

The Blazing Star



A PUBLICATION OF THE NORTH AMERICAN NATIVE PLANT SOCIETY

Native Plant to Know

Dutchman's Pipe

Aristolochia macrophylla

by Abby Coffin

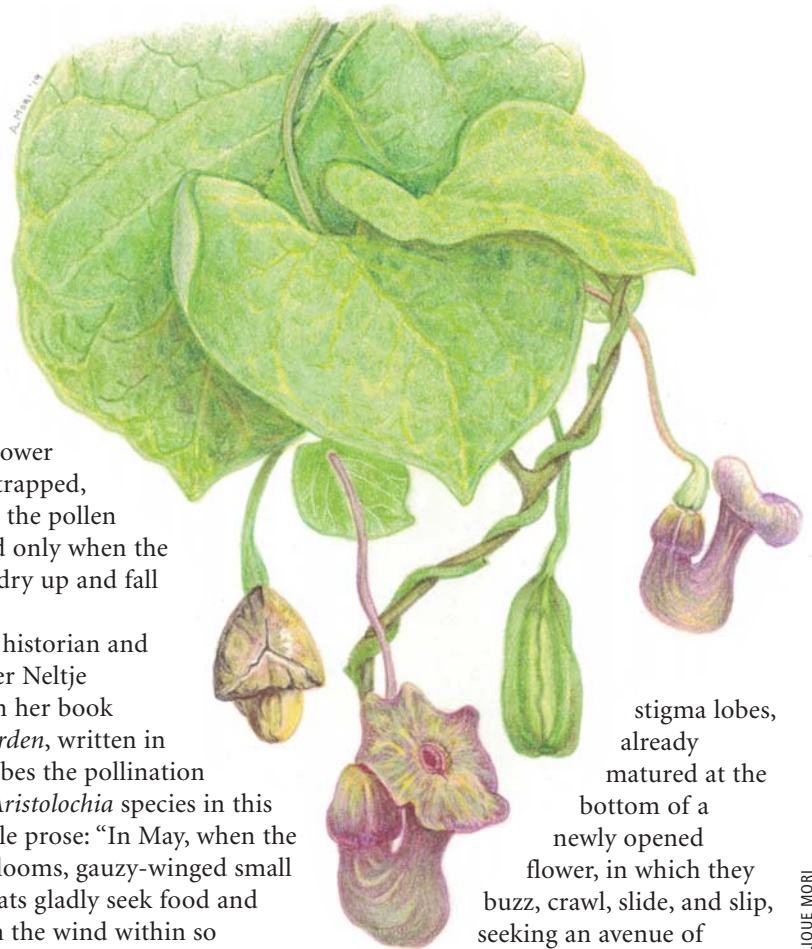
Aristolochia macrophylla, commonly known as Dutchman's pipe, is a twining vine that conjures memories of shaded porches and summer respite. Before air conditioning, this deciduous, woody vine was grown in the southeastern United States to provide relief from the strong rays of the summer sun. I've seen beautiful photographs of historic houses with porches and gazebos covered with living walls of Dutchman's pipe. But the exotic-looking native fell out of favour when AC displaced its usefulness and nursery-cultivated varieties of plants became popular.

Aristolochia is mainly a tropical genus of vines and stoloniferous perennials comprising hundreds of species. *A. macrophylla* has large, glossy, heart-shaped leaves, growing in a densely overlapping pattern. When ruffled by the wind, each dark green leaf shows off its equally beautiful, pale-grey underside.

The weird but wonderful flowers give Dutchman's pipe its common name. Peer between the palmate leaves to find the flowers growing singly or in clusters of two or three. The little, yellowish-green flowers with mottled burgundy calyxes have been described as insignificant, but they are fascinating, and not just for their

smoking-pipe shape. Each flower tube has small, pollen-covered hairs that point downward. When a gnat or fly enters the flower it becomes trapped, dusted with the pollen and released only when the small hairs dry up and fall away.

Scientific historian and nature writer Neltje Blanchan, in her book *Nature's Garden*, written in 1900, describes the pollination process of *Aristolochia* species in this unforgettable prose: "In May, when the pipe-vine blooms, gauzy-winged small flies and gnats gladly seek food and shelter from the wind within so attractive an asylum as the curving tube offers. They enter easily enough through the narrow throat, around which fine hairs point downward – an entrance resembling an eel trap's. Any pollen they may bring in on their bodies now rubs off on the sticky



stigma lobes, already matured at the bottom of a newly opened flower, in which they buzz, crawl, slide, and slip, seeking an avenue of escape. None presents itself:

They are imprisoned!

The hairs at the entrance, approached from within, form an impenetrable stockade. Must the poor

Continued on page 15

The Blazing Star is . . .

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

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

Fall 2019

Volume 20, Issue 4

ISSN 2291-8280

Editor: Irene Fedun

Production: Bea Paterson

Proofreader: Vicki Soon-Ai Low

Printed by: Guild Printing,
Markham, Ontario

© North American Native Plant Society
Images © the photographers and
illustrators, text © the authors.
All rights reserved.

North American Native Plant Society,
formerly Canadian Wildflower Society,
is a registered charitable society, no.
130720824 RR0001.
Donations to the society are tax-
creditable in Canada.

NANPS Membership:
CAN\$25/YEAR WITHIN CANADA,
US\$25/YEAR OUTSIDE CANADA

Join online or send cheque or money
order to North American Native Plant
Society, Box 69070, St. Clair P.O.,
Toronto, Ontario, Canada M4T 3A1.

E-mail: info@nanps.org

Web: nanps.org.

