



Since 1923

TORONTO FIELD NATURALIST

Number 631 November 2017



Carpenter Bee. Photo: Jenny Bull (see page 16)

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Mission Statement:

Toronto Field Naturalists connects people with nature in the Toronto area. We help people understand, enjoy, and protect Toronto's green spaces and the species that inhabit them.

Toronto Field Naturalist is published by the Toronto Field Naturalists, a charitable, non-profit organization. Issued monthly September to December and February to May. Views expressed in the Newsletter are not necessarily those of the editor or Toronto Field Naturalists. The Newsletter is printed on 100% recycled paper.

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IT'S YOUR NEWSLETTER!

We welcome contributions of original writing (between 20 and 500 words) of observations on nature, especially in the Toronto area. We also welcome reports, reviews, poems, sketches, paintings and digital photographs. Please include "Newsletter" in the subject line when sending by email or on the envelope if sent by mail.

Please re-name digital photographs with the subject and your name (abbreviations ok). In the accompanying email include location, date and any interesting story or other information associated with the photograph.

Deadline for submissions for December issue: Nov 1

NEWSLETTER COMMITTEE

Kathleen Brooks, Jenny Bull, Vivienne Denton, Karin Fawthrop, Nancy Fredenburg, Elisabeth Gladstone, Judy Marshall, Lynn Miller, Toshi Oikawa, Jennifer Smith, Wendy Rothwell (editor).

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MEMBERSHIP FEES

| | ONLINE NEWSLETTER | MAILED NEWSLETTER |
|---------------------|----------------------|----------------------|
| YOUTH (under 26) | \$10 | \$20 |
| SENIOR SINGLE (65+) | \$30 | \$40 |
| SINGLE | \$40 | \$50 |
| SENIOR FAMILY (65+) | \$40 | \$50 |
| FAMILY | \$50 | \$60 |

No HST. Tax receipts issued for donations. Send membership fees and address changes to the TFN office.

Please note: TFN does not give out its membership list.

Toronto Field Naturalists

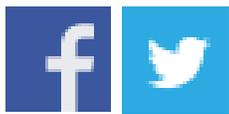
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The office is open 9:30 am to noon on Fridays



TFN is on Twitter and Facebook! Got something interesting to share? We'd love to get your photos and insights on TFN activities, Toronto nature events and interesting nature news. Just email media@torontofieldnaturalists.org and be sure to include what your photo is and where it was taken.

To read posts, go to www.torontofieldnaturalists.org and click on Twitter or Facebook.



Monarch butterfly.

Photo by Margaret McRae

TAGGING MONARCHS AT THE CNE

Anne Purvis and I spent two afternoons at Scadding Cabin at the CNE in late August tagging monarch butterflies and talking about raising butterflies. We showed small and large caterpillars and pupas. We had close to 300 observers in the two days including many children. We left our stuff there overnight and one butterfly emerged overnight which delighted the people working at the cabin. We also had one emerge in the afternoon, which thrilled the people watching, and we later tagged it.

Usually I tag butterflies that I raise at home and get them while they are caged, but at the CNE we had to catch them in order to tag them. Fortunately we were able to borrow a net from Carol Sellers. The first day was easy but the second day was cooler and cloudy and we didn't catch any until late afternoon when the sun came out.

Margaret McRae

TFN MEETING

Sunday, Nov 5, 2:30 pm

Double-crested Cormorants and Leslie Street Spit's Urban Wilderness

*Gail Fraser, Associate Professor, Environmental Studies, York University,
will examine the ecology, behaviour, management
and conflicts of the Spit's cormorant colonies.*

VISITORS WELCOME!

SOCIAL: 2:00 – 2:30 pm

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

Just south of Museum subway station exit, east side of Queen's Park. Accessible entrance: second door south on Queen's Park. Elevator inside to the right. Room 001 is one floor below street level.

For information: call 416-593-2656 up to noon on the Friday preceding the lecture.

**Share your thoughts and insights about this lecture on social media
with the hashtag #TFNTalk.**

*Cormorants perch high
In tattered treetops black shapes
Against the blue sky*

Haiku, Elisabeth Gladstone

UPCOMING TFN LECTURES

- Dec 3 Ontario's Amphibians at all Stages of Development
Peter Mills, author and illustrator, *Metamorphosis: Ontario's Amphibians at All Stages of Development*
- Feb 4 What Makes a Heritage Tree? The Case of Toronto's Red Oak
Edith George, environmental activist and Peter Wynnyczuk, arborist and Executive Director of the Ontario Urban Forest Council
- Mar 4 Ethics in Wildlife Photography
Mark Peck, Royal Ontario Museum Department of Natural History
- Apr 8 Moths of Thicksen's Woods
Phill Holder of the Matt Holder Environmental Education Fund
- May 6 Indigenous Knowledge and Ecology
Deborah McGregor, Associate Professor & Canada Research Chair in Indigenous Environmental Justice

TFN OUTINGS

- TFN events are conducted by unpaid volunteers.
- TFN assumes no responsibility for injuries sustained by anyone participating in our activities.
- Children and visitors are welcome at all TFN events. Children must be accompanied by an adult.
- If you plan to bring children in a stroller, be aware that there may be steps or other unsuitable terrain.
- Please do not bring pets.
- To get to outings on time, check TTC routes and schedules (www.ttc.ca or 416-393-4636).
- Outings go rain or shine: check the weather by calling 416-661-0123 so you will know what to wear.
- Wear appropriate footwear for walking on trails which may be muddy, steep or uneven.
- *Please thoroughly clean your footwear before each outing to avoid spreading invasive seeds.*
- **We recommend you check with the TTC for any schedule disruptions which may occur on weekends. Allow extra time if necessary.**

Please share your favourite walk photos on social media with the hashtag #TFNWalk.

