

# The Blazing Star



A PUBLICATION OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

## Native Plant to Know

# Virginia Dwarf Dandelion

*Krigia virginica*

by Nicky Staunton

A bold dot of yellow on a threadlike stem was growing through a crack of black macadam in an abandoned parking lot. A friend and I were doing a plant inventory of the closed U.S. Army Harry Diamond Research Lab in Woodbridge, Virginia, and I noticed this little sunray of a plant as I opened my car door. *Newcomb's Wildflower Guide* informed me that it was Virginia dwarf dandelion (*Krigia virginica*), the first entry in our 600-plant inventory.

*Krigia virginica* is native to Virginia, obviously, and most of the eastern United States, from Massachusetts to Florida and then west to Texas. It also occurs around the Great Lakes, although the plants in some Canadian locations are believed to have been introduced by humans.

This annual often appears in isolated spots on disturbed land, where its tiny, puffy dandelion seeds find a site hospitable to its modest needs. Granite flatrock outcrops on natural sites are the best places to find these tough “pavement” plants.

Years after my discovery of *Krigia virginica*, a few of its seeds found cracks in the granite near my home on Parish Mountain in Virginia. Over time, the exposed outcrop (which is part of the huge granite surface atop the small mountain) weathered,

creating a blackened surface with cracks and pitting that filled with soil. A mountain aquifer provides plentiful moisture – when spring rains come the outcrop fills to overflowing, weeping through the cracks. This environment is perfect for the shallow-rooted dwarf dandelion, although sometimes the rainfall is too forceful and washes away the miniature plants.

Sunlight-loving *Krigia* grows individually. Sometimes, however, an entire seed head falls to earth without being distributed by breezes or birds, and a community of plants results.

The dwarf dandelion’s leaves are mini-replicas of the leaves of common dandelion (*Taraxacum officinale*), the familiar European import. The pinnate leaves have shallow lobes, being slightly undulate and sparsely dentate with a pointed apex. Stems are solitary and bare, except for a few tiny hairs near the flower head.

Each stem has one small flower with bright yellow petals. The plant blooms for a single day. On the second day the plant offers up a surprise: a puffy seed head, characteristic of



ILLUSTRATION BY NICKY STAUNTON

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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](mailto: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.

Spring 2022

Volume 23, Issue 2

ISSN 2291-8280

Editor: Irene Fedun

Production: Bea Paterson

Copy Editor: Vicki Soon-Ai Low

Printed by: Guild Printing,

Pickering, Ontario

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## NANPS News

The North American Native Plant Society plant sales are back and they're going to be fabulous! Visit [nanps.org](http://nanps.org) to pre-order.

### Toronto Native Plant Sale

Saturday, May 14, 2022

9:30 a.m. – 2:30 p.m.

Toronto Botanical Garden

777 Lawrence Avenue East

Online and floor sales.

Last day for pre-order is April 24.

### Hamilton Online Native Plant Sale

Saturday, May 14, 2022

9:00 a.m. – 3:00 p.m.

First Unitarian Church

170 Dundurn Street South, Hamilton

Pickup of pre-ordered plants only.

Last day for pre-order is May 1.

### Brantford Online Native Plant Sale

Saturday, May 28, 2022

9:00 a.m. – 3:00 p.m.

Fairview United Church

49 Wayne Drive, Brantford

Pickup of pre-ordered plants only.

Last day for pre-order is May 1.

### Christie Pits Native Plant Sale

Sunday, May 29, 2022

12 noon – 3:00 p.m.

Christie Pits Park

Bloor and Christie subway station, Toronto

This sale will be part of the Bike with Mike event, a family-friendly day that celebrates cycling and environmental issues. It will be an outdoor and in-person sale only (no pre-orders).

## New Feature Series on NANPS Social Media

Mahbod Mehrin, a valued NANPS volunteer, is creating a bi-weekly series of slides featuring various native plant species.

Included are tips on how to recognize the plants in the wild, their range, and suggestions on how to garden with these species. We hope that these social media posts will prove to be a helpful resource for native plant enthusiasts. Follow NANPS on Instagram ([@nativeplant\\_society](https://www.instagram.com/nativeplant_society)) or Facebook to see more.



# Prevention is the Best Cure

by Michael Henry

There's a special delight that comes when you know a tree species well enough to spot it from afar in winter; among the most recognizable of trees are the various species of ash (*Fraxinus* spp.). Every time I see the thick, finger-like, opposite twigs and diamond-patterned bark that give them away, I'm reminded of the decades-long tragedy that is unfolding around us. You may know the story: emerald ash borer (EAB) was first detected in North America in the Detroit-Windsor area in 2002. However, it's likely that it had been spreading for a decade even then. By the time it was discovered it was too late to stop it from establishing – this invasive insect (originally from Asia) now kills nearly every ash tree it encounters in North America.

