



Since 1923

TORONTO FIELD NATURALIST

Number 670 October 2022



American Wigeon. Photo: Chris Sasaki

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PRESIDENT'S REPORT – ABUNDANCE

Autumn brings home the underlying abundance of nature. Acorns roll along the pathways and backyard elderberries attract migrating thrushes. Hawks gather in great numbers, circling over High Park. A seemingly endless stream of monarchs flutters westwards along Lake Ontario's shore. It's time to welcome movement and change, in the natural world and in human communities too.

Toronto Field Naturalists weathered change in abundance over the last two years, along with society the world over. By fall of 2020, before COVID-19 vaccines were available in Canada, TFN volunteers had restarted a careful outings program mandating pre-registration, masks and group size limits. The outings worked so well that other groups asked us for advice. Our lecture team hardly missed a beat in shifting to online events, with [great speakers](#) and solid attendance numbers. Our newsletter went from strength to strength. Still, I was understandably anxious taking on the TFN president's role in October 2020. Would we find creative energy in adversity? Would volunteers step up in a pandemic? Would there be interest in nature? Yes, yes and yes. It has been marvellous to watch.

Teamwork, partnerships with other groups – and dedicated leaders – made so much possible. Our Junior Naturalists met virtually until in-person outings could resume. Our full fall program for kids is [here](#). Our citizen science project at [Cottonwood Flats](#) never lacked for hands, and this spring we expanded to actively managing the site under the City's [Community Stewardship](#) Program. TFN's new photography group flourished, as did our online nature drawing classes. TFN's online [Nature Images](#) shows brightened our Februarys. Our advocacy team launched this past January, and is [speaking up](#) for urban nature. Our weekly radio show with CJRU now offers a playlist with more than 150 episodes, at [Toronto Nature Now](#).

It's not all been easy. I freely admit these past two years of coordinating TFN have stretched and challenged me. There

were many nettles to be grasped, and I did not grasp them all firmly. Luckily, others stepped in where I flinched. Once again, the beauty of working in teams!

Change continues. This month, four remarkable TFN board members retire: James Eckenwalder, Bob Kortright, Jason Ramsay-Brown and Kayoko Smith. Their contributions to TFN have been gigantic, and the pain of losing them, palpable. But I have begun to accept we are merely "releasing them to the wild." We'll still catch glimpses of them in the ravines and meadows, leading walks, perhaps launching new nature movements, caring for Toronto's heritage, publishing books and getting up to all manner of creative mischief. That's consoling, as is the fact we have four excellent new board members coming in. You can read their bios on page 5. Best of all, Zunaid Khan is stepping into the president's role. In Zunaid, we have not just a great photographer but also an insightful listener and observer, an unflappable team manager and a tech-savvy problem solver. Zunaid is committed to welcoming younger, more diverse nature lovers to the TFN, a direction the whole board encourages.

In signing off, I leave you with three small asks:

1. Be sure to join us at our virtual AGM on October 20 at 7:00 pm. We'll share highlights of the past year and honour the teams and individuals who have contributed so much. We'll also peek at the year ahead – our 100th year. Imagine that!
2. The municipal election is October 24. Be passionate in asking for more urban nature, and better care for nature, at your ward's all-candidates meetings in coming weeks.
3. Autumn is a time of abundance. Get out into nature and breathe it all in. Let's connect on the trails!

Ellen Schwartzel

TFN LECTURE AND PICNIC, OCTOBER 2

As in September, TFN's October lecture will be presented in person at Emmanuel College, St. George Campus of U of T, a two-minute walk from Museum subway station.

We invite you to an informal picnic before the lecture, connecting with other TFNers on the lawns behind Emmanuel College. Please bring your lunch around 1:00 pm, and maybe a picnic blanket. The lecture will begin at 2:30 pm.

Our Door Prize: a beautiful hardcopy book: *An Enduring Wilderness: Toronto's Natural Parklands*, 2017 by author and photographer Robert Burley. Thanks to City of Toronto.

We plan to make this lecture available via Zoom as well.

LECTURE REPORT

Native Bee Conservation and Diversity in the City of Toronto

September 11, 2022

Scott MacIvor, Assistant Professor, Dept of Biological Sciences, U of T Scarborough

The challenges of big city living for native bees was the focus of TFN's first in-person lecture since pre-pandemic times. Scott MacIvor heads up a busy lab of post-docs, grad students and undergrads. His team explores how native bee species interact with highly variable urban landscapes typical of the Toronto area. Toronto offers habitats ranging from the restored pollinator paradise of the Meadoway hydro corridor, to tiny front-yard gardens, to constructed green infrastructure such as green roofs atop tall buildings. Key questions present themselves:

- To what extent is the urban landscape a stressor for native bee species?
- To what extent can the city act as a refuge from the monocultures of modern agriculture?
- How can we plan cities and care for natural spaces to support native bees?

These are not simple questions, especially given a large diversity of native bee species, often with overlapping ecological niches and wide suites of environmental variables. To tease out answers, Professor MacIvor's team has been creative, using tools ranging from hand-made "bee hotels," to LIDAR technology, to nocturnal, motion-detecting macro-cameras.

Professor MacIvor is understandably a fan of bees, describing them as "charismatic microfauna." He sketched out the importance of bee diversity to modern agriculture noting that, with commercial crops such as blueberries and pumpkins, the more species of bees that visit a given flower, the better the pollination success. Commercial pollination by honey bees is needed for certain crops, of course, but healthy bee biodiversity is vital too. We still have good bee diversity; 40 to 60 species of native bees can easily be encountered in Toronto gardens, and up to 300 species have been documented. Indeed, a bee species new to science was discovered in 2010, remarkably in downtown Toronto.