- Tues
Oct 31
1:00 pm **THE HAUNTING OF LESLIE CREEK – Nature and Heritage**
Leader: Joanne Doucette. Meet outside Pape subway station for a linear walk on mostly paved surfaces with stairs and some steep slopes.
- Sat
Nov 4
10:00 am **SEEDS AND FRUITS, MOSSES AND FUNGI – Nature Walk**
Leader: Anne Purvis. Meet at the northeast corner of Beechwood Dr and O'Connor Dr for a walk along the north side of the Don River on narrow rough dirt trails. No washrooms. Walk will end at Thorncliffe Park Dr.
- Sun
Nov 5
2:30 pm **LECTURE: Double-crested Cormorants and Leslie Street Spit's Urban Wilderness**
Speaker: Gail Fraser, Associate Professor of Environmental Studies, York University
Emmanuel College, 75 Queens Park Cres E. See details on page 3.
- Tues
Nov 7
9:45 am **TORONTO ISLANDS – Birds**
Leader: Doug Paton. Meet at the ferry docks in time for the 10 am ferry to Ward's Island. You can buy your ferry tickets online which is a time-saver. Washrooms at the ferry docks. Morning only.
- Sat
Nov 11
10:00 am **GUILD WOODS AND GARDENS – Fungi, Flora and Fauna**
Leader: Bob Kortright. Meet at the west end of Guild Inn parking lot for a circular walk on mostly unpaved surfaces, flat with some steep slopes. We will explore the flat Guild woods and gardens for fungi and flora before going down the hill to view the lake and bluffs. Bring binoculars. Washrooms at beginning of walk.
- Wed
Nov 15
10:30 am **ST JOHN'S CEMETERY, NORWAY – Trees, Nature and Heritage**
Leader: Joanne Doucette. Meet at the entrance to the cemetery on Kingston Rd just west of Woodbine Ave for a circular walk on mostly paved surfaces with gentle slopes. No washrooms.
- Sat
Nov 18
10:00 am **HUMBER BAY PARK EAST – Trees and Nature**
Leader: D Andrew White. Meet on the south side of Lake Shore Blvd W at Marine Parade Dr/Park Lawn Rd for a circular walk. Bring lunch if you wish and binoculars. No washrooms.
- Sun
Nov 19
1:00 pm **AUTUMN DUCK WALK THROUGH CROTHERS WOODS – Lost Rivers Walk**
Leader: John Wilson. Meet at Leaside Park, Millwood Rd and Overlea Blvd at the north end of the Leaside Bridge. A joint outing with Toronto Green Community, Thorncliffe Park Women's Committee and Evergreen. A linear walk along forested trails in the Don Valley to the Beechwood and Cottonwood Flats area where we'll tour the natural features of this riverside wonderland and look for the ducks that winter in the area. We will then board a bus in the valley, courtesy of Evergreen, that will return us to the starting point. No washrooms.
- Thurs
Nov 23
10:00 am **HUMBER VALLEY FLOODPLAIN – Nature and Heritage**
Leader: Linda McCaffrey. Meet at Old Mill subway station for a circular walk on mostly paved surfaces, flat with some steep slopes and stairs. We will make a circuit of the valley noting water birds, a historical inn, remnants of a ruined mill and the rich history of this important river. Bring warm clothes, water and binoculars.

- Sat
Nov 25
10:00 am
- THOMSON MEMORIAL PARK – Nature Walk**
Leader: Jonathan Harris. Meet at the parking lot off of Brimley Rd north of Lawrence Ave E for a 2-3 hr circular hike with an option to continue on a linear route northwest along west Highland Creek up to Ellesmere Rd.
- Wed
Nov 29
10:00 am
- ASHBRIDGE'S BAY – Birds**
Leader: Anne Powell. Meet at the southwest corner of Coxwell Ave and Lake Shore Blvd E for a circular walk on mostly paved flat surfaces. No washrooms. Bring binoculars.



TFN BOARD MEMBERS

Seated, from left: Ken Sproule, Jason Ramsay-Brown, Anne Powell, Bob Kortright.
Standing: Anne Purvis, Vivienne Denton, Jane Cluver, Alex Wellington,
Charles Bruce-Thompson, Elizabeth Block. Absent: Nancy Dengler, Lynn Miller.

Outreach Helpers Needed

We have been receiving lots of requests to lead walks for outside groups and I am having difficulty finding leaders for them. In particular we need leaders in the west end. I have at least 3 requests for leaders in the Rustic community which is around Jane and Wilson and I have also turned down requests for the Jane Finch area. There are also groups who will take a chartered bus to go anywhere for a walk.

Please let me know if you would be willing to lead a walk and in what areas. You don't have to be an expert.

Margaret McRae (marg.mcrae@gmail.com or 416-429-7821)

PRESIDENT'S REPORT

The TFN board bids a reluctant farewell to Charles "Chuck" Crawford.

Originally, Chuck graciously stepped up to assume the role of treasurer when that position became vacant unexpectedly.

Although initially unfamiliar with our financial reporting methods, he quickly mastered their

intricacies. He left TFN finances in a healthy state before passing on treasurer duties to Bob Kortright. If that weren't enough, Chuck then stepped up once again to take on the position of vice-president. We'll miss your calm competency and dry wit. We are happy that your committee work continues.



Chuck Crawford
Photo Anne Powell

We welcome to the board two new members: Anne Purvis and Ken Sproule.

Anne Purvis is well known to most members through the outings she has led. I remember one particularly that had mosses as its focus. Anne, through her knowledge and enthusiasm, made these modest small flowerless plants a fascinating subject for study and discussion. A biologist by training, she and her husband Jim own a 180 acre parcel of land on an island in Northumberland County, which they have been restoring and monitoring. Anne is also active in Scientists in School, taking life science hands-on workshops into schools around the GTA. Anne is our representative on Greenbelt issues, where she acts as a staunch defender of the continuing struggle against urban encroachment, habitat loss and fragmentation.

Ken Sproule is also probably well known to most members who participate in TFN outings. He's frequently to be seen lingering along the trail photographing (and identifying) insects overlooked by the rest of us. To see what the rest of us missed, you can visit his web site: www.toronto-wildlife.com, a visual collection of about 2000 species he has found in the GTA including everything from slime-moulds to centipedes, all identified and catalogued. Ken is a member of the Field Botanists of Ontario and the Toronto Entomologists' Association and participates in the

weekly High Park moth study from spring to fall to catalogue the park's moth species (almost 800 species so far and counting).

We are fortunate to be able to recruit board members of this calibre who freely give their valuable time, energy and expertise to enable TFN to fulfil its mandate and ensure its continued health and effectiveness into the future.

On September 26 the City of Toronto executive committee met at city hall to consider the Toronto Ravine Strategy. At the heart of the strategy document is the following statement:

"This strategy provides, for the first time, an intentional and coordinated framework, vision and approach to management of this natural resource through a series of 20 actions under the five guiding principles: **Protect, Invest, Connect, Partner, and Celebrate**. These actions aim to guide the management of the ravines and ensure that the protection of these irreplaceable lands is balanced with their use and enjoyment so that they continue to function and flourish for the next 100 years and beyond."

It is encouraging that "protect" is the first-mentioned and so presumably the chief guiding principle. Jason Ramsay-Brown, representing TFN, presented a powerful and compelling deputation to the Council and responded to Councillor Janet Davis's questions fluently and persuasively. For the full text of Jason's deputation see page 12.

After many years' residence at the 2 Carlton Street office, TFN is moving to 2449 Yonge Street, which is about 400 metres north of Eglinton subway station at the southeast corner of Yonge and Erskine Avenue. The new office is a bit smaller and slightly less convenient to reach, but is certainly adequate to our needs. The lower rent will help to keep TFN financially viable. The first day of occupancy will be November 1. TFN's office-related activities will continue as before and members are welcome to visit us on Friday mornings or on any other weekday by appointment.

Charles Bruce-Thompson
president@torontofieldnaturalists.org

MONTHLY MEETING REPORT

Polar Bears and Climate Change: Is there a tipping point?

October 1, 2017

Martyn Obbard, Emeritus Research Scientist,
Ministry of Natural Resources and Forestry

Dr Martyn Obbard kept us enthralled as he shared his in-depth knowledge of polar bears and their future potential in the context of climate change. He gave a concise summary of how climate change is impacting the environment in which polar bears live. After a succinct review of hundreds of years of scientific data on atmospheric carbon dioxide concentrations, sea ice melt and freeze times, as well as sea ice coverage and air temperatures using graphs and figures from noted scientific institutions, it was clear that climate change is real, is impacting the habitats of polar bears, and we humans are responsible.

