Toronto Field Naturalists
Since 1923

TORONTO FIELD NATURALIST

Number 672 December 2022

Hooded Mergansers. Photo: Diana Turchin

REGULARS

FEATURES

PRESIDENT'S REPORT — CHANGE

As we move from fall into winter, I find myself thinking quite a bit about change, brought on in part by the change of seasons as well as changes in both my personal and professional life. Change is not something to be feared but embraced.

TFN has been around so long because it has not feared change but continually risen to the occasion by adapting and evolving. This is what we must continue to do to ensure its survival well into the future.

The pandemic is a perfect example of our ability to adapt and evolve, which is only possible due to the vision and hard work of previous presidents, previous and current board members and the volunteer support of members. We have a solid foundation and a strong, stable infrastructure that enables this organization to function and be highly adaptable. We must continue to evolve to ensure that TFN will continue to serve its members and this city well into the future. To do so we must change how we engage the wide variety of communities that make up our city so that we reflect the people who live here. This means adapting how we have historically done outreach in order to reach a more diverse audience. It means understanding the relationships that different communities have with nature by engaging groups in those communities. From these engagements we'll be able to develop and produce a series of outreach walks, lectures and events in partnership with them. For this to succeed we need the help and support of members.

Sumac, Smythe Park. Photo: Margaret Hall

The promotions and outreach committee is embarking on a project to build a new outreach event team, and needs volunteers. If you have experience and/or interest in event planning and/or working at events, please email volunteering@torontofieldnaturalists.org to learn more.

In closing, I would ask that you explore the great selection of walks on offer for December. The full list is available in the members section of our website: https://tfngo.to/memberwalks. Get outside and enjoy nature.

Zunaid Khan
president@torontofieldnaturalists.org

Tax Deductible Donations

TFN is dependent on membership dues and donations which enable us to help people in Toronto learn about, appreciate and seek to protect our natural heritage.

As a charitable organization we issue receipts for use as deductions on your income tax return.

Donations to the mailed newsletter fund help TFN to offer a reduced surcharge for mailed newsletters.

Please make your donation today.

Visit https://www.canadahelps.org/en/dn/14828 and choose "Mailed Newsletter Fund" or "General" from the list of fund options. Or you may send a cheque to the TFN office (see page 14).

LECTURE REPORT

Protecting and Recovering Butterfly Species at Risk in Ontario

November 6, 2022

Jessica Linton, Senior Biologist, Natural Solutions Inc.

Species at risk are often associated with large charismatic species, such as polar bears, caribou or barn-owls. However, there are many less conspicuous at-risk species in Canada and globally.

Jessica Linton, a member of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), explained that species at risk are categorized as endangered, threatened, special concern or extirpated (locally extinct). Endangered and threatened species are federally protected by the federal *Species at Risk Act* (SARA). For a species to be so listed, COSEWIC must assess its ecology, evolution and potential risks before nominating it to SARA. The same process pertains to Ontario's *Species at Risk* list.

Species designated endangered or threatened require a recovery plan by the federal or provincial government. Two butterflies recently assessed by COSEWIC and recommended to be listed on SARA are the northern oak hairstreak (threatened) and the duke's skipper (special concern).

Southern Ontario, Canada's most biodiverse region, is home to six at-risk butterflies: three extirpated (the Karner blue, frosted elfin and eastern Persius duskywing), two special concern (monarch and West Virginia white) and one endangered (mottled duskywing).

The Karner blue, frosted elfin, and eastern Persius duskywing, though no longer found in Canada, still exist in the U.S. They need oak savannah habitat, which, in Ontario, has been largely lost due to agricultural and urban development, fire suppression and invasive species.

The monarch, likely the most charismatic of at-risk butterflies, is the only at-risk species that migrates south to Mexico. Despite population declines, this species is not protected under federal or provincial law. COSEWIC has recommended that its status be promoted to 'threatened.'

The West Virginia white occupies woodlands and woodland edges. Previously federally protected, its status was recently demoted because new populations were found.

The mottled duskywing, the only endangered butterfly in Ontario, is the focus of Jessica Linton's conservation work. This species favours oak savannah habitat, feeding primarily on New Jersey tea (*Ceanothus americanus*) and narrow-leaved New Jersey tea (*Ceanothus herbaceous*). Like all butterflies, it has a four-stage life cycle which begins with eggs being deposited on a plant's foliage. When eggs hatch, larvae (caterpillars) feed on the plant over the summer. The mottled duskywing larvae then create silk leaf shelters that protect them over the winter until warmer conditions initiate pupation. In early spring, adult butterflies emerge from their cocoons and reproduce in early summer. This diapause life cycle requires an entire year.

The distribution of the mottled duskywing extends from Windsor to Rice Lake near Peterborough. Historically, populations were found in Pinery Provincial Park, Norfolk County, and areas in and around Toronto such as High Park. Some populations near Ottawa were last seen in 2007. Despite a potentially large range, the mottled duskywing has a low ability to disperse, so assisted migration is required for the species to occupy new or previously occupied habitat. Remnant oak savannahs and tall grass prairies in Ontario are under threat due to fragmentation, fire suppression, invasive species and climate change.

Jessica Linton is chair of the Ontario Butterfly Species at Risk Recovery Team (est. 2017), consisting of academic researchers from the University of Guelph and various conservation groups such as Nature Conservancy of Canada. This team has been working to conserve the mottled duskywing and its habitat. Their current projects include restoring habitat through prescribed burns and plantings, marking and re-sighting butterflies to fill knowledge gaps (e.g., phenology, dispersal, population data and genetic diversity), and captive rearing.

