The Blazing Star

Spring 2015, Volume 16, Issue 2

A Publication of the North American Native Plant Society

Native Plant to Know

Fox Grape

Vitis labrusca

by Tammie Painter

Banned in France, defamed in America and still struggling against a bad reputation. No, it's not the latest tabloid celebrity; it's North America's fox grape (*Vitis labrusca*). Native to woodlands ranging from Nova Scotia to Georgia and from the Atlantic Ocean to the Mississippi River, this hardy vine has given rise to many familiar grape cultivars, but has also earned a disreputable place in history.

The first European to take note of fox grapes in their native habitat was the 11th century explorer Leif Erikson. The grapes were so popular and abundant in the area that would become Newfoundland, Leif named the region Vinland. After Europeans settled in North America, they noticed fox grape was not only tolerant of extreme weather including harsh winters and humid summers, but it was also resistant to many diseases that plagued European grapes. In what seemed like a good idea at the time, the vigorous vines were transplanted into European vineyards in the 1800s. Unfortunately, along with the plants came a pest that decimated many European grape vines (*Vitis vinifera*).

When the European grape industry recovered, the *labrusca* vines proved far easier to grow in France than the traditional cultivars such as pinots and cabernets, and vineyards soon overflowed with *labrusca* grapes. Fearing the loss of their wine and vine heritage to this American import, the French banned the growing of *labrusca* vines except when used for rootstock. *Labrusca* vines are still grown in Europe, but primarily in Eastern Europe where the ban was never instituted.

Back in North America, *labrusca* wines were delighting wine drinkers' taste buds whereas French wines were too strong for most American palates. In an effort to open the market for their wines, importers of French wine began a campaign that claimed French wines from *vinifera* grapes were classy and what the upper crust consumed, while *labrusca* wines were inferior and low

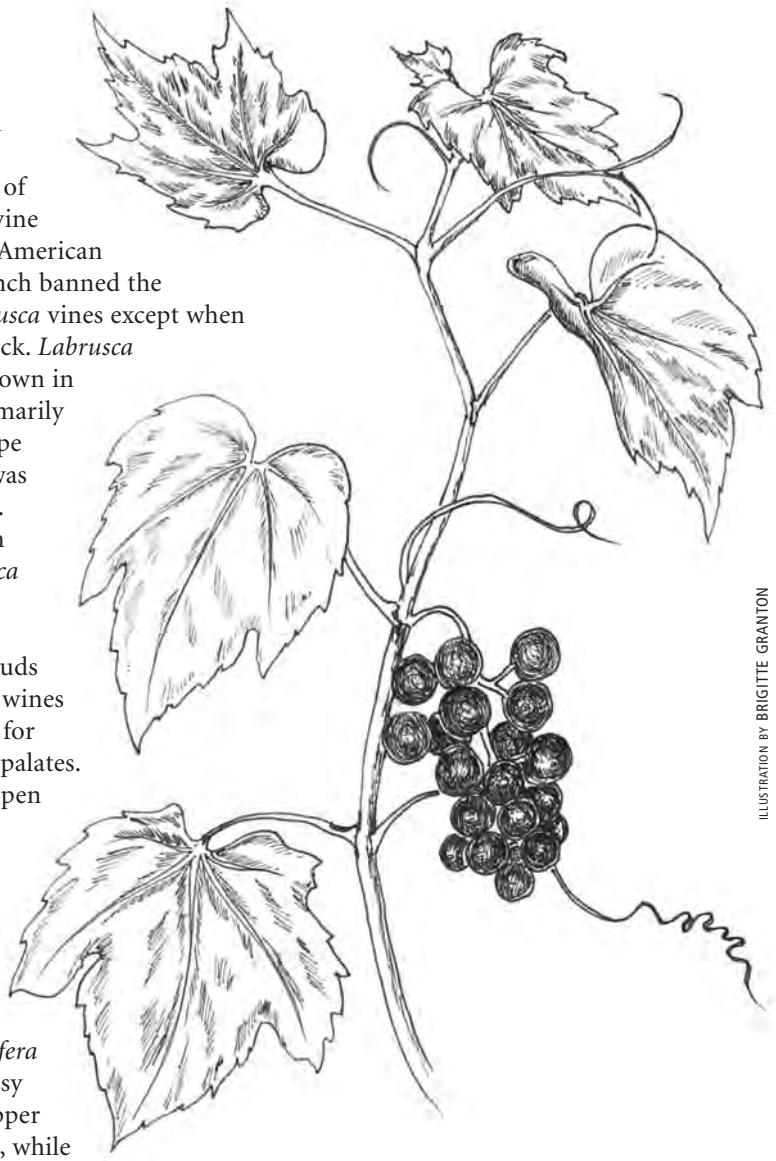

ILLUSTRATION BY BRIGITTE GRANTON

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The *Blazing Star* is . . .

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Editorial

NANPS uses social media (Facebook, Twitter and LinkedIn) to increase its cyber presence and to enable members and non-members alike to connect with us and each other. Social media also allows us to convey our message of native plant study, conservation, cultivation and restoration to a wider audience and to discuss topics of local and global concern with them.

The decline of pollinators is a very popular on line topic. The number of posts received on the NANPS Facebook page about bees and monarch butterflies has been growing steadily for months now and it is important to note that many of the posts are shared by other organizations and individuals on their pages.

Here's an example: On February 11, the post titled "Urban areas provide havens for bees," from the BBC News website, maintained that urban areas have greater plant diversity attracting higher populations of bees than farmland (Briggs, 2015). The post has been copied and shared 22 times to date. The article, backed by scientific research, emphasizes what some gardeners already know: greater plant diversity will allow for better habitat and food sources for bees. The article encourages gardeners who don't currently plant for pollinators to start doing so.

Those who upload Facebook posts about the decline of pollinators are hoping to influence government policy and law. Last year, I put up a post asking for public input on a proposed strategy to reduce neonicotinoid pesticides on corn and soybean crops in Ontario to improve the health of pollinators. That post came via the Environmental Registry from the Government of Ontario and 268 people took notice, although how many of those people responded to the proposed strategy is unknown. However, we can conclude that people care about the future of pollinators enough to check out the posting. In fact, the Ontario government has registered this concern and is now taking action to limit the use of neonics by 2017 (see winter 2015 issue of *The Blazing Star,* page 8.) Every voice is important.

Posts that include discussions about pollinators may have enticed more people to check out the NANPS Facebook page (currently at 1,484 likes). The NANPS Twitter page has also experienced growth since my last editorial in 2013 (currently at 1,617 tweets, 1,330 following and 1,029 followers). Finally the LinkedIn group has grown in members since its start in 2012 (currently at 102 members). Social media continues to have a positive influence on the future of pollinators in North America, and I, for one, am excited about what the future holds.

Adam Mohamed
NANPS Vice-President

Links to Social Media

Facebook:	https://www.facebook.com/nativeplant
Twitter:	https://twitter.com/tnanps
LinkedIn:	https://www.linkedin.com/groups?mostRecent=&gid=4743266&trk=my_groups-tile-flipgrp

NANPS annual plant sale at Markham Civic Centre in May 2105.