How did it get here? The beetles' larvae probably hitched rides in wood boxes or pallets made from infested trees, then the adult emerged on a new continent looking for familiar trees on which to lay its eggs. Unfortunately, ash trees in North America, unlike those in Asia, have almost no resistance – upwards of 99% are killed.

I find myself wondering, could this wholesale die-off of ash trees have been prevented? The answer I keep coming back to is yes, it could have, but it was unlikely at the time. Even though we already knew what we needed to do, maybe a wake-up call in the form of EAB was required to help us shed our inertia. But what if it happens again, now, with a different pest and a different host tree? That's 100% on us. And if we continue business as usual, something similar will likely happen.

Asian long-horned beetle (ALB) may be the worst invasive species that currently threatens North American forests. It kills maples and other hardwoods, and it has been imported (and believed eradicated) numerous times in the past two decades. If ALB establishes in North America, it will

have devastating consequences for forestry, maple syrup production and recreation. And it will be life-changing for many people. Dying trees will release large amounts of CO<sub>2</sub>, exacerbating climate change and undermining efforts to reduce emissions. ALB is just one of many pests that are lurking over the horizon. The latest interloper to be detected in Canada is the elm zigzag sawfly, found in Quebec in 2020, which defoliates elm trees (poor elms, not again!).

The good news is that more than 100 countries have already come together to adopt *International Standards for Phytosanitary Measures No. 15*, or ISPM 15, which requires heat treatment or fumigation of wood packaging before it crosses borders. The bad news is that ISPM 15 doesn't work. Well, to be fair, it half works, according to a 2014 US study that found a 50% reduction in wood-boring insects after implementation of ISPM 15. There has been less external evaluation of Canada's import system,



Woodpeckers peel layers of bark from trees when foraging for emerald ash borer larvae.

PHOTOGRAPH BY MICHAEL HENRY

but numbers provided by the Canada Border Services Agency tell us that up to 10% of shipments are non-compliant, and a subset of that is infested with live pests. The Canadian numbers sound like good news until you consider that most containers aren't inspected, so every year we're importing a lot of insects that could devastate our forests. According to Gary Lovett of the Cary Institute of Ecosystem Studies, the failure of ISPM 15 probably results from a combination of treatments that aren't

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100% effective, improperly applied treatments, and cases of outright fraud where packaging is stamped as compliant but was never treated at all.

Live plant shipments can be as problematic as wood packaging, especially for the introduction of pathogens. Billions of live plants, which come with a clearance certificate, are shipped internationally every year, but relatively few are inspected on entry. Even if the system were perfect, current phytosanitary regulations target specific, already named organisms. Unfortunately, many pests and pathogens are actually new to science. For those of us who grew up long after the worst degradations of chestnut blight and Dutch elm disease, new arrivals such as oak wilt and thousand cankers disease of black walnut (*Juglans nigra*) may soon be unpleasant examples of the impact of fungal pathogens.

That's a lot of bad news. Still, I remain hopeful thanks to the set of relatively simple solutions, called Tree-SMART Trade, being promoted by the Cary Institute. The proposals include increased penalties for non-compliant shipments, a shift to manufactured wood (oriented strand board, plywood, etc.) for packaging and pallets, restrictions on live plant imports and improved surveillance. You can learn more at [caryinstitute.org/science/tree-smart-trade](http://caryinstitute.org/science/tree-smart-trade). Lovett tells me that there has been a positive response in the United States from politicians and media, though "there also is industry resistance to these kinds of changes, particularly the horticultural industry, and there's a whole industry of wood-packing materials that aren't happy about the proposed changes."

While there will be winners and losers, the proposed changes will result in large economic benefits, leaving aside the obvious ecological and social benefits. One study showed that, even with 50% effectiveness, ISPM 15 is likely to have a net \$11.7 billion benefit by 2050. When you consider

the economic damage that the Asian long-horned beetle alone could cause in eastern North America, and how it would impact forests and people beyond the dollar value, it's clear we need to do much better.

**What you can do:** sign and share a petition to stop the accidental importation of invasive pests and diseases that kill our forests. In Canada: [change.org/invasivespecies](http://change.org/invasivespecies). In the United States: [change.org/StopForestPests](http://change.org/StopForestPests). Each petition will be directed to the relevant decision-makers. The root causes of this problem require federal

action. Beyond that, as a member of the North American Native Plant Society, you're probably already helping by supporting local native plant growers. Stopping forest pests is just one more reason why it's so important to do just that!

*Michael Henry is a forest ecologist who focuses on conservation of old-growth forests, including by addressing threats from invasive species, development and logging. The second edition of his book, Ontario's Old-Growth Forests, co-authored with Peter Quinby, is available at bookstores. Visit [oldgrowth.ca](http://oldgrowth.ca).*

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# Working with Weeds

by *Ethan M. Dropkin*

Simply put, a weed is a plant out of place. “A rose in the cornfield is a weed,” as Jerry Nelson says in his *Journey America* blog. In short, whether plants are – or are not weeds – is largely subjective. Some plants are undesirable – and true weeds – because they are not native to the continent, region or locality in which they are growing, and they are so aggressive that they displace native species over large areas, effectively starving the pollinators who depend on those native plants. Sadly, some native species, especially the more aggressive, get lumped in with the alien invasives. But not all native species commonly labeled as weeds are equally problematic; some species are welcome additions to the garden or managed landscape. They can even help in the fight against more problematic species.