Most recently they have undertaken a reintroduction project. In 2021, they released 692 mottled duskywing butterflies, at different stages of their life cycle, in separate areas of Pinery Provincial Park. These efforts were successful and butterflies were found the following year. Next year's field season will help determine the best life stage at which to release butterflies. Jessica thinks releasing pupae is best for maximizing success.

Pinegrove Productions filmed the Recovery Team's progress for a documentary, available next year. For more butterfly information, visit www.onbutterflysar.com.

Cameron So

You may watch Jessica's lecture at
https://tfngo.to/nov2022lecture

TFN OUTINGS INFORMATION

A list of walks available to members is posted at the beginning of each month on the 'Members Only' walks page of our website (https://tfngo.to/memberwalks) and can be downloaded or printed. You are welcome to bring one non-member guest. Listed below are three December outings you might like to consider.

Milkman's Lane to the Brick Works. Leader: Ellen Schwartzel

Saturday December 3 at 10 am

Meeting Point: Sherbourne subway station at street level.

TTC: Subway line 2 to Sherbourne station.

Walk Details: A 3-hour, 5-km linear walk on mostly unpaved and uneven surfaces, with gentle and steep slopes

Walk Description: We will walk north along Sherbourne through Rosedale, then use Milkman's Lane to enter the Don Valley. Maple and oak woods cloak the hillsides. At the Brick Works, we can warm up with coffee and eat lunch. We will check the wetlands for fall birds and reflect on the restoration of this site. The Evergreen Farmers' Market is expected to be open. If the shuttle bus to Broadview subway station is running, people can opt for that. Another option is to walk back through the ravines, up Milkman's Lane and through Rosedale to Sherbourne subway station.

What to bring: Sturdy shoes and layered clothes. Lunch or money for take-out at the Farmers' Market. Consider your walking stick. Could be muddy.

Washrooms: At the Brick Works

Walk Leader's Cell Number: 647-463-5562

Waterfront Trail – Coronation Park, Trillium Park and Ontario Place. Leader: **Zunaid Khan**

Thursday December 8 at 9 am

Meeting Point: By the washrooms in Coronation Park, near the baseball diamonds.

TTC: Subway Line 1 to Union Station, Streetcar 509 to Manitoba Dr and Strachan Ave, then walk south.

Walk Details: A 3-hour, 5-km circular walk over mostly paved, flat surfaces with some gentle slopes

Walk Description: We will walk along the waterfront trail through Trillium Park and Ontario Place, enjoying great views of the lake, looking for winter ducks and year-round birds.

What to bring: Binoculars, camera, snacks and ice grippers. Please dress for the weather. It's always a little colder along the lake.

Washrooms: At the beginning, along the way and at the end

Walk Leader's Cell Number: 416-716-6464

Boxing Day on the Spit. Leader: Charles Bruce-Thompson

Monday December 26 at 10 am

Meeting Point: The park entrance, 1 Leslie St.

TTC: The 83 bus from Donlands subway station will drop you at Commissioners and Leslie. Walk 500 m south.

Walk Details: A 3-hour, 7 km circular walk over flat, mostly paved, but some unpaved, trails.

Walk Description: What better way to spend Boxing Day morning than with a brisk walk on the Spit? Masses of migrating waterfowl will have arrived, so brush up your winter bird identification skills. Is that a lesser or greater scaup? I don't know either, but I intend to find out. We'll walk out along the east side of the Spit to the pedestrian bridge and return along the west shore. Participants can easily drop out and return at any point if they so wish.

Washrooms: At the beginning and along the way

What to bring: Binoculars and something to munch on. The Spit can get quite windy, and it *is* the end of December, so wrap up well. Icers are always a good idea if there's snow on the ground.

Walk Leader's Cell Number: 416-778-5340

WHETHER YOU'VE BEEN A MEMBER FOR SEVERAL WEEKS OR SEVERAL DECADES, WE WANT TO TALK WITH YOU!

We're interviewing Members to capture your recollections and experiences involving Toronto's natural areas, nature in the city, and our organization! Interviews are conducted over Zoom and are scheduled at your convenience. We are pleased to have memories shared by the interviewees pictured here. Your participation will benefit our 100th Anniversary celebrations, enrich our historic archives, strengthen our sense of community, provide interesting citizen science insights, and so much more! For more information or to arrange to be interviewed, please contact mailto:archives@torontofieldnaturalists.org.

Jason Ramsay-Brown

Charles Chaffey

Nancy Dengler

Charles Bruce-Thompson

TFN LECTURES

Each year TFN offers eight free Zoom talks by noted experts, exploring everything from nature in the city to global environmental issues. Talks are presented Sunday afternoons at 2:30 pm, from September to May with audience discussion time. Talks are usually 45 minutes in length. Visitors are always welcome. TFN Members have access to recordings of past lectures on the “for Members” web page.

Learn about this month’s lecture on the back page. For the Zoom link, visit the Lectures page of our website. If you prefer, you can dial in to the December lecture by phone:

Dial in: +1 204 272 7920 Canada Meeting ID: 851 4871 9082 Passcode: 580782

Yellow Warbler, Photo: Theresa Moore

NATURE IMAGES SHOW

Saturday, February 4, 2023, from 1:30 to 3:30 pm

See what our talented photographers have been up to this year! Come and enjoy an afternoon of photos, videos, art, and stories at our annual Nature Images Show.