PHOTOGRAPH BY PETER KELLY

NANPS EVENTS

MAY 9
NANPS Annual Native Plant Sale
10 a.m. – 3 p.m.
Markham Civic Centre, Markham, Ontario, free parking
Canada's largest one-day native plant sale.

MAY 16-17
Native Plant Sale
Artisans at Work
11 a.m. - 5 p.m.
2071 Danforth Avenue (near Woodbine subway), Toronto

MAY 23
Native Plant Sale at Christie Pits Park
12 noon – 4 p.m.
Christie subway station, Toronto, Ontario

JUNE 20
Bees to Butterflies and Beyond - Pollination Awareness Event
Interactive family activities
Not So Hollow Farm, Mulmur, Ontario
Call 705-466-6290 or email natives@enviroscape.on.ca for details.

In October, join us for our AGM & 30th Anniversary Celebration at the Markham Civic Centre.

Visit www.nanps.org for details.

TREASURER WANTED

NANPS is looking for a treasurer to join their volunteer board of directors in October 2015. The ideal candidate will have a financial background, governance or executive experience, strong people and communication skills, enthusiasm, imagination and good attention to detail.

We are a rapidly evolving organization. We use a bookkeeping service and have implemented audited financial statements. Membership has increased 35% in the last year. Our native plant sales will be held in three locations in 2015 compared to one in 2013. We are collaborating with the David Suzuki Foundation and the Royal Ontario Museum and we are exhibiting at more environmental events than ever. We have board members sitting on two City of Toronto streetscaping advisory groups. You are guaranteed to meet interesting people.

Volunteers are our life-blood. If you feel you can contribute in this position or know someone else who might be a strong candidate, please contact Janice Keil at treasurer@nanps.org or Miriam Henriques at secretary@nanps.org for more information.

NANPS AWARD NOMINATIONS

NANPS Garden Awards recognize and celebrate the amazing gardens that support diverse habitat and shared accommodations for our native flora and fauna. The NANPS Volunteer Award is given to a volunteer who makes an outstanding contribution to the fulfilment of NANPS goals. Deadline for submissions for these awards is July 31st. Visit www.nanps.org for more information.

VOLUNTEERS ALWAYS WELCOME

Interested in VOLUNTEERING at one of our events? Contact us at volunteer@nanps.org or call 416-631-4438 and leave a message.

You love native plants? We'd love to have you!

PHOTOGRAPH BY PETER KELLY

NANPS 2014 plant sale at Christie Pits in Toronto

DUST TO DUST

When I die don't bury me at all.
Just strip me naked and leave me raw.
Just throw me in the woods, let nature do the rest
and I'll feed the native plants and animals that I love best.

John Boydell
John is the author of Native Plant Gardening: A Practical Beginner's Guide *published by For the Love of Nature Frontyard Restoration. A PDF is available by emailing Frontyardrestoration@gmail.com.*

Nature's Refuge Amidst Urban Sprawl

by Angelique-Marie Mori

Often referred to as Steeltown, Hamilton, Ontario has been notorious for its inhospitable industrial wastelands that skirt the shores of Burlington Bay. Enormous plumes of flame and smog often accent the skyline and city hall regularly supports development that threatens to destroy what little remains of the vanishing urban forest.

PHOTOGRAPH BY ALICE KONG

Angelique Mori's front garden combines wildlife-friendly native plants with cultivars. Note the tulip tree leaves framing the photo.

Several years ago, when I first heard that my family might move to Hamilton, I despaired. I had no idea how close I would be to the Niagara Escarpment, Bruce Trail and Royal Botanical Gardens. I was not aware that Hamilton is located within the significant, ecologically diverse Carolinian zone and Niagara Biosphere.

Before agreeing to the move, I insisted that our new home have mature trees and greenery. Thus, we came to acquire a .3 hectare (.8 acre) parcel with established stands of black walnut (*Juglans nigra*), white pine (*Pinus strobus*), white cedar (*Thuja occidentalis*), redbud (*Cercis canadensis*) and a young tulip tree (*Liriodendron tulipifera*). I impatiently waited four years to see my tulip tree bloom!

Almost 150 metres (500 feet) deep, the property slopes towards a small wetland and shallow, vernal pond surrounded by cedars, red osier dogwoods (*Cornus stolonifera*), ostrich ferns (*Matteuccia struthiopteris*) and skunk cabbage (*Symplocarpus foetidus*). Unfortunately, the pond area had been used as a rubbish dump and it took almost three years to haul away plastic and metal debris and an assortment of broken tools, pipes and tires.

My great gardening epiphany occurred in 2009, as I was thinning a dainty, white-flowered plant which was spreading a little too aggressively through the woodland garden. As I cleared the as-yet-unidentified herb, a rich medley of wild plants emerged including mayapple (*Podophyllum peltatum*), Canada anemone (*Anemone canadense*), spring beauty (*Claytonia virginica*), wild geranium (*Geranium maculatum*), bloodroot (*Sanguinaria canadensis*), Jack-in-the-pulpit (*Arisaema triphyllum*) and sensitive fern (*Onoclea sensibilis*) to name a few. It became apparent that the yard was a besieged Carolinian forest remnant. I first identified 20 of the inundated native species and realized that the unnamed plant was the insidious, alien garlic mustard (*Alliaria petiolata*). How could I have ever thought that something growing so resplendently could be something good? I set to work getting rid of it.

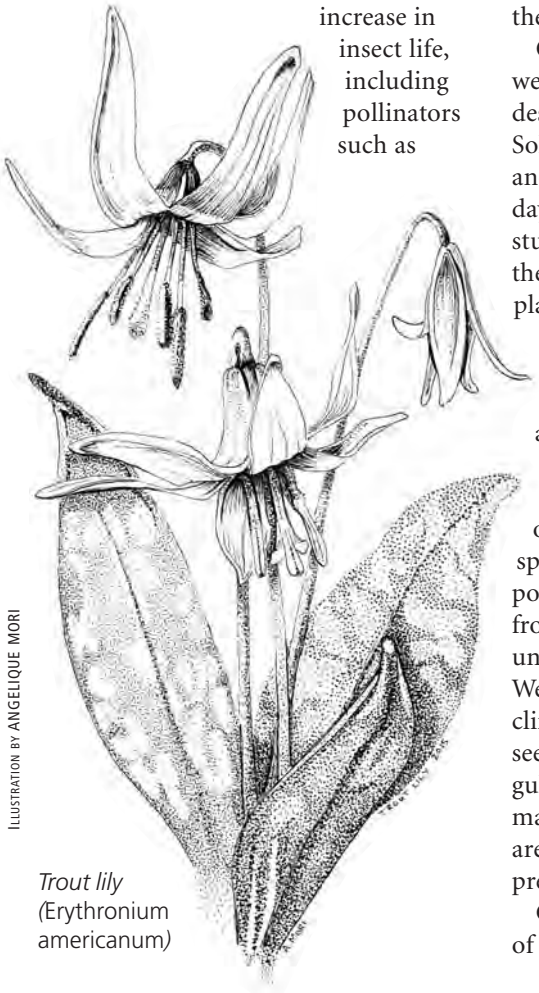
The battle of the alien invaders continues to this day. Other undesirable species found on my property include Japanese knotweed (*Fallopia japonica*), a barely controlled scourge, greater celandine (*Chelidonium majus*) and common buckthorn (*Rhamnus cathartica*). Only with dogged perseverance am I able to gradually reduce the quantity of aliens. As I remove them, I replenish the land with appropriate indigenous species. There are a variety of potential habitats, from upland dry woods to wetland, so a rich diversity of herbaceous and woody flora can find a home here. Every year I augment the plantings; we now have over 150 native species. The plants are

PHOTOGRAPH BY ANGELIQUE MORI

American painted lady caterpillar

sited in suitable environments and left to their own devices to colonize. I find inspiration hiking on the Bruce Trail where I observe natural groupings of wild plants then aim to replicate the scene in my home woodland garden.

