Since 1923

TORONTO FIELD NATURALIST

Number 660 May 2021

Peck's skipper on purple coneflower, Edwards Gardens. Photo: Frank Miles

REGULARS

FEATURES

PRESIDENT'S REPORT

In my garden, the cardinal pair is restless. They have begun inspecting the neighbour's ivy-covered garage again. As a nesting site, it didn't work so well last year, but the cardinals are persistent, and persistence pays off.

The lengthening days make naturalists restless too. We sigh and chafe at the long pandemic confinement. Certainly we are entitled to a deep, heartfelt sigh. And then it's time to rouse our feathers and resume our bright-eyed search for opportunities to engage with nature. We can also praise good efforts underway and practise persistence that will pay off in the long run. Here are just a few of many promising green shoots to watch, support and appreciate over the coming months:

TFN's Cottonwood Flats Monitoring team has already begun this year's citizen science work. City permitting, we may inaugurate invasive weed control at this site as well, especially for tansy which is rampant in the area. Stay tuned.

Getting Toronto certified as a bird-friendly city is a smart goal, and TFN volunteers are on the "bird team", joining bigger players such as the ROM and the Toronto Zoo. Read more on page 7.

Toronto Nature Stewards now have a pilot training course, and TFN has contributed gift memberships to the 24 trainees registered for this early step. Similarly, TFN gift memberships will go to this year's 22 Ravine Champions selected through Park People's Ravine Awareness program. For us as individuals, now is the prime time for gifting TFN memberships to nature-hungry friends, with spring sign-up ensuring a full year's enjoyment of the newsletter and Zoom lectures.

Another outreach tool is TFN's new *Discover the Ravines* talk featuring photos and art by TFN members (see page 10). If you can suggest potential (virtual) audiences, please get in touch.

TFN's guided walks remain on hold as we wait out the third wave of the pandemic. But we can explore – and contribute to – TFN's growing repertoire of self-guided walks online. (Learn more on our walks web page.) Alternatively, we can choose summer '21 as our time to buckle down and seriously, *seriously* learn Toronto's trees. James Eckenwalder's excellent *Tree of the Month* series can guide us, especially since back issues of our newsletter are free to all online. It can be fun: Quick, where is the balsam fir nearest your home? (see April 2020 newsletter). Have you visited the common persimmon tree in Mount Pleasant Cemetery? (see March 2020 newsletter). Whether you are growing skills as a future walk leader or just marvelling in our rich urban biodiversity, the possibilities are endless.

Beyond TFN's work, I am heartened by attention given to the natural realm by opinion-makers all over. We can amplify and encourage those efforts. For example, when our municipal councillors speak up for staying on trails in ravines and for responsible dog walking (as has Councillor Bradford for Glen Stewart Ravine), we can email a thank you. Politicians need to know we care.

It was heartening to watch Paula Davies receive the Agnes McPhail award last month, recognizing her long leadership at the Todmorden Mills Wildflower Preserve. (Go to https://tfngo.to/macphailaward and click on 2020 Award Recipients.) In a lovely virtual ceremony, Mayor John Tory shared sincere praise for Paula's vision and tireless volunteering. Elected representatives at the federal, provincial and municipal levels attended to honour Paula's achievements. They know how much of our common good depends on the passion and persistence of volunteers. Persistence pays off.

Ellen Schwartzel
president@torontofieldnaturalists.org

MESSAGE FROM THE EDITOR

As we approach the end of another TFN year – a very strange and challenging one – I would like once again to thank the many members who contribute articles, images, book reviews and personal nature stories to our newsletter. Thanks also to members of the editorial committee who have been very supportive, adjusting to new ways of doing our work.

Please note that memberships expire on June 30. In order to ensure receipt of your September newsletter, it is important that you renew your membership by following the procedure described on page 10. If you elect the paper version of the newsletter, it is critical that we receive your renewal by July so that we can include you in the order that will be submitted to our printer.

Wishing you an enjoyable summer exploring nature in Toronto,

Wendy Rothwell

TFN OUTINGS

Alert: **Walks have been temporarily suspended. See website for up-to-date information.**

Due to COVID-19 we continue our practice of offering "members only" outings posted on our website. To ensure that groups do not exceed allowed maximums and to facilitate contact tracing should the need arise, members who wish to attend a particular walk must RSVP. The RSVP facility for each walk opens on the website at a random time of day, five days before the date of the walk. Walk leaders will have a list of who RSVPed, and only people on the list will be allowed to participate. Before RSVPing, please review all guidelines on the webpage and carefully review walk descriptions for any additional guidelines specific to that walk.

As we are unable to list walks in the newsletter at present, an Archive of Past Walks is being maintained for your enjoyment: https://tfngo.to/pastwalks

TO ACCESS OUR WALKS LIST

Visit the "Members Only" Section of our Website

TFN LECTURES

The TFN Lecture Series is now being conducted through Zoom technology. On the scheduled date of each lecture, members will be welcomed into the virtual space at 2:30 pm. The host will introduce the lecture and then play the speaker's pre-recorded presentation (approximately 45 minutes) with accompanying visual materials. Following this showing the speaker will be available to answer questions from the audience through Zoom.

The presentation and follow-up question period will subsequently be posted on our website for viewing by all TFN members.

See information about this month's lecture on the back page.

FOR DETAILS ON HOW TO JOIN THE LECTURE

Visit the "Members Only" Section of our Website

TO ACCESS THE "MEMBERS ONLY" SECTION VISIT:
https://torontofieldnaturalists.org/private

The password was delivered in the email notifying you that the newsletter is available online. If you have misplaced the password you can request it by emailing membership@torontofieldnaturalists.org.