We’ll be holding the event online again this year. Use this link to get Zoom access: https://tfngo.to/natureimages-2023

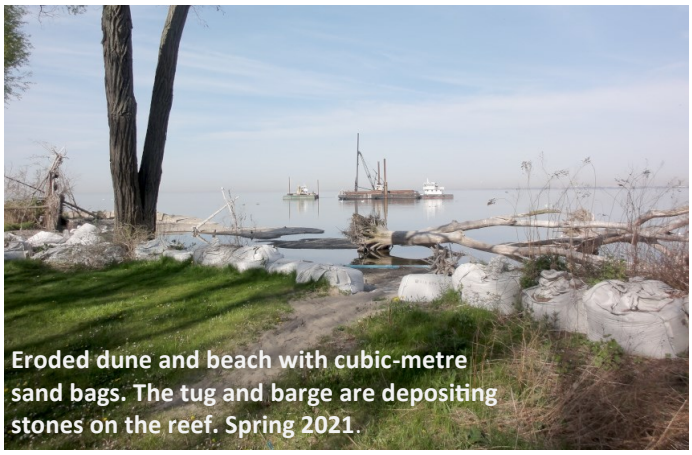
Calling all TFN photographers!

Share your photographs and videos at the Nature Images show! To be displayed, images must adhere to ethical nature photography guidelines, e.g. https://ontarionature.org/ethical-wildlife-viewing-blog/ *If you would like to participate, contact Lynn Miller at* volunteering@torontofieldnaturalists.org. *before January 21, 2023*

GILBRALTAR POINT DUNE RESTORATION PROJECT NEARING COMPLETION

As I write, it's pouring with rain – a good thing for the new grasses and shrubs recently planted on the enormous new sand dune at Gibraltar Point in Toronto Island Park. The marram grass and Canada wild rye at the front of the dune and the red osier dogwood and shrub willows at the back will now settle in more comfortably. They have work to do: their roots will help hold the dune in place and their above-ground growth will hold back blowing sand as it hurtles over the dune in the wind.

It's almost 20 years since TRCA started the Environmental Assessment (EA) for this project. Erosion had eaten away the beach and dunes at the Island's "elbow" south of Hanlan's Point beach. Efforts had been made by Parks and volunteers to plant shrubs and even install snow fencing along the shoreline, but relentless winds and waves swallowed it all up. The dune's adjacent wetland, possibly the last place on the Island to find Kalm's lobelia, disappeared. The shoreline was approaching the main road and the Trout Pond, and the Gibraltar Point washroom was about to be undermined.



Eroded dune and beach with cubic-metre sand bags. The tug and barge are depositing stones on the reef. Spring 2021.

Proposed solutions such as concrete breakwalls were rejected by many attending the EA meetings. A "soft" approach that replenished lost sand was called for. After many years, a plan was developed that everyone could live with: a near-shore reef that would break the force of incoming waves, and a massive influx of sand to form a new dune. TRCA undertook the project.

Newly planted shrub willows on back side of dune. Fall 2022.

When the lake level is low, the reef is popular with birds.

The new reef immediately became a great attraction for water birds, especially when the lake level is low. Slaty-backed Gull, Northern Pintails, Rusty Blackbirds, Snow Buntings and Brant Goose have already been seen there. Recently, I saw a Peregrine Falcon standing on the exposed rocks and sipping from the lake. From its plumage, it had obviously just taken a bath.

New dune and beach with part of reef showing in the lake at left. Volunteers are about to plant marram grass.

Newly planted marram grass within dune fencing. Hanlan's beach in the background, backed by fall-colour cottonwoods.

With the dune built, hundreds of shrubs and grasses were planted this fall by corporate volunteers, locals, and college students who visit Hanlan's yearly to remove phragmites. More planting will take place in the spring.

If you visit, note that it's about 8 km round-trip from the winter ferry (service to Hanlan's Point starts April 7). For more information on the project's process and progress see https://trca.ca/conservation/green-infrastructue/gibraltar-point-erosion-control-project/

Article and photos Jenny Bull

TRAIL CAMS AT HOME

If you are looking for a good gift for a naturalist, you might consider a trail cam. Admittedly, if you are interested in visually documenting nature, there are few things as satisfying as actively seeking out, framing, and capturing photographs by clicking the shutter button yourself. However, we aren't always where the action is, and capturing otherwise unseen appearances passively, by day or night, is also a great pleasure.

European Starling begging

A good trail cam does just this. These rugged, outdoor cameras are meant to be set up in a suitable location and then left to their own devices. Typically wrapped in camouflaged paint jobs, they are designed for, and marketed primarily to, hunters, game wardens and wildlife biologists. However, when well-sited, they are also quite effective in the home setting for capturing bird and mammal visitors, and even insects.

Most models operate in four modes: motion capture versus time lapse and still photos versus short video clips. They display lots of flexibility in these settings and in resolution, sensitivity and other details. They typically work at night as well as in the daytime. Depending on the model, they may produce only black and white photos at night-time or keep to colour. Mine tack on a strip listing temperature, date, time and sequential number along the bottom edge of the photo.

Hunters and wildlife biologists usually strap them to trees or poles, or mount them on solid bases with equipment provided by the manufacturers. I set mine loose on paving stones, with a brick at their back, but they are then at risk of being toppled by birds who use them as launching pads, leaving photos of their tails and of passing cloud formations.

The light sensors in the cameras are typically 16 or 20 megapixels but they may range from 12 to 60 MP, obviously influencing the price, as does the means of downloading photos and videos, whether by USB cable or wireless. Most use batteries and are reasonably conservative with battery life, depending on the settings. Some more expensive models are solar powered.

There is a somewhat overwhelming choice of models available, with slightly excessive model turnover. Prices range from about $40 to $400, with many models under $100 and most under $150. To this you have to add the cost of batteries (often AA batteries) and an SD memory card, either standard size or micro, though some models have these bundled with the camera. Sometimes you can get package deals for a pair or a quartet of cams. I get a lot of enjoyment with my four ($60 apiece, discounted from $75), which I position facing my three shallow bird baths and then an extra one that I set down in a different spot each week. Some people place them to monitor feeders, nest boxes or nests, but I restrict my interventions to providing clean drinking and bathing water at our "Poplar Gardens Sip & Dip Spa."