The yard is aesthetically appealing, but it's more important to me that it serve as a modest nature sanctuary where all manner of creatures are welcome. The landscape design takes into account their need for shelter, food and water. Our wild menagerie includes red squirrels, muskrats, minks, Cooper's and sharp-shinned hawks, wild turkeys, all manner of songbirds and innumerable fireflies. (Hint: leave fallen leaves on the ground as a refuge for firefly larvae.) We were especially excited when we spotted a Virginia rail, a great horned owl and an indigo bunting. Notably, as the number of native plants increases there is a conspicuous increase in insect life, including pollinators such as butterflies and their caterpillars. This encourages birds to nest. Given nearby development intensification, this is quite an achievement. Regrettably, as urban sprawl supplants green spaces, these faunal appearances become less frequent. I was astounded when the real estate agent remarked we could sever the backyard for new housing. Really? Where would the frogs go? Columnist Bill Vaughan put it succinctly: "Suburbia is where the developer bulldozes out the trees, then names streets after them."

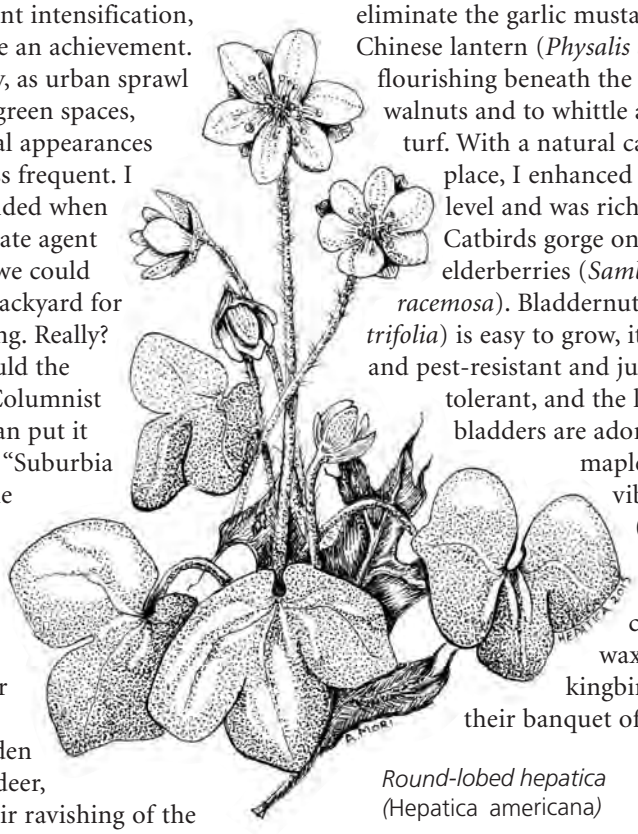


Trout lily (Erythronium americanum)

Illustration by ANGELIQUE MORI

Our garden welcomes deer, despite their ravishing of the Solomon's seal (*Polygonatum biflorum*) and pruning of the dogwoods. (One day, absorbed in my weeding, I almost stumbled upon two fawns hidden in the ostrich ferns.) If we treasure a plant, like the cucumber tree (*Magnolia acuminata*), it is caged until mature enough to fend for itself. We delight in the appearances of raccoons, foxes and possums. My children can identify individual animals by size, colour or unique markings. We have six species of amphibians in our vernal pond: green, tree, chorus and wood frogs, American toads and an unidentified species of salamander. We've learned that when a tree frog clings to a window at night, you can see the meal squirming down its gullet. Garter and ring-necked snakes make our yard their home. Our lives are considerably enriched by the presence of wildlife.

Gathering courage from the success of the backyard plantings, I launched a native plant initiative in the front three years ago. It took a few years to eliminate the garlic mustard and Chinese lantern (*Physalis alkekengi*) flourishing beneath the black walnuts and to whittle away at the turf. With a natural canopy in place, I enhanced the shrub level and was richly rewarded. Catbirds gorge on my red elderberries (*Sambucus racemosa*). Bladdernut (*Staphylea trifolia*) is easy to grow, it's disease- and pest-resistant and juglone-tolerant, and the little bladders are adorable. The maple-leaved viburnums (*Viburnum acerifolium*) delight catbirds, waxwings and kingbirds with their banquet of purple-black fruit (drupes) in the fall.



Round-lobed hepatica (Hepatica americana)

Illustration by ANGELIQUE MORI

Shade plants include the fabulous groundcover gold-star (*Chrysogonum virginianum*), baneberries (*Actaea* spp.), delicate hepaticas (*Hepatica* spp.) and running strawberry bush (*Euonymus obovata*). In the sunnier areas we have five species of goldenrods (*Solidago* spp.), four asters, including the striking fall bloomer New England aster (*Symphyotrichum novae-angliae*), spiky Culver's root (*Veronicastrum virginicum*) and tall ironweed (*Vernonia altissima*). If you have pearly everlasting (*Anaphalis margaritacea*), be prepared for occasional years of disheartening demolition when the painted lady butterfly larvae appear in large numbers, but take heart knowing that this diminutive plant will rebound with gusto. Every garden should make room for the milkweeds (*Asclepias* spp.) that provide nectar, larval food

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and stunning, fragrant flowers. They are the sole host plant for monarch butterfly larvae. *Asclepias verticillata* (whorled milkweed) is a dainty plant, with skinny whorled leaves, so soft to touch, dancing in the slightest breeze but a bit overzealous – with its underground roots it goes everywhere, even into the lawn! In contrast, the sturdy *A. sullivanti* (Sullivant's milkweed) has a refined, upward sweeping carriage with attractive reddish mid-veins. A few hostas linger but the gold-star, wood poppy (*Stylophorum diphyllum*), aggressive Canada anemone, mayflower (*Maianthemum canadense*), Canada waterleaf (*Hydrophyllum canadense*) and ostrich fern exhibit imminent dominance.