We were then introduced to the three major populations of polar bears in the Arctic. The NWT and Alaska population have historically stayed on the ice year-round because the water was relatively shallow during melt times. This, however, is an area showing large melt changes; in fact, the sea ice could completely melt within 50 years. A similar pattern is being shown with the Hudson Bay population. It is thought that the third population, living in the archipelago region of Canada (Arctic gyre) where the ice has not traditionally melted, has a better chance of persisting. However, this area, normally a multi-year sea ice environment, is changing to annual sea ice.

The home ranges of the polar bear are huge (250,000 to 500,000 km²) and the bears would stay on the ice if they could, because that is where they can hunt for the seal prey they need. The bears require “active ice” – areas that have water flow and open water present along with the ice. The ice floes provide the bears with a platform for mating

as well as for obtaining their prey of ringed and bearded seals that live and give birth on the ice. Global warming has a double negative effect. It reduces the time polar bears are able to spend feeding on the ice and building up body fat, while increasing the fasting time spent on land. This results in deterioration in body composition, reduced reproductive success and survival, and overall population decline.

Dr Obbard recently published research which shows that the Hudson Bay bears are spending 30 fewer days on the ice compared to 1980. Population data on the different social classes of bears (solitary males, solitary adult females, pregnant females and encumbered adult females with cubs) show that all are declining in terms of body mass and numbers. The females with cubs, which are probably lactating, are using more of their body fat to feed

their offspring, putting them more at risk. The bears are shorter than they were 30 years ago. While the polar bears can opportunistically catch and eat seabirds and geese, and have eaten berries, this does not provide them with enough nutrition to survive.

With the reduced ice, killer whales can now navigate the Arctic and have been seen there more

frequently over the last ten years. Since they are mammal feeders, they have the potential to displace polar bears as the apex predators of the Arctic.

Will there be a tipping point for ice? No, it can always come back. Will there be a tipping point for seals? Probably not; there are so many of them and they have healthy reproduction rates. Will there be a tipping point for polar bears? That may well depend on how well we wake up and challenge our politicians to follow through with their promises to enact measureable changes to reduce climate change – specifically atmospheric carbon dioxide concentration and average temperatures.



POLLINATOR SYMPOSIUM

On September 21st, the David Suzuki Foundation and the International Task Force on Systemic Pesticides hosted a symposium at York University. It brought together researchers from all over the world to document the latest findings of research into the impact of systemic pesticides, particularly neonicotinoids (neonics), on pollinators, aquatic invertebrates, amphibians and humans. The symposium also presented practical alternatives for farmers and the status of regulatory legislation in Canada and France. The Task Force recently launched an update to the publication *The Worldwide Integrated Assessment of the Impact of Systematic Pesticides on Biodiversity and Ecosystems* (<http://goo.gl/bvDJG1>).

Dr. Nigel Raine of the University of Guelph gave an overview of the impact of neonics on pollinators. Soil is contaminated from dust generated when neonic-coated seed, mainly corn and soy, is planted. The dust is then taken up by non-crop plants and enters all parts of a plant including the pollen and nectar. It is also washed into ponds and streams. Bees foraging on neonic-contaminated plants experience acute and chronic neurological disturbances that affect foraging behaviour, over-wintering survival of queens and reproductive behaviour. These effects may be exacerbated by other environmental stresses like habitat loss, pathogens, invasive species or climate change. While legislation has sometimes been influenced by studies of honey bees, the effect of these pesticides on solitary bees is more extreme. Between 2008 and 2013 the ranges of four out of eight bumblebees in agrarian areas of the US seriously declined. Ontario has much to protect, being home to 420 of the 855 Canadian bee species.

Elizabeth Lumawig-Heitzmann is the founder of the first Butterfly House in the Philippines, which exports butterfly pupae to butterfly conservatories all over the world including Niagara and Cambridge, Ontario. Local people plant butterfly gardens and raise butterflies, giving many of

them an income which permits them to stop cutting local forests. She reported that this industry is threatened by widespread use of neonics for crops such as rice and sugar cane.

Dr. Kumiko Taira, a medical doctor and research scientist from Japan, pointed out that neonics cannot be washed off fruit and vegetables, as they reside in all tissues of a plant. Recent research suggests a correlation between environmental exposure to neonics and neurodevelopmental disorders in children, such as ADHD and autism (<https://goo.gl/ekuLsw>).

Two scientists represented Environment and Climate Change Canada. Dr. Adrienne Bartlett demonstrated the neurological damage of neonic exposure on the freshwater amphipod (*Hyalella*) and the mayfly (*Hexagenia*). Dr. Stacey Robinson discovered a decreased anti-predatory response in recently matured frogs where tadpoles had experienced neonic exposure.

All speakers emphasized the urgency of eliminating neonic use, requiring efforts on multiple levels. Dr. Lorenzo Furlan, a Task Force member from Italy, described the successful implementation of an insurance co-operative among Italian farmers which removed the risk of choosing to stop using systemic pesticides. He insisted that legislation banning systemic pesticides is necessary to motivate farmers to look for alternatives.

Delphine Batho, representative to the French National Assembly of a farming region in France and also Minister of Ecology in 2012, said that, when beekeepers suffering from Colony Collapse Syndrome came to her seeking help, she successfully introduced an amendment to France's biodiversity law which will phase out the use of neonics starting in September 2018. Success was assured only by turning to the public for 700,000 signatures to a petition.

Continued on page 17



Bumblebee and tachinid fly.

Photos: Ken Sproule

TORONTO WILDFLOWERS: GINSENG FAMILY

The Ginseng family (Araliaceae) includes 40 to 50 genera and about 1450 species, some in temperate zones but mainly tropical shrubs or trees. Roots of some members of the genus *Panax* are the source of ginseng (see “Tangled Tales of Tonics” sidebar).

The original range for *Panax quinquefolius* (American ginseng) included most of Ontario, Quebec and the eastern half of the U.S. but its current range is uncertain. Its presence in the Rouge was reconfirmed by a recent Bioblitz, as reported to TFN by Shawn Blackburn at the March 2015 lecture. The location has not been disclosed as, should it become known, it is likely this species would quickly be locally extirpated by those “collecting” roots to make tonics. If you find it, please leave it undisturbed and make a confidential report to a pertinent government or academic group ONLY.

A close relative, *Panax trifolius* (dwarf ginseng), is illustrated. Its flower is very similar to *Panax quinquefolius* but its leaflet pattern is different and it is not a source of ginseng. In Ontario it occurs from the Georgian Bay ecoregion south to the U.S. border, but not in Toronto.

In Toronto *Aralia nudicaulis* (wild sarsaparilla, see sidebar) is common in forested areas. *Aralia racemosa* (American spikenard) is uncommon but widespread in similar environments.

A. nudicaulis plants are up to 60 cm tall. Their tiny greenish white flowers occur in globular-shaped umbels about 3.5 to 5 cm across, commonly but not always in groups of three. The flowers bloom in June or July. It can be seen in many forested areas from the Humber to the Rouge, in High Park and at the Scarborough Bluffs. It has been reported throughout all of Ontario except the west-central region, in every Canadian province and the Yukon and Northwest Territories, and most U.S. eastern states and the northern tier of western states.