This article focuses on the so-called weed species native to the eastern United States.

## What Makes a Weed?

Native plants often labeled as weeds have one or more of the following characteristics:

- aggressively rhizomatous
- prolific seeders
- difficult to eradicate once established
- early to green up and/or late to senesce
- coarse in appearance, messy-looking
- have small, sparse or not particularly showy flowers
- tolerant of poor conditions or a wide range of conditions

## Beneficial Weedy Characteristics

To the conventional gardener or land manager, the above characteristics may seem largely undesirable. However, with a change of perspective, those same plants can become allies in the garden or

managed landscape. They may

- suppress less desirable species
- colonize poor, compacted or disturbed soils and help remediate them for more desirable species
- act as a green mulch or groundcover for bare or disturbed soils
- be long-blooming
- function as host plants (food and shelter) for native insect larvae
- provide nectar or pollen for pollinators
- tolerate poor conditions or a wide range of conditions

a gardener or landscape manager can create a targeted maintenance plan. This approach is preferable to removing them wholesale in a misguided attempt to eradicate all “weeds” (potentially a waste of time and resources).

One of the biggest problems with weedy species in the garden is that they compete for space and resources with more desirable plants. This is particularly the case with plants that spread aggressively through seeds, rhizomes or stolons. However, not all aggressive spreaders share the same



PHOTOGRAPH BY ETHAN DROPKIN

*Spotted spurge commonly grows between pavers, making its removal frustrating and unnecessary. This diminutive plant suppresses less desirable plants and helps loosen compacted soils.*

Any one of these characteristics would make for a useful plant in the garden or managed landscape. Some “weedy species” have more than one of the above characteristics, making them surprisingly useful. For many of these more assertive native species, the key is to think of them as allies and work to understand which traits make them either useful or problematic, or both.

By gaining a clear understanding of the benefits, drawbacks, life cycles and habits of these so-called weedy species,

traits. While some may be overly competitive, others can provide a green mulch around more desirable species and help suppress or outcompete unwanted ones. *Euphorbia maculata* (spotted spurge) is the archetypal example. This native annual is often maligned for its tendency to seed freely and pop up between pavers. But in the right situation, it can act as an annual green mulch simultaneously conserving soil

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moisture, suppressing the seedlings of weed species, breaking up soil with its taproot, and providing a dynamic, fine-textured groundcover that is likely to be outlived by more desirable species. It's helpful to take advantage of the many beneficial characteristics of spotted spurge and avoid wasting time weeding a plant unlikely to last longer than a year.

Another common beneficial weedy species in our region is *Eupatorium serotinum* (late boneset). Tall, coarse, and a prolific and aggressive seeder, this plant sounds like something to avoid. Yet it is one of our latest-blooming native species, with a large

and relatively showy white inflorescence that is highly prized for its nectar by migrating monarchs and other desirable pollinator species. As a short-lived perennial, it is unlikely to last beyond a few years, and its seedlings can help fill the gaps that less desirable species might overtake. In addition, in a landscape of healthy and dense perennial growth, its seedlings are likely to get out-competed over time. Moreover, if timed cutting is an option, this plant can be cut back twice each season to curtail its coarse appearance. A mid-June cutback to a foot (30 centimetres) or less ensures a shorter, neater plant and denser

flowering. A second cutback post flowering prevents plants from going to seed too prolifically. Working with late boneset requires an understanding of how and when to manage its growth.

Sometimes, labelling a species as a weed can create controversy. This is particularly the case with *Asclepias syriaca* (common milkweed). It is a tall, long-lived perennial with broad, coarse leaves and long-travelling rhizomes that spread aggressively, all characteristics that enable it to out-compete more desirable adjacent growth. It has long been maligned by farmers for reducing crop yields in



PHOTOGRAPH BY ETHAN DROPKIN

PHOTOGRAPH BY ETHAN DROPKIN

Late boneset, also known as late thoroughwort, (*Eupatorium serotinum*) may be coarse and seed aggressively, but its late flowers are prized by pollinators, including the imperilled monarch butterfly.

Coarse and weedy common milkweed (*Asclepias syriaca*) is the best host plant for monarchs. It is imperative that we find ways to incorporate it into our plantings.



*Rough goldenrod (Solidago rugosa), a plant of old fields, meadows and woodland edges, can spread aggressively by rhizome to form large, monocultural masses, limiting plant diversity. However, it is an important fall bloomer for its pollen and nectar.*

agricultural fields and because it can poison livestock (this last fear is overblown, as grazers tend to avoid this plant and are unlikely to eat enough to become poisoned). However, it is also the best host plant for monarch butterflies (a charismatic species partially imperiled by lack of habitat). *Asclepias syriaca* also has large clusters of fragrant flowers and is a prized wild edible. Clearly this plant belongs in our landscapes, but it needs to be used appropriately.