In our area, about 75% of bee species are ground-nesting, often needing open uncompacted soils. Some ground-nesting bees may return to a site for decades because the soil conditions are just right. The remaining species nest in cavities such as hollow stems or holes bored by other insects. Most native bee species are solitary, not social like bumble bees or honey bees. Globally there has been a marked decline in native bee species – about 25% of wild bee species have not been recorded since the 1990s. The rusty patched bumble bee, for example, has been locally extirpated in the Toronto region though it is still found in the U.S.

A big challenge for urban bee researchers is untangling and quantifying the many variables of land cover that might be relevant to a bee's life cycle – the "heterogeneity" of the landscape. Bees may be affected by wind, by shading, by temperature gradients and by the heights of urban buildings. Bee researchers have used sophisticated mapping techniques to evaluate the impacts of these variables on the numbers of bees collected in constructed "bee hotels." Higher buildings are clearly correlated with lower bee numbers. The urban heat island effect is also bound to be important to bee biodiversity.

Professor MacIvor offered reasons to be hopeful, and even optimistic, about the future of native bees in our city. Toronto established a Pollinator Strategy in 2019, with Pollinate TO grants encouraging the spread of pollinator gardens. Professor MacIvor stressed that natural habitat, especially remnant nature that has never been built on (like High Park), is clearly better for bee biodiversity than constructed green infrastructure such as green roofs. That said, green roofs can have value for native bees as long as they are not too high up, and Toronto now boasts roughly 1,000 green roofs thanks to requirements under Toronto's Green Standards. Home and balcony gardeners and native plant gardens can also play important roles in supporting the biodiversity of native bees. "Flowers everywhere, all the time!" was a take-home motto offered by Professor MacIvor, a motto to which TFN gardeners will gladly subscribe. He rounded out his excellent talk by raffling off two copies of [Bees of Toronto](https://fngo.to/tobiodiversitybooks), one of the popular City of Toronto biodiversity booklets also available online. See <https://fngo.to/tobiodiversitybooks>

Ellen Schwartzel

TFN members can hear this lecture at:
<https://fngo.to/sept2022lecture>

TFN ANNUAL GENERAL MEETING

Thursday, October 20, 7:00 pm via Zoom

All TFN members are invited to join this online event as we share memories of the past year, celebrate our amazing volunteers and donors, and welcome our 2022-23 Board of Directors.

The nominating committee recommends this slate of nominees to the Board for the year 2022-2023:

President: Zunaid Khan

Vice President: TBD

Past President: Ellen Schwartzel

Secretary-Treasurer: Fatima Abrar

Directors:

Due to retire in 2023: Donata Frank, Jessica Iraci, Diana Wilson, Lynn Miller, Anne Purvis

Due to retire in 2024: Philip Jessup, Lillian Natalizio, Ellen Schwartzel, Laren Stadelman

The TFN Financial Statements for the year ending June 30, 2022 are available in the "For Members" section of our website <https://tfngo.to/financial2022>. If you wish to see these and don't have internet access, please phone the office and we will mail a copy to you.

To attend our AGM, visit the "Members Only" Section of our Website (see page 14)

IN THE NEWS

It was gratifying to see the opinion piece by our President, Ellen Schwartzel, in the Toronto Star on August 21st. See <https://tfngo.to/aug21star>. This article entitled *Toronto's parklands require more care, protection and expansion*, originally appeared in our September newsletter under the heading *Voting for Nature this Fall*.

Thank you, Ellen, for bringing these important issues to a wider audience while at the same time demonstrating the significant role TFN plays in connecting people with nature in the Toronto area and helping them to understand, enjoy, and protect Toronto's green spaces and the species that inhabit them.

Woodbine Beach has been much in the news these past five years. After the dunes were flooded in 2017, the land was left to naturalize and life exploded there. Then, last fall, the City installed a nine-hole disc golf course on these

fragile freshwater dunes. At the end of March, thanks to protests from a group of expert naturalists and citizen scientists, City officials agreed to remove the course, at least temporarily.

A report by M.L. Bream in the Toronto Star on September 8, 2022, reveals the amazing variety of life that has been catalogued by naturalists in this eight-acre habitat in recent months. To date, they have tallied more than 645 species of plants and animals, including more than two dozen plants considered by TRCA to be species of concern, 384 species of insects (200 of them pollinators), and five mammals of conservation concern.

As Ms. Bream writes: The city must not allow a disc golf course to be reinstated. The rapidly increasing biodiversity of this fragile dune-scape is too valuable to let slip away.

You may read the article at: <https://tfngo.to/torontostarream>

CITY-WIDE CELEBRATION OF STEWARDSHIP AND VOLUNTEERING

Saturday October 1, 10 am to 1 pm

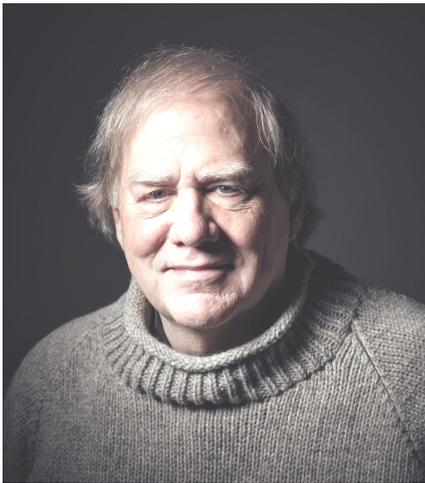
Middle Mill stewardship site, 44 Beechwood Drive, Toronto

Toronto Field Naturalists, Toronto Nature Stewards and A Park for All will take part in this city-wide event, filled with lots of nature and kid-friendly programming. Our president, Ellen Schwartzel, will lead a walk to Cottonwood Flats and our vice president, Zunaid Khan, will host a session on ethical nature photography.

