The Blazing Star

Winter 2013, Volume 14, Issue 1

Newsletter of the North American Native Plant Society

Native Plant to Know

Encrusted saxifrage

Saxifraga paniculata

by Grant Dobson

Occurring on both sides of the Atlantic Ocean and from the Arctic regions of Canada south to rocky, high elevation areas of New England, encrusted saxifrage (*Saxifraga paniculata*) is a most interesting study in phytogeography. Also known as white mountain saxifrage, it is one of the easiest plants to grow in a native rock garden setting.

Saxifraga is an incredibly large and diverse genus, encompassing around 480 species of alpine and woodland plants. It was named for its supposed ability to open up cracks in the rocks it calls home.

The "encrusted" group have finely toothed leaf-margins edged with calcium carbonate (lime), giving the plant its characteristic silvery appearance. This lime is absorbed from water seeping through crevices in the rock and subsequently excreted through pores at the base of each tooth. The plant is easily identified by its distinctive, tight basal rosette of leaves one to two centimetres (two-fifths to four-fifths of an inch) long. Flowers containing both male and female parts are borne on stiff, arching stems 10 – 30 centimetres long (four inches to a foot) in early summer. The showy, five-petaled white flowers are finely flecked with purple dots.

Towards the end of our last glacial period, approximately 11,000 years ago in eastern North America, Lake Algonquin, the forerunner to our modern upper Great Lakes, had formed, draining south through the present-day Mississippi River system. As the Wisconsin Glacier retreated north, a lower elevation "Fossmill" (named for the nearby ghost town of the same name, just northwest of Algonquin Provincial Park) drainage opened through the park and into the then Champlain Sea. This immense flow of water (some scientists suggest that it equaled a thousand Niagara Falls) sliced deep gashes into a southeast-trending fault line. Cliffs and canyons formed and, in the prevailing arctic-like conditions, encrusted saxifrage found a home. Leap ahead several centuries and a still lower outlet, now through the Ottawa Valley, opened up. Deprived of most of their water supply, the canyons became silent; a relatively short geologic period of spectacle and fury had ended.

Preferring cool, north-facing, lime-containing rocky ledges, or narrow crevices, and often growing out of moss mats, this saxifrage remains as one of the

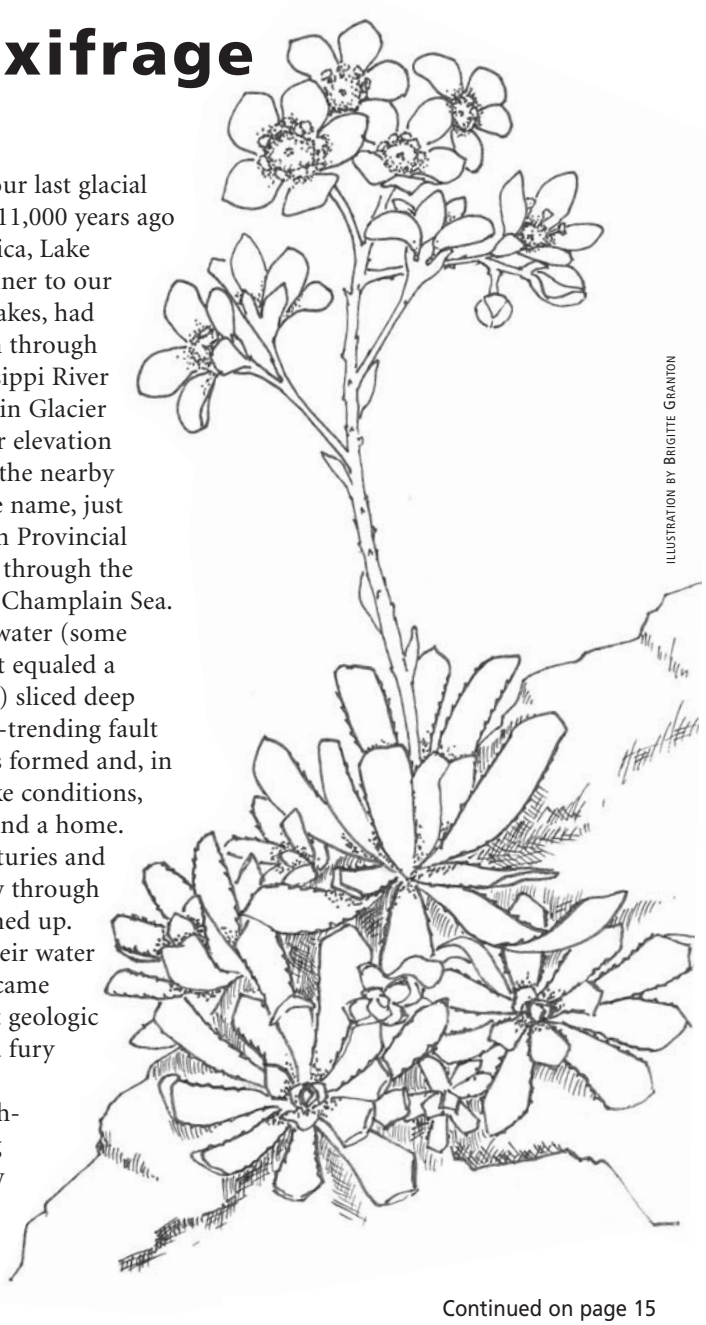

Illustration by Brigitte Granton

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The *Blazing Star* is . . .

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FUTURE DIRECTIONS FOR NANPS

We call ourselves the ***North American*** Native Plant Society but many of our activities are focused on Toronto and Ontario. We hold our board meetings, plant sale and annual general meeting in Markham, Ontario. Our Speakers' Series is held in Toronto. Our tours take place in southern Ontario. Only this magazine is truly North American in its scope.

How can a group centred in southern Ontario have an influence across North America? Unfortunately, we lack the resources to support NANPS branches throughout the continent, but many places already have active local native plant societies. NANPS should have an important role in facilitating communication among these groups. This year we are improving our website, looking at ways it can involve members outside Ontario and finding new ways to showcase the beauty of native plants and inspire more people to grow them all over North America.

See the box on the opposite page for ways you can participate: contribute to our Garden Gallery, make information in past issues of *The Blazing Star* more widely accessible, help with a photo competition or moderate discussion boards which will allow for the exchange of information among NANPSters across North America.

We are also trying to branch out into Social Media. We have a Facebook Page (http://www.facebook.com/nativeplant), a Facebook Group (http://www.facebook.com/groups/371308547931/), a Twitter Account (@tnanps) and we have recently added a presence on LinkedIn. If you use any of these media, please feel free to post your comments, photos and interesting relevant links.

We must not turn our back on the real world though and become a virtual organization that exists only in cyberspace. We will continue with physical activities such as our seed exchange and plant sale, which have to be local. Native plants are no longer native if they get moved too far!

We are keen to get the native plant message out to as many people as possible, particularly gardeners and landscapers. We are pleased to continue our collaboration with the John H. Daniels Faculty of Architecture, Landscape, and Design at the University of Toronto. Our inaugural Dr. Barbara Fallis Memorial Lecture will take place there at 7:00 pm on March 7th.