Common milkweed should be used in places where you're not concerned about it spreading into—and out-competing—adjacent species. While milkweed's growth habit does not

make it a great choice for a cottage garden or a perennial border, it can work well as a property edge plant; in a single-species bed; as a component of a taller, rough-and-tumble planting with similarly aggressive native species like *Panicum virgatum* (switchgrass), *Monarda fistulosa* (wild bergamot) and *Solidago rugosa* (rough goldenrod); or even in a container or raised bed. Given the precipitous decline in monarch populations, encouraging the growth of common milkweed is of paramount importance. However, that need not come at the expense of a neat and diverse garden or meadow. By leveraging the aggressive, clonal growth habit of this plant, we can use

For a list of recommended native plants for eastern North America (plants with showy flowers, plants for green mulch, lawn diversity, the understorey herb layer or pollinators, or edible and medicinal plants) visit <http://lweanerassociates.com/weeds-to-know/?preview=true#>.

it successfully as part of our landscapes while leaving space for more refined plantings.

*Achillea millefolium* (yarrow) is another species that is called a weed by some but is seen as desirable by others. This tough native is often found in lawns with poor soils. As a fast-germinating plant with dense basal leaves, it can shade out more desirable species in early meadow development. However, the finely dissected leaves are attractive and possess medicinal qualities. It is also a long-blooming species visited by a wide range of pollinators. It can be mowed as low as most lawns and still thrive. In addition, even without flowering, yarrow provides host plant value for painted lady butterflies and several species of moths (the unsung heroes of the pollinator world). This means that the caterpillars of these species can use yarrow for food and shelter before they mature into butterflies and moths, bringing badly needed diversity to the American lawn. Finally, when *Achillea millefolium* is interplanted with other containerized plants (rather than grown from seed), its low, dense, basal leaves provide green mulch benefits just like *Euphorbia maculata*. The key here is to understand the aggressive nature of yarrow and how to leverage it either through mowing or not growing it from seed with other species. It is worth noting that *Achillea millefolium* has a circumboreal distribution (multiple varieties are native to Europe, Asia and North America). Knowing the provenance of

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the variety you're planting can mean the difference between planting a native genotype, which has evolved with the local insect life, and planting a genotype from around the globe.

While not all weedy native species have characteristics that make them adaptable allies in landscape management, it is worth understanding which species can function in this manner. They can greatly improve landscape health and assure a more efficient allocation of time and effort.

*Ethan M. Dropkin has a Masters in Landscape Architecture from Cornell University. An associate with Larry Weaner Landscape Associates, Ethan has worked on private, public, institutional and commercial design projects in nine states and in England. He enjoys exploring the urban wild places of his home in Jersey City, New Jersey, with his wife and son, and being a part of the vast network of citizen scientists on eBird and iNaturalist.*



PHOTOGRAPH BY ETHAN DROPKIN

*Native insects use common yarrow (Achillea millefolium) for its nectar and pollen, and developing caterpillars eat the leaves.*

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## From Near and Far Wildlife Will Come

*by Irene Fedun*

Brenda Near was thrilled when two young eastern bluebirds fledged into her native plant garden. The baby birds exhibited wildly different personalities: one sat in the oak waiting patiently for mom to come back with a tasty morsel. The other hopped and fluttered about, exploring Brenda's prairie-style yard. The mother bluebird would return from hunting and pause, seemingly perplexed. It looked for all the world as if she were thinking, "Where on earth has he got to now?"

Wildlife is drawn to the Near-Pearson family's two-hectare (five-acre) property in the countryside northeast of Toronto, for reasons that are obvious to anyone who's a member of the North American Native Plant Society. Convert your lawn or garden to native species of plants, put in an essential feature like a pond, and birds, insects, reptiles and amphibians will find their way there. Of course it helps if your land is bordered on one side by forest and swamp!

Although she'd been gardening for decades, Brenda, like most of us, started with cultivated varieties of showy plants. Her conversion to native plants came about slowly but



PHOTOGRAPH BY HÉLÈNE ROBERT

*Bluebird chick in Brenda Near's garden*



PHOTOGRAPH BY BRENDA NEAR



Male carpenter bee: stems also provide homes for insects so leave them standing!

steadily (again, like most of us, she still grows favourite cultivars of plants that originated elsewhere). Several years ago she decided to create a native shrub border for birds, planting high-bush cranberry (*Vaccinium macrocarpon*), black chokeberry (*Aronia melanocarpa*), chokecherry (*Prunus virginiana*), nannyberry (*Viburnum lentago*) and elderberry (*Sambucus canadensis*). You can imagine the profusion of blooms in spring, followed by plentiful berries, pomes and drupes that feed hungry songbirds in summer as they plump up for the challenges of fall migration. Brenda has been expanding her vision ever since.