The cams can produce some surprisingly good pictures, including birds in flight, parenting, etc. Besides the drama, they also give you a sense of visitation schedules (if any). We've had dozens of species of birds show up at least once and about a dozen who are very regular visitors outside of migration. Mammals I've caught include opossum, eastern cottontail, European rabbit, eastern chipmunk, grey squirrel, groundhog, white-footed mouse, raccoon, striped skunk, red fox, coyote, and several different cats (though not our Barney, who resides entirely indoors).

I download the pictures weekly. I retired the cameras for the summer this June when we were down to mostly an abundance of House Sparrows, European Starlings, and

Streak, newly returned

American Robins, including a partially leucistic male we call Streak, who has been with us for two years. I was getting up to 3,000 pictures on one of the cameras at each download, and feeling a bit overwhelmed with choice. It was still interesting to see behavioural patterns, even if the diversity was low, but I needed a break from the sorting.

Because I was beginning to see somewhat more varied visitors to the baths, I put the cameras back out again on the 4th of September. In the first week, there were about 1,500 pictures in total from the four cameras. Even though many of them were merely waving blades of grass, others continued to provide new garden insights.

Article and photos James Eckenwalder

VOLUNTEER PROFILE – JANE CLUVER

Like many TFN members, Jane Cluver was introduced to TFN through her network. She began joining TFN walks shortly after retiring from a career in communications with the Ontario Public Service, first at the Ministry of Health, and then at the Ministry of the Environment. She enjoys TFN walks because she loves getting outside and looking at nature in detail. Over the years, she has become very interested in plant, tree and bird identification.

For two years Jane was a member at large on TFN's board of directors, and by 2016 she was sharing the walks coordinator role with Margaret McRae. She took over the entire walks coordinator role in early 2020, around the time the pandemic began.

Jane helped the walks program to navigate the uncertainties of the pandemic and find new ways of operating. For example, upcoming walks are now listed on the members section of the TFN website, which allows for more flexibility and accommodates changes to the program, whereas before the pandemic all the details of the walk schedule had to be confirmed before the newsletter deadline.

Jane has recently turned over the walks coordination role to another volunteer and will now focus her volunteer efforts on stewardship activities. Currently, she spends about five hours a week participating in stewardship programs, dividing her time between Milne Hollow in the East Don River valley (part of the City of Toronto's Community Stewardship Program) and Todmorden Mills (independently run).

Most stewardship takes place in the evening. The two sites that Jane favours have daytime stewardship, which means they can keep running deep into the fall, not limited by earlier sunsets as are the evening programs. Stewards at all sites are involved in a wide range of activities – pulling garlic mustard, digging dog strangling vine, rescuing small shrubs from riverbank grape, planting native species and generally taking care of vulnerable plants.

In the fall the stewardship focus turns to removing invasive trees such as common buckthorn, Manitoba maple, and black locust. Stewards don't use chemical treatments to remove invasive species. Instead, they use different methods of tree removal, like cutting trees and covering the stumps to ensure they do not survive. These days, Jane says, "stewards love extractigators." An extractigator is a unique Canadian-made tree-pulling tool that levers a tree out of the ground leaving no stump. About stewardship, Jane says "I love it. It takes you into the urban wilderness. You work with a friendly team, and at the same time you feel you're doing something worthwhile."

Jane notes that TFN is always looking for new walk leaders and she encourages members to consider leading walks. She points out that one doesn't need to be an expert naturalist to be a walk leader, because fellow walkers will share their knowledge. Rather, the most important requirement for a walk leader is that they are prepared for the outing and able to lead a group without getting lost. (To volunteer or for more information, email mailto:walkscomm@torontofieldnaturalists.)

Tracy Garner

UPCOMING JUNIOR NATURALISTS' EVENTS

We are excited to welcome families with children between 6-12 years to join in the TFN Juniors winter programs that run Saturday mornings 10:00 am – 12:00 noon.

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

Subsequent events will be announced on TFN's website at https://tfngo.to/juniors

Please contact Anne Purvis at juniortfn@torontofieldnaturalists.org if you wish to join the TFN Juniors. 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

Mosses: The Advantage of Being Small

One of my favourite views on a sunny winter morning is out the back window at the garage roof. The reds and yellows of autumn are mostly gone from the garden, as is the green of summer. But there, gleaming on the asphalt roof tiles of the garage, is a brilliant green moss garden. There are slivers of green between the paving stones of the driveway too, and on the old logs lining the garden paths. The mosses have found places to flourish while the rest of the garden has gone to sleep.

Mosses are small plants. It is thought that their ancestors were the first plants to leave water 350 million years ago for a land-based existence. All plants make their own food by photosynthesis, turning CO_2 (carbon dioxide) into sugar. To do this they need heat, moisture and sunlight, and mosses are no exception.

Mosses, being small, are able to inhabit a very special place — the boundary layers on the surfaces of things such as rocks, logs and cracks. How does the boundary layer provide what they need for sugar production? As air passes over a surface, it experiences friction, and the layer of air closest to that object slows down. The boundary layer of air closest to an object is completely still. It acts like insulation and traps heat, CO_2 and water vapour. In fact, the boundary layer contains ten times the amount of CO_2 as the surrounding air. Mosses get everything they need in the boundary layer.

When moss fruiting bodies appear — in spring or fall, mostly — they will shoot up above the boundary layer and take advantage of the turbulent moving air. They don't need the advantages the boundary layer provides for photosynthesis. They need moving air that will carry the spores to a new location.