Facebook: [facebook.com/nativeplant](https://www.facebook.com/nativeplant)

Twitter: [@tnanps](https://twitter.com/tnanps)

Instagram:

[instagram.com/nativeplant_society/](https://www.instagram.com/nativeplant_society/)

Board of Directors:

Vice-president: Adam Mohamed

Treasurer: Ralph Fernando

Secretary: Dilys Bowman

Housseyn Belaiouer

Jason Bernardon

Tyler Doré

Subroto Ghosh

Ryan Godfrey

Janice Keil

Atena Keshavarzian

Alice Kong

Donna Lang

NANPS 2019 Award Winners and Speakers

At the 2019 annual general meeting of the North American Native Plant Society, the NANPS Garden Award was presented to the Agnes Macphail Public School in Scarborough, Ontario, for their native plant garden based on a First Nations Medicine Wheel. The school's students and staff were recognized for incorporating native plants into the school grounds and bringing biodiversity back to the neighbourhood. Their garden informs the school's environmental education program and supports ecological literacy. To learn more about this award-winning initiative, visit schoolweb.tdsb.on.ca/agnesmacphail/Environmental-Education.

The NANPS Founders Conservation Award was presented to The City of Richmond Hill, Ontario, for their restoration of Lake Wilcox Park and other sites in an urban setting on the Oak Ridges Moraine, and for their Community Stewardship Program. The restored areas have given people of all cultures, ages and abilities the opportunity to experience the beauty of nature, while learning about the importance of protecting, conserving and restoring natural spaces. The stewardship program incorporates volunteer stewardship events, restoration projects (both of land and streams), tree planting, and removal of

litter and invasive species. It includes data collection and maintenance. Richmond Hill partners with several agencies and organizations, including Local Enhancement and Appreciation of Forests (LEAF), Toronto and Region Conservation Authority, Ontario Streams, the Ontario Ministry of Natural Resources and Forests, Evergreen and others.

In 2020, NANPS plans to launch a School Garden Award. It's crucial that children learn about native plants at an early age. Engaged students can help their parents and communities appreciate native plants and ecosystems and all they have to offer.

The 2019 AGM featured Brenna Anstett of LEAF as the keynote speaker talking about the organization's work helping people in the Greater Toronto Area plant native trees and shrubs, while promoting the importance of the urban forest. Jarmila Becka Lee and Ryan Godfrey offered a presentation on In the Zone, a program of World Wildlife Fund Canada and Carolinian Canada that provides tools to gardeners in the Carolinian Zone wanting to create wildlife habitat in their yards.

To watch a short video of NANPS 2019 AGM taken by Housseyn Belaiouer, visit <https://www.youtube.com/watch?v=hw1tJnG5xvw&t=41s>.

NANPS SEED EXCHANGE WANTS SEEDS!

Have you ever collected seeds from the native plants in your garden or from the wild to share with fellow NANPS members? Now is your chance. We welcome new seed collectors. Send your seeds, separated by species and identified by the source/parentage, to NANPS Seed Exchange, Box 69070, St. Clair Post Office, Toronto, Ontario M4T 3A1. Visit nanps.org/seed-collection-reaping-what-you-sow/ for tips on how to do it.

Thank you to everyone who has taken the time to collect seeds. Please keep them coming. Seeds will be distributed on a first-come, first-served basis to anyone who requests them, although seed donors get first pick! Happy collecting!



PHOTOGRAPH BY DEB CHUTE

Butterflies and Botany

by Pat Deacon

For many people, New Year's resolutions take the form of exercising more, joining an interest group or getting more sleep. As 2016 came to a close, a friend asked if I had any resolutions for 2017. Wearing my naturalist hat, I responded, "I'm going to find my first mottled duskywing." As luck would have it, a focused search effort on a hot day in June proved successful. I bounded down a roadside, camera in hand, chasing the small dark butterfly as it darted from one New Jersey tea (*Ceanothus americanus*) plant to the next.

My interest in butterflies developed over the past few years as I learned more about the integral connection that prairie flora plays in the life cycle of a number of butterfly species in Ontario. A worn copy of *Michigan Flora* and a trusty hand lens that once had free range in the trunk of my vehicle have recently made room for the *ROM Field Guide to Butterflies of Ontario* and a butterfly net.

A thriving population of the prairie shrub New Jersey tea may support a thriving population of mottled duskywing; generally speaking, the more host plants available the better. New Jersey tea (Ontario has two species) is a stout shrub, which inhabits prairies, dunes and sun-dappled savannah and woodland habitats. The loss of New Jersey tea, be it through development or succession as a savanna "closes in" in the absence of fire, can have major repercussions for a population of the provincially endangered mottled duskywing.

To make matters more complicated, land managers must consider how to strike a balance between maintaining the habitat through regular prescribed burns and the potential that those very burns may compromise the pupae nestled among the vegetation in the spring. Given the fragmented nature of prairie, savanna and woodland in southern Ontario and the inability of many butterfly species to navigate vast



Mottled duskywing

PHOTOGRAPH BY PAT DEACON



New Jersey tea

PHOTOGRAPH BY PAT DEACON

Continued on page 4

Continued from page 3

swaths of corn and soybeans, once a species is extirpated from a site it is not likely to return on its own.

The Karner blue and eastern persius duskywing butterflies are considered extirpated from Ontario. Both species depend upon wild lupine (*Lupinus perennis*), which itself has a restricted range in Ontario. Both butterfly

species were known from savanna habitats in Lambton County and Norfolk County as recently as the late 1980s. Today, the stewardship of lupine habitat coupled with substantial prairie creation projects involving lupine in Norfolk County have resulted in increases in the host plant. The resurgence of the lupine

calls into question the feasibility of butterfly population re-introductions. With the ongoing ground work to manage prairie habitats, it is possible that one day these species may make an assisted return to select sites in Ontario.

Oak trees and oak-dominated habitats (*Quercus* spp.) are known to support a diversity of wildlife including birds, bats, rodents, moths and several species of duskywing butterflies. The very rare sleepy duskywing and Horace's duskywing as well as the more common Juvenal's duskywing deposit their eggs on young oak leaves that the larvae will forage upon. Caterpillars take refuge within dense clusters of oak leaves. In recent years, observations of sleepy duskywings have been made in the vicinity of Pinery Provincial Park and in the South Walsingham area of Norfolk County. The majority of recent Horace's duskywing observations have been at Point Pelee and Pelee Island. With the fungal disease known as oak wilt knocking on our door from Michigan, our savanna habitats and the duskywings that inhabit them may soon face a new threat.

