The Blazing Star

Summer 2007, Volume 8, Issue 3

Newsletter of the North American Native Plant Society

Native Plant to Know

Swamp Milkweed

Asclepias incarnata

by Natalie Helferty

Swamp milkweed (*Asclepias incarnata*), like all native milkweeds, derives its common name from the sticky, milky juice exuded by the stems, and its preference of moist environments. The juice of this plant is a latex that deters crawling insects from pollinating the flowers, which rely on flying insects for that service. An ant, for example, makes minute holes in the stem as it walks up the milkweed, thus getting its feet gummy in the sap. The sap hardens like glue in a matter of minutes when exposed to air.

On the other hand, the latex and the normally poisonous cardenolides and glycosides found in the sap have benefited the now-endangered monarch butterfly that uses the milkweed as a host plant for its larvae. One study comparing two eastern species, common milkweed (*Asclepias syriaca*) and swamp milkweed, and two western species, narrowleaf milkweed (*A. fasciculari*) and showy milkweed (*A. speciosa*), for butterfly egg-laying preference showed that swamp milkweed was preferred by female monarchs.

Swamp milkweeds often grow on riverbanks and wetland edges which become flyways for monarchs. The females lay their eggs along these routes, with the next generation of caterpillars becoming the newly emerged migrants. This amazing generational movement has

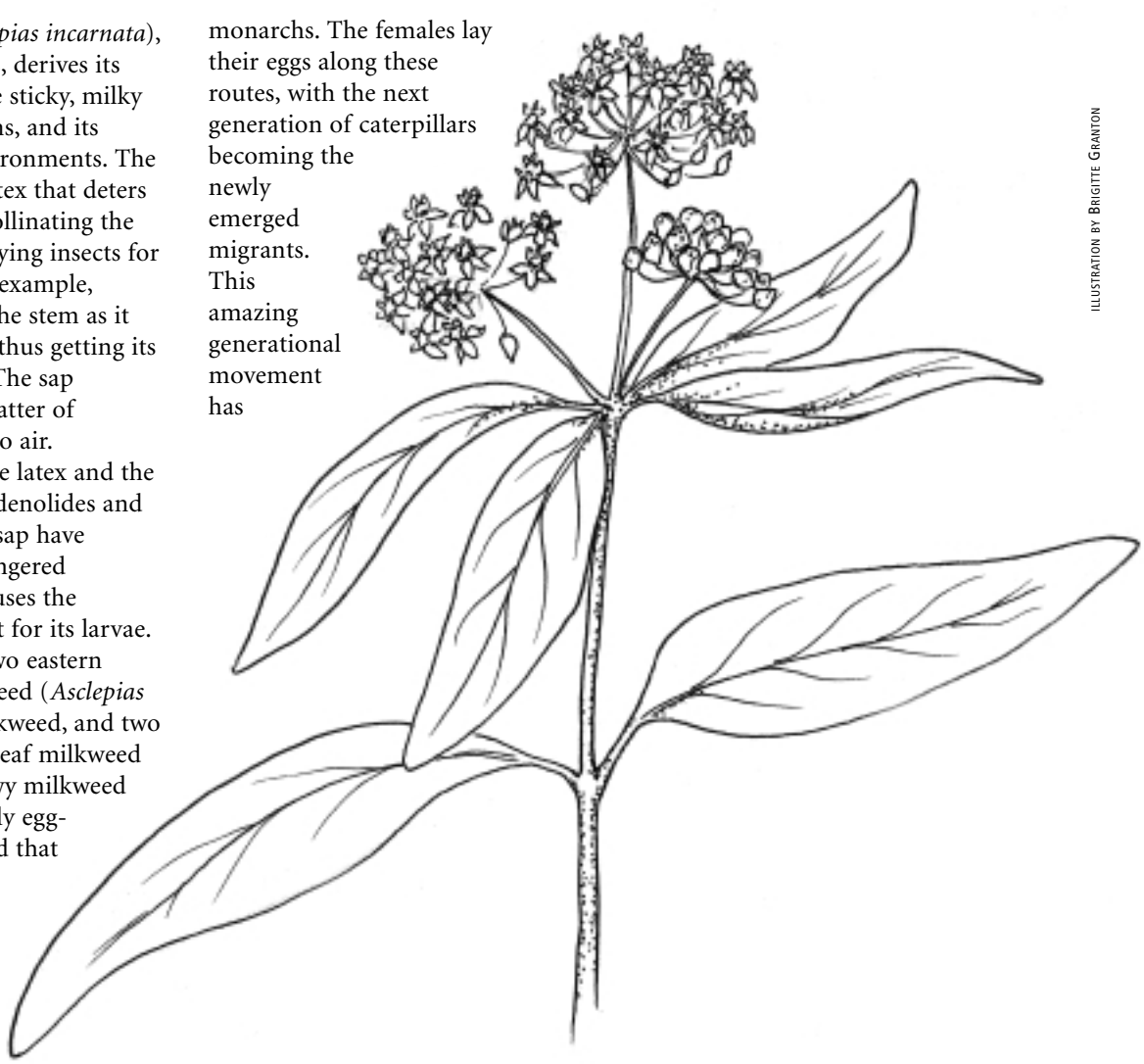

illustration by Brigitte Granton

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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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Please make cheques and money orders payable to North American Native Plant Society and mail to P.O. Box 84, Station D, Etobicoke, Ontario M9A 4X1.
Telephone: (416) 631-4438. E-mail: nanps@nanps.org. Web: www.nanps.org.

Volunteer for NANPS!