A. racemosa is a taller plant, up to 2 m tall. Its tiny white or greenish white flowers form “a panicle... composed of numerous globe-shaped umbels” (*The ROM Field Guide to Wildflowers of Ontario*, 2004). The resulting flower cluster can be 20cm long and 6 to 7 cm across. This species blooms from July to August. It has been reported throughout the southern half of Ontario. Its full range is from Manitoba to Quebec and most of the eastern half of the U.S.

Article and photos by Peter Money

From top: Dwarf ginseng, *Panax trifolius*
Wild sarsaparilla, *Aralia nudicaulis*, flower clusters
American spikenard, *A. racemosa*, fruiting panicle



TANGLED TALES OF TONICS

Sarsaparilla is a tonic made from the roots of several members of the Smilax family (see TFN newsletter April 2015). The name (Oxford dictionary) comes from the Spanish *zarzaparilla*, in turn from *zarza* (bramble) and probably a diminutive of *parra* (vine). “Wild sarsaparilla” (*Aralia nudicaulis*) is a member of the Ginseng family, obviously not a source of real sarsaparilla. Its roots have been used to produce a “pseudo-sarsaparilla” tonic, hence the common name. Our native plants should not be dug up for any reason, let alone for a pseudo-tonic!

American ginseng (*Panax quinquefolius*) and Chinese ginseng (*P. ginseng*) have been used, according to the “Happy Herbalist,” to magically ward off evil spirits, break hexes and curses, attract money and help make wishes come true! Many claims have been made of these ginsengs as herbs with no definitive conclusions I am aware of. It was Linnaeus who named *Panax ginseng*. The name comes from the Greek *panakeia* (panacea or universal remedy). He knew of this species from *China Illustrata* (A. Kirchers, 1667) and that the Chinese used it to produce a muscle relaxant.

Extracts are now offered as stimulants, aphrodisiacs, etc. The demand must be there, as many other plants and treatments/tonics have been called ginseng. Wikipedia listed 11 species (only one is a *Panax*); Dr. Lumumba Umanna Ubani in *Preventive Therapy in Complimentary [sic] Medicine* listed nine, partly overlapping with Wikipedia and not including a *Panax*; and a herbal company calling itself “MDidea extracts” adds blue cohosh (*Caulophyllum thalictroides*), as blue or yellow ginseng, to the list.

Too many tonics to tangle with!

PM

TFN GRANT REPORTS

TFN Funding Helps Students Learn about Birds

by Irene Fedun, FLAP Canada

When students ask relevant questions that demonstrate they've been listening to what the teacher or presenter said, we know they're fascinated by the subject. This happened at Woburn Collegiate Institute in Scarborough when Paloma Plant, program coordinator for the Fatal Light Awareness Program Canada, explained why birds hit windows and displayed the skins of birds killed in this unnatural way. The school is near the Don Valley with many glass-panelled commercial buildings lining the treed ravine. FLAP volunteers patrol the grounds around these structures for fallen birds. The students rightly pointed out the buildings that have the characteristics Paloma mentioned in her talk as being hazardous to birds.

The Woburn Collegiate presentation was one of a dozen that FLAP Canada was able to organize thanks to generous funding from the Toronto Field Naturalists in 2016. Paloma visited Muirhead Public School, West Preparatory School, Brighton Public School and others

with her bird conservation message. She explained how to prevent collisions, not just in the schools but also at home and anywhere windows or mirrored surfaces confuse birds. Students received an Eastern Hemisphere Bird Migration Map that shows selected species of birds and the patterns of their spring and fall migration journeys as they move northward to breed and southward to their wintering grounds. Paloma challenges the students to put tacks on the map to indicate their own sightings of the species represented on the map.

FLAP staff and volunteers also participated in the Salmon Festival at Highland Creek Park. Attendees included hundreds of children, many of whom were not born in Canada but came here as immigrants or refugees. FLAP's display and presentation are eye-openers for them. The FLAP display also reached many children at International Migratory Bird Day in mid-May, Spread Your Wings for Birds at the Metro Toronto Zoo, and the Birds, Bees and Butterflies Festival in September at Thickson's Woods.

Many thanks to the Toronto Field Naturalists for helping FLAP Canada spread the word about bird collisions and how to prevent needless deaths.

Toronto's Misunderstood Wildlife and Waterways

by Rebecca Niblett and Broti Kar,
Toronto Botanical Garden education staff

Toronto Botanical Garden (TBG) is deeply committed to educating the community about Toronto's urban waterways and the wildlife that lives within our ravine ecosystems. Wilket Creek, which runs through the ravine adjacent to TBG, is one of Toronto's few above-ground waterways and therefore the ideal setting for our *Urban Nature Ravine Series*. We are very grateful for the generous support provided by the Toronto Field Naturalists (TFN) for the 2016 *Urban Nature Ravine Series*. In particular, funding from TFN was used to deliver two programs within this initiative that are geared for families and students.

TBG's *City Critters Family Series* offers families the opportunity to learn about some of Toronto's misunderstood urban wildlife. Each session in the series includes an indoor and outdoor component, hands-on exploration activities, games and sometimes a visit from live animals.



TFN's grant supported six sessions in 2016, each one with a different wildlife theme – owls, backyard birds, frogs, butterflies, bats and bees. During these sessions, families enjoyed a variety of activities including observing frogs at Wilket Creek, building solitary bee homes, playing outdoor games and also making various take-home crafts.

TBG's *Water in the City* is a citizen science program for grade 7 and 8 classes that examines how people impact urban waterways. The program, new in the fall of 2016, was offered to students from two of Toronto's high-priority neighbourhoods, Thorncliffe Park and Flemingdon Park. Students who participated in the hands-on program learned about Toronto's ravine network, lost rivers, and storm

water management. Students gained first-hand experience investigating the health of an aquatic ecosystem through site observations, sample collecting and water-quality testing. Feedback from teachers and students who participated in the 2016 *Water in the City* program was very positive and we are excited to offer the program again in 2017. TBG has also begun to analyze the data collected by students in the program in order to informally assess and track the health of Wilket Creek.

TREE OF THE MONTH: DAWN REDWOOD (*Metasequoia glyptostroboides*)

Unlike most plants and animals popularly celebrated as living fossils (the coelacanth, for instance), dawn redwood had only been recognized as a distinct fossil for a few months before a living tree was seen by foresters in a then remote corner of central China in 1941. The foresters initially misidentified it as *Glyptostrobus*, a related conifer of coastal swamps, paralleling decades of misidentification of the fossils, widespread throughout the northern hemisphere for the last 70 million years, as ordinary redwoods.

An undergraduate student at the University of California in the early 1930s wrote a term paper pointing out that there were two distinct kinds of fossils being identified as redwood in paleobotanical literature, differing in an alternate versus opposite arrangement of leaves and cone scales. His professor, who did a lot of work with these fossils, ignored the distinction, spawning ecological and taxonomic errors in his own published research until the discovery of the living trees cemented the formal naming and description of *Metasequoia glyptostroboides* in 1948. In 1941, Japanese paleobotanist Shigeru Miki published a paper definitively separating his new *Metasequoia* from *Sequoia* fossils using the same characteristics as the unpublished undergraduate essay. Unfortunately, due to World War II, this paper was largely overlooked and not broadly disseminated. Dawn redwood, with its opposite leaf arrangement, was one of the key pieces of evidence I used in 1976 to merge the then separately-recognized redwood and cypress families as a single expanded cypress family.