Prairie grasses are a choice host plant for a number of skipper butterflies including dusted skipper, Delaware skipper, Leonard's skipper, Indian skipper and crossline skipper. These species rear their larvae on a variety of prairie grasses including Indian grass (*Sorghastrum nutans*), little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*) and panic grasses (*Dichanthelium* spp. and *Panicum* spp.). As I write this article (in 2017), a 2018 resolution comes to mind to tackle the challenge of skipper identification!

In Ontario, dusted skipper is one of our rarest butterflies and is restricted to dry prairies and right-of-ways in the vicinity of Pinery Provincial Park and St. Williams in Norfolk County. The caterpillars hibernate and pupate



PHOTOGRAPH BY PAT DEACON

Dusted skipper



PHOTOGRAPH BY PAT DEACON

Zizia aurea

at the base of the tufts of these prairie grasses.

Throughout the U.S. Midwest, the regal fritillary can be found in high-quality tallgrass prairies that contain bird's-foot violet (*Viola pedata*), among other violet species. This species has a handful of records in Carolinian Canada and, while many records are dated (most over 40 years ago), one observation was made at Holiday Beach in Essex County in 2000. I was fortunate enough to see a regal fritillary on a field trip held during the 24th North American Prairie Conference in Illinois but had to travel 1,000 kilometres (over 600 miles) southwest to see it.

Other butterfly species are somewhat adapted to a variety of host plants. Black swallowtail utilizes plants in the carrot family (*Umbelliferae*) for rearing of larvae. While my savanna-themed garden contains golden alexanders (*Zizia aurea*), the past two years have seen black swallowtails take to fennel planted in the vegetable garden. Carrots, parsley, dill and celery also act as suitable host plants. It should be noted that host plants are only a fraction of the equation; an abundance of nectar-producing plants, which provide a dependable food source from spring to fall, is critical to a quality butterfly habitat.

From the habitat afforded by the rich expanse of floral diversity at the Pinery through to milkweed-filled hedgerows (*Asclepias* spp.) and "pollinator patch" butterfly gardens, every bit of habitat counts!

Pat Deacon is a terrestrial and wetland biologist at Natural Resource Solutions Inc. in Waterloo, Ontario and a director with Tallgrass Ontario (TgO). This article was first printed in the spring 2018 issue of The Bluestem Banner published by TgO. It is reprinted with permission. Tallgrass Ontario is an all-volunteer organization that restores and protects rare grasslands in southern Ontario, tallgrassontario.org.



Regal fritillary

PHOTOGRAPH BY PAT DEACON

HELP CONSERVE OUR NATIVE FLORA

You care deeply about native plants, pollinating insects and wild places. So does the North American Native Plant Society. Help us fulfill our

mandate to study, conserve, cultivate and restore North America's native flora. Please consider NANPS, a registered charity, when you decide on your year-end donations. You can give through



Rosa virginiana (prairie or Virginia rose)

PHOTOGRAPH BY NICKY STAUNTON

CanadaHelps, PayPal or directly by cheque to NANPS, Box 69070, St. Clair P.O. Toronto, Ontario, M4T 3A1. You can cut out or photocopy the donation form on page 16 if you wish. You can also direct a portion of your United Way donation to NANPS. Income tax receipts will be sent early in the new year.

Thank you for making your contribution to the health of our planet.

Foxfield Preserve

by Lisa K. Schlag

Foxfield Preserve is a multi-functional greenspace in Wilmot, Ohio. It is first and foremost a nature preserve that also functions as a conservation burial ground. Foxfield Preserve steward Sara Brink often sees family and friends return after the burial of a loved one to walk the trails or watch birds at the preserve. “This is a place full of life,” she says, “People are finding a spiritual element here and a lot of peace.” Her predecessor, Jennifer Quinn, described the preserve as a “place where people come in hiking boots and jeans. Mourners bring their dogs.”

Foxfield Preserve was created as an

ecopreneurial venture of The Wilderness Center (TWC). Since 1964, TWC, a non-profit nature education centre and land conservation organization, has fulfilled its mission “to connect our community with nature, educate people of all ages, conserve natural resources, and practice environmental stewardship.” The organization is known for its innovative ideas and ventures.

The preserve was the idea of Gordon Maupin, past TWC executive director. He envisioned restoring a former working farm, a 17-hectare (43-acre) property, to its natural state and giving people the opportunity to be buried in a way that benefits the earth, while

generating additional funds for nature education and conservation. In 2008, TWC opened Foxfield Preserve, the first natural burial ground in Ohio and the first operated by a non-profit land conservation organization in the United States. Maupin preferred the term *natural* to *green* to refer to sustainable burial practice. He was proud to have TWC be part of the reawakening natural burial movement.

Over the years, TWC has reforested the hillsides and planted native grasses and wildflowers to re-establish the prairie at Foxfield Preserve. The cemetery looks vastly different from the manicured lawns and rows of marbled headstones that mark gravesites in traditional lawn-park cemeteries. The gravesites at the preserve are marked with simple, flat, ground-level, unpolished natural stones or they are customized with native trees, shrubs, grasses and wildflowers as living memorials. Whether the interment sites are marked or unmarked, their precise geographic coordinates are recorded and survey pins help locate each one. Site maintenance at Foxfield Preserve is performed strictly for the health of the forest and prairie habitats. In the prairie, prescribed burns are periodically conducted to remove woody plant material before it gains a foothold. Mowing around graves or pathways to individual graves is not done.

Some of the native plants lighting up the prairie with their colourful summer blooms and providing wildlife with food and cover throughout their lifecycles include wild bergamot (*Monarda fistulosa*), a hummingbird magnet; dense blazing star (*Liatris spicata*), much loved by butterflies; grey-headed coneflower (*Ratibida pinnata*); thin-leaved coneflower (*Rudbeckia triloba*), with its cheerful yellow flowers; tall coreopsis (*Coreopsis tripteris*); culver’s root (*Veronicastrum virginicum*), which loves moist, rich soils; common evening primrose (*Oenothera biennis*);



PHOTOGRAPH BY LISA K. SCHLAG

Canada lilies (*Lilium canadense*) light up the prairie at Foxfield Preserve with their vibrant colour, surrounded by Ohio spiderwort (*Tradescantia ohiensis*).

the spectacular tall sunflower (*Helianthus giganteus*); early goldenrod (*Solidago juncea*) and several other *Solidago* species; grasses such as big bluestem (*Andropogon gerardii*) and Indian-grass (*Sorghastrum nutans*); brilliant purple-flowered giant ironweed (*Vernonia gigantea*); common milkweed (*Asclepias syriaca*), a critical larval host plant for the monarch butterfly; Ohio spiderwort (*Tradescantia ohioensis*); and many more. Families who wish to plant additional native plants at a loved one's gravesite must work in cooperation with TWC and select plants from an approved list. Many native plants on the list are available at TWC's annual native plant sale.