Some neighbours took issue with the planting of perceived weeds but I secured their support with my ardent discourse about the value and beauty of indigenous plants. I enthused about their importance to native bees and the critical role pollinators play in the health of ecosystems and agriculture, targeting the personal benefits to my neighbours' home garden yields! I also found the community more accepting of my "wild" garden if it was clearly edged. In our yard, fallen leaves and limbs stay on the beds, while brush piles and snag become design features (artfully placed, of course) but it's all edged! It is a triumph for ecology that native plants began appearing in neighbours' gardens. To my amazement, my front yard won Trillium Awards three years running from the local horticultural society. I dare to believe that appreciation of native plants is growing, devotion to chemically dependent lawns and exotics is declining, and the gorgeous natives with the word "weed" unfortunately imbedded in their names – milkweed, ironweed, Joe-Pye weed and so many others – are finally earning the tributes they deserve.

PHOTOGRAPH BY ANGELIQUE MORI

*Under the black walnut trees: bladdernut, pawpaw (*Asimina triloba*), bugbane (*Cimicifuga racemosa*), virgin's bower (*Clematis virginiana*), Virginia creeper (*Parthenocissus quinquefolia*), sensitive fern, bloodroot and others.*

It is with great anticipation (the kind that evokes childhood Christmas Eves) that I await the annual spring and fall sales at native plant nurseries, such as St. Williams Ecology Centre, Grand Moraine Growers, the Royal Botanical Gardens and the Guelph Arboretum at the University of Guelph. Occasional plant rescues also afford the material for my ongoing crusade. What a blessing to witness nature's complex web of life in your own backyard in an urban setting. I am so grateful my family humours my native plant obsession. Occasionally, I get discouraged by the tenacity of aliens and ubiquitous urbanization. Then a maroon unfurling of skunk cabbage leaves peeks through the snow or the first mourning cloak flashes through the cedars or a spicebush (*Lindera benzoin*) gleams in the understorey and all is well, I'm revitalized.

I found a kinship in the writings of Douglas Tallamy, Sara Stein and Lorraine Johnson. I now have a considerable "naturescaping" library that provides inspiration and entertainment during the long Canadian winters. The authors' proposal that we restore the ecology of our own backyards is exceptional and should be officially endorsed as an essential component of the environmental movement. Imagine if all landowners cooperated in naturalizing their properties and, in so doing, healed the earth and provided habitat for all the dispossessed creatures that once freely roamed this land? The possibilities take my breath away.

***Angelique-Marie Mori** is an educator, lifelong nature enthusiast and Gaia's helper. Her property received the Ontario Wildlife Federation's Backyard Habitat Certification in 2010, the North American Native Plant Society's Garden Award in 2014 and the North American Butterfly Association Certified Butterfly Habitat designation in 2014.*

Natural Diets for Songbirds

by Debbie Lefebre

"Baby Season" is a hectic time in a wildlife rehabilitation centre, especially for those of us who care for orphaned songbirds. Their care is delicate and time-consuming. Hatchlings must be fed every 10 to 15 minutes from dawn to dusk. Nestlings and young fledglings are fed every half hour. In the wild, most young are fed an insect-based diet by the parent birds (Mourning Doves and American Goldfinches are notable exceptions), so we try to replicate as closely as possible their natural diet. Very young birds are syringe-fed a formula specially developed for insectivores and gradually transition to a combination of formula and prepared insects such as mealworms and crickets.

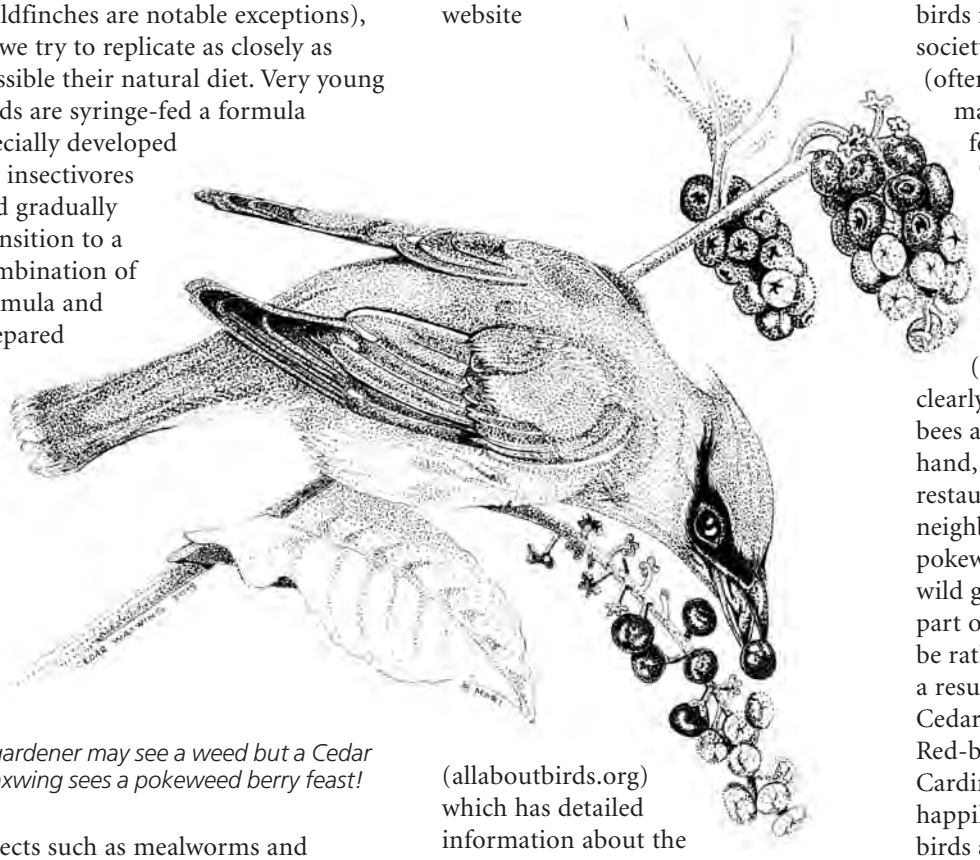

Illustration by ANGELIQUE MORI

A gardener may see a weed but a Cedar Waxwing sees a pokeweed berry feast!

As they grow to fledgling stage, we wean them off formula and begin to offer a more species-specific diet. A sparrow or finch, for example, will get more seeds and fewer insects. An American Robin will get an earthworm and some chopped fruit for dessert. At this stage, the aim is to get the youngsters to feed themselves the food we make available in their indoor enclosures.

To prepare for release, fledglings are moved outdoors to a flight pen. This gives them the opportunity to develop their flight skills. In this crucial period of "wilding up", contact with humans is drastically reduced. In addition to the foods they were fed while still housed indoors, the fledglings receive many natural plant and insect foods to encourage them to learn to forage and recognize food sources that are not dependent on human intervention. One of our best resources for diet information is the Cornell Ornithology website (allaboutbirds.org) which has detailed information about the insects and native plants that each species of songbird uses for food and, in many cases, nesting materials.

