The Blazing Star

Fall 2003 Volume 4, Issue 4

Newsletter of the North American Native Plant Society

Native Plant to Know

Indian Grass

Sorghastrum nutans

by Catherine Macleod

The most breathtaking quality of *Sorghastrum nutans* – one of the most beautiful of native grasses in my opinion – is animation. In even the subtlest of breezes Indian grass, as it's commonly known, creates a ballet of movement and sound. From dawn to dusk light transforms its majestic foliage and delicate seed heads, recalling the vast tallgrass prairies where it grew and supported the way of life of the Plains First Nations.

The plant's botanical name captures its qualities: the species name *nutans* comes from the Latin for swaying, while the genus name *Sorghastrum* is of Greek origin and means "a poor imitation of sorghum". (Sorghum is a tropical cereal grass to which early European taxonomists no doubt compared Indian grass.)

Sorghastrum nutans, a member of the *Poaceae* or *Gramineae* family, grows naturally from one to 2.5 metres high (approximately three to eight feet) almost anywhere – in woodlands, sandy or clay soils. In clay it takes longer to mature; in sandy soils with less moisture, it tends to be shorter. Its efficient fibrous root systems (which make up about two-thirds of the plant's total biomass) make

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Indian Grass (*Sorghastrum nutans*)

Illustration by Brigitte Granton

The *Blazing Star* is . . .

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Annual General Meeting

High attendance, three native plant salesmen, a preliminary seed exchange and a lineup of wonderful speakers kept this year's AGM lively.

One of the highlights was the presentation of the annual Paul McGaw Conservation Awards. This year three recipients were honoured.

Carolyn King: *for her longstanding devotion to nature and her willingness to share her extensive knowledge and passion for it with so many others*

Mathis Natvik: *for his diligence and tireless work in making the Clear Creek Forest a lasting haven for rare Carolinian flora and fauna*

Save the Oak Ridges Moraine: *for their exceptional dedication in protecting and preserving one of Southern Ontario's most important natural landforms, the Oak Ridges Moraine.*

PHOTOGRAPH COURTESY ERIKKA THIMM

Carolyn King, Mathis Natvik and Debbe Crandall of STORM.

Note that nominations for the 2004 awards will be accepted until April 1, 2004. Please visit our website at www.nanps.org/about/frame.shtml.

For the first time NANPS gave out a Volunteer of the Year award. The winner was selected in a random draw from all the wonderful people who volunteered for NANPS during 2003. As chance would have it, the winner was Monica Dennis who contributed to Canada Blooms, the plant sale and was the organizing mind behind the Clear Creek outing.

The election of the Board of Directors saw a return of familiar faces: Catherine Crockett, Grif Cunningham, Deborah Dale, Tom Du, Kathy Edgar, Irene Fedun, Feng Gao, Darcie McKelvey and Cornelius Sommer. New recruits include Miriam Henriques, a teacher who loves to involve her students in native plant gardening and Barb O'Malley of the Credit Valley Horticultural Society. Donna McGlone, a past president of the Credit Valley Hort Society and former NANPS board member, has been coaxed back for another stint. Welcome to all.

Outgoing board members recognized for their generous contributions to the cause were Bill Killburn, NANPS Secretary for the past two years, Erikka Thimm, a native-plant photographer and manager of the Cullen Gardens Wildflower Park, Scott Guthrie, a teacher and head of NANPS Education Committee, and Richard Woolger, our resident fern expert. Our thanks and best wishes to you all.

There are still a couple of openings on the Board and various NANPS committees. Please contact nanps@nanps.org for details.

The AGM's keynote speaker was Henry Kock from the University of Guelph's Arboretum. Drawing on his tree-planting experiences in his own garden and many other places, his visits to amazing projects like Arbofilia in Costa Rica and his travels to ecologically evolved cities like Uppsala, Sweden, Henry informed and inspired his listeners. He made some points worth repeating:

- Wilderness can and should exist within the context of our existing settlements.
- In our own backyard woodlands and native plant gardens we must not rule out the need for "editing". In other words, remove weeds, the invasive non-native species that threaten the existence of the plants we planted.
- Do not save every plant that germinates. Throw out the weaklings.
- Trees do not die of disease or insects. They must be compromised by pollution, drought, heat or shade, or come from poor genetic stock, to succumb to invaders.
- Avoid cleaning up leaves in the fall. By removing them we rob plants of the decomposition process. It's the process of decay, not the end product (nutrient), that is important for soil health.

Henry takes as his inspiration the late Alexander Wilson, a writer passionate in his efforts to reintroduce indigenous plants to the urban landscape. In his book, *The Culture of Nature: North American Landscape from Disney to the Exxon Valdez* published in July 1991 by Between the Lines, Alex wrote:

"We must build landscapes that heal, connect, and empower, that make intelligible our relations with each other and with the natural world: places that welcome and enclose, whose breaks and edges are never without meaning. Nature parks cannot do this work. We urgently need people living on the land, caring for it, working out an idea that includes human culture and human livelihood. All of this calls for a new culture of nature, and it cannot come soon enough."

Sowing the Seed

by Andy Fisher

Nothing much grew in the heavy shade under the Norway maple (*Acer platanoides*) in the backyard of my childhood home. When my wife Jill and I bought our own house, there it was again: a Norway maple on the front lawn, with the same thin patches of grass underneath. I decided it was time to naturalize. Having read the list of woodland plants that survived under Lorraine Johnson's Norway maple, I figured it was doable. Jill wasn't so sure. We had just moved to Perth, Ontario, a small rural town, and she was concerned about the neighbourhood response. What's more, we were gardening rookies. This could look really bad. Two years later, we are ready to tell the story of how we did it.

Step 1. Jill agreed to come to a half-day workshop on natural landscaping put on by a local environmental group, the Rideau River Stewards. Before the workshop they had us send in a picture of our yard. At the workshop they presented us with a computer mock-up of what we might do. Even though the garden we put in looks different from that mock-up, just seeing it gave us a shot of inspiration and confidence. We took away a few key ideas, like using the "lasagne technique" to kill the grass (see Step 4) and making wet areas by digging out depressions and putting in mossy logs to hold the water. We also got a list of native plant nurseries. Jill was now completely on board. We got stuck into Lorraine's *100 Easy-to-Grow Native Plants*.

Step 2. We started collecting supplies. First came a big pile of mulch—made from ice storm brush—which we got free from our landfill site. Then a road trip to Old Field Gardens (the first of many) returning with a car full of plants. Old Field's owner, Philip Fry, had restored a wasted piece of land to great beauty and ecological functioning, and was full of advice. He told us that aged horse manure was crucial. So next came a huge mound of manure, given by one of Jill's yoga students in exchange for spring classes. Finally, we got a big pile of kraft paper bags from Cheryl Nash and Bob Argue, who hold a native tree sale each spring as part of their eco-Perth activities. The bags, which had been used to transport saplings, would form the first layer of lasagne.

Step 3. We started to panic. We had no idea what was going to go where. I put in an emergency call to a landscaper friend who took 15 minutes to spray-paint a design on our lawn that included shrubs, rocks, a pathway and a stone wall. He would supply the shrubs and rocks. We started to breathe again.

Photograph Courtesy Andy Fisher

Step 4. Next, a flurry of seat-of-the-pant activity. Down went the big paper bags (wetted), then wheelbarrow after wheelbarrow of manure, then wheelbarrow after wheelbarrow of mulch – a three-layer lasagne. We went to our friend's field and picked out a number of rocks, then raced home to cut out holes through the lasagne and underlying sod to place the rocks in (otherwise they look too perched). In went the plants: white trilliums (*Trillium grandiflorum*), wild ginger (*Asarum canadense*), barren strawberry (*Waldsteinia fragarioides*), bloodroot (*Sanguinaria canadensis*), foamflower (*Tiarella cordifolia*), maidenhair fern (*Adiantum pedatum*), bellwort (*Uvularia grandiflora*) and many others. The fear of disaster kept us both a little on edge and we would argue over things like plant spacing and how to stop the grass from coming back up through the holes we were cutting in the paper. But soon enough the rocks and plants were in place, our yard was starting to look like a woodland and our morning waterings had become a new ritual. The walkway was a design challenge (never use pea gravel), but finished on a satisfying note when another friend offered us the perfect piece of Canadian Shield rock to solve our grading problem. Neighbourhood kids showed up with logs they wanted to add. Their parents offered us tools and asked lots of questions. Passers-by asked about plants in delighted tones. And then the poem showed up. Left anonymously on one of our rocks, it spoke about the virtue of caring for neglected land. We were thrilled.

Step 5. At this stage our garden is a garden: we poke away at weeding, filling in gaps, moving plants, replacing plants that didn't make it (like wintergreen or *Gaultheria procumbens*), learning from our mistakes. This fall my Dad and I put up a split-rail fence to mark the border between our neighbour's lawn and the meadow plants now growing just beyond the shade of the Norway maple. The 90-year-old man across the road calls that maple one of the most beautiful trees he's ever seen. A serious inquiry from a couple in town got me onto the idea of organizing native plant gardening work bees.

When I think about the steps we took to plant our native garden, I'm reminded of all the wonderful connections we made and remade in our community, some with people (such as our poem person) we never met. As someone who often thinks about the enormity of our social and ecological problems, it was also tremendously heartening to me to be concretely engaged with our natural community on this small scale. Jill and I now feel a special affinity for the plants we see along the forest trail, as we tend our garden in town.

Perhaps the best way to convey the effect growing this garden has had on me is to describe a dream I had last spring. I am back at my childhood home and instead of that barren piece of ground under the Norway maple there is a beautiful carpet of woodland plants. For me, the dream symbolizes old wounds healing and vitality returning.

Andy Fisher is a psychotherapist and author of the book Radical Ecopsychology: Psychology in the Service of Life *(www.superaje.com/~afisher).*

Seed Exchange

A fair number of seeds were brought to the AGM and sold on the spot. We have a seed exchange insert in this issue of the newsletter – please ensure that you have your order in for this batch of seeds by the end of December. Our intent is to mail out seeds by the end of January so that members can stratify those that need a cold winter to inspire germination. A list of seeds left over from the January mailout will be published in the winter issue of the *Blazing Star* (due out late February) for distribution by early April.

Note: There are limited quantities of seed from some species. First come first served.

Zinkan Island Cove

by Irene Fedun

The "cultivation and restoration of North America's native flora" are aspects of NANPS mission statement that are well-served by such high-profile events as our Seed Exchange and Plant Sale. The conservation part of our mandate is done behind the scenes, mostly through the purchase of ecologically significant parcels of land.

Almost a decade ago NANPS acquired its first unspoiled gem – Shining Tree Woods in Norfolk County – in order to preserve an old-growth moist forest, one of only a handful left in southern Ontario. In 2003 NANPS Board of Directors chose to preserve another property, a five-hectare (13-acre) parcel of Zinkan Island Cove, a provincially designated ANSI (Area of Natural and Scientific Interest) on the Bruce Peninsula.

The entire ANSI covers 415 hectares (1,025 acres) of relatively unspoiled land (with a great density of rare species) on the west side of the Bruce. NANPS hopes to be in a position in the not-too-distant future to acquire more properties in order to enlarge its conservation holding. In the meantime, the Biosphere Escarpment Conservancy is busy accumulating funding pledges to protect this last vestige of Huron shoreline wilderness.

The parcel belonging to NANPS includes 360 metres (almost 1,200 feet) of provincially significant shoreline. However, most of our property is densely wooded. Balsam fir (*Abies balsamea*) is the dominant tree species with quaking aspens (*Populus tremuloides*), white cedars (*Thuja occidentalis*) and white birches (*Betula papyrifera*) also very common. One provincially rare species, roundleaf ragwort (*Senecio obovatus*), was found in the woodland along with many sedges, mosses, grasses, woody plants, forbs and two species of ferns, lady fern (*Athyrium filix-femina*) and spinulose wood fern (*Dryopteris spinulosa*). Menzies' rattlesnake-plantain (*Goodyera oblogifolia*), an indigenous white-flowered orchid once considered rare in Ontario, also grows in the forest.

The ecologically important shore consists of dolostone limestone bedrock, mostly mantled by a thin layer of rubble. It harbours two plants that are unusual on the Bruce Peninsula – larger Canadian St. John's-wort (*Hypericum majus*) and large-leaved pondweed (*Potamogeton amplifolius*). The dominant plants on the shore, which has surprisingly lush plant growth, are twig rush (*Cladium mariscoides*), blue joint grass (*Calamagrostis canadensis*), hard-stemmed bulrush (*Scirpus acutus*), slender sedge (*Carex lasiocarpa*) and sweet gale (*Myrica gale*). The shoreline also provides habitat for a pleasant-smelling orchid known as hooded ladies' tresses (*Spiranthes romanzoffiana*).

PHOTOGRAPH COURTESY IRENE FEDUN

Zinkan Island Cove shoreline and impenetrable forest.

Joe Johnson, a local botanist who did the plant inventory of Zinkan Island Cove, noted that the NANPS parcel is "in good condition, not significantly altered by man". He found only six species of biota not native to the peninsula, among them dandelions (*Taraxacum officinale*) and an alien orchid, helleborine (*Epipactis helleborine*).

My visit to Zinkan Cove came this October. I was not there in time to see the pretty blooms of gaywings (*Polygala paucifolia*) or starflower (*Trientalis borealis*) or blue flag (*Iris versicolor*). Still, it was so peaceful and lovely in the secluded cove on a warm fall day. The deep red of high-bush cranberry leaves (*Viburnum trilobum*) contrasted with dark green cedars and balsams while tiny bursts of flowers – smaller fringed gentian (*Gentianopsis virgata*) and harebells (*Campanula rotundifolia*) – lead the way.

Irene Fedun is the editor of the Blazing Star.

Shipping News

NANPS members have been busy collecting seeds from their native plant gardens and local fields, woodlands and ravines. For some members the annual seed exchange is their primary reason for belonging to the North American Native Plant Society. The resurrection of a U.S. regulation, however, may make the exchange more bureaucratic and more costly – at least when moving seeds across the border.

In July 1999, the National Plant Board in the United States published a study entitled *Safeguarding American Plant Resources*, conducted at the request of the U.S. Department of Agriculture Animal and Plant Health Inspection Service Plant Protection and Quarantine. Among other things, the study recommended that the U.S. government begin enforcing a 20-year-old regulation that requires seeds (as well as bulbs and live plants) imported into the United States to be accompanied by a point-of-origin certificate, certifying that they are free of pests and pathogens.

Enforcement of this rule was to begin in September of 2001, but criticism from the Canadian government delayed that until January, 2002. Their complaint lay not with the policy which was intended, according to a policy statement issued by the Federal Register, "to more effectively mitigate the risk of introduction of foreign plant pests". The concern was that the importation of ornamental seeds, especially from small seed companies and organizations such as NANPS, would be stopped or seriously curtailed due to the prohibitive costs involved and the complicated logistics.

Each order of seeds – for one packet or 100 – must be issued a phytosanitary certificate by an inspector from the Canadian Food Inspection Agency at a cost of approximately $12(CDN) plus the cost of the inspection (which ranges around $17 plus GST). The recipient of the seeds must obtain an import permit from the U.S. government and the seeds must pass another inspection after they have crossed the border.

To ensure that this does not become onerous, NANPS is following the lead of another group that sends seeds down south, the Ontario Rock Garden Society (ORGS). After carefully sorting the seeds and ensuring that any that are mouldy or otherwise questionable have been removed, ORGS invites an inspector to scrutinize the seeds. He or she then issues one phytosanitary certificate for the entire lot. It is only possible to do this if the seeds are all being sent to a "broker", a single recipient in the United States who will distribute them to the buyers once the seeds have passed U.S. government inspection. (Any volunteers?)

In addition to the inspections, the U.S. Department of Agriculture has issued a list entitled "Entry Status of Seeds for Planting". Some seeds are prohibited such as bamboo and related genera. Others may be "enterable from approved sources under written permit" (for which a PPQ form 587 is required) or "prohibited except under plant pest permit" (PPQ form 526) such as "federal noxious weeds" (a list is available on the Agriculture department website). For further information visit http://www.aphis.usda.gov/ppq/permits/plantproducts/seedweb.html.

NANPS most active seed collectors are currently in southwestern Ontario and most of the requests come from this area. As we prefer to send seeds to new homes within 200 kilometres (124 miles) of their place of origin this fits our mandate quite nicely. Still, we encourage members from other parts of the continent to contribute to the exchange and place orders. NANPS can then facilitate the exchange of seeds in distant jurisdictions that are in close proximity to one another. We simply ask that all members requisitioning seeds consider the posted point of origin when placing their orders.

Special congratulations are due to a new Pennsylvanian member, Nancy Carr, who recently sent in 147 individual packets of seeds, from *Agastache nepetoides* (giant hyssop) to *Zizia aurea* (golden alexanders). Now, all we need are members from Pennsylvania and neighbouring states to send in their orders.

With information from the article "Banned in the USA?" published in the July/August 2002 issue of Horticulture magazine.

Calendar of Events

Please e-mail information about your native plant events to nanps@nanps.org. Events with less than six weeks' notice should be listed directly on the SPECIAL EVENTS portion of our Message Board at www.nanps.org.

January 28, 2004
Toronto Wildflower Society Meeting
Toronto, Ontario
Landscape designer Victor Feodorov will explore Basic Concepts in Garden Design at 7:30pm at the Beaches Recreation Centre, Room 4, 6 Williamson Rd.
Contact Carolyn King at 416-222-5736 or e-mail cking@yorku.ca for more info.

February 25, 2004
Toronto Wildflower Society Meeting
Native woody plant propagator Tom Atkinson is the speaker. See above for location.

March 22-25, 2004
Fourth Southwestern Rare and Endangered Plant Conference
Las Cruces, New Mexico
Organizers are in the pre-solicitation process of collecting the addresses of interested parties. Preliminary information about the conference available at: htt://nmrareplants.unm/edu.

May 11-15, 2004
Biodiversity and Archipelago II
Connecting Mountain Islands and Desert Seas
Tucson, Arizona
A conference on the unique natural and cultural resources of the Madrean Archipelago (aka Sky Island) region of southwestern United States and northwestern Mexico. For details see conference website:
www.madreanconference.com
or email: madreanprogram@tnc.org.

Berries for Birds

by Clement Kent

A few years ago I did a plant survey of my country property on the Ontario side of Lake Huron. I discovered what the birds had known all along.

I found over 20 kinds of fruit and berry vines, shrubs and trees in several trips up and down the wild slope facing the lake and in the half-wild garden on the flat clay above. More than 75% are native to this area. The non-natives include pear trees, garden raspberries and strawberries (we also have native varieties), blackberries, European climbing nightshade (*Solanum dulcamara*) and the invasive alien *Rosa multiflora* (multiflora rose).

Rosa multiflora was introduced in the 19th century from Asia as a rootstock for flowering roses, and later extensively promoted by government departments for erosion control, wildlife cover and food. This vigorous shrub was already widely distributed when people realized it was out of control. The multiflora rose has fragrant clusters of small white flowers in June that give way to small red hips. These are very attractive to birds which carry its seeds far and wide. The seeds may sprout immediately or lie dormant in the soil for up to 20 years. The mature plants rapidly grow into an thorny thicket which (many scratches and cuts later!) I can testify is very hard to remove. After cutting, the plants will resprout from the roots for up to four years. One stem may regrow three to five metres (up to 15 feet) in a season. There seem to be no effective biological controls at this time.

Growing on, through and above the multiflora thickets is a welcome native invader, wild grapes (*Vitis labrusca*). Anyone who has picked a tempting bunch of these in the fall has tasted the terrifically mouth-puckering inedibility of the barely ripe fruit. Although birds and squirrels may eat fruit you or I would find unpalatable, it's interesting to note that wild grapes are like wild apples - after a few frosts the flavour mellows, and by early spring any remaining on the vine are partly fermented. Birds have been known to get drunk consuming this "ice wine on the vine".

Above the multiflora roses and the grape vines stands a small tree with horizontally spreading branches. In June myriads of small whitish flowers are held in clusters above the leaves, leading in August to thousands of deep blue-black berries. When they ripen the vicinity of the trees is crowded with cardinals, robins, orioles, catbirds, squirrels and dozens of other species. The bright red stems on which the berries are held remain decorative for about a week after the fruit is gobbled down. This paragon of fruit production is *Cornus alternifolia*, the alternate-leaved dogwood. It grows to almost eight metres (25 feet) in either sun or partial shade and is hardy right into USDA zone 3.

PHOTOGRAPH COURTESY CLEMENT KENT

*Berries of high-bush cranberry (*Viburnum trilobum*) and silky dogwood (*Cornus obliqua*).*

Of dogwoods my garden has many species. A wonderful native is *Cornus stolonifera*, the red-osier dogwood, which flaunts its deep red stems near the beach. The bright colour is attractive against the snow. Through summer it provides a solid green cover and the white berries of fall appeal to woodpeckers, thrashers, thrushes and other birds.

C. stolonifera (also known as *sericea*) occurs across most of North America at the edges of lakes, swamps and streams. Adaptable to a wide range of soil and climatic conditions it is even found in the mountains of Arizona and New Mexico. It is only absent from the southeast and lower midwest states.

The viburnums are a large group of shrubs notable for variations in flowers, fruit and foliage. A favorite of mine is *Viburnum trilobum*, the cranberry viburnum. The luscious fruit changes from pale yellow through burnt orange to bright red over a long period in the summer, and hangs on the bushes well into winter. (A naturalist I spoke to said he thought it was more palatable to birds after freezing, like the wild grape). This excellent plant tolerates a wide range of soils and full to partial sun. It can grow as tall as three metres (10 feet) but can be pruned to a more comfortable size. One of the special pleasures it gives me is its flowers which have the "lacecap" form - a flat cluster of small fertile flowers surrounded by a showy margin of large white sterile blooms. Viburnums make a good native substitute for hydrangeas.

Many cultivars of *Euonymus* found in nurseries are Asian or European. However, the gorgeous fall leaf colour of our native burning bush, *Euonymus atropurpurea*, has guaranteed it a place in our gardens. Birds enthusiastically distribute the fruits. But watch out: some plants sold under this common name will be the Asian *E. alata*. The shade-tolerant groundcover, running strawberry-bush, *E. obovata*, has peculiarly

showy seed capsules. The outer capsule is usually orange to purple and pocked, and opens to reveal a bright orange fruit.

The *Euonymus* genus is related to the vigorous native vine American bittersweet (*Celastrus scandens*). It can be hard to see the relationship when the white clusters of bittersweet flowers bloom, but when the seed pods open in fall the resemblance becomes clear. Be quite sure you plant the native bittersweet and not the introduced Asian weed species *C. orbiculatus* which is becoming a major problem in the U.S.

Continuing with the larger shrubs, I have a gold-leafed form of *Sambucus canadensis*, which is called elderberry in Canadian texts but American elder in U.S. texts! I planted it as a screen between our lot and the neighbour's and it has obliged by growing three metres (10 feet) tall and as wide in three years. Another favourite with birds, but we too can enjoy the purple-black berries as jam or wine. The related red elderberry (*S. pubens*) is a woodland shrub of equal virtues.

The *Amelanchier* genus is a large one with many species, hybrids between them, and confusions. I will arbitrarily and patriotically assume that what I planted was *A. canadensis*. Variously called serviceberry, Juneberry, shadblow and a host of other local names, various species of these hardy shrubs and trees are found throughout North America. An excellent alternative to blueberries if you don't have acid soil, serviceberries were one of the main pie and jam plants of prairie settlers. In our garden the birds get most of them! *Amelanchiers* give three seasons of interest, with a profusion of dainty white flowers in early spring, berries in summer and often-spectacular leaf colour in fall. Mine is placed in front of a large clump of cedars, where the spring bloom and fall blaze are highlighted against the dark evergreens.

Even though it is a shade-tolerant forest tree, my red mulberry (*Morus rubra*) grows in a sunny spot. During its long season of fruiting, there is a constant stream of cardinals, robins, orioles and other birds to its branches. Its range extends from Massachusetts and southern Ontario to Florida in the south, and west to Texas and Minnesota. In Ontario it is becoming rare in the wild – a good reason to plant one in your garden. Just don't plant where the berries will fall onto decks, cars and other precious surfaces: they will leave a stain.

Photograph Courtesy Clement Kent

Viburnum trilobum - *the cranberry viburnum or high-bush cranberry*

The most majestic fruiting tree in our country garden is the black cherry (*Prunus serotina*) that towers at the top of the slope. A widespread and common tree of our eastern deciduous forests, *P. serotina* is valued for its beautiful wood. Our biggest one was struck by lightning and struggles to survive, but still produces its clusters of small fruit each summer. I often see waxwings in the tree when the fruit is ripe.

We also have several small pin cherries (*Prunus pensylvanica*) whose small fruits ripen later than *P. serotina*. Some 30 species of birds eat the fruit of this tree that reaches only eight metres (almost nine yards) in height. I avoid choke cherries because in my experience they sucker constantly and make life difficult in small gardens.

Another suckering plant, but one that I tolerate for its glorious fall display and colourful fuzzy red fruit clusters, is staghorn sumach (*Rhus typhina*). Plant this one where you need space covered quickly, or plant it in a pot! It will bring less common birds to your yard such as red-headed woodpeckers and brown thrashers.

The words snow, coral and wolf have one thing in common. They're all native berry plants in the genus *Symphoricarpos*. Although they are members of the honeysuckle family, the flowers look like the small bells of heathers - pale pink to white in the best known of the group, snowberry (*S. albus*). White berries and white flowers often appear on the same branch at the same time, as this shade-tolerant bush can flower through much of the summer. In the city one often sees them with a large number of the decorative berries, but in the country these are quickly gobbled up by kingbirds, grouse, wild turkeys and other birds and mammals. Coralberry (*S. orbiculatus)* which grows in upland and bottomland forests in the eastern United States and up into Canada is, interestingly, one of the most common plants in the forests of Oklahoma. Wolfberry or western snowberry (*S. occidentalis*) has greenish-white berries, an important fall and winter food for sharp-tailed grouse on the northern Great Plains.

I would love to grow buffaloberry, *Ribes odoratum*, a native of the prairies which is said to be shade-tolerant. It has beautiful golden fragrant blooms in spring followed by clusters of black berries. I have seen the related west-coast native *R. sanguineum* decorating British Columbia gardens and woodlands in earliest spring - a spectacular plant. In eastern North America it may require some winter protection.

I've by no means exhausted the list of native berry plants you might grow, but I've certainly exhausted the list from my country garden. A very merry berry to you all!

Clement Kent gardens in Toronto and on the shores of Lake Huron occasionally finding time to be vice-president of a computer software company.

Tennessee Ecoroof

Photograph Courtesy GroWild Inc.

A view of the ecoroof in June 2003 looking towards downtown Nashville.

by Irene Fedun

Cities – where concrete, asphalt and buildings cover 50-80% of the land base – are often viewed as the antithesis of nature. Steven Peck of Green Roofs for Healthy Cities, a Toronto-based environmental organization, believes that the roofs of these buildings offer great potential for reintroducing nature into hectic urban lives. By "greening" roofs we create mini-ecosystems that invite birds, bees, butterflies and other insects to feed and propagate among healthy plant communities while lowering heating and cooling costs and saving energy.

Europe is well ahead of North America in green-roof construction but exciting things are beginning to happen in our hemisphere. A notable project is the redevelopment of an abandoned slaughterhouse in Nashville, Tennessee where landscape architect Eric Shriner of Pivot Design and Consulting designed a green roof (or ecoroof) incorporating native plantings.

The Neuhoff Meat Packing Plant in north Nashville was built over a period spanning 1906 to 1950 on a rock bluff overlooking the Cumberland River. Operations ceased in 1977 and the buildings remained vacant for 25 years. Under the direction of N.E.U. Development Corporation, the complex has been redesigned as a mixed-use facility focusing on arts and ecology.

Eric worked with building designers and an assembly team that included Mike Berkley of GroWild Inc., a nursery specializing in the propagation of southeastern native plants. The team installed a 2,600-square-foot green roof (about 241 square metres) on the two-storey Triangle Building, one of seven buildings that make up the slaughterhouse complex.

The two-phase project was completed in October 2002 with the planting of 1,200 native plants, most of which grow in endangered cedar glades. This ecosystem is endemic to a 14-mile (22-kilometre) area in central Tennessee that is slowly being consumed by changing land-use patterns.

Cedar glades are characterized by an extreme microclimate and shallow nutrient-poor soil with a limestone base. They are named for the red cedars (*Juniperus virginiana*) that are a dominant feature of this landscape. Few other plant species are adapted to this harsh environment where summer temperatures at the soil surface often register 10-30 degrees F (5-16 degrees Celsius) higher than the surrounding forest floor (although winter temperatures vary little). The thin glade soil is often waterlogged during winter and early spring, then dries out quickly in early summer to almost desert-like conditions.

A signature plant of this ecosystem is the Tennessee coneflower (*Echinacea tennesseensis*), a perennial with pink or purplish flowers that can appear from late spring into the fall. Classified as endangered by the U.S. Fish and Wildlife Service (and under the *Endangered Species Act*), the Tennessee coneflower was one of 15 species chosen for the slaughterhouse rooftop where the extreme conditions replicate the microclimate of a cedar glade. Other cedar glade representatives planted were: pussytoes (*Antennaria plantaginifolia*), side-oats gramma grass (*Bouteloua curtipedula*), blue cuphea (*Cuphea viscosissima*), love grass (*Eragrostis spectabilis*), yellow star grass (*Hypoxis hirsuta*), false aloe (*Manfreda virginica*), prickly pear (*Opuntia humifusa*), slender-flowered beardtongue (*Penstemon tenuiflorus*), blue-eyed grass (*Sisyrinchium albidium*), Tennessee milk vetch or *Astragalus tennesseensis* which has been given Special Concern Status in its home state, and one annual plant, lime stonecrop or *Sedum pulchellum*. This sedum, which flowers in late winter/early spring then shrivels up by early summer, had been observed growing on other rooftops of the Neuhoff complex.

Three additional plants which do not grow in cedar glades, but are native to the region and comfortable with the roof's harsh microclimate, were added to the mix: rose verbena (*Verbena canadensis*), the federally endangered purple prairie grass (*Dalea purpurea*) and downy phlox (*Phlox pilosa*) which has Tennessee Special Concern Status.

Eric anticipates the arrival of other species dispersed by wind and birds, especially goldenrod (*Solidago nemoralis*) and broomsedge (*Andropogon virginicus*) that are growing on neighbouring rooftops. Since these two species are native to cedar glades they will be allowed to take hold. Only minimal weeding of invasive aliens is being done while the original plants become established. Except for this, the species composition will be allowed to change as Nature dictates. To a limited extent it will become a successional planting, making it lower-maintenance.

Critical to the success of the project was the installation of the greenroof system by a German company called Famos, and the involvement of local roofing and construction experts. First it was determined that the roof could safely hold 80 pounds per square foot (36 kilograms per .0929 square metres). The installation would weigh 18 pounds (eight kilograms) per square foot saturated. The roof itself was sound, requiring only minor repairs to the parapet wall and coping. In the first phase of the project in June 2002 the existing roof was removed down to the concrete deck and a base layer system of waterproofing and insulation put in.

In October the crew installed the final

specialized membrane which consists of a modified bitumen with a copper foil sandwiched inside and hydrogel crystals held on the surface by an open-weave polyester fabric. (The copper foil prevents roots from penetrating the membrane and the hydrogel improves drought resistance.)

The planting medium (40% pine bark, 30% peat, 15% perlite and 15% vermiculite) was spread over the membrane in a five-inch layer (approximately 13 centimetres deep). The light friable quality of this soil mix allowed the crew to plant in the rain without fear of compaction.

The plants – in four-inch (10-cm) pots, plugs and bare root liners – were treated with a micorrhyzal root-growth inoculant to encourage nutrient uptake and ensure strong roots. A biodegradable erosion control fabric made from shredded alder was placed over the planting to prevent high winds (especially remnants of hurricanes) from sweeping away the soil mix and to help retain moisture as the plants become established.

Photograph Courtesy GroWild Inc.

*Yellow star grass (*Hypoxis hirsuta*) in August 2003.*

The planting survived one of the coldest and wettest winters on record with almost zero mortality. Now the wet summer has minimized the need to irrigate (garden-sprinkler irrigation was planned for the first couple of years only during extended hot and dry spells). The plants are thriving, and complete coverage of the roof is expected by next summer.

Eric is pleased that "architecture is being used as a means of promoting conservation ecology, reversing the traditional relationship between urban and natural environments". The innovative Neuhoff plant ecoroof is not only reintroducing nature into a city, but providing a model for green roofs and native plant gardens everywhere.

Species at Risk Act

by Nat Iwanycki

Until December, 2002 there was no federal law in place in Canada to ensure the survival of our wild species and protection of our natural heritage. The *Species at Risk Act* (also known as SARA or Bill C-5) is intended to fill the void. The legislation is long overdue considering that our neighbours in the United States have had a legally binding *Endangered Species Act* since 1978.

SARA was designed to come into force in three phases. Phase I came into effect in March, 2003, and included amendments made to other federal laws including the *Wild Animal and Plant Regulation of International and Interprovincial Trade Act.* Since June the second phase, which involved passing sections of the law that promote the protection of Species at Risk (SAR) through collaborative efforts, has been in place. A highlight of this phase: the Committee on the Status of Endangered Species in Canada (COSEWIC) was legally constituted, continuing the work it has done since 1978 but now following the framework for listing SAR.

How does a native plant get listed and receive legal protection? COSEWIC assesses and classifies all species as either extinct, extirpated, endangered, threatened, special concern, data deficient, or not at risk. It should be noted that 92 species of plants (233 species in total) were on the List of Wildlife Species at Risk when Phase II came into effect on June 5, 2003. For all species assessed after that date, COSEWIC will provide the Minister of the Environment and the newly formed Canadian Endangered Species Council with their species assessment report. The final listing of a species is up to the Minister but, if he or she has made no decision within nine months the species will be automatically listed. Assessments made by COSEWIC, as well as responses from the Minister, are published in the Public Registry established through the SARA process.

It is now mandatory to prepare recovery strategies and action plans for endangered and threatened species, and management plans for species of special concern. These will be drawn up in partnership with the provincial and territorial governments and all interested parties.

The last sections of the *Act*, mainly the prohibitions and enforcement, will come into effect on June 1st, 2004. According to Sections 32 and 33 it will be illegal to:

- kill, harm, harass, capture or take an individual of a listed endangered, threatened or extirpated species;
- possess, collect, buy, sell or trade an individual of a listed endangered, threatened or extirpated species;
- damage or destroy the residence of one or more individuals of a listed endangered or threatened species, or a listed extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada.

For all extirpated, endangered and threatened species on the List immediate protection will be awarded only if they are on federal lands. For all other species, the provinces and territories are given the first opportunity to protect them through their laws. If no action is taken, federal protection will be provided through a 'safety net' process in which the Governor in Council can order that the prohibitions apply in a province or territory.

'Critical habitat' must be identified within recovery strategies for every species and will be protected once Phase III is in effect. The Act will promote and enable funding for voluntary conservation activities and conservation agreements to protect species and critical habitats.

Enforcement of the law also comes into play in June, 2004, setting penalties of up to $1,000,000 for offences committed by corporations and up to $250,000 for non-profit corporations and individuals.

I have high hopes that we will witness in the coming years the successful recovery of many of our species in peril.

Natalka Iwanycki is a Terrestrial Biologist with the Toronto and Region Conservation Authority . Visit www.sararegistry.com for more information on SARA.

Medicine Wheel Garden

by Anna Marie Cipriani

Nature has provided us with medicines for centuries. North American aboriginal peoples knew this only too well, reyling on a wealth of plants to cure their ailments. Nutritionist Dr. Jean Steckle also recognized the value of herbal remedies and decided to incorporate a medicinal teaching garden into her heritage homestead site.

Dr. Steckle set out to preserve a parcel of land that had been in her family since 1833 as a centre for agricultural, educational and recreational programs for families in the Waterloo Region, Ontario. In 1983 the City of Kitchener designated just over four hectares (10.2 acres) as a heritage property under the Ontario Heritage Act, and five years later Dr. Steckle established a non-profit corporation, the J. Steckle Heritage Homestead. The centre offers the Agriventure Farm Camp, the Pizza Garden Project, a xeriscaping garden, a riparian wetland garden and other educational opportunities for schools, community, church and family groups and youth.

Photograph Courtesy Larry Lamb

The J. Steckle Heritage Homestead Medicine Wheel Garden.

To this rich heritage experience Jean Steckle wanted to add a garden that would teach visitors about native plants and Aboriginal culture. In 1997 I designed the medicinal teaching garden as part of my undergraduate work at the University of Waterloo. The design reflects the philosophy and honours the beliefs of the Anishnawbe or native peoples of Canada. This was particularly important to Jean since the land upon which her ancestors built their farmstead was granted to the family by Joseph Brant of the Six Nations.

The concept of the Medicine Wheel originated in the Ojibway culture but was adopted by other Anishnawbe Nations, with its structure varying from one Nation to another. Simply described, the Medicine Wheel is a circle divided into four parts by straight lines drawn through the centre and extending to the edge of the circle. The circle represents "the whole" and the four elements are required to maintain it. For the Medicine Wheel Garden I used the Iroquoian cultural interpretation that centers on human creation and development, and the belief that balance is the key to human existence. In many Aboriginal philosophies life comes in cycles of four: seasons, human races, stages of life, elements of creation, times of day, even sacred plants (tobacco, cedar, sage and sweetgrass).

The garden had to meet certain criteria. The selected plant species had to be native to Canada before European settlement (this prompted criticisms from the Anishnawbe consultants who noted that their ancestors used many plants introduced by the settlers). The plants had to flourish in dry sandy soils and full sun, have medicinal properties and be easily contained. The garden was to fit upon a plot of land that measured 7.6 metres (6.3 yards) x 7.6 metres. It had to be wheelchair-accessible.

The plants are arranged by height with taller species near the centre of the circle. They are distributed according to bloom time and colour thus providing balance in the garden. The four parts of the garden are divided by pathways of stones in four different colours to represent the races: red, yellow, black and white. Of course as people walk along the paths the stones shift and mix with one another, but this merely underlines the principle upon which Jean Steckle based her heritage homestead – that all races should intermingle and live in harmony.

The chosen plants were all harvested by native peoples for their healing properties or ceremonial significance – the roots of prickly pear (*Opuntia humifusa*) were often chewed or made into tea to treat diarrhea and stomachaches, beebalm (*Monarda didyma*) was used on everything from gas and colic to heart trouble and measles, and sweetgrass (*Hierochloe odorata*) was burned as incense during ceremonies but could also be drunk as a medicinal tea. Some species that I included in the initial design were not planted because they were unavailable. Seneca snakeroot (*Polygala senega*) was left out of the final picture even though it was important to native medicine. The Seneca of the Iroquoian Confederacy (and other First Nations) believed it to be an antidote for rattlesnake bites and used it as a diuretic and expectorant. In Europe today it is still used as an ingredient for cough remedies.

Most of the 30 odd species planted in the Medicine Wheel Garden have flourished. "Some things are doing almost too well," says Larry Lamb, my academic supervisor and founding member of the Canadian Wildflower Society (which has metamorphosed into NANPS). Larry enumerates the plants that are thriving: bearberry (*Arctostaphylos uva-ursi*), mountain mint (*Pycnanthemum virginianum*), wild bergamot (*Monarda fistulosa*), blanketflower (*Gaillardia*), hoary vervain (*Verbena stricta*) and wormwood (*Artemesia sp.*) to name a few. He recommends that the design be revisited with a view to limiting some of the dominant plants. Those that did not do as well, such as

the two fleabanes, Robin's and common (*Erigeron pulchellus* and *Erigeron philadelphicus*) or Indian tobacco (*Lobelia inflata*) could then be reintroduced.

Undergraduate students from Larry's Environmental Studies courses have done some weeding and thinning of plants since the homestead's staff was too small to tackle the chore. But now that a native gardener has been hired, Larry's recommendations can be implemented fully.

The J. Steckle Heritage Homestead Medicine Wheel Garden was one of the first such gardens in Canada but many others have sprung up since. This is what Dr. Steckle, who passed away last January, would have wanted. She believed that Nature was one of our greatest teachers, if only we would look and listen.

Anna Marie Cipriani is a graduate of the University of Waterloo Environmental and Resource Studies program. She currently works for the City of Waterloo. Community environmental education is her favourite part of the job.

Members' Questions and Comments

I am concerned about the 15-year-old red oak (*Quercus rubra*) in my front yard. Three years ago I removed my front lawn and replaced it with a woodland garden. My tree seems to have experienced a decline since then. Aphids are present on the underside of the leaves and everything below is coated in honeydew. The tree seems to be suffering from die-back and there is some leaf spotting. My secondary problem is damage to my woodland understorey from the sooty mould that results.

- Kathy Edgar, Toronto, Ontario

Two arborists visited Kathy Edgar's garden and offered these suggestions:

Lewis Arnold of Shady Lane Tree Care:

The oak is basically healthy although it likely did suffer an aphid infestation resulting in the sticky residue and black sooty mould. Since aphids are at the end of their life cycle in the fall it is not worth treating them now. The infestation was probably brought on by stress caused by our recent drought and the root disturbance that occurred during the removal of the lawn. It is vitally important to keep trees watered during dry periods.

There was also some chlorosis (yellowing) of the leaves. This can be overcome by leaving the leaves where they fall to keep the soil moist and the pH low, as well as adding other acidic organic matter. Pruning out the dead wood and some of the lower limbs while they are young will help open up the canopy and prevent trucks and other vehicles from breaking the branches when they pass. A deep-root fertilization with a chelated iron fertilizer in either spring or fall will help the tree recover. Should the aphids reoccur next spring and become a major problem they can be sprayed with an insecticidal soap.

Ken Lund of Four Seasons Tree Care Adds:

The oak has substantial shoot growth, an indication of overall vigour. In addition to the aphids, there might have been a bit of anthracnose*, but nothing severe. The tree is growing in a confined area with very little soil to exploit for moisture so watering becomes even more critical.

The aphids on this tree are more of a nuisance than a threat to its health. Ladybugs are good at controlling aphid infestations and can be introduced into the garden. Also maintaining a layer of mulch (leaving most of the oak leaves where they fall instead of chopping them all up) provides habitat for overwintering ladybugs. The mulch should be no more than seven centimeters (three inches) deep and away from the trunk.

❁

Comments on "Black Gum" Plant to Know article from previous issue:

In my experience some tree species that prefer acid soil can survive my clay neutral/alkaline soil given an occasional dose of chelated iron. This seems to correct the chlorosis in newly transplanted plants. Chelation makes iron available without lowering the pH.

- Clement Kent, Toronto, Ontario

Author Tom Atkinson Responds:

For whatever reason, perhaps stubbornness, I am loathe to get into things like chelated iron or sulphur to acidify soil. I try to get oak leaves each autumn for my several acidified beds.

** Anthracnose is a fungal disease where moist sunken spots appear on the leaves with fruiting bodies in the centre.*

Continued from page 1

Indian grass especially drought-resistant. Reaching depths of two metres (seven feet), it was these root systems that helped build the rich soils of the tallgrass prairie over thousands of years.

Indian grass grows in lateral shoots from its base, keeping this upright plant compact. Seeds are borne on golden plume-like seed heads called panicles. What we call the flower is actually a complex group of structures, arranged in clusters on a stem. In grass terminology this arrangement is called an inflorescence. The multi-branched and very open flower of *S. nutans* is made up of delicate stemmed spikelets, consisting of a central axis – or rachlis – and florets.

ILLUSTRATION BY BRIGITTE GRANTON

The stems or culms of *Sorghastrum nutans* are herbaceous, hollow and cylindrical. Each leaf is composed of three parts – a vertical sheath, which grows from a node and wraps around the stem, a ligule (a protective membrane of thin hairs at the juncture of the sheath), and a blade, the part of the leaf above the sheath. The ligule, which on Indian grass looks like a couple of erect pointed lobes, helps identify the plant even when it is not in flower.

The blades of *S. nutans* are usually open and narrow with parallel veins and a large median vein called a midrib. The leaves range from six to12 millimetres (1/4 to 1/2 inch) wide and 20-30 centimetres (eight to 12 inches) long.

Foliage colour is generally light to medium green, but can vary from gray-green to almost blue. Also known as gold beard grass, Indian grass flowers mature from the bright yellows of summer to dramatic bronzes in autumn.

The unusual way grass grows contributes to its survival. Most plants grow from the tips of their leaves and branches. Grasses have two distinct growing points – at the base of each leaf and just above each growth node on the stem. This growth pattern means that grass can keep on growing even after cutting, cropping by animals or fire.

A clumping warm-season grass, Indian grass is a slow steady grower, ideal in mass plantings and great for prairie restoration and erosion control. *S. nutans* is also being hailed as one of the top native grasses for the ornamental garden, in mass plantings or as a single dramatic specimen.

Native to Manitoba, Ontario, Quebec, south through New England to Florida, west to Texas and back north to North Dakota, this splendid grass faces an uncertain future. Agriculture and other human activities have reduced its natural range from over a million square kilometres (400,000 square miles) to one percent of the magnificent original. Pockets of tallgrass prairie, where *Sorghastrum nutans* thrives, still exist in the Flint Hills of Kansas, the Tallgrass Prairie Preserve in Oklahoma, the Living Prairie Museum in Winnipeg, Manitoba, the Walpole Island First Nation near Wallaceburg, Ontario, Norfolk Sand Plain in Brantford, Ontario and a few other locales.

North America's native peoples wove Indian grass into baskets and mats and dyed and threaded it with beads, bark and quills for ornament. They shared the "sea of grass" - the tallgrass prairie that is a mix of grasses, sedges and wildflowers such as black-eyed Susan (*Rudbeckia hirta*), wild bergamot (*Monarda fistulosa*) and butterfly milkweed (*Asclepias tuberosa*) - with grazing bison and elk herds, plains wolves, grizzly bears, butterflies, bumblebees, ducks, geese and red-winged blackbirds. Today, what remains of the tallgrass prairie is home to ground-nesting birds and butterflies.

By planting *Sorghastrum nutans* and its ecological counterparts in our gardens we create tiny bits of prairie where birds and insects can once again find food and refuge.

Catherine Macleod is a writer based in Kincardine, Ontario. With her horticulturist and photographer husband, Martin Quinn, Catherine co-authored Grass Scapes: Gardening with Hardy Ornamental Grasses*, published this year by Whitecap Books, Vancouver, British Columbia. Email cmacleod@hurontel.on.ca or visit martinquinn.com.*

Thank you

A heartfelt thanks to our new sustaining members – Janice McKean and Art Wiebe of Tiverton, Ontario and Nancy & John McFadyen of Toronto – and to all members who have made donations to keep our organization humming along.

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