Kneeling down to observe mosses, perhaps with a magnifying glass, is like seeing the world in miniature. It reminds me of peering through the windows of a dollhouse at the perfect reproductions of furniture. This photo of Thuidium reminds me of a fern frond. The photo of Polytrichum is like a Boreal forest of spruce trees.

Article and photos by Anne Purvis

Reference: *Gathering Moss*, 2003 Oregon State University Press, by Robin Wall Kimmerer

TREE OF THE MONTH: WHITE MULBERRY (*MORUS ALBA*)

One of our most "successful" (i.e. widespread, pervasive and abundant) alien, invasive trees, white mulberry, is much more common than its native relative, red mulberry (*Morus rubra*). Indeed, it is genetically swamping the latter through hybridization wherever the two grow near each other. Since it is not a vigorously clonal species like many others profiled here, its dispersal is due entirely to seeds germinating from the mulberries, primarily those consumed by birds. Unlike many relatively large-fruited trees, every year white mulberry produces a good crop of fruits.

Colour variants of mulberries.

Looking at the dark reddish purple splats left behind by birds, one might wonder why it is called white mulberry. While it is true that the vast majority of mulberries produced on wild trees here are very dark at maturity, during their ripening they pass through greenish white, pinkish and red stages along the way. The fact that there are trees some or all of whose fruits mature white was seized upon by Linnaeus when he named this eastern Asian species *M. alba* (white mulberry), in contrast to North American *M. rubra* (red mulberry) and western Asian *M. nigra* (black mulberry). In neither of these other species do the fruits mature white, despite going through similar colour changes to white mulberry during ripening.

Leaf lobe variation.

Variable leaf lobing along a shoot of white mulberry, with trailing edges more extensively lobed than leading edges. Photos: Ron Dengler

Botany is full of intellectual traps, with similar-looking structures often having more or less profound underlying differences. The fruits of mulberries are an example. They look just like blackberries and raspberries (*Rubus* spp.), tight balls of tiny fleshy spheres, each surrounding a hard, round kernel. Look more closely and they prove to be completely different structures. The blackberry is an aggregate fruit, the many individual drupelets (stone fruits) each maturing from a separate ovary within a single flower, the flesh provided by the middle layer of the ovary wall and the stone (or pit) by its inner layer, surrounding a single seed. A mulberry, in contrast, is a multiple fruit, derived from a whole, dense inflorescence in which each unit comes from a separate complete flower, the single ovary of each flower providing only the hard kernel around the single seed, and the flesh derived from expansion of the calyx (sepals). Thus blackberries and mulberries have nothing in common except for the way they look to us, and presumably to other fruit-eating mammals and birds!

White mulberry was originally introduced to North America, Europe and many other places beyond its native range, not just for its edible fruits, sometimes used medicinally, but also in hopes of establishing local silk industries. The long-domesticated silkworms, whose cocoons are unraveled and woven to produce this expensive commodity, are most often fed with white mulberry leaves. These leaves are as outstanding a feature of the tree as the fruits, the most conspicuously varied in shape among those of all of our trees (perhaps with the exception of Manitoba maple). The broadly ovate (two-dimensionally egg-shaped) overall outline of the leaves, and their fairly uniform sharp toothing (serration) along the whole edge, are no more varied than they are in most other trees. The lobing, however, is another story.

Leaves can range from entirely unlobed to almost as complexly dissected as one segment of a parsley leaf, with lobes on top of lobes. Look at leaves on slow-growing shoots, like first year seedlings or in the crown of a mature tree, and you will find almost all of them unlobed or a few, perhaps, with a single small lobe at the base on one or both sides. On saplings and on sprouts from cut stumps or wounded trunks, all vigorously growing, most, if not all, leaves will be lobed. Among the leaves, the size and prevalence of lobes are greatest near the base, become progressively less as you move towards the tip, and, at each distance, the prevalence is dependent on there being lobes further down. Thus, you never see lobes near the tip if there aren't also lobes near the middle and base. The most common lobed leaf form has five lobes, all five associated with the five palmate veins that radiate from the point where the blade attaches to the petiole (leaf stalk).

continued on next page

STATE OF THE WORLD'S BIRDS

The latest *State of the World's Birds* report, published every four years by BirdLife International, paints a concerning picture: nearly half of all bird species were found to be in decline, and one in eight bird species is currently threatened with extinction. Factors driving these losses include agricultural expansion and intensification, unsustainable logging and forest management, and climate change. The report concludes that one of the most urgent actions needed to address the biodiversity crisis is to effectively conserve and manage the most critical sites for birds and biodiversity. The over 13,600 Important Bird and Biodiversity Areas (IBAs) that have been identified worldwide will be important for ensuring that efforts to expand protected areas to cover 30% of land and sea are targeted to the most important locations.

The endangered Piping Plover, Toronto Island. Photo Ken Sproule

The report acknowledges the essential contributions of Citizen Scientists. Birds Canada volunteers who participate in breeding bird atlases, the Christmas Bird Count and other programs, and who submit bird checklists to eBird Canada, can take pride in knowing their local efforts are used to assess the status of bird populations and inform conservation at the global scale.

Despite declines in many populations, birds provide us with reasons for hope. They show that, with effective action, species can be saved and nature can recover. Since 2013, 726 globally threatened bird species have directly benefitted from actions of the BirdLife Partnership and over 450 IBAs have been designated as protected areas through the advocacy efforts of BirdLife Partners. Dr. Stuart Butchart, Chief Scientist at BirdLife International, explains, "Our research shows that between 21 and 32 bird species would have gone extinct since 1993 without the conservation efforts undertaken to save them."

Wendy Rothwell

For further information, see https://tfngo.to/worldsbirds

TREE OF THE MONTH *continued*

Any additional lobes are interpreted as secondary lobes on these five primary ones. On largely horizontal shoots with leaves oriented out to the sides (distichous), leaf lobing is often asymmetrical, with fewer and/or shallower lobes on the leading edge.