Songbirds, both the species that migrate to Canada to breed and the year-round residents, developed the ability to forage for foods ideally suited to their dietary needs over centuries, relying on the insects and plants that were here before Europeans arrived. Humans have had an impact on these diets, sometimes advantageous, sometimes negative. High-quality bird seed, suet blocks and peanuts, for example, make feeding so much easier for neighbourhood birds, particularly those that overwinter. However, the natural landscapes that once covered North America have given way to industrial, commercial and residential development resulting in a significant decrease of many songbirds' traditional foods (nuts, berries and seeds).

Leaving native plants with seed heads intact through the winter may look untidy but can be a boon for birds in snowy months. Unfortunately, society's desire for "polite" plantings (often non-native) and swaths of manicured lawns create limited feeding opportunities for birds. To some of my neighbours in urban London, Ontario, my garden is singularly "impolite" with its milkweeds (*Asclepias* spp.), Joe Pye weeds (*Eupatorium* spp.), goldenrods (*Solidago* spp.) and others – all clearly regarded as weeds. Many birds, bees and butterflies, on the other hand, see my yard as the best restaurant in town. In deference to my neighbours' sensibilities, I grow pokeweed (*Phytolaca americana*) and wild grapes (*Vitis* spp.) in a secluded part of my backyard since both tend to be rather zealous, unkempt plants. As a result, my neighbours miss seeing Cedar Waxwings, American Robins, Red-bellied Woodpeckers, American Cardinals and Evening Grosbeaks happily dining on these fruits. These birds are just some of over 30 species that eat from the native plant smorgasbord that I offer. Note that most parts of the pokeweed are toxic to livestock and humans so children should be warned against picking the richly coloured berries but many migratory birds use the fruits to fuel up at the end of summer.

American Goldfinches are late-season breeders that rely heavily on the seed head stage of native plants. Thistles (*Cirsium* spp.) are a favourite food source as are goldenrods and

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asters (*Symphyotrichum* spp.). While the goldfinches will feed on a variety of plants, I have found evening primrose (*Oenothera biennis*) to be a veritable magnet for them. The plants are tall, appealing beacons of bright yellow blooms which open at dusk. After the flowers fade and the seed pods form, it is a common sight in my front garden to see what looks like a resurgence of blooms but is actually a flock of goldfinches. The cheerful birds are clinging to evening primrose's tall spikes as they pick open the pods to get at the tiny seeds.

My rehab partner Carolyn and I have become expert scavengers as we look for appropriate forage material for the pre-release birds. We know where to find crabapples (*Malus* spp.), mountain ashes (*Sorbus* spp.), staghorn sumacs (*Rhus typhina*), viburnums (*Viburnum* spp.), alders (*Alnus* spp.), mulberries (*Morus* spp.), serviceberries (*Amelanchier* spp.), cedars (*Thuja* spp.) and Virginia creepers (*Parthenocissus quinquefolia*), among others. We raid our own gardens for forage and Carolyn's rural neighbours graciously allow us access to their trees, shrubs and vines.

One of the most positive developments in the past few years has been the growing recognition of native plants. The rise in popularity of purple coneflowers (*Echinacea* spp.), a big favourite with American Goldfinches and Red and House Finches, seemed to open the door for other wild plants to gain respectability. Even the once despised common milkweed (*Asclepias syriaca*) has been delisted as a noxious weed! This change of viewpoint is leading to a replenishment of natural food sources for many species of wildlife, particularly the songbirds that bring so much delight and interest to our gardens.

Photograph by Debbie Lefebre

Three orphaned baby robins in a knitted nest

Releasing our "babies" is a stressful time for us. Like anxious parents, we send them out into the wild hoping that our weeks of care and training will have prepared them adequately to make a good living in the world. Often, birds released in my garden or at Carolyn's rural property will return the next season. This past summer, a robin hand-reared by Carolyn in 2013 not only returned but decided to raise young in a nest right near her front door. We are grateful that more and more gardeners are forsaking the formal, stylized, often sterile garden plan to provide a welcome pantry for our beloved birds.

Photograph by Paul Roedding

Redpoll feeding on alder

Debbie Lefebre *and* ***Carolyn Denstedt*** *operate Swift Care Ontario, a wildlife rehabilitation centre in southwestern Ontario specializing in species at risk, notably Chimney Swifts, Bank Swallows, Barn Swallows, Eastern Whip-poor-wills and Common Nighthawks. Swift Care Ontario is Nature London's 2014 Conservation Award Winner. Website: swiftcareontario.com.*

The Land is Rising! New Plant Habitats Are Forming!

by Dr. Andy Fyon

Did you know that the land around Hudson Bay is rising? In fact, all the land from the Great Lakes north is rising. Why is this happening? And how does this geological process influence the distribution of plant communities?

Over the last two and a half million years, there were several periods of time when Canada was covered by glaciers during what geologists call the last great ice age. The glaciers successively advanced during cold periods and melted back during warm periods. The geological process called glaciation profoundly altered the Canadian landscape and created many different habitats where different plant communities prospered.

At the peak of this ice age, about 20,000 years ago, ice as much as three kilometres (1.8 miles) deep covered the land and water bodies, including Hudson Bay. The weight of that ice depressed the land, literally pushing it down. By about 8,000 years ago, the ice had melted and, with the weight of the ice removed, the land began to rise, much like a pillow expands when you stop sitting on it. The land continues rising to this day. Around and beneath Hudson Bay, the land is rising faster than in any other part of Canada. Geologists calculate that the land at Cape Henrietta Maria, where James Bay and Hudson Bay merge, has risen at a rate of 1.2 metres (almost four feet) per century over the last 1,000 years. For every metre (three feet) that the land rises, about 30 kilometres (18 miles) of new land is formed along the south shore of Hudson Bay as the water drains off the land.

The history of rising land (a process

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Photograph by Andy Fyon

Active storm beach: Along Hudson Bay, the land slopes very gently into the bay. However, gravel beaches develop locally in response to storm wave action, as illustrated in this photo. The slight increase of elevation is all that is required to create a substrate suitable for early stabilizers like sea lime grass and sea-beach sandwort. To the right, away from the top of the bar and away from Hudson Bay, lie wide tidal flats and salt marshes that provide seasonal habitats for migratory waterfowl and shorebirds. Because isostatic uplift is still active in this area, these beaches become "stranded" prominent vegetated ridges that occur many kilometres to the south of Hudson Bay, marking the trace of the historic shore line.

Photograph by Andy Fyon

Purple paintbrush (also known as Raup's paintbrush) is the only Castilleja *with purplish-coloured inflorescence in the Hudson Bay region. It is a parasitic plant that grows close to the tree line.*

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known as isostatic rebound) is preserved in the remarkable record of thousands of storm beaches which parallel the coast of Hudson and James Bays. The storm beaches were created over the last 8,000 years as the land rebounded upwards. The active Hudson Bay shoreline moved north, exposing new land. Some storm beaches are located tens of kilometres to the south of the present coast. It is clear, even to the untrained eye, that plant types growing on very old beaches are different from plant types found along the active shore.