At our last board meeting, we decided to focus on activities we believe members will find enjoyable and worthwhile, while continuing to support projects and initiatives reflecting local and global ideals. These activities include the Plant Sale, plant rescues, excursions, plant swaps, seed exchange, meeting other native plant lovers, exhibiting at environmentally oriented events and workshops.

For the past few years, NANPS activities have been planned, organized and implemented, with a few exceptions, mainly by board members. The reality is that we have been limited in degree and quantity by the amount of time a few people have had to accomplish many things.

On your membership forms many of you checked off volunteering for NANPS as something you'd be interested in doing. The members we spoke with indicated a definite interest in following through. But we have only had time to contact volunteers for our annual Plant Sale. This must change because we, as an organization, have so much to accomplish!

To facilitate this process, we need a volunteer coordinator. Miriam Henriques will take on that role temporarily, while remaining co-president. We will both be contacting members over the summer to find out what committees/positions people are interested in. **Committees:** Excursions, Plant Rescue, Publicity, Plant Sale, Phoning, NANPS Booth, Plant Swaps, Website, Land Steward, Seed Exchange and Workshops. Also we are calling for **nominations to the Board**. Please e-mail or phone us with your suggestions for board nominations and ideas on how to make our organization more vital.

As a volunteer and non-profit organization, ***the strength of NANPS is its members.***

Best regards,

***Miriam Henriques** – 416- 225-0741 after 6:00 pm, miriam.henriques@tel.tdsb.on.ca*
***Harold Smith** – 416- 482-9661 after 6:00 pm, harbersmith@sympatico.ca*

Alderville Black Oak Savanna/Red Cloud/Sweetgrass Studios Excursion

SATURDAY SEPTEMBER 8, 2007

Swaying grasses and open expanses are watchwords for our upcoming NANPS excursion.

Our trip starts with a visit to Red Cloud Pioneer Cemetery, a gem of a prairie remnant timelessly preserved due to its cemetery designation. Then we will visit Alderville Black Oak Savanna (aldervillesavanna.ca) to see the Prairie in its prime.

Following our guided tour we will lend a friendly NANPS hand to Alderville by seed-collecting for them for about a half hour (optional). The collected seeds will expand and enrich the existing Prairie. On to Sweetgrass Studios, home to Rick Beaver, a Canadian Ojibway artist (www.rickbeaver.com) to enjoy his nature-inspired work!

Tickets available now at excursions@nanps.org. Seating is limited. Check www.nanps.org for the agenda or leave a voicemail at 416-631-4438.

NANPS Annual General Meeting

SATURDAY, OCTOBER 13, 2007, 12 – 4 P.M.
MARKHAM CIVIC CENTRE, CANADA ROOM
101 TOWN CENTRE DRIVE,
MARKHAM, ONTARIO

- Discussion of water conservation and xeriscaping
- Sale of local native plants from 12-1pm
- Election of the Board
- Presentation of NANPS first annual Native Plant Garden Awards
- Refreshments served
- Members of the public are encouraged to attend
- Keynote speaker to be announced – visit the website at www.nanps.org.

For more info contact nanps@nanps.org or leave a message at 416-631-4438.

Endangered Ecosystems in Our Midst

by Zoe Dalton

For many of us, the concepts of endangered species and endangered spaces conjure up images of far-off places. The Amazonian rainforests, coral reef systems of the Caribbean, the once limitless savannahs of Africa's interior: decline and disappearance are often associated with the world "out there".

But, in our very own country, it would be hard to find a location not associated with endangered species and spaces. From the ancient rainforests of the west coast to the grasslands of central Canada to the fisheries of the Maritimes, ideas of limit, scarcity and the vulnerability of species and the ecosystems that sustain them are ever-present.

On my Toronto doorstep is an ecosystem under great pressure. The Black Oak Savannahs of southwestern Ontario are part of the tallgrass plant community, a nationally endangered and globally imperiled ecosystem.

Savannahs are natural communities characterized by dominant grass and wildflower vegetation, interspersed with trees; in this case, the primary tree species is black oak (*Quercus velutina*). Tallgrass ecosystems, more endangered even than tropical rainforests, have received much less attention than their sexier tropical and sub-tropical counterparts.

Only three percent of the original savannah ecosystem remains in southern Ontario. Much of what's left is comprised of tiny, fragmented sites suffering from the growing invasion of aggressive non-native plants, systemic problems associated with a lack of natural disturbances such as fire (upon which the savannah's health is largely dependent), and savannah-dependent plant and animal species – such as the nationally rare wild lupine (*Lupinus perennis*), spiked blazing star (*Liatris spicata*) and southern flying squirrel – on the brink of extinction. These fragmented habitat remnants are undergoing pressure from urban and agricultural development.

Conserving the savannahs in this region is complicated by the fact that almost all the land base in southern Ontario is privately owned. Conservation areas cannot simply be declared here or there as environmental managers see fit. The interest and concern of the general public – and their willingness to play a key role in conservation – is critical to the future of savannahs.

Photo courtesy Graham Buck

Black oak savannah

Thus, conserving endangered ecosystems in areas where populations are exploding and development pressures are always just over the horizon becomes as much about people as about conservation science. Species inventories need to be carried out, locations of sites must be documented, threats to habitat fragments should be understood so they can be addressed and hopefully minimized. But the most accurate, up-to-date data in the world won't save imperiled ecosystems such as the Black Oak Savannahs without stewardship. They must have the involvement and buy-in of the people of the region.

Stewardship refers to a type of ecological care-taking based in the community. It involves people looking after their land both for their own good and for the good of all species that depend on it, ensuring that a diversity of healthy, intact ecosystems will be around for future generations.