The expeditions to collect seeds of the new conifer amidst Mao's advancing revolution were extensively reported at



the time and their success led to wide distribution of seeds to university, municipal and institutional botanical gardens around the world, including in Toronto. The splendid maturing trees along Grenadier Pond in High Park and at the foot of the ravine slope in James Gardens by the Humber River in Etobicoke date from these early plantings. At less than 70 years old, they are still upward stretching cones of foliage and have not yet flattened and broadened at the top like centennial trees in the wild. Our oldest trees have gradually been reaching reproductive maturity, with long tresses of male cones finally being produced following on the much earlier- appearing, distinctively-stalked female ones, and spontaneous seedlings are sprouting in some locations. Both sites reflect the

moist soils in which these trees do best and they have responded with wonderful expressions of their sensuously fluted, light reddish brown trunks and billowing clouds of soft foliage that turn a splendid russet before dropping in autumn.

This visual appeal is exploited to good effect in current mass plantings at Harbourfront and other designed landscapes. Slightly more mature individuals may be found scattered across the city, including at Mount Pleasant Cemetery, the Etobicoke Civic Centre and the University of Toronto. Dawn redwood is ultimately too large for home gardens though they look so green and fresh when young that they are hard to resist. There are few available cultivars, but a golden one in a front yard in my neighbourhood is stunning. Despite its wide past distribution, including in the West, on Axel Heiberg Island in Nunavut and elsewhere in the Canadian and Alaskan Arctic, we have no fossils of dawn redwood in the Toronto area, perhaps because its entire Cretaceous and Tertiary record was obliterated by the enormous gap of some 350 million years between our Paleozoic bedrock and the Pleistocene tills that overlie them.

James Eckenwalder



Dawn redwood tree, High Park (top), opposite leaf structure (far left); russet autumn foliage (left).

Photos: Ron Dengler.

Female cones (left). Photo: Ken Sproule

TORONTO'S RAVINE STRATEGY

Two years in the making, the official draft of Toronto's Ravine Strategy was released in late September this year (see <https://goo.gl/yovrSv>). Supported by five guiding principles of Protect, Invest, Connect, Partner, and Celebrate, the Strategy outlines a robust vision for the city's ongoing use and protection of our ravine system.

On September 26, TFN joined a dozen other citizens and organizations in making deputations to the City's Executive Committee regarding the Strategy. Delivered by Jason Ramsay-Brown, our deputation complemented the sentiments expressed by all the speakers: that protection of nature in our ravines is its most vital aspect and must be immediately empowered by City Council. For your interest, here is a transcript of our deputation. You can watch it being delivered, and the question period that followed, on YouTube: <https://goo.gl/5hHGyt>.

The Toronto Field Naturalists have spent 94 years connecting people with nature in Toronto, helping them to understand, enjoy, and protect our green spaces and the species that inhabit them. From our opening of the first urban nature trail in Canada in 1931, to our ravine studies in the '70s, to our work on the City's Ravine Strategy Advisory Group just last year, we have always believed that our ravines are the heart of Toronto's identity and inspire the souls of its citizens. TFN is very enthusiastic about the Ravine Strategy. Its principles represent a much needed vision for these remarkable natural areas; a vision that, in unambiguous language, identifies the preservation and restoration of nature to be of paramount importance.

TFN implores the Executive Committee to immediately empower the meaning and intent of the Ravine Strategy by amending motions and/or introducing Committee Recommendations that would strengthen Toronto's commitment to the preservation and restoration of nature in our ravines. To this end, we propose three recommendations for your consideration:

1. Expedite and expand the development of management plans for each Environmentally Significant Area. In the face of the City's predicted population growth and the increased use of our ravines encouraged by the Strategy, development of three plans in the first five years, with the remainder over a decade away, is wholly inadequate to ensure the protection of these vital natural areas.*

2. Call for the immediate expansion of the City's Community Stewardship Program and the integration of "Friends of" groups into the City's stewardship plan. Stewardship is one of the few actions that supports all five guiding principles of the Strategy concurrently, by applying Investment directly to Protection through activities that both celebrate and connect people and partners to our natural heritage.

3. Request a plan to secure a per capita expenditure for ecological preservation and restoration through a stable and dedicated source of funding. This funding could be based on a model similar to the Third Party Sign Tax used to fund art and culture in the city.

Toronto has earned the title *World Class City* but has done so based on criteria where vibrant nightlife and a major league sports franchise were enough to earn that moniker. The very definition of World Class City is changing. In the future, we will be judged as such not only by the height of our skyscrapers but the height of our trees; not just by the diversity of our festivals but the diversity of our native species; not just by our built environment but by our natural environment. To retain our standing as a World Class City, we must strive to be more than just a City within a Park. We must become a City at one with our natural heritage.

Jason Ramsay-Brown

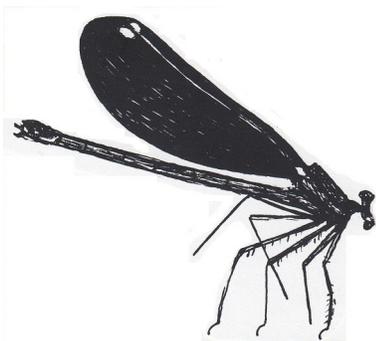
* ESAs are afforded special protection by the City's Official Plan, zoning and by-laws, but most do not have proper management plans. The Strategy identifies development and implementation of these plans as a priority but offers timelines of more than a decade for the majority of them. See pages 50-52 of <https://goo.gl/yovrSv>



Don Valley Brick Works (left 1997, right 2003). Photos: Robin Powell, TFN slide collection.

EXTRACTS FROM OUTINGS LEADERS' REPORTS

Warden Woods: Landscape, Watercourses and the Urban Forest (Lost Rivers), July 16. Leaders: John Wilson and Jason Ramsay-Brown. Warden Woods, designated as an Environmentally Significant Area (ESA), is one of several biologically diverse ravine-land habitats that occur when streams (in this case Taylor-Massey Creek) descend over the escarpment of glacial Lake Iroquois. We saw a fruiting butternut tree, notable for its apparent lack of the canker that has triggered its designation as endangered on the Species at Risk in Ontario list. We also observed white pine, basswood, black cherry and large white cedar snags punctured with many woodpecker holes. Bird observations included fledgling rose-breasted grosbeak, foraging belted kingfisher and chimney swifts. We saw ebony jewelwings and commented on the abundance of these eye-catching black and iridescent blue damselflies



Ebony jewelwing, drawn by Eva Davis

this year.

Woodbine Park to Kew Gardens, July 25. Leader: Bob Kortright. In Woodbine Park, built around 2000 on the grounds of the old Greenwood raceway, we puzzled over the number of non-native trees planted so recently. The City Parks Department ought to have known better. On the hill between the band shell and the storm water pond, there were largely native (bur and red oak, sandbar willow, ninebark etc) and nearly native (pin and swamp white oak) plantings. The fountain has unfortunately been overtaken by weeds like phragmites and burdock. We noted a red admiral, several question marks, monarchs and cabbage white butterflies. At the D Summerville pool we saw cliff swallow nests, but the young seemed to have fledged. A section of boardwalk under repair was a reminder of record lake levels for the third consecutive month, despite the level having dropped by 22 cm from the record high set in May. In Kew Gardens we noted two mature cherry birches, perhaps the only ones in Toronto.