Fired up by talks by Paul LaPorte, owner of Ephemeral Ark Nursery, and Dr. Scott MacIvor, assistant professor at the University of Toronto's Department of Biological Sciences, Brenda added a shade garden of spring ephemerals, then a prairie. The results have been gratifying, giving her family hours of fascinating entertainment. Fed by a plentiful supply of nectar-producing flowers, from prairie roses (*Rosa setigera*) to blazing stars (*Liatris* spp.) to asters (*Symphyotrichum* spp.) and much more, bees buzz and butterflies flutter in a lively community of insect life. Naturally this attracts predators such as garter snakes. They hide among the rocks near the pond, which acts as a magnet for other species like tree frogs and dragonflies. Tiny carpenter bees excavate the stems of grey-headed coneflowers to create a safe space for their nests. Leafcutter bees cut oval or round holes in the leaves of fireweed (*Epilobium angustifolium*), showy tick-trefoil (*Desmodium canadense*) and others. They roll them up and struggle to carry them back to their cavity nests, which are tunnelled

out of partially rotted wood and lined with the leaf fragments. This year, however, the bluebirds were the stars of the show!

For the most part, Brenda's chosen plants have done well but, with different soil types and moisture levels on her land, not all of them thrive everywhere. For example, dense blazing stars (*Liatris spicata*) grew one metre (three feet) taller in the moist bottomlands near the wood than they did in the dry sand of the prairie. The same is true for the smooth beardtongue (*Penstemon digitalis*) and stiff goldenrods (*Solidago rigida*).

"I love that native plants blur the line between the wild world and the cultivated landscape," says Brenda. She likes to play with this concept, showing visitors how to garden with both natives and cultivars, to

PHOTOGRAPH BY BRENDA NEAR



Two of Brenda's favourite plants: anise hyssop (*Agastache foeniculum*) and grey-headed coneflower (*Ratibida pinnata*).

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stunning effect, and, sometimes, to the benefit of the cultivated varieties. Her cultivated roses are often plagued by Japanese beetles, but when a native evening primrose (*Oenothera biennis*) grew up beside one of the roses, the beetles migrated to the native plant and chewed on its leaves instead.

Recognizing the need to balance forbs with grasses, Brenda generously sprinkled big and little bluestem (*Andropogon gerardii* and *Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*) and the profusely self-seeding side-oats grama (*Bouteloua curtipendula*) throughout the prairie. The grasses struggled for the first couple of years, but have come to dominate at the end of summer. Brenda admits that some thinning will be necessary to give other plants their share of space. And yet, the grasses have proven their value. Sparrows will hop along the stalks of big bluestem and Indian grass, slowly bending them to the ground where they can comfortably feast on the seeds.

Last year, Brenda's daughter, Jessie, and her boyfriend, Thomas, helped her start a modest native plant nursery. They sold plants grown from seeds gathered in her garden at the Uxbridge farmers' market. Keen to extend their environmental ethic beyond the native plantings, Jessie, a hand embroidery artist, found a pattern on YouTube that allowed them to make pots out of old newspapers and magazines. The funky little pots stood up quite well to repeated waterings, the seedlings pushing their roots into the paper, which helped hold everything together. The advantage of these pots is that they can be planted directly into the soil. There's no need to rip delicate little roots; just open the bottom a little bit. The second of the 3Rs – reuse – is fervently practised in other respects. Their sign at the nursery is painted with flowers on an old oil tank!

The family has donated plants to two school pollinator projects. They also put in a native plant garden at the Uxbridge Historical Centre. The garden was paid for by the Uxbridge Township Environmental Advisory Committee. By planting native plants in public spaces Brenda and the committee hope to encourage homeowners to add a native plant garden and create diverse habitats for wildlife in their backyards. The garden is in full sun, with little access to irrigation, so it was planted with drought-tolerant meadow plants. Signage will be added in the spring to educate museum patrons on the importance of native plant gardens.

Brenda, Jessie and Thomas also helped the North Durham Nature Club add native plants to a meadow area in the Uxbridge Countryside Preserve. In an effort to combat the incursion of the frighteningly invasive dog-strangling vine (*Vincetoxicum rossicum*), they and others dug out the alien



Lance-leaved coreopsis (*Coreopsis lanceolata*)

PHOTOGRAPH BY BRENDA NEAR

plants and put in native beardtongues (*Penstemon* spp.) and cinquefoils (*Potentilla* spp.) in their place.

As if all this wasn't enough to grant Brenda the luxury of resting on her laurels, she took on the local government. She called the town office to ask them not to spray her ditches or mow them since special plants had taken up residence there. Her favourites among the ditch dwellers are the turtleheads (*Chelone glabra*), Joe Pye weed (*Eupatorium maculatum*) and various ferns. At least for one year, the municipal government complied.