REPORT OF THE NOMINATING COMMITTEE

The nominating committee recommends this slate of nominees to the Board for the year 2021-2022:

President: Ellen Schwartzel **Vice President:** Zunaid Khan

Past President: Jason Ramsay-Brown **Secretary-Treasurer:** Bob Kortright

Directors:

Due to retire in 2022: James Eckenwalder, Bob Kortright, Lynn Miller, Anne Purvis, Jason Ramsay-Brown, Kayoko Smith

Due to retire in 2023: Donata Frank, Jessica Iraci, Mark Stewart, Diana Wilson

TFN by-law No. 1, Section 5(g) provides that "any three members may submit, in writing, to the Secretary-Treasurer by July 15 the name of a candidate accompanied by the written consent of the nominee. Such nominations shall be published in the September issue of the newsletter and the names of such nominees shall be added to the list of candidates submitted by the Nominating Committee."

Nominations should be sent to the TFN office, 2 – 2449 Yonge St., Toronto, ON, M4P 2E7.

According to TFN by-law No.1, Section 5(b), "If an election is required it shall be by ballot mailed to all members. Ballots may be mailed to the auditor or deposited at the Annual General Meeting prior to the commencement of the meeting. The ballots will be tabulated by the auditor who shall announce the results."

LECTURE REPORT

Make Nature More Welcoming for Black and Immigrant Communities

April 11, 2021

Ambika Tenneti, PhD candidate, Daniels Forestry, U of T, and Jacqueline L. Scott, PhD student, Social Justice Education, OISE, U of T.

We live in a city where over half our inhabitants are now people of colour, but you wouldn't know that from walking our nature trails or engaging with our nature communities. Nature groups – in Toronto and elsewhere in North America – are failing to represent the full racial and cultural diversities of their broader communities. It's time for that to change. That was the clear message of our two guest speakers.

Ambika Tenneti prefaced her remarks by noting that Canada receives about 300,000 immigrants in a normal year, of whom about 35% (over 100,000) settle in the GTA. Newcomers don't immediately experience Toronto's green, leafy neighbourhoods or gain easy access to nature trails, however. Instead, they often find early housing in dense areas of high-rise apartments with few trees and monotonous strips of grass. Ravines may be close by physically, but without knowledge, signage or experience, they are effectively invisible to newcomers. Ambika noted how vital human connection is to recent immigrants. Community social events are often outdoors and often involve sharing a meal. Community gardens are also good spaces to grow social cohesion and practise English, and Toronto's community gardens often have long waiting lists as a result. The physical (and conceptual) distance between community gardens and urban nature is not that far. Nature groups could nurture links between community gardens, pollinator gardens and urban nature.

Since new immigrants are unfamiliar with Toronto's parks and ravines, nature groups could also take on roles as guides. They could take groups to natural settings and introduce them to the sights, sounds and importance of our urban woods and meadows. Toronto's many settlement agencies would be promising places to begin building relationships with newcomer groups. Stewardship activities such as tree planting events in immigrant and low-income neighbourhoods would also offer good opportunities to begin building links to newcomers. Keeping group sizes small enables two-way communication and allows participants to share their own stories about nature.

Jacqueline Scott described her own experiences in the great outdoors where, as a Black woman, she meets remarkably few others who are Black. They are rare enough that they are perceived as a "Surprise!" when they do show up. The sense of being rare is coupled with a lived reality of risk that comes with being Black and alone in the woods. The experience of Black birder Christian Cooper, who was threatened with a call to police while birding in New York City's Central Park, is chilling but not isolated. Staffing of nature groups also remains largely white, as does the staffing at national and provincial parks, just a few hours' drive from Toronto's multicultural vibrancy.

Jacqueline also challenged the notion that Black people have not engaged with the outdoors historically, pointing to examples such as Harriet Tubman's extraordinary nighttime treks bringing slaves to freedom; George Bonga, a voyageur; and Mathieu DaCosta, a 17th century explorer with a Canadian postage stamp to his name.

The Black Lives Matter movement is proving a catalyst for change in the Black Outdoors movement too, with online groups coalescing around hashtags such as #BlackBirdersWeek; #BlackInNature and #BlackOutdoors. Black Outdoors people already know there is no "planet B". The pandemic has also brought many people of colour to urban nature for the first time, including to Toronto's ravines. Here is an opportunity for traditional nature groups to meet emerging groups half way, Jacqueline proposed. People of colour need to be fully at the table and visible, to help plan and grow natural landscapes that will be inclusive and welcoming to all.

Jacqueline and Ambika's recorded lecture can be viewed on TFN's website at https://tfngo.to/apr2021lecture.

Ellen Schwartzel

OPPORTUNITY TO HELP TRCA WITH WILDLIFE MONITORING PROJECT

The Toronto Region Conservation Authority seeks several volunteers with strong naturalist skills to help with wildlife monitoring, especially for bird nesting sites, beginning this spring at Tommy Thompson Park. A minimum 90 hours of monitoring is needed from April to September and a commitment of one year is expected. Surveys take place mostly on weekday mornings.

For more information and to apply, see Naturalist, Tommy Thompson Park

OPPOSING HIGHWAY 413

On Easter Sunday, my daughter Frances, her husband Kristen, Jim and I biked the proposed route of the 413 as an advocacy gesture objecting to the building of the highway. We wore signs and T-shirts which alerted many passersby to why we were there. We were also met on the road, and encouraged along the way, by many little advocacy groups from Laskay, Vaughan, Brampton and Caledon, municipalities that would be deeply impacted by the highway.

