best seen from above, which may be difficult given

the tree's size. Our tree flowers well. We can see the flowers from the pool deck or upstairs in the house.

There is winter interest too as the cone of seeds opens leaving a spiky, tree-like shape. Unfortunately the seeds litter the ground and seem to be ignored by wildlife. Luckily none have germinated (yet!). Perhaps this is because Toronto is beyond the tree's natural range. The tree does occur in the wild in southern Ontario on the south shore of Lake Huron, the north shore of Lake Erie and in the Niagara Peninsula. Friends in Pennsylvania regard it as a weed.

Usually *Liriodendron* is pest-free. This year we had a lot of aphids whose secretions dripped on our bench below.

Celastrus scandens (American Bittersweet) is a vigorous woody climber growing to 10 metres (30 feet) with small inconspicuous male and female flowers on separate plants. The attractive berries start orange and

open to scarlet. Birds love them.

It grew wild in the ravine three blocks away. I bought a female and hoped there would be male plants nearby to fertilize it. Space is a problem so I planted it on my neighbour's side of the property line. I pulled strands over our shed making sure it didn't harm anything.

It grows well in ordinary soil, so well that you must beware: watch for girdling of nearby trees. A 30-year-old pine (*Pinus* sp.) suddenly broke off half way up because a stem of bittersweet had encircled the trunk embedding itself in the bark so that it was invisible from below. The wind just snapped off the top of the tree at this weak point.

Beware also of Asian Bittersweet (*Celastrus orbiculatus*). It is often sold by nurseries, it's highly invasive and it may be hybridising with our native species.

Hamamelis virginiana (Witch

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The Native Seed Identification & Cultivation Guide for Southern Ontario

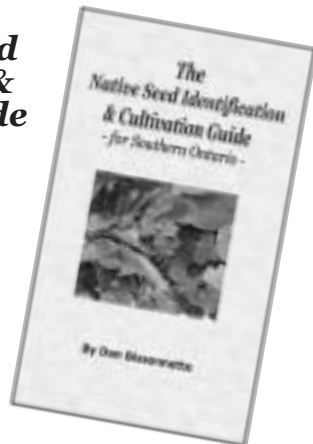
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Hazel) grew in the ravine and was lost when the soil slipped. There are large shrubs in the woods nearby. Several stems grow to three metres (10 feet) and form a loose canopy. Walking underneath is a treat. The leaves turn yellow in the fall when the four yellow, ribbon-shaped petals spread out in clusters. The sun shining through illuminates leaves and flowers.

I also grow many small trees and shrubs that are native to eastern North America further south. *Calycanthus floridus* (Carolina Allspice), a native of the eastern U.S., was planted near my front door for its whiffs of spring perfume.

Cercis canadensis (Eastern Redbud) is fondly regarded as a Canadian tree and it is probably native to Pelee Island on Lake Erie but this has not been confirmed since the tree naturalizes so easily from planting. This Carolinian species must have

been the first small tree I planted in this garden 36 years ago. It grows well in semi-shade in neutral to slightly alkaline soil, reaching eight metres (26 feet). It has delightful pink pea-shaped flowers and lovely heart-shaped leaves.

Cladrastis lutea (Yellow-Wood), whose natural range is North Carolina, Kentucky and Tennessee, has grown fast in clay soil at the top of a bank in my garden, shaded by the Tulip Tree in the fall. Large white pea-like flowers hang in pendulous clusters which, along with the smooth grey bark and compound leaves, give it a quiet beauty.

Hydrangea quercifolia (Oak-leaved Hydrangea) is native to southeastern United States. My plants do well in alkaline soil in dry shade; they hate wet soil. They are more or less hardy in the Toronto area.

Liquidambar styraciflua (Sweet Gum), also from s.e. U.S., is a cone-shaped tree which will grow very fast

in moist soil and full sun. I grow it for the distinct shape and the wonderful autumn colour, a mix of reds, yellows, oranges and purple-red.

Red Oaks (*Quercus rubra*) grow in the ravine below my yard. A beautiful Black Cherry (*Prunus serotina*) died as the soil slipped away. The white spruce (*Picea glauca*) in the garden is overshadowed by the Sugar Maple.

I am constantly amazed at the number of woody plants I grow, packed into a small space. If you haven't already done so, I recommend that you make room for some in your garden.

Anna Leggatt grew up in the English countryside where she learned about the local wildflowers. She studied Botany and taught high school before coming to Canada. She is a Nature Interpreter at the Kortright Centre for Conservation and a mad gardener.