TFN members are encouraged to join in. More information can be found on the TFN website at: <https://tfngo.to/october1event>

INTRODUCING NEW TFN BOARD MEMBERS EFFECTIVE OCTOBER 21, 2022

Fatima Abrar: As an accountant turned web developer, I spend most of my time indoors behind a screen. As an introvert, I find nature to be a healing agent. I love the small, beautiful pockets in Toronto where the racket of the city fades into the background and I can immerse myself in the symphony of the woods (forest, ravine, etc.). I want to do my part to preserve and nurture these spaces (if possible, expand them). There is a connection between nature and humans which we never fully appreciate. At TFN, I can appreciate this connection.



Philip Jessup has worked professionally for 30 years to promote climate change solutions. A key accomplishment was directing the City of Toronto's climate agency for nine years. He also created a 400+ worldwide municipal climate solutions network, *The Cities for Climate Protection*. More recently in various projects and consulting assignments, he has promoted the wide adoption of LED streetlighting across Canada, Australia and the U.K. He founded the Clean Air Partnership (CAP) and was the board chair until 2019. Since 2015, he has been photographing natural landscapes at risk from climate change, including the Arctic, wetlands and Pacific islands.

Lillian Natalizio: Growing up in Toronto, Lillian has always appreciated the opportunities to connect with nature in this city. A long-time hiker and student of local and natural history, she joined TFN in 2014 to learn about the other species that call this region home. Lillian is a committed volunteer steward, enjoying getting her hands dirty to enhance and expand habitat at a number of sites in the west end. She has a passion for growing native plants and for capturing the wonders of nature with her camera.



Photo: Barbara Forrest



Laren Stadelman: A retired management consultant, Laren developed her affinity for nature spending summers on the shores of Georgian Bay. She loves to hike and to garden, and believes strongly in the value of spending time in nature. Laren's current volunteer activities include ravine stewardship with the Toronto Master Gardeners, wildflower gardening at the Wye Marsh in Midland, and providing wheelchair assistance to patients at Sunnybrook Hospital. Laren has been active on a number of health care, community and professional boards, and looks forward to joining the board of TFN.

VOLUNTEER PROFILE: JAMES ECKENWALDER

Since being introduced to TFN around 2010, James Eckenwalder has led numerous natural history walks and contributed 38 articles about trees to the TFN newsletter, including one in this edition. He will be retiring from the TFN board of directors this fall after serving for six years.

According to James, he has been a taxonomist since the age of five, when he began learning about tree classification from popular field guides published by Golden Books. Taxonomy is the study of the evolutionary relationships among organisms.

As a doctoral student in California in the 1970s, James published a paper arguing that redwood trees and their relatives are part of the same family as junipers and some cedars, not a separate family as they were thought to be at the time (junipers having leaves attached in opposite pairs and redwood having leaves attached in spirals). The scientific community was skeptical about James' theory until the early 2000s when genome testing confirmed his hypothesis.

Between 1978 and 2017 James conducted botany research and taught as a professor at the University of Toronto. Since 1979 he has also been a research associate at the Royal Ontario Museum (ROM). James describes himself as "a conservative taxonomist" and "on the lumpish side." "Lumpers" are taxonomists who are willing to include more variation within a species or genus, whereas

"splitters" emphasize differences and prefer to create separate categories based on small distinctions.

In 2009, James published *Conifers of the World: The Complete Reference*, a comprehensive and broadly accessible text describing 545 species of trees and shrubs,

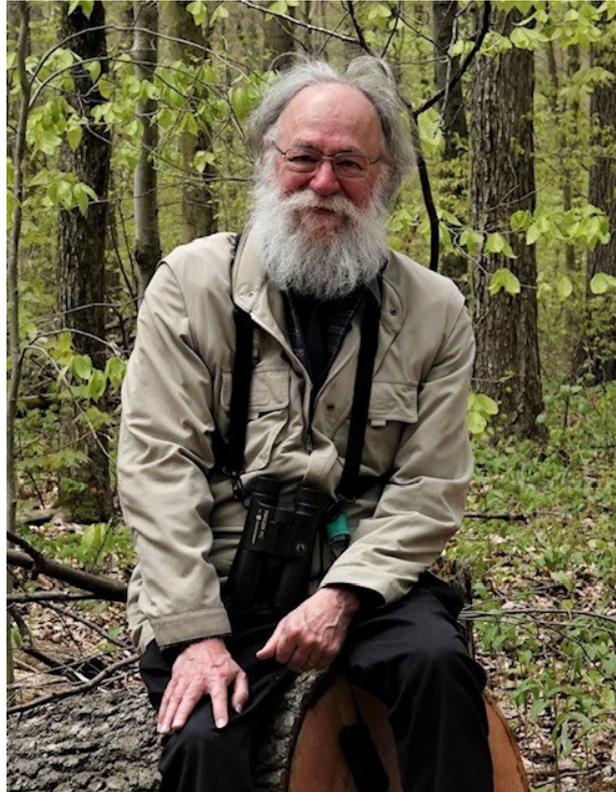
based on his lifetime of research. He is also recognized as having contributed to clarifying the classification of poplar trees. He is the lead author of the forthcoming *Field Guide to Trees of Ontario*, which is expected to be published by the ROM in the spring of 2023.