We made it a car-free day and got to the starting point at Kirby Rd and Jane St by public transit. We took the University subway line to the Pioneer Village station and put our bikes on a York Region Transit bus that took us most of the way up Jane. The return trip was on an incredibly fast express bus from Meadowvale GO in Mississauga, and then we TTC'd it from Union Station. How exhilarating to find out we could reach such beautiful countryside by public transit! It came home to us how connected we are to this region and how impacted our Toronto wildlife corridors are by land use decisions in this area.

Our route was roughly 60 km long and went along Kirby Rd, Healy Rd, Old School Road, and down Heritage Rd which becomes Meadowvale Rd in Mississauga. It passed through the so-called Whitebelt land that lies between the municipalities of Brampton in the south and Bolton and Caledon in the north. We passed over many creeks and the Humber and Credit Rivers sparkling in the sun. Many cornfields stretched in every direction. Eventually we had a distant view of the escarpment. There were signs of family farms that still produce honey, eggs, fruit and vegetables for local consumption. We heard early migrant songbirds – Red-winged Blackbirds, Song Sparrows and kinglets, and saw a pair of Trumpeter Swans and a Killdeer taking advantage of an ephemeral pond. We thought we heard a chorus of wood frogs but weren't absolutely sure.

We could see the creep of sprawling development, particularly north from Brampton towards Healy Rd and west towards Heritage Rd. There were also many 'For Sale' signs on acreages where developers believe the highway will bring development. There were billboards announcing 'Another Project by…'. Unfortunately, there were lots of invasive plants along the road – phragmites and buckthorn – and also garbage in the ditches. The value of this land needs to be energetically embraced for significant restoration to happen.

So why should Torontonians want to save these Whitebelt lands from Highway 413 and sprawling suburban development? A lot of the habitat that we are trying to save for the biodiversity we all love is in the Humber and Credit river valleys. These rivers have their origins in this area and flow through Toronto to Lake Ontario. Their rivers are our rivers.

The pandemic has showed us the fragility of supply lines worldwide. Why do we destroy our own farmland to build warehouses for food arriving from South America, instead of growing our own?

We also know that land has a value beyond its usefulness to us. We have been learning from Indigenous people that land is more than a commodity to be bought and sold for the enrichment of the few. It took 12,000 years since the retreat of the glaciers to build the soil that nourishes us. It is part of being human to live in a grateful attitude to the soil that sustains us.

Highway 413 needs to be stopped, and then a fixed urban boundary put in place. New development should be dense and situated around transit hubs – the vision of the Greater Golden Horseshoe Growth Plan of 2015-17. This Plan has been set aside by the current Ontario Government. If you missed this article in the Toronto Star, read it at https://tfngo.to/torstarhwy413 to learn about the forces arrayed against saving this land. If you would like to have a say in this issue, the Ontario Government is canvassing public opinion at https://www.gta-west.com/contactus/

Anne Purvis

TREE OF THE MONTH: NORTHERN CATALPA (*CATALPA SPECIOSA*)

As befitting one of the few cool temperate members of the overwhelmingly tropical bignone family, northern catalpa (by far the most common of four kinds of catalpa grown here) is one of our last trees to leaf out in spring. It is unmistakable and unforgettable during the growing season, with its large, heart-shaped leaves, followed later by upright masses of foxglove-like white flowers with yellow and purple nectar guides that change colour after pollination, and finally by large, hanging, cylindrical pods containing flat, papery-winged seeds, fringed at the ends with hairs. The pods hang on through the winter so conspicuously that they contribute "bean" or "cigar" to some vernacular names for the tree.

Young northern catalpa festooned with overwintering "beans" and developing a "lollipop" crown. Photo: James Eckenwalder

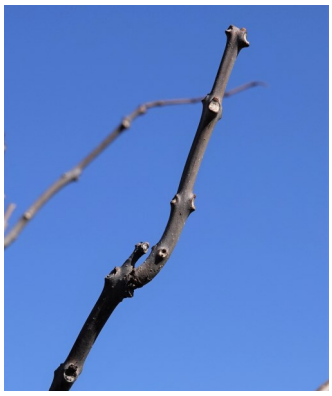
Comparing the one, two or three pods in each cluster with the hundreds of flowers that preceded them reveals a reproductive behaviour shared with many of its tropical relatives: "big bang" flowering. The tree produces far more flowers than it has the resources to turn into fruits and it opens them all at the same time in a display that can be seen from afar by pollinators (here, mostly bumblebees), providing an irresistible lure for them. This ensures pollination of almost all the flowers but, soon after pollination, most of them are aborted leaving just a few near the base of the inflorescence to mature as fruits with their ample supply of seeds.

Northern catalpa, gaunt in its leafless state, is equally distinctive during winter and early spring, which is the best time to examine its coarse, highly distinctive twigs. We tend to ignore twigs except, perhaps, as aids in winter identification, but a tree is just a thickening and selective elaboration of its twigs, accompanied by selective death of some of them, so understanding twig architecture is a window into the structure of the whole tree. The appearance of twigs reflects both the arrangement of their leaves (phyllotaxis) and how they continue growth from one growing season to the next.