When asked which plants she would choose for her burial site, Sara Brink offers this, "My personal preference for a burial location has changed over the time that I have been working at Foxfield. Initially I was drawn to the forest section, but as time goes by I am struck by the beauty of the prairie. It is so full of life! Knowing that when I am through with my body I will return quickly to the natural cycle in the prairie, joining with the bergamot to feed our native pollinators and the tall sunflowers to feed the birds, brings me a deep sense of comfort. So I would say that those flowers, along with the delicate Ohio spiderwort which delights me so much each spring, would be the ones I'd like to have on my plot."

At Foxfield Preserve, the body is dressed in natural fibres such as cotton or wool and laid to rest in a biodegradable container such as a shroud, blanket, or wooden or cardboard casket. No toxic chemicals,



PHOTOGRAPH BY JANE MCCULLAM

Christel K. Schlag was buried on 21 August 2014: "No finer place for my mom to be," says Lisa K. Schlag.

no embalming. The nature preserve conservation burial ground prohibits the use of concrete vaults to line graves. Instead, freshly cut evergreen boughs line each grave.

Natural burial was the normal practice in the United States until the Civil War. During the war, the practice of embalming deceased bodies began, even though there were very few laws requiring it. Embalming or refrigeration was required primarily when transporting bodies across state lines or exceeding the length of time deemed essential for final disposition, for extended public viewing or if the death was due to a communicable disease. A present-day, conventional full-body burial involves embalming the deceased with preservation chemicals for funeral service viewing and body transport. This is followed by placing the body in a non-biodegradable casket that is lowered

into a grave lined with concrete in a cemetery with manicured lawns.

Flame-based cremation is steadily gaining in popularity as an alternative to full-body burial in Canada and the United States, with only a handful of states and three Canadian provinces (Saskatchewan, Quebec and Ontario) permitting water-based cremations. Although flame-based cremation consumes less land, eliminates the use of toxic chemicals and reduces material consumption associated with a traditional full-body burial, the process requires significant energy and releases chemical compounds and heavy metals into the air. For individuals who choose cremation, Foxfield Preserve provides a final resting place for cremains by offering burial and scattering services. If an urn is used to bury the cremains, it must be biodegradable.

Continued on page 8

Continued from page 7

Consider the environmental impact of a conventional cemetery. A four-hectare (10-acre) swath of a typical cemetery contains enough wood to construct 40 homes, approximately 900 metric tons (886 tons) of steel, 18,000 metric tons (17,716 tons) of concrete and enough toxic embalming fluid to fill a typical backyard swimming pool. These statistics were taken from an online research paper viewable at

<https://www.sciencedirect.com/science/article/pii/S0169204618304067>.

With these concerns in mind, a reasonable question arises: At what point in our existence do we cease being consumers individually responsible for the impact our decisions have on the environment and on the production of goods and services available in the future? Burying embalmed human remains in a lawn-park cemetery is not environmentally sustainable. It commits land and potential natural habitat to a single use or, at most, a handful of uses where caskets are stacked one on top of another; consumes significant resources for caskets and vaults; and introduces a host of toxic byproducts into the environment – from embalming fluids used to preserve bodies to petrochemicals needed to maintain manicured landscapes. Cremation is arguably not much better.

In the United States, the Green Burial Council (GBC) is the certification organization that provides information and sets standards on green alternatives for the funeral industry in North America. At greenburialcouncil.org/, the GBC defines a green burial as a “way of caring for the dead with minimal environmental impact that aids in the conservation of natural resources, reduction of carbon emissions, protection of worker health, and the restoration and/or preservation of habitat.”

GBC has three categories of certification for natural burial

grounds: hybrid, natural and conservation. Foxfield Preserve is one

of the few natural burial grounds in the United States certified as a

conservation natural burial ground. This designation means it must protect in perpetuity an area of land specifically and exclusively designated for conservation. In the process of researching natural burial grounds to create a GIS (geographic information systems) poster entitled *Acting Locally: Natural Burial Sites and Services Are Gaining Ground in the United States* for a geospatial and technology

When my time comes to meld
with the life-enriching soil of generations past,
being naturally buried in a woodland
brings communion, comfort, and peace;
and for me, there is no finer place and way
to transcend the passage of time
than being in the midst of nature,
where life is season after season:
renewed by falling rain,
sheltered by branches and boughs,
nourished by flora and fauna,
tucked in by falling leaves, and
insulated by fallen snow.

Lisa K. Schlag, 1 October 2019



With its robust leaves and soon-to-come golden yellow flowers, the statuesque prairie dock (Silphium terebinthinaceum) stands sentinel over the prairie at Foxfield Preserve.

PHOTOGRAPH BY LISA K. SCHLAG

class at Lakeland Community College, I found well over 100 natural burial grounds (data inconsistency was a verification challenge) had been established throughout the United States. The first modern natural burial ground in the United States, Ramsey Creek Preserve, was established in 1998 in South Carolina.

In Canada, the Green Burial Society of Canada (GBSC) is the governing body. At this time, the GBSC website (greenburialcanada.ca/) lists five cemeteries that have been approved as certified green burial providers.

Just as our daily routines and purchasing decisions impact the environment, burial and funeral practices do too. Burial decisions, in most cases, are private matters influenced by various factors. As non-traditional burial options become

more widely available, it provides opportunities for individuals to reassess which method of burial is right for them and their families.