NANPS Calendar of Events

March 11, 2010

NANPS SPEAKERS' SERIES:

SECRETS IN THE GARDEN

Markham, Ontario

Martin Galloway of HGTV's Secret World of Gardens will demonstrate how simple changes in plant choices and maintenance practices can create a healthier environment. Invasive species as well as insects and other pollinators in our gardens and natural areas will be discussed. Free. 7 - 9PM at Markham Civic Centre Council Chambers. Call 905 477-5530 to register.

CONGRATULATIONS TO

BOB KENNEDY OF TORONTO FOR WINNING A FREE YEAR'S SUBSCRIPTION TO THE BLAZING STAR BY RENEWING HIS NANPS MEMBERSHIP BEFORE JANUARY 31ST.

March 27, 2010

INVASIVE SPECIES REMOVAL WORKSHOP

Norfolk County, Ontario

NANPS is organizing a hands-on invasive species removal workshop at Shining Tree Woods.

Contact volunteer@nanps.org.

April 7, 2010

NANPS SPEAKERS' SERIES: RARE NATIVE PLANT GEMS OR SPECIES AT RISK

Toronto, Ontario
Jane Bowles, a biologist at the University of Western Ontario, will discuss what makes species rare and how they are evaluated as species-at-risk at the Toronto Botanical Garden. For details visit www.nanps.org.

April 11, 2010

NATIVE PLANT GARDEN DESIGN WORKSHOP

Markham, Ontario

NANPS-sponsored workshop with Dan Bissonnette of The Naturalized

Habitat Network of Essex County & Windsor. Participants are encouraged to bring a survey, drawings and photographs of their yards. \$30, and each family will receive a \$10 voucher for NANPS Plant Sale on May 8. Markham Civic Centre (Limited to 40 Town of Markham residents) 9 to 11:30AM for morning session or 1 to 3:30 for afternoon session. Call 905-477-5530 by April 2 to register.

May 8, 2010

NANPS ANNUAL NATIVE PLANT SALE

Markham, Ontario

NANPS Plant Sale & Environment Fair will be held at the Markham Civic Centre. www.nanps.org.

May 15, 2010

INVASIVE PLANT REMOVAL WORKSHOP

Markham, Ontario

NANPS-organized invasives removal workshop at Charlie Clifford Park. Contact volunteer@nanps.org.

Transpiration

by *Bill Moses*

Joyce Kilmer starts off his poem *Trees* with the lines:

*I think that I shall never see
A poem lovely as a tree.
A tree whose hungry mouth is prest
Against the earth's sweet flowing
breast;*

Kilmer has, perhaps unwittingly, provided us with an excellent allegorical description of how a tree gets its nourishment. Humans have a heart to pump nutrients around our body but a tree has no such thing. There has to be another explanation.

In public school our teacher once said that she was going to show us how to make water run uphill. We were quite disappointed when she merely hung a dishtowel over the edge of a bowl full of water and the water being absorbed by the dishtowel did travel uphill. The water was able to overcome gravity because of adhesion. That is one part of the puzzle.

Secondly, since water molecules are attracted to each other, as one molecule moves up it tends to drag its neighbour along. This is referred to as cohesion.

Aiding adhesion and cohesion is suction (which gets us back to the hungry mouth metaphor). If you can imagine drinking a soft drink through a straw 30 metres (100 feet) long, you will have an idea of what a tree is up against.

There are indeed long tubes within the sapwood of the tree that act as straws. These channels go to each leaf. On the bottom of the leaf are stomates. These are holes into the leaf that can either be opened or closed. One reason why the leaf opens the stomates is to capture carbon dioxide which is required by the tree to produce food. While the stomates are open, water evaporates from the wet inside of the leaf and escapes into the air. This is the process called transpiration. This has at least a couple of beneficial effects. Evaporation keeps the leaf cool. As the water evaporates, more water is pulled up the tree carrying minerals and

nutrients required by the leaf. A large oak (*Quercus* sp.) can apparently transpire 150,000 litres (40,000 gallons) of water a year.

We know that when we suck hard on a straw, the straw has a tendency to collapse. The same thing happens with the water channels within a tree. It is said that on a hot day, when the rate of transpiration is high, the diameter of the tree trunk will decrease measurably.

We may be using the example of trees, but the transpiration process takes place in all green plants. However, trees have the capacity to transpire much larger quantities of water back into the atmosphere where it will soon fall again as rain. Trees can draw water up from deep in the earth, water which might otherwise remain unavailable as precipitation for a long period of time. In other words, trees have a significant impact on our climate.