The distinctive scars left on the twig by the shed leaves are round, with a complete circular-to-oval ring of bundle scars well in from the edge. (A bundle scar is the all-important direct connection between the veins of the leaf and the sapwood and phloem of the supporting stem.) The arrangement of the leaf scars in whorls of three, spaced evenly around the circumference of the twig and well separated from adjacent whorls by leafless internodes of about one to ten10 cm, is equally distinctive but is not always easy to recognize because one of the scars is commonly displaced along the twig from the other two by up to several centimetres. Following along the gently upwardly angled twig, the whorls of leaf scars alternate between having one above and two beneath and having two above and one beneath. The scars facing down are larger than those facing up, which echoes the size of the leaves that were attached to them.

continued on next page

Northern catalpa flowers before (right) and after pollination showing colour change of nectar guides



Winter twig with aborted terminal bud and longer renewal shoot. Large and small leaf scars alternate at each node

Shoot tip with whorls of three leaves and buds below aborted apex

Photos: Ron Dengler

CAN TORONTO BE A BIRD-FRIENDLY CITY?

Nature Canada is aiming to improve conditions for urban birds across Canada by developing a Bird Friendly City certification program https://naturecanada.ca/bfc/. Certification would be a way of telling the world that Toronto does things to help birds and to reverse their declines right here in our own backyards. Certification would recognize the many initiatives already under way in Toronto and provide a rigorous standard to measure impact and progress over the years. Potentially, the program will provide greater leverage with City politicians, staff and the general public when advocating for stronger protection of nature in Toronto and for spending more resources on the *implementation* of policies and strategies already in place.

Juvenile Cooper's Hawk. Photo: Theresa Moore

The criteria for Bird Friendly City certification include:

1) reducing human-related threats to birds, such as pesticide use, building lights, and cats roaming at large;
2) habitat protection, restoration and climate resiliency, such as strategies to protect biodiversity or climate change policies;
3) community outreach and education, such as citizen science programs and programs for young people like TFN's own Junior Naturalists.

TFN has joined Toronto's 'Bird Team' along with ROM, FLAP, Toronto Zoo, Toronto Ornithological Club, Friends of Sam Smith, Ashbridge's Bay Nature Stewards, High Park Nature Centre, Scientists in School and Dr. Bridget Stutchbury. Under the leadership of Aly Hyder Ali, Nature Canada's Urban Nature Organizer, we are working on a certification application. It's been an educational experience for us all to find and list city policies, strategies, education programs, and citizen science efforts that make our city more bird-friendly. Councillor Mike Layton is supporting this initiative and is prepared to forward a motion for formal support to the Infrastructure and Environment Committee and, ultimately, City Council.

Right now, our aim is to submit our application before this year's Migratory Bird Day on May 8th. Many of our neighbouring communities here in Ontario, including Hamilton/Burlington, Guelph, London, Peterborough and Mississauga, are also working on certification, and Toronto is neck and neck with Vancouver to become the first large city to be certified through this program.

Nancy Dengler and Anne Purvis

TREE OF THE MONTH *continued*

This suggests that the hormones governing the relative sizes of the leaves (and the shoots that later grow out from their axils) in relation to their position around the twig are responding to gravity (geotropism) rather than to light (phototropism).

There are no terminal buds in northern catalpa, the shoot tip either expanding into the unusually large flower clusters or, in the absence of flowering, simply dying above a node. Growth continues the next season when between one to all three of the small, dome-shaped lateral buds belonging to a whorl lying one or two nodes back from the aborted shoot apex expands into a renewal shoot. Echoing the sizes of leaf scars in relation to position, the branch developing from the bud nearest the underside of the parent twig is the strongest (or only) one. Repeating this pattern of branching year after year, coupled with all the other vagaries of a tree's life, gradually turns into the classic compact lollipop crown of a mature northern catalpa.

James Eckenwalder

WHAT'S NEW ON TFN'S WEBSITE

Visit today and discover all this and more at https://tfngo.to/for-members

- Recording of the April Lecture
- New Self-Guided Walk: The Best 15 Minute Walk in the City
- OIPC Garlic Mustard Workshop
- New Junior Naturalists' blog posts

HOW DO TREES KNOW WHEN TO LEAF OUT IN SPRING?

At this time of year we look forward to spring bud break, when tree buds that have been dormant all winter burst forth with enlarging leaves (and, sometimes, flowers). Each overwintering bud contains miniature embryonic leaves that were formed the previous growing season. The tiny foliage leaves are protected by the bud scales that prevent desiccation and insulate them from freezing temperatures. With the warming and lengthening days of spring, the bud scales reflex or fall, allowing the embryonic leaves to rapidly expand to their full size, creating the green tree canopy and the full shade of summer where there had been none.

Bud burst in shagbark hickory showing red bud scales and expanding leaves.
Photo: Ron Dengler

Dormancy is the mechanism that allows woody plants to survive the freezing temperatures of winter. Dormancy is a state where plants 'push the pause button': growth ceases and all metabolic activity is minimized. The shortening day lengths – or rather the longer nights – of autumn provide the major environmental cue that induces dormancy. Nights are measured by the light-sensitive pigment phytochrome, which is gradually converted to its non-active state in the dark. After dormancy is induced, it is maintained by the predominance of growth-suppressing hormones over growth-promoting hormones. As buds enter dormancy, they become more resistant to freeze damage by evacuating water from their cells and turning starches into sugary antifreezes.