The consumer-driven interest in environmentally friendly, final-body disposition has prompted responsive funeral homes to work with conservation organizations to offer “natural” alternatives. By taking a long-term view, TWC not only inspires visitors with a sense of wonder and curiosity about the surrounding natural world, but broadens their perspectives on life and death issues.

Lisa K. Schlag is an Ohio Certified Volunteer Naturalist with The Wilderness Center (wildernesscenter.org) chapter in Wilmot, Ohio. She is the treasurer and web administrator for the Native Plant



PHOTOGRAPH BY JANE MCCULLAM

Society of Northeastern Ohio (nativeplantsocietyne.org). Lisa is currently pursuing studies in the Geospatial Technology Program at Lakeland Community College in Kirtland, Ohio.

Calendar of Events

**JANUARY 9-10, 2020 and
JANUARY 16-17, 2020**
**New Directions in The American
Landscape 2020 Conference**
Bryn Mawr, Pennsylvania, and New
London, Connecticut

The symposium will explore the dynamic relationship of culture and ecology as it pertains to landscape design and management. To learn more: ndal.org.

JANUARY 21, 2020
A Walk In The Woods
7 – 8:30 p.m.

Wolf Performance Hall,
Central Library
251 Dundas Street,
London, Ontario

In one of six illustrated talks as part of the Nature in the City 2020 series, forest therapy guide and trainer Ben Porchuk talks about the physical, psychological and spiritual benefits of walking in the forest. Visit naturelondon.ca for details.

JANUARY 25, 2020
**The Conference On Native Plants
and Natural Landscaping**
Oshkosh, Wisconsin
Visit 10times.com/tcnpnl for details.

FEBRUARY 4, 2020
Pollinator Pathways
7 – 8:30 p.m.
London, Ontario
Dr. Gabor Sass, assistant professor in the Departments of Geography and Biology, and the Centre for Environment and Sustainability at the University of Western Ontario, will talk about how to provide natural travel corridors, habitat and nutrition for insects, birds and other animals that move pollen from plant to plant. Visit naturelondon.ca.

FEBRUARY 18, 2020
**The Coves: A Neighbourhood
Environmental Success Story**
7 – 8:30 p.m.
London, Ontario
Patrick Donnelly and Linda McDougall of the City of London

will highlight the ecological transformation of the Coves Environmentally Significant Area and describe ways to explore and help protect the former meander of the Thames River. Visit naturelondon.ca.

FEBRUARY 26-28, 2020
Climate-Ready Water Management
Albuquerque, New Mexico
This annual conference will cover many environmentally relevant issues including urban landscapes and climate-ready trees. For more information: landandwatersummit.org.

**NANPS SPRING SPEAKER SERIES
2020: THE POLLINATORS:
BEES AND BUTTERFLIES**
Wednesday, March 11, 7-8:30 P.M. –
Bees, Dr. Lawrence Packer
Wednesday, April 15, 7 – 8:30 P.M. –
Butterflies, Jessica Linton
Multi-faith Centre (Koffler Building),
University of Toronto, Toronto,
Ontario. For details: nanps.org.

Seeding the Woodland Herbaceous Layer: A Multi-year Learning Thread

by Larry Weaner

The three-legged stool of meadow, thicket and woodland form the major temperate North American plant community types. Each contains a different suite of plant species, expresses itself in different spatial patterns and occurs at different stages of ecological succession. While woodlands are considered to be the end of the successional line, their eventual development is not inevitable. Mowing or burning a meadow annually will arrest succession at the herbaceous stage. Removing trees as they emerge through the thicket will prevent a

progression to woodland.

In the woods, halting succession is not a concern. Do nothing and you will have a woodland. The interim stages may not be pretty, and the eventual tree composition may not be particularly diverse, but you will have a woodland. Millions of acres of forest have restored themselves after agricultural abandonment without the aid of human planting or management.

Herbaceous species are not as resilient. Research by ecologist Henry W. Art at Williams College in Williamstown, Massachusetts, showed that long after tree cover had re-established from historic clear cuts,

the ferns, sedges and wildflowers on the ground layer remained depauperate. This was especially true of the specialist species that require specific environmental conditions such as *Trillium* spp., *Sanguinaria canadensis* (bloodroots), *Uvularia grandiflora* (great merrybells), *Cypripedium* spp. (lady's slippers) and many others.

It would seem then that investigating ways to establish woodland herbs on the forest floor would be a worthy exercise. Meadows are mostly planted from seed, so it would stand to reason that woodland ground layers could be planted in the same way. Unfortunately, this is not the case.

Most meadow species can be planted with seeds purchased from commercial suppliers. This is due in large part to the fact that their seeds tend to have a long period of viability and relatively simple dormancy requirements (or none at all). Woodland herbs, conversely, tend to be specialists whose seeds have very short periods of viability or very complex germination requirements.

Unlike meadow species, most woodland herbs produce seeds that are encased in fleshy seed coats. The coats deteriorate quickly and the seed either loses viability or additional dormancy requirements come into play. These requirements can be complex; the seed can take years to germinate, if ever. This means that by the time commercially purchased seed has been collected, stored, shipped and planted, the seed coat has dried out and the seeds are no longer viable or will have difficulty germinating.

This has huge practical ramifications regarding the establishment of herbs in the woodland ground layer. If seeds can't be planted from commercially purchased seed and filling the forest with live plants is not feasible financially, what other options are there? One option entails planting small "mother colonies" of live plants



PHOTOGRAPH BY LARRY WEANER LANDSCAPE ASSOCIATES

White wood aster (Aster divaricatus) and blue stem goldenrod (Solidago caesia) are woodland generalists that can be easily established in a wide variety of woodland conditions.

throughout the woodland and allowing them to seed themselves. In this scenario, seeds are hitting the ground exactly when they have evolved to do so. This allows seed coat deterioration and seed germination to occur when moisture levels, temperatures and other requirements are correct.

But while plants are patient, humans are not. How can we increase the speed with which full colonization of a woodland takes place? By lightly disturbing the soil adjacent to the mother colonies, you can increase the germination rate of the seeds disbursed from those colonies, thereby increasing the rate of expansion. Colonization can be further sped up by collecting seed from the original colonies, disbursing them into other areas and lightly disturbing the soil to increase germination. This should be done during the time when seeds are being deposited from the source plants, helping to ensure that the planting time is based on the ecology of the plant, not the project's construction schedule.