In previous articles on eastern cottonwood and ginkgo, I have discussed differences between preformed leaves (overwintering in the bud and emerging as the spring flush) and neoformed leaves (initiated and expanding during the current growing season). Could lobed versus unlobed leaves of white mulberry be another example of this phenomenon of seasonal heterophylly? If that were true, unlobed leaves would be restricted to the bases of shoots, with lobed leaves beyond. I invite you to examine shoots of white mulberry (in the summer when the leaves are back) and see if the distribution of lobed and unlobed leaves conforms to this expectation.

Two other unusual features of the leaves seem worth mentioning. They contain a milky latex, a family feature common to other Moraceae, including all of the many hundreds of species of figs (*Ficus* spp.), like the India rubber tree (*F. elastica*), whose latex used to be tapped as a source of natural rubber. Like Siberian elm, also introduced from northeastern Asia, white mulberry starts to develop its yellow fall colour at a shorter day length than any of our native trees. As a result, we sometimes find carpets of its dark green leaves beneath mature individuals, killed and felled by a hard frost before day-length-inspired colouring has yet taken hold.

Although its leaves never formed the basis of an enduring silk industry here or in most other places to which it was introduced, white mulberry remained and has become one of our most common trees in Toronto, especially along property boundaries, even if no one deliberately plants it anymore.

James Eckenwalder

EXTRACTS FROM OUTINGS LEADERS' REPORTS

South Humber Meadows and Marsh, Sept 16. Leader: Lillian Natalizio. On this cloudy September day, at least six aster species, three goldenrod species, three sunflower species, and white snakeroot were in full bloom, supporting multitudes of bumble bees and a few monarch butterflies. Pearly everlasting, ironweed and shrubby cinquefoil were still showing colour. A few butterfly milkweed plants had flowers still open, while common milkweed plants had started disbursing their seeds. Masses of spotted jewelweed were in full bloom on the armour stones along the bay and mouth of the river, where a mink and a vole were seen. Double-crested Cormorants, Hooded Mergansers and a lone female goldeneye were seen feeding in the bay while immature gulls attempted to steal their catches. Hundreds more gulls and cormorants were lined up on the breakwaters at Sunnyside Park, but it was a count of one each of Great Blue Heron and Wood Duck in the marsh. It was a day for juveniles as, along with the gulls, there was a juvenile cardinal calling for its parents, more than a dozen juvenile Red-winged Blackbirds and many juvenile House Sparrows that seemed much too accustomed to human presence.

Yellow-rumped Warbler.
Photo: Lillian Natalizio

Milne Hollow and Moccasin Trail Park, Sept 21. Leader: Stephen Smith. We toured areas that have been taken care of by the Milne Hollow CSP stewardship volunteers for many years. We looked at a new pollinator garden and discussed the varieties of plants used and the differences between natural meadows and pollinator gardens. Many trees and shrubs planted by volunteers in the early 2000s had grown to 20-30 feet. White pines, red and bur oaks, white birch and white cedar were all getting to a good size. Large colonies of staghorn sumac, grey dogwood and red osier dogwood had established well. The lands are well on their way to becoming a new young forest.

Inky cap mushrooms.
Photo: Paul Overy

Birds, Colonel Samuel Smith Park, Sept 22. Leader: David Creelman. We visited several traditionally birdy areas in the park. In the northern 'Bowl' area we saw many warblers –Yellow-rumped, Bay-breasted, Chestnut-sided, Wilson's and American Redstart. Also seen were a Red-breasted Nuthatch, White-throated Sparrows, and a pair of Downy Woodpeckers. We saw Blue Jays migrating in their distinctive low flying, landing-in-treetop way. Moving south we saw a Cooper's Hawk. Numerous Black-crowned Night-herons and one Great Blue Heron were in the almost dried-out pond. One Northern Flicker fed above. On the outer peninsula we were delighted to see two Rusty Blackbirds, an American Pipit, a Savannah Sparrow and a low flying Northern Harrier. Other species seen in that area included Palm Warblers, Red-necked Grebes, and a goldeneye. More common (but still welcome) species seen were Canada Geese, Mute Swans, Double-crested Cormorants and Mallards.

Etobicoke Creek Trail, Sept 28. Leader: Lillian Natalizio. Cool temperatures and overcast skies didn't deter the Great Blue Heron and Belted Kingfishers from flying. Other bird sightings along the creek included a flock of Yellow-rumped and Blackburnian Warblers and Swainson's Thrushes. Recent rains had raised the water level allowing a few salmon to start making their way upstream. On land, Virginia creeper, staghorn and fragrant sumacs, hawthorns, and maples had started changing colour, while a few sunflowers and several aster species, particularly heart-leaved asters, were in full bloom. As we passed through a fragrant hemlock grove, masses of zigzag goldenrod were in flower, while the numerous pale jewelweed plants had finally faded.

Cottonwood Flats, Oct 8. Leader: Ellen Schwartzel. After traversing the underpass of the DVP, the autumn landscape unfolded, with many meadow plants still in bloom including goldenrod, tansy, butter and eggs, viper's bugloss and chicory. Trailside poison ivy displayed autumn colours – some patches vibrant red, others glowing yellow. Ripe rose hips covered the swamp roses. Under the cottonwoods, a cluster of inky cap mushrooms showed all stages of maturity, from early shaggy-mane to late stages with inky black spores dripping from the gills. It was heartening to reflect on TFN volunteers monitoring the gradual restoration of this site since 2017 as part of a citizen science project in partnership with the City of Toronto. Even more encouraging, TFN volunteers have now begun to manage invasive plants like tansy on site, as part of the City's Community Stewardship Program.