Her deepening involvement with native plants has been a source of fascination and wonder for Brenda – and the native garden video she filmed won her a NANPS award. She is “blown away” by the number of bees and other insects

visiting her yard that simply weren't there before, ensuring that her foray into native plant gardening will endure.

*Irene Fedun is the editor of The Blazing Star.*



An old oil tank finds a new life as a sign for Pollin' Gardens, a play on the words "pollen" and "pollinator."

PHOTOGRAPH BY BRENDA NEAR

# Crevice Gardening for Native Plants

by *Kenton J. Seth*

For lovers of native plants and the creatures they support, the recent wildlife gardening fad is heartening. Finally, that silly hat we have always worn is back in style.

The movement is dominated by prairie plants grown in prairie style, perhaps inspired by the pop-culture news of the decline of the charismatic monarch butterfly. This isn't totally inappropriate for a continent whose middle was once dominated by the prairie biome. But North America is home to a plethora of habitats, each with its specialist species and local flavour. We can think of them broadly as forest, prairie, desert and rocky places. If we consider the human landscape through a simplified, pseudo-ecological lens, we'll see that

our cities are de facto savannas, ecotones at the blurry edge between forest and grassland. (If we think of turf as low-quality grassland, it might indicate that humans are re-creating the comfortable biome written into their ancestral DNA.) I believe that all garden styles mimic one of the great biomes, successfully or not. Some styles are directly inspired by wild places, connecting a true biome to a human landscape counterpart. But some habitats are missing from our cities, especially rock crevice landscapes.

A crevice garden is built with more than half of its surface covered in stone that is deeply buried for the purpose of creating cracks for plants to grow in. The top and bottom of each plant have the ideal (more or less) temperatures and conditions they

seek. Essentially, tops are drier and warmer while bottoms are wetter and cooler. The surface of a crevice garden may be level or tilted dramatically, varying drainage and pockets where moisture accumulates. What's more, the orientation of rock faces creates an incredible diversity of microclimates in the garden setting: a crevice garden is like a tiny mountain with a warm, sunny south face and a cooler north face where snow lingers in winter. Many gardeners report being able to effectively stretch their USDA climate zone in a small pocket of crevice garden by one or two zones.

It's not surprising that most crevice gardens use no compost because of the focus on saxatile (rock-loving) plants. In most regions around the world, pure sand is the ideal soil. In drier regions like the western United



*Telesonix (Boykinia) jamesii*, a close relative to the *Heuchera* genus, grows only in crevices in Colorado and Wyoming, preferring the same environment or a trough in the garden.

PHOTOGRAPH BY KENTON J. SETH

PHOTOGRAPH BY KENTON J. SETH

The APEX crevice garden in Denver, Colorado built by Kenton J. Seth. This photograph was taken in June.

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States, gravel fines make a more water-retentive, all-mineral growing medium. Gardeners have observed that many plants live longer in crevices. Beardtongues (*Penstemon* spp.) are an example. This may be because crevice gardens lack the nutritious soil that would make them “bloom out” and die young. It’s also possible they are not attacked by the soil-borne fungi and bacteria that thrive in humus-rich, composted soil.

It makes sense that certain plants, known as chasmophytes, which are limited to growing in rock crevices in nature, grow best this way in captivity. Within most broadly defined climate zones there exist rocky places where parent materials are at the surface, soil is thin to nonexistent and a unique niche welcomes the evolution of site-specific plants. These rock-loving plants do not have to compete with plants growing in more fertile places,

they may avoid wildfires or escape grazing (by being suspended on a cliff) or they may adapt to toxic minerals (like serpentinite) to secure a place of their own. Even in forest-dominated regions, there are plants, such as coral bells (*Heuchera* spp.) and ferns, that specialize in boulder cracks beneath the forest canopy, away from the wildly complex and possibly competitive forest floor. They may even benefit from being elevated high above smothering leaf-fall.

Crevice gardens were developed in Europe in the 1980s (specifically in what is now Czechia) as a means to grow mountain plants that did not grow in rock gardens, that needed to grow in rock crevices. The garden style has been embraced worldwide. Most botanic gardens feature a crevice garden to house their saxatile plant collections. Many, like the Royal Horticultural Society’s Garden Wisley

near London, England, use them as immersive exhibits to educate students and visitors about the plants of alpine and other rocky environments. In wetter climates, such as the private rockeries of Victoria, British Columbia, the Montreal Botanical Garden in Montreal, Quebec, and the Juniper Level Botanic Garden in Raleigh, North Carolina, the superior drainage and mineral soils allow mountain plants to thrive in lowland climates.

Edaphic endemism (soil-driven restriction to an area) is high among rock-loving plants: they are stuck with the pile of rocks they evolved to grow on. Climate change, habitat loss and other factors put them in peril with no place to run to. Among U.S. states, Nevada has the highest number of distinct mountain ranges separated by lowland-desert; each seems to have its own suite of isolated endemic species.



In natural crevices, plant roots often do not encounter any soil at all, but gravel, dust or a completely flat root system in rock fissures alone.