This process plays out over time, of course, which runs counter to traditional landscape practices where the planting sequence is mostly "one and done" and "on to the next project." This divergence is one that continually emerges when attempting to move from traditional landscape practice to an ecological process-based approach.

But understanding and incorporating ecological process is a challenging intellectual endeavour; we will never learn all there is to know. Gifted ecologist Frank Egler once wrote, "Nature is not more complex than we think. It is more complex than we *can* think." Ecology-minded practitioners might find this discouraging, but if we learn as much as we can about the inner workings of wild plant assemblages and then creatively incorporate that knowledge into our landscape applications, nature may just complete the picture.



PHOTOGRAPH BY MARK WEANER

Golden groundsel (Packera aurea) expands rapidly by its clonal root system and can form a weed-suppressive ground cover in a moist woodland.



PHOTOGRAPH BY LARRY WEANER ASSOCIATES

Columbine (Aquilegia canadensis) will be competed out by more aggressive woodland phlox (Phlox stolonifera), nodding onion (Allium cernuum) and other woodland herbs. It will serve as a seed source, however, for colonization into unplanted areas.

The educational process that leads to a deeper understanding of ecological process is multi-faceted.

Observing nature, reading, landscape experimentation and many other

Continued on page 12

Continued from page 11

avenues can be helpful. But in my experience, discussing a puzzling landscape observation with a colleague can be the most fruitful.

One such discussion occurred while I was writing this article. I had just completed the portion that describes planting “mother colonies” of native herbs as a seed source for their eventual colonization. One plant that we have often included in these planted assemblages is *Phlox divaricata* (woodland phlox), but it rarely reproduced. I decided to call Ian Caton, fellow designer, native plant grower and general plant genius, to discuss this puzzle. Ian informed me that at his property, Wood Thrush Nursery in Floyd, Virginia, woodland phlox seeds readily into the surrounding landscape. I then realized that it also seeds readily at The Mt. Cuba Center for the Study of Piedmont Flora in Hockessin, Delaware, a stunning woodland garden. Why is the plant operating so differently on my landscape projects than on their properties?

Ian noted that in my projects we are usually planting asexually propagated clones, since that’s all the nursery trade has available. At his nursery, only straight species are grown. He also mentioned that there is a wild population of woodland phlox near Mt. Cuba. That population could easily have served as a seed source for the original plants that were installed when the garden was first being developed in the 1940s. If so, their plants would likely also be seed-grown and straight species.

It’s possible that the cultivars I was using on my projects were not producing viable seed. I responded, however, that there is no reason to believe that woodland phlox clones, which are primarily selected for flower characteristics, would be inherently unable to produce viable seed. But then I realized that another characteristic of asexually produced cultivars may explain our dilemma: lack of genetic variability. Because

they must be propagated asexually, individuals of the same cultivar have the exact same genetics. But why would that affect seed production?

If woodland phlox happened to be a

genetic diversity needed for pollination and seed formation.

Or we could just use straight-species plants grown from seed. The multi-coloured cultivars of woodland phlox



PHOTOGRAPH BY LARRY WEANER LANDSCAPE ASSOCIATES

Plant genius Ian Caton contributed to an enlightening conversation with Larry Weaner about woodland phlox (*Phlox stolonifera*) and its cultivars.

self-sterile species, successful pollination within a single cultivar planting would be impossible. Individuals of self-sterile species cannot pollinate themselves. They can only successfully accept pollen with a different genetic composition than their own, meaning another individual of the same species. In this scenario, genetic variability within the population is essential and my cultivar plantings had none. Same genetics, no pollination. No pollination, no seeds.

Researching the botanic literature on woodland phlox revealed that it was in fact self-sterile. Consequently, it would make sense to plant multiple cultivars as is done with *Vaccinium corymbosum* (highbush blueberry), another self-sterile species. Theoretically, this would provide the

are useful in a highly designed garden bed; but for colonizing a woodland, the iridescent blue of the straight species is fine. In fact, if I had to choose between woodland phlox that came in every colour on a paint chip ring or one that self-proliferates, I would easily take the latter.

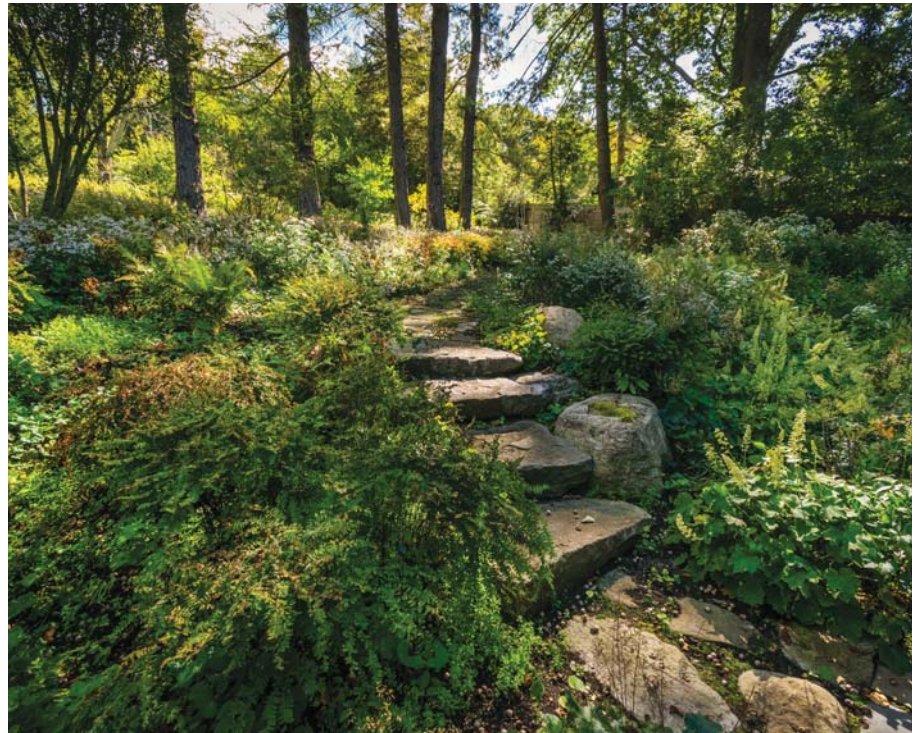
It is entirely possible that neither Ian nor I would have followed the same analytical thread or arrived at the same conclusion alone. A cross-pollinating discussion about cross-pollination resulted in a potential strategy to better establish woodland wildflowers, not only for woodland phlox, but all self-sterile, herbaceous plants.