Restoration and Citizen Science in the Don Valley, July 30. Leader: Jason Ramsay-Brown. We discussed how nature has been restored here after decades of agricultural and industrial use. We examined recent phragmites removal efforts at the Beechwood Wetland stewardship site where cup plants, staghorn sumac, and buttonbush were in bloom. We then spent time in Cottonwood Flats learning about TFN's monitoring project and discoveries made during the most recent vegetation assessment.

Todmorden Mills Wildflower Preserve, Aug 1. Leader: Charles Bruce-Thompson. On the steep slopes below Broadview Avenue, where there have not been stewardship activities, the flora was almost 100% invasives with a very low biodiversity and an absence of bird and insect life. As we descended to the ox-bow, we saw the effects of decades of restoration: much greater biodiversity, abundant birds and plenty of insects including hungry mosquitoes. We saw many fledgling cedar waxwings, blue-gray gnatcatchers, American goldfinches and more than a dozen baby rabbits unconcernedly munching grass.

Wexford Park, Aug 5. Leader: Charles Chaffey. As we approached the woodlot, a cottontail rabbit scurried out of harm's way. In the woodlot we were awed by several huge red oaks. Despite fencing to restrict access by people and dogs, the ground flora consisted mostly of garlic mustard and enchanter's nightshade. Wetter areas had a variety of rushes, blue and white vervain in bloom, and swamp milkweed, while drier places had common milkweed still flowering, abundant Canada thistle with its seed attracting goldfinches, and a dead shrub giving a cedar waxwing a prominent perch. Several monarch butterflies were flying, but careful examination of milkweed leaves turned up only one egg.



Fruit cluster of ironwood (*Ostrya virginiana*). The inflated sacs each contain a small nut. The cluster's resemblance to hops gives this native tree its alternate name of hop-hornbeam.

Photo: Lloyd Mayeda on July 30th outing

Continued on page 14

EXTRACTS *continued*

High Park Wildflowers, Aug 10. Leader: Wendy Rothwell. Due to the relatively cool rainy summer, the park was lush and full of colourful wildflowers. Canada goldenrod was just beginning to flower. We spent half an hour exploring a small area east of Howard and Ridout Ponds where we identified some 50 wildflowers in bloom. Highlights included arrowhead, evening primrose, blue vervain, Joe-pye-weed, woodland sunflower, teasel, black-eyed Susan and black mullein. We visited High Park Nature's outdoor classroom OURSpace. Since its creation two years ago, children have been involved in planting native savannah plants including purple milkweed, wild bergamot, common sunflower and Canadian tick-trefoil. On the table lands we noted grey-headed coneflower, cup plant, harebell, whorled milkweed, shrubby St John's-wort and a dazzling display of cylindrical blazing star.

Windfields Park, 12 Aug. Leader: James E. Eckenwalder. We examined signs of high water levels overflowing the stream banks following recent heavy rains and damage to the banks by the floodwaters. While the northern two-thirds of the walk was manicured parkland, our destination was a reasonably intact floodplain forest in the southern third. This natural forest had many fine specimens of eastern white pine, red oak, sugar maple, black cherry, basswood, bitternut hickory and American beech, many of the latter in trouble from beech bark disease. Also present were eastern hemlock, red, silver and Manitoba maples, eastern white oak, black walnut, ironwood, blue beech, and eastern cottonwood. Some large domestic apple trees suggested this site had once been much more open. Particularly notable were a small cluster of black maples and a rock elm in the streamside thicket. In the understory of the floodplain forest was a running strawberry bush joining its introduced congeners, European spindle tree and winged euonymus, present along our whole walk. Dog-strangling vine was a troubling presence, as it is throughout the Don system. Wild cucumber was in flower.

Smythe Park, Aug 15. Leader: Susan Horvath from the Black Creek Conservation Project. The Davenport gravel and sandbar along the south slopes of Smythe Park from the Humber River to Landsdowne Avenue is made of glacial deposits which formed part of the shoreline of Lake Iroquois that existed 12,000 years ago in the Lake Ontario basin. Due to the deep sand and gravel soils, rainwater quickly drains to the bottom leaving the ridges dry and creating natural springs which feed wetlands and woodland marshes at the bottom. In 1977 the Parks Department created a series of spring-fed ponds – a heaven for fishing birds. On the higher slopes are remnants of the rare oak savannah and near the tops native dry prairie grasses can be found. On the east side of the Park, the Parks Department tried for several decades to maintain tennis courts which were regularly flooded.

Finally these were replaced by wetland and a lovely frog pond. On our walk we saw a great blue heron, a black-crowned night-heron fishing, a mallard family with five very young ducklings and a red-tailed hawk. A garter snake and several monarch butterflies rounded out our list of wildlife sightings. See <http://bccp.ca/> for information about Smythe Park and lots of pictures.

Betty Sutherland Trail, Lowlands, Uplands and Mysteries (Lost Rivers), Aug 20. Leaders: John Wilson, Jason Ramsay-Brown. We discussed exotic invasive plants and the effectiveness of current control efforts. At a small remnant wetland at the confluence of lost Somers Creek, we saw resilient habitat diversity and structure in the challenging urban environment. We went off-trail to Oriole Lodge, the restored centrepiece of Premier George Henry's model farm c. 1900-1960, a rare (for Toronto) upland meadow that has been saved from development as a sports facility. For most of us, the walk highlight was the appearance high overhead of several peregrine falcons that one of our walkers, a volunteer with Peregrine Watch, informed us were the inhabitants of a successful nest with four healthy fledglings this year.

Wilket Creek, Aug 26. Leader: Ken Sproule. Osage orange in fruit, white baneberry, Canada mayflower, wild ginger, elecampane and Joe-pye-weed were some notable plants seen. We saw puffballs and possibly an early form of bear's head tooth fungus in Sunnybrook Park.

Central Waterfront Parks, Aug 27. Leader: Richard Partington. In Coronation Park were the magnificent white elm (*Ulmus americanus*), which has survived by the water, and the many silver maples planted as memorials by veterans and military groups. In Little Norway Park, home to the Royal Norwegian Air Force in exile during WW2, is a remarkable totem pole called *Dreams of the Whales*. The Music Garden is a sheer delight: from the grove of dawn redwoods, to the stand of warty hackberries, to the riot of rudbeckias, echinaceas and grasses. Cardinal flowers are new! Thank you, cellist Yo-Yo Ma for introducing this garden treasure to Toronto!



Cardinal-flowers drawn
by Mary Cummings

CHILDREN'S CORNER

Autumn Word Scrambler



Sugar maple and red maple. Photo: Ken Sprout

Unscramble the 8 words or phrases shown below.

When you're finished, see if you can arrange the letters in the red boxes to discover what our backyard friends are doing at this time of year!

