

The Blazing Star



NEWSLETTER OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

Native Plant to Know

Blue Camas

Camassia quamash

by Joe Arnett

On both sides of the Cascade Mountains, blue camas (*Camassia quamash*) offers one of the most alluring displays of spring flowers in the Pacific Northwest. When Meriwether Lewis first surveyed this region, he noted this striking lily in stands that to his eye resembled lakes of blue water. Along with its close relative, giant blue camas (*C. leichtlinii*), blue camas continues to be a signature species of grassy balds in the San Juan Islands, and east of the mountains camas still forms pools of deep blue in dry grasslands that burst into colour in the flush of spring. As in many places that soon dry up, flowering happens quickly, presenting a spectacular, if ephemeral, view.

This species was the most important "garden plant" of the first people here, people who subsisted by hunting, fishing and gathering wild plants. However, obtaining camas required more than just gathering. Exceptional camas patches were weeded, periodically burned to keep them free of shrubs, and harvested by the families and tribal groups that tended them. This was gardening, in a real sense, and people developed strong bonds to traditional gathering areas. The Nez Perce War flared when settlers began plowing camas lands to convert them to European-style agriculture.

This attachment to camas was based on necessity: the plant was a mainstay for people east of the mountains and also important in

coastal areas. The bulbs are rich in an indigestible carbohydrate, inulin, which is converted to usable fructose by cooking. The food value is high, and cooked material yields large amounts of sugar, approximately one-third of the dry weight of the bulbs.

When eaten raw or only partially cooked, the plants can produce substantial amounts of intestinal gas, as Captain Lewis eloquently noted: "...when in the Indian hut I was almost blown out by the strength of the wind."

Large volumes of camas bulbs were baked in stone-lined pits that may still be found near traditional camas-gathering areas. David Douglas, a famous early botanical explorer in the Pacific Northwest, reported on this roasting process. First, a large fire was built in the pit, heating the stones thoroughly. Then the fire was removed, and up to a hundred pounds (45 kilograms) or more of bulbs were piled in its place. Sometimes other plants, including red alder (*Alnus rubra*) or madrone (*Arbutus menziesii*) bark, were added to give the cooked product a reddish colour, and black lichens (*Bryoria* spp.) could be added to raise its value for trade. The bulbs were then covered and a fire was built again on top. Baking may have



ILLUSTRATION BY BRIGITTE GRANTON

The *Blazing Star* is . . .

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A Letter from your President

This contribution by the President of the North American Native Plant Society represents a new and hopefully regular entry into our newsletter.

Members with words of wisdom for other members are invited to help me by offering an appropriate and short addition to my clearly wise words.

So here goes with my first-ever column for the *Blazing Star*.

My fridge has two bags of seeds for spring planting. One bag has pawpaw (*Asimina triloba*) seeds. This native Ontario pawpaw fruit creates problems for me, because of my African experience.

I was an enthusiastic gardener, once, in Africa - for 10 years - living right on the shore of the Indian Ocean in Dar es Salaam, Tanzania. I had a papaya (*Carica papaya*) on my front lawn, which was normally called a papaw - spelled a little bit differently but pronounced

the same way as our Ontario native. This has been a common fruit in your supermarket for some time. Some day soon our native pawpaw may become more easily available.

I grew up on a small Niagara Peninsula fruit farm growing peaches and asparagus (non-natives) as our main crops. I only became aware of the native pawpaw as a proper North American fruit recently. Cornell University in Ithaca, New York is propagating the tree and selling the delicious fruit. They have an excellent fruit store that makes a visit to Ithaca's world-famous Moosewood Restaurant a very useful and enjoyable experience - in the fall. This is because pawpaws are only to be eaten when they are super ripe in late October and early November, otherwise they have a bit of a problem taste. They are not a pretty fruit, and are roughly apple size. And the Cornell fruit store also sells wonderful apples.

Grif Cunningham

New Fees

Please note that the NANPS membership fee has changed to \$15/year. For memberships

outside Canada, the rate is \$15US. Please see back page for details.

NANPS Native Plant Sale

North American Native Plant Society
Annual WILDFLOWER Sale
Saturday May 14, 2005, 10 a.m. - 4 p.m.
Parc Downsview Park
Carl Hall Road, Toronto, ON

PLEASE NOTE:

NANPS is joining SPRINGFEST at
Downsview Park this year.

There will be lots more to do and see!
And you'll bring home native trees, shrubs,
wildflowers and vines for your garden to
attract bees, butterflies, birds and other
wildlife and help sustain biodiversity.

- purchase perennials, grasses, shrubs and trees native to your area
- talk with experienced native plant enthusiasts
- browse through an incredible selection of books and magazines devoted to the subject
- explore the many benefits of membership in NANPS
- and take in a seminar on starting your own pesticide-free native plant garden

All plants offered at this sale are from ethical growers approved by NANPS. Proceeds from this event go to supporting the efforts of the North American Native Plant Society.

Did you know that NANPS members can place their order in advance of the annual plant sale? Visit www.nanps.org for a list of available species, place your order on-line and mail in a cheque. Your selection will be boxed and waiting for you on the day of the sale (Saturday May 14th). You should still plan to arrive early and browse the aisles for species that arrived unexpectedly or in quantities too limited to offer ahead of time.

Donations to the sale are also welcome...native species only, of course. You can bring them by the evening before or early on the sale day. Please make sure your pots are accurately labeled with the species/common name.

If you're able to volunteer at the sale or need more information, please send a note to plantsale@nanps.org or leave a message on NANPS voicemail: 416-631-4438.

More Favourites from Seed

by Jim French

As you read this, I hope your seedlings of the plants I recommended in my last article are thriving! Don't hurry to plant them in the garden where they are less likely to receive regular care and attention.

Here are four more wonderful plants for your garden.

Mexican hat (*Ratibida columnifera*): This knee-high beauty is covered in flowers of large, drooping yellow petals (or rays, to be precise). Also known as prairie coneflower, it blooms from mid-summer to mid-September. It is truly a dazzling sight when planted in large groupings. It has not reseeded itself for me but in the wild it is widespread across North American plains, prairies and ravines.

A close relative of Mexican hat is *Ratibida pulcherrima*, but the rays are maroon/purple occasionally mixed with yellow. When they are planted together, the result is very colourful.

A more distant relative, grey-headed coneflower (*R. pinnata*) stands much taller at a full metre (three feet), but bears the same attractive, drooping yellow rays. This coneflower has reseeded itself quite actively in my dry, roadside, prairie garden. A good choice for large gardens where it can roam.

All these coneflowers are easily grown from cold, moist-stratified seed and the seedlings need no special treatment.

Golden Alexanders (*Zizia aurea*): This spring bloomer is a true prairie species with a range from Quebec to Saskatchewan and as far south as Florida. The multi-stemmed branches have clusters of small yellow flowers. When full-grown it reaches about half a metre (1 1/2 feet) in height with attractive light green foliage. In my prairie it looks spectacular, blooming with my blue lupines (*Lupinus argenteus*). It is a vigorous self-seeder in my prairie, which receives only rainfall for moisture. The seeds and seedlings should be treated as above.

Wood poppy (*Stylophorum diphyllum*): What a delight to see this yellow-petalled beauty blending so perfectly with other ephemerals like the great white trilliums



ILLUSTRATION BY KIM DU

Prairie dock

(*Trillium grandiflorum*) and sky-blue Virginia bluebells (*Mertensia virginiana*).

This woodland plant was once thought to be extirpated in Ontario but new colonies have now been found. I find it interesting that this plant should be so uncommon in the wild since it reseeds itself quite reasonably in my woodland gardens. If you can't get fresh seeds, buy a few plants (from a reputable source) then plant the seed as soon as it ripens in a spot that's moist and shady for the rest of the season. (Flowering usually starts in spring and may continue until early summer.) Germination will occur in the spring. The seedlings require no special care.

Prairie dock (*Silphium terebinthinaceum*):

This two-metre (six-foot) giant is at home in North America's prairies. It has large, broad basal leaves earning it the nickname elephant ears. The tall, slender stems branch into numerous shorter stems producing a candelabra of palm-sized yellow flowers. The effect is striking.

Prairie dock is drought-tolerant and can produce new shoots from its taproot. The large seeds germinate readily after cold, moist stratification. Seedlings should be transplanted early to allow for the fast-growing taproot.

There are several species in the genus *Silphium* and all provide a special prairie ambience, especially when combined with our tall native grasses.

Jim French is NANPS Honourary President. He gardens with North American natives at his cottage on Stoney Lake near Peterborough, Ontario.

Paul McGaw Memorial Conservation Award

Nominations for this award are now being accepted up until April 1st, 2005. The award will be presented at NANPS annual general meeting in the fall. Visit www.nanps.org for details.

Volunteers Always Welcome

NANPS offers many volunteer opportunities for anyone interested in the conservation of native plants. You are welcome to write articles for the newsletter or donate photographs or illustrations (please contact editor@nanps.org), help research the eradication of garlic mustard and other invasives, participate in the plant sale or seed exchange or serve on the board. Or let us know if you have other ideas. Contact us at nanps@nanps.org or leave a voicemail at 416-631-4438.

Enhancing Pine Plantation Biodiversity

by Mary E. Gartshore

I am a strong advocate of intelligent tinkering. With pine plantations you can wait 80 years for the pines to mature, be commercially harvested and hope that a reasonable number of species have colonized... or you can do something right away. I suggest the latter for important protected areas. The process of ecological restoration need not involve planting species but can simply focus on developing functional diversity. A bit of tweaking so that restoration can happen more quickly will work in systems where intact natural habitats are close by.

At Rowanwood Sanctuary a 38-hectare (94-acre) nature reserve managed by the Norfolk Field Naturalists there is a mix of natural forest and a 27-year-old white pine (*Pinus strobus*) plantation planted on two-metre (six-foot) centres. Eight years ago we thinned, cleared and girdled small numbers of pine. We also collected spring ephemeral wildflower seeds from the natural forest and scattered them in the plantation. The positive results of this work inspired a more aggressive approach. Already there were large reproduc-

ing patches of wild ginger (*Asarum canadense*), some flowering trilliums (*Trillium erectum*, *Trillium grandiflorum*), violets (*Viola pubescens*), sedges (*Carex pedunculata*, *C. pensylvanica*), wood millet (*Milium efusum*) and wood-rush (*Luzula acuminata*) in the plantation. Furthermore, where we had cleared along the edge of the natural forest an astonishing number of native species had colonized.

First we identified 'conforming' interfaces between the plantation and natural forest (these are edges that are natural and have a positive influence on the restoration area). We left 'non-conforming' edges (roads, fields) alone because dense pines can prevent exotic invasive plants from colonizing interior habitat. The adjacent natural forest will provide a diverse source of seeds, insects, fungi, and mammals to colonize the newly disturbed plantation. In March we cleared 90% of the pines back from the natural forest edge by 20 metres (65 feet) and, further girdled 50% of the pines for an additional 20 metres. This created a 40-metre (130-foot) wide zone receiving more sunlight next to the natural forest. We left in place natural black cherry

(*Prunus serotina*), black oak (*Quercus velutina*) and only the very best examples of pine. I was amazed to see that many of the black oaks on site, though of similar age, had outgrown the white pine.

Felled pine trees were limbed, cut into metre (three-foot) lengths and stacked. Metre-high stumps were left standing. All branches and debris were burned in fire pits. The fire pits were later covered with pine needles or stacked with logs. (Burning is a very easy way to dispose of huge volumes of branches and needles that would bury the plants we are trying to encourage. Fire pits, however, can be a place where weedy species get started so we bury them with old needles or logs.) Care was taken not to disturb or damage dormant spring ephemerals.

We were concerned that our management activities might disturb larger species such as long-eared owls that traditionally occupied the plantation and stayed to nest in the spring. Luckily, the owls used the stumps as convenient perches for hunting mice. We knew this because of the numerous owl pellets regurgitated on top of the sawdust from our recent cutting. And we had noticed tracks in the snow of white-footed mice coming out of the forest to investigate the woodpiles. Now the log piles were providing new opportunities for our top predator.

Once the warm weather arrived we checked newly cut areas. All of the spring ephemerals were flowering profusely, especially those near or actually under the log piles. Rivers of wood ants were colonizing the fresh wood. This was good news. Native wood ants are important seed dispersers of many wildflowers. Ants may eat seeds but more importantly they are interested in the oily elaiosomes around seeds. Native wildflowers and sedges provide this oily package to attract ants. Ants carry the seeds for variable distances, chew off the attached food and disperse the seeds, an activity called myrmecochory. Wood ants are also associated with other insects, including some species of Lycaenid butterflies (such as the endangered Karner blue butterfly), aphids and leafhoppers. The ants tend these insects to obtain sugary exudates as food, while protecting them from other insect predators and parasites.

Mice and chipmunks may gather and store seeds. Woodland and meadow jumping mice collect seeds and bury them in caches with



PHOTOGRAPH COURTESY MARY GARTSHORE

White pine plantation in Rowanwood Sanctuary showing regeneration from management activities in the foreground that was carried out eight years previously and in the background newer management carried out in March 2004.

their temporary nests. Later, predators may dig up and disturb nests while hunting. Log piles provide important stepping stones for seed dispersal by mammals as well as nutrient-rich refuges for seedlings and mature plants alike. In this way a natural species-rich and functional woodland system is restored and there are many benefits to this process from the standpoint of conservation of biodiversity.

Our long-term goal in this project is to create larger areas of natural habitat more suitable for nesting neotropical migrant songbirds and other conservative species. In particular, we need to reduce the effects of edge and increase areas of quality deep woods. But also, we need to convert single-species tree plantations quickly to capture new opportunities for conserving biodiversity. We hope that over the next few years, hooded warblers, cerulean warblers and golden-winged warblers, all species that breed nearby, will consider this site for nesting. In the meantime we know that more insects, mammals and wildflowers have found new opportunities to flourish.

Mary E. Gartshore, along with partner Peter Carson, lives and works in the South Walsingham Sand Ridges area near Long Point, Ontario. They own and operate a native plant farm, and participate in conserving biodiversity.

This project was carried out as part of ongoing work identified in the Rowanwood Sanctuary Management Plan and was supported by the Norfolk Field Naturalists and through a grant to Nature Canada from Environment Canada's Habitat Stewardship Program, the Important Bird Areas program and Birdlife International.



PHOTOGRAPH COURTESY MARY GARTSHORE

Wood ants are important dispersers of native wildflower seed. Here they tend an aphid colony on a choke cherry (*Prunus virginiana*).

Members' Questions

I am planning to plant black gum (*Nyssa sylvatica*) this spring in a wet area next to sweet gum (*Liquidambar styraciflua*) and sassafras (*Sassafras albidum*). I'm very interested in getting the fruit on the female trees for wildlife. Could you tell me how to go about making sure that I end up with a female tree?

- Rocco Perciballi, Lafayette, New Jersey

NATIVE TREE PROPAGATOR
TOM ATKINSON RESPONDS:

By and large, *Nyssa sylvatica* trees are male or female (not both, as with some trees). The same is "true" of spicebush (*Lindera benzoin*). The

spicebush shrubs in our yard (grown from seed, which germinates readily) reveal themselves as male or female once they are old enough to flower. But Nature always throws a sinker when you are expecting a fastball. Look very closely at what appears to be a male plant. There can be a few berries (female, naturally) on one branch. This phenomenon can occur on black gums as well. We have two young ones in the yard, and one (maybe two centimetres or an inch in diameter at breast height) has just started to flower. From what I can tell the flowers look to be males. How do I know? From *Trees in Canada*, by John Laird Farrar, published by Fitzhenry & Whiteside. It is a superb book with

photos of black gum and sassafras that enable you to distinguish female from male flowers.

How can you tell the gender when you're buying? You cannot. However, young trees are cheap, so buy many, plant them and wait and see. You can always thin them out later.

Note that black gum likes more acidic soil (the acid releases nutrients which the species needs to survive and thrive). I put quite a bit of organic matter (compost) and acidifying material (oak leaves, peat) into the soil. Your black gums will appreciate your wet conditions as well.

Calendar of Events

April 9, 2005
HABITAT STEWARDS INTRODUCTION WORKSHOP
Columbia, South Carolina
Contact the South Carolina Wildlife
Federation at (803) 256-0670.

May 14, 2005
NORTH AMERICAN NATIVE PLANT SOCIETY
ANNUAL WILDFLOWER SALE
Parc Downsview Park
Carl Hall Road, Toronto, ON

For more information e-mail
nanps@nanps.org or leave a voicemail mes-
sage at (416) 631-4438.

June 5-10, 2005
26TH ANNUAL INTERNATIONAL WETLANDS
MEETING
Coastal Plain Wetlands: Ecological, Landscape
and Regulatory Transformations
Charleston, South Carolina
Hosted by the Society of Wetland Scientists:
<http://www.sws.org/charleston2005>.

July 9-12, 2005
FOURTH ANNUAL NATIVE ORCHID
CONFERENCE
Winnipeg, Manitoba
Website: [http://groups.yahoo.com/group/
nativeorchidconference/](http://groups.yahoo.com/group/nativeorchidconference/)
Phone: Lorne Heshka, (204) 663-6850.

Winter 2005 NANPS Seedex

The following native species are available to members through the NANPS Seed Exchange. (Members can order seeds without having donated to the Seed Exchange.) See ordering instructions and key to donors following this list. An asterisk (*) before a species name indicates that quantities are limited. (W) signifies the seed is wild-collected.

<i>species</i>	<i>common name</i>	<i>donor</i>	<i>location</i>
Ferns			
<i>Phyllitis scolopendrium</i>	Hart's tongue	jaf	Stoney Lake ON
Grasses & Sedges			
<i>Andropogon gerardii</i>	big bluestem	mr	High Park Toronto ON
<i>Andropogon gerardii</i>	big bluestem	jaf	Stoney Lake ON
<i>Carex plantaginea</i>	plantain-leaf sedge	act	Toronto ON
<i>Elymus hystrix</i>	bottlebrush grass	wb	Duntroon ON (W)
<i>Elymus canadensis</i>	Canada wild rye	hm	Scarborough ON
<i>Elymus virginica</i>	Virginia wild rye	hm	Scarborough ON
<i>Elymus sp</i>	riverbank wild rye	hm	Scarborough ON
<i>Panicum virgatum</i>	switch grass	dld	Scarborough ON
<i>Sorghastrum nutans</i>	Indian grass	rc	Plymouth Minnesota
Perennial Flowers			
<i>Actaea rubra</i>	red baneberry	wb	Collingwood ON (W)
<i>Agastache foeniculum</i>	anise hyssop	rc	Plymouth Minnesota
<i>Agastache nepetoides</i>	yellow giant hyssop	gh	Markham ON
<i>Agastache scrophulariifolia</i>	purple giant hyssop	jh	Mississauga ON
<i>Allium cernuum</i>	nodding onion	jh / rh	Mississauga / Scarborough
<i>Anaphalis margaritacea</i>	pearly everlasting	rh	Scarborough ON
<i>Anemone virginiana</i>	thimbleweed	rc	Plymouth Minnesota
<i>Anemone virginiana</i>	thimbleweed	jh	Mississauga ON (W)
<i>Angelica atropurpurea</i>	great angelica	jh	Mississauga ON (W)
<i>Apocynum androsaemifolium</i>	spreading dogbane	gh	Coboconk ON (W)
<i>Apocynum sibiricum</i>	clasping-leaved dogbane	hm	Scarborough ON
<i>Aquilegia canadensis</i>	wild columbine	am	Waterloo ON
<i>Aquilegia canadensis</i>	wild columbine	rh / si	Scarborough ON
<i>Aruncus dioicus</i>	goatsbeard	jh	Mississauga ON
<i>Asclepias incarnata</i>	swamp milkweed	wb	New Hamburg ON (W)
<i>Asclepias incarnata</i>	swamp milkweed	rc	Plymouth Minnesota
<i>Asclepias incarnata</i>	swamp milkweed	act / am	Toronto / Waterloo ON
<i>Asclepias incarnata</i>	swamp milkweed	rc	Plymouth Minnesota
<i>Asclepias tuberosa</i>	butterfly milkweed	jaf	Stoney Lake ON
<i>Aster cordifolius</i>	heart-leaved aster	hm	Scarborough ON
<i>Aster ericoides</i>	heath aster	dm	Caledon ON (W)
<i>Aster ericoides</i>	heath aster	hm	Scarborough ON
<i>Aster lowrieanus</i>	Lowries aster	hm	Scarborough ON
<i>Aster macrophyllus</i>	large-leaved aster	hm	Scarborough ON
<i>Aster novae angliae</i>	New England aster	hm	Scarborough ON
<i>Aster ptarmicoides</i>	upland white aster	lr	Guelph ON
<i>Aster puniceus</i>	purple-stemmed aster	wb	New Hamburg ON (W)
<i>Aster sagittifolius</i>	arrow-leaved aster	hm	Scarborough ON

<i>species</i>	<i>common name</i>	<i>donor</i>	<i>location</i>
Perennial Flowers, continued			
<i>Aster shortii</i>	Short's aster	gh	Scarborough ON
<i>Aster umbellatus</i>	flat-topped white aster	hm	Scarborough ON
<i>Astragalus canadensis</i>	Canadian milk vetch	hm	Scarborough ON
<i>Campanula americana</i>	tall bellflower	jaf	Stoney Lake ON
<i>Chelone glabra</i>	white turtlehead	jaf	Stoney Lake ON
<i>Chelone glabra</i>	white turtlehead	dld	Scarborough ON
<i>Chelone lyoni</i>	pink turtlehead	hm	Scarborough ON
<i>Chrysopsis (Heterotheca) villosa</i>	hairy false golden aster	rc	Plymouth Minnesota
<i>Cimicifuga racemosa</i>	black cohosh	pa / rh	Toronto / Scarborough ON
<i>Cirsium discolor</i>	field thistle	hm	Scarborough ON
<i>Cirsium muticum</i>	swamp thistle	wb	New Hamburg ON (W)
<i>Coreopsis lanceolata</i>	lance-leaved coreopsis	hm	Scarborough ON
<i>Coreopsis sp</i>	coreopsis	om	Picton ON
<i>Desmodium canadense</i>	showy tick-trefoil	am / ic	Waterloo / Toronto ON
<i>Desmodium canadense</i>	showy tick-trefoil	wb	New Hamburg ON (W)
<i>Dodecatheon meadia</i>	shooting star	rh	Scarborough ON
<i>Echinacea purpurea</i>	purple coneflower	jg	King Township ON
<i>Echinacea purpurea</i>	purple coneflower	rh	Scarborough ON
<i>Eryngium yuccifolium</i>	rattlesnake master	dm	Caledon ON
<i>Eupatorium maculatum</i>	spotted Joe-Pye weed	dld	Scarborough ON
<i>Eupatorium perfoliatum</i>	boneset	ke	Muskoka ON (W)
<i>Eupatorium rugosum</i>	white snakeroot	lr / pa	Guelph / Toronto ON
<i>Gentiana andrewsii</i>	closed gentian (blue)	gh	Scarborough ON (W)
<i>Gentiana andrewsii</i>	closed gentian (white)	hm	Scarborough ON
<i>Gentiana andrewsii</i>	closed gentian (blue)	jaf	Stoney Lake ON
<i>Gentiana crinita</i>	fringed gentian	gh	Durham ON (W)
<i>Geum triflorum</i>	prairie smoke	act	Toronto ON
<i>Hedeoma pulegiodes</i>	American pennyroyal	dm	Caledon ON
<i>Helenium autumnale</i>	sneezeweed	rc	Plymouth Minnesota
<i>Helianthus divaricatus</i>	woodland sunflower	hm	Scarborough ON
<i>Helianthus giganteus</i>	tall sunflower	hm	Scarborough ON
<i>Hibiscus moscheutos</i>	swamp rose-mallow	hm	Scarborough ON
<i>Hypericum kalmianum</i>	Kalm's St John's-wort	gb	Ottawa ON
* <i>Impatiens pallida</i>	pale jewelweed	act	Toronto ON
<i>Iris versicolor</i>	blue flag	ke	Muskoka ON (W)
<i>Liatris pycnostachya</i>	prairie blazing star	rc	Plymouth Minnesota
<i>Liatris spicata</i>	dense blazing star	hm / rc	Scarborough ON
<i>Lobelia inflata</i>	Indian tobacco	dm	Caledon ON
<i>Lobelia siphilitica</i>	great blue lobelia	rh / hm	Scarborough ON
<i>Lobelia siphilitica</i>	great blue lobelia	jaf	Stoney Lake ON
<i>Lobelia siphilitica</i>	great blue lobelia	dm	Caledon ON (W)
<i>Lupinus perennis</i>	wild lupine	jg	Twinsp Minden Hills ON
<i>Lupinus perennis</i>	wild lupine	jh	Mississauga ON
<i>Lathyrus japonicus</i>	beach pea	gh	Scarborough ON
<i>Monarda punctata</i>	dotted mint	hm / lr	Scarborough / Guelph ON
<i>Oenothera biennis</i>	common evening-primrose	rh	Scarborough ON

<i>species</i>	<i>common name</i>	<i>donor</i>	<i>location</i>
Perennial Flowers, continued			
<i>Oenothera macrocarpa</i>	bigfruit evening-primrose	jaf	Stoney Lake ON
<i>Osmorhiza longistylis</i>	anise-root	jh	Mississauga ON
<i>Penstemon digitalis</i>	foxglove beardtongue	lc / hm	Toronto / Scarborough ON
<i>Penstemon grandiflorus</i>	large-flowered beardtongue	dm / wb	Caledon / New Hamburg ON
<i>Penstemon grandiflorus</i>	large-flowered beardtongue	rc	Plymouth Minnesota
<i>Penstemon hirsutus</i>	hairy beardtongue	hm	Scarborough ON
<i>Penstemon smallii</i>	Small's penstemon	hm / jaf	Scarborough / Stoney Creek
<i>Phryma leptostachya</i>	lopseed	gh	Bowmanville ON (W)
<i>Physostegia virginiana</i>	obedient plant	act	Toronto ON
<i>Phytolacca americana</i>	pokeweed	gh	Norfolk ON (W)
<i>Pycnanthemum pilosum</i>	hoary mountain mint	hm	Scarborough ON
<i>Pycnanthemum virginianum</i>	Virginia mountain mint	dm / hm	Caledon / Scarborough ON
<i>Rudbeckia triloba</i>	branched coneflower	hm	Scarborough ON
<i>Sanguisorba canadensis</i>	Canadian burnet	jh	Mississauga ON
<i>Silphium laciniatum</i>	compass plant	wb	New Hamburg ON
<i>Silphium laciniatum</i>	compass plant	jaf	Stoney Lake ON
<i>Silphium perfoliatum</i>	cup plant	om	Picton ON
<i>Silphium terebinthinaceum</i>	prairie dock	jaf	Stoney Lake ON
<i>Solidago caesia</i>	blue-stemmed goldenrod	hm / rh	Scarborough ON
<i>Solidago elliotii</i>	Elliot's goldenrod	hm	Scarborough ON
<i>Solidago flexicaulis</i>	zigzag goldenrod	am / rh	Waterloo / Scarborough ON
<i>Solidago juncea (juncia)</i>	early goldenrod	wb	Cambridge ON (W)
<i>Solidago juncea (juncia)</i>	early goldenrod	hm	Scarborough ON
<i>Solidago nemoralis</i>	grey goldenrod	hm	Scarborough ON
<i>Solidago patula</i>	rough-leaved goldenrod	wb	New Hamburg ON (W)
<i>Thalictrum dioicum</i>	early meadow rue	rh	Scarborough ON
<i>Thalictrum polygamum</i>	tall meadow rue	act / ke	Toronto/ Muskoka ON
<i>Thalictrum polygamum</i>	tall meadow rue	jh	Mississauga ON (W)
<i>Thalictrum polygamum</i>	tall meadow rue	rc	Plymouth Minnesota
<i>Tiarella cordifolia</i>	foamflower	act	Toronto ON
<i>Verbena hastata</i>	blue vervain	hm	Scarborough ON
<i>Verbena stricta</i>	hoary vervain	hm	Scarborough ON
<i>Vernonia altissima</i>	tall ironweed	jaf	Stoney Lake ON
<i>Vernonia altissima</i>	tall ironweed	lr	Guelph ON
<i>Veronicastrum virginicum</i>	Culver's root	hm	Scarborough ON
<i>Veronicastrum virginicum</i>	Culver's root	rc	Plymouth Minnesota
<i>Viola canadensis</i>	Canada violet	dm	Caledon ON (W)
<i>Viola labradorica</i>	Labrador violet	act	Toronto ON
<i>Zizia aptera</i>	heart-leaved alexanders	gb	Ottawa ON
<i>Zizia aurea</i>	golden alexanders	jaf	Stoney Lake ON

Shrubs

<i>Aronia melanocarpa</i>	black chokeberry	ke	Muskoka ON (W)
<i>Aronia melanocarpa</i>	black chokeberry	dld	Scarborough ON
<i>Ceanothus americanus</i>	New Jersey tea	act	Toronto ON
* <i>Cephalanthus occidentalis</i>	buttonbush	gh	Twensp Minden Hills ON (W)
<i>Ledum groenlandicum</i>	Labrador tea	rh	Skeleton Lake ON (W)

<i>species</i>	<i>common name</i>	<i>donor</i>	<i>location</i>
Shrubs, continued			
<i>Rhus aromatica</i>	fragrant sumac	hm	Scarborough ON
<i>Rubus odoratus</i>	flowering raspberry	rh	Scarborough ON
<i>Vaccinium macrocarpon</i>	large cranberry	gh	Muskoka ON
* <i>Viburnum lentago</i>	nannyberry	gh	Markham ON
<i>Viburnum trilobum</i>	high-bush cranberry	jg	King Twosp ON
Trees			
<i>Cercis canadensis</i>	redbud	gh	Toronto ON
<i>Ptelea trifoliata</i>	hoptree	hm	Scarborough ON
Vines			
<i>Adlumia fungosa</i>	climbing fumitory	hm / pa	Scarborough / Toronto ON
<i>Celastrus scandens</i>	climbing bittersweet	gh	Warkworth ON (W)

Seed Exchange Donors

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(open to members only)

Please make an effort to order seeds that originate from your bioregion (the general rule of thumb is within a 200-kilometre range or 125 miles).

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Note: We list the seeds the way they were described to us by donors. Chances are that most are accurately described, but mistakes happen. Seeds that are not specifically noted as wild-collected are from a garden.

Please include the following information with your request for seeds: your name and mailing address, the species you'd like (in alphabetical order by botanical name) and any substitutions you would like in the event we run out of a particular species. If you prefer seed from a specific listed location, please so indicate. Our new deadline for seed requests is April 15, 2005.

Seed donors may request up to 30 packets, other members may order a maximum of 15 packets. If you are a Canadian requester, include \$3 for the first packet and 50 cents for each additional packet. If you are an American requester, send \$12 to cover the cost of a phytosanitary certificate, and 50 cents for each packet of seeds (in U.S. funds). We cannot ship seeds of shrubs, trees, vines and some proscribed grass species to the U.S. without the requester applying for an Import Permit.

Seed requests from seed donors will be given priority. All seed orders will be date-stamped and distribution will be on a first-come, first-served basis but the requests of all donors will be dealt with before the requests of others.

Our intention is to respond to all timely requests (by April 15th, 2005) by the end of April, 2005. This will mark the end of the Seed Exchange until our fall issue in 2005.

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Springbank Meadows Park From Garbage to Glory

by Donna McGlone

The North Sheridan Landfill, a former gravel pit located in Mississauga, Ontario, was officially closed as a garbage dump in 1980 and covered over with clean fill consisting of clay and shale. In the early 90's the local Boy Scouts planted aspen seedlings on the property, many of which have survived in three groves. That was just the beginning.

In 1997, while driving past the landfill, I noticed that several mature trees had been added and there was more activity than usual. Truckloads of soil had been dumped and heavy machinery was moving them around to create berms. Being curious/nosy, I decided to drop in and introduce myself.

Exciting things were happening. The landfill was undergoing a rehabilitation. Three ponds had been dug and stocked with bass. Mature pines (*Pinus* spp.) and maples (*Acer* spp.), trees that had to be removed during road widenings, had already been planted and young sumacs (*Rhus* sp.) were on the way.

My fellow board members at the Credit Valley Horticultural Society had to hear about this excellent project! They quickly became as enthused as I was. Everyone got behind this effort to improve a previously unattractive part of the city and before long we were applying for – and receiving – funding from foundations and governments. In February, 1998 we placed our order with Otter Valley Native Plants for plants indigenous to the area and late in May members of the horticultural society plus representatives from the City and Peel Region planted 1,300 plugs and potted plants plus a tulip tree (*Liriodendron tulipifera*) donated by our society.

Unfortunately, we had an extremely dry spring and summer that year and our success rate was pathetic. Only those plants that had been planted next to the ponds survived. The tulip tree did not make it. However, we didn't let this discourage us.

The following year we decided it would be wise to plant at the end of September when the weather would be cooler and we'd be more or less guaranteed the necessary rain. We also opted to do our planting at Springbank Meadows Park, a portion of the landfill owned by the City of Mississauga (not the Region of Peel).

This time we ordered our indigenous plants in pots only and the City donated native trees

and shrubs that had been grown by the Credit Valley Conservation Authority. In hopes of getting residents from the surrounding communities involved, we delivered flyers to every household stressing the fact that it would be a fun day for the whole family. Everyone was welcome and many came! Every year since, we have followed the same format with great success.

Each year now the City ploughs a rectangular patch (or two), tilling it really well. A week later we come in and do the planting and then the City waters once. This usually works well, especially in the fall, but it's also dependent upon Mother Nature to supply some of the moisture.



PHOTOGRAPH COURTESY SHEENA MCCOLL

The Credit Valley Horticultural Society received a Friends of the Credit Conservation Award of Merit from the Credit Valley Conservation Authority for its ongoing efforts to naturalize the former North Sheridan Landfill, bringing back monarch butterflies in the process.

Many meadow gardens have now been established on the individual plots as well as a special native plant garden (with more of a sculpted look to it) at the entrance to Springbank Meadows Park. The City has generously produced beautiful signs acknowledging all the participants in the project and stating simply "Let It Be". One of our most energetic volunteers, Sheena McColl, has been the impetus behind the project carrying us along on her wave of enthusiasm.

Anyone visiting the site in the coming months will discover a profusion of white beardtongue (*Penstemon digitalis*), dense blazing stars (*Liatris spicata*), showy tick trefoil (*Desmodium canadense*), a leguminous plant which fixes nitrogen in the soil, New England

asters (*Aster novae-angliae*), black-eyed Susans (*Rudbeckia hirta*), enormous cup plants (*Silphium perfoliatum*), wild bergamot (*Monarda fistulosa*), heath asters (*Aster ericoides*), stiff goldenrod (*Solidago rigida*), blue vervain (*Verbena hastata*), ironweed (*Vernonia* sp.) among others and a variety of grasses. The grasses have not done as well as the forbs (flowering plants), perhaps because they were planted in the fall, not giving their roots time to become established over the warm summer months.

Saplings and shrubs include white pines (*Pinus strobus*), serviceberry trees and shrubs (*Amelanchier* spp.), sumacs, elderberries (*Sambucus* spp.) and maples to name but a

few. We have discovered over the years that the deep-rooted trees have a poor chance of survival on the site unless they are planted on monster berms. Their roots are killed as soon as they hit the garbage layer, probably due to their exposure to the methane gases. Hence the need to plant them in giant hills.

There have been many challenges and many unknowns, but this former dump is slowly being transformed. It's becoming a glory to behold. What better legacy to leave future generations?

Donna McGlone is a past president of the Credit Valley Horticultural Society. Visit www.creditvalleyhort.ca.

New & Noted

The ROM Field Guide to Wildflowers of Ontario

By Timothy Dickinson, Deborah Metsger,
Jenny Bull, Richard Dickinson
Toronto: McClelland & Stewart, 2004
\$29.99, paperback, 416 pages
0-7710-7652-5

The Royal Ontario Museum is one of Canada's finest museums and, as such, one expects high-quality publications from this institution. *The ROM Field Guide to Wildflowers of Ontario* meets these expectations, admirably. It is a handy (big pocket-sized), full-colour field guide to 550 of Ontario's most common wildflowers. The emphasis is on native plants, but many non-natives (the so-called "weeds" one is likely to encounter in the wild) are included, which adds to the book's usefulness in the field.

Arranged by plant family rather than by flower colour (admittedly, a more beginner-friendly method), the book demands more commitment from the user, but rewards the effort. Each family section begins with a description of the family's distinctive features, encouraging the user to learn patterns within families, patterns that help with identification of unfamiliar species.

For those readers who do their identification by "keying out" a species, the 25 main keys at the front of the book are very user-friendly, and an additional 18 keys treat large families and genera. Again, using the keys is a bit more work, but once you get the hang of it the rewards are rich.

My preference in field guides is usually for illustrations rather than photographs, but this ROM guide has such a good variety of photographs for each species (often showing leaves, flowers, fruit, seed capsules, etc. in separate images) that it's easy to make a positive identification and to distinguish species from similar-looking plants. The written descriptions, which cover all the basics, are clear and concise. Interestingly, the authors have deliberately not included information about edibility and medicinal qualities, for the important reason that they don't want to encourage wild collection.

While there isn't a glossary, most scientific terms are explained somewhere in the text and

an index leads you to the definition. There are a few exceptions—for example, achene isn't defined anywhere, though a photo of strawberry fruit has a caption that describes it as an "aggregate of achenes on a fleshy receptacle". The useful introductory sections (to the landscape and vegetation of Ontario, habitat, classification, plant parts, etc.) offer an excellent, quick course in basic botany.

And, finally, for those who are fed up with shoddy bindings (my Peterson's field guide is held together with elastic bands, alas!), this ROM guide has a sturdy, stitched binding and a cover that sheds water.



Ecology and Control of Introduced Plants

By Judith H. Myers and Dawn R. Bazely
Cambridge, U.K.: Cambridge University
Press, 2003
\$53.95 CDN, paperback, 313 pages
ISBN 0-521-35778-0

"Many challenges remain." That's the last sentence of this excellent, insightful and surprisingly undepressing (considering the topic) study of invasive species. The authors' skill at synthesizing an impressively exhaustive amount of information and presenting it in an always readable way ensures that instead of finishing this book with a feeling of hopeless crisis, the reader feels enlightened. And for the target audience (advanced students and land managers), I suspect that those feelings of enlightenment will be matched with empowerment. Yes, invasive species constitute an ecological crisis, but this book is full of practical explanations, case studies and a roadmap to begin evaluating their impacts.

One of the most noteworthy features of *Ecology and Control of Introduced Plants* is the breadth of the authors' research. Both authors are professors at Canadian universities and have obviously scoured the globe's scientific community for the most relevant and up-to-date research on the topic of invasives. Case studies from Australia, New Zealand, South Africa, North America, Europe and elsewhere not only make for fascinating reading, but

amply reinforce the authors' sage conclusions: definitive answers to essential questions (Can we predict which introduced plants will become invasive? Can we predict impacts? How safe is biological control?) are elusive. They conclude that applying the cautionary principle to all introductions is the best approach.

Even for a reader who is not steeped in the scientific study of invasives, the authors have such an engaging style and pepper the work with such interesting stories that one's interest never flags. For example, I was intrigued to learn that the entire British population of invasive Japanese knotweed (*Fallopia japonica*) is thought to be a clone from a single parent plant. Likewise, I hadn't known that the North American native ragweed (*Ambrosia artemisiifolia*) is now a serious invasive in Russia and Hungary, and that Canada goldenrod (*Solidago canadensis*) is invasive in central Europe (not really a surprise!). Along with such tidbits, the book includes well-documented statistics that will be useful to anyone making the case for a cautionary approach to plant introductions. For example, the authors note that in the U.S., "82% of the 235 species of woody plant invaders were introduced as ornamentals or for landscaping."

Not only have the authors provided an enormously thorough evaluation of existing research and what we can learn from it, but have also provided important suggestions for future research, pointing out the gaps in current knowledge. (For example, the authors point out that the subtle and indirect effects of introduced species on ecosystems—on soil biota, for instance—have received relatively little research attention.) Many graduate students will no doubt take up the challenge, and I suspect that many of them will in fact be inspired to do so by this fascinating book.

Reviews by Lorraine Johnson

Continued from page 1

extended for up to two days. Cooked and dried bulbs were second in importance only to smoked salmon as a trade item.

To dig camas bulbs and then render them edible required a large amount of labour, performed almost entirely by women. While a man's attractiveness as a potential husband was based partially on his success at hunting and fishing, a woman was valued for her ability to gather volumes of camas bulbs. An average day of harvest may have yielded a bushel of the bulbs, and it has been estimated that one woman with a digging stick could harvest as many as two tons (2,000 kilograms) of bulbs in a year.

Though the bulbs were traditionally gathered after the flowers had withered, weeding was done during flowering. The primary objective was to remove death camas (*Zygadenus venenosus*), which often grows mixed with blue camas. With much smaller, white flowers, death camas is easy to distinguish from blue camas when the plants are flowering, but at the time of harvest the two species appear identical. Death camas is well-named: fatalities were not rare. Full-grown cattle have died from eating it, and even mortality of bees visiting the plants has been reported. The poison involved is an alkaloid neurotoxin called zygacine. This provided strong motivation to weed camas beds in preparation for the time of harvest, and anyone eating these plants was well-advised to pay attention to taxonomy.

However, eating death camas is not always fatal. I heard about a young child a few years ago who ate some of the plant, out on one of the remote islands where medical help was not quickly available. Thankfully the child survived. And sometimes there are near misses. One day on a field trip in Deception Pass State Park in Washington we came upon a man and his young son busily digging up bulbs along the trail, presumably to eat. Among the plants they had gathered was death camas. In addition to his behaviour being illegal and inappropriate in park lands, the man's ignorance could have been fatal. We asked him if he knew what he was digging. "Wild onion", he replied. We warned him about the danger of the plants he had.

Six species of *Camassia* are recognized in North America. Blue camas is the most widespread one in the west, ranging from British Columbia to Alberta and south into California and Utah. Giant blue camas grows from southern British Columbia to central California, and two other western species are more restricted: Cusick's camas (*C. cusickii*) in northeast Oregon and adjacent Idaho, and Howell's camas (*C. howellii*) in southwest Oregon. In the east, wild

hyacinth (*C. scilloides*) is found from Texas and Georgia to Ontario and Pennsylvania. Prairie hyacinth (*C. angusta*) is less widespread, restricted to the central portion of the range of wild hyacinth.

The words camas and quamash both came from Chinook jargon names for blue camas. Death camas, placed in the genus *Zygadenus*, is a fairly close relative, though in native languages the names for the plants are not similar; the first people's system of naming was based on use, not similarity or genetic relationship. *Zygadenus* and *Camassia* are both traditionally placed in the Lily Family, Liliaceae. More recent treatments tend to subdivide this family into several others. These genera are included in the "hyacinth group", which some authors segregate into a separate family, the Hyacinthaceae.

As the name indicates, blue camas blossoms are most often a deep clear blue, borne in showy narrow racemes, and an individual flower may be an inch and a half (four centimetres) across. Occasional individuals with pure white flowers can be found, and there is also regional variation in the flower's shade of blue or violet. Eight subspecies have been described. Typical of lilies, the corolla consists of six tepals, which in *Camassia* are nearly all identical. Blue camas is unique in the genus in having flowers that are slightly irregular, with the lowest tepal separated from the others and curving outward from the stem. The fruit is a three-parted dry capsule, bearing seeds that are characteristically black. The leaves are basal and linear, growing from a deep bulb.

Blue camas is apparently still a rarity in modern gardens. I have a single plant in my yard, a survivor salvaged by a friend from a construction site. Reports of success in the garden or in restoration sites are mixed, and I suspect that camas requires very specific soil and moisture conditions to thrive. Where it occurs in nature it is often quite vigorous, growing in dense and healthy-looking patches. If natural settings provide the best guidelines, as I believe, blue camas needs somewhat acidic soils, high in organic content, moist in winter and spring but drying completely in summer.

Reportedly the species grows readily from seed, flowering in two to four years, and commercial sources are available for seeds and for bulbs of plants produced from seed. Because of the increasing scarcity of native habitats, bulbs collected from the wild are not an appropriate source of plant material, with the exception of verifiable salvage efforts.

First Nations people still gather and consume blue camas bulbs, certainly more for their traditional and cultural nourishment than strictly for their carbohydrate content. And modern gardeners appear to have a hunger for the natural beauty of this native species, so rich in tradition and history with the people of the Pacific Northwest.

Joe Arnett has been a professional botanist in Washington State for over 20 years, specializing in rare plant studies, floristic inventories and vegetation analysis. He teaches plant identification through the Washington Native Plant Society, the North Cascades Institute and Bastyr University.

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