Is it possible to engender a wish within communities to take part in stewardship? Part of the answer depends on how well environmental scientists take on the new role that is demanded of them in complex contexts such as southern Ontario. Educating the public, fostering appreciation and understanding of the savannahs, encouraging a sense of responsibility to the ecosystem: these are the new goals that need to be met by those in charge of conserving our endangered spaces. It's a new age, one demanding of a new role for science, and a new role for scientists with a very different skill set, new priorities and new directions. The survival of endangered ecosystems and the species that rely on them will depend on the ability to blend science with social science and the capacity to collect hard data, and to talk softly with those upon whose interest and enthusiasm the future of our environment depends.

Zoe Dalton is a PhD student studying environmental management at the University of Toronto. This article was adapted from one originally published in The Voice Magazine, by the Athabasca University Student Union.

A Black Walnut Garden: The Juglone Zone

by Graham Buck

Question: I have a large, beautiful black walnut tree in my yard. I'm having trouble growing shade-loving annuals under my tree. What can I do?
Answer: Your black walnut (*Juglans nigra*) is defending its space—that's why you are having trouble getting some plants to grow underneath it. Using a strategy called allelopathy, the tree produces and releases a chemical called juglone that adversely affects many other (but not all) plants. Juglone can be found in all parts of the black walnut tree. If the roots of susceptible plants come within 12 millimetres (1/2 inch) of the walnut's roots, they can absorb the juglone, sicken and die. Also, walnut leaf litter and nuts on the ground leach juglone into the soil. The "toxic zone" is not just under the tree canopy, it extends 15-20 metres (50-65 feet) out from the trunk, so there is a large area to consider.

The question of what to plant under or near a black walnut has got to be one of the most commonly asked gardening questions. I suggest taking your inspiration from nature: "Choose the right plants for your site and you'll find them well-adapted, with built-in resilience to changes in temperature and rainfall, and minimum maintenance requirements." (Joanna Poncavage, The Morning Call, April 26th, 2006). In this article I will outline plants I have encountered in natural spaces thriving alongside black walnuts and how they came together in my black walnut garden.

Walnut trees grow best in openings or along the edges of forests, where there is adequate sunlight. They typically grow as scattered individuals or in small groups mixed with a wide variety of other hardwoods. Pure stands of black walnut are rare, but can occur as small groves at the edge of a forest. No universal vegetative indicator of a good walnut site is known. In general, where tulip trees (*Liriodendron tulipifera*), white ashes (*Fraxinus americana*), red oaks (*Quercus rubra*), basswoods (*Tilia americana*), sugar maples (*Acer saccharum*) or red or slippery elms (*Ulmus rubra*) grow well, black walnut trees thrive too.

My interest in walnuts was not prompted by the frustration of failure; it came from an appreciation of the uniqueness of black walnut plant communities in the wild. Two come to mind: Clear Creek Forest in Kent County and the Nith River in Waterloo County.

At Clear Creek, the canopy is composed entirely of black walnut trees. When I inquired about the origins of the trees in this area, I was told it was formerly an agricultural field. After it was abandoned, it naturally succeeded into a forest. Squirrels were responsible for planting the nuts gleaned from trees along a nearby creek.

Some of the plants thriving within the grove in the spring and early summer are wild blue phlox, false mermaid-weed, white trillium, red baneberry, northern waterleaf and Virginia waterleaf (see sidebar for botanical names). Walnut canopies tend to grow far enough apart to allow sunlight to reach the ground throughout the growing season. In the summer, after the spring wildflowers become dormant, a lush layer of silky wild rye and Virginia wild rye takes over. Growing among the grasses are the beautiful tall bellflower and the unusual wild coffee. Sweet cicely is also very common in the summer. The dominance by this single tree species, the spacing of the trees, the lack of a shrubby understorey and the tall grasses led to the nickname walnut savanna.

Photo courtesy Irene Fedun

The straight trunk in the centre of the photo belongs to a black walnut tree.

The Nith River hosts a different type of walnut community. Along the floodplain are forests of black walnut, black maple (*Acer nigrum*), white ash, hackberry (*Celtis occidentalis*) and bur oak (*Quercus macrocarpa*). The forest understorey is rich with wild ginger, toothwort, zig-zag goldenrod, common blue violet, Dutchman's breeches, running strawberry vine, common wood sedge, Pennsylvania sedge, graceful sedge and others.

There are also unusual plants such as Gray's sedge, green dragon, twinleaf, moonseed, wild coffee and wahoo. Alien species also flourish in this very disturbed environment because high waters wash through the forest, removing leaf litter, depositing weed seeds and soil, and causing other disturbances to the site. Garlic mustard (*Alliaria petiolata*), dame's rocket or *Hesperis matronalis* (a garden escapee originally from Europe), moneywort (*Lysimachia nummularia*) and crack willow (*Salix fragilis*) are the most dreaded of the aliens.

After seeing these captivating examples of natural black walnut plant communities, I wanted to transform the black walnut grove at

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Black Walnut Nuts

Black walnut is a prolific producer of nuts, which some consider to be another evil trait of the plant. Gourmet cooks, on the other hand, love the rich, smoky flavour (with a hint of wine) that black walnuts lend to cookies, breads, cakes and other baked goods. (Black walnuts have a stronger taste than the more common English walnuts.) Black walnuts can be used in any recipe that calls for nuts, but unless you're really fond of the strong flavour, use sparingly or combine one part black walnuts with three parts English walnuts.

Preparing black walnuts for baking involves several steps but well worth the time and effort. Removing the husk can be a difficult and messy job, because the yellow dye will stain anything it comes into contact with. Start by floating the nuts in water and discarding any that float – an insect will have made its home inside a floater. How you hull the nuts is a matter of personal taste. Driving on them with a vehicle, smacking them with a hammer, or agitating with a mixture of one part water, three parts nuts and a handful of gravel are all common ways that come with their own pros and cons.

