President's Message

I hope that members have been out in nature to experience the bountiful months of summer with its luxuriant plant growth, breeding birds, butterflies and other organisms. This was a turbulent summer for many across the country with a higher incidence of intense forest fires than ever, impacting human lives and wildlife as well. Was this the result of human-induced climate shifts? While it was not a particularly hot summer in our area, another hot issue for naturalists has been over the Greenbelt and how the government wanted to remove parts of it to permit development.

It is important to be aware of what humans are doing and to be a voice in support of nature. It is equally important for people to get out into natural areas for their own well-being, to learn and to instill an appreciation for the treasure that is there. Autumn is a great opportunity to witness the southward bird migrations, to find fabulous fungi in the forest and take in the pallet of colours of the changing leaves.

James Kamstra, President, North Durham Nature

Upcoming Events – October to December 2023

Upcoming Meetings:

September 26, 2023 – Tyler Hoar, biologist
"Winter Finch Forecasting in Ontario"

October 24, 2023 – Dr. Susan Willis Chan,
"Wild Meets Cultivated: Wild Pollinators that Feed Us"

November 28, 2023 – James Kamstra, ecologist
"Colombia: Biodiversity Gone Berserk"

Walks and Outings:

Sunday, October 1, 2023 – join James and Lynda Kamstra to learn more about lichens and fungi. See website for more details.

Remember you have to pre-register for all walks so consider signing-up soon as space may be limited! northdurhamnature2@gmail.com

Oshawa & Sunderland Butterfly Counts – 2023

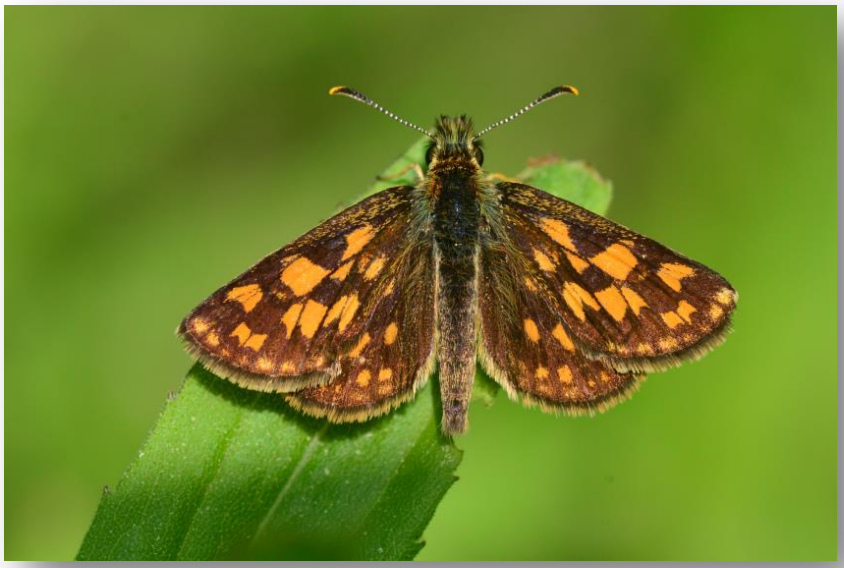
Photos and text by James Kamstra

The two Durham butterfly counts have become an annual event for many years now with 2023 marking the 29th year for Oshawa and the 27th year for Sunderland. Counts involve participants going out in small groups to count and identify all of the butterflies that they observe in their respective areas. Although counts only provide a snapshot sample on a single day, they help in providing insight into long-term trends for some butterfly species and the general butterfly community. The Oshawa circle, which stretches from north Oshawa to north of Port Perry, took place on June 25th while the Sunderland circle (which includes portions of Uxbridge, Brock and Georgina townships) was completed on July 3rd. Weather conditions were fine on both counts with moderate temperatures, ample sunshine and low winds.

Eleven counters in six parties recorded 37 species in the Oshawa circle. The highlight of that count was Two-spotted Skippers (see photo below right) found on the east side of Lake Scugog by Tom Mason. This species had only been recorded twice before (in 2000 and 2008). Two-spotted Skipper is restricted to sedge marshes and is quite rare in Durham Region. The Sunderland count had more participants (22), higher numbers and more species (45).

Overall butterfly numbers were found to be low on both counts. This was a continuation of the trend that started in 2022, when many counts in southern Ontario experienced exceptionally low numbers. This year Oshawa had the lowest number of species in the history of the count (except for 2009 when it rained through much of count). Sunderland also had the lowest ever species count at 45 species (the average is 53). The Sunderland count documented 22 native butterflies per hour of field effort (Note this does not include Cabbage White and European Skippers which are invasive species) in 2023, an improvement over the all-time low of 12 butterflies per hour recorded in

2022, but well below the long term average of 54. Monarchs too were well below average numbers on both counts.



The cause for lower butterfly numbers in the last two years is not clear. It cannot solely be a habitat decline issue because seemingly good meadow habitats were found to contain lower numbers. Declines in butterfly numbers have also been documented in other areas of the world, such as Britain and the western U.S., from a variety of factors including climate change, disease, invasive species and increased pesticide use in addition to habitat loss. In Ontario, one theory is the extremely high Spongy Moth infestation in 2021 led to heavy spraying in the following year that unintentionally affected butterflies.

Spring was delayed in 2023 and cooler than average which resulted in later emergence of some butterfly species. Arctic Skippers (see photo above) were found on both counts in 2023 and in some years have finished their life cycle by the time counts are conducted. There were also higher numbers of Silvery Blue, Common Ringlet and White Admiral than most years. By contrast, the later flying species such as hairstreaks, sedge skippers and Common Wood Nymph were very low in number since they were barely emerging at the time of the counts.

Participants

Oshawa: Geoff Carpentier, Mark Dorriesfield, Cathy Galberg, Mark Humphrey, James & Lynda Kamstra, Steve Laforest, Martha Lawrence, Tom Mason, Maria Prisciak, Sam Turner.

Sunderland: Kim Baker, Dennis Barry, Dave Bishop, Jon Boxall, Margaret Carney, Derek Connelly, Mark Dorriesfield, Paul & Debra Harpley, Brian Henshaw, Simon Henshaw, James & Lynda Kamstra, Steve LaForest, Martha Lawrence, Craig Lloyd, Tom Mason, Brenda Near, Ed Poropat, Maria Prisciak, Willa Worsley, Bob & Karen Yukich.

The results of both counts can be found in the following table below.

SPECIES	Oshawa	Sunderland
	June 25	July 3
Black Swallowtail	1	4
Eastern Tiger Swallowtail	20	27
Mustard White	3	166
Cabbage White	81	480
Clouded Sulfur	13	85
Eastern Tailed Blue	2	2
Summer Azure	4	25
Silvery Blue	29	3
Great Spangled Fritillary	22	42
Aphrodite Fritillary	1	0
Meadow Fritillary	0	26
small fritillary sp.	1	3
Pearl Crescent	8	7
Northern Crescent	361	224
Baltimore Checkerspot	0	82
Question Mark	0	5
Eastern Comma	5	39
Gray Comma	1	0
anglewing sp.	0	4
Mourning Cloak	0	1
Compton's Tortoiseshell	0	1
American Lady	0	6
Painted Lady	0	1
Red Admiral	5	22
White Admiral	88	46
Red-spotted Purple	1	2
Viceroy	24	16
Northern Pearly-Eye	17	9
Eyed Brown	32	180

SPECIES	Oshawa	Sunderland
	June 25	July 3
Appalachian Brown	0	1
Little Wood Satyr	74	42
Common Wood Nymph	2	39
Inornate Ringlet	401	85
Monarch	10	27
Silver-spotted Skipper	24	9
Northern Cloudywing	13	15
Arctic Skipper	6	4
Least Skipper	19	47
European Skipper	276	675
Peck's Skipper	3	24
Tawny-edged Skipper	21	40
Crossline Skipper	2	16
Long Dash Skipper	25	56
Northern Broken Dash	1	6
Delaware Skipper	1	11
Hobomok Skipper	26	14
Dion Skipper	0	3
Two-spotted Skipper	2	0
Dun Skipper	0	19
grass skipper sp.	5	24
TOTAL SPECIES	**37**	**45**
TOTAL INDIVIDUALS	**1630**	**2673**
No. of Participants	11	23
No. of Parties	6	11
Km. on foot	46	77.5
Km. by car	139	223
Hours on foot	46.25	65
Hours by Car	3.25	6.25
Total Hours	49.5	71.25

Should Uxbridge Pursue Nature Canada's Bird Friendly City Certification?

By Carly Davenport

[Editor's Note: As a follow-up to the excellent presentation Carly gave at a recent NDN meeting, she has written the following introduction and overview of the project. What do you think? Should North Durham Nature pursue this? Carly is suggesting Uxbridge as the focus city but why not Port Perry as well?]

Uxbridge Township is a fantastic place to bird. Many of us also enjoy keeping backyard feeders so that we can attract birds and watch what species visit throughout the seasons. We enjoy co-existing with the birds, but their populations are declining at alarming rates. Since the 1970s, North American bird populations have declined by more than 25%. This represents a loss of almost 3 billion birds that can be attributed to direct and indirect human interference. Our activities directly affect bird populations through unsustainable urban development, agricultural activity, vehicular traffic, plastics pollution, use of pesticides, and manicured non-native monoculture properties. Indirectly, there are overarching issues associated with human-driven climate change that are having detrimental effects on North American bird populations.

So what can we do to reverse human impacts and give bird populations a chance to stabilize and even rebound? A great local solution is to become a Nature Canada Certified Bird Friendly City. This program also encompasses small municipalities and rural communities which would be a great fit for Uxbridge Township.

The program is built on three pillars:

- threat reduction
- habitat protection, restoration, and climate resiliency
- community outreach and education

Through community-led action that aligns with these three pillars, we can better support the birds that make their home in Uxbridge or pass through seasonally to breed.

The first step is to form a bird team that will work to prepare the certification application. The bird team is a group of community volunteers from any discipline or background who are interested in work that will help guide bird-friendly initiatives and policy at the municipal level.

If Uxbridge Township takes this opportunity and is successful in achieving entry, intermediate or high-level certification, it will be a badge of honour for the community, and Uxbridge will join the growing network of Bird Friendly cities contributing to a positive change on a national scale.

There are no costs associated with certification, and we can begin to put together a bird team to submit an application for the upcoming February 26th – March 1, 2024 deadline.

For more information, the website is: https://naturecanada.ca/defend-nature/how-you-help-us-take-action/bfc/?&#aboutprogram

Nature Quiz – What am I?

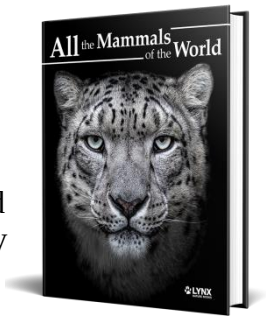
Photos and quiz by Geoff Carpentier

Okay let's make this a bit harder than usual! Let's see if we can figure out both things in the photo. Hint: The big green thing is a plant! The angle is a bit odd so you might have trouble, but it is long-leaved and quite tall (about 2' sometimes) and has pink flowers … a certain endangered species thrives on it, but it tastes yucky and produces a milky sap when broken. The little red guys are a species of insect that are closely associated with it. So if you get the plant, you will likely know the insect!

See page 11 for the answer

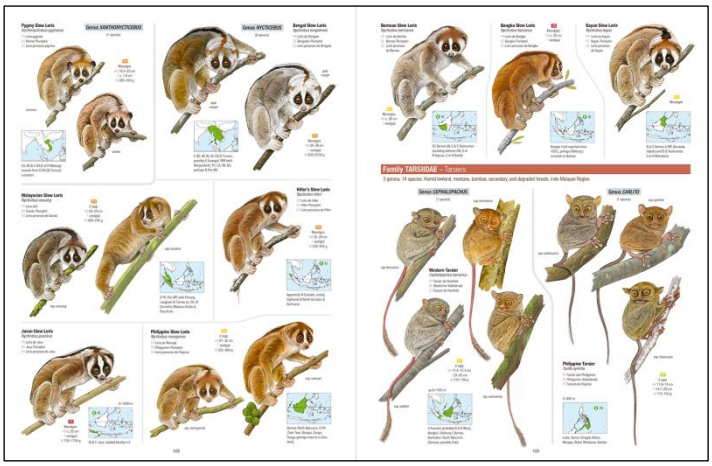
Book Reviews

By Geoff Carpentier



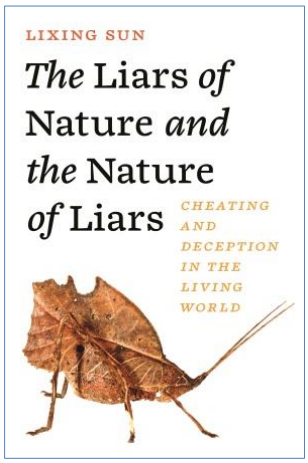
All the Mammals of the World. 2023. Lynx Nature Books/Alada Books, Barcelona, Spain. 799 pages – hardcover – special launch price 75.00€. ISBN: 978-84-16728-66-4.

Over the last few years I purchased all the nine volumes of the Mammals of the World series from Lynx and love them, but I kind of always wish someone would take all of those volumes and republish them into a single book that showed every described mammal in the world. Well, wishes can come true for here it is. In just under 800 pages, many authors and artists collaborated to produce this gorgeous and inclusive volume. It won't fit in your pocket but it will on your book shelf. Some day when I have time I want to go through it and create my own life mammal list. Prior to this book, there was no single comprehensive place to see all potential species – now if only I had time LOL. Here is a sample page so you can see what to expect … a few stats for you book nerds – 6581 species covered, 7349 illustrations, 6459 distribution maps, and 2831 endemic species. For those of you that know Lynx, you know that the caliber of these books is outstanding. The detail and scope are beyond compare.



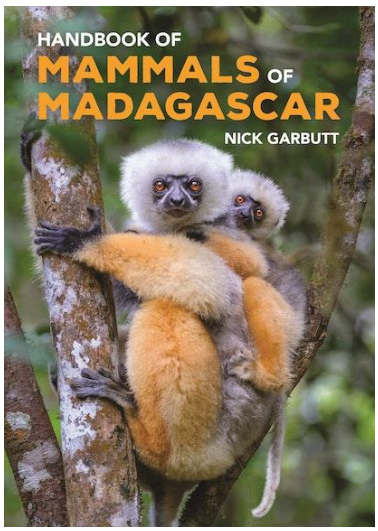
Guaranteed you will love this book from the moment you open the cover until you put it back on the shelf. It might even intrigue you enough to purchase the full nine volume set that has thousands of pages of more information on the mammals of the world!

The Liars of Nature and the Nature of Liars. Lixing Sun. 2023. Princeton University Press, Princeton, New Jersey, 08540. 269 pages - hardcover $29.95 USD. ISBN: 978-0-691-19860-6.



At first I thought this sounded like an interesting book but is it just another listing of critters that mimic others or use camouflage to hide themselves? Turns out it is much much more. Ling Sun is a good writer and storyteller and he shows his talent in this book. He starts off the book describing a murder of the most callous type - infanticide. Then we realize he's describing what a European Cuckoo does to ensure the survival of its offspring. Sun goes on to explain the reasons for this seemingly cruel (but necessary) action and takes it out of the realm of emotion to one of survival of the fittest. As the book progresses, he goes on to explain many other types of deceit in the natural word and explains them in terms we, the average person, can understand. I think this is a good read and one that you might find both entertaining and enlightening!

Handbook of Mammals of Madagascar. Nick Garbutt. 2023. Princeton University Press, Princeton, New Jersey, 08540. 448 pages - hardcover $49.95 USD. ISBN: 978-0-691-23991-0.



The saddest part about Madagascar and its wildlife is that most of you will never experience the incredible diversity of its wildlife. Forest clearing is rampant and only a tiny fraction of the habitat remains. With this habitat goes the species that, of all the places in the world, only live on this one island. I had the good fortune to go there a few years ago and see many of the species described in this book. But I now see how many more I missed! Garbutt is a superb photographer and has produced an informative, pleasingly laid out and important book on all the species known to be found in Madagascar. When you look at some of the maps, you will be shocked at how tiny most of the species' ranges are. Many species are truly precariously hanging on to existence. With that sad note, however, don't miss this book if you want to read the most concise and up-to-date book on these marvelous creatures of Madagascar! 217 species are depicted in 370 photographs, which are of such high quality that you could buy the book just for that reason alone – but don't – it is fact-filled and a great read!

Fact or Fiction?

Article by Lynda Kamstra
Photos by James Kamstra

FACT or FICTION: Foam in lakes and rivers is natural and non-toxic?

FACT or FICTION: Weather triggers the start of fall colours?

See page 9 for answers.

The 3rd Ontario Breeding Bird Atlas Update

Well year 3 of 5 is about done .. You can still do a bit of looking and listening though ... some owls (e.g. Great Horned Owl) can start breeding anytime, so be ready .. Did you suspect that some bird nested in your yard this past summer but couldn't find the nest? The eastern Kingbird nest (left) can be tricky but location and construction help to ID it. Have a look now and maybe you will find the used nest – but be careful to make sure it matches the characteristics of the species you think it is before you enter your data in the atlas database.

Answers to fact or Fiction?

FACT or FICTION: Foam in lakes and rivers is natural and non-toxic?

FACT: The sight of foam on the surface of a lake or river shoreline might make one cringe and immediately conclude that it was caused by soap or input of industrial effluent. However foam often appears even in pristine wilderness areas distant from any human activity. So, what exactly is its cause and composition?

You might notice that naturally occurring foam is associated with turbulence - lake waves or river rapids. The other necessary ingredient for foam is the presence of decaying aquatic plant material or algae. Decomposition releases chemical compounds that act as surfactants, meaning they have both hydrophobic and hydrophilic characteristics, which reduces surface tension when they are in contact with water. Water turbulence then results in foam formation.

Natural foam has been found to be 99% air/water and 1% surfactant. It appears in streaks on open water surfaces but accumulates into piles of foam along shorelines or at the base of rapids and waterfalls. It should not feel slimy. You are more likely to witness foam formation in soft water areas, such as in our Canadian Shield lake areas. Brown tints in the foam are the result of tannins from decaying woody matter.

FACT or FICTION: Weather triggers the start of fall colours?

FICTION: Shortening day length, not weather, triggers deciduous trees and shrubs to begin changing colours.
What exactly is going on inside the leaf? A lot! But here is a simplified description. One key event is the breakdown of chlorophyll. This process reveals other leaf pigmentation - carotenoids (yellow xanthophylls and orange beta-carotenes). Another key event is the development of an abscission layer between the leaf petiole and twig. This extra layer of tissue begins to seal off the leaf from the rest of the tree, resulting in a build-up of sugars produced in the leaf. During the fall,

these sugars get converted into anthocyanin - a red pigment. Though we all enjoy its splendour, its biological purpose is to protect the tree by acting as a form of sunscreen during nutrient resorption (relocation of leaf nutrients before they fall).

Most of us are aware that fall colours vary from year to year. This is how weather comes into play. Once the abscission process has begun, weather will influence the rate of leaf fall and intensity of colour. Cool clear nights (above freezing) and bright dry sunny days are factors that produce the most brilliant colours. Drought, heavy rain, and frost will cause early leaf fall.

Nasty & Nice Nature News

Compiled by Geoff Carpentier

Well, in case you're suffering withdrawal, my column is back after a one-issue hiatus.

A 46K year old invertebrate! Scientists working with soil samples collected from Siberian permafrost had revived a nematode (*Panagrolaimus kolymaensis*) that has remained in suspended animation for about 46,000 years. The most exciting part is that it was not only revived but is having babies in a Petri dish in the lab. Kind of scary to be sure! It survived through a process known as cryptobiosis, whereby an organism slows down its respiratory and metabolic processes to almost zero, until conditions improve. This finding, while the oldest, is not unique as scientists uncovered a viable crustacean from Lake Baikal in Russia in the 1930s and a rotifer was unearthed that was about 24,000 years old - again in Siberia. I can only speculate that Canada's permafrost will reveal more marvels as these regions are explored. But with climate change, there may be some urgency to unearth them sooner than later because if they thaw in the interim they may be lost to science before they're discovered! (Source: *PLOS Genetics* as reported in the *Washington Post*).

This just in … a new pre-historic species of whale has been discovered in Peru that might take the title of world's largest animal away from the Blue Whale. Dubbed as *Perucetus colossu,* it persisted in what was then tropical Peru over 39 million years ago. Thirteen vertebrae, four ribs and a hip bone have been collected from the sediments of Peru. (Source: the journal *Nature*).

Were dinosaurs just big, stupid animals? A new study was conducted by Suzana Herculano-Houzel at Vanderbilt University. She recently published her work on the *Tyrannosaurus Rex*. She postulates that the dinosaur was not just a large, dangerous carnivore that wantonly killed. It was also a skilled hunter, that developed social networks and may have hunted cooperatively in packs. She determined that the brain of the *T. Rex* contained enough neurons to support problem solving and cultural development within the species. Just in case you're wondering how she made her determinations since the brain matter would have disappeared millennia ago, she used analyses between the brains of emus and ostriches to extrapolate what likely happened inside a dinosaur's head. The *Velociraptor* had similar brain functioning abilities. (Source: *Journal of Comparative Neurology*).

"Superworm" likes to eat Styrofoam: A study out of the University of Queensland in Australia is showing promise in the move to manage waste Styrofoam. The larva of a darkling beetle, known as *Zophobas morio*, can survive on a diet comprised solely of polystyrene (Styrofoam). This is an important study as it shows that nature may be the solution to our battle with plastics and similar persistent waste products. Styrofoam can take 500 years to degrade at a landfill, so this and the estimated 14 million tons of waste plastic that enters the ocean each year is unquestionably affecting the planet. Maybe this little bug will change that! (Source: *Microbial Genomics* as reported in *The Guardian*).

Answers to Nature Quiz

The insect and the plant

Did you get it? The plant is a Common Milkweed as pictured on the right and the insect is a Red Milkweed Beetle (left)

Red Milkweed Beetle – *Tetraopes tetraophthalmus.*

Interestingly, when an insect or other organism consumes a toxic substance, they have three choices: (1) die or get sick, (2) metabolize and expel it or (3) store it. The *Tetraopes* follow the third strategy – they do not metabolize but rather store it so that if something eats them, the predator finds them distasteful and won't eat others of their kind. Specifically, the cardiac glycosides found in the milkweed are stored for later use as a repellent. The Monarch does the same thing!

And here's a nifty word: aposematically coloured - which means to be brightly coloured to warn predators that there is danger if they "mess with these bugs"!

New Copy Editors

Welcome to Jane Batterink and Carly Davenport! Thank-you so much for stepping up to help with the newsletter. I just know it will now be more error free than ever!

And a huge thank-you to Derek Connelly, who has been a stalwart proof-reader for years now!

Nature's Pretty Side

Photo credits:

Bumblebee and Lilac – Kim Lendvay

Hudsonian Godwit (above) and Short-billed Dowitcher (left)

Geoff Carpentier

For more information about NDN

Visit Us On Facebook
and our website
www.northdurhamnature.com

NDN Executive Committee

President / Programs: James Kamstra
Vice-president: Derek Connelly
Past President: Cara Gregory
Treasurer / Membership: Kim Adams
Secretary: Lynda Kamstra
Outings: