The Blazing Star

Winter 2021, Volume 22, Issue 1

A Publication of the North American Native Plant Society

Native Plant to Know

Crested Iris

Iris cristata

by Jane Zednik

Crested iris (*Iris cristata*) holds a special place in my garden. It was the first plant given to me by the late Jim French, co-founder and former president of the North American Native Plant Society.

Some years ago, I saw an article in a local paper about a man (self-named Wildflower Willy) who had created a native plant reserve on his cottage property near Peterborough, Ontario. Intrigued, I sent an email and instantly received a response inviting me and my friend to visit.

On the first of many visits, Jim (a.k.a. Wildflower Willy) gave us an animated tour of his wonderful native plant sanctuary, which he had named Gaia, on the shores of Stoney Lake. Many gorgeous plants graced his lakeside property, but I was blown away by a lovely little groundcover growing in dappled shade along the edges of a watercourse and small pond Jim had created. It was *Iris cristata*.

Crested iris is not native to Ontario. (Jim was not a region-specific native plant purist and neither am I.) However, *Iris cristata* is a close relative of dwarf lake iris (*Iris lacustris*), an Ontario species at risk found along the shores of some Great Lakes and the only other crested iris native to North America. The two are very similar; recent research indicates *Iris lacustris* emerged from the gene pool of *Iris cristata* after the glaciation of the last North American Ice Age.

Iris cristata is a rhizomatous perennial endemic to the eastern and southeastern United States. It grows in woodlands, along rich wooded slopes and streams, and sometimes on rocky bluffs. It is one of the toughest spring ephemerals, hardy to U.S. Zones 3-9 and Canada Zones 4-8.

The dazzling pale blue, lilac or lavender flowers spread up to four centimetres (1½ inches) across with gold-crested beards on the falls. The fleeting, showy flowers are borne on such short stems that they often appear stemless. Many narrow, sword-shaped, yellowish-green to medium green leaves extend 10 centimetres (four inches) straight up from a network of small, branching rhizomes growing just beneath or at the surface of the soil. The unusual rhizomes consist of

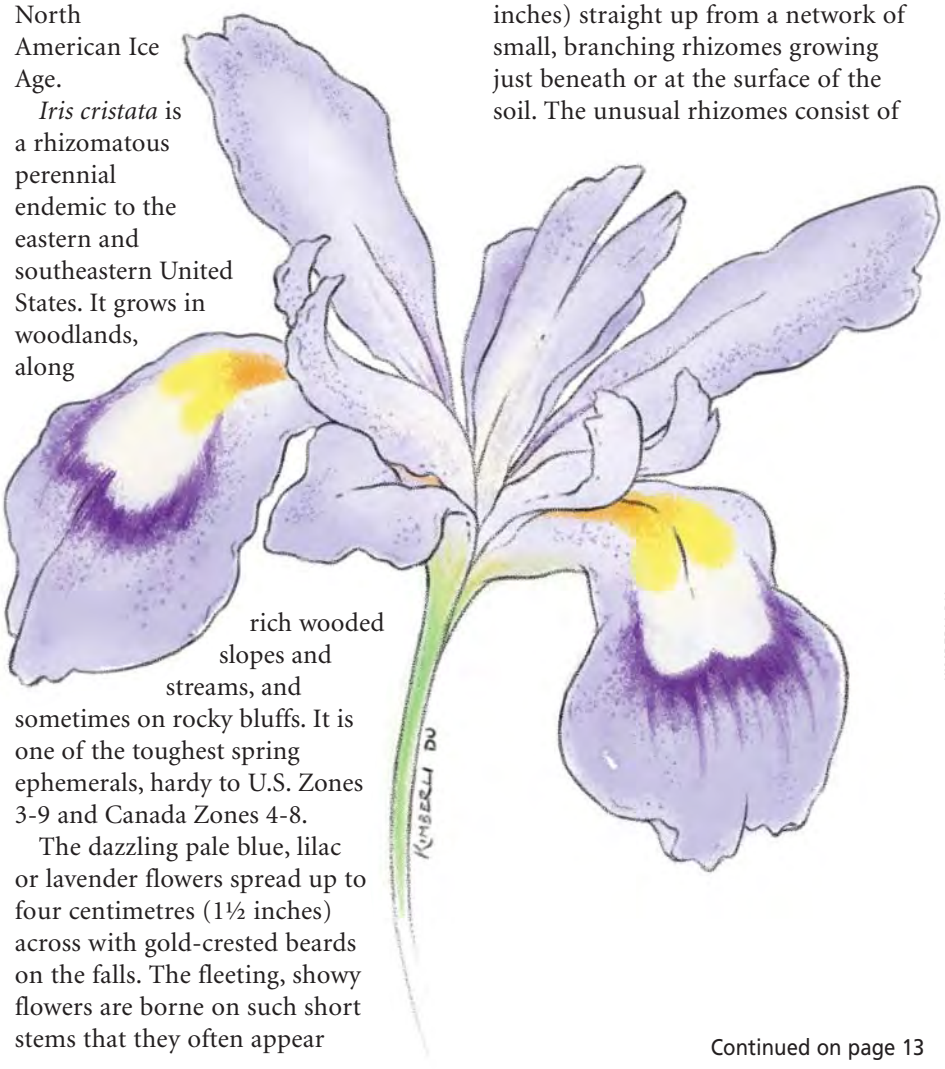

ILLUSTRATION BY KIMBERLI DU

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***The Blazing Star* is . . .**

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UN Decade on Ecosystem Restoration 2021-2030

The United Nations General Assembly has declared 2021-2030 the UN Decade on Ecosystem Restoration. The aim of this ambitious endeavour is to "massively scale up the restoration of degraded and destroyed ecosystems as a proven measure to fight the climate crisis and enhance food security, water supply and biodiversity."

Through communications, events and a dedicated web platform, the UN Decade will provide a hub for everyone interested in restoration to find projects, partners, funding and the knowledge they need to make their restoration efforts a success.

PHOTOGRAPH BY ANDY FYON (ONTARIOBENEATHOURFEET.COM)

*Peatland located near the Tłı̨chǫ community of Behchokǫ̀, formerly Edzo, on the northwest tip of Great Slave Lake, Northwest Territories. This photograph, taken in August 2013, captures various lichens, cloudberry (*Rubus chamaemorus*), wild rosemary (*Andromeda polifolia*), lingonberry (*Vaccinium vitis-idaea*), black crowberry (*Empetrum nigrum*), Labrador tea (*Rhododendron groenlandicum*) and black spruce (*Picea mariana*).*

The types of ecosystems to be protected and restored as part of this initiative fall into three broad categories: peatlands; shrublands, grasslands and savannas; and urban ecosystems (especially forests). The strategy embraces 10 recommended actions: empower a global movement; finance restoration on the ground; set the right incentives; celebrate leadership; shift behaviours; invest in research; build up capacity; celebrate a culture of restoration; build up the next generation; and, simply, listen and learn.

To become involved or learn more, visit **decadeonrestoration.org**.

NANPS NEWS

THE WILD AND WONDERFUL WORLD OF BUTTERFLIES

THURSDAY, FEBRUARY 25, 2021, 7:00 - 8:30 P.M.

Jessica Linton, a senior biologist at Natural Resource Solutions Inc., will talk about butterfly life cycle strategies, the ecological services they provide and how to make your garden butterfly-friendly all year long. Visit **nanps.org** for details on how to register for this webinar.

NORTH AMERICAN NATIVE PLANT SOCIETY SEED EXCHANGE

This year's Seedex is now online. If you still have seeds to donate but have not yet mailed them, please send us an email to **seedex@nanps.org** and we will add them to the list. A huge THANK YOU to all who donate.

Project Swallowtail

Does nature belong in cities? Unequivocally yes. Project Swallowtail, a collaborative effort involving the North American Native Plant Society and several other organizations and people, lead by Pollinator Partnership Canada, was developed to test strategies that can improve the urban ecosystem so that people and nature can thrive together.

The project, started in 2020, connects existing urban habitat by helping gardeners plant native plants in their own yards, in community gardens, on sidewalk medians and on balconies. Participants are kept abreast of community events, webinars, plant sales and giveaways; they benefit from the many resources available, including *The Plant and Butterfly Guide*, which introduces the reader to the swallowtail butterfly species present in Toronto and encourages project participants to explore the natural world in native plant gardens. Participants are encouraged to add their Project Swallowtail observations to the iNaturalist app.

Volunteers can become Block Ambassadors who "act as neighbourhood hubs and engage other participants in habitat actions, outreach and community events." They receive support from ecologists, botanists, native plant experts and local environmental groups.

One of the aims of Project Swallowtail is to distribute locally sourced native plant seeds to gardeners. NANPS vice-president Adam Mohamed suggested to former NANPS board member and project leader Ryan Godfrey that the group seek permission to gather seeds in Rouge National Urban Park. The Parks Canada representative responsible for granting research and collection permits in the park is keenly interested in this project, giving Adam and Ryan hope that a permit will be granted in time to collect seeds in the fall. The expedition will be a delicate undertaking with specific collection sites mapped out to avoid trampling sensitive areas. Only 10% of seed can be taken from any given plant. One of the stipulations of the grant is that seeds produced by the plants that grow in gardens from the Rouge Park seed be returned to areas of the park that need to be regenerated.

Early in 2020, NANPS donated 46 packets of native plant seeds that were collected by our members in the autumn of 2019 and meant to be sold at events the following spring, which were cancelled in light of the pandemic.

Visit **pollinatorpartnership.ca/en/project-swallowtail** for more information.

Photograph by Junaid Khan

Socially distant plant giveaway in Toronto's Parkdale neighbourhood. The plants pictured were splits from participants' gardens, which they shared with their neighbours and community members.

NANPS Adds Garden Videos to YouTube Channel

Those of you who are dialled in to social media would know that the North American Native Plant Society launched its own YouTube channel last year. Featured were informative talks such as "The Wild and Wonderful World of Bees" by Dr. Laurence Packer, "Flowers and Food: Growing Edible Native Plants" by Lorraine Johnson and "Native Plant Gardening on Your Balcony" by Ryan Godfrey. Recently, Christian Skublak posted the videos of all the entries to the 2020 NANPS native plant garden video contest onto the channel. Make sure to subscribe to the NANPS channel so you can keep up to date on our latest webinars and garden videos: **https://www.youtube.com/channel/UCvxMyyFWoOk-8dOuMLgfHqQ/playlists**.

Photograph by Basil Conlin

*Common eastern bumblebee on field thistle (*Cirsium discolor*) in Basil Conlin's garden in Peterborough, Ontario.*

Trees, Insects and Birds

by Don Scallen

On a glorious May morning I met with friends to explore a wooded oasis in Mississauga, Ontario, for migrant birds. Approaching the woods, we paused to identify warblers foraging in a white birch (*Betula papyrifera*) in a front yard. Palm, black-throated green and bay-breasted warblers were gleaning insects from the new foliage, stoking their energy reserves after their recent crossing of Lake Ontario. We scanned other trees in the residential neighbourhood. Closest to the birch was a Norway maple (*Acer platanoides*). While the birch was animated with the movements of warblers, the maple harboured no avian visitors at all.

I realize that one anecdotal record is of little scientific value. However, our observations on that May morning aligned with the research of Douglas Tallamy, author of the groundbreaking book *Bringing Nature Home*. Tallamy revealed the crucial links between native trees, insects (mostly caterpillars) and native birds. He found that native trees support a far greater range of insect fauna and popularized the concept that these trees, in turn, support insectivorous birds better than non-natives. Citing reductions in songbird populations and the ever-growing human footprint in North America, Tallamy prescribes a simple solution: plant native trees. This principle can be easily adopted by anyone with property of any size and by government authorities that make the decisions about which trees to plant.

My faith in Tallamy's native tree–insect connections grew as I started engaging in a rather esoteric pursuit with friends about a decade ago. In summer and fall, equipped with headlamps and cameras, we meet in the woods after dark to seek caterpillars and other arthropods, such as spiders and walking sticks. Many arthropods emerge from hiding places only when the sun sets, to avoid being eaten by sharp-eyed birds. To find the greatest diversity of caterpillars we search the foliage of native trees. Favourite species to examine where I live in south-central Ontario include red oak (*Quercus rubra*), white birch, white elm (*Ulmus americana*), black cherry (*Prunus serotina*) and members of the ash family (*Fraxinus* spp.). We've learned not to waste time examining the invasive common buckthorn (*Rhamnus cathartica*) and Norway maple. Though some caterpillars do consume the leaves of non-native trees and shrubs, their foliage remains largely intact through the growing season, indicating that caterpillar herbivory is limited.

This brings me to a point that begs to be more widely understood. The leaves of native trees in late summer or early fall often look like Swiss cheese. This doesn't portend doom for those trees, but indicates that they play a critical role in maintaining the health of local ecosystems.

Many property owners are alarmed

PHOTOGRAPH BY DON SCALLEN

White birch

by chewed and tattered foliage, believing their trees to be in peril. They make calls to phone-in garden shows. They visit garden centres to find packaged remedies. Their concern, though understandable, is misguided. The trees that make it through the growing season with little or no leaf damage should be of greater concern. Their pristine leaves signal that a tree is not feeding caterpillars and other leaf-chomping insects – and if it's not doing that, it isn't feeding insectivorous birds and other insect-eating creatures. Our native trees can survive an awful lot of grazing by insects and remain healthy. They've evolved to withstand such feeding.

Admittedly, however, there are exceptions. Imported pests like the emerald ash borer and gypsy moth caterpillars do tremendous harm to our native trees, often killing them. Even native species like tent caterpillars can exact significant damage, but, in the main, the fact that insects feed on native trees is a good thing. Holey leaves should be celebrated.

Birds will forage on any tree that offers them food, especially during migration. When they arrive at their breeding grounds, however, some bird species favour particular species of trees. One unsurprising example: pine warblers are found in pine trees. But my experience as a birder in southern Ontario also leads me to look for black-throated green warblers in hemlocks (*Tsuga canadensis*), black-and-white warblers in white cedars (*Thuja occidentalis*), golden-crowned kinglets in spruces (*Picea* spp.) and scarlet tanagers in oaks (*Quercus* spp.). I'm not claiming that these birds dine in or nest on these trees alone, but associations exist and they are likely due to some combination of the insects the trees nurture and the quality of shelter they provide.

My assumptions can be challenged because they are based on anecdotal evidence, but other associations

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PHOTOGRAPH BY DON SCALLEN

Common buckthorn is an invasive, non-native species

PHOTOGRAPH BY DON SCALLEN

Spiny oak slug caterpillar feeding on black cherry leaf

PHOTOGRAPH BY DON SCALLEN

Insect damage on white elm leaves – a good thing!

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between birds and native trees are rigorously supported by science. The remarkable beaks of white-winged crossbills, for example, are designed to open spruce and tamarack (*Larix laricina*) cones. Their cousins the red crossbills extract spruce seeds as well, but they also pry open the cones of pine trees (*Pinus* spp.).

PHOTOGRAPH BY DON SCALLEN

Cecropia moth caterpillar feeding on chokecherry

PHOTOGRAPH BY DOUG TALLAMY

Caterpillars that feed on native trees nurture songbirds. In this case a male black-throated blue warbler feeds his young.

A widely studied phenomenon in the vast boreal forest zone of northern Canada and parts of the northeastern United States is the association of some warbler species with spruce budworms that feed on their namesake trees and on balsam fir (*Abies balsamea*). When the budworms are abundant, bay-breasted, Cape May and Tennessee warblers flourish. Densities of these songbirds can increase dramatically during spruce budworm outbreaks. Other species of birds also seem to benefit, but not as dramatically.