To enhance the flavour of the nuts, cure them by stacking in shallow layers two or three nuts deep, in a cool dry location, for two weeks. When you are ready to shell the nuts, soak them in hot water for 24 hours, replace the water and soak in more hot water for another two hours.

Juglone-Tolerant Plants

Full Sun - Moist

Cord grass *Spartina pectinata*
Cup plant *Silphium perfoliatum*
Golden Alexanders - *Zizea aurea*
Great St. John's-wort *Hypericum ascyron*
Green-headed coneflower *Rudbeckia laciniata*
Michigan lily *Lilium michiganense*
Oxeye *Heliopsis helianthoides*
Tall coreopsis *Coreopsis tripteris*
Tall sunflower *Helianthus giganteus*
Wingstem *Verbesina alternifolia*

Full Sun – Dry

Asters *Symphyotrichum/Eurybia* spp.
Big bluestem *Andropogon gerardii*
Black-eyed Susan *Rudbeckia hirta*
Canada wild rye *Elymus canadensis*
Goldenrods *Solidago* spp.
Indian grass *Sorghastrum nutans*
Ironweed *Vernonia* spp.
Little bluestem *Schizachyrium scoparium*
Mountain mint *Pycnanthemum* spp.
Switch grass *Panicum virgatum*
Shrubby St. John's-wort *Hypericum prolificum*
Wild bergamot *Monarda fistulosa*
Wild senna *Cassia hebecarpa*

Semi-Shade

Baneberry species *Actaea* spp.
Bottlebrush grass *Elymus hystrix*
False mermaid-weed *Floerkea proserpinacoides*
Heart-leaved aster *Symphyotrichum cordifolium*
Northern waterleaf *Hydrophyllum canadense*
Silky wild rye *Elymus villosus*
Sweet cicely *Osmorhiza claytonii*
Tall bellflower *Campanula americana*
Virginia waterleaf *Hydrophyllum virginianum*
Virginia wild rye *Elymus virginicus*
Wild coffee *Triosteum aurantiacum*

Shade

Alternate-leaved dogwood *Cornus alternifolia*
Common blue violet *Viola sororia*
Common wood sedge *Carex blanda*
Dutchman's breeches *Dicentra cucullaria*
Graceful sedge *Carex gracillima*
Gray's sedge *Carex grayi*
Green dragon *Arisaema dracontium*
Jack-in-the-pulpit *Arisaema triphyllum*
Mayapple *Podophyllum peltatum*
Moonseed *Menispermum canadense*
Pennsylvania sedge *Carex pensylvanica*
Running strawberry vine *Euonymus obovatus*
Toothwort *Cardamine* spp.
Trilliums *Trillium* spp.
Twinleaf *Jeffersonia diphylla*
Wahoo *Euonymus atropurpurea*
Wild blue phlox *Phlox divaricata*
Wild ginger *Asarum canadense*
Zig-zag goldenrod *Solidago flexicaulis*

WANTED: SEED DONORS

NANPS members are preparing for our annual Seed Exchange. If you have donated in the past please continue to support others' horticultural endeavors. If you haven't, here's your chance. Carefully collect ripened seeds from your native plants, put each species in a separate envelope, mark them with common and Latin names, indicate if they were collected in the wild or your garden and the town or city. Send them to NANPS Seed Exchange, Box 84, Stn D, Etobicoke, ON M9A 4X1 or bring them to the AGM on October 13th. Seed donors are entitled to request up to 30 different species, rather than 15!

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Juglone-Intolerant Plants

Smooth serviceberry *Amelanchier laevis*
Witch-hazel *Hamamelis virginiana*
Wild plum *Prunus americana*
Common elderberry *Sambucus canadensis*
New Jersey tea *Ceanothus americana*
Silky dogwood *Cornus amomum*
Fly honeysuckle *Lonicera canadensis*
Ninebark *Physocarpus opulifolius*
Shrubby cinquefoil *Potentilla fruticosa*
Chokecherry *Prunus virginiana*
Purple flowering raspberry *Rubus odoratus*

my nursery in New Hamburg, Ontario into a walnut garden. Over time, I moved in plants from different areas on the property. I also found local populations for some of the native plants listed above. After growing them from seed, I worked them into the black walnut grove in the spots I thought would best suit them.

Since the juglone zone at my nursery extends beyond the canopy of trees along an open, south-facing front, I established a walnut floodplain habitat similar to what I have observed along the Thames River. This area of the walnut garden is composed of cord grass, tall sunflower, cup plant, green-headed coneflower, wingstem, oxeye, Michigan lily, tall coreopsis, great St. John's-wort and golden Alexanders. Nearby, I planted two rare species: blue ash (*Fraxinus quadrangulata*) and hairy wood-mint (*Blephilia hirsuta*). Both are very rare in Ontario; they occur together along a section of the Thames River.

None of my prairie plants showed ill effects from the juglone. A number of the species are aggressive spreaders that can be difficult to control in a small garden. In a limited area or a drier situation, I would suggest a prairie composed of wild bergamot, black-eyed Susan and grasses.

I delight in the challenges of recreating natural-looking plant communities like those associated with black walnut. By using nature as an inspiration to create my garden, I have learned about the environment and landscaping.

Graham Buck has been growing native plants for over 10 years. He recently started a nursery and landscaping business called Nith River Native Plants. He is also the Natural Connections Program Coordinator in Brant County and the Program Coordinator for Tallgrass Ontario. As a botanist he completes botanical inventories and prepares management plans. He lives in Guelph, Ontario with his wife Bronwen.