Rollins' bladderpod (*Physaria rollinsii*)



The elusive and dry-growing *Astragalus spatulatus* seems to require a crevice to live in a garden.

(The genus *Eriogonum* [wild buckwheat] is the perfect example.) This is where conservationists see crevice gardens as a backup tool in case land conservation projects fail to protect rare plants locally. The Far Reaches Botanical Conservancy in Port Townsend, Washington, aims to preserve – especially alpine – Olympic Peninsula native plants.

While crevice gardens have historically been

used to home exotic mountain wildflowers from far-off lands, in modern days this garden system houses locally native, rock-loving plants. My own love affair with them sparked because of their artistic appeal, but my commitment to them was sealed when my first crevice garden allowed me to grow, for the first time in my gardening life, the elusive and glorious paintbrushes, *Castilleja* spp.

I built the APEX crevice garden, the first public garden in Denver, Colorado, that is at once xeric (watered only every two weeks) and completely crevice (in the traditional Czech vertical style). This garden has been an *Eriogonum*-growing machine since its construction in 2014. Its very dry surface resists germination of blown-in weeds and sheds debris, proving how low-maintenance it is.

Ever-diminishing water resources in the American West – where water bills grow every year and regulations that discourage luxurious expanses of lawn

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*Castilleja integra*, even in its home climate, lives longer in its preferred rocky situation than an open garden.

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blossom – provide another motivation for installing crevice gardens. In dry climates, it's better to keep crevice gardens shorter, since tall gardens shed too much precious rain. It's more efficient if gardens take a lower-profile form with a more textured surface to catch and absorb rain. Among the rocks, the small plants are safer from trampling and less likely to be subsumed by larger nearby plants and spiny genera, such as *Echinocereus* and *Agave* (cacti), both of which have a preference for rock crevices in nature. It also gives them a pedestal for the admiration they deserve.

The use of recycled concrete for crevice gardens is another ecological angle employed from Holland to Queens, New York, and at Juniper Level in North Carolina. I was a consultant on the latter project and helped in its construction, discovering in the process that recycled concrete allows gardeners in regions where rock is unavailable or too expensive to build crevice gardens. This is in sharp contrast to the early history of rock gardening in Victorian England, when it was an exclusive hobby limited to the landed gentry.

As more public and private gardeners use crevice gardens, universal benefits arise. In my crevice

gardens, I have noticed that spiders are often the first (visible) invertebrates to show up. (This reminds me of the scientists studying newly formed volcanic islands who have observed the head-scratching paradox of spiders, a predatory species, appearing before their prey.) In my unwatered garden, tiny, colourful, solitary, ground-nesting bees relish dwelling in the well-drained soil that is not flooded with irrigation water or clogged with turf.

Crevice gardens – as charismatic representatives of rock gardens – satisfy a niche sorely needed in the post-wild, novel ecosystems of our human-built landscape. They may be a hospitable analogy to a rocky cliff within a city. They can provide a plantable, permeable alternative to a retaining wall that is more inviting to wildlife, feeding pollinators and their larvae as well as improving the mental health of urban dwellers. Would we rather have another wall or a garden?

As we move forward in a modern era where we are both subjects and architects of biological systems – capable of escaping what seemed like the natural boundaries of mammals, but undeniably limited by

certain tethers – we must integrate our ever-growing sophistications of science and intellectual connectivity to that which is physically closer to us. We need to appreciate what makes an individual place special in the midst of vast numbers of towns and cities across the planet and all the unique wildlife in between. Going forward means simultaneously going back: reconnecting to our roots, leveraging our local native plants to face new challenges. A million hopeful strategies exist to move us forward. Crevice gardens – a niche garden type – offer us one valuable tool.

*Kenton J. Seth is a garden designer and builder, specializing in natives regionally and crevice gardens further afield (PaintbrushGardens.com). His book, The Crevice Garden: How to Make the Perfect Home for Plants from Rocky Places, co-authored with Paul Spriggs, will be in North American stores from August 2022. It is available on pre-order from barnesandnoble.com.*