The boreal forest is often referred to as the songbird nursery of North America. Though the diversity of native trees in the boreal forest is low compared to that of the mixed and deciduous forests of the south, they obviously support insect populations sufficient to feed a wealth of songbirds.

For decades, Ron Pittaway, a birder in Ontario, produced an annual "Finch Forecast," predicting whether finches and other northern songbirds would appear in southern Canada and the northern United States in the winter. (The Finch Forecast continues today under the leadership of Tyler Hoar.) I've long been impressed by the accuracy of the forecast. It is based on the observations of scores of individuals in the north who report annually on the quantities of seed and fruit produced by birches (*Betula* spp.), spruces, pines and mountain ash (*Sorbus* spp.). The Finch Forecast is generated from these observations. A good crop year means most of the northern birds, including crossbills, redpolls, siskins, evening and pine grosbeaks, and bohemian waxwings, stay home that winter. A poor crop year predicts a large southern movement of songbirds.

Across North America many other tree seeds, nuts and fruits support birds. Acorns feed a diversity of birds, including jays, turkeys, woodpeckers and wood ducks. In western North

America acorn woodpeckers drill holes into selected trees to store up to 50,000 nuts, most of them acorns.

Evening grosbeaks, gorgeous finches with prominent seed-cracking bills, feed in winter on the plentiful samaras of Manitoba maple (*Acer negundo*). The highly sought-after fruits of serviceberry (*Amelanchier* spp.) are consumed by thrushes, waxwings and orioles. Of course, benefits usually accrue to the trees as well. Serviceberry seedlings sprout after songbirds have eaten the seeds and deposited their droppings on hospitable ground. Acorns cached in soil by blue jays germinate and grow the next generation of oaks.

Birds have an age-old reliance on native trees for the insects, fruit, seeds and nuts they provide. As the populations of many species of songbirds decline, it is crucial that we recognize this bond and take steps to strengthen it. Maintaining the integrity of North America's boreal forests should be a priority. And throughout landscapes heavily modified by people the planting of native trees needs to gain greater currency. This would help the insects, the birds and all the other creatures that depend on native trees for sustenance. And ultimately it would help us as well – for anyone who delights in the beauty of singing birds, the glory of native trees or the spectacular diversity of caterpillars and other insects. Ecosystems are stunningly complex, with diverse organisms and abiotic elements like water and minerals intricately connected. Our native trees are major players in those complex webs.

Don Scallen** is an educator, writer and lifelong naturalist. His recent book,* Nature Where We Live: Activities to Engage Your Inner Scientist from Pond Dipping to Animal Tracking*, is available from him at* ***donscallen232@gmail.com *and at the Urban Nature Store (****urbannaturestore.ca/ nature-where-we-live****).*

PHOTOGRAPH BY DON SCALLEN

*The acorns of white oak (*Quercus alba*) are much prized by squirrels, but birds eat them too!*

PHOTOGRAPH BY ROBERT MCCAW

Male white-winged crossbill foraging spruce cones

PHOTOGRAPH BY DON SCALLEN

Luna moth caterpillar feeding on leaves of black walnut

Balcony Gardening with Native Plants

by Irene Fedun and Ryan Godfrey

Overnight frost had left the top centimetre of every stalk and leaf on the plants on Ryan Godfrey's balcony frozen. It was Hallowe'en morning in downtown Toronto so this didn't really come as a surprise. What surprised – and delighted – Ryan was that his valiant evening primrose (*Oenothera perennis*) was still in bloom!

Ryan, who has his BSc in ecology from the University of British Columbia and his MSc from the University of Toronto, was tickled that the blossoms of evening primrose, the focus of his masters' thesis, had braved the frigid weather. Despite his thorough education in botany, he knew there was much more to learn about this plant and native plants in general. Ryan had decided six years earlier that the best way to learn about plants is to plant them… even if he lived in an apartment building.

We expect native plants to do well in harsh environments when they grow in their preferred habitats, but can they be expected to thrive on a sixth-storey balcony in a busy city? According to Ryan, it's amazing the number of native plants that will do well in urban conditions. However, there are several factors that budding balcony gardeners need to take into account before embarking on their own rewarding adventure.

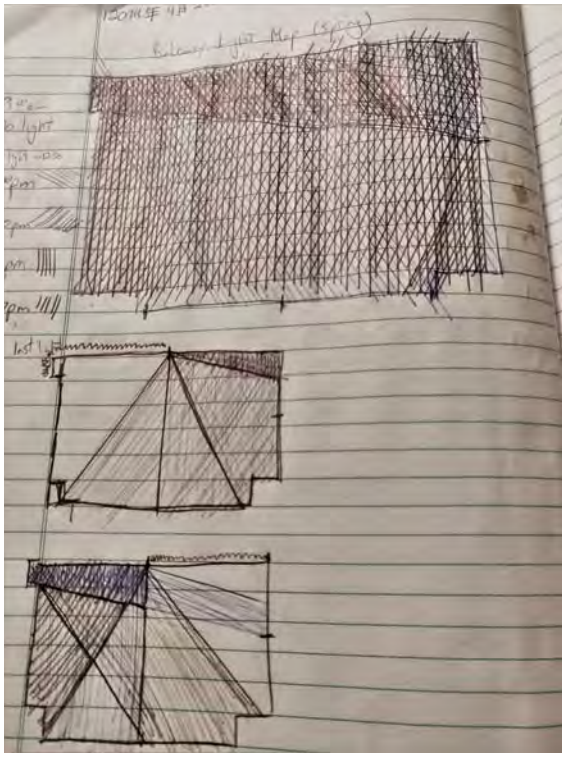
Consider the light. Which direction does your balcony face? Are there mature deciduous trees dappling the sunlight, conifers that provide shade year-round or another building that blocks off light for several hours? This basic information is crucial, but as with any kind of garden it's helpful to draw a three-season light map. Start when the sun first appears on your balcony and make note of its movement every two hours. The southeast corner of Ryan's west-facing balcony gets four more hours of sunlight than the northwest corner. This information has strongly