Swale planting on Saturday, October 20th, 2007 from 11am to 1pm. Help NANPS rejuvenate our demonstration stormwater planting site on the nw corner of Sheppard and Morningside. Native plant donations are welcome. Please e-mail nanps@nanps.org for more info.

By popular demand, **Dan Bissonnette** of The Naturalized Habitat Network, will present a workshop called **Natural by Design** on Saturday, November 17th from 9:30 to 4:30 (location TBA at www.nanps.org). Please e-mail nanps@nanps.org for more info or to register. Cost: $30 for members and $40 for non-members, but please do not send a cheque until space has been confirmed by phone or email. Refreshments served.

Congratulations to Cybèle Young-Campbell on winning two tickets to see former US Vice President and environmental advocate Al Gore at his presentation of "*An Inconvenient Truth*" at the Green Living Show.

Mangrove Restoration in Baja California

by Yoav Bashan

Mangrove forests are one of the three richest ecosystems in the world along with rainforests and coral reefs. The vast energy produced by the fallen leaves from the mangrove trees fuels the entire ecosystem.

Mangrove forests are invaluable. Many of our imported seafoods such as shrimp, clams and oysters spend the earliest, most vulnerable stage of their life protected by the mangrove thickets. The power of tidal waves to do huge damage to human habitation is seriously diminished by the presence of mangroves that act as natural breakwaters. Mangroves support a vast assortment of wildlife including birds, shellfish, fish, snakes, crocodiles, monkeys, deer, crabs, bats and honeybees. This makes them a huge ecotourism draw for birdwatchers and nature lovers.

Worldwide, mangrove forests are home to 70 tree species, mostly unrelated. The unifying characteristic is that all flourish in tidal zones, unaffected by daily submersion in seawater. All mangroves have developed mechanisms to eliminate the toxic effects of salt that would kill a terrestrial tree. Their range extends around the Earth within a 30- degree radius of the Equator, mostly in poor countries that cannot afford to protect them.

In Baja California, Mexico, at the northern edge of mangrove distribution, we have three tree species: red mangrove (*Rhizophora mangle*), white mangrove (*Laguncularia racemosa*) and black mangrove (*Avicennia germinans*), all named for the relative colour of their trunk. Although mangrove trees are capable of growing as large timber trees in places where fresh water mingles with salt water, in Baja California they grow to a maximum of six metres (20 feet) because fresh water is almost never available.

Despite their virtues, mangroves are under siege worldwide. The common "bad guys" are aquaculture, mainly shrimp farming, and rice agriculture; both see the mangrove forests as the last frontier of expansion. They are also threatened by cheap housing projects in urban areas, salt pans and roads and port facilities. In Baja California, the culprit is tourist development. By some conservative estimates most of the mangrove world acreage will soon be gone if something drastic is not done to stop the destruction.

Photo courtesy Yoav Bashan

Degraded Baja California mangroves

Recently mangroves were declared protected by the Mexican government. But the government has not allocated sufficient funds for conservation and restoration. Nor is the private sector much interested in investing in unprofitable enterprises like mangrove restoration. And, despite the law, developers still destroy mangroves and just pay the fine.

In the early '90s the mangrove forests at Balandra Lagoon in Baja California Sur, were illegally clear-cut, leaving bare areas with tree stumps. Natural re-vegetation of mangroves in arid climates is very slow, if not aided by artificial reforestation using plants grown in greenhouses. In 1995, the area was mostly still bare, with very few naturally grown small mangrove shrubs combined with large expanses of the short halophytic shrub *Salicornia bigelovii*, which is associated with mangroves. Propagules (reproducing plant parts that are equivalent to seeds in other plants) produced by the intact nearby mangrove might have had the potential to colonize these bare areas. Unfortunately, they were probably washed away by strong tidal currents. In this region, tides may fluctuate by one or two metres (three to six feet), and achieve considerable velocity in the constricted channels in and around the mangrove.

Conventional reforestation of the entire destroyed area was impractical

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given the lack of resources and government interest. An innovative approach was needed. We decided to grow black mangroves in a conventional nursery. The young trees would be replanted in a special manner to densely cover shallow, secondary feeding channels connecting this section of the destroyed mangrove to the central lagoon section of the intact mangrove ecosystem. This secondary channel is very shallow at 20-30 centimetres (eight to 12 inches) deep and up to 10 metres (33 feet) wide. It drains a very large section of the forest containing two major deforested areas. The assumption was that when these trees grew, their lower branches would touch the water at high tide and block some floating propagules from washing into the open sea. Then the propagules would settle into the mud at low tide. Propagules of black mangroves germinate and establish quickly once they are settled. It was also assumed that the more dense the forest (consisting of the artificially planted plants and the retained ones), the more propagules would be retained. And, the artificial reforestation would not interfere with the tidal cycle, which is essential for a healthy mangrove.

In September 1994, a mangrove nursery was established, using sand culture pots irrigated with seawater and planted with black mangroves. Some of the plants were inoculated with the nitrogen-fixing cyanobacteria *Microcoleus* sp., a bacteria that will likely promote plant growth and assist in the establishment and growth of the seedlings in the area. After four months, 500 seedlings were transplanted to the secondary feeding channel in one of the deforested areas. Apart from annual weeding of competing salicornia shrubs (salicornia is a salty lettuce sold in supermarkets in Arizona), no special treatment was given to the area. To protect the reforested area from visitors from the nearby beach who used the mangroves as a toilet and garbage dump, a natural, shallow trench on the fringe of the mangroves was significantly deepened and filled with soft, silty mud. Signs were posted to warn against unauthorized entrance to the reforested area. After the plants were planted, their development was maintained and monitored for three years. Then rangers from the Mexican Ministry of Ecology and the environmental protection agency of Mexico (PROFEPA) took over protection.