We are also beginning a new collaboration with the Toronto Botanical Garden (TBG). They have invited NANPS to speak in their Adult Education Program. The first NANPS talk at TBG will be at 7 pm on April 17th about invasive plants that do not belong in gardens. There will also be a private tour of TBG for NANPS members in the spring.

The triple threats of habitat loss, invasive species and climate change mean that there has never been a more important time to stand up – and speak out for – North America's native flora. Please continue to support us, to participate in our virtual and real world activities, and help us fulfill our mission: the study, conservation, cultivation and restoration of North America's native flora.

John Oyston, NANPS Director

NANPS AWARD NOMINATIONS

The **Paul McGaw Memorial Conservation Award** recognizes the extraordinary contribution of an individual or group to the conservation, protection or restoration of the natural heritage/native flora of North America at the community, regional, provincial, national or continental level. Deadline for submissions is May 31st.

NANPS Garden Awards recognize and celebrate the amazing gardens that support diverse habitat and shared accommodations for our native flora and fauna. The **NANPS Volunteer Award** is given to a volunteer who makes an outstanding contribution to the fulfillment of NANPS goals. Deadline for submissions to these awards is July 31st.

Visit www.nanps.org for more information.

NANPS Spring 2013 EVENTS

MARCH 2nd **York Region Seedy Saturday** – from 10 am to 3 pm at the new Vaughan City Hall, 2141 Major Mackenzie Drive. NANPS President Paul LaPorte will talk about the importance of native plants to insects/pollinators and how to establish a woodland garden.

MARCH 7th **Green Roof Ecosystems** presentation by ecologist and landscape design consultant Mathis Natvik, Room 103, John H. Daniels Faculty of Architecture, Landscape and Design, 230 College Street, 7-8:30 pm. NANPS members and guests $8, students and Daniels faculty free, general admission $15. Dr. Barbara Fallis Memorial Lecture Series.

MARCH 9th **Seedy Saturday** – 11 am to 4 pm, Evergreen Brick Works, 550 Bayview Ave., Toronto

MARCH 16th **Seedy Saturday** – 11 am to 5 pm, Scadding Court Community Centre, 707 Dundas St. W. (at Bathurst), Toronto

MARCH 20-24th **Canada Blooms** – Direct Energy Centre, CNE grounds, Toronto. Free entry for NANPS volunteers helping on our booth. Contact volunteer@nanps.org

APRIL 17th **Toronto Botanical Garden** is hosting a lecture on Invasives, 7-9 pm by NANPS Director John Oyston. He will talk about garden plants invading wild areas and how to deal with invasive species on your property. NANPS members $10, NANPS guests pay the TBG member rate of $25. Free parking. Book your tickets in advance from Anna-Liza Badaloo by calling 416-397-1362 or e-mailing adulted@torontobotanicalgarden.ca.

APRIL 27th **Toronto Botanical Garden** hosting exclusive **NANPS tours**

1:30 - 3:00 pm – The Invasives Tour: foray into Edwards Gardens and Wilket Creek

3:30 - 5:00 pm – The Natives Tour: Focus on "Nature's Garden" (Eastern Canadian Shield) and on the brand new native Woodland Walk, where NANPSters can assist with the planting at the end of the tour!

Book before April 12th by phoning Sue Hills at 416-397-1366 or e-mailing tourguides@torontobotanicalgarden.ca. (The tours are limited to 30 people each. Unreserved places will be offered to the public on April 13th).

The cost is $8 per person per tour. Pay at time of booking or the day of the tour. Meet at the main entrance to The Dembroski Centre for Horticulture, S/W corner of TBG parking lot. Tours take place rain or shine!

MAY 11th **NANPS Annual Native Plant Sale** – 10 am to 3 pm, Markham Civic Centre. ***Advance orders*** available in March until April 21. Volunteers contact volunteer@nanps.org. Other inquiries contact plantsale@nanps.org.

JUNE 8th **Markham Civic Centre Pond Planting** – help NANPS plant wildflowers in the civic centre's new native plant garden. Contact volunteer@nanps.org if you'd like to participate.

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

BE A VIRTUAL VOLUNTEER FOR NANPS WITH THESE INTERNET-BASED PROJECTS

- Garden Galleries: Do you have a native plant garden worth showing off? Give NANPS your best shot(s)! We want members to email us high-quality digital photos of native plants growing in a garden setting. Provide 5-10 images, at least 1000 x 800 pixels, well-exposed and in sharp focus. Give each image a descriptive name. Include the common and Latin names of each plant, the location of your garden and what makes it special. Pictures submitted will be added to our collection of native plant images and may be used for other purposes. Email your submissions (no deadline) to joyston@nanps.org.

- We have some great articles in old issues of *The Blazing Star* which deserve a wider audience. They should be posted on our website. We are working on this, but the work would go faster if we had some volunteers with basic computer skills (cutting, pasting and emailing). This can be done at your own pace. Email volunteer@nanps.org for details.

- Photo Competition: We would appreciate help to set up and judge a photo competition. If you're interested, email joyston@nanps.org . The aim is to engage our members across North America and to increase our photo collection, especially for plants outside Ontario.

- The NANPS website should contain discussion boards where people can exchange information about native plant topics. This project will need a moderator to screen all incoming emails to ensure they are on-topic and not rude or abusive. The moderator need not be a plant expert, but would have to check his/her email once a day. If you are interested, please email volunteer@nanps.org.

We look forward to working with you to spread the native plant message farther and wider!

Lessons from NANPS Carolinian Woods Tour

by John Oyston

NANPS marked the first day of autumn with a bus tour of the Carolinian Woods of southwestern Ontario. The Carolinian ecosystem is rare in Canada. It is best known for its unusual trees and shrubs such as the tulip tree (*Liriodendron tulipifera*) and sassafras (*Sassafras albidum*). Many Carolinian species are ancient and considered primitive; the cucumber magnolia (*Magnolia acuminata*), for example, relies on beetles for pollination. Why? Because it evolved 100 million years ago, when there were dinosaurs, but before there were any bees, wasps or butterflies to provide pollination services!

The tour took in four sites. Wendy Cridland and Kevin Kavanagh showed us around the Nature Conservancy of Canada's Backus Woods, the largest remnant of Carolinian woodland in Canada. Two hours was barely long enough to visit this magnificent site. Peter Carson introduced us to two properties of the Long Point Basin Land Trust (LPBLT), the Jackson Gunn Old Growth Forest and the Arthur Langford Nature Preserve. The tour ended at Julie Van Den Nest's Tree Nursery which specializes in growing Carolinian trees and shrubs from local seed.

We learned about forest ecosystems, the importance of light and the life cycle of forests. Kavanagh and Carson taught us about canopy gap dynamics. A tree that has fallen over is not a disaster, but a huge ecological opportunity. Suddenly there is an opening in the canopy and the sun shines down onto the forest floor. What will be best positioned to take advantage of the chance to grow up into the sun? Maybe a sugar maple (*Acer saccharum*) seedling that has been growing slowly and patiently in the shade. Or a tulip tree sapling, which would have died had it remained shaded, will grow rapidly, sending a trunk straight up into the canopy and above it, to tower over the common trees.