James says he is "interested in more or less everything" and continues to follow his lifelong curiosity about the natural world through activities like an annual birdwatching trip to Backus Woods on Lake Erie. Around Toronto he likes "any place where there are old trees," including Mimico Creek, Sherwood Park and Echo Valley Park. Together with his

wife, Susan, he maintains three popular backyard birdbaths called "the Sip and Dip Spa" and enjoys watching all the bird visitors.

During his teaching career, James shared his passion for nature with thousands of students, both in the classroom and through field trips. We are fortunate to have a leading tree expert sharing his knowledge and love of trees with TFN members.

Tracy Garner



TFN OUTINGS INFORMATION

A list of walks available to members is posted on the 'Members Only' walks page of our website (<https://tfngo.to/memberwalks>) at the beginning of each month and can be downloaded or printed.

Registration is no longer required for our walks, and you are welcome to bring one non-member guest.

EXTRACTS FROM OUTINGS LEADERS' REPORTS

Marie Curtis Park, May 18. Leader: Lillian Natalizio.

Spring was in full swing along Etobicoke Creek and in the arsenal lands and forests of Marie Curtis Park. Fresh green vegetation covered the ground, and most trees had already leafed out. Trout lilies and bloodroot had already finished flowering, but several wild geraniums, Jack-in-the-pulpits, Canada mayflowers and false Solomon's seals were blooming. Large patches of may-apple and Virginia waterleaf were about to flower. The forest floor was covered with large patches of ferns and jewelweed seedlings. A few Canada Geese were escorting their goslings along the creek, and the songs of Yellow Warblers competed with those of American Goldfinches. Other notable bird sightings included numerous Gray Catbirds, Warbling Vireo, a Blue-gray Gnatcatcher on the forest edges, and a Red-bellied Woodpecker and Eastern Towhee within. Tree Swallows had settled into the nest boxes in the meadow, while a Red-tailed Hawk kept watch from the water tower above. About a dozen painted turtles were basking in two of the ponds and a green frog was heard.



Gray Catbird
Photo: Lillian Natalizio

Colonel Samuel Smith Park, May 25.

Leader: David Creelman. We birded from Lake Shore W and Kipling to Whimbrel Point. Migration had slowed and we saw more local nesters including American Robins, Warbling Vireos, Yellow Warblers, Common Grackles, Red-winged Blackbirds and Hairy Woodpecker. There was one very young robin on the grass with various adults nearby. Among migrants we saw a pair of Blackburnian Warblers chasing each other around, playing typical mating games. Other warblers included Black-throated Blue, Blackpoll and an American Redstart singing just out of sight. We also saw Eastern Wood-pewee and Willow Flycatchers. The last remaining walkers got to meet the crew at the Whimbrel Watch and were given a short talk by chief counter Eric Baldo. We saw 29 Whimbrel, though not as closely as we would have liked.

Restoration Ecology, Highland Creek Park, May 26.

Leaders: Anne Purvis and Salima Pirani (TNS Lead Steward at this newly-approved site). Our focus was 'restoration ecology' – why we need to not just save species but also restore forests. We started with a game to

remind us that native trees serve as the larval host for many hundreds of Lepidoptera. As we encountered individual native species (yellow birch, white cedar, red oak, sugar maple, alternate-leaved dogwood, wild raspberry, wild grape) we stopped to consider the life cycle of one species that would use that particular tree. We used a 'beat sheet'* on red oak and hackberry, and found a few spongy moth caterpillars, some green aphids, a spider and a shield bug. We discussed the damage garlic mustard and dog-strangling vine do to the soil, making it difficult for saplings of native species to regenerate. We saw lots of evidence of native plant species doing well – zig-zag goldenrod, Virginia waterleaf, purple flowering raspberry, wild strawberries, Jack-in-the-pulpit and silverweed. A couple of deer came down to Highland Creek for a drink.

*A beat sheet is a white sheet held under a tree while you beat a branch of the tree with a stick causing any arthropods to fall onto it for identification.

Downsview Park, June 6. Leaders: Bob Kortright and Rachel

Gottesman. Rachel outlined the history of the area from the first farms in the 1790's through De Havilland's aircraft factory and airfield from 1929, the air force base 1937 to 1995 (including officers' homes built amid old trees, including healthy white and green ash, American beech, sugar maple and red oak northeast of Sheppard and Keele). After decommissioning the air force base, the federal government created Parc Downsview Park to build and operate a park under the Canada Lands Corp, not part of Parks Canada, and with orders that it should be self-supporting. We enjoyed the plants and birds in the woodlot southeast of the Downsview Discovery Centre (currently for school groups only), and then walked through the former officers' housing with its huge old trees. We found many butterflies, including common ringlet, little wood-satyr and dozens of European common blues, all first of the year for us. As we left we saw a notice of plans to develop two 20-storey high rises in the officers' housing area. It will be a shame if any of the magnificent old trees are removed to facilitate this development.

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Q&A: INSECT ART

Question: In late May, while walking in High Park, a friend and I caught sight of this intriguing "art" on a fallen tree limb. I had never seen this before. Could you please tell me how it was created?

Wendy Rothwell

Answer: These are egg and larval galleries of a bark beetle in the sub-family Scolytidae, probably smaller European elm bark beetle (*Scolytus multistriatus*). The logs are certainly consistent with elm.