Photo courtesy Yoav Bashan

Baja California mangroves after

In 2006, an inspection of the area showed a completely restored mangrove, including previously deforested areas drained by the same secondary feeding channel but far from the reforested area. Today, there is no way to distinguish between the natural primary forest and the area of secondary growth, except for the size of the trees. The area is like a dense jungle. It is healthy and does not need maintenance.

A surprising outcome of this endeavour was the enthusiasm with which the local population received it. Locals appreciate the "new look" of their beautiful mangrove forest in the middle of the dry desert. Last year, when a new developer wanted to convert Balandra lagoon into another golf course/resort/condo development, the public outcry was so loud that the development was put on hold.

Yoav Bashan is a researcher in a Mexican governmental research institute (CIBNOR) located in La Paz, Baja California Sur, Mexico. He studies mangroves and restoration of desert habitat. Email: bashan@cibnor.mx

Mangrove Webpages:

Steps that individuals can take to conserve coastal plain plants in their natural habitats:

1) Conservation of arid mangrove ecosystems in Baja California Sur, Mexico. http://www.bashanfoundation.org/mangrove/imang.html

2) Restoration of hurricane-damaged mangroves at Punta del Mogote, Baja California Sur, Mexico. http://www.bashanfoundation.org/conservation2.html

3) Restoration of arid-zone mangroves in Balandra Lagoon in Baja California Sur, Mexico. http://www.bashanfoundation.org/balandra/balandra.html

Storm Sewers and Native Plants: Discover the Dis-connection

by Deb Dale

Following our initial foray into stormwater bog gardens in 2005, NANPS is once again embarking on a joint venture with the City of Toronto and the Toronto Region Conservation Authority under their Community Program for Stormwater Management strategy.

Stormwater management is becoming increasingly urgent as climate change alters precipitation patterns and water levels. As regions become subjected to unexpectedly severe droughts or flooding, residents are being asked more often to manage water flow through their properties.

In many urban areas, rooftop gutters are connected directly to sewer lines. During heavy rainfalls, the volume of water collected from a neighbourhood can be overwhelming to sewer lines and local waterways, resulting in habitat damage and basement flooding.

Disconnecting downspouts alleviates this problem. Soil has an amazing capacity for absorbing water and removing contaminants from precipitation. By reducing the volume of water entering sewers, the risk of sewer backup into homes is reduced. The volume of water surging into local waterways at storm sewer outfalls also lessens.

Water from downspouts can be directed into rain barrels for later use in the garden or directly onto lawns or into gardens. The trick is to make sure that the water is directed away from building foundations. Toronto residents can contact 416-392-1807 to have their downspouts disconnected. Similar programs exist in other municipalities. Or do it yourself with a hacksaw and $2 rubber cover to cap off the storm sewer inlet.

And the connection to native plants? Despite being among the most productive habitats, wetlands are often the first areas to be eliminated when urbanization encroaches. Along with their flood-controlling and water-filtering capacities, many of our most beautiful and useful native plants are eliminated as wetlands are drained and built over.

It is possible to re-create miniature versions of these lost habitats using relatively clean precipitation re-directed from rooftops and other impermeable surfaces. If your soil is too permeable to sustain moisture, a pit with a leaky plastic liner can substitute. The idea is to create a soil sink to retain moisture through drier periods and allow precipitation from your roof to slowly infiltrate the surrounding ground. Some of North America's most beautiful and unusual native flora require such conditions.

NANPS 2007 stormwater program offers 15 native plants suitable for moist conditions, a sewer cap and a one-year membership or membership renewal to provide ongoing support for your newly created bog garden. Through the support of the City of the Toronto and TRCA, we are able to offer these kits to residents of Toronto for only $30. Distribution dates are set for September 30, 2007 and May 13, 2008. Only 100 kits are available, so please order yours soon!

NANPS is offering a series of FREE seminars to encourage and assist people wishing to create their own bog gardens. Each seminar also features a special guest speaker on a related topic. We hope to introduce native plants to a new audience as well as provide a venue for our members to interact. Please bring a friend.

Deb Dale is a NANPS Board member.

NANPS STORMWATER PLANTING SEMINARS

Wednesday, August 15:
Christina Sharma of CHIRP (Creating Habitats in Residential areas and Parks) Malvern Community Centre, Mezzanine, 30 Sewells Rd, Scarborough. 7-9:30 pm

Sunday, September 16:
Sharon Lovett. Native Plants, Expanding the Borders. Stewardship Experiences of High Park. Malvern Community Centre, Community Room, 2:30-5 pm

Saturday, September 29:
Paul O'Hara. The Faithful Witness: The Journey of the White Pine in Southern Ontario. This multi-media presentation follows the story of the white pine from the primeval forests that met pioneers to the rampant logging of the 1800's, the tree's recovery since logging, its ecology and message on the land today. For time/location: www.nanps.org.

Saturday October 20:
Bog Garden Talk followed by a tour of Tom Atkinson's garden...1 pm. www.nanps.org.

Calendar of Events

September 8, 2007
Alderville Black Oak Savanna/Red Cloud Cemetery/Sweetgrass Studios Excursion
Alderville, Ontario
Visit www.nanps.org for more info or e-mail excursions@nanps.org.

September 18, October 2, 10 & 16, 2007
Creating CWF-Certified Songbird Properties
6:30-8:30pm
105 Laurel Avenue, Etobicoke, Ontario
Call 416-236-7324 or e-mail projectchirp@rogers.com.