Geological processes create habitats suitable for special plant communities. When we realize this, it comes as no surprise that the geological history seen along the Hudson Bay coast – the creation of ancient stranded beaches – is also associated with a succession of special plants that occupy the active coast of Hudson Bay and stabilize that coast as the land rises.

On the active storm beaches, immediately adjacent to the ocean, sea-beach sandwort (*Honchenya peploides*) and sea lime grass (*Elymus arenarius*) are the earliest plants that appear. These are early plant stabilizers that help hold the storm beaches in place. They are known as halophytes, meaning they tolerate salt water.

PHOTOGRAPH BY ANDY FYON

Egede's cinquefoil with Arctic chrysanthemum are common in the salty tidal flats. Both are circumpolar plants.

Between the storm beach and the stable shore is the foreshore area. The foreshore is underlain by clay and sand. It sits just below to just above high tide and is moist with saline water. Several halophyte plants occupy this flat-lying but more stable area including Egede's cinquefoil (*Potentilla egedii*), Arctic chrysanthemum (*Chrysanthemum arcticum*), seaside buttercup (*Ranunculus cymbalaria)*, seaside plantain (*Plantago juncoides*) and clustered marsh ragwort (*Senecio congestus*). *Potentilla egedii* is distinctive with its yellow flowers along rooting runners and rosettes of leaves whose undersides are silver. *Chrysanthemum arcticum* stands tall with its daisy-like flower heads. You may have to look closely to see the tiny yellow flowers of *Ranunculus cymbalaria* nestled close to the ground. Seaside plantain is a relative of the non-native common or broad-leaved plantain (*Plantago major*) found in yards and gardens; it's common in the salty habitat close to the ocean. *Senecio congestus*, whose colourful common names include swamp or marsh ragwort, northern swamp groundsel, marsh fleabane, marsh fleawort and mastodon flower, is a magnificent plant that stands up to 1.2 metres (four feet) tall and is marked by bright yellow umbel flowers.

Farther inland still you will find the transition to a salt marsh area where grasses, sedges and vascular plants such as alpine bistort (*Polygonum viviparum*), broad-leaved or dwarf fireweed (*Epilobium latifolium*), Greenland primrose (*Primula*

PHOTOGRAPH BY ANDY FYON

Dwarf fireweed is a circumboreal plant that occurs throughout the subarctic and Arctic regions of the Northern Hemisphere, on snowmelt-flooded gravel bars, rocky and sandy areas. Also known as broad-leaved willow-herb and river beauty among other names, it is the national flower of Greenland, where its informal name means "little girl."

egalikensis) and mountain avens (*Dryas integrifolia*) occur. It may seem odd that the arctic-alpine plant *Polygonum viviparum* grows in the Hudson Bay area, but that is evidence of the permafrost that underlies the coastal areas and the cold ocean waters of Hudson Bay that create arctic-like conditions. Large, cheerful pink flowers characterize *Epilobium latifolium*, an arctic-montane plant which is quite different from its distant relative, the taller, more familiar common fireweed (*Chamerion angustifolium*). The petals of *Primula egalikensis* vary in colour from white to lilac with a yellow centre. The shrubby *Dryas integrifolia* occurs in mats and requires limey calcareous soils to prosper. Some of its flowers change orientation to follow the sun. Some people suggest that this tendency creates a warm resting spot for pollinating insects.

Move even further from the shore to stranded beaches that formed hundreds of years ago and you will find white spruce (*Picea glauca*), dwarf birch (*Betula glandulosa*) and several wildflowers including northern lady's slipper (*Cypripedium passerinum*), purple paintbrush (*Castilleja raupii*) and sweet vetch (*Hedysarum mackenzii*). These old beaches may stand only a half to one metre (up to three feet) above the wet boggy areas that separate the raised beaches. Yet this slight elevation difference is enough to stabilize the white spruces and dwarf birches. Surprisingly, *Cypripedium passerinum* is the largest of the native orchids and the only lady's slipper that grows in the Hudson Bay lowlands. *Castilleja raupii* is a semi-parasitic plant that derives some it its nutrients from the roots of the surrounding plants. Sweet vetch has a lovely pink or red to red-purple coloured inflorescence. The plant is known to the locals as "bear food." Need I say more?

PHOTOGRAPH BY ANDY FYON

Marsh ragwort stands majestically in the salty marsh areas, capped with a distinctive yellow inflorescence. It tolerates shallow ponds. Its stalk and leaves are quite hairy providing the plant with a fur coat against the cold winds that blow off Hudson Bay.

Should you have the good fortune to visit an active beach along Hudson Bay, James Bay or one of our southern lakes, take the time to observe which plants occur in the different geological habitats moving from active shore to the land well removed from the water's edge. It is all part of the Ontario below our feet.

Dr. Andy Fyon *is the director of the Ontario Geological Survey, Ontario Ministry of Northern Development and Mines. His hobby is the relationship between plant communities and geology.*

The Living Landscape: Designing for beauty and biodiversity in the home garden
By Rick Darke and Doug Tallamy
Timber Press, 2014
ISBN-10: 1604694084
ISBN-13: 9781604694086
Hardcover, 352 pages, 500 colour photos

I think it's safe to say that no one in the past decade has had as much impact on the native plant movement and on spreading the word to the general public about the importance of native plants in home landscapes as Doug Tallamy. His 2007 book, *Bringing Nature Home*, justifiably catapulted him to rock star status in the native plant world and his charismatic delivery, both in writing and in person, led many to ask: when, oh when, would this guru write a gardening book that translated his ideas, so inspiring in *Bringing Nature Home*, into practical advice for gardeners?

The Living Landscape, co-authored with Rick Darke, is the book we've been waiting for. Darke is a well-known writer and photographer whose own gardening tomes have a large following and whose work as curator of plants at Longwood Gardens in Pennsylvania has inspired many. The pairing of these two passionate experts couldn't be better: Darke bringing the perspective of a plant ecologist, horticulturist and landscape designer; Tallamy, the perspective of an entomologist, behavioural ecologist and ornithologist. Both are engaging writers and brilliant photographers.

Subtitled *Designing for beauty and biodiversity in the home garden*, the book is both an argument for, and a guide to, restoring functional biological layers (for example, canopy, understorey trees, shrubs, herbaceous plants, ground layer, dynamic edges, etc.) in residential landscapes—and doing so in a way that is beautiful and productive. As Tallamy puts it in his preface, the book "focuses on creating landscapes that support life without sacrificing traditional aesthetic values."

Only the boldest of gardening books—and this is one!—waits until page 131 to include photos of actual gardens. But this is a strength, because the first few chapters provide compelling and admirably clear summaries of how natural habitats work, illustrating patterns and processes that, as the authors point out, "can serve as models and inspiration for making and maintaining ecologically healthy residential gardens."