The tiny adult females, only 2-3 mm long, excavate a single, straight egg gallery in a living tree within the cambium layer under the bark and lay eggs all along it on either side. When the eggs hatch, the individual larvae burrow out feeding through the cambium and secondary phloem at right angles to the egg gallery, so each of the long, pale filaments of these patterns represents a separate individual larva, all of which are siblings.

Both this species and a native elm bark beetle are carriers of Dutch elm disease (DED), so the attacks are highly consequential for the trees. Before DED, the feeding and galleries might have girdled and killed individual limbs but the tree would most likely have survived. Not any more. Different kinds of bark beetles, feeding in different trees, have different characteristic galleries.

James Eckenwalder



UPCOMING JUNIOR NATURALISTS' EVENTS

We are excited to welcome families with children between 6-12 yrs to join in the TFN Juniors fall 2022 programs that run Saturday mornings 10:00 am – 12:00 noon. The program follows the wildlife around town.

Oct 15: Investigate the salmon migration at Colonel Danforth Park on Highland Creek with Indigenous leader Alan Colley.

Nov 12: Create a T-shirt with dyes made from local plants.

Dec 3: Visit Colonel Sam Smith Park to welcome returning winter ducks.

If you are interested in joining any of our Juniors events, please contact Anne Purvis at juniortfn@torontofieldnaturalists.org. Your name will be added to an email list and you will receive an invitation a week before each event. If your family is able to attend, you pre-register by responding to the invitation email. One parent is required to stay with your children for the duration of the program.

JUNIOR NATURALISTS

Understorey Conservation Old and New

This summer we had the privilege of visiting the Beaver Valley. We stayed in a renovated school house in the village of Epping with our children and grandchildren. It was a short drive to Georgian Bay so we were excited for some beach time and fossil hunting.

Georgian Bay is a remarkable body of water. The Niagara escarpment, made of sedimentary rocks dating back to the Silurian, run up its western side. On its eastern side, the cliffs and shorelines are much older. They are the roots of the Grenville Mountains and made of gneiss, or metamorphosed granite.

One day on our way to Georgian Bay we stopped at the Epping Lookout, where we saw an historic plaque commemorating John Muir, founder of the worldwide conservation movement, and one of the founders of the American Park Service. He spent two years in this area from 1864-1866. He was passionate about botany, and spent his time climbing on the escarpment and in its bogs and valleys searching for plants and cataloguing them. He wrote about finding the calypso orchid,

'I did find Calypso, but only once, far in the depths of the Canadian dark woods, near those high, cold, moss-covered rocks, where most of the peninsular streams of Canada west take their rise...'

We climbed up Old Baldy one day and did the Duncan Crevice hike another day. I was

astonished at how well-preserved the understorey of the forest is on top of the escarpment. We saw large patches of many spring-blooming plants — trilliums, nodding bellwort, false Solomon's seal, sharp-lobed hepatica. There was a whole hillside covered with meadow rue, as we descended to Mill Creek. It was fun seeing the variety of ferns - maidenhair spleenwort, marginal wood fern, rattlesnake fern and Christmas fern.



Old Baldy. Photo: Anne Purvis

The forest understorey did not seem to be troubled with invasives, and there was no garbage. People had been hard at work, not cataloguing plants like John Muir, but making sure they had a place to flourish with all the insect life they support. I wanted to write to the Beaver Valley Bruce Trail Club and thank them for their hard work.

I mentioned this to the owner of the general store in Kimberley. She told me there were many people involved in maintaining the properties the trail runs through, some of them private lands.

I was so encouraged by the sight of this beautiful understorey maintained by so many faithful nature-lovers looking after the green space near them. It gave me hope for the parks and ravines of Toronto, where many people are working to restore habitats and ecosystems.

Anne Purvis

TREE OF THE MONTH: GINKGO (*GINKGO BILOBA*)

Ginkgo is our most taxonomically and evolutionarily distinct tree. It is the only surviving member of one of the five living major evolutionary lineages of seed plants, whose ancestors separated from one another hundreds of millions of years ago. The ginkgo lineage (or ginkgophytes) was once diverse and distributed worldwide, as the two lineages (flowering plants and conifers), to which all our other trees belong, still are today. It gradually dwindled, however, until about 30 million years ago only one species was left. Further territorial reductions restricted this “living fossil” to eastern Asia, where it finally became extinct in the wild in fairly recent times, confined to temple grounds until it was spread around the temperate world once again through horticultural reintroductions beginning in the eighteenth century.

Often used symbolically, the unique fan-shaped leaves contribute to the ginkgo’s distinctive appearance, especially in the autumn when they turn a rich, deep yellow before falling. The fans are all notched at the tip, but the depth of the notch varies dramatically in leaves in different positions. The crowded leaves found on spur shoots have a shallow, often scarcely detectable, notch, while those of the well-spaced leaves borne on long shoots may extend more than halfway down the midline of the blade. Ginkgo leaf venation is also outstanding. In no other tree here do two sizable vascular bundles enter the petiole from the twig, leaving two easily recognizable round bundle scars at the centre of the oval leaf scar. As the two original veins enter the fan, they each fork repeatedly (dichotomize), keeping the distance between veins more or less even as the blade rapidly widens towards its outer edge. The dichotomous veins of ginkgo mostly remain separate from one another, without the numerous anastomoses that form an interconnected network of veins in flowering plant leaves. However, even if the separate veins of ginkgo leaves are less efficient at distributing water, minerals, and photosynthetic products than the integrated venation of hardwood tree leaves, the ginkgo lineage has successfully maintained this leaf organization for more than 150 million years.