1. GRUSA PMAEL: S _ G _ _ M _ P _ _
2. RYEG RRULSIQE: G _ _ Y _ Q _ _ R R _ _
3. EVALSE
L _ _ V _ _
4. EDR LAPEM
_ _ D M _ _ _ E
5. UATUNM:
A _ T _ _ N
6. GRNEAO:
_ R _ _ G E
7. BULE YJA:
B _ _ _ J _ Y
8. LEWLOY:
_ _ L L _ _

Some of our neighbourhood animal friends like the grey squirrels, red squirrels and blue jays are collecting and _ _ _ _ _ nuts, seeds and other food items in caches to prepare for winter.

For answers, see page 19.

Puzzle by Julia del Monte

Attention Junior Naturalists!

Visit TFN online (<http://www.torontofieldnaturalists.org/kids/>) to view fascinating nature videos, download brain teasers, print nature scavenger hunt sheets, and get inspired to explore nature in our city.

KEEPING IN TOUCH



Monarch on Joe-pye-weed
See also photos on back cover.

Rosetta McClain Gardens is the place to watch people banding monarch butterflies in late August. They catch about four in large nets at the butterfly bushes or Joe-pye-weed plants, weigh them, measure their length, take their temperature and check their sex – all information to be entered on paper forms or added to a computer database. They then add a small dot to the butterfly’s wing

Julia Patterson and I have a tiny bee-friendly garden that is constantly abuzz from spring to fall. Bob Bowles suggests that this photo, taken by Julia in May, is of a brown-belted bumblebee *Bombus griseocollis*. It is in *Salvia officinalis*.

Joanne Doucette



and let it fly off toward Mexico. The Gardens are also popular for other butterflies.

Sonia van Heerden

.....
Since my husband, Joe, and I went on the TFN's Humber River nature walk from Old Mill to Humber Bay led by Doug Paton on July 29, we have been back to Humber Bay Park every weekend. We fell in love with Humber Bay Shores for being nicely-developed and still with lots of nature. We can also drop by a farmers’ market every Saturday morning before our personal nature walk at Humber Bay Park West and we have lunch at a pub or restaurant around the Shore. We even enjoyed CNE's annual air show from there. Here are a couple of photos taken at Humber Bay Park East on September 17.

Yoshie Nagata

.....
I went walking with my grandchildren the other day and we collected acorns. I kept the acorns in a little bowl on a shelf for decoration. This evening I discovered three little creamy white grubs crawling around the bowl, and noticed that one of the acorns had a little round hole in it. I looked on the internet and found this little article about acorn weevils. Other acorn collectors may also be interested. <https://goo.gl/Sy7EPg>.

Vivienne Denton

.....
This summer there were lots of carpenter bees on the large patch of obedient plant (false dragonhead, *Physostegia virginiana*) in my yard. [See photo on front cover.] I hadn't really noticed them before this year. Perhaps I mistook them for bumblebees, from which they differ by having shiny rather than hairy abdomens and no pollen



Great blue heron



Cormorants

baskets on the hind legs of females. While carpenter bees can be important pollinators for some plants, on the obedient plant they were straddling rather than entering the flowers and trying to steal nectar by punching their sucking mouthpart directly into the base of the flowers.

Jenny Bull

IN THE NEWS

NEONICS LAWSUIT TO BE HEARD

extracted from The Cardinal # 248, Summer 2017, newsletter of Nature London, formerly McIlwraith Field Naturalists of London

A year after it was filed, a federal court has granted a group of environmental organizations the right to have their neonic pesticides lawsuit proceed to a court hearing.

Two lawyers from Ecojustice, working pro bono on behalf of Ontario Nature, the David Suzuki Foundation, Friends of the Earth, and the Wilderness Foundation, successfully argued to have the case heard. Nine lawyers representing the Federal government and three large industry companies argued for dismissal. The lawsuit maintains that the federal government failed to meet the legal requirements for risk assessment and public consultation under the Pest Control Products Act. Industry companies have been asked to provide risk assessments on numerous occasions and when they've failed to do so, the federal Pest Management Review Agency has consistently provided "conditional" registrations, while never receiving the assessments required by the conditions. This has continued for more than a decade, threatening not only pollinators but also the health of several waterways. For more information visit: www.ontarionature.org/connect/blog/neonic-lawsuit/.

Gibraltar Point Erosion Control Project

Public Meeting hosted by TRCA

November 16, 5:30 - 8:30 pm

Brigantine Room, Harbourfront Centre,
235 Queen's Quay West

TRCA will be presenting an innovative solution to beach and dune erosion on Toronto Island.

Check TRCA website for further information.

POLLINATION SYMPOSIUM

continued from page 8

Lisa Gue, who manages the neonic file for the David Suzuki Foundation, reviewed Canada and Ontario's stance on this issue. Canada's regulatory agency is awaiting the results of its own testing and, in the meantime, has approved a new generation of neonics. (<https://goo.gl/co9q4m>). Ontario's regulation of the use of neonics, to be phased in from 2015 to 2018, requires evidence of pathogen presence before systemic pesticides may be used prophylactically (<https://www.ontario.ca/page/neonicotinoid-regulations>).

Under the Ministry of Environment and Climate Change's *Pollinator Health Action Plan* (a multi-stranded research project begun in 2015), soil, water and selected invertebrates from many watersheds around the province will be sampled for the presence of neonics, while bumblebees will be sampled for species richness and abundance at the same sites. The 2015 data will be used as a baseline for comparison with data collected over the next four years, as the regulatory legislation is phased in and neonic use is reduced (<https://www.ontario.ca/page/pollinator-health>).

Lisa Gue is concerned that the processes outlined here for Canada and Ontario are too slow to save biodiversity and need to be replaced with a complete ban on neonics. Accomplishing an environmental protection goal of this scope and magnitude requires engagement of scientists, politicians and the public, all three of which made significant contributions to the symposium. Many more signatures are needed on the David Suzuki sponsored petition to move forward (<https://goo.gl/D6ShVu>).

Anne Purvis

SHRUBS IN MOUNT PLEASANT CEMETERY

The seventh son of the seventh son is supposed to have special powers. At least this is what some folklore tales tell us. Johnny Rivers even recorded a song about it. Although I have been in the cemetery hundreds of times, it was not until last year that I saw a shrub or small tree with this unusual name.

It is a member of the Caprifoliaceae, or honeysuckle family, but has much larger leaves than the common tatarian honeysuckle. I think I may have passed this shrub before but only noticed it because of the label. It is great to have these more rare plants labelled. The discoveries continue.

Roger Powley



FOR READING

**Curators: Behind the Scenes
of Natural History Museums**

by Lance Grande, University of Chicago Press, 2017

This book should be read by anyone interested in any aspect of natural history, as well as anyone with an interest in museums. The author describes how his own interest in fossils began when, as a child, he picked them out of the stones in his parents' driveway, and how his interest in fossil fishes began when a friend gave him a fossilized fish. As a curator, he traveled the world, often with other curators, gaining an amazing appreciation of the natural world and great interest in conservation. In the final chapter he discusses the American education system, its faults and good aspects, and what should be done, particularly by museum curators. The book includes many excellent photographs.

Helen Juhola

Bee Quest

by Dave Goulson, Johnathan Cape, 2017

Bee Quest is the third in a series written by Dave Goulson that has bumblebees as its main topic, the first two being *A Sting in the Tail* (2013) and *A Buzz in the Meadow* (2014). You don't need to have an abiding fascination with bumblebees to enjoy *Bee Quest* or either of its predecessors. Goulson, an entomologist and professor of biological sciences, writes clearly and entertainingly, in accessible prose, about the genus *Bombus*, to which the bumblebee belongs.