The authors are nuanced in their useful and thought-provoking definition of native species: one that "has evolved in a given place over a period of time sufficient to develop complex and essential relationships with the physical environment and other organisms in a given ecological community." Their discussion of how indigenous and non-indigenous species function within ecosystems is concise: "Quite simply, indigenous organisms are enmeshed within a greater network of relationships than non-indigenous organisms, and so wherever species are native, more species accumulate" and "…the more interacting species there are in an ecosystem, the more stable and productive is that ecosystem." Yet in Rick Darke's preface, he writes that "In most cases and most places, the design of broadly functional, ecologically sound, resource-conserving residential gardens requires a carefully balanced mix of native and non-native plants." Why are non-native plants ***required***? Likewise, Tallamy writes in Chapter 2 that "you cannot meet all landscaping goals using all natives all of [sic] time."

I wish they had addressed these ideas in more depth. As it stands, they seem to me to strike a discordant note to the book's primary message, which is that "our yards and corporate landscapes must be ecologically enriched to the point where they can support entire life cycles of local biodiversity." So much of the book shows precisely how native plants support that goal; hence the discordant note in sentences such as these.

Although the principles covered in the book apply to any North American landscape, the photos and examples almost exclusively relate to the Mid-Atlantic (particularly Pennsylvania and Delaware). At the end of the book there are charts with regional plant lists.

Both authors have spent decades immersed in their subjects, amassing incredible inventories of photographs and effective means of communicating their prodigious knowledge. This book is a pleasure to read and to look at, and intellectually stimulating to engage with.

Review by Lorraine Johnson

Lorraine Johnson is the author of numerous books on native plant gardening including 100 Easy-to-Grow Native Plants, The New Ontario Naturalized Garden and Grow Wild!

Fairy Candles, Butterflies and Ants

During a visit to Shenandoah National Park in Virginia in May 1957, I was captivated by drifts of willowy, white, wand-like flowers emerging in the forest's middle canopy. They lit the shadows with floral magic amid layers of spring-green trees and shrubs. The park brochure helped me identify the flowers as *Actaea racemosa*, commonly known as fairy candles around here. In scientific circles the plant is also known as *Cimicifuga racemosa*; other common names are black cohosh, black baneberry or black bugbane.

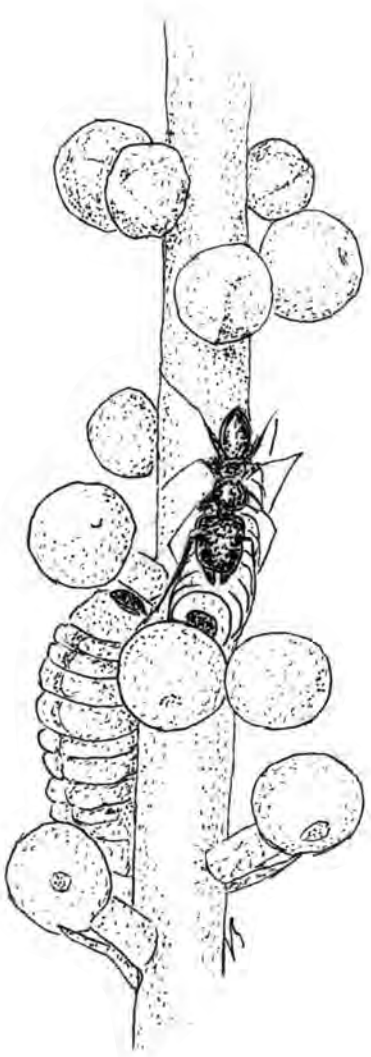

Illustration by Nicky Staunton

Black cohosh in bud with myrmecophilous caterpillars of Appalachian blue butterfly and an eastern black woods ant tending them for honeydew.

This plant had a secret I had yet to uncover.

Almost 50 years later, I discovered fairy candles on a hillside of the wooded dell that became my new home. The land is in the Piedmont foothills of the Appalachian range and Shenandoah National Park, central section, not far from the site of that 1957 trip. To visit this enchanted ecosystem, I step off my porch, walk downhill across the forest floor of the dell and up the opposite rocky side to Parish Mountain.

Actaea racemosa is native to woodland habitats in eastern North America from the extreme south of Ontario to central Georgia, and west to Missouri and Arkansas. It prefers mesic to dry forests, usually in base-rich soils. It is abundant in rich cover forests and rich montane oak-hickory forests. It is commonly found in the mountains, infrequently in the coastal plains.

Photograph by Nicky Staunton

Acteae racemosa *buds with* Celastrina neglectamajor *caterpillar.*

Living near the fairy candles, I've learned that tiny Appalachian azure butterflies (*Celastrina neglectamajor*) are dependent on *Actaea racemosa*, the solitary host plant for the single brood of this species of butterfly. During my first spring here, in mid-May, I found an insect feasting on the new white buds of the racemes of "my" fairy candles. I was puzzled by what I saw. Many buds had bites, some were empty shells destroyed by a minute slug-like larva. My first – gardener's – impulse was to dislodge the mystery destroyer but something stopped me. Ants were accompanying the insect larvae which were less than two–fifths of an inch (a centimetre) long and pale white-green during the first of their four instars (developmental stages). I recalled reports of cooperative behaviour between ants and butterfly larvae. This sent the naturalist in me running home to my books and the Internet to learn that this particular larva was an Appalachian azure.

In *The Biology, Life History and Taxonomy of* Celastrina neglectamajor, Harry L. Parulvaan and David M. Wright report that *Celastrina* larvae have a dorsal gland on the seventh abdominal segment that exudes drops of sweet fluid. Ants can be seen running up and down the caterpillars' backs, drumming, tickling and caressing them with their antennae to

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stimulate production of the treasured drops. A member of the family Lycaenidae, the Appalachian azure caterpillar communicates that a drop of honeydew is available by producing unusual calls. David Wagner in his book *Caterpillars of Eastern North America* explains: "Ant-tended lycaenids have files, scrapers, or other means of producing substrate-borne calls that can be employed to 'call' for ants. Nearby ants detect the 'singing' caterpillar by the vibrations that emanate through the foodplant." (To read more visit http://lepsurvey.carolinanature.com/ttr/ttr-6-6.pdf.) In this relationship (which is reciprocal at least during the larval stage of the caterpillar), the ants offer protection to the caterpillar. Researchers have reported observing ants positioning themselves over the caterpillar, keeping away red mites, parasitoid flies or wasps and predatory insects. No doubt from personal experience, authors Parulvaan and Wright report that these ants will even bite a human finger appearing to threaten their caterpillar!

Photograph by Nicky Staunton

Drift of fairy candles in Parish Mountain woodland.

David Wagner notes that nearly half the members of the Lycaenidae are tended by ants. With some butterfly species (Appalachian azure is one) the ants sometimes carry the caterpillar to their nests to farm it, coaxing it to produce the sweet drop, then returning it to its host plant. However, should ant famines occur, the caterpillar might be eaten or vice versa. Numerous species of ants can be involved in this relationship called myrmecophily.