It is my feeling that people shy away from planting large trees because they will not see them grow to maturity. When they do plant large trees they often want to buy those that are already four to six metres (15-20 feet) high. At that size, some trees such as oaks and hickories (*Carya* spp.) are hard to transplant and they have difficulty becoming established. The result is that the natural mix of trees that one might



PHOTOGRAPH BY BILL MOSES

*Bill Moses started this four-year-old Bitternut Hickory (*Carya cordiformis*) from seed in a separate bed. Note the grass growing right up to the tree. This competition is very stressful. Each year Bill removes the sod from around the tree and uses a well-composted combination of horse manure and sawdust to make up for soil loss. (A mulch of some type can also be used to keep grass at bay.) Bill's method is inspired by the Aesop fable Buried Treasure, "Truly, our digging has brought us a treasure."*

find in the wild – the diversity that contributes to the health of a living ecosystem – is becoming skewed towards faster-growing, more easily transplanted, and sometimes smaller trees.

One has to admire a person who plants a tree not for his or her own gratification but for the benefit of future generations.

Bill Moses volunteers at the Inglis Falls Native Plant Nursery in Owen Sound, Ontario. The nursery specializes in woody plants propagated from seeds and cuttings collected in Grey and Bruce Counties. Visit <http://www.greybrucewoodyplants.ca/>

New & Noted

The Native Seed Identification & Cultivation Guide (for Southern Ontario)

by Dan Bissonnette

Published by: The Naturalized Habitat Network of Essex County & Windsor 2009, ISBN 978-0-9694026-7-1, 142 pages
Cost: \$25 + mailing = \$28
www.naturalizedhabitat.org

Dan Bissonnette's book is targeted towards a special group of people – native seed collectors and growers of shrubs, trees and vines. The concept behind the book is nothing short of brilliant – to capture in photographs the ripened fruit, nuts, drupes, acorns and samaras of typical southern Ontario native woody plants in order to aid a seed collector in field identification.

There can be no doubt that this is a field guide. The book is small (16 centimetres by 12 centimetres or six inches by 4 3/4 inches) with a sturdy ring binding. The pages are laminated to protect against water damage or soiling. The book offers, in a one-species-per-page format, a coloured photograph of the ripened seed while on the plant, along with information as to when it ripens and the size of the seed. These are good pictures, and I can scarcely imagine how difficult it must have been to find examples of ripened berries on some of the presented species, particularly those most popular with birds.

On some pages in the Identification Index, a second smaller picture of the relevant seed is shown in the palm of a hand, helping to assess its relative size. The pictures take up at least half of each page, with the remainder devoted to the species' habitat and other features that will clinch identification.

The woody plants listed, some 98 species, are arranged in alphabetical order based on the common name of the family (such as Ashes or Dogwoods) or by the species' common name (Nannyberry, Trembling Aspen, filed under "A" for

Aspen). This is somewhat difficult, as there are species that go by several common names. For example, the Chestnut (*Castanea dentata*) is found with the "C's" although some would search for it under the "A's," thinking of it as "American Chestnut." Regrettably, there is no index of the species listed.

Apart from the ID Index, the book contains information on many subjects of interest to a grower: why it is important to collect from local wild populations, a code of ethics for seed collectors, guidance regarding seed storage, and time-tested tips on determining seed viability. General information about seed dormancy mechanisms and how to care for young seedlings is also provided. Happily, Bissonnette reveals an alternative to using sulphuric acid for seed scarification. (Do you know how hard it is to source sulphuric acid and beyond this, how difficult it is to use and store thereafter?) A brief list of suggested treatments to overcome seed dormancy for each species is featured.

As founder and Program Coordinator of the Naturalized Habitat Network of Essex County & Windsor (a non-profit dedicated to establishing wildlife habitat within home landscapes), Dan knows his subject. In 2006, the Naturalized Habitat Network was the recipient of NANPS's annual Paul McGaw Memorial Conservation Award in recognition of its extraordinary contribution to the restoration of native flora at the community level.

Review by Darcie McKelvey



Rare Vascular Plants of Ontario, fourth edition, is now available for download at http://publicdocs.mnr.gov.on.ca/View.asp?Document_ID=15811&Attachment_ID=33301. The 190-page guide is produced by the Ontario Natural Heritage Information Centre whose mission includes the preservation of Ontario's biological diversity. It includes

726 species, subspecies and varieties of native plants officially recognized on the most recent Committee on the Status of Endangered Species in Canada or Species at Risk in Ontario lists.