The male and female reproductive structures, borne on separate trees, look completely different from one another. The male trees bear small, short-lived, inconspicuous pollen cones, not so different from those of conifers. In contrast, the foul-smelling, plum-like, orange seeds with a delectable bone-white kernel within are conspicuous on female trees in the fall. The cloyingly stinky flesh (flavoured by caproic and butyric acids, evoking rancid goats-milk and butter) and hard kernel shell are both parts of the seed coat (sarcotesta and sclerotesta, respectively) and are structurally completely distinct from the fleshy and stony fruit layers of the plums or apricots that they somewhat resemble. Despite appearances, then, there is no fruit here, just a bare naked seed at the end of a long, slender stalk. Next to the mature seed at the end of the stalk, there is almost always a second, tiny, undeveloped seed which, infrequently, may also develop fully. In the spring, when these reproductive structures emerge with and among the expanding new leaves, their paired ovules (technical term for a pre-fertilization seed) are the same size and there is no way of knowing which one will win the maturation sweepstakes.

Some botanists insist that ginkgo should not be called a seed plant at all because, at the time of dispersal, the female structure still has no embryo of the next generation, a key element in the formal definition of a seed. While wind pollination takes place in the spring, the pollen grains long remain dormant within the ovule. The release of sperm, fertilization of the egg, and development of the



From top: Leaf, notched, from long shoot; leaf scar; male cones.

Photos: Ron Dengler



Ginkgo ovules.

Photo: Ken Sproule

continued on next page

TREE OF THE MONTH *continued*

resulting zygote into an embryo that will germinate as a baby ginkgo only happens after the (we'll still call them) seeds hit the ground. The way the young female structures emerge among the leaves of the spur shoots suggests that they may themselves be simple seed-bearing leaves (sporophylls) with the fan reduced to just the terminal fork at the tip of a petiole. If so, they would not be homologous (correspond structurally) with the male cones.

Rare abnormal specimens support this interpretation. Among the millions of ginkgo seeds shed each year around the world, a few can be found in which the seeds are clearly borne on deformed leaves. However, because ginkgo leaves are so densely crowded on the spur shoots, it is very difficult to determine for sure if the female structures are in the same series as the foliage leaves (which would support their interpretation as sporophylls) or are instead attached in the axils of leaves (which would



Mature ginkgo seeds. Photo: Ron Dengler

mean that, despite appearances, they are actually highly reduced branches, like the male cones). Looks can be deceiving and some of the earliest fossils among the ancestral ginkgophytes have multiple ovules spaced out along an elongate stalk that bears no resemblance to a dichotomously forking leaf, so the interpretation remains open.

Ancient, enigmatic, and emblematic, ginkgo closely guards its many mysteries. Besides the leaves and seeds, ginkgo is also renowned for its motile sperms, sex chromosomes, a very strong system of long- and spur shoots, and chi-chi, large stalactite-like woody growths that hang picturesquely beneath the major limbs of

ancient ginkgo trees. The latter, unfortunately, are probably unlikely to be seen in any of our lifetimes on the many much younger ginkgo trees growing here.

James Eckenwalder

OUTINGS LEADERS' REPORTS *continued from page 7*

West Don, June 14. Leader: Linda Klevnick. In E. T. Seton Park, we saw lots of turtles sunning themselves on logs and observed invasive yellow iris plants. The trees and shrubs were in full leaf. We walked under Eglinton Avenue into Wilket Creek Park. We walked a short way up Wilket Creek, then climbed a steep slope and followed a wooded path around the Sunnybrook Park sports field where we walked the wooded path encircling the sports field. We observed coltsfoot on the slopes and may-apples on the forest floor.



House Wren.

Photo: Ken Sproule

G Ross Lord Park, June 18. Leaders: Robert Bean (a contributor to the

Breeding Birds Report) and Kayoko Smith. The warbler season being over, we focused on nesting birds, particularly chickadees, House Wrens and Blue Jays.

Thanks to Robert's expertise and the care he took in preparing this walk, we were treated to firsthand information on the behaviour of these birds in the breeding season and, importantly, the joy of encountering new life in the wild and learning respect for it. He prepared a mock nesting site so there would be less impact on breeding birds. We also visited natural nest sites, observing frequent chickadee activity in broken tree stumps in wet areas. We saw six chickadee eggs in a tree stump which Robert expected would hatch any day, as the incubation period of 12-13 days was almost over. (Two days later a camcorder recorded six chickadees hatched in a small hollow stump.) Other sightings included Great-crested Flycatcher, Baltimore Oriole, Northern Flicker, Yellow Warbler, Red-eyed Vireo, Blue-gray Gnatcatcher, American Goldfinch, Kingbird, House Finch, Killdeer, House Wren, Brown-headed Cowbird and more. Canada anemone were everywhere, and we noted red clover, yellow sweet clover, bedstraw, avens, forget-me-not, buttercup and a colony of beard-tongue. The beautiful scent of native roses and black locust enhanced the joy of the early summer outing.

continued on next page

OUTINGS LEADERS' REPORTS *continued***Blythwood Ravine and Sherwood Park, June 22.**

Leaders: Jennifer Smith and Paul Overy. We followed the same route as on our October walk in order to see these parks in a different season. We enjoyed viewing a xeriscape garden with its rocks, driftwood and sustainable plants. On our way down into Blythwood Ravine, a participant suggested that Paul lead us in a guided 'forest bathing' experience. We appreciated the opportunity to breathe with the trees around us. Paul described the path of Burke Brook through Blythwood Ravine and into Sherwood Park, explaining how the melting glaciers of 12,000 to 15,000 years ago carved these ravines whose steep sides make them less desirable to builders, allowing the survival of their forested slopes, one of two remaining old-growth forests in Toronto. We spoke of the many challenges our natural areas face, from invasive plants and animals such as jumping worms, and the many competing interests of park users that put these areas under considerable stress. We talked about the valuable role of park stewards in removing invasive plants. Participants contributed interesting personal anecdotes and questions that enriched the event for all of us.