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WEATHER (THIS TIME LAST YEAR)

December 2021

Toronto closed the year with a very mild December as the warm southwesterly atmospheric flow from the Gulf of Mexico that had prevailed in August and October reasserted itself. It was especially warm from the 10th-17th, with the highest reading of 17.9˚ attained on the 11th at Pearson Airport. Temperatures were also in the mid-teens on the 15th-16th. Cold fronts brought periodic brief interludes of winter weather. Precipitation, including snow, was slightly above the long-term average. Indeed, we had four snowfalls of 5 cm or more dispersed through the month, and almost half the days of the month reported snow on the ground (15 downtown, 14 at Pearson. However, the snow rapidly melted each time. For example, Christmas was stripped of snow by rain on Christmas Eve.

The monthly stats are as follows:

Mean temperature 2.5˚ downtown and 1.6˚ at Pearson (2.4˚ and 2.9˚ above normal respectively). This is the fourth warmest on record at both locations, and still quite short of the record set in 2015.

Total precipitation 59.3 mm downtown and 68.0 mm at Pearson (just 0.4 mm above normal downtown and 10.5 mm above normal at Pearson).

Snowfall 27.8 cm at Pearson; not recorded downtown. This is 3.2 cm above the normal and remarkable given how mild December was.

December was also very windy, as the warm influx brought a strong contrast with arctic air building up to the north and west, fueling storms. There were several days with gusts above 70 km/h. Pearson had a gust of 96 km/h on the 11th and 94 km/h on the 16th. Toronto Island had a gust of 100 km/h on the 11th. Ontario managed to avoid the devastating tornadoes in Kentucky overnight, though there was some tree damage December 10th-11th.

The same weather pattern that brought the mild and stormy weather to Ontario also brought a deep freeze to western Canada. Normally, the west is more moderate than the east. Not in 2021. After the record heat and fires of early summer 2021 and the extreme flooding of the fall, snow and cold struck British Columbia. Lytton dropped to -25.8˚ on December 27th. This contrasts with the all-time Canadian record of 49.6˚ on June 29th, an incredible range of over 75˚ within six months. It is comparable with the conditions in the Turpan depression in western China, a desert area below sea level which ranges between Arabian heat in the summer and Siberian cold in the winter.

Annual Summary for 2021

It was the 4th warmest year on record both downtown and at Pearson Airport. The annual mean temperature was 10.0˚ at Pearson and 10.8˚ downtown, 1.3˚ and 1.1˚ above the 30-year average respectively. March, June, August through October and December were particularly warm, although no monthly records were set. Only February and July had below normal temperatures.

Total precipitation was 753.0 mm downtown and 824.8 mm at Pearson, slightly below normal downtown and slightly above normal at Pearson. Dry weather in the spring, parts of late summer and parts of late fall was offset by wet conditions in July and early fall.

January 2022

January turned out to be the most severe winter month in several years. This came after two consecutive mild winters (2019-20 and 2020-21) as well as a mild (but wet and snowy) start to this winter in November-December 2021.

The pattern switched from mild and wet to cold and dry right after New Year's Day (which was the warmest day of the month with highs around +5˚). Arctic high pressure on the 10th brought the first -20˚ readings since January 31, 2019 (downtown, although Pearson briefly touched this value on Valentine's Day 2020). A total of four days dropped to -20˚ at Pearson and two days downtown. Pearson's lowest minimum came on the 29th at -21.2˚. Elsewhere in the outlying areas, Buttonville reached -23.8˚ on the 29th, King City -26.1˚ on the 11th, and Georgetown -26.5˚ on the 21st.

Monthly mean temperatures ended up being 3.3˚ below normal at both of the main Toronto weather stations. The average was -8.3˚ at Pearson and -6.8˚ downtown. This was the coldest January since 2014 and the coldest month since the historic and unprecedented February of 2015.

A winter storm originating in the southern U.S. hit southern and eastern Ontario on the 16th-17th. It wasn't of long duration but was extremely intense, fed by moisture from the Gulf of Mexico (which was warmer than normal) interacting with the arctic air. Toronto had 32-35 cm of snow, while a swath from Niagara through Oshawa to Ottawa had 45-55 cm. This partially shut down the city for several days, further delaying the return of students to school from the Omicron wave of COVID-19. It brought

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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.

NEWSLETTER

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WEATHER *continued*

back memories of Mayor Mel Lastman calling in the army after heavy snow in 1999, though that incident involved back-to-back snowstorms over several days.

In fact, this was the main precipitation event in an otherwise dry month. Total precipitation was 43.0 mm at Pearson and 50.6 mm downtown. These values are slightly below normal in spite of the persistent deep snow cover in the second half of the month. Pearson's snowfall total of 47.8 cm was about 15-20 cm above normal, but rainfall was only 1.0 mm.

This month brought inclement winter weather to other parts of the world. Relatively close at hand, an Atlantic nor'easter snowstorm missed us to the east on the 28th but hammered Boston and other parts of the East Coast. It also dragged the arctic air over Ontario down over Florida, which experienced its first significant freeze in years.

Further away, heavy snowfalls hit Spain (around the 10th) and the eastern Mediterranean from Athens through Turkey to Israel around the 24th-26th. In some places the snowfall amounts were about the same as hit Ontario on the 16th, in parts of the world much less equipped to deal with it.