What is the environmental cue that tells trees when to break dormancy and open their buds in the spring? It can't be just a simple clock mechanism that counts the days, as the timing of bud break varies from year to year. Neither can it be a response to warm temperatures, as that could result in buds bursting during a January thaw. If buds responded to such a false spring, the tender tissues of an opening bud would be killed as soon as freezing temperatures returned. Somehow, trees can distinguish between a false spring in midwinter and a true spring. How do they do this?

Field and lab experiments show that cool temperatures rather than day length are the major environmental cue for breaking dormancy. Trees are able to track the number of 'chill hours' when temperatures range between 0º and 7.2º C. They cannot count the number of hours below freezing or above 7.2º; this means that chill hours have to be accumulated in the cooling days of late fall and during milder days of the winter. Different trees vary in the exact chilling temperatures required and the duration of exposure needed to break dormancy. For instance, trembling aspen is one of the first trees to break bud in the spring and white ash is among the last, reflecting different requirements. Sugar maple tends to be in the middle, needing as many as 2,000 hours of exposure to chill hours before its buds will break dormancy.

So far, the counting mechanism remains a little mysterious, but genetic analysis of poplar trees and other plants has identified a number of genes that are key to maintaining bud dormancy. The activity of these genes is regulated by special histone proteins associated with the DNA of the chromosomes. The three-dimensional structure of these proteins is gradually altered by temperature in a way that silences (inactivates) the genes responsible for dormancy maintenance. This allows the buds to finally respond to the warm temperatures of spring and burst forth in all their glory at the right time.

Bud break in spring woodland ephemerals like bloodroot, wild ginger and trillium is triggered by the same environmental cues and processes. Flowers and leaves are formed during the previous growing season and expand only when dormancy is broken by the warming temperatures of spring. Recent research has shown that the same suite of genes and regulatory pathways is used to control dormancy and bud break in herbaceous perennials as in woody trees.

Nancy Dengler

VOLUNTEER PROFILE: PAUL OVERY

Faithful listeners of TFN's *Toronto Nature Now* radio show/podcast have Paul to thank for recruiting contributors over the past six months. Paul has also contributed several episodes himself, has led many walks, and is active on the Walk Leader Advisory Committee.

Paul has a fascinating and diverse background. He says, "As I was preparing for university, I wanted to become an urban transportation planner. I signed up for geography and planning and civil engineering, and then in my first year I discovered psychology. I proceeded to do a joint honours degree in geography and psychology and became very interested in community mental health." He adds, "There was an ongoing strong focus on the natural and built world, so I was quite influenced by phenomenological geography: the experience of space and place." Paul then obtained a Master's degree in planning.

Paul's career was in the Ontario Public Service and spanned mental health policy, environmental education and French language education. Since retiring over a year ago, Paul has immersed himself in volunteerism in support of diverse groups, weaving together his formal educational and professional backgrounds as well as other passions he developed over the years.

Another path in his life, after decades of back pain, was starting to explore the world of somatic education – exploring life in a body as a subject rather than as an object, through touch and movement – and becoming a Practitioner of Trager Work along the way. "It's about blending mind and body and developing a deeper connection with the embodied mind." Underlying all these themes, connection with nature has been integral for Paul.

"My main motivator right now is teaching so, for me, leading walks has been a first step in that direction. I've learned a tremendous amount from TFN walk leaders over the years and also from Indigenous leaders of today." Paul has found their history and influences profoundly mind - expanding and sobering, so now feels drawn to sharing what he's learned. He has been leading group walks for five years now, with a focus on integrating natural history and human influences, from those of Indigenous peoples since the end of the last Ice Age to those of settlers over the past few centuries.

In his role on the Walk Leader Advisory Committee, Paul's main interest is the preservation of the wealth of knowledge and stories shared by TFN walk leaders. "I have been in awe of the spirit of volunteerism in the TFN since I first joined in the 1980s; all of these folks donating their time and their knowledge," Paul says. "One of my sources of sadness over the years has been that, once the walks are over, the story is in the memories of those who took part but it's not easy to transfer that knowledge forward." He says, "It is quite complementary to be coordinating *Toronto Nature Now*," which he hopes to make known and available to a broader range of audiences, within TFN and beyond.

Agneta Szabo

TFN SPRING CLEAN-UP

Due to COVID-19 restrictions, we can't do a group clean up this year, but individual TFN members can still help wildlife by removing litter from Toronto's natural areas. The pandemic has brought an influx of single-use plastics. Disposable masks in particular are a problem, as animals can become entangled in their strings.

Please take part in our May Spring Trash Challenge! Fill a grocery store bag (or two) with litter from your favourite park/ravine/green space and share your success by sending a photo (photos@torontofieldnaturalists.org), tweet (@TorontoNature) or Instagram (#torontofieldnaturalists).

All you need are gloves, scissors, small bags and hand sanitizer. Pick up litter as you walk and dispose of the bags in the City's garbage receptacles. Please cut the strings on any disposable masks before placing them in the garbage. Don't fill large trash bags unless you have contacted the City to arrange for same-day pickup. Leave any syringes untouched and report their position using 311. Please don't climb slopes or walk on wet areas – you may accidentally cause more damage than the litter does! Stay on or close to trails and avoid stepping on plant life (except grass!). For your own safety, be sure to maintain physical distancing from other members of the public, always wear gloves, and avoid touching your eyes, nose or mouth with unwashed hands. Use hand sanitizer once you are done and wash your hands when you get home.

Most importantly, have fun, help wildlife and enjoy nature!

Lynn Miller

CAN YOU SUGGEST AN AUDIENCE FOR TFN'S NEW RAVINES TALK?