Milkman's Lane, June 30.**Leader: Danielle Pellatt-Hall.**

The hill contains a beech-maple mixed forest with an assortment of native and invasive species. We saw many purple flowering raspberries in bloom, while the black raspberries were already starting to ripen. Also prominently in flower were bird's-foot trefoil and Philadelphia fleabane.

Woodbine and Ashbridge's Bay Parks, July 7. Leader:

Bob Kortright. We began this first public TFN walk since March 2020 with expressions of thankfulness, inspired by the Onondaga ceremony described by Robin Wall Kimmerer in *Braiding Sweetgrass*, for the air, water, plants, animals...public health and health care workers, and past stewards of the land and water. This led naturally into an outline of the history of Ashbridge's Bay, on the former edge of which we stood – how it became polluted with manure from animals kept on its shores to eat the mash left over from the operations of Gooderham and Worts distillery, despite the efforts of people living on the bay to have this stopped; how fears of disease, need for a place to dispose of dredgeate from deepening the harbour, and hunger for nearby downwind land for industry led to filling of the marsh, mostly by 1920, and to the present state by

1953. See lostrivers.ca for a map of the pre-settlement shoreline (and rivers) overlain on a current map of Toronto. More recently, the racetrack that operated on the shore of the bay between Woodbine and Coxwell for over 100 years was replaced by housing and Woodbine Park about 20 years ago.

We noted the presence of native maple (sugar, black, red, silver), oak (red, bur, swamp white, pin), ash, serviceberry, ninebark, dogwoods, white pine, tamarack, cedar (white and red), Ohio buckeye, black walnut, poplars and willows, among the many Colorado spruce (blue and green), Eurasian fir and larch; also lilac, buckthorn, Asian bush honeysuckle, Norway and Amur maple, English oak, Russian olive and mulberry. We saw a few butterflies, notably a beautiful fresh male black swallowtail basking

beside the trail. We saw the sedimentation control and new wastewater outfall projects underway, which will improve water quality as well as eliminate the need for frequent dredging of the harbour mouth. I pointed out invasive plants, including the ones that Toronto Nature Stewards are trying to control, and outlined the irony of the new prohibited plants bylaw, which prohibits ragweed, poison ivy and eight invasive plants on private property while the city does not adequately control them on public property.



Purple Flowering Raspberry

Photo: Ken Sproule

Newtonbrook Creek Ravine, July 16. Leader: Ellen

Schwartzel. After weeks of little rain, Newtonbrook Creek carried only a few inches of water. Water striders danced on the surface; it was good to imagine them grabbing larval mosquitoes coming up to breathe. Ebony jewelwing damselflies alighted near the water. Along narrow strips of parched wetlands, cattails were thriving, along with sensitive fern. We saw ostrich fern along a few untrampled stretches of creek bank. We talked about the good work of the volunteers of the Bayview Village Association, promoting better ravine stewardship by local property owners and raising awareness of ravine wildlife. Plants in bloom included: white vervain, common milkweed, elecampane, wild parsnip, Queen Anne's lace and chicory. We saw a Hairy Woodpecker and a perched Red-tailed Hawk. We also heard cardinals, chickadees and robins, and saw the characteristic rectangular holes excavated by Pileated Woodpeckers.

WEATHER (THIS TIME LAST YEAR)

October 2021

October was unusually warm and wet. It was the third warmest October on record at Pearson Airport (tied with 1947 at 13.5° mean temperature). Mean minimum temperatures were the highest on record, with overnight temperatures averaging above 10. The weather pattern was very similar to that of August, albeit with more rain-bearing systems. It was often close and humid, with fog and low cloud in the morning. This was particularly true of the first 15 days of the month, with dew points generally in the teens. The warmest day was the 2nd, with a high of 26.9° at Buttonville. However, most of the first 15 days reached close to or exceeded 20°. After the 15th, it got a

bit cooler with a few days quite cold. The lowest reading in the Greater Toronto Area was -0.5° on the 28th but the vast majority of locations had no frost this month. The lowest reading downtown was 4.6° on the 23rd.

Soaking rains were frequent and came on the 3rd, 15th, 25th, and 30th. Hallowe'en itself was relatively pleasant with slightly above normal temperatures and partly cloudy skies. Total amounts ranged from 101.8 mm at Pearson to 130.9 mm downtown, close to double the normal. It was the 10th wettest October on record downtown.

Gavin Miller

FOR READING

Urban Lichens: A Field Guide for Northeastern North America

by Jessica L Allen (Author), James C Lendemer (Author), Jordan R Hoffman (Illustrator), Yale University Press, 2021.

Often overlooked in our concern for biodiversity, but vitally important in the earth's bio-crust are lichens. These organisms are one of our city's fascinating common species with 138 identified in Toronto.

Lichens are a unique composite formed by a close cooperative symbiotic relationship of algae and a fungus in combination with a full ecosystem of bacteria, microscopic worms and water bears. They play crucial roles in soil stabilization, moisture retention, nitrogen fixation and serve as food and habitat material for animals.

There are more than 20,000 species worldwide covering 8% of the earth's landmass. Cleaner air in cities in recent decades has seen a rebound of urban lichens as they are sensitive to air quality. Recent studies have indicated that climate change may have a devastating effect on lichens due to the algae component's slow rate of evolving adaptation.

