

The Blazing Star



A PUBLICATION OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

Native Plant to Know

Spotted Jewelweed

Impatiens capensis

by *Angelique Mori*

The delicate, pendant blooms of spotted jewelweed (*Impatiens capensis*) grace the moist, shadier corners of our native plant garden in Hamilton, Ontario. This dainty jewel of summer appeared uninvited in our backyard and quickly became a favourite with birds and butterflies.

Quick-in-the-hand, horns-of-plenty, touch-me-not and wild ladies' earrings are some of the colourful monikers used to describe this common, herbaceous annual. There are two jewelweeds native to north temperate and boreal North America, the second being pale jewelweed (*Impatiens pallida*). It's easy to distinguish the two by flower colour: *Impatiens capensis* is orange with dark blotches, while *I. pallida* is pale yellow.

Impatiens is Latin for "impatient," referring to the plant's startling method of seed dispersal: when touched, the ripe pods explode (no doubt the source of the sobriquet "touch-me-not"). The species name *capensis* means "of the Cape of Good Hope," where the plant was erroneously believed to have originated. *Pallida* means "pale" or "pallid."

The smooth, translucent branches have glaucous, hollow stems. The

simple, elliptic leaves are three to 10 centimetres (one to four inches) long, long-stalked with some rounded teeth. The upper leaves are alternate while the lower leaves are opposite. Delightful, trumpet-shaped flowers dangle in

loose clusters like tiny drop earrings, one to three blossoms per stalk (known as a pedicel). The bilaterally symmetrical blooms have three petals and an elegant, curving spur. The

blossoms appear from summer to early autumn. The fruit is a ribbed pod up to two centimetres (one inch) long containing five vegetal

spring which build up considerable compressive force by water absorption. A gentle touch will trigger vigorous contortions that can produce a perceptible

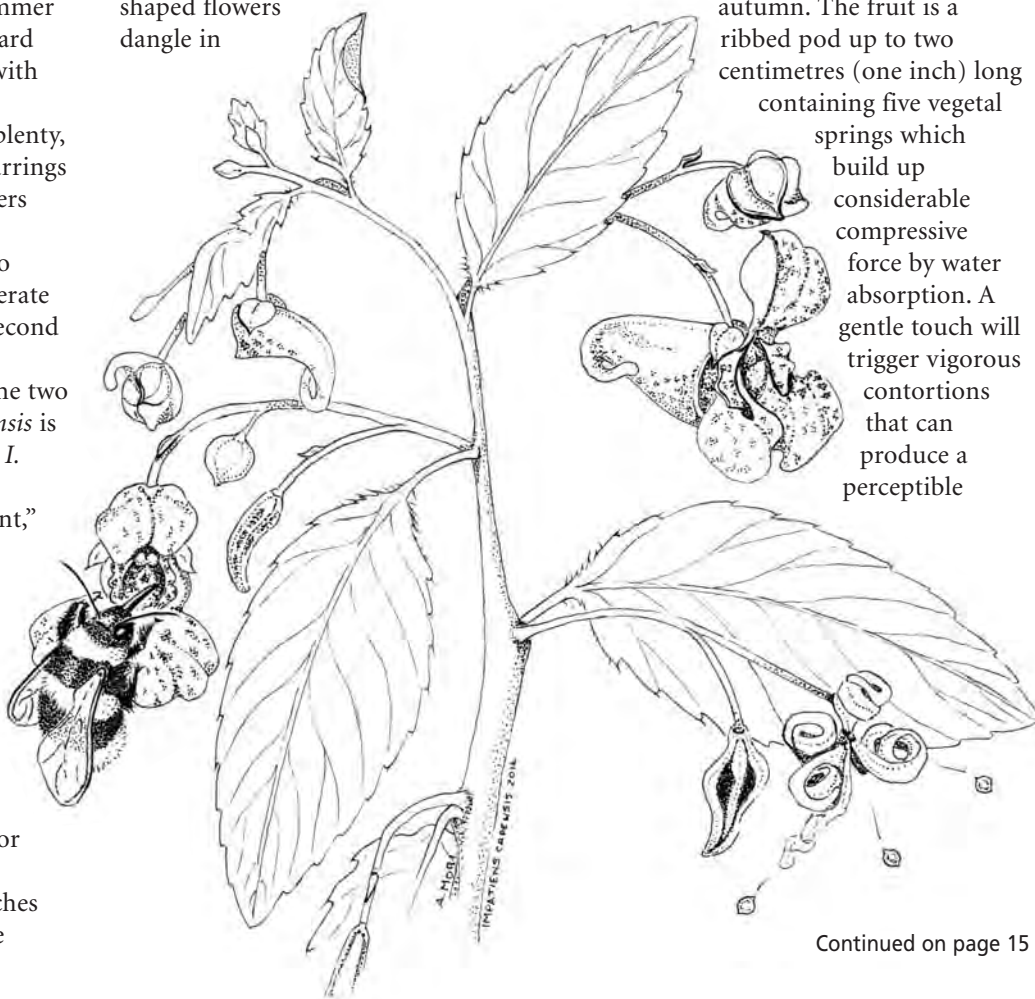


ILLUSTRATION BY ANGELIQUE MORI

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The *Blazing Star* is . . .

The *Blazing Star* is published quarterly (April, August, November, February) by the North American Native Plant Society (NANPS). Contact editor@nanps.org for editorial deadlines and for advertising rates. The views expressed herein are those of the authors and not necessarily those of NANPS.

The North American Native Plant Society is dedicated to the study, conservation, cultivation and restoration of North America's native flora.

Summer 2016
Volume 17, Issue 3
ISSN 2291-8280

Editor: Irene Fedun
Production: Bea Paterson
Proofreader: Eileen Atkinson
Printed by: Guild Printing,
Markham, Ontario

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North American Native Plant Society,
formerly Canadian Wildflower Society,
is a registered charitable society, no.
130720824 RR0001.
Donations to the society are tax-
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Society, Box 84, Stn D, Toronto, ON
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Telephone: (416) 631-4438.

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Editorial

The Ontario government passed into law Bill 37, the Invasive Species Act (ISA), on November 3, 2015. The act is intended to manage invasive plant and animal species threatening Ontario's ecological biodiversity. According to Bill Mauro, Ontario's Minister of Natural Resources and Forestry, the province's taxpayers pay more than \$90 million dollars annually to fight invasives while the annual cost to Canada's agriculture and forestry sectors is upwards of \$7.3 billion each year. The ISA also provides the Ministry of Natural Resources and Forestry with extraordinary monitoring and enforcement powers.

The Invasive Species Act is intended to support "the prevention, early detection, rapid response and eradication of invasive species"; give Ontario the tools to ban the possession and transportation of certain invasive species; allow for earlier intervention and rapid response to keep invasive species from spreading... and help ensure compliance through modernized inspection and enforcement measures."

NANPS supports Bill 37 in principle, however specific gaps within the Act weaken its effectiveness and require collective action. In light of our mission (the study, conservation, cultivation and restoration of North America's native flora), we believe there is a need for:

- 1) Immediate, proactive creation of government initiatives for key stakeholders to develop innovative resources in their collaborative fight against invasive plants.
- 2) Innovative investment in the talents, skills and knowledge of Ontario's existing conservation leaders and associations to create "tools" for the ISA toolbox.
- 3) Clarity with respect to the classification and definitions of invasive plant species and the operationalization of the degree of risk associated with each of these species.
- 4) The creation of ISA-related educational curricula and training materials for elementary and secondary schools, Ministry of Training, horticultural and landscaping programs at colleges and universities, commercial nurseries and landscapers, farmers and landowners, and staff of the Ministry of Natural Resources and Forestry, provincial parks and conservation authorities.
- 5) Creation of training programs for ISA inspectors, certification programs on the identification of invasive plant species, native plants, non-native plants, species at risk (and "weeds"), cataloguing and evaluating the educational merits of existing documentation and apps used for identification of invasive species.

We hope to work with the Ontario government and other concerned agencies and environmental non-profit organizations to strengthen this critical legislation.

Bill Ford
NANPS director



Lobelia cardinalis (cardinal flower)

PHOTOGRAPH BY LINDA READ

NANPS ANNUAL GENERAL MEETING

Saturday, October 15, 2016

Toronto Botanical Gardens
777 Lawrence Avenue East at Leslie Street
Toronto

Keynote speaker: Brendon Larson, assistant professor in the Department of Environment and Resource Studies at the University of Waterloo will talk about Redefining our Relationship with Nature: The Case of Invasive Species. Mini native plant sale.

Native Plant Species Website Blooms

The Local Scoop, having established roots strong enough to withstand droughts in the summer and ice storms in winter, has grown hardy and wants to branch out. So, the Scoop has planted the Native Plant Species, a website dedicated to propagating a community of enthusiasts, to share the dirt, spread the word, and pollinate each community with the benefits of growing native plant species. Visit www.nativeplantspecies.com.

So dig in. Share your stories, your photos, your successes, your failures, and information about native plant species in your local area.

Contribute, ask the Scoop questions, and give advice about native plant species. Help raise awareness of native plant species, pollinators and other wildlife.

An ecosystem is more than a single plant. A native plant community florun is more than a single voice. So let's get growing!

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NEXT ISSUE
Missing Plants
Mystery Suspect
Revealed or
Is it?

CARTOON BY ADAM MOHAMED

Letter to the Editor

Dear Editor,

I found the Rock Elm article in the winter 2016 issue of *The Blazing Star* interesting and informative. My reason for writing is technical in nature, and to do with pollination biology. I had heard that elms were wind-pollinated. Author Bill Moses notes anecdotal evidence of bees "working the flowers," but he makes a troubling off-hand comment about this valid observation.

Bill says, "I suspect now that they must have been just gathering pollen and not playing a role in the reproductive process." To be fair, he explicitly prefaces this as a suspicion. But it troubles me to encounter a botanist engaging in public education with a broad audience describing "gathering pollen" by bees as a separate action from pollination, as if one action precludes or takes away from the other. Pollen gathering and pollination are concurrent processes for bees in most situations. For the elm in question, if the bees were successfully gathering pollen, then bee-based pollination would very likely have been occurring.

Bee bodies are built to acquire pollen, having evolved to take advantage of pollen as a protein resource. They are typically fuzzy or coated in branching hairs that readily trap pollen to be "combed off" and collected later. This strategy makes them the perfect vector for pollen transfer because in order to collect pollen for themselves they must first become coated in it and before consolidating it they must visit many different flowers.

Plants have evolved to produce excess pollen for everything, including reproduction and bee food. It is an ideal mutualism. One of the few cases in which plants draw the short straw is in nectar robbing, where bees with too-short tongues pierce the sides of long or hard-to-get-into flowers (such as squirrel corn or *Dicentra canadensis*) to get at the nectar. But

even here, it is nectar and not pollen that is being stolen, and these same bees have adequate tongue lengths for other flower species. Even bees that do no pollen collection themselves typically rob, infiltrate or parasitize the pollen resources of nests of bees that do collect pollen, and thus pollinate by proxy.

If the bees Bill saw visiting elm flowers were collecting pollen then, by virtue of their fuzzy bodies that brush against flowers, they would necessarily have been acting as pollinators, since the stamens and stigmas of elm flowers are both external, contained within the same flower and in very close proximity to each other. Elms may be largely reliant on wind, but perhaps there is minimal insect-related pollination.

I believe this is a crucial point since bees are experiencing declines, especially native bees, and public pressure to improve this situation usually comes from knowledge of the pollination benefits of bees. I am loathe to see confusion sown about their value as pollinators even in a minor way.

David d'Entremont

Author Bill Moses responds:

To clarify, I am not a botanist, merely a keen observer of nature, especially trees. After reading David's letter, I did more research and discovered that elm flowers do produce pollen. However, plants that rely on pollination by insects have sticky pollen which sticks to bee hairs and is packed around the back legs. Windblown pollen is not sticky and so must be more difficult for bees to collect, but in desperate times they may give it a go. This coming season I will be looking for bees on elm flowers to see what the "aych" they are doing.

Pollinators Paradise Project

Volunteers with the Pollinators Paradise Project have been busily planting a "pollinator corridor" of native plants that will provide food and shelter for pollinators across Hamilton, Ontario. Organized by Environment Hamilton and the Hamilton Naturalists' Club, with support from the Ontario Trillium Foundation and Hamilton Future Fund, the ambitious project knows no social, political or religious boundaries. Plantings have occurred at Victory and Community Gardens, Hamilton Downtown Mosque, many elementary and secondary schools, city parks, Hamilton City Hall and



PHOTOGRAPH BY BEATRICE EKOKO

other high-profile places. The project also offers a certification program: anyone who meets the criteria set out by the program for planting a pollinator patch can register the location at hamiltonpollinatorparadise.org and it will be added to a map that lists patches across the city. The goal is to create a continuous flow of native plants across Hamilton to support our beleaguered pollinators.

The website offers lists of pollinator-friendly plants, blogs, links and tips on how to build a bee nest box. For events designed to help you create a pollinator paradise contact land@hamiltonnature.org.

Purple, White, Blue & Gold: Gardening with Asters and Goldenrods

by Paul O'Hara

For most folks, gardening is a spring and summer affair. Winter subsides and the rush of spring planting begins. But after the rose of Sharon has bloomed and the kids are back in school the garden often goes off the radar.

I love the spring and summer garden too – the first flowers on my serviceberries (*Amelanchier* spp.) and woodland phlox (*Phlox divaricata*), wild geraniums (*Geranium maculatum*) and foamflowers (*Tiarella cordifolia*), beardtongues (*Penstemon* spp.) in late spring, and the waves of summer colour and texture that come with my prairie forbs and grasses. But autumn is my favourite time of year because that's when my gardens come alive with the purple, white, blue and gold of asters and goldenrods.

Goldenrods and asters are familiar to most when they light up our roadside meadows in late summer and early fall – you know, the time when many people complain about their hay

fever? I know I'm preaching to the choir and I'm tired of saying it but it needs to be shouted from mountaintops, spray-painted on city walls and barked on radio garden phone-in programs until the proverbial cows come home: asters and goldenrods do not cause hay fever.

The true allergen culprit is common ragweed (*Ambrosia artemisiifolia*), a native annual whose inconspicuous green flowers (emerging at the same time as asters and goldenrods) liberate huge amounts of dusty pollen that can travel kilometres on the wind. So when folks see those waving asters and goldenrods in our meadows in September they shouldn't be thinking hay fever, they should be thinking POLLINATORS!

The flowers of asters and goldenrods are pollinated by a vast array of flying insects, as their pollen is too sticky and heavy to be transported on the wind. Besides brightening our natural areas in fall, asters and goldenrods are some of the best pollinator plants in our North American flora and they're critical food plants for migrating monarchs and bees preparing for winter.

Plus, there's a wide selection to choose from – over 60 species in Ontario alone – so you need not plant some of the more aggressive ones adapted to disturbance such as Canada goldenrod (*Solidago canadensis*), late goldenrod (*Solidago altissima*), grass-leaved goldenrod (*Euthamia graminifolia*), New England aster (*Symphotrichum novae-angliae*), heath aster (*Symphotrichum ericoides*) and frost aster (*Symphotrichum pilosum*). In my native plant landscaping business, I don't usually plant them in formal gardens (many of them will appear in your garden of their own accord) but that's not to say that they don't offer wildlife and ecosystem benefits. Instead, I plant asters and goldenrods that are a little more conservative in their growth habits.



Smooth aster

PHOTOGRAPH BY PAUL O'HARA

My garden favourites

BLUE-STEMMED GOLDENROD (*SOLIDAGO CAESIA*)

My favourite goldenrod for the woodland garden in areas of part sun and part shade. Produces a string of golden flowers on bluish, arching stems. A common forb in local woodlands.

ZIG-ZAG GOLDENROD (*SOLIDAGO FLEXICAULIS*)

Another goldenrod for the woodland garden. Zig-zag stems and yellow flowers in autumn (often through to early November.) Common in local forests where it forms small stands.

EARLY GOLDENROD (*SOLIDAGO JUNCEA*)

A tidy metre-high (three foot) goldenrod of woodland edges and prairie remnants. Flowers in late July and August, hence the name "early." A superb addition to the perennial border in full to part sun.

GRAY GOLDENROD (*SOLIDAGO NEMORALIS*)

A knee-high goldenrod for full sun. Prefers sandy and gravelly soils in the wild. An excellent choice for the rock garden.



Blue-stemmed goldenrod

PHOTOGRAPH BY PAUL O'HARA

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Continued from page 5

OHIO GOLDENROD (*SOLIDAGO OHIOENSIS*)

An uncommon goldenrod of coastal marshes and wet sand dunes. A metre-high perennial with golden, flat-topped flowers. Will tolerate average garden soils.

STIFF GOLDENROD (*SOLIDAGO RIGIDA*)

A rare goldenrod of remnant prairies. Prefers dry sandy soils but will grow well in medium moisture clays too. Grows to shoulder height in the garden.

FLAT-TOPPED WHITE ASTER (*DOELLINGERIA UMBELLATA*)

A striking aster, up to two metres (six feet) high, that grows in roadside ditches and wet meadows. A common sight in cottage country. Tolerates medium moisture soils. A good choice for the perennial border in full to part sun.

UPLAND WHITE ASTER (*SOLIDAGO PTARMICOIDES*)

One of my favourites for the garden. Uncommon in the wild. Grows in rocky or sandy soils, particularly in shoreline habitats. An unusual goldenrod with flat-topped white flowers in late summer. Plant in part to full sun.

WHITE WOOD ASTER (*EURYBIA DIVARICATA*)

A Threatened species in Ontario, largely restricted to the Niagara Peninsula. A knee-high, white-flowered aster for the woodland garden.

HEART-LEAVED ASTER (*SYMPHYOTRICHUM CORDIFOLIUM*)

A common aster in local woodlands. Produces masses of light blue flowers when planted in groups. Another great choice for the woodland garden in part sun or dappled shade.

SMOOTH ASTER (*SYMPHYOTRICHUM LAEVE*)

Common in local meadows, particularly on clay soils. A chest-high aster with smooth-textured leaves and pretty blue flowers in early fall. Ideal for the perennial border in full to part sun.

SKY BLUE ASTER

(*SYMPHYOTRICHUM OOLENTANGIENSE*)

Uncommon in open oak woodlands and sandy meadows. A thigh-high aster with rough-textured leaves and lilac blue flowers in early fall. Like smooth aster, another great choice for the perennial border in full to part sun.

What about those aggressive asters and goldenrods that grow on our roadsides? They could be planted in formal gardens – New England aster, heath aster and frost aster are all suitable for the perennial border in full sun – but you might want to give them a chop after they flower to prevent them from seeding through the garden. In my opinion, these species are best planted and seeded in wilder settings such as habitat restoration and naturalization projects that create more pollinator habitat in our cities and towns.

This brings me to an idea I've had for some time. I believe we should be celebrating our asters and goldenrods. We celebrate the running of the maple sap in spring. Why not celebrate the flowering of our asters and goldenrods in autumn? It's such a beautiful time of year in our roadside meadows and thickets – the yellowing elms (*Ulmus* spp.) and hawthorns (*Crataegus* spp.), the brilliant reds and oranges of the staghorn sumac (*Rhus typhina*), the marooning gray dogwood (*Cornus racemosa*), and the purple, white, blue and gold of our asters and goldenrods. This beauty only comes once a year and we should rejoice in it. It could be a nice way for kids, parents and teachers to ease back into the school year: a North America-wide festival reveling in the

Recipe for an Inexpensive Meadow Naturalization Project

- Choose a marginal area in a city park, corporate park or school ground and get permission to plant there.
- Mark the borders and pathways of the naturalization project with marking paint. Get creative with the design: broad sweeping curves and wide, generous pathways to invite exploration.
- Stake out the borders to keep the mowing staff on track. I use 2" by 2" wooden stakes two feet high, painted with fire-red Tremclad® paint. Pound them into the ground at 10-15 foot intervals; 5-10 foot intervals on curves.
- Let the turf in the naturalized area grow. That's right, no need to do the back-breaking work of smothering or removing turf.
- Plant native wildflower plugs right into the turf. Choose species that can compete with the weedy turf grasses: black-eyed Susan (*Rudbeckia hirta*), wild bergamot (*Monarda fistulosa*), evening primrose (*Oenothera biennis*), sweet ox-eye (*Heliopsis helianthoides*), common milkweed (*Asclepias syriaca*), Canada anemone (*Anemone canadensis*), wild strawberry (*Fragaria virginiana*) and of course, asters and goldenrods: New England aster, heath aster, frost aster, smooth aster, early goldenrod and gray goldenrod. Plant as many plugs as your budget allows.
- Water new plants well for the first couple of weeks. Three to four good drenchings should do it.
- In time, thatch from the turf grasses will build up and, once scratched out, will create areas of bare soil. Target those areas with native wildflower seed. Source seed from a reputable native plant nursery, collect seed from a local meadow or from the maturing wildflowers in your naturalization project.
- Continue to develop the meadow in successive years with more wildflower plugs and seed as your budget allows.
- Enjoy the bees and butterflies!
- Visit <http://www.blueoak.ca/naturalization> for more ideas.

Paul O'Hara

migration of the monarch, thanking the bees for their hard work pollinating our flowers and food crops, and engaging in community planting events that put more asters and goldenrods into the ground in our cities and towns.

We need to change our thinking about the fall garden. Forget about the chrysanthemum. They're purdy and all but have you ever looked closely at a chrysanthemum in full flower? They're a vision of perfect sterility – not an insect to be found. This year, why not tuck some asters and goldenrods (the species, not cultivars with fancy names) into your

garden instead. Plant them once and enjoy them for years to come.

I know it'll take a while for most

citizens to change their thinking about the fall garden. Until then, I'll continue to celebrate the fall in my own small way: sitting in the garden among the turning colours and tawny grasses, beer in hand, watching the bees and butterflies dine on my asters and goldenrods. Now, that's what I call a good time.

Paul O'Hara is a consulting field botanist, landscape designer and native plant gardening expert. He is the owner/operator of Blue Oak Native Landscapes (www.blueoak.ca) in Hamilton, Ontario.



New England aster and arrow-leaved aster in flower at the Vale Naturalization Project, a 1.4 hectare (3.5 acre) naturalization project designed, built and maintained by Blue Oak Native Landscapes on the grounds of Vale Base Metals Technology Development in Sheridan Research Park in Mississauga. In 2009, the grounds consisted of neatly groomed turf. Today, it is a rich, bio-diverse habitat with cultural meadows, thickets and early successional forests.

PHOTOGRAPH BY PAUL O'HARA

Markham Proclaimed as Canada's First Monarch Butterfly-Friendly City

"We've been hearing a lot about the monarch population being in peril," says Markham, Ontario Councillor Valerie Burke who is also chair of Markham's Environmental and Sustainability Committee, "so our city decided to take the initiative to support butterflies and all pollinators." A mayoral proclamation in April declared Markham as Canada's first monarch butterfly-friendly city.

The welcome initiative is very much in line with Markham's Greenprint Sustainability Plan. The ambitious pollinator strategy includes launching a public outreach campaign, collaborating with local gardening and conservation groups, creating the world's first municipal milkweed nursery, encouraging residents to sign the David Suzuki Foundation Monarch Manifesto and adding butterfly-friendly plantings on city properties to those already completed. In one initiative a few years ago,

NANPS planted native shrubs and forbs at Markham Civic Centre.

"We all need to take responsibility for protecting the environment," says Councillor Burke. She and fellow residents have demonstrated their commitment through the Adopt-a-Park program where people engage in organized clean-ups or simply pick up litter whenever they find it and help restore natural areas through plantings. Pomona Mills Park is a good example. Located along a wildlife corridor, it has been the site of native plantings, including milkweed (*Asclepias* spp.) in the meadow.

This year the David Suzuki Foundation

launched its third annual #gotmilkweed campaign that encourages Canadians to plant milkweed in their yards, parks and schoolyards. The campaign has inspired over 10,000 milkweed plantings in Toronto alone. For more information, visit davidsuzuki.org.



*Monarch on New England aster (*Symphotrichum novae-angliae*). Photographer Carol Pasternak's book *How to Raise Monarch Butterflies: A Step-by-Step Guide for Kids* is in its second edition. Visit monarchcrusader.com to find out more about it and to learn about the plight of monarchs in the wild.*

PHOTOGRAPH BY CAROL PASTERNAK

Late goldenrod

This illustration, scaled down to fit this page, shows a late goldenrod (*Solidago altissima*) ramet (an individual in a group of clones) in each season. Sprinkled throughout the grouping are 50 species of insects and other organisms, some more easily seen than others. At some point in their lives, all of them utilize or depend on goldenrod.

The three similar members of the Canada goldenrod complex (*Solidago canadensis*, *S. gigantea* and *S. altissima*) are sometimes reviled because of their tendency to dominate a garden. They can spread quickly via tough, hard-to-dig-up rhizomes, so it's true that you probably shouldn't plant them in your garden (unless perhaps they're in pots and you cut off the inflorescence before seeds disperse.) However, these beautiful native plants are valuable to wildlife because they support the bottom of the food chain. When you see them alongside a road or in a field, appreciate them as "biodiversity superheroes." They are to be treasured, not dismissed as worthless weeds or inaccurately maligned for causing allergies.

Emily S. Damstra is a natural science illustrator in Guelph, Ontario. The life-size painting is the result of a year-long research project partially funded by a grant from the Access Copyright Foundation. Emily plans to continue studying and illustrating goldenrod and the fauna it supports. Her work may be seen at www.emilydamstra.com.



ILLUSTRATION © EMILY S. DAMSTRA

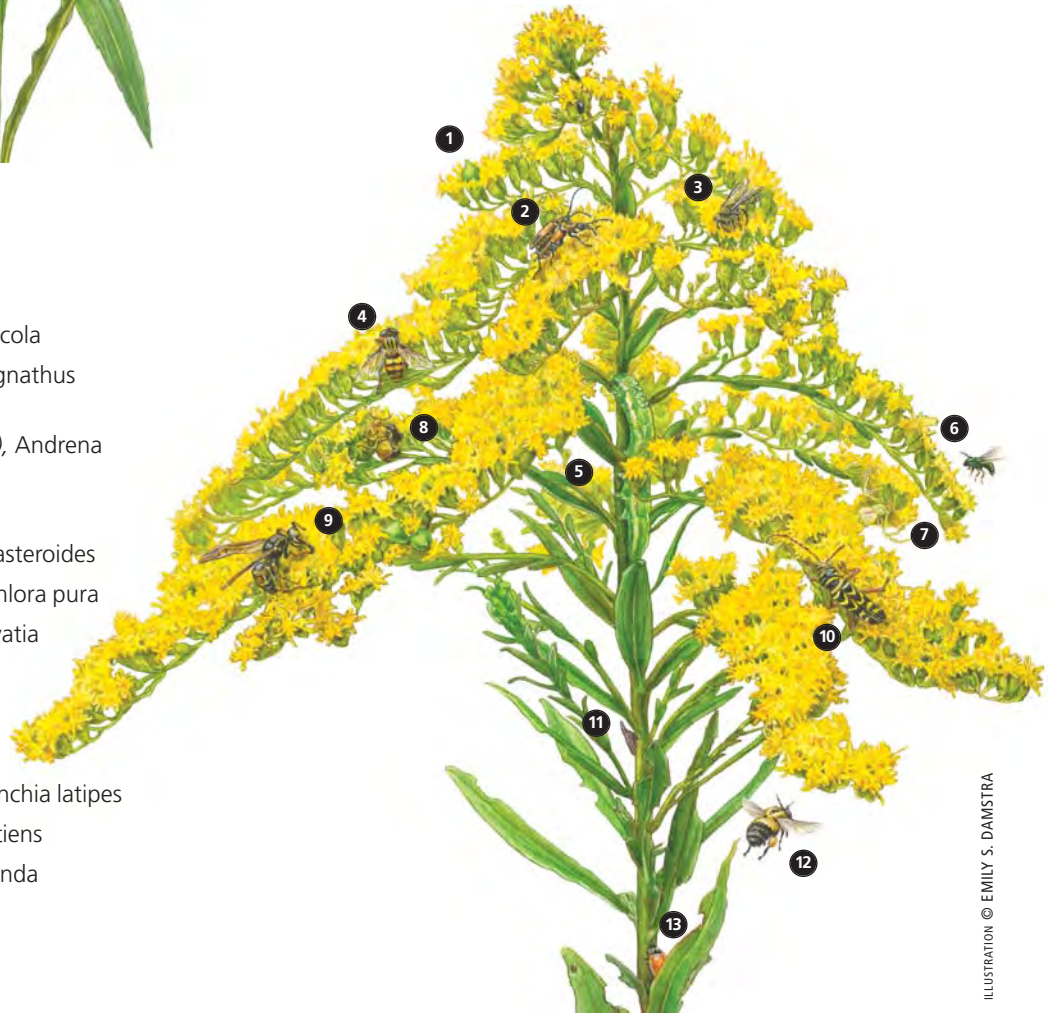


Spring

1. Wasp, *Eurytoma obtusiventris*
2. Leaf beetle larva, *Trirhabda* sp.
3. Warty leaf beetle larva, *Exema canadensis*
4. Goldenrod gall fly, *Eurosta solidaginis*
5. Ground crab spider, *Xysticus* sp., with leaf mining beetle, *Microrhopala vittata*
6. Grasshopper nymph, *Melanoplus* sp.
7. Leaf mining beetle, *Microrhopala vittata*
8. Scudder's epiblema moth, *Epiblema scudderiana*
9. Leafhopper, *Neokolla hieroglyphica*
10. Spittlebug, *Philaenus spumarius*
11. Leaf galls from midge, *Asteromyia carbonifera*, with fungus, *Botryosphaeria dothidea*
12. Chrysanthemum lace bug, *Corythucha marmorata*
13. Leaf piercing/sucking bug, *Publilia concava*, with tending ant, *Formica* sp.
14. Leaf folded by caterpillar, *Dichomeris* sp.
15. Long-legged fly, *Condylostylus* sp.

Summer

1. Flower gall from *Schizomyia racemicola*
2. Goldenrod soldier beetles, *Chauliognathus pensylvanicus*
3. Hairy-banded andrena (mining bee), *Andrena hirticincta*
4. Syrphid fly, *Helophilus* sp.
5. Goldenrod hooded owlet, *Cuculia asteroides*
6. Pure green augochlora bee, *Augochlora pura*
7. Goldenrod crab spider, *Misumena vatia*
8. Ambush bugs, *Phymata* sp.
9. Paper wasp, *Polistes fuscatus*
10. Locust borer, *Megacyllene robiniae*
11. Wide-footed tree hopper, *Campylenchia latipes*
12. Eastern bumble bee, *Bombus impatiens*
13. Polished lady beetle, *Cycloneda munda*



Going with the Flow

by Irene Fedun

Water is the defining feature on the Beaver Valley property of Bill and Louise Ford. The Fords learned this the hard way when their driveway and basement flooded the first spring after they bought the abandoned farm near Collingwood, Ontario in 2007. Bill had always wanted a country property with a large pond or small lake – a body of water where family members could swim, with a small beach where the kids could play or he and his dog could sit quietly contemplating the setting sun or watching the barn swallows dip and swoop for insects. This property, however, did not come with a water body – unless you count the giant elongated pool that formed from snow melt and spring rain.

Bill was undeterred. First the inundated driveway problem had to be solved and that was done with backhoes and bulldozers and other large machinery. Then the interesting work began.



PHOTOGRAPH BY BILL FORD

Cup plant

The Fords' 20 hectares (50 acres) slope southward, with the farmhouse set well back from the road about halfway down the hill. The land had once been naturally hilly – more than a century ago – before farmers appeared on the scene and wrestled it into grudging submission, filling in the wetland and subduing the natural curves of the landscape to create flat workable fields.

But the flow of water could not be stopped. Springs would bubble out of the hills and meander down to the stream that drained out of the lower reaches of the property. Uncontrolled surface run-off from the upper fields and recent changes to elevation of the adjacent road resulted in water flowing through the outbuildings and disused cattle yard, then into the stream. This led to concerns about the purity of the water. Poor

drainage and seasonal flooding rendered portions of their fields inaccessible into early summer.

Something had to be done. First the Fords attended an Environmental Farm Plan workshop and learned all they could about what was possible and how it might be funded. The Ontario Ministry of Natural Resources' Species at Risk Farm Incentive Program (SARFIP), in combination with the Canada-Ontario Farm Stewardship Program (COFSP), provide 100% of funding for wetland restoration. Through SARFIP, the Ontario government works with farmers to ensure that agricultural lands provide habitat for wildlife, especially species at risk, and maintain biodiversity. To be eligible for funding, landowners must prove that the land to be restored was once a wetland. A specialist from Ducks Unlimited Canada inspected the Fords' property, identifying peaty soils and vegetation communities indicative of soils that are wet most of the year. Farming activities over the years had degraded the wetland through nutrient overload, soil compaction and premature sedimentation of the basin.

During the summer of 2009, Bill excavated the degraded wetland to a



PHOTOGRAPH BY BILL FORD

Blue vervain

variable depth of one metre plus (four feet) with a shoreline configuration designed to enhance wildlife habitat. Within weeks, springs beneath the wetland and upstream drainage entering through the riparian buffer had filled the pond and continue to provide the water supply to this day. The wetland flows out into the adjacent stream through a simple control structure designed to stabilise

water levels.

“We intend to experiment with indigenous wild rice in the wetland, for our own use and as a wildlife food source,” says Bill. The riparian buffer feeding the wetland was seeded with herbaceous species native to the area, such as swamp milkweed (*Asclepias incarnata*), Joe Pye-weed (*Eupatorium maculatum*), blue vervain (*Verbena hastata*) – all three very popular with

butterflies and bees – great blue lobelia (*Lobelia siphilitica*), grasses such as Virginia wild rye (*Elymus virginicus*) and sedges. Shrub plantings of black elderberry (*Sambucus nigra*), red osier dogwood (*Cornus stolonifera*) and staghorn sumac (*Rhus typhina*) line the buffer edges.

Although the floodplain had been drained for farming, the peat below that had been laid down over centuries remained. Many native plants, whose seeds had long languished in this rich soil awaiting their chance to regenerate, appeared spontaneously: sedges (*Carex* spp.) on the

swales, several asters (*Symphyotrichum* spp. and other genera) in the fields and hedgerows, and both common and narrow-leaved cattails (*Typha latifolia* and *T. angustifolia*) around the pond. Cup plants (*Silphium perfoliatum*), whose wrap-around-the-stalk leaves hold dew and rain providing a drink for thirsty birds and insects, were planted along with richly coloured cardinal flower (*Lobelia cardinalis*), willows (*Salix* spp.) and fall-blooming New England asters (*Symphyotrichum novae-angliae*). “It’s breathtaking looking at the colours,” says Bill, who demonstrates his love for the abundant nature that has sprung up all around him with unbridled enthusiasm.

Around the water sediment control basin, also known as Frog Pond, Bill and Louise planted sweetgrass (*Hierochloa odorata*), which loves moist conditions and full sun.

Several more ponds were added over the years or the saturated areas were simply encouraged to remain so. Towards the bottom end of the property, the bright green shoots of perennial grasses appear in the spring. The tiny needle clusters on tamarack trees (*Larix laricina*) – notable for being North America’s only genus of

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Big bluestem tagged for seed collection

PHOTOGRAPH BY BILL FORD

Calendar of Events

AUGUST 19-21, 2016

Wild Ones Annual Conference

Wild Ones Wild Center

Neenah, Wisconsin

Workshops include Having a Successful Plant Sale, Pollinator Walk with Heather Holm, Build Your Own Bee House and much more. Visit www.wildones.org for details.

AUGUST 27, 2016

Irvine Nature Center Native Plant Seminar And Sale

Owings Mills, Maryland

Irvine Nature Center’s 25th

Anniversary Native Plant Night will be

held on the Friday night, August 26.

Contact Kimberly Godack at

443-738-9220 for more information.

OCTOBER 2, OCTOBER 15, OCTOBER 27, NOVEMBER 6, 2016
Introductory Workshop On Gardening With Drought-Resistant Native Plants

Capital Regional District, Vancouver, British Columbia

This free three-hour workshop includes native plant identification, benefits of native plants, how to create natural habitats such as meadows, thickets and woodlands, and more.

Visit www.crd.bc.ca/education/natural-gardening/native-plant-gardening-workshop.

OCTOBER 14-15, 2016

Society For Ecological Restoration – New England Chapter 2016 Conference

Durham, New Hampshire

The annual SER-NE conference’s theme will be Ecological Restoration in a Changing Climate: Ecosystems, Adaptation, Infrastructure and Resiliency. Visit www.ser.org/events for details.

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deciduous conifers – pop out as well. Later in the season, common milkweeds (*Asclepias syriaca*) make their appearance in time to provide essential food and shelter for monarch butterfly larvae.

Underground streams are popping up on the south side of the property. At the bottom of the property there is an artesian well that becomes a little geyser in spring. It forms when the overflow from the pond and the open wetland seeps into a deep, boulder-filled area to the west where it builds up and escapes through a deep hole in the ground near the stream. It lasts for a month during the thaw period. Boneset (*Eupatorium perfoliatum*), named for its reputed medicinal properties, Joe Pye-weed and delicate, tangerine-flowered jewelweed (*Impatiens capensis*) have colonized the southern creek area.

As far as Louise and Bill are concerned, the invaluable benefit of recreating natural water flows and re-establishing native plant communities is that wild animals quickly find this paradise and move in. On tours of the property (and Bill has given many to local agricultural groups and others), he points out where turtles come and sun themselves on a stand of split rails

that he built. Egrets, mallards and many songbirds find nesting spots and singing perches. The pond is now full of perch and minnows that were not deliberately introduced. Dozens of barn swallows swoop down onto the former farm and stay for a couple of months, working hard to keep pesky insect populations to a minimum in late spring/early summer. A muskrat den is hidden among the cattails, possibly one of many. In fact, it seems that muskrats have tipped the balance in their favour, at least in the short term. Although they feel a bit conflicted about “managing” the wildlife, the Fords want their property to be a haven for biodiversity so a local trapper comes in the fall to forestall a muskrat population explosion. These “aquatic voles” can have up to three litters a year. The trapper will keep muskrat numbers in check until minks and fishers (the only natural enemies of muskrats) harvest more of the large rodents and re-establish the normal predator-prey balance.

The hedgerows along the western edges of the property harbour nannyberries (*Viburnum lentago*), a large shrub with sweet-scented white flowers, mountain ashes (*Sorbus* spp.)

whose orange-red berries are a favourite with waxwings, enormous basswoods (*Tilia americana*), elms (*Ulmus* spp.), some still alive, some not, having succumbed to Dutch elm disease, and other native trees such as black cherry (*Prunus serotina*) and ironwood (*Ostrya virginiana*).

Near the house and barns, there is the requisite vegetable garden (chock full of heritage varieties.) The latest additions to the garden are four raised beds complete with hoops. In them, Bill has planted colonies of big bluestem (*Andropogon gerardii*), more swamp milkweed and other natives. He says that this allows him to get a good jump start on spring planting.

In the spirit of encouraging native tree growth even around their house, the Fords transplanted three black walnuts (*Juglans nigra*) from the valley onto their lawn to keep the mature, heavily producing walnut company. To restore the deciduous and coniferous forests, provide shade for the creek and wetlands and enhance water quality for fish and other wildlife, Louise and Bill planted 1,800 trees – so far. Financial incentives through tax breaks came from the Ontario Ministry of Natural Resources 50 Million Tree Program run by Trees Ontario (treesontario.on.ca or 1-877-646-1193). Through this program the Fords received help choosing and planting their trees from the Grey Sauble Conservation Authority.

In less than a decade, Louise and Bill Ford – with help from Mother Nature – have transformed a derelict cattle farm into productive wildlife habitat using an integrated water strategy to control flooding and redirect field run-off through permanent water passages, sediment basins, riparian strips and an open wetland, and planting native species of forbs, grasses, sedges, shrubs and trees. The work continues but the joys and delights are priceless.

Irene Fedun is the editor of The Blazing Star.



PHOTOGRAPH BY BILL FORD

Common milkweed in the former cattle yard

Plant a Window Box for Pollinators

To a bee or butterfly it doesn't matter whether you plant a meadow, a rooftop garden or a window box with nectar and pollen-rich native plants. Whether you have acres of land or just a small space, consider the pollinators that may benefit from your gardening efforts and put in plants that appeal to you and to them. That's the message the United States Department of Agriculture (USDA), the Pollinator Partnership and the Animal and Plant Inspection Service are sending out with the Plant a Windowbox for Pollinators online tool available at pollinator.org/windowbox.

The interactive tool allows people to determine which plants will provide pollinator forage based on their ZIP code or postal code for Canadians. The site includes a virtual window box game and the live USDA "bee cam" which broadcasts honeybee activity on the roof of the USDA's building in Washington.

It explains how to build pollinator habitat by selecting the right site, using native plants for continuous bloom and limiting or eliminating pesticide use. Ecoregional planting guides cover the United States and Canada. The site also includes the Beesmart® Pollinator Gardener app and the Beesmart® School Garden Kit. It's well worth a browse, providing useful information for anyone wanting to put in pollinator-friendly plants, not just pocket gardeners.

USDA
United States Department of Agriculture

Take Action

Plant a Window Box for Pollinators

Help pollinators by planting for them
Pollinators make use of food and habitat anywhere it is found, whether on a roadside strip, in a schoolyard garden or a planter on a windowsill. Even a small garden like a window box can help support pollinators.

Bee Showy:
Provide blooms in spring, summer and fall.

Bee Diverse:
Include an assortment of flower sizes, shapes and colors, heights, and growth habits.

Bee Chemical Free:
Limit or eliminate use of pesticides.

Bee More Aware:
Observe your garden. Educate visitors. Inspire others to plant for pollinators.

Bee Patient:
Start small and expand over time.

Plant Natives:
Select native plant species.

For more information visit peoplesgarden.usda.gov

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New & Noted

The Vascular Plants of the Bruce Peninsula Ontario

Written and published
by Joe Johnson

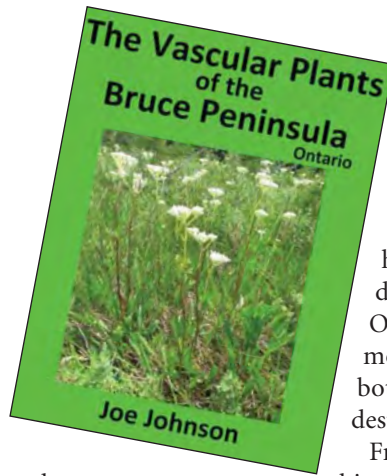
ISBN 0-9951535-0-9

297 pages, 5 pages of colour
maps, 12 pages of colour photos
(approx. 100 species).

Price: \$39 + 6.49 shipping from
Amazon. \$28 picked up from the
publisher for cash. Shipping is around
\$13 within Ontario. Email:
joejohnson.book@gmail.com.

Joe Johnson first conceived the idea of writing a book about the vascular plants of the Bruce Peninsula in the mid-1980's. Soon it became common knowledge within the local naturalist community that Joe was writing a book and, as soon as it was finished, he would be moving back to his boyhood home in Nova Scotia. During the succeeding decades, he appeared less often at naturalist outings and the story was that he was working on his book.

As time went on, some people began to scoff, some rolled their eyes, but many more were sympathetic and cheering for Joe. When the book did arrive, reactions ranged from slack-jawed incredulity to "Wow!" It was *worth the wait*. *The Vascular Plants of the Bruce Peninsula Ontario* will be seen as a benchmark in the history of



botany on the Bruce, a place that has been described as Ontario's most famous botanical destination.

From a historical perspective, P.V. Krotkov was the first person to conduct an intensive botanical survey of the Bruce Peninsula, spending four summers there, from 1936 to 1939. Over the ensuing decades, numerous plant lists have been compiled and updated. Joe, who has lived for 45 years in Wiarton, about a third of the way up the Bruce, was recognized early on as the plant expert for the area, collecting data based on personal observation. His, some would say, obsessive attention to detail is reflected in his book. He thoroughly reviewed all the botanical information ever published about the Bruce, even his own work. He accepted or rejected all species previously reported on the peninsula and provided his reasoning for his decisions.

This is not a book about identifying plants, but when used in conjunction with other botanical books it offers a regionally unique discussion of every

plant growing in the wild on the Bruce Peninsula. It answers the pressing question, "Hey, what do you know about this plant?" The answer given in each case gives enough non-technical content to assist anyone, rank amateur or long-time professional, wanting to know more.

My involvement included providing the computer support and non-botanical expertise for the development of the book. Since Joe was a stickler for detail and constantly changing his mind about things, the process took longer than might have been expected but, in the end, we were able to present a camera-ready file to the printer and, three weeks later, we had a book. In the last few months of this work, Joe's dream of returning to Nova Scotia was in sight. He reminded me of a horse at the end of a long day suddenly energized by the sight of the barn and the anticipation of the comforts within. Without the dream of returning to Nova Scotia, this book might never have been completed!

The Vascular Plants of the Bruce Peninsula Ontario has been praised by academics and lay people alike. Joe imbued many of them with a love of nature. Only one question remains: will Joe now return to Nova Scotia and, if so, when?

Review by Bill Moses

Toronto's Biodiversity Series

The City of Toronto has released the latest books in its growing Biodiversity Book Series. The titles are *Mushrooms of Toronto*, *Bees of Toronto*, and *Trees, Shrubs & Vines of Toronto*. There are now nine published books in the series.

The Biodiversity Book Series is intended to raise awareness of nature, create opportunities for exploration and enjoyment, and cultivate a sense of stewardship for the plants and animals found in Toronto. Over 100

volunteers committed their time, expertise and passion to the project. Thanks to their efforts, the city is compiling a comprehensive inventory of species found in Toronto.

Each book is available at Toronto Public Library branches for members of the public to pick up and keep for their personal use.

The Biodiversity Book



Series is an initiative of the Environmental Planning section of the City of Toronto's City Planning division. The initiative is supported by the Environment and Energy division and the Parks, Forestry & Recreation division. You can learn more about this series and the other environmental initiatives at <http://bit.ly/1sLzquA>.

WANTED: Seed Donors

Please collect seeds from native plants for our annual Seed Exchange and deliver them to the NANPS AGM on October 15, 2016 or send them, separated by species and identified with the source/parentage, to NANPS, Box 84, Stn. D, Toronto, ON, M9A 4X1. If you have any questions, contact seeds@nanps.org. Our ecosystems, pollinators and native fauna thank you!

Continued from page 1 – **Spotted Jewelweed**

popping sound. You can feel a tiny, forceful curling between your fingers like a squirming creature in your hand – a diverting outdoor activity. Seeds can be discharged up to five metres (16 feet) from the parent plant. Individual plants can produce 800 greenish-black seeds providing a feast for game birds, white-footed mice and northern short-tailed shrews. White-

centimetres (one foot) tall but as large as 150 centimetres (five feet) in ideal sites. Unlike most wetland plants, this species will tolerate some disturbance, although it doesn't transplant well, nor do the seeds keep well. It will grow readily, however, from self-seeding or immediate sowing. If you intend to collect seeds, close a small paper bag around ripe pods to capture darting fly-

ways. Jewelweed has a tendency to roam and some consider it a bit weedy but its weak, shallow roots are easily pulled. It is a fine ornamental in a wet, part shade garden, downspout garden or bioswale where water is captured. It will tolerate full sun in wet, organic soil.

An unusual reproductive feature makes jewelweed interesting to scientific research. Some flowers never open, producing seeds through self-pollination (cleistogamous flowers), while others open for cross-pollination (chasmogamous flowers).

It is thought closed flowers provide assurance against unsuccessful cross-pollination but the seedlings produced are less vigorous. Small or long-tongued insects are most successful pollinating the tubular flowers and, of course, it is a favourite of ruby-throated hummingbirds. A single flower can produce up to two and a half millilitres of nectar per day, highly attractive to burgling bumble bees that dodge their pollinating duties to steal nectar by chewing holes near the spur of the flower... which may account for the cleistogamous flowers!

Historically, jewelweed was used by First Nations people for its anti-inflammatory properties. Studies have confirmed fungicidal properties in the stem's juices that provide relief for external skin irritations such as itching/burning due to poison ivy, stinging nettles, cuts, burns, and insect bites and stings. I can vouch for its remarkable effectiveness in soothing the discomfort of stinging nettles. That attribute alone makes it a beneficial addition to any home garden.

Angelique Mori won a NANPS Garden Award in 2014. Her property is certified as a Wildlife Friendly Habitat by the Canadian Wildlife Federation and as a Butterfly and Pollinator Habitat by the North American Butterfly Association. Her urban sanctuary welcomes anything that crawls, hops, slithers, slinks, forages or flies.



PHOTOGRAPH BY LINDA READ

Impatiens pallida (pale touch-me-not)

tailed deer also browse the foliage.

Jewelweed prefers riparian habitats such as stream banks, moist woodland openings, wet meadows and ditches. It can adapt its size to the availability of moisture and the richness of habitat. In dryer conditions it can be under 30



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