Many groups and clubs meet via Zoom these days, including service clubs, ratepayer groups and faith communities. Often, they invite guest speakers. This is a great opportunity to tell TFN's story about nature in the city. Do you know a group that might like to hear about Toronto ravines?

We can now offer audiences an engaging illustrated talk introducing Toronto's ravine landscapes presented by a TFN volunteer. Our talk features ravine wildlife, the critical ecological services that the ravines deliver to our city and their remarkable history. The audience will also hear about the 21st century challenges facing the ravines and their biodiversity, and the many ways Toronto Field Naturalists are lending a hand. Photos and art by TFN members help illustrate the talk. It is about 30 minutes and can be fine-tuned as required.

To find out more and to request a TFN guest speaker, contact promotions@torontofieldnaturalists.org. Please provide the name and contact info for the group, the date(s) available and the size and interests of the audience.

Ellen Schwartzel

MEMBERSHIP RENEWAL

Membership fees for 2021-22 are due by June 30.

To renew, go to the "Renew Your Membership" page on TFN's website, https://tfngo.to/renew. You may renew online, paying by credit card or PayPal, or print the form and send it to the TFN office along with your cheque.

If you have an email address, please be sure you have advised us so we can give you online access to the Newsletter – a benefit even to those who choose to receive a paper copy. The online version is available a week or more before mail delivery.

If we don't have your email address, we will send you a membership renewal form by mail.

MEMBERSHIP FEES

Youth (under 26)	Free (Digital only)
Senior Single (65+)	$30
Single	$40
Senior Family (2 adults 65+)	$40
Family	$50

No HST. All members with email address receive digital newsletters. There is a surcharge of $25 for those who prefer a printed mailed newsletter.

DIGITIZATION OF OUR SLIDE COLLECTION HAS BEGUN!

As mentioned in our March issue, a very generous and anonymous donor recently put forward $10,000 in support of digitizing TFN's Slide Collection! We are happy to report that on April 3 roughly half of our collection was delivered to the selected vendor for scanning. This first batch included our entire Flora and Fauna collection and all aerial photographs taken by Lou Wise between 1987 and 2004.

We expect scanning to be complete sometime in June, at which time we'll deliver the remainder of our collection for scanning, hopefully allowing 100% of our collection to be digitized by the time you receive the September 2021 issue of the newsletter!

Jason Ramsay-Brown

Cudia Park, 2004. Photo by Lou Wise

JUNIOR NATURALISTS

Beaver (*Castor canadensis*)

Beaver on the Leslie Street Spit.
Photo: Ken Sproule

The beaver is the largest member of the rodent family found in North America, weighing up to 32 kg and reaching lengths of over 1 m. The beaver has been Canada's national animal since 1975 due to its importance to the early fur trade and the fact that it can be found in every province. At the start of the fur trade in the 1600s there were millions of beavers in what is now Canada, but by the 1930s they were nearly gone. As a result of successful conservation efforts, people can once again see them in the rivers and around the islands and shorelines of Toronto.

Beavers are well adapted to an aquatic lifestyle and can stay under water for up to 15 minutes. Their broad tails are used in swimming, to communicate a warning, and to support them when they sit up on their hind legs. Other adaptations include webbed hind feet, a membrane that covers their eyes allowing them to see underwater, and valves in their nose, ears and throat that close when submerged. Their mouths can also close in a special way so that, when they carry branches under water, they don't accidentally swallow water. Their thick, warm fur keeps them dry and insulated.

Trees gnawed by beavers.
Photo: Vanessa McMain

Beavers generally live for 10 to 20 years in the wild. They mate for life, and typically have litters in May of three or four babies, called kits, who stay with their parents for up to three years before venturing off on their own. They are active throughout the year, although they spend the winter months in their lodge.

During spring and summer, beavers feed on a wide variety of leafy plant material. In the fall they collect branches and store them close to the underwater entrance to their lodge. When they need to eat, they just swim out to their store, bring some of the cached branches inside the lodge, and eat the bark. Aspen, poplar, birch and willow are preferred.

Beavers are perhaps best known for their modifications of their habitat. They need to have water deep enough so it doesn't freeze solid during the winter, which would prevent them from accessing their underwater food stores. So beavers build dams to flood the area around their lodge. Some of these dams are huge. The largest in the world is over 800 m long! The areas around the dams flood, creating ponds. When these ponds eventually dry up, they transform first into meadows, then into rich forest land.

Vanessa McMain

TORONTO'S CORALROOTS AND SHOWY ORCHIS

Corallorhizas (coralroots) and *Galearis spectabilis* (showy orchis), locally rare or extirpated, belong to the Orchidaceae (orchid family). Other members of this large family were discussed in TFN newsletters of 2010 September, 2011 April, 2016 September, and 2020 April. As noted in previous articles, members of this family generally have symbiotic relationships with soil fungi that invade their roots. They use chlorophyll to provide energy to the fungi in exchange for assistance in absorbing inorganic nutrients and water. *Corallorhiza trifida* (early coralroot) and the other species reported locally, *C. maculata* (spotted coralroot), produce, respectively, little or no chlorophyll. These species draw nutrients from soil fungi but do not reciprocate by providing much energy to the fungi!