Gavin Miller

LEADERS EXTRACTS *continued from page 12*

Humber Valley (Remembering Hurricane Hazel), Oct 15. Leader: Madeleine McDowell. Following a Land Acknowledgment, we talked about the Humber's drop of 393 metres, the 20 billion gallons of water that fell and ran off in 24 hours causing a flood crest of 6.2 metres about midnight 68 years ago. We viewed the high water mark on the Bloor Street Bridge and visited the 50th anniversary provincial plaque commemorating the flood. Under the subway bridge we viewed Anishinaabe Artist Phil Coté's murals about the Ojibway creation story. We proceeded to the Old Mill Bridge, with a photo of it taken October 16, 1954, and stood on the spot in the photo that was washed out by the river. As the rain stopped and the sun came out, we saw a Great Blue Heron, gulls, and cormorants drying off. The trees were spectacular in colour including an oak that was a true deep red. We visited the plaque commemorating the firemen who were drowned and then the site of Fisher's Mill, the stone foundations of which remain almost intact, providing a superb hibernaculum that will soon be loaded with many varieties of snakes. At the weir near Dundas, Kayoko spotted a salmon leaping. We all stopped to watch and saw two more fairly close.

Humber Valley Walk, October 15. Photo: Kayoko Smith

Trees, Centennial Park and Etobicoke Creek Ravine, Oct 19. Leader: Lillian Natalizio. In Centennial Park, we noted three large cottonwood trees favoured by cormorants, orioles, and many other songbirds in the spring. Heading upstream along the top of the Etobicoke Creek ravine, the dominant sugar maples were well into their senescence, littering the trail and slope with red and yellow leaves, while numerous large red oaks were still holding onto their green leaves. The roots of a majestic white pine sprawled many meters over the hillside and a few small eastern hemlocks waited for their time in the sun. North of the hydro corridor the character of the woods changed, with shagbark hickory and bur oak competing with the bitternut hickories and red oaks seen earlier, and American beech trees being more numerous. Backtracking, we crossed the golf course into the park, heading for the remnant maple-beech woods. Some characteristics of mature forest were evident: numerous pits and mounds, a few massive sugar maples, and beech drops ringing one particularly large beech tree. Also seen were the last two yellow birches in the park, several downed ash trees, a few recently introduced pawpaws, and many black cherry trees. Exiting the woods, we watched a Golden-crowned Kinglet and an Eastern Phoebe in the Japanese maple and honey locust planted by the little pond.

Earl Bales Park, Oct 23. Leaders: Bob Kortright and Rachel Gottesman. Between glimpses of Golden-crowned and Ruby-crowned Kinglets, Hermit Thrush, Brown-headed Cowbirds, White-throated Sparrow, Downy Woodpecker, cardinal, geese and ducks, Blue Jay, crows, Turkey Vultures, and Red-tailed Hawk, we noted field, sugar and silver maple as well as all the worst invasive plants including Norway maple, mulberry, dog-strangling vine, oriental bittersweet, burdock, garlic mustard, phragmites, common buckthorn, Asian bush honeysuckle, both burning bushes (winged euonymus and spindle-tree), and European birch. But the woods on the slopes above the reservoir contained a wonderful mix of bur, white and red oak, red osier, gray and pagoda dogwood, white pine, red and white cedar, ironwood, basswood, and other natives dominated by big sugar maples.

Leslie Street Spit, Oct 26. Leader: Charles Bruce-Thompson. There were large numbers of flying insects so perhaps the many flowers in bloom still had a chance of being pollinated, even this late in the year. Among the many flowers we observed in bloom were bladder campion, calico aster, Canada thistle, chicory, common cinquefoil, common mallow, crown vetch, evening primrose, heath aster, field sow-thistle, goldenrods, New England aster, panicled aster, perennial wall-rocket, Queen Anne's lace, spotted knapweed, tansy, toadflax, white campion, white sweet clover and viper's bugloss. There were plenty of birds flitting around, not all of which we were able to identify (too much flitting). Some of the more notable birds were: American Coot, Belted Kingfisher, Blue-winged Teal, Dark-eyed Junco, Gadwall, Great Egret, Greater Black-backed Gull, Greater Scaup, Golden-crowned Kinglet, Northern Shoveler, Red-breasted Merganser, Ruby-crowned Kinglet, Song Sparrow, White-throated Sparrow, White-winged Scoter, Wood Duck and Yellow-rumped Warblers. I noticed, for the first time, a few House Sparrows on the Spit, as well as Rock Doves and European Starlings.

FOCUS ON NATURE — AUTUMN COLOURS

The October challenge for TFN's Photography Group was autumn colours. This striking image was submitted by Bill Cruttwell.

The photograph was taken amongst the tall trees in the wooded area of Milliken Park in Scarborough. Using a wide angle lens, I aimed my camera upward for a different perspective to capture the autumn colours. Exposing for a blue sky darkened the tree trunks, creating a more dramatic look. The colours and angles add interest to this image and the convergence suggests that the trees are reaching for the sky.

Bill Crutwell

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

TFN LECTURE

Sunday, December 4 at 2:30 pm

See page 5 for information about lectures via Zoom

Unlocking potential for funding new parks in Toronto

Yellow Creek. Photo: Philip Jessup

Jean-François Obregón Murillo, Researcher, Toronto Metropolitan University, will propose ways to free up funds for parkland expansion without burdening the taxpayer. A must-hear lecture for anyone interested in learning about the inner workings and issues of the City's financing of parkland.

Upcoming Lectures, 2023, by Zoom :

Feb 5 Weeding out Phragmites: What's Working?
Panel includes Dr Janice M. Gilbert, Founder and E.D. of Invasive Phragmites Control Centre; Lynn Short, Environmental Stewardship Coordinator, Humber College; and other experts

Mar 5: Eastern Coyote – a Successful Eco-Influencer
Lesley Sampson, Co-founding Executive Director, Coyote Watch Canada

Apr 2: Ontario Turtle Conservation Centre: Fieldwork and Program
April DeJong, Research Coordinator, OTCC