PHOTOGRAPH BY RYAN GODFREY

Evening primrose blooming on October 31, 2020 on Ryan's balcony

PHOTOGRAPH BY RYAN GODFREY

Early summer blooms



PHOTOGRAPH BY RYAN GODFREY

Ryan's balcony light map. At the top is the hashed boundary of illuminated space on Ryan's west-facing balcony on September 28, 2019 at 9:00 a.m., 12:00 p.m., 3:00 p.m., 6:00 p.m. and 9:00 p.m. Lighter areas on this diagram receive less light while more deeply shaded areas get the most light. In the middle: hypothetical change to the light map if the shade cloth were placed on the south part of the railing. On the bottom: hypothetical change to the light map if the shade cloth were placed on the north part of the railing.

influenced his choice of plants.

Is your balcony sheltered or will the plants be buffeted by the wind throughout the seasons? Consider investing in a shade cloth to provide a wind buffer (or to protect from the blazing noonday sun). For gusty balconies, steer clear of large-leaved plants in favour of feathery-leaved varieties.

Before you get into the fun part of choosing your plants, you need to consider placement of the containers and how much the combination of container, soil and plant might weigh. Check your condo bylaws to find out if there are any weight restrictions. Ideally, your native plant garden will weigh no more than an average barbecue. Ryan highly recommends using larger containers – perhaps a barrel or garbage can cut in half. The shape doesn't matter but they should be at least 35 centimetres (14 inches) wide and just as deep. As soon as he moved his plants to large containers the survival rate improved dramatically. Large containers help protect the plants over winter and do not need to be watered as often during the hottest days of summer. Ryan had had a 50% mortality rate in the small containers, which was "demoralizing."

The medium used is potting soil with two or three big hand scoops of worm castings or composted manure mixed into the top layer. The containers should have drainage unless you are creating a wetland habitat. The water can sweat out of cloth containers. Bamboo rods may be used to monitor moisture levels. "They are like little dipsticks," says Ryan. For watering, he uses a spiral hose attached to the kitchen sink.

Essential tools are a trowel (or a small shovel, depending upon how big you plan to go) and secateurs for pruning out dead plant matter and for containing rampant growth. A spool of twine can come in handy. It may also be useful to have a tarp to cover up for winter unless you plan to follow Ryan's lead and collect bags of leaves from your home-owning neighbours' yards for mulching (just be sure they don't use pesticides).

It's well worth the time to create a basic design. How tall do you want your plants to grow? To borrow terminology from the landscaping trade: Do you want spillers (strawberries or clematis to drape over the edge of containers), fillers (small to mid-sized plants, such as violets or bedstraw, to form a nice canvas of companions) or thrillers (charismatic plants, such as members of the sunflower family, that produce gorgeous blooms) or a combination of the above? Are you keen to have a variety of colours, shapes and textures? If you want a sea of green, grasses, sedges, rushes or ferns will do the trick. If you would like a fragrant

PHOTOGRAPH BY RYAN GODFREY

*Wild columbine (*Aquilegia canadensis*)*

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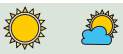
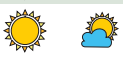
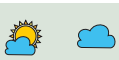
Ryan's Partial Balcony Species List