C. trifida is a small species, up to 20 cm tall but generally much less. Its flowers, widely spaced along a stalk, have lips up to 5 mm long and lateral sepals up to 6 mm. This is the only coralroot with somewhat greenish stems and greenish-yellow flowers. It blooms from late May to the end of June. The TFN's *Vascular Plants of Metropolitan Toronto* (1994, 2nd ed.) recorded it on the Toronto Islands but I have been unable to find it there. My image is from Hardy Lake (Muskoka). According to *A Guide to the Orchids of Bruce and Grey Counties, Ontario* by the Bruce-Grey Plant Committee (1997), this species circles the globe in boreal forests and is the only member of the genus found in Eurasia as well as North America.

C. maculata is up to 50 cm tall with flowers in an open raceme on the upper third or less of the stalk. Stalks of a common variety are reddish-brown and its flowers have white lips, with madder-purple spots, reddish sepals and lateral petals, all about 8 mm long. This species blooms from late June to August. It was reported in the Rouge valley (TFN newsletter of 1996 December). I did not find it there. My image is from the Bruce Peninsula. The Bruce-Grey guide gives its range from Newfoundland to B.C. and as far south as the mountains of Mexico and Guatemala.

Galearis spectabilis is up to 20 cm tall with flowers in a loose terminal raceme. Sepals are purplish and the lips white, both up to 20 mm long. The flowering period is mid-May to June. It was reported in the TFN's *Vascular Plants* as occurring in the Rouge, where I was unable to find it. Has it been extirpated? My image is from the Bruce Peninsula. Its range is from New Brunswick to Minnesota and south to Georgia and Arkansas.

These are three very interesting and difficult targets. If you find any of them in Toronto, please provide locations and photos to the TFN. Any would have to be considered major finds!

Article and photos by Peter Money

Clockwise from top:
Early coralroot (*Corallorhiza trifida*),
Spotted coralroot (*C. maculata*)
and detail,
Showy orchis (*Galearis spectabilis*)

Peter Money's *Toronto Wildflowers* has been a regular feature of our newsletter since April 2010 – an incredible 90 articles! He has advised that this will be the last in the series.

Thank you, Peter, for sharing your extensive photo collection and for all the research you have done over the years, helping us to recognize and appreciate the abundant native wildflower species to be found in our city.

Ed.

WEATHER (THIS TIME LAST YEAR)

May 2020

May brought a shock – some of our most winter-like conditions for the month in decades. Much of the city even had snow cover for a good part of one day. This was followed by an intense warm-up later in the month that raised monthly mean temperatures to within two degrees of normal.

The first week or so was cool but not extreme. The extreme conditions arrived with an intense cold front on the 7th. On the 8th, maximum temperatures struggled to reach 5°. The 9th brought a hard freeze with minimum temperatures of -2.1° downtown and -4.7° at Pearson Airport. This was the coldest reading at Pearson since 1966 and the coldest ever so late in the spring. Downtown hadn't gotten that cold in May since 1925 when it dropped to -2.8°. Damage to vegetation was slight, however, because the cool conditions in mid to late April had held spring growth back. (Ed. See article on page 8.) Contrary to common wisdom, freezes in Toronto in May are rare and one usually does not need to wait until the long weekend to plant stuff out. (Rural Ontario is another story.) And it wasn't over on the 9th. A snowfall greeted Torontonians on the morning of the 11th, with most places outside of downtown having a day with snow on the ground. Pearson had 3.2 cm. This broke the monthly snowfall record of 2.3 cm set in 1976.

The result of all this was the late conclusion of the very strange 2019-2020 winter, which was predominantly mild through most of the season, but also extremely long and quite snowy. The snow season lasted intermittently from November to May. Total snowfall at Pearson for 2019-2020 was 142.4 cm, more than 30 cm above normal and the most since 2008-2009 which had 153.7 cm. In other words, we had more snow this winter than during the rather cold winters of 2013-2014, 2014-2015, and 2018-2019.

Starting on May 13, the pattern switched, and warm weather set in. This peaked on the 26th with readings above 30° both downtown and at the airport. We even had the aftereffects of an early tropical storm, Bertha, which made landfall in the southeastern United States and brought rain and humid conditions on May 28th.

On the whole, the anomalous cold in the first half of May outweighed the warmer weather later. The monthly mean temperature of 12.8° downtown and 12.1° at Pearson Airport was just over 1.5° below normal. It was actually not as cool as May 2019. The month's volatility did not bring storminess, though. There was yet another shortfall of rain, even with Bertha. Downtown had 53.6 mm, while Pearson had 40.0 mm. These values are about half to two-thirds of normal.

June 2020

June was sunny, fairly dry, and overall slightly warmer than normal. There was some hot weather, with eight days of 30+ highs, but the heat was not consistent. The hottest day downtown was the 20th, with a high of 31.3° and at Pearson Airport the hottest day was the 10th, with a high of 32.1°. Cold fronts brought brief thunderstorms and sharp cooling from time to time. Some of the storms on the 10th were severe. The lowest reading was 7.9° at Pearson on the 1st, and it also dropped below 10° as late as the 16th in suburban areas. Monthly mean temperatures were 20.9° downtown and 20.5° at Pearson, just over one degree above normal. Conditions were getting quite dry by month's end due to several consecutive months of below-normal precipitation. Downtown had 51.2 mm (normal is 77.4 mm). Pearson had 49.8 mm (normal is 76.6 mm). While this isn't quite drought territory, grass was definitely turning brown in the second half of June.

July 2020

July was one of the hottest months on record in Toronto. It was in fact the hottest month recorded at Pearson Airport with a mean temperature of 25.0°, more typical of places like Philadelphia or Louisville. This beat the 1955 record of 24.2° though, if one considers the heat island effect of recent decades, 2020 is probably a statistical tie with that year. Downtown had a mean temperature of 25.4, just shy of the record 25.5° set 99 years ago in 1921.