The Appalachian azure butterfly is endemic to the eastern deciduous forests where black cohosh is established in the central and southern Appalachians from southern Pennsylvania south to northern Georgia. Isolated populations exist in southwest Missouri, eastern Tennessee, central Kentucky, southern Ohio and Canada's Carolinian forests in southern Ontario. A pale chalky blue, the Appalachian azure is the largest of our three azure butterfly species. Oddly, I have never seen this butterfly long enough to make a positive identification, but I have identified the larvae. Since the azure has a wingspan of about half an inch (1.5 centimetres), you have to be quick to identify such a small creature by any other feature than its proximity to fairy candles. Another factor working against accurate identification is that the species has only one brood a year.

Celastrina major larvae emerge in May. Spring azures (*Celastrina ladon*) also have only one brood from April to mid-May. Their larval food plants are primarily the buds of flowering dogwoods (*Cornus florida*), but also blueberries (*Vaccinium* spp.), viburnums (*Viburnum* spp.) and others. Summer azures (*Celastrina neglecta*) have multiple broods that emerge from May into the fall. Their caterpillars feed on dogwoods (*Cornus* spp.), viburnums, New Jersey tea (*Ceanothus americanus*), blueberries, meadowsweet (*Spiraea salicifolia*) and staghorn sumac (*Rhus typhina*).

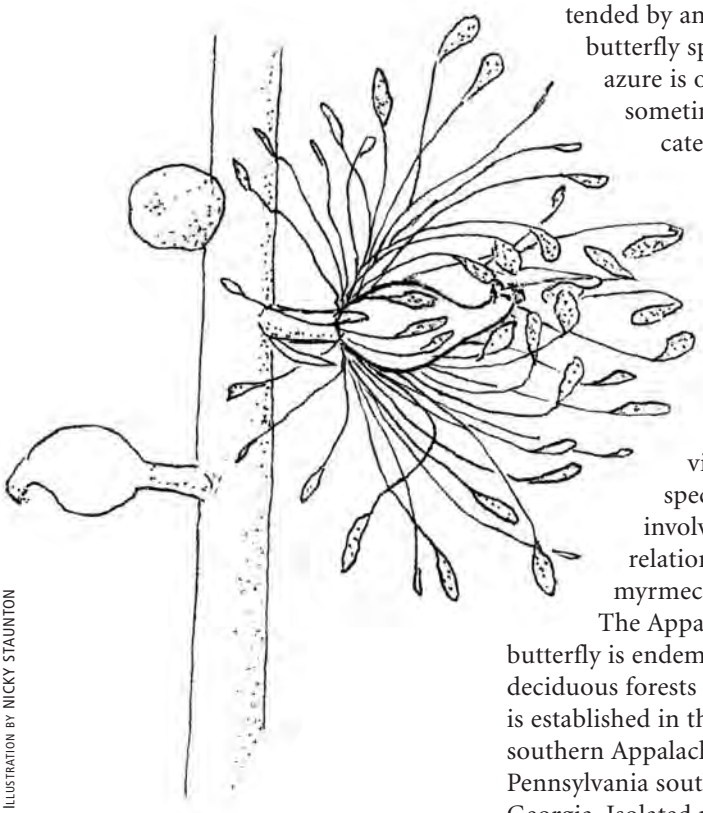

Illustration by Nicky Staunton

Fairy candles: side view of single flower with bud above and seed forming below.

Celastrina neglecta will nectar on a wide range of flowers. The variant emergence of these plant and butterfly species reduces butterfly cross breeding. The spring and summer azures have a broad geographic range throughout most of eastern and central United States and southern Canada.

Although the status of the Appalachian azure is currently secure, *Actaea racemosa* is threatened by climate change, rapid land development and harvesting of wild plants. It is listed as Endangered in Illinois and Massachusetts and is considered Extirpated in several other states. Both the azure and its host plant are being monitored in the United States. In Canada, *Actaea racemosa* has not been assessed by the Committee on the Status of Endangered Wildlife (COSEWIC) and is not on the COSEWIC Candidate List.

Had the gardener in me acted before the naturalist when I saw the caterpillar chowing down on fairy candles, I would have come to regret interrupting a natural order that I had not yet understood. The Aldo Leopold quote comes to mind, "To keep every cog and wheel is the first precaution of intelligent tinkering."

Nicky Staunton is a charter member and past president of the Virginia Native Plant Society and illustrator for the society's newsletter.

May 28-31, 2015
Florida Native Plant Society Conference
Tallahassee, Florida
Visit www.fnps.org/conference.

June 3-6, 2015
Native Plants in the Landscape Conference
Millersville, Pennsylvania
Online registration opens March 16, 2015,
www.millersvillenativeplants.org.

June 5-7, 2015
New England Botanical Club Research Conference
Northampton, Massachusetts
Visit conference@rhodora.org for more information.

August 14-16, 2015
WILD ONES ANNUAL CONFERENCE
WILD Center
Neenah, Wisconsin
Visit wildones.org for details.

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Continued from page 1 – **Fox Grape**

class. The campaign worked so well that even today *labrusca* wines struggle to be taken seriously.

In its native form, fox grape grows as a vine to 15 metres (45 feet) high using tendrils that appear at every node. The 10- to 20-centimetre (four- to eight-inch) long palmate leaves have three lobes and measure about as wide as they are long. While the upper surface of the edible leaf is bright green, the underside has a wooly appearance due to a covering of pale brown hairs.

From May to July, the vines bear racemes of small yellow-green flowers that can pollinate themselves (although insects also help with pollination). By early fall, the racemes develop clusters of dark-skinned grapes that can reach 20 centimetres (8 inches) long. The grapes themselves are known as slip-skin grapes because the skin easily comes off the flesh when the grape is squeezed.

Commercially, fox grape has given rise to many cultivars including the dark-skinned Concord, the pale-skinned Niagara and the pink-skinned Catawba. In the garden, *labrusca* vines can grow in almost any soil type, but will do best in deep, loamy soil that drains well. Although resistant to many diseases, the vines should be trained onto a trellis in a place where there is good air flow to prevent fungal problems. Fox grapes can be grown in light or dappled shade, but fruit production will be greater and the grapes will be sweeter if the plant is grown in full sun. They will readily self-seed.

While fox grape is considered threatened in some parts of its range, it's classified as weedy in others and invasive outside of its native habitat supporting the argument that just because a plant is indigenous to North America doesn't necessarily make it a good choice for every North American garden. Check with your local native plant society before adding fox grape to your garden. Depending on where you live, your local nurseries may offer a cultivar of *Vitis labrusca* (it's harder to find the species) or one of the six other species of grape native to North America: *V. aestivalis*, *V. riparia*, *V. mustangensis*, *V. rupestris*, *V. californica* or *V. rotundifolia*.

Although many gardeners enjoy fox grape for its edible leaves and twining vines that ramble over arbours and fences, some people dislike their musky flavour. However, native grape species provide excellent food for over 50 species of birds including wild turkeys, jays, woodpeckers, thrushes and warblers. With the grapes ripening in early fall, the clusters of energy-filled grapes give wildlife one more chance to build up their fat stores before heading into the lean times of winter. Another good reason to plant them.

Tammie Painter recently released the second edition of her book Going Native: Small Steps to a Healthy Garden. *Visit Tammie at TammiePainter.com or contact her at painterwrite@yahoo.com.*

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