Wild columbine (*Aquilegia canadensis*)	Self-seeder	
Wild strawberry (*Fragaria virginiana*)	Spring-blooming creeper	
Common blue violet (*Viola sororia*)	Early-blooming groundcover	
Plantain-leaved sedge (*Carex plantaginea*)	Deciduous shade (sun in spring, shade in summer and early fall)	
Sweetgrass (*Hierochloe odorata*)	Infuse into tea	
Canada wild rye (*Elymus canadensis*)	Tall, handsome, sturdy	
Bottlebrush grass (*Elymus hystrix*)	Shady foliage, bloom resembles a feathery bottle brush	
Northern bedstraw (*Galium boreale*)	Feathery foliage	
Hoary vervain (*Verbena stricta*)	Drought tolerant	
Swamp milkweed (*Asclepias incarnata*)	Best monarch host plant for containers	
Prairie smoke (*Geum triflorum*)	Super-early flower	
Nodding wild onion (*Allium cernuum*)	Edible leaves	
Virginia mountain-mint (*Pycnanthemum virginianum*)	Incredible fragrance	
Yellow giant hyssop (*Agastache nepetoides*)	Tall. Great for diverse bee species	
Green-headed coneflower (*Rudbeckia laciniata*)	Vigorous grower	
Blue-stemmed goldenrod (*Solidago caesia*)	Dry, deciduous shade	
Canada goldenrod (*Solidago canadensis/ Solidago altissima*)	Overwinters in small containers	
New England aster (*Symphyotrichum novae-angliae*)	Resin-like flower bract fragrance	
Smooth aster (*Symphyotrichum laeve*)	Late bloomer	
Yellow pimpernel (*Taenidia interrigima*)	Black swallowtail host plant	
Canada anemone (*Anemone canadensis*)	Drought hardy	
Canada hawkweed (*Hieracium canadensis*)	Prolific bloomer	
Sunchoke (*Helianthus tuberosus*)	Edible root	
Cylindrical blazing-star (*Liatris cylindracea*)	Grows in gravel	
Virgin's bower (*Clematis virginiana*)	Trellis or railing climber	
Kalm's St. John's-wort (*Hypericum kalmianum*)	Likes wet conditions	
Harebell (*Campanula rotundifolia*)	Delicate looking (but tough as nails)	
Eastern prickly pear (*Opuntia humifusa*)	Cactus – plant in sand or gravel and go easy on the watering!	
Hairy beardtongue (*Penstemon hirsutus*)	Beloved by bees	
Michigan lily (*Lilium michiganense*)	Bulbs can overwinter on balcony	
Witch-hazel (*Hamamelis virginiana*)	Very late bloomer, likes deciduous shade (sun in spring, shade in summer and early fall)	

My Garden Ecology (a.k.a. the Reference Ecosystem Hypothesis)

Match your garden conditions to a wild, spontaneous plant community in your ecozone: this is your reference ecosystem. Choose your reference from a spot nearby if possible, but if your landscape has been drastically altered (as in a city) you may have to look farther afield. For example, my garden has very shallow soil and is on a windy balcony with shade half the day. It's as though I'm living on a west-facing cliff, so a cliff ecosystem is a suitable reference. Since I live in Toronto, the Scarborough Bluffs would be a good place to look for this plant community. If I had a rooftop garden, I might look at alvars. They do not occur close by, but they would probably be the best match in conditions (very sunny and windy, with huge swings in moisture and very little soil).

Once you have a reference in mind, visit that place often, learn about the plants that grow together and how they do it. These plants have developed strategies for dealing with the conditions present in your garden. Since they live alongside one another, perhaps in symbiosis, that suggests natural companionships for your garden. Take inspiration from the wild when thinking about forms, layers, seasonality, wildlife interactions or additions of wood or stone. Don't be discouraged if some plants don't thrive. You'll never know everything about your conditions or those of the reference, and some plants are picky about pH, air quality, soil microbes and so on.

It's important to note that your reference is a special place that must be protected, so never dig up plants from the wild (unless they are under immediate threat from construction). If you are collecting seeds, follow NANPS guidelines (**nanps.org**). Help your wild community thrive by organizing an invasive species pull, advocating for protection, engaging in a restoration project, writing stories and taking photographs to share your knowledge with others or leading a nature hike.

Ryan Godfrey

PHOTOGRAPH BY RYAN GODFREY

Bumble bee on swamp milkweed on Ryan's sixth-floor balcony

PHOTOGRAPH BY RYAN GODFREY

Ryan's balcony garden tools

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garden, hyssops, Virginia mountain mint, New England asters and sweetgrass are just a few of the many options available.

A very important consideration is bloom times, although this is a fluid concept. Your plants will bloom when they are ready, depending on the unique conditions of your created habitat. Through trial and error, Ryan has managed to achieve continuous bloom from May to November.

You may have a pretty good idea already of the plants you want in your garden, but now's the time to let your imagination soar. Your enthusiasm may be tempered by reality or all your plants might flourish! Ryan has tried to grow plants from every habitat type – some didn't work at all, while others thrived. His philosophy: "I'm going to try, I'm going to fail, I'm going to learn and I'm going to try again."

Generally speaking, plants that grow in shallow soils and under harsh, windy conditions such as shorelines, alvars or rocky cliffs tend to be very happy on balconies. On the other hand, many woodland natives such as wild ginger (*Asarum canadense*) or round-lobed hepatica (*Hepatica americana*), which rely on the complex, symbiotic relationships created by the forest plants and soil microbes, are not cut out for high-rise living. That's not to say that shadier gardens are out of the question. Look at the plants that grow in shallow woodlands, such as the sugar maple-beech forests on the Bruce Peninsula, where pockets of soil nestle in rock crevices. Examples might be wild leeks (*Allium tricoccum*), cranesbills (*Geranium* spp.) or starry false Solomon's seal (*Smilacina stellata*). Cliffs or steep river valleys, which only ever get a maximum of six hours of sunlight, can also provide plants that work such as the deciduous shrub witch hazel. Prairie plants, which tend to have unbelievably long roots, are not recommended for balcony gardens. One exception is little bluestem (*Schizachyrium scoparium*).

When sourcing your plants, consider the following: Are they legitimately native? Is the seed locally sourced and ethically collected? Are the plants genetically diverse? Please avoid nativars or cultivars and ask about pesticide use at the nursery. The North American Native Plant Society website provides a list of native plant nurseries across Canada and the United States (**nanps.org/commercial-growers**). For gardeners in the Greater Toronto Area and southern and southwestern Ontario, NANPS usually holds three plant sales in May.