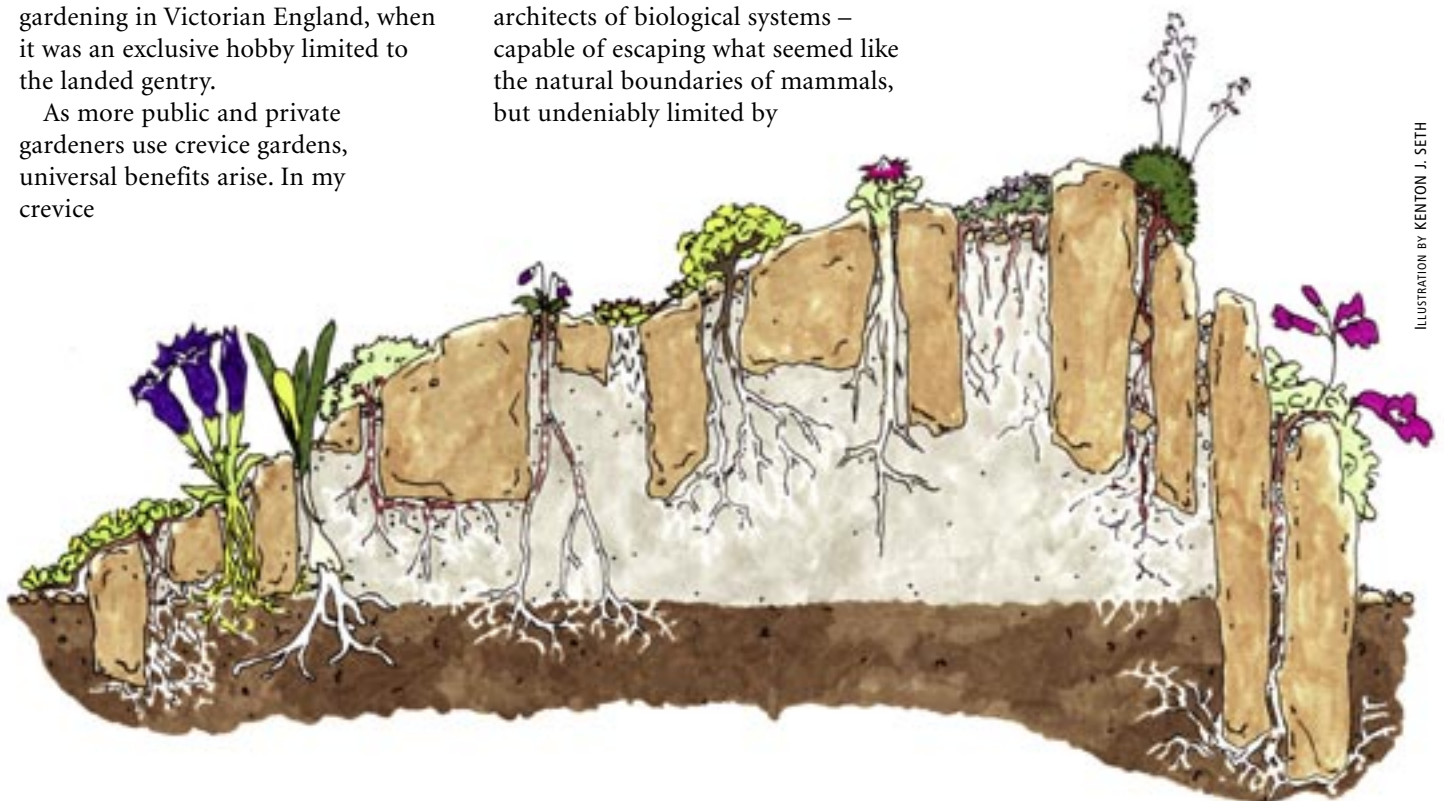


ILLUSTRATION BY KENTON J. SETH

*A crevice garden aims to provide a deep and narrow root-run for plants, often distantly separating the leaves and roots.*

Continued from page 1 – **Virginia dwarf dandelion**



PHOTOGRAPH BY NICKY STAUNTON

*Krigia virginica* past flowering with several new stems emerging from the basal leaves where new flower buds are developing.

the common dandelion, usually distributed by the wind. *Krigia virginica* is the only dandelion with a pappus (modified calyx) of both scales and bristles. The yellow rays are truncate, with five teeth at each tip, with the petals encompassed by bracts.

Three other species of *Krigia* can be found in Virginia, but this one is the daintiest. Virginia dwarf dandelion's floral community on the Parish Mountain outcrop includes fameflower (*Phemeranthus teretifolius*), a pretty purple-flowered member of Portulacaceae, the purslane family; spring-blooming early saxifrage (*Micranthes virginiensis*); the spectacular eastern prickly-pear cactus, (*Opuntia humifusa*); and the woolly lip-fern (*Myriopteris tomentosa*), an evergreen fern that has hairs on most of its leaf surfaces and grows in clusters. Its common name refers to the hairs densely clustered along the leaf edges.

Other than in a rock garden, I doubt

this annual could easily be cultivated. What's more, experts such as Dr. Stanwyn Shelter, curator of the Smithsonian Institution, do not recommend collecting *Krigia virginica* seeds to plant elsewhere. "Let it be," is his advice, since the plant's sparse seed production is necessary to maintain successful establishment in the wild.

Tiny plants in cracks are rarely noticed, yet they have value in nature's world. Virginia dwarf dandelion feeds flower beetles and solitary native bees in exchange for pollination. Not a garden show-off, but a gem to admire in the wild.

*Nicky Staunton is a nature photographer and illustrator, a native plant and wilderness conservation advocate and former president of the Virginia Native Plant Society (VNPS). She has led many VNPS trips to Ontario's Bruce Peninsula to appreciate the flora, especially the orchids!*

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