The mean maximum temperature downtown was 30.3°, tied with 1916 for second place. At Pearson the mean maximum was 30.4°, second to 1955's 31.0°. The heat began at the end of June and only grudgingly yielded as the month progressed. There were 16 days with highs of 30 or more downtown and 17 such days at the airport. The highest reading was 35.5° at both stations,on the 2nd. Monthly minimum temperatures were unambiguously the highest on record. The mean minimum downtown was 20.6° – the first time ever a month had a mean minimum temperature above 20°, while the lowest reading was 17.1° on the 21st. Hence the overall pattern is one of consistent but not extreme heat. Toronto's 40.6° record set in 1936 still remains unchallenged.

Droughty conditions lasted under relentless sun until the 8th when increasing humidity brought thunderstorms with intense downpours to west Toronto. As is typical in summer, rainfall was spotty and some neighbourhoods baked while others had flash floods at different times. In the end, both downtown and Pearson had fairly close to normal rainfall with 78.2 mm and 67.6 mm respectively.

continued on page 14

WEATHER *continued*

Some parts of Markham and Scarborough remained droughty most of the month.

August 2020

August was characterized by a moderate pull-back from July's intense heat. The monthly mean temperature was 22.5° downtown (0.6° above the 30-year average 1991-2020) and 22.1° at Pearson Airport (0.9° above the 30-year average). While warm, these values are not record-breaking and are well below the conditions of August four years ago.

We did have a couple of short periods of 30°+ temperatures, but also some sharp cold fronts on the 16th-20th and 28th-31st. It felt like an early onset of fall after July. The highest reading was 33.5° on the 24th at the Environment Canada office near Dufferin and Steeles. The coolest temperatures were on the morning of the 20th. Downtown had 13.6° and Pearson had 11.0°. Interestingly, temperatures in some outlying areas fell below 10°. Buttonville Airport recorded a low of 9.5° and the same Environment Canada office that had the highest reading for the month dropped to 9.0° four days later.

Rainfall was slightly above average due to a few strong downpours, mostly early in the month, with some areas to the northeast and southwest getting more between the 24th and 27th. Pearson recorded 91.0 mm and downtown recorded 96.7 mm. The average is about 70 mm.

Summer Summary

If one defines summer as the three-month period June to August, this was the second-warmest ever with a mean temperature of 23.0° downtown (2005 was the warmest with 23.4°). This covers a 181-year period of records and reflects a combination of urban heat island and climate change. Pearson Airport's June-to-August mean of 22.5° was the third warmest on record after 2005 and 2016 (83-year record). Rainfall for the summer was average, however, with a very slight late summer bias. There were drought conditions in June and early July (that ended up being temporary) and no major flash floods. Downtown had 226.1 mm from June to August.

Gavin Miller

ABOUT TFN

TFN is a charitable, non-profit organization.

NEWSLETTER

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Note: If you wish to drop by on Friday, please phone first to ensure that someone will be there.

KEEPING IN TOUCH

New TFN member Brian Roberts reported seeing the tracks of a river otter in the snow at Humber Bay Park East in February. He encourages members to watch for this mammal – an uncommon sight in Toronto – and says, "If you notice a swimming 'beaver,' 'muskrat' or 'mink' at the lakeshore, take an extra moment to confirm the species. It could be a river otter! Compared to swimming beaver and muskrat, the river otter has forward-looking eyes, a raised brow dropping to an almost upturned nose and relatively small ears. It is ten times the weight of a mink, with a noticeably muscular tail."

Brian took this photo of a river otter in B.C.

Anne Leon has shared a number of exciting sightings near her home including a group of eight white-tailed deer just behind her property. She has seen a groundhog several times, and a skunk "as bold as can be." This red fox appeared on her deck. One morning between 1 and 3 a.m. she heard unusual calls and saw two coyotes passing in the moonlight. "Exciting, and I imagined they were courting." A pair of Red-tailed Hawks is once again nesting high up on a "Group of Seven" pine.

Anne and her neighbours have been intrigued by this leucistic robin. She learned from avianreport.com that "Leucism in birds is overall rare but relatively more common than albinism. Leucistic birds show a variable amount of white or pale in the plumage. The eyes, bill and other bare parts are of the normal color."

In mid-March while my wife and I were on an early morning walk in Tommy Thompson Park, we got a close view of a Red-tailed Hawk in a tree and took some nice photos. Then it swooped to the ground, grabbed a mouse and ate it for breakfast, maybe 5 meters in front of us. We were able to get incredible shots of the bird and its meal. (For the record, we stayed at a respectful distance, but between a long lens and cropping of the images, it looks as though I was just beside the bird.) Just be warned that you don't want to review the shots if you are squeamish. Mr. Red-tailed did put on a bit of a clinic about the insides of a mouse.

Frank Miles

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TFN LECTURE

Sunday, May 2 at 2:30 pm

See page 3 for information about lectures via Zoom

Toronto's Water, Energy and Waste Systems: Where does it all come from? Where does it all go?

Mariko Uda, PhD (civil engineering), will discuss "urban infrastructure awareness," why she thinks it's an important part of environmental awareness, and how people have responded to her recent simple and "fun-for-all-ages" Toronto-specific picture book about where things come from and where things go.

Upcoming lecture:

Sept 12: The Secret Lives and Superpowers of Spiders.
Catherine Scot, PhD, Postdoctoral Fellow, University of Toronto, Scarborough