What about winter? Some balcony gardeners bring their plants indoors when it turns cold and cover them with tarps, but last winter Ryan mulched his large planters with heavy layers of leaves and they survived quite happily. The challenge with hauling everything inside is that you might bring in the insects that have burrowed into the soil, too. In one case, ground-nesting bees emerged in March from their hibernation inside the apartment. The gardener put them in containers that she stored in the fridge until the weather warmed up and the bees could be released outdoors.

How high will fauna go? Butterflies tend to stay closer to ground-level gardens, but one of Ryan's correspondents photographed bees at her 19th-storey planters. Pollinating insects discovered Ryan's sixth-floor garden much sooner than he expected – he's been keeping tabs on them ever since. In late June the bees arrive, then in July the hoverflies, wasps and more bees. By September the insect visits have begun to taper off, but a few so-far-unidentified flies have shown up in October. No doubt in Victoria, British Columbia, or Phoenix, Arizona, the composition of insects (and plants) will be entirely different.

Photograph by Ryan Godfrey

Blue-stemmed goldenrod is protected from too much sun by shade cloth. This plant self-seeded in this pot from a plant in a different container the previous year. It grew and flowered in its first year, then never appeared again.

Why go to the trouble of creating a native plant garden on your balcony? It may seem like an insignificant gesture, but even a small garden creates habitat, sequesters carbon and connects green spaces. The latter is an increasingly important measure to help combat the effects of pollution, climate change and the fragmentation of wilderness. A single balcony habitat may seem like a lonely island, but imagine if hundreds or thousands peppered the metropolis!

Not every gardening experience will be successful, but Ryan urges us to try: "Don't be discouraged if something doesn't work for you. Just give it a go." You may be surprised.

Irene Fedun *is the editor of* The Blazing Star. ***Ryan Godfrey*** *is a botanist with World Wildlife Fund Canada.*

PHOTOGRAPH BY RYAN GODFREY

Ryan's garden bedded down for winter. Dried, fallen leaves have been added to each container. They are held down with a loose web of twine strung between the railings. The dry stems of the balcony plants are left standing to provide shelter for overwintering insects (and as reminders of which plant is in each pot!).

PHOTOGRAPH BY RYAN GODFREY

*Frost on the root ball of a sand dropseed (*Sporobolus cryptandrus*) in a 10-centimetre (four-inch) pot on October 30, 2020, just before Ryan transplanted it into a larger container.*

Continued from page 1 – **Crested Iris**

banded, greenish segments. These prominent segments are modified nodes tightly covered by brown, papery bracts. The base of each bract inscribes a brown growth ring around the rhizome.

This plant typically reaches eight to 15 centimetres (three to six inches) in height. It grows best in partial shade, in well-drained sandy and loamy soils. *Iris cristata* prefers slightly acidic soils (pH 6.1 to 6.5), but will tolerate neutral and even slightly alkaline soils. Too rich a soil will encourage foliage growth and discourage blooming. Although it likes moist soil, it will tolerate periods of drought in shaded areas and has done so in my often-dry landscape. Note that the rhizomes must be exposed; if they are covered with soil they will rot. *Iris cristata* is a good choice for difficult-to-plant, dry, shady areas. Spring and fall are the best times to plant this exquisite gem.

Pollinated by bees, *Iris cristata* will form tripods of three-angled seed pods in the fall. Each chamber usually has two rows of seeds that are yellowish-brown at maturity. The wind distributes the seeds when the seed capsule bursts open. Collect them by snapping the dark brown, dry pods before they explode. *Iris cristata* seeds require a period of stratification in order to break down the germination inhibitors.

Throughout history, the iris has represented wisdom, faith and courage, and was adopted by kings and queens as a royal emblem.

Annual plant exchanges with Jim French continued until his death in 2016. I am very thankful for his first gift of *Iris cristata*. The queenly little plant is ever expanding in my garden, eliciting memories of past spring visits to Jim's native plant reserve.

Jane Zednik *has been writing and sending a weekly newsletter to Millbrook & Area Garden Club members (**icangarden.com**) during the pandemic, gleefully promoting native plants for consideration in everyone's garden.*

PHOTOGRAPH BY JANE ZEDNIK

Discovery of a Rare Plant through Remnant Prairie Restoration

by Sarah Nizzi

In Iowa, less than one-tenth of a percent of our native tallgrass prairie remains, which makes the work that I and many others do to protect habitat within the state so important. Many of the remnant prairies exist in areas that were too difficult to farm due to topography or hydrology, or fall within railroad rights-of-way, roadsides, and pioneer cemeteries.

This summer, I volunteered in efforts to save remnant prairie scattered in small pockets in Polk City Cemetery. The cemetery was established in the first half of the nineteenth century on land that even then was unsuitable for plowing—steep, dry hillsides formed of sand and gravel left behind by retreating glaciers thousands of years ago. Some parts of the cemetery are unsuitable for graves; it is there that the original prairie survives.