Plant species on the forest floor have to compete for light in other ways. For example, the Christmas fern (*Polystichum acrostichoides*) is fairly hardy and keeps its fronds throughout the winter. By spring, they are beaten down by rain, wind and snow but they survive long enough to capture the early spring light available before the trees have leafed out so they can supply energy to their new fronds. The old fronds only die once the new ones are well established.

Fallen trees and dead stumps also play a role in a thriving ecosystem. When a tree falls, the roots lift up a clump of soil creating a special miniature environment. Some soil is lifted into the air and dries out, leaving a damp and shady depression. This creates niches for a variety of ferns, mushrooms and other organisms.

One Carolinian species that appreciates a dead stump is the yellow birch (*Betula alleghaniensis*). In Backus Woods, many ancient chestnuts (*Castanea dentata*) have died but they are memorialized by birches. Birch seedlings need a moist and fertile environment, provided by the dead stump. As the stump rots away, the birch roots are exposed and the pattern of the roots marks the size of the missing chestnut tree.

Kavanagh pointed out an interesting survival mechanism used by basswood (*Tilia americana*). A mature tree produces a small young sprout from its base. When the mature tree eventually dies, the sprout is already set to take over using the existing roots to give it a major advantage. As a result, the same tree can survive for many centuries putting up new trunks as each old one decays.

We also learned about the economics of conservation and restoration. The tour highlighted a difference between the strategies of the Nature Conservancy (NCC) and LPBLT. The latter is concentrating on "jewels", properties of great merit with unusual species and great biodiversity. For example, LPBLT is currently fundraising to acquire Fisher's Glen Nature Reserve, a spectacular 21-hectare (52-acre) Norfolk County property which includes Fisher's Creek, Carolinian woodlands, deep ravines, over 440 metres (1,400) feet of shoreline and impressive bluffs and beaches. NCC has more funds and is able to purchase additional property around its core holdings in order to expand habitat and reduce the risk of encroachment. Purchasing properties to preserve is challenging as there is currently no government money which has traditionally been used as seed financing to get a purchase started. Acquiring properties often

PHOTOGRAPH BY JOHN OYSTON

This mature beech tree in the Jackson Gunn Old Growth Forest has a yellow marker left over from the 1990s when it was marked for felling. Peter Carson explains that a notation signified that it was only worth half the usual amount due to damage caused by hunters discharging their guns into the tree before leaving the woods.

Photograph by JOHN OYSTON

requires long and complicated negotiations with the owners. In many cases, the property has been in the owner's family for many generations and they feel a strong affinity to the land. They are motivated by a desire to ensure that it remains preserved for future generations to enjoy. They need to be assured that the property will be protected and preserved indefinitely. The LPBLT sets aside 15% of the value of the land as an endowment to ensure that funds are available to preserve the property. In some cases, the family retains the right of first refusal should the land ever be sold. At Arthur Langford, the family have a lifetime right to use a house and barn on the property. When the buildings are no longer needed, they will be torn down and the land reforested.

The Jackson Gunn property was due to be harvested for wood, and the trees had already been marked for felling when the LPBLT purchased the property. They had to pay for both the value of the land and the wood on it.

What is involved in preserving a piece of woodland? Carson's goal is to do as little as possible. Removing garbage and preventing ATV riders from entering are the main priorities. He is opposed to developing manicured trails as he feels this is not always necessary, and some places are better left as undisturbed as possible. Fortunately, they have had few problems with invasive species, perhaps because the forest has a deep duff layer of decaying vegetation, a flourishing native understorey, minimal disturbance and few visitors. Backus Woods does have some issues with garlic mustard (Alliaria petiolata), especially along the main trails, and is dealing with this by spot application of herbicides such as Roundup and Garlon.

Wild turkeys are increasingly a problem. Local farmland is being converted from growing tobacco to edible cash crops such as corn which unintentionally provide food for the turkeys. They enter the woodlands and forage voraciously, disturbing the ecosystem.

LPBLT returns land to a natural state by first tilling the land then planting a crop such as Roundup-ready soybeans, which helps create a weed-free monoculture. The soy is burned off, the soil is lightly tilled and twice planted, once at a deeper level for tree seeds, then at a superficial level for wildflowers. The soil is then lightly tamped down. A variety of locally collected seeds are used to create a complex natural environment as quickly as possible.

We also learned about the importance of community involvement in conservation efforts. Good relationships with the local residents are crucial. Julie Van Den Nest said that when they are involved in a schoolyard planting they insist that the children get their hands dirty and plant the trees themselves. This may not be the most efficient way to plant trees but it ensures that the children have a close physical connection to the trees. The trees are less likely to be vandalized.

Carson pointed out to us the nearby hydro lines taking power from local wind turbines to the grid. The hydro wires usually run on the south side of Lower Sideroad but around Jackson-Gunn they were installed on the north side, away from the forest. This means that the forest does not have to be cut back to keep branches away from the hydro wires. The local authority has also agreed to minimise roadside maintenance on the forest side of the road. During construction of the turbines a family of bald eagles abandoned their nest in the Jackson-Gunn forest but they came back the following year once construction had finished.

At the Arthur Langford Wildlife Preserve, Carson showed us a nesting box for snakes which has been built in the hope of providing a sanctuary for the black rat snake, among others. The box is a cube, roughly 1.5 metres (five feet) along each side and filled with straw. It will need refilling from time to time as the straw breaks down.

The final stop on the tour was a tree nursery run by Julie and Pat Van Den Nest. They have a beautiful property in a sheltered valley where they grow native trees and shrubs, usually from locally collected seeds. At present they are looking for thousands of red oak acorns (*Quercus rubra*) needed to provide seedlings for a restoration project. Their other challenge is finding young people prepared to do the backbreaking and painstaking work of managing a tree nursery.

Julie and Pat provided coffee and an outhouse, both greatly appreciated. After some native plant shopping, we got a hay ride back up the hill to the parking area. The group crammed their newly-purchased trees and shrubs into every available space and we headed back to Toronto, ready to recreate Carolinian forests in our own backyards!

John Oyston is a NANPS Board Member.

Spring Management of a Native Garden

Darcie McKelvey: In terms of spring tasks, what do we do? For me in my Caledon, Ontario garden, it is growing things from seed (or not), weeding, moving plants/planting things in and mulching.

Judy Flanigan: In spring, I also divide the perennial wildflowers to produce more plants. Some plants I take for the Waterloo-Wellington Wildflower Society (WWWS) plant sale; others I place in different parts of my garden.

Judy Brisson: Spring (April/May) involves cutting down last year's growth in my Guelph, Ontario garden, removing non-native grasses, spreading compost and mulching. I also divide overgrown clumps and dig out seedlings to pot up for sale, move or replant. I always have a lot of potted stuff I have overwintered that needs to be uncovered, tidied up, relabelled and repotted, or planted out. Why repot? Some plants will be sold at our annual WWWS plant sale. Others are just too small to plant out because the rabbits or weather would destroy them.

Darcie: Let's talk about growing things from seed (or not). Over a decade ago, I asked Mary Gartshore (of the former Pterophylla nursery) how to go about learning to identify native plants and she recommended growing them from seed. This was great advice. Now I can usually identify the seedlings when they come up in my garden.

JudyF: I also live in Guelph on a glacial esker so the soil is dry. I'm just north of the Carolinian zone line and I do push the zone with a number of Carolinian species although most of the plants I grow are native to this region or county. I prefer to get seeds locally but this is not always possible for the somewhat less popular or less "showy" species. For the 2013 growing season, I ordered 10 packages of seed from a Minnesota nursery including six members of the grass family: *Elymus villosus* (silky wild rye), *Bromus purgans* (hairy wood chess), *Carex albursina* (white bear sedge), *Carex cephalophora* (short-headed bracted sedge), *Carex sprengelii* (long-beaked sedge) and *Festuca obtusa* (nodding fescue). I also obtained seed for four forbs: honewort (*Cryptotaenia canadensis*), Canada hawkweed (*Hieracium canadense*), woolly sweet cicely (*Osmorhiza claytonia*) and veiny pea (*Lathyrus venosus*).

Photograph by Darcie McKelvey

Darcie McKelvey's fridge in April

For 2013, I may grow other species as well from seeds originating in my own garden or obtained from NANPS last year. I sort my seeds according to how they germinate. I rely on the germinating guide in William Cullina's book *Growing and Propagating Wildflowers* as my main source of information but I also use the internet from Tom Clothier and the Ontario Rock Garden Society.

The largest group of seed species are those that need cold-moist stratification for various time periods. I find that for most species 60 days of cold-moist is enough although Cullina recommends 90 days. The next group are warm germinators so can be started in mid-spring. All other types are sorted on an individual basis. Some of these can be tricky to germinate, as they require multiple cycles of warm-cold or other specific conditions.

I prefer to "winter-sow" the cold-moist germinators. This means sowing in containers or pots, putting plastic covers or lids on the containers and putting everything outside in the snow bank to germinate in its own time in the spring. In order to get the minimum of 60 days of winter conditions, I like to start these seeds by the end of January at the latest. Due to the mild winter we had in 2011-12, I did not do any winter-sowing.

Once I have decided which species are to be sown, I keep track of them in a binder. I list each species by its scientific name, common name, seed source and date collected or obtained, preferred method of germination, other germination requirements, date of sowing, date of germination and quality of germination (excellent, good, poor). The sowing containers themselves are also well-labelled with scientific name, date of sowing and source of seeds. Always write this down or keep a spreadsheet. There is nothing more frustrating than staring at a container of planted seeds and wondering what they need.

Darcie: I agree about proper labelling. I must constantly remind myself to label, particularly in the fall when I am

collecting seeds for seed exchanges.

I also start growing plants from seed early in the season, after selecting them in December from two organizations. I expect to receive the seeds mid-January. I also have sorted through seeds collected from my garden last fall: either short-lived species, species that don't propagate well in my garden or things for which I have specific plans. By the end of January, I will have all the seeds I intend to grow and some idea of when I will start them.

Some of the warm germinators I start in January (e.g. lilies or *Lilium* spp.) but for others I will wait until June or July to start (e.g. the warm grass seeds). I have an extra refrigerator where I stratify most of my seeds, usually in pots but sometimes using damp vermiculite in a ziplock bag. I have a light stand inside my house but it is in a fairly cool room and not really useful until mid-March.

JudyB: Label, label, label! Especially the woodland species that take two years to germinate. I label with the date they went into the cold and then back into warm, and with the date to do the next step. There is always a tray or two with a lost label so I have to wait until the seedlings grow up enough to identify them. Growing from seed is also a winter task for me, starting in January/February to stratify. I move seedlings up to plug trays and harden them off in my greenhouse in May/June.

Darcie: In terms of weeds, the biggest issue on my property is garlic mustard (*Alliaria petiolata*). Since 2005 I have been weeding it out of my woods. I have found the best time to do this is in the very early spring as soon as the ground is unfrozen and before spring ephemerals emerge, as garlic mustard doesn't disappear between year one and year two but merely gets covered by snow (traditionally). Since it's bright green so early in the season, it sticks out like a sore thumb making it easier to locate. When I find some garlic mustard, I pull it out by the roots and tie a piece of orange tape to a nearby tree as a reminder to myself that GM was found at that spot. That way I can check the area later in the spring to see if there are new plants coming up or if there are others nearby that are starting to bloom, usually in May. Once the native woodland plants come up, garlic mustard is easy to miss because there's so much else going on.

JudyF: If I try to pull garlic mustard by hand it sometimes breaks off at ground level, so I don't remove all the root. For plants that I have missed digging out in early spring, I deadhead to prevent self-seeding and remind myself to bring a shovel or trowel to dig them later.

Darcie: I am fortunate in having somewhat sandy soil amid a lot of good loam. Although I take a trowel with a long blade, I usually use my hands to get them out of the ground. There is a certain bump just under the surface and if I pull from under that bump it usually brings up the entire root. I have always suspected that garlic mustard can emerge from roots that have been left behind and if I see that part of the root has broken off I will use my trowel to dig it out. Because the area I am working is significant in size I don't want to chance missing it again. I have heard that the average plant can beget 400 seedlings.

JudyB: I have managed to keep garlic mustard out of my yard by ruthless removal of seedlings all year. The conservation area behind my home is infested; I take out at least two large yard waste bags from it every spring. The soil is dry and sandy so they mostly pull out; I take a shovel on occasion. After removal, I cover the area with four to six centimetres (a couple of inches) of straw which seems to keep the garlic mustard seedlings away but allows other plants. I pull GM just before or during flowering to forestall seed set.

I don't worry about roots; they are biennial and I pull at least once a month during the summer which keeps the new sprouts at bay. I think the main factor is exposing dormant seeds during the pulling out process which then have loose soil for germination and light. I read somewhere that garlic mustard can set seed even on the compost heap so I bag it and send it to the city compost. The city pile will get hot enough to kill seeds but my home pile does not.

Darcie: I have other areas of non-native "problem plants" in the sunny part of my garden but it is not necessarily something I deal with in the spring. Occasionally I will decide that the prolific nature of a species will require some action. Most recently the target was *Desmodium canadensis* (showy tick trefoil) mainly because of the number of plants located too close to a garden path. I was shocked to discover how deep the roots had gone; they turned out to be a real struggle to dig out. This is one that I will be careful to deadhead from now on.

JudyB: I also need to weed out the natives. Switch grass (*Panicum virgatum*) seeds around and needs to be controlled. Canada wild rye (*Elymus canadensis*) seeds around a bit too so I pull stray seedlings out during the season. Every fall I thin out the grasses when I can tell which is which. It's harder to thin the native grasses in the spring as they all look the same without flowers or seed heads.

I get non-native grasses creeping in from the hiking trail behind my fence. The non-natives are cold-season so they are green and growing in April before any of the warm-season native grasses or forbs are showing. I dig them up with my perennial spade. When I get the odd non-native

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seedling showing up in the summer, it's small and easily pulled.

Darcie: This tip regarding weeding out non-native grasses is really valuable to me, as my native garden is in a reclaimed (bulldozed) lawn. I still have some lawn grass growing there, particularly in a somewhat shady area where the primary species is *Anemone canadense* (Canada anemone). Early in the spring, there is no mistaking the green, ready-to-go non-native grasses from the tan, dead-looking natives, which makes it easy to figure which are the ones to dig out. The non-native grasses are green even before Canada anemone starts to emerge. However, I do worry about bumblebees that often nest in abandoned mouse or vole holes so when I see a small round hole I try to avoid working in that vicinity; I do not want to disturb any bumblebees earlier than they would normally emerge.

JudyF: I don't have any special experience in weeding out non-native grasses. My motto with regard to grasses is "if in doubt, pull it out." Usually I can recognize the native grasses that I've planted myself and, so far, they have not seeded much.

However, I do dig up some of the annuals like jewelweed (*Impatiens capensis*) and place them in suitable locations. Some of the more aggressive wildflowers like the *Rudbeckia* spp. (black-eyed Susans and others) need to be thinned or the outer edges of the larger clumps completely removed, so they don't overpower the rest of the garden.

Darcie: Yes! Natives I commonly remove in the spring include brown-eyed Susans (*Rudbeckia triloba*) and golden Alexanders (*Zizea aurea*). I may pot them up, depending on the availability of a nearby pot and soil or just pull them out. The spring is not the primary time that I weed my garden, as I am engaged in the garlic mustard hunt.

A more significant task for me in the spring is to plant things into the yard. I usually do this in May (or in mid-September and onward). Otherwise, unless it's a real sun-lover, I fear that the sun will be too hot and that the UV rays will burn the leaves. I put considerable thought into siting plants, as I seldom move them once they're in the garden. I rely heavily on the cultural guide information provided in the Prairie Moon Nursery catalogue for plants' water requirements and tolerance for sun exposure. Depending on what I find out, I will situate plants on a hill or in a sandy place for those that like it dry, or at the bottom of a hill, in partial shade, or in my bog for species that like it wet.

Judy Flanigan has appropriated the boulevard in front of her house for native plantings

Photograph by Darcie McKelvey

JudyF: There is no simple answer as to when I plant out new acquisitions. I try to complete most of my dividing and replanting in the spring so that the roots can get re-established before the stress of summer heat and drought. However, if the plants are in pots they can be planted any time over the entire gardening season, until late fall. It just means they have to be monitored carefully to make sure they don't dry out or get overgrown by more vigorous neighbours. I often place 30-45-centimetre (12-18-inch) bamboo stakes next to new transplants so that I remember to water/weed them. After they are growing well these "reminder stakes" can be removed.

JudyB: I like the bamboo stake idea. The new transplants so often get lost. I try to plant before July (and after September 1st) because of the challenge of keeping things watered. It usually means that I have pots in the mini greenhouses all summer. Sometimes I have to pot them up into bigger pots. The mini greenhouses are in semi-sun and have trays to keep them moist.

Besides garlic mustard, I weed out buckthorn (*Rhamnus cathartica*) from the forested area. I've developed an eye for the tiny seedlings and pull them out weekly. Once in a while one gets by me and has to be dug. Some of the native trees put out seedlings and I dig those and pot them up for the sale.

JudyF: I try to mulch my native woodland gardens with natural materials such as old leaves, homemade compost or pine needles in mid- to late spring, after the

ephemerals have emerged. I don't want to smother anything. I avoid store-bought mulch or straw for mulching natives as I feel it just doesn't look right. I also rake lots of fallen leaves onto my woodland plants in late fall so they can break down over winter. The sun-loving prairie plants may or may not get mulched, depending on what materials I have left over. In nature, the only mulch they would get is decomposing grasses and their own stalks and stems.

JudyB: I mulch in the fall with leaves from my yard and collect the neighbour's leaves too. A friend with pine trees (*Pinus* spp.) brings me a big bag of needles for the blueberry patch. I do use commercial mulch too. The area I have to mulch is just too big. Some of my woodland garden has been reclaimed from lawn and the soil is dry, sandy and compacted. I put my homemade compost and leaves on the old lawn areas to build the soil. Then I use commercial mulch on the rest in the spring. Five households on my crescent share a truckload of mulch every spring. I have straw bales for autumn decoration, then use the straw to protect the overwintered pots. In the spring the straw is spread on the prairie garden or used if needed to smother garlic mustard. By the spring the straw is half composted and brown so it doesn't look too out of place in the prairie. I do notice that the straw-mulched areas need less water and plants grow better there the next season; the straw must be adding structure and nitrogen to the soil. I have a small scree and cactus garden that is mulched with pea gravel. It needs to be topped up every two to three years. I have some plants in the prairie that don't like wet feet so I mulch around them with limestone dust or gravel.

Darcie: I save tree leaves and red pine needles from the driveway in the autumn. I find the needles look great in my front yard garden which is a newer planted area with some space for new seedlings, should they take up the opportunity.

I did purchase some straw one year from a local farm supply store. I wanted to improve the soil in a shady area close to the house. The straw took forever to break down and did nothing to improve the soil. Since then, I have covered the area with native deciduous tree leaves from my property. I agree with Judy Flanigan: I avoid commercial mulching products, partially as I fear I may accidentally import some emerald ash borers or something else I don't want. Similarly, I do not buy compost from the local transfer station for fear of bringing in garlic mustard seeds.

PHOTOGRAPH BY JUDY BRISSON

*Fringe tree (*Chionanthus virginicus*) in bloom in Judy Brisson's yard*

JudyB: I have a small bog with plants that need dividing and topping up with sphagnum (I use whole sphagnum). There is a pondlet in the centre which needs to be cleaned of winter debris, mostly fallen leaves. I overwinter a pot of pickerel-weed (*Pontederia cordata*) and one of arrowhead (*Sagittaria latifolia*) in the pond and in most years they survive. They need to be removed from the pot, trimmed and replanted.

The pondlet is all natural with no pump so oxygenator plants need to be added as well as something floating to prevent algae… and a dozen feeder goldfish to eat mosquito larvae.

Darcie: My bog has reverted to a natural area. I planted too many sedges (*Carex* spp.) in it which are almost impossible to dig up, so it is currently too congested to allow even *Iris versicolor* (blue flag iris) to grow there. A few flowers persist, such as *Aster puniceus* (purple-stemmed aster), some *Gentiana andrewsii* (fringe-tip closed gentian), cardinal flowers (*Lobelia cardinalis*) and, unfortunately, weedy *Solidago* (goldenrods) that has moved in. It's an area I'd rather not think about right now!

JudyB: Just one more spring task I haven't mentioned. I have a lot of woodies so they need winter damage removal and some pruning if overgrown. I am growing plants too big for a small space so the shrubs always need a haircut and shaping. It takes time and practice to make them look natural. The trimmings get spread here and there on the forest floor to hold down mulch, support fungi and eventually rot.

Darcie McKelvey, Judy Brisson and Judy Flanigan are members of the Waterloo-Wellington Wildflower Society and NANPS.

Disjunct Atlantic Coastal Plain Flora on Eastern Georgian Bay

by Mark Carabetta & Dan Kraus

PHOTOGRAPH BY MARK CARABETTA

Tadenac Coastal Lots

We set out from King Bay Marina, in the community of Wah Wah Taysee on the eastern shore of Georgian Bay, in a small, fiberglass motorboat operated by Paige Stewart, a Georgian Bay Land Trust summer intern. It would be a four-kilometre (2 1/2-mile) run to our destination, including a brief stop at Paige's family cottage to pick up the kayaks for the final leg of our trip. The outboard engine sputtered. As we left King Bay and headed out onto the open water I felt the wind come up out of the west and couldn't help wondering if the motorboat was up to the task. With one hand firmly on the throttle, Paige confidently reached down with the other hand and jiggled the fuel line where it connected to the carburetor. The engine's sputtering ceased, the boat picked up speed and away we went, out onto the open, choppy waters of Georgian Bay.

The purpose of our excursion was to explore the Tadenac Coastal Lots, a 26.6-hectare (65.7-acre), ecologically significant property that the Georgian Bay Land Trust would soon be acquiring and thereby protecting forever from the threat of development. The Tadenac Coastal Lots include a diversity of coastal and interior wetlands, as well as open rock barrens and a forest of mainly white pine (*Pinus strobus*), red oak (*Quercus rubra*) and red maple (*Acer rubrum*). As a botanist, I was especially intrigued by the presence of disjunct Atlantic coastal plain flora.

Georgian Bay is a 13,000-square kilometre (5,019-square mile) embayment of Lake Huron, located in Ontario. More than 30,000 islands located along Georgian Bay's eastern coast form the world's largest freshwater archipelago. In the 1920s and '30s, the Canadian artists known as the Group of Seven painted striking landscapes of this region, with its barren granite rockscapes and iconic pines shaped by westerly winds. In 2004, eastern Georgian Bay was designated a World Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization. The Nature Conservancy and the Nature Conservancy of Canada (NCC) have identified many locations along eastern Georgian Bay as significant in their Bi-national Blueprint for the Great Lakes because of the rare species and intact coastal landscapes that occur there.

Eastern Georgian Bay supports a number of habitats and species of conservation importance. It boasts the largest area of open granite rock barrens in the Great Lakes region. Colonial nesting waterbirds, such as egrets, gulls and terns, use these rock barrens as nesting sites. Coastal wetlands up and down the shoreline, from Waubaushene to Killarney Provincial Park, provide important nursery and spawning habitat for a variety of fishes. The area supports a high abundance and richness of reptile and amphibian species, many of them rare in Canada and, in some cases, globally. For example, most of the world's population of the eastern fox snake, Endangered in Canada, occurs on eastern Georgian Bay.

The presence of Atlantic coastal plain flora in this area has long interested botanists and conservationists. The shores of eastern Georgian Bay and a few other locations along the Great Lakes shoreline support a number of plant species whose ranges are otherwise restricted to the Atlantic coastal plain, located between 500 and 1,000 kilometres (310 and 620 miles) away. In botanical terms this phenomenon, in which one or more populations are geographically separated from other potentially interbreeding populations,

is known as a disjunct distribution.

One can tell by the names of some of these plants that they were first described on the Atlantic coast. Virginia meadow beauty (*Rhexia virginica*), which has a distinctive flower with four purple petals and bright yellow anthers, is one of the more distinctive and easily recognized. Another is Carolina yellow-eyed grass (*Xyris difformis*), a small, Provincially-rare, yellow-flowered plant of coastal marshes and bogs. Other Atlantic coastal plain plants found on Georgian Bay include Eaton's rosette grass (*Dichanthelium spretum*), stiff yellow flax (*Linum medium*), ridged panic grass (*Panicum rigidulum*), small water-wort (*Elatine minima*), Smith's club-rush (*Schoenoplectus smithii*) and Tuckerman's quillwort (*Isoetes tuckermanii*).

On eastern Georgian Bay, Atlantic coastal plain flora occurs primarily along sandy and cobble shores of lakes, marshes, beaver ponds and slow-moving rivers. Some of the plants that make up this group can be found only on the Atlantic coastal plain and the Great Lakes, while others have an affinity for the coastal plain but can be found elsewhere, such as further north along the Atlantic coast, in Nova Scotia and Newfoundland.

Close to our destination, Paige shut off the engine and let the bow of the boat drift gently onto a sandbar that blocked entry into a small, isolated bay. We secured the boat, unloaded the kayaks, which had been loaded crosswise across the gunwales, dragged them across the sandbar, then launched and paddled up the narrow, twisting bay. Once the water became too shallow, we pulled the kayaks up onto the marsh that lined both sides of the bay. Here and there, amongst plants more common to the coastal marshes of Georgian Bay, was one of the Atlantic coastal plain species that I had been hoping to see – the Carolina yellow-eyed grass mentioned earlier.

We spent the next hour exploring the marshes, seeing more Carolina yellow-eyed grass amongst the capitellate beak rush (*Rhynchospora capitellata*), horned bladderwort (*Utricularia cornuta*) and soft-stem bulrush (*Schoenoplectus tabernaemontani*). We then moved inland to explore other parts of the property, including an isolated sphagnum bog dominated by Virginia chain fern (*Anchistea virginica*), three-way sedge (*Dulichium arundinaceum*) and cotton-grass (*Eriophorum tenellum*), and abundant with flowering white-fringed orchids (*Platanthera blephariglottis*).

Scientists have been studying the disjunct coastal plain flora of the Great Lakes region, and their origins, since the phenomenon was first described by Donald Culross Peattie in his 1922 article *The Atlantic Coastal Plain Element in the Flora of the Great Lakes*, published in the journal *Rhodora*. Others, such as Paul Keddy and A. A. Reznicek, have further described and analysed the Atlantic coastal plain flora of the Great Lakes, including on Georgian Bay, and have refined previous hypotheses for the occurrence of these disjunct species.

It is believed that following the last ice age, these species spread from the Atlantic coastal plain along waterways connecting the Great Lakes and the

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PHOTOGRAPH BY JANE NOVAK

Rhexia virginica

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Atlantic coast, including the Hudson River. Birds may have contributed further to this dispersal by depositing seeds throughout the region. The shoreline of the Great Lakes and its connection to the Atlantic coast has changed drastically since the last ice age. As the extensive post-glacial waterways began to change and retract, approximately 10,000 years ago, these plants persisted in areas of suitable habitat now markedly isolated from each other.

Atlantic coastal plain flora along eastern Georgian Bay have the same vulnerabilities as other types of shoreline flora. These include habitat loss through development, off-road vehicle traffic, dredging and alteration of natural water level fluctuation. The impact of the current, very low water levels in Georgian Bay on the populations and distribution of these species has not been studied. An additional challenge, characteristic of any isolated group of plants, is that if a local population is extirpated it is unlikely it could be re-established since nearby seed sources probably do not exist.

A mapping analysis conducted by the Nature Conservancy of Canada found that less than half of the documented occurrences of Great Lakes coastal plain flora on eastern Georgian Bay are located within protected areas such as national parks, provincial parks and land trust properties. This means that over half remain unprotected and vulnerable to destruction, especially given the rapid rate of development in some areas of Georgian Bay. Also, in preparation for this article, a review of herbarium records for Virginia meadow beauty, Carolina yellow-eyed grass and Virginia marsh St. John's wort (*Triadenum virginicum*) was conducted at the Royal Ontario Museum (ROM). The findings further substantiate NCC's conclusion that more than half the occurrences of Great Lakes coastal plain flora are on private lands. A complicating factor is that many of the records included in NCC's analysis are from sites that have not been verified for over 20 years. Similarly, many of the herbarium specimens at the ROM were collected over 20 years ago. Further research and field inventory are needed.

On our return trip to King Bay the wind picked up. By the time we arrived back at the marina we were wind-blown and soaked from spray off the bay. Our excursion to the Tadenac Coastal Lots was one step leading toward the Georgian Bay Land Trust's acquisition of the property, successfully completed on January 25, 2013. This project was the result of the successful, ongoing partnership between the Georgian Bay Land Trust, the Tadenac Club, the Nature Conservancy of Canada and Environment Canada.

Mark Carabetta is the Executive Director of the Georgian Bay Land Trust, a not-for-profit registered charity whose mission is to preserve the unique archipelago and the adjacent water bodies along the eastern shore of Georgian Bay and the North Channel, and to promote the appreciation of this special area. Visit www.gblt.org.

Dan Kraus is Manager of Conservation Science and Planning at the Nature Conservancy of Canada, Ontario Region. The Nature Conservancy of Canada and the Georgian Bay Land Trust have worked together towards the protection of eastern Georgian Bay and, in 2011, developed a joint conservation plan for the region that includes the protection of Atlantic coastal plain flora.

The Trees Beneath Your Feet - A Tale of Graft and Corruption

by Kenneth Armson, Registered Professional Forester

Whether you are interested in the ground vegetation, birds, fungi or wildlife when you go for a walk in a forest, trees are ever present as a macrostructure and backdrop. Except in young forests, you are likely to see larger or older trees that have been wind-thrown, lying on the ground with a part of their root system sticking up in the air, often with soil and stones attached. You might give casual attention to the roots. Depending on when the tree was wind-thrown, and its species, much of the root may have rotted away. The soil has slumped to the surface and created a mound adjacent to the depression the wind-thrown tree left. This is the origin of the "hump and hollow" forest surface characteristic of most woodlands.

When we speak about the ecology of forest communities, we most often focus on the above-ground features but there is a major component which lies beneath the surface associated with the roots of the trees. Above ground the trees are usually viewed as separate individuals, each contributing to the forest community; below ground the roots tell a different story. It's relatively easy to look at and measure trees above ground but if you want to look at their roots in a comprehensive way, a lot of effort is required, as is considerable disturbance and removal of the soil around them. Species have different forms of root systems. Some are relatively plastic or flexible and can adapt to a range of soil conditions and depths. A good example of this is the red maple (*Acer rubrum*): its adaptability may partly account for its wide latitudinal range from Florida to the southern part of the Arctic watershed in eastern North America. Other trees are not so flexible and are

Photograph by Ken Armson

Roots of an 85-year-old jack pine growing in outwash sands. Note restriction of vertical root extension at 1.3 metres (4.2 feet) due to change in soil texture

usually found with a series of major thick roots, often including a tap root, such as the pines (*Pinus* spp.) and oaks (*Quercus* spp.). Most species have a combination of roots, both vertical and lateral, of many sizes.

Roots comprise 10 to 25% of a tree's mass, depending on species and stage of development. They are the major organs for absorbing the nutrients and water from the soil that are necessary for a tree's growth and well-being. The main roots will provide anchorage for the tree while a tree's fine feeder roots will predominate in the surface soil layers where the mineral and organic matter provide a major source of both nutrients and water. Deeper roots in the mineral soil absorb both water and nutrients. Most interested persons are familiar with – and have expectations about – tree growth above ground, especially if they are involved with establishing a new forest plantation. Apart from competition from other plants above ground there is unlimited space for the development of a tree's stem and crown. But what about the growth of the root systems below? The nature of the geological materials in which the soil develops and the type of soil development usually restrict root growth. Normally the restriction in root growth has a major effect on water uptake and this is what limits the above ground development of the tree.

The roots of a young tree normally grow rapidly out and down into the soil until they are limited in extension by some soil feature, usually physical, such as bedrock, a major change in soil texture or groundwater. For our northern trees this commonly occurs within the first 10 or so years of the tree's life. These roots will continue to grow in diameter; normally the growth is greater closer to the tree's stem, but there will be a continuous infilling of the initial rooting volume with age and development of the entire tree. Inevitably then, as each tree in the forest develops above ground so does its roots. Thus roots from one tree will grow into the rooting volumes of adjacent trees. As they intermingle and grow in diameter, one or more will come into contact with another root and, as their diameter growth increases, there will be an increase in pressure at these points of contact. The roots of trees in the soil are solidly anchored; as the pressure at points of contact increases, the bark of the roots can be broken and the tissues of the two roots come into contact so that there is a living union between them. This is the origin of root grafts. Self-grafts occur between roots of the same tree, intraspecific grafts between the roots of trees of the same species, and interspecific grafts between roots of different species.

Self-grafts are most common and generally occur close to the base of the stem of a tree. Grafts between roots of different individuals of the same species are also common and have received the most attention. Grafts between roots of different species are rare. Where root grafts are observed, the only way to be sure that there is a union of vascular tissues is by physically cutting into the apparent graft; if the bark remains intact around both roots then no union of tissues has occurred. The time for the union to take place in red pine (*Pinus resinosa*) in Ontario was found to be one to two years. Grafts between trees of different species are most likely to occur when they are of the same genus and can hybridize, as has been reported for certain oak species. "Live" stumps are the most obvious indication that root grafts are present as shown by callus tissue on the stump surface.