October 4 – 28, 2007
Native Plants At Toronto's Todmorden Mills
Toronto, Ontario
Juried exhibition of fine botanical art. www.botanicalartistsofcanada.org.

October 13, 2007
North American Native Plant Society Annual General Meeting
Markham Civic Centre, noon-4pm, Markham, Ontario
Visit www.nanps.org for more info.

"Seldom Seen" but Well Protected

by Irene Fedun

The kettle lake on Jane Glassco's property

Most native plant gardeners garden on modest plots. Jane Glassco has 140 hectares (350 acres) to play with. Granted, not all the land is devoted to native species. A 40-hectare (100-acre) parcel is given over to lamb production and the organic growing of a cash crop (usually spelt or soybeans) – under the name Seldom Seen Farm. Another large area, previously abandoned and eroded, was planted in 350,000 white and red pines (*Pinus strobus* and *P. rubra*) by Jane's parents some 60 years ago. What remains is a secondary maple-beech forest and a lush meadow leading down to a magnificent kettle lake.

Located near Schomberg, Ontario, the large lake was carved out by glaciers. It supports more than 80 hectares (200 acres) of wetland. York Region recently recognized the region as part of its Official Plan Greenlands System. Under the Oak Ridges Moraine Conservation Act, the area is identified as one of both High and Low Aquifer Vulnerability. The streams are home to fish such as the brook trout and the Provincially Threatened red-side dace.

To be doubly sure that the waters and the land were protected, Jane donated her property – through a conservation easement – to the Oak Ridges Moraine Land Trust (ORMLT). Under the easement, Jane and her heirs can continue to live on the land and work it – within strict guidelines – but it can never be sold for development. Expressing gratitude for Jane's gift, ORMLT President Andre Flys noted that it represents "a big step towards protecting our water resources".

Mindful of protecting the land resources as well, Jane has planted a huge hillside meadow with native species. A few of the summer and fall bloomers are: blue vervain (*Verbena hastata*), Canada anemone (*Anemone canadensis*), wild lupine (*Lupinus perennis*), New England aster (*Symphyotrichum novae-angliae*), black-eyed Susan (*Rudbeckia hirta*), butterflyweed (*Asclepias tuberosa*) and wild geranium (*Geranium maculatum*).

The centerpiece of the maple/beech woodland is a large pond morphing into a cattail (*Typhus* spp.) marsh where marsh marigolds (*Caltha palustris*) shine brightly in the spring and Joe-Pye-weed (*Eupatorium maculatum*) makes an impressive showing in the summer. The pond's embankments play host to white woodland asters (*Eurybia divaricata*) and sky bue asters (*Symphyotrichum oolentangiense*), many goldenrods (*Solidago* spp.) , delicate bedstraw (*Galium* sp.), dogwoods (*Cornus* spp.), wild lily of the valley (*Maianthemum canadensis*), five species of ferns including sensitive fern (*Onoclea sensibilis*), columbines (*Aquilegia canadensis*) and the white, lacy sprays of mountain mints (*Pycnanthemum* sp.). *Waldesteinia fragarioides* (barren strawberry) grows in great profusion on the north side of the pond. Dense stands of yellow-belled *Clintonia borealis* appear in spring under the tall spruces (*Picea* sp.). The trilliums are, of course, a mainstay of the forest, both purple and white (*Trillium erectum* and *grandiflorum*). In some areas, especially near the house they can be one metre (three feet) tall. "I don't know why they get so huge," marvels Jane.

The forest sports a great diversity of trees and shrubs including basswood (*Tilia americana*), red maples (A*cer rubrum*), black cherry (*Prunus serotina*), chokecherry (*P. virginiana*), black ash (*Fraxinus nigra*), American beech (*Fagus grandifolia*), and red and white oaks (*Quercus rubra* and *Q. alba*).

2006 was as an "acorn year", according to Jane, resulting in an overabundance of acorns. ("The trees overwhelm those who predate acorns; they gorge, then plant," says tree aficionado Tom Atkinson.) Jane spurs regeneration of the oaks by giving her grandchildren 10 cents for every acorn they plant. Her parents used to walk the property with canes, poke holes in the ground and throw an acorn into each one.

It's always a treat to see ironwood or hop-hornbeam (*Ostrya virginiana*) on a property, a tree notable for its peeling bark and dense, hard wood. Red osier dogwoods (*Cornus stolonifera*), balsam polar (*Populus balsamifera*) and willows (*Salix* spp.) inhabit the lower-lying, wetter areas. Although invasives are a problem, including the infamous garlic mustard (*Alliaria petiolata*) that often blankets the floor of entire woodlands in southern Ontario, pockets of tiny violets (*Viola* spp.) in pale blue,

Photo courtesy Bert Belfontaine

purple and yellow still delight on spring walks.

Jane has yet to tackle the garlic mustard, but she's been waging war with the grape vines (*Vitis* spp.) whose seeds are dropped by birds. They can kill trees that are 12 metres (40 feet) high and "as big around as my thigh", says Jane. She pulls the vines off the trees (being careful not to break them), lays a tarp under them and sprays Round-up™ very carefully on the leaves. The vessels in the leaves carry the herbicide quickly down to the roots. It's important to get the tarp up in less than a week, otherwise the plants underneath will die.

Pesky wildlife include rabbits and deer that eat young trees. Jane's mother would put coffee cans and biscuit tins around the saplings to protect them or wrap unwashed nylon stockings (not pantyhose!) around their trunks. Apparently, browsing deer can be deterred by hotel bars of Ivory™ soap. You just drill a hole in each bar, run a string through it and attach a bar to each transplant.

Under the provincial Managed Forest Tax Incentive Program, every third row of the pine plantation pines is cut down every year. The resultant openings in the canopy allow other plants to burst forth. In the low, wet areas, elderberries (*Sambucus* spp.) fill in. Along the wide-open corridors everything from raspberries (*Rubus* spp.) to trembling aspens (*Populus tremuloides*), pin cherries (*Prunus pensylvanica*), serviceberries (*Amelanchier arborea*) and *Trillium erectum* take hold (and that's only a sampling).

Tom Atkinson was thrilled to see a wild turkey on one of the paths (that's an impressive-looking bird) and delighted to find the cotyledons of two emerging beeches side by side on the edge of a hayfield. "It doesn't happen every year," he noted. Tom suggested planting sweet chestnut (*Castanea dentata*) on the old farm field slope were the young trees would be protected from winds and frost pockets. The gravelly, light, loamy moraine soil should offer the perfect habitat, as it does for so many species of trees, shrubs and herbaceous plants.

Jane Glassco certainly has her hands full maintaining such a large property, but it's her parents' legacy to her, and will be her legacy to her grandchildren, this wealth of woodland, wetland and meadow species – and that makes it well worth the effort.

Irene Fedun is the editor of the Blazing Star.

Continued from page 1

continued over thousands of years, all without the benefit of individual experience of the route. Genetics and female knowledge also seem to play a role in determining where eggs are laid, with this same knowledge miraculously being passed to their offspring.

The umbel-shaped clusters of flowers of *Asclepias incarnata* act as landing pads to attract butterflies, bees and other flying insects. The individual flowers are shaped rather like hourglasses – wide at the top and base, but constricted in the middle. The base is formed by five pigmented sepals that fold away from the rest of the flower which is made up of five united petals. Each petal forms a hood over the stamen shaped like a horn and the relative configurations of these two structures are useful in identifying various milkweed species. In the case of swamp milkweed, the horn is longer than its hood and curves away from it toward the flower centre. Side branching may occur in large, robust plants. Within each milkweed flower there are two ovaries, which is why the plant's awl-shaped seed pods occur in pairs.

The milky white of oozing stem
Doth damage me in soul's refrain
To think that I would live again
Maligned as purge; so sweet to gain.

Natalie Helferty, 2007

In all milkweeds, the flowers are uniquely arranged for winged pollination with tiny pollen sacs linked together like saddlebags. When a bee or butterfly, attracted by the heady perfume of the pink flowers, lands on the waxy, slippery stems and stumbles for its footing, the saddle-shaped pollen sacs hook over its legs. At the next flower, the pollen sacs break away and stay behind to dust the pistil. As this process is repeated along a linear stream bank of swamp milkweeds, pods galore form in late July and August.

The pods dry on the stalk over winter, bursting open on frosty, early-autumn nights to release long, silky threads that act as a parachutes for the flat oval-shaped seeds. The seeds can be carried away on the wind or float downriver and across ponds.

Germination often goes unnoticed in spring as a single, slender, unleafed stem sprouts from the soil. But to that single stem more are added each year as the plant matures.

Stems dry over winter into stiff hollow stalks that are similar to bamboo with a tough, silky, outer fibre that can be stripped off and woven together to make binder-twine. Baltimore orioles, among other birds, use this outer coating the next spring to weave their pendulum nests.

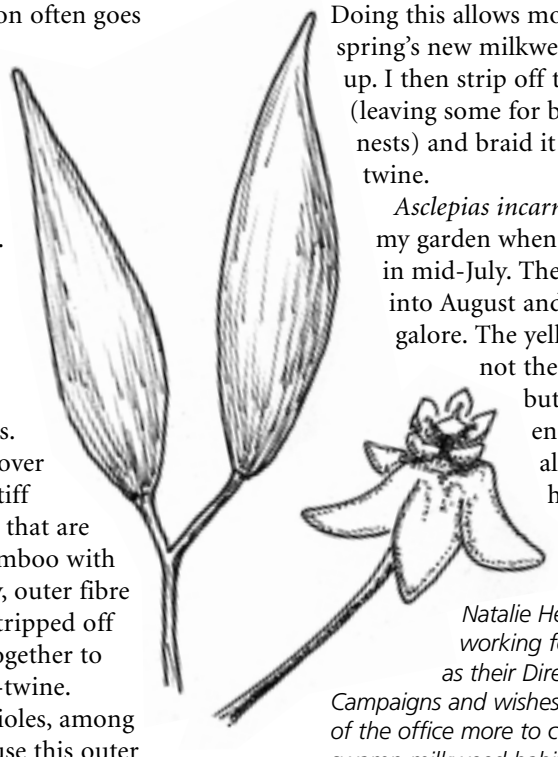

ILLUSTRATION BY BRIGITTE GRANTON

I too leave the decorative branches and pods over winter in my garden. In the spring I break off the dead stalks leaving a length as a natural support for new shoots and using the broken stem to stake tomatoes in my garden. Doing this allows more room for the spring's new milkweed shoots to grow up. I then strip off the outer fibre (leaving some for birds to build nests) and braid it into tomato twine.

Asclepias incarnata dominates in my garden when it starts to bloom in mid-July. The flowers last late into August and attract insects galore. The yellow-jackets are not the most welcome, but they are happy enough to leave me alone when they have this sweet reward at their disposal.

Natalie Helferty is a biologist working for Ontario Nature as their Director of Policy and Campaigns and wishes she could get out of the office more to canoe through swamp milkweed habitat. Alas, her 'postage stamp' downspout backyard garden will have to suffice.

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