The soils create habitat for prairie flowers that are less common or rare, like the eastern prickly pear cactus (*Opuntia humifusa*). The small population of cacti at Polk City Cemetery is the only known record of this plant in Polk County. Herbarium collection data shows only 12 other counties in the state have a record of this species. Unfortunately, the eastern prickly pear population at Polk City Cemetery has been declining as eastern red cedars (*Juniperus virginiana*) and other undesirable woody vegetation encroach and deprive the cacti and other native prairie plants of much-needed sunlight. Other hillside prairies face similar struggles.

In the absence of management, trees and shrubs have invaded the remnant prairies, causing each to suffer and become less diverse. In the fall of 2019, I joined a small group of students from Drake University (my alma mater), one Drake professor and two other volunteers to remove brush and vines from one of the remnant prairie hillsides. This past April I went back to help my friend and former professor burn the brush piles we created and do some prescribed burning (from a safe physical distance, of course). While waiting for our brush piles to burn we investigated the now open plant community to see what had responded to the fall brush removal. We were encouraged by the results.

Seedlings of Culver's root (*Veronicastrum virginicum*) and spiderwort (*Tradescantia* spp.) were in great abundance among common early successional wildflowers. Suddenly, a very small flower caught my eye. It looked similar to a violet, but the leaves were different. The flower species was later identified as a wild pansy (*Viola bicolor*), a rare

PHOTOGRAPH BY SARAH NIZZI

*Wild pansy (*Viola bicolor*), a rare flower that bloomed thanks to management efforts.*

PHOTOGRAPH BY SARAH NIZZI

A prescribed fire burning at Polk City Cemetery in Iowa.

native species usually found on disturbed, sandy soils in central, southeast and south-central Iowa. It stands roughly six inches (15 centimetres) in height and can be easily overlooked. It is also a larval host plant for butterflies. The wild pansy had not yet been documented at Polk City Cemetery. Once our eyes adjusted to the new addition to the landscape, we realized the rare species was scattered throughout the hillside where the brush clearing had taken place. As a native plant enthusiast, I was thrilled with this new discovery. I saw it as a sure sign the prairie appreciated the fruits of our labour.

Land management is an ongoing process. In order to maintain the diversity of our native ecosystems, we must manage them. If left untouched, invasive and undesirable species will continue to fight for dominance and they will win. The work left at Polk City Cemetery is plentiful, but not impossible—and well worth the time and sweat. Our efforts to clear more brush continue. I am grateful to be part of the process and anxious to see what the future has in store. Was our discovery of *Viola bicolor* simply a brief moment in time, only to be seen post disturbance? Will we see it again in the spring of 2021? Continued management and time may help us find an answer.

I wish everyone the very best in these trying times. I encourage you to engage in restoration work within your communities to refuel the human spirit and to observe the surprises the restoration process has to offer. It is our responsibility to preserve our valuable native ecosystems for the various wildlife species that depend on them and for generations to come.

*Sarah Nizzi is a Pollinator Conservation Planner and NRCS Partner Biologist with the Xerces Society for Invertebrate Conservation. This article is reprinted with permission from the Xerces Society, **xerces.org/blog**.*

Calendar of Events

ECOLOGY-BASED LANDSCAPES: A VIRTUAL EDUCATION SERIES

January – March 2021

The professional course topics in this series include natural landscape design and management, green roofs and gardens, community-based landscapes and the use of seed in native landscape and restoration projects. The series is presented by New Directions in the American Landscape. To register, visit **ndal.org**.

THE MISSOURI PRAIRIE FOUNDATION AND GROW WILD! WEBINARS

January – March 2021

Webinars and master classes on Wednesdays presented by Grow Native! and the Missouri Prairie Foundation cover topics such as invasive plants, notes from underground ants in the prairie, native shrubs of the lower Midwest and urban native gardening are covered.

Call 888-843-6739 or email **info@moprairie.org** for more information.

WILDLIFE GARDEN DESIGN COURSE

Tuesday and Wednesday, February 9 and 10, 2021, noon – 1:00 p.m., online via Zoom

Learn how to design a diverse garden that attracts native wildlife through key design elements, plant choices and maintenance needs. This course will draw from concepts found in the University of Guelph Arboretum's Gosling Wildlife Gardens, while offering insights into design features and plant species that have proven successful in their southern Ontario setting. Visit: **uoguelph.ca/arboretum/educationandevents/workshops**.

WINTER TREE IDENTIFICATION

Tuesdays, February 16, 23, and March 2, 2021, noon – 1:30 p.m.

Learn about the distinctive features, from buds to bark to leaf scars, that let us unlock the identities of trees in their dormant season. Presented by the University of Guelph Arboretum via Zoom. Visit **uoguelph.ca/arboretum/educationandevents/workshops.**

THE ANNUAL WETLAND SCIENCE CONFERENCE – WISCONSIN WETLANDS ASSOCIATION

February 16-19, 2021

The Society of Ecological Restoration presents this virtual conference, which covers the latest in wetland science, planning and protection practices in Wisconsin and the American Midwest. Visit: **chapter.ser.org/midwestgreatlakes/event/the-annual-wetland-science-conference-wisconsin-wetlands-association**.

LAND AND WATER SUMMIT

February 24-26, 2021.

This virtual summit will showcase the best of green stormwater infrastructure projects in the Middle Rio Grande watershed, discuss urban environmental integration and explore plants and pollinators for a changing climate. Visit **landandwatersummit.org.**

WINTER 2021

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