This leads to the question of who benefits from the presence of grafts. What are the implications for stand development and what may best be termed "forest hygiene"? One of the most obvious inferences is that where there is extensive occurrence of grafts, for example in a stand of pine, it will impart some extra degree of wind-firmness than would otherwise exist. Many scientific investigations have looked at the movement of minerals, water and organic materials between individuals that have grafted roots. It would appear that diversion of minerals and water from one tree to the other is not significant; however, this does not apply to organic materials, which are transported. When this occurs between a dominant and a smaller tree, the latter gains. Between two dominant trees the

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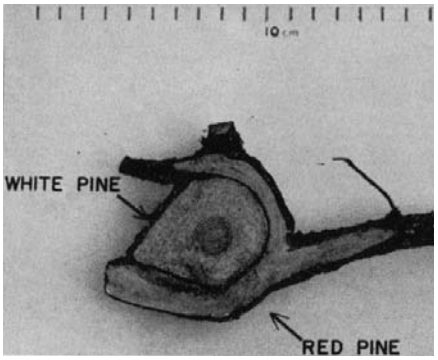
exchange is most likely neutral. However, if the live tree is keeping a stump alive it is giving up some of its metabolites but probably gains some increase in water and nutrient absorption from the expanded root system. Payoffs are a part of the system! Where a tree takes over the portion of another root system which has died without any residual connection to the stump of the dead tree, there is an immediate enhancement of the surviving tree's root system: the benefits are water and nutrient absorption.

Another area of major study is the ability of pathogens to move from one tree to another via root grafts. Transfers of *Heterobasidium annosus* in pines, oak wilt and other pathogens have been well-demonstrated, although root grafts are not necessarily the main vector for their transmission in a stand. There are a number of forest management practices which either enhance the formation of root grafting or can be affected by the presence of grafts in a stand. Generally, the act of thinning, especially in young polewood stands (saplings to small sawlog sizes), results in increased root grafting. In a study of graft occurrence in a 45-year old red pine plantation in Ontario there was a four-fold increase in root grafting in the thinned versus the unthinned stand. Chemicals injected into live trees either to kill them (silvicides) or for other purposes are likely to be readily transported to adjacent individuals via root grafts. Where roots of two or more individual trees are in very close contact without the formation of grafts, the transport of chemicals such as plant auxins between them can still occur.

The entire zone of roots in the soil, the *rhizosphere*, is a rich, biologically active one deserving of far more attention than we have given it.

Ken Armson is the Chair of the Forest History Society of Ontario and the former Provincial Forester for Ontario.



Apparent graft between two pines. Note continuity of bark.

PHOTOGRAPH BY KEN ARMSON WITH PERMISSION OF FORESTRY CHRONICLE

Calendar of Events

February 28-March 1, 2013
18th Annual Water Conservation And Xeriscape Conference
Albuquerque, New Mexico
Our Water, Our Future: Communications across Disciplines
Visit www.xeriscapenm.com or contact cheri_vogel@yahoo.com.

April 5-7, 2013
Master Gardener Conference
Huntsville, Ontario
Topics: Gardening for Healthy Watersheds, Soil - The Key to Successful Gardening, Our Trees - A Walk through Time and many others.
www.mgoinationalconference.ca

April 8-11, 2013
National Native Seed Conference
Santa Fe, New Mexico
This conference focuses on Native Plant Materials Development, Production and Use in Habitat Restoration. Visit www.nativeseed.info/registration/ to register.

May 16-19, 2013
Florida Native Plant Society Conference: Celebrating La Florida, The Land Of Flowers
Jacksonville, Florida
This conference will commemorate Ponce de Leon's naming of Florida when he landed there 500 years ago.
Visit www.fnps.org/conference/2013.

June 10-15, 2013
Isle Royale Botany Workshop
Rock Harbor, Michigan
Isle Royale and Keweenaw Parks Association presents its seventh annual botany workshop open to anyone with a beginner/intermediate knowledge of plant identification on Raspberry Island or other fascinating places on Lake Superior. Contact: 906-482-7860 or kbradof@irkpa.org.

June 20-12, 2013
Plant Id Workshop At Royal Botanical Gardens: wetland graminoid species
Hamilton, Ontario
RBG offers botanical identification workshops for conservation and environmental professionals, ecologists, horticulturists, graduate students, amateur botanists and master gardeners. This workshop will deal with grasses, sedges and rushes.
http://www.rbg.ca/Page.aspx?pid=473#w

July 11-12, 2013
Grass Identification Workshop at royal botanical gardens
Hamilton, Ontario
http://www.rbg.ca/Page.aspx?pid=473#g

July 17-20, 2013
Cullowhee Native Plant Conference
Cullowhee, North Carolina
The 30th annual conference focuses on increasing knowledge about propagating and preserving native southeastern plant species in the landscape. Contact hensley@wcu.edu for more information.

See page 3 for NANPS Events.

Continued from page 1 – **Encrusted saxifrage**

few holdovers from another era. Not programmed to be a strong competitor to southern-ranging species, and with somewhat unusual habitat requirements, it has an exceedingly limited amount of suitable habitat. Listed as a Threatened species in most of its southern range, it occurs

PHOTOGRAPH BY GRANT DOBSON

in only a handful of relict populations, widely separated from its main range. Next to the very localized sites of encrusted saxifrage near where I live, the closest location in Ontario is along the north shore of Lake Superior, hundreds of kilometres away.

On the positive side, *Saxifraga paniculata* is among the easiest perennials to propagate, comparable, in fact, to many species in the genus *Sedum*. The plant produces new rosettes every year, at the ends of horizontal stolens. These can be severed and pushed into moist rooting media. My wife and I use any standard soilless mix, amended with equal parts sharp sand.

After a usual three- to four-week rooting period, we grow them in small eight-centimetre (three-inch) pots until they are planted out to the rock garden. We also grow them from seed; it's just as easy. Sow the seeds on the surface of the medium and place a loose piece of clear plastic over the tray.

This saxifrage makes an interesting addition to a native trough garden. With its propensity towards limestone, it works very well on tufa. However, most of our plants grow on a three-metre (10-foot) high cliff garden established five years ago. *Saxifraga paniculata* now self-seeds, naturalizing in combination with maidenhair spleenwort (*Asplenium trichomanes*), pale corydalis (*Corydalis sempervirens*) and slender rock brake (*Cryptogramma stelleri*).

Other than trimming off the seed stalks in late summer and removing extra stolens from time to time for propagation, encrusted saxifrage has taken no effort to maintain. Its perky evergreen leaves are always a welcome sight in a mid-winter thaw.

Habitat changes, due to climate change, make it imperative that we preserve the genetics of these relict populations and keep their story alive.

Grant Dobson and his wife Dorothy have more than 70 years of gardening experience between them and are now semi-retired from their greenhouse and garden centre business. This leaves more time to pursue Grant's dual passions of developing a botanic garden of Ottawa Valley indigenous plants (www.connaughtnursery.com) and volunteering in the development of a nearby outdoor education centre (www.shawwoods.ca).

LEAF PROGRAMS

LEAF (Local Enhancement and Appreciation of Forests) is holding multi-day courses for those wishing to gain tree-related knowledge and skills, including how to properly care for trees. This basic arboriculture training comprises indoor and outdoor instruction, including a group tree planting. This spring course will be offered in Toronto in April and May (dates TBA) and in Richmond Hill on June 8, 12 and 15.

Through their backyard tree planting programs LEAF offers native trees and shrubs to homeowners in Toronto and York Region. Visit www.yourleaf.org for information about these programs and more.

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.**

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