Bee Quest is an account of the author's search for elusive bumblebees, starting from his home base near the chalky South Downs in Sussex, England, and then in a series of expeditions around the world before finally looping back to England, all seen through the filter of bumblebee ecology.

Much of the book is concerned with the litany of events that has contributed to the bumblebee's inexorable and seemingly inevitable decline. Even Adolf Hitler gets his share of the blame (by prompting the expansion of agricultural land in England during the Second World War). Among many causes of decline is the introduction of non-native bees, with their accompanying pathogens. I was alarmed that as recently as 1998 the common European buff-tail bumblebee (*Bombus terrestris*) was intentionally introduced to Chile. This adaptable species has now spread enthusiastically, averaging 100 km expansion every year and is the prime suspect in the disappearance of the native *Bombus dahlbomii*.

There are also welcome, and often surprising, bits of good news. For example, there is an unexpected paean to brownfields: industrial wastelands considered too polluted to build on. The site that Goulson explores in East London turned out to have benefitted from benign neglect, harbouring a wealth of all sorts of fauna and flora – far

more than he ever saw in the margins of expansive, intensively-farmed, pesticide-drenched crop fields that he describes as “deserts for wildlife.” Untypically, this story has a happy ending. No sooner had the site begun to be appreciated as a wildlife hot spot than a building application was made which would have obliterated it entirely. A grassroots campaign eventually saved the day, for the time being, with a very amusing and ironic twist that you'll have to discover for yourself by reading the book.

Unlike honeybees, bumblebees do not have the advantage of being conspicuous contributors to human economic activity and as a result have been shown scant popular or scientific concern. But as Goulson perceptively points out, “Why should nature only have worth if it does something for us? Just how self-obsessed are we?” The same could be said for any number of species.

Goulson does not hammer us over the head with strident warnings and gloomy predictions, but still gets his points across with humour and anecdote. For all the humour, he is entirely serious about the plight of the bumblebee, hinting that where the bumblebee goes the rest of nature is bound to follow.

Charles Bruce-Thompson

**The Vital Question: Energy, Evolution, and the
Origins of Complex Life**

by Nick Lane, WW Norton, 2015

I would have titled this book: *The Origin of Life, Sex, Sexes, and Death*. That is all in the book and much more besides. For this former engineer and economist turned naturalist, this was not an easy read – but isn't it worth some hard work to get a sense of how life began and how (un)likely eukaryotic life is? For me these are two of the most important questions I have wondered about. Now I finally feel confident that we have an answer to the first and a clue to the second.

The repetition reminded me of a lecturer trying to make sure that the main points sink in – mostly helpful for someone with limited education in biochemistry. I found the theories of the origin of life and eukaryotes far more persuasive than anything I had seen before. Alternate theories and evidence that is hard to fit in are not ignored. For example, nearing the end of the book I read the Wikipedia article on the origin of life for comparison, and came across Parakaryon – a little disappointed that it had not been addressed in the book, only to turn the page to the epilogue where this fascinating discovery is described and a convincing theory put forward.

And the bibliography, organized in the sequence of ideas discussed in the book, is not only an introduction to the literature but a very helpful outline of the book.

Bob Kortright

WEATHER (THIS TIME LAST YEAR)

November 2016

The big news in November was the continuing warmth, especially in the Arctic and in North America. (There was severe cold in continental Siberia but only there.)

Temperatures over the Arctic remained close to freezing (or up to 20°C above normal) all month; and re-freeze of the Arctic Ocean was in consequence feeble. This was after a fairly low but not record-breaking summer ice minimum.

With no cold air in the northern hemisphere aside from Russia, Toronto remained sunny and warm most of the month. Up to the 19th, every day had a maximum temperature above 10° downtown and it was frequently in the upper teens. It hit 19.4° on the 2nd and 17.6° as late as the 18th. There was a brief cool-down from the 19th to the 23rd when temperatures dropped to near seasonable levels. The coldest reading was -4.8° at Pearson Airport on the 22nd.

Monthly mean temperatures were about 2.5° above normal, with 6.7° at Pearson and 7.7° downtown. With sunny skies, mean maximum temperatures were in the record-setting range: 11.4° was the warmest mean daily maximum temperature downtown (records go back to 1840) and 11.2° was the second-warmest at Pearson Airport (after 2001). Precipitation continued to run below normal, with 44 mm downtown and 55 mm at Pearson Airport. Snowfall was around 1 cm for the month, falling on the 20th.

The autumn of 2016 as a whole was by far the warmest on record for all of southern Ontario. The September to November average temperature was 0.7° above the previous record, set just last year both downtown and at Pearson Airport. Trees did not lose their leaves until mid-month, with bright fall colours as late as the 10th in places.

Gavin Miller

COMING EVENTS

If you plan to attend any of these events, we recommend that you contact the organizing group beforehand to confirm time and place.

Jim Baillie Memorial Bird Walks – Toronto Ornithological Club (www.torontobirding.ca)

Aimed at the intermediate birder, but beginners also welcome. Free to the public.

- Sun Nov 26, 9 am to afternoon. West Toronto Lakeshore and Beyond. Leader: Garth Riley. Meet at the parking lot at Humber Bay Park East, off Park Lawn Rd south of Lake Shore Blvd W. Waterfowl and winter birding.

High Park Walking Tours (www.highpark.org)

1st and 3rd Sundays of each month from 10:30 to noon. Meet at the benches south of the Grenadier Restaurant.

Information: 416-392-6916 or walkingtours@highpark.org

- Nov 5. Geological Wonders and Origins. Leader: Frank Remiz
- Nov 19. Art of the Park. Leader: Grace Petrucci

EcoFair at the Barns (www.ecofairtoronto.org)

- Sun Nov 5, 11 am to 4 pm at Artscape Wychwood Barns, 601 Christie St. A fun, family-oriented event that informs and inspires people to make greener choices in their homes and communities. Admission free.

The Market Gallery (www.toronto.ca/marketgallery)

Until Nov 25: Maple Leaf Forever: Toronto's Take on a National Symbol.

The gallery is located at South St Lawrence Market, 2nd floor, 95 Front St E. Gallery closed Sun, Mon and holidays.

Lost Rivers Walks (www.lostrivers.ca)

Walking tours limited to 20 participants. To ensure a spot on the tour, please e-mail in advance to info@labspacestudio.com

Ian Wheal Walks

- Sat Nov 4, 1:30 pm. Toronto: Horse Capital of the World, WWI. Meet at the northeast corner of Dundas St W and Runnymede Rd. A 7-km walk.
- Sun Nov 26, 1:30 pm. Memorial walk to Peter Hare (Lost Rivers). Wetlands and Baymouth Bar area. Meet at northeast corner of Gerrard St E and Main St.

Answers from page 15

1. Sugar maple 2. Grey squirrel 3. Leaves 4. Red maple 5. Autumn 6. Orange 7. Blue Jay 8. Yellow

Final word: Storing

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Publications Mail
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Butterflies in Rosetta
McClain Gardens

Clockwise from top left:

Painted lady, viceroy, two
summer azures mating and
red admiral

Photos by Sonia van Heerden

See page 16