This compact guidebook of 158 pages is intended for the general user. It contains photos and detailed descriptions of 61 of the most common lichens found in urban Northeast North America, including species such as ring dust and board dweller.

From the informative introduction with its line drawings we learn the biology, chemistry, morphology and history of lichens. Basic to our identification are the three main types: 1) crustose that have no observable lower surface,

2) foliose that have lobes, are leaf-like and have clearly differentiated upper and lower surfaces of different colours, and 3) fruticose that are composed of branch-like, or cup-like structures that grow in three dimensions with a shrubby appearance and do not have clearly differentiated upper and lower surfaces. There is a key to identification based on these terms and other terminology in the illustrated glossary.

The emphasis in the guidebook is on New York City species – with a complete list of its lichens – where the authors did their work. But this guide would be useful to anyone interested in exploring this life form in our city.

Melanie Milanich

An Immense World by Ed Yong, 2022

The Pulitzer-prize winning author of *I Contain Multitudes* has produced another masterpiece – the senses of animals (with reference to our own) in 13 chapters: smell and taste, light, colour, pain, heat, contact and flow, surface vibration, sound, echo, electric and magnetic fields, with a chapter on how sense information is integrated in brains, and one on human interference with animal senses through our lights, noise, smells, etc. This is full of corrections to what I thought I knew and revelations about things I didn't – all fascinating. If you ever wondered what it is like to be a dog, cat, scallop, elephant, fly, fish..., this will help you to imagine, although it is difficult, especially for senses we don't have or hardly use. See also: <https://tfngo.to/goodreadsanimmenseworld> and <https://tfngo.to/tplanimmenseworld>

Bob Kortright

ABOUT TFN

TFN is a volunteer-run non-profit nature conservation organization. We connect people with nature in the Toronto area, helping them to understand, enjoy, and protect Toronto's green spaces and the species that inhabit them.

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membership@torontofieldnaturalists.org.

*Fleeting rich beauty –
Autumn's soft melancholy
Falls to earth and then ...*

Haiku by Charlotte Broome

KEEPING IN TOUCH

On an early morning stroll through High Park in August, I wanted to photograph artistically-backlit leaves against dramatically silhouetted branches. However, a sudden sparkle caught my attention – a flash of light drawing a fine line several feet above my head at least 30 feet away. The slanting light had outlined an orb-weaver spider’s web attached to several small branches, all blowing gently in the breeze. The movement had broken the line of light into a transient rainbow of colours which disappeared the next instant. I would not have seen any of this beauty if I had taken even one more step along the path. As I could not walk through the thicket to get closer, I took two shots of the web with my compact camera’s zoom 200 mm lens from where I stood.



When I looked at it later on my computer screen, I was amazed to see that the web appeared to be in almost perfect condition, revealing its architecture of finely woven concentric circles attached to radiating spokes. Unfortunately, the spider that had spun such a marvel was nowhere in sight.

Charlotte Broome



Locust borer beetle on goldenrod

It has been a joy for me that David Balfour Park has finally re-opened, having been closed all through the two years of COVID. I head to the ‘garden’ there several times a week, often of an evening when it cools down. I have seen 14 butterfly species to date, including fiery skipper, eastern forktails, many monarchs and, on one occasion, over a dozen European common blues at once. There have been green darner and black saddlebags dragonflies. A European firebug was intriguing, and I saw this stunning locust borer beetle. The highlight for me (the one day I didn’t take my camera) was a hummingbird clearwing moth.

Lynn Pady



European common blue butterfly on lavender.



Early one morning in mid-August I observed these yellow jackets consuming what appeared to be a mouse head. When I checked again around 5 pm there was no sign of mouse or insects.

Jennifer Smith

Please remember to share your nature experiences with fellow TFN members. Send your stories and photos to: newsletter@torontofieldnaturalists.org

Ed.

FOCUS ON NATURE – ARTHROPODS

This is the first in a series featuring TFN's Photography Group. Each month, members of the group set a challenge and then meet to share and discuss their images. We plan to publish one of these photos each month together with background information from the photographer. In August the challenge was arthropods, for which many fascinating images were submitted. Thank you, Theresa, for sharing this stunner. Ed.

This adult male blue dasher dragonfly was one of many feeding at the Evergreen Brick Works ponds in early August. A long focal length (728 mm in this case) prevented any disturbance of the insect. With the focus point on the eye, F8 was selected for maximum sharpness throughout the head, thorax and wings at this angle. While this aperture setting did not allow the abdomen to be in focus, it did create a beautiful blurring of the background allowing the insect to 'pop.' Composing the photo so that the lighter-coloured lily pad was behind the insect further enhanced the contrast between the subject and background.

Theresa Moore

If you would like to join the Photography Group, email photography@torontofieldnaturalists.org



TFN LECTURE

Sunday, October 2 at 2:30 pm

Emmanuel College, Room 001, 75 Queen's Park Cres E

See page 2 for announcement about in-person lecture and picnic!

Plastic Pollution in the Laurentian Great Lakes



Chelsea Rochman, Assistant Professor in Ecology, U of T and co-founder of the U of T Trash Team, will speak about the state of the science and how it informs policy.

There is an accessible entrance to Emmanuel College via the second door south on Queen's Park. Elevator inside to the right. Room 001 is one floor below street level.

Upcoming lecture:

Nov 6 (by Zoom) Protecting and Recovering Butterfly Species at Risk in Ontario
Jessica Linton, Senior Biologist, Natural Resource Solutions, Inc.