More than 20 years ago I learned a valuable lesson about the importance of woodland herb establishment from

Professor Henry Art and his research at Williams College. Many investigations, observations and discussions have built on that knowledge since, the latest instalment of the learning thread being my discussion with Ian.

The next step is to field-test our woodland phlox theory in real-world landscapes. The learning process continues.

Larry Weaner, fellow of the Association of Professional Landscape Designers, is president and founder of Larry Weaner Landscape Associates, and established its educational affiliate, New Directions in the American Landscape, in 1990. He is nationally recognized for combining expertise in horticulture, landscape design and ecological restoration. His book Garden Revolution: How Our Landscapes Can Be a Source of Environmental Change (2016) received an American Horticultural Society Book Award in 2017.



PHOTOGRAPH BY MARK WEANER

Maidenhair fern (Adiantum pedatum), hairy alumroot (Heuchera villosa) and other calcereous woodland herbs quickly form a dense, intermingled cover due to their adaptability to high pH, limestone-derived soils.

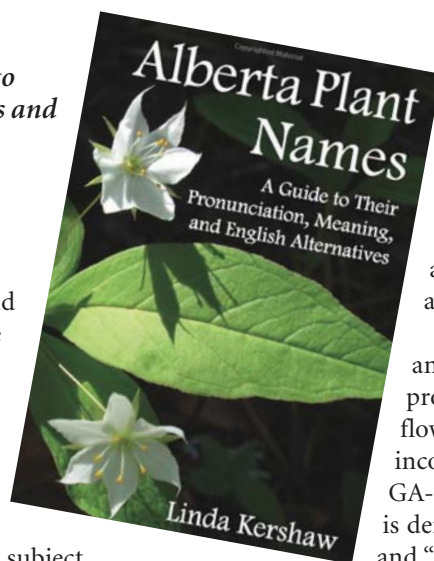
New & Noted

Alberta Plant Names: A Guide to Their Pronunciation, Meanings and English alternatives

Written and published by Linda Kershaw, 2019
300 pages, soft cover

I am a gardener, not a botanist, and it seems that Linda Kershaw wrote this book just for me and other gardeners and naturalists intimidated by Latin names. I have always wanted to learn more about this “foreign language,” but never took the time to study a seemingly difficult subject.

I found *Alberta Plant Names* to be a dense but delightful book that cleared up many mysteries. I dove in and couldn't quit looking up interesting facts. This book is worth having for reference, if only for the small section that uses a fictitious Scottish clan to explain the difference between family, genus and species!



I describe this book as dense because there are only six pages of text. The rest consists of reference tables, tightly packed with information spilling out across the page. You can find out how to pronounce a plant name in both its commonly accepted English pronunciation (English Latin) and Reconstructed Ancient Roman Latin. Talk about impressing your friends!

From the set of tables entitled “Pronunciation and Derivation,” I discovered that I had been pronouncing the name of one of my favourite flowers, giant hyssop (*Agastache foeniculum*), incorrectly all these years. *Agastache* is pronounced “a-GA-sta-kay.” Who knew! I also found out that the word is derived from two Greek words meaning “very much” and “spike,” as in many flower spikes. *Foeniculum* is Latin for sweet-smelling like hay.

The Pronunciation and Derivation section includes both genus and species names and gives an explanation of where the names originated. A name's origin could be a place, a plant or a person's name. It could be derived from Latin,

Continued on page 14

Continued from page 13

Greek or Latin plus Greek. I had no idea that so many native species have been named for botanists and naturalists. Flodman's thistle (*Cirsium flodmanii*) is named for J.H. Flodman, the teacher and naturalist who discovered the plant for science. The plant's species name has *-ii* added to Flodman, which indicates "belonging to." However, to confuse things, sometimes only one *-i* is used to indicate a species name. If the botanist that plant is named for is a woman, like Edith M. Farr, her name has *-iae* at the end (as in *Salix farriae*, known in the vernacular as Farr's willow).

The next section of tables, "Alphabetical Scientific Names", allowed me to look up *Agastache foeniculum* and find out that the suggested common name was blue giant-hyssop and one of the accepted VASCAN (Vascular Plants of Canada national database) names was the one I have always used, giant hyssop. VASCAN and I don't always agree, so it was nice to see that we did on this occasion!

I looked up *Stellaria* and could instantly see which species

were starwort, even though the common name is often chickweed. It's hard to get a gardener interested in growing starwort when it is called chickweed. The last set of tables puts the common name first so if you only have the common name you can find out the Latin name.

There were a couple of things missing that I had hoped to see. The first was longer lists of common names. The book lists only two for each species. Many species have at least four common names and it is very helpful to know them all. I would also like to see plants labelled as native or non-native.

The book is self-published and listed on Amazon (in case you can't find it in your local bookstore). It holds a lot of surprises and great nuggets of information. Definitely worth reading.

Review by Cherry Dodd,

a founding member of the Edmonton Native Plant Group.

Guide to the Plants of Arizona's White Mountains

by George C. West with contributions from Julie Hammonds
2019, University of New Mexico Press, Albuquerque
ISBN 978-0-8263-6069-4
(paperback)
528 pages



Guide to the Plants of Arizona's White

Mountains is an excellent handbook to the many plant species found in this unique region. The White Mountains lie in east-central Arizona near the border with New Mexico. The mountains reach up to 11,400 feet (almost 3,500 metres) in elevation, providing much cooler year-round temperatures than are normally found in the state. As George C. West writes, "The highest average annual precipitation in Arizona is in the White Mountains. This, and the temperate climate in summer, enhances the ability of the pines, firs, and spruces to grow to heights well over 100 feet [30 metres] and provides a congenial environment for the growth of numerous species of flowering plants, as well as ferns, mosses, and lichens. The small rivers draining the highlands and few lakes afford a luxurious riparian environment for many species of wildflowers."

For good reason, the region is a favourite among naturalists, hikers and tourists. The guidebook was developed for the layperson who is interested in identifying and understanding the approximately 500 vascular plants

found in the area. It is divided into three main sections: trees, plants other than trees, and ferns. The author chose to leave out grasses, most sedges, mosses, horsetails and fungi. Trees are subdivided into coniferous and deciduous. The section containing "plants other than trees" is helpfully divided based on flower colour.

The guidebook contains around 1,000 colour photos of the plants in their natural environment. The clear, sharp photos, combined with the subdivisions of the book based on plant type or flower colour, make it easy to use. Plant descriptions include common and scientific names, habitat and occurrence, and flowering times. Detailed descriptions are also provided to aid in identification, as well as interesting facts. If the plant is useful to certain animals or has ethnobotanical uses, these descriptions are also given. On the subject of butterfly milkweed (*Asclepias tuberosa*) the guide has this to say: "The seed filaments (fluff) have been used as stuffing for clothing insulation and pillows. Leaves, young pods, and flowers can be cooked and eaten. Many medicinal uses have been found for this plant, including treatment of lung diseases."

George C. West was a professor of zoophysiology at the University of Alaska Fairbanks for many years. After retiring, he moved to Arizona with his wife, Ellen, in 1996. The couple spent a lot of time in the White Mountains hiking, birdwatching and enjoying nature. West spent five years compiling this guidebook before his sudden death in 2016. The book was completed by Julie Hammonds, Ellen West and others. Anyone interested in exploring Arizona will be grateful to them for bringing it to fruition.

Review by Griffin Logue,

the main writer of Desert Landscape School: A Guide to Desert Landscaping & Maintenance.

little creatures perish? Is the flower heartless enough to murder its benefactors, on which the continuance of its species depends? By no means is it so short-sighted! A few tiny drops of nectar exuding from the centre table prevent the visitors from starving. Presently the fertilized stigmas wither,

occurred to the detriment of the striking-looking pipevine swallowtail, whose caterpillars feed on plants within the genus *Aristolochia*. *A. macrophylla* and related species contain a compound poisonous to potential predators called aristolochic acid, which the larvae sequester in their bodies. The acid can cause

the garden when planted in sun or part shade. It prefers moist but well-drained soils. Twining up any support, it can grow 20 to 30 feet (six to nine metres) and up to 18 inches (45 centimetres) annually. With pinching, it can be trained into a branching form. It grows from a tap root and is not easily transplanted. Native to the southeastern United States, it grows primarily in alkaline soils in the Blue Ridge and Cumberland Mountains, although it can also be found in the northeast, as far as Ontario. It is considered threatened in Maryland.

Aristolochia macrophylla brings an element of mystery to the garden and is vital to the survival of the pipevine swallowtail butterfly – two excellent reasons to plant it.

Abby Coffin lives in Chestnut Hill, Massachusetts, and Tannersville, New York. She has grown Aristolochia macrophylla in her gardens at both locations. Abby was so enamoured with the vine that she proposed it for the Garden Club of America’s Freeman Award, which it won in 2019.

ILLUSTRATION BY ANGELIQUE MORI



Pipevine swallowtail larva

serious injury or death to humans if ingested. Other butterflies, such as the

and when they have safely escaped the danger of self-fertilization, the pollen hidden under their lobes ripens and dusts afresh the little flies so impatiently awaiting the feast.

Now, and not till now, it is to the advantage of the species that the prisoners be released, that they may carry the vitalizing dust to stigmas waiting for it in younger flowers. Accordingly, the slippery pipe begins to shrivel, thus offering a foothold; the once stiff hairs that guarded its exit grow limp, and the happy gnats, after a generous and snug protection, escape uninjured, and by no means unwilling to repeat the experience.”

The resulting fruit resembles a cucumber three to four inches (about 10 centimetres) long that ripens to grey or black and produces triangular seeds in the fall.

The fall from grace of Dutchman’s pipe has

tiger swallowtail, the red-spotted purple swallowtail and the female Diana swallowtail mimic the pipevine swallowtail in their appearance, but do not have the toxicity.

Dutchman’s pipe is easy to grow in



PHOTOGRAPH BY JAMIE PURINTON



FALL 2019

NANPS MEMBERSHIP

New membership Renewal
Change of Address Gift

	Digital Blazing Star	Paper Blazing Star <small>(includes mailing costs)</small>
_____ 1-year regular membership:	\$25	\$30
_____ 2-year regular membership:	\$40	\$50
_____ 3-year regular membership:	\$60	\$75
_____ 5-year sustaining membership: \$200 \$225 <small>(includes \$100 tax receipt)</small>		
_____ Full-time student membership: \$10 Digital Only		
Name of institution _____		
_____ Donation <small>(Canadian tax receipts are issued for donations of \$20 or more. Canadian registered charity #130720824 RR0001)</small>		
_____ Total _____ cheque <small>(payable to NANPS)</small>		

For online applications with credit card go to www.nanps.org

DATE _____

NAME _____

ADDRESS _____

CITY _____

PROVINCE/STATE _____

POSTAL/ZIP CODE _____

PHONE (optional) _____

*EMAIL _____

Required for digital copies of *The Blazing Star*

I am interested in volunteering with NANPS. Please contact me.

Send this completed form along with your cheque to:

NORTH AMERICAN NATIVE PLANT SOCIETY
Box 69070, St. Clair P.O., Toronto, Ontario, Canada
M4T 3A1

The North American Native Plant Society treats all information we receive as confidential. We do not rent, sell or provide this information to third parties.



NORTH AMERICAN
NATIVE PLANT SOCIETY

Box 69070,
St. Clair P.O., Toronto,
Ontario, Canada
M4T 3A1