Ontario's Old-Growth Forests: A guidebook complete with history, ecology, and maps (published by Fitzhenry and Whiteside) is now available in bookstores.

The book includes:
Overviews of forest history and ecology
An atlas of 56 old-growth sites throughout the province
Box essays written by experts
Over 180 colour photos and 55 colour maps
Details at www.oldgrowth.ca



Rare Plants of the Endangered High Park Black Oak Savannah is now available through the High Park Community Advisory Council volunteer Stewardship Program. The compact and entertaining booklet is a plant and habitat guide, complete with history and stewardship resources. All proceeds go to restoration work in High Park. Contact vsp@highpark.org to order a copy and send a cheque payable to High Park Initiatives for \$15 plus \$3.00 shipping to: High Park Initiatives, 95 Lavinia Avenue, P.O. Box 108, Toronto, ON, M6S 3H9.

Continued from page 1

late June and fruits in August. This will vary depending upon your microclimate. In season, look for showy small flowers in rather flat-topped clusters and bluish-white berries with very red stems. The leaves are fairly large and coarse, rounded at the base and generally about as wide as long or at least broadly oval. Branchlets start out being a yellowy green with purplish streaks and small warts. As the branches age they become a dark, dirty-looking purple. Roundleaf Dogwood usually grows to three metres (10 feet). If you are after flowers and fruit in your own shrubs, you shouldn't prune at all but if you must then for this type of multi-stemmed plant cut out one in four of the biggest stems each year. Flower buds are fully formed by fall.

There are many references to the medical use of Roundleaf Dogwood from at least the early 1800s to the present. In this context, it is generally referred to as *Cornus circinata*. An 1828 volume of *The North American Medical and Surgical Journal* reports that *C. circinata* is considered an excellent remedy (taken internally) for diarrhea and afflictions of the liver, and (externally) for gangrene and ulcerated gums. The bark was pulverized and boiled in water or soaked in other liquids to extract the desired curative components. Homeopathic websites today advertise *Cornus circinata* as a remedy for pain, diarrhea, chronic malaria, hepatitis and eczema.

The current accepted scientific name for Roundleaf Dogwood is *Cornus rugosa*. *Cornus* is Latin for horn, likely a reference to the hard wood of a European species. The species name *rugosa* means wrinkled, probably referring to the impressed venation of the leaves.

Roundleaf fruits are eaten by ruffed and sharptail grouse. Twigs are consumed by cottontail rabbits, moose and white-tailed deer. I have read an abstract about a rare beetle that is found regularly near *C. rugosa*. All this to say, like every native plant,

Roundleaf Dogwood is an important link in the ecosystem it inhabits, even though its intricate interaction with its environment may be poorly understood, due to its complexity. All the more reason to protect it where it grows naturally and to propagate it in our native plant gardens.

Bill Moses volunteers for the Inglis Falls Native Plant Nursery in Owen Sound, the Nature Conservancy of Canada, the Evergreen Native Plant Database and the Bruce Trail Conservancy. For more information about woody plants and photographs of Roundleaf Dogwood, go to www.greybruceplantswoodyplants.ca and follow the Roundleaf Dogwood link.

LET'S CELEBRATE OUR 25TH ANNIVERSARY

This spring, look forward to a special anniversary issue of *The Blazing Star* with articles from all corners of the continent covering diverse issues from native pond gardens to hidden prairies to woodland restorations to invasive plant awareness programs. Read about Toronto's First Native Plant Garden 34 years later. Learn how to apply ecological restoration guidelines to landscaping. Delight in our Gallery of Artwork from NANPS artists! This issue will be a timeless resource manual for native plant gardening enthusiasts and restoration/conservationists.

Thanks to your generous support – the time, energy and financial

contributions you have made over the years – NANPS has reached this milestone year with many accomplishments under our collective belt. We have reason to be proud... but we can't be complacent. We need your help now as much as ever. Please consider making an extra donation to help make this anniversary year special. We encourage you also to give of your time. There are many projects to choose from: invasive plant removal workshops, our annual plant sale, seed exchange, annual general meeting and more.

2010 is the International Year of Biodiversity. Let's all do our part to make it memorable.

JOIN NANPS

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

___ \$20 / 1 calendar year (Jan.–Dec.) or Family membership ___ \$25

___ \$40 / 2 years

___ \$60 / 3 years (___ send me a free issue of *Wildflower* as a bonus for my 3-year membership)

___ \$200 Sustaining Membership (includes a Canadian tax credit for \$100 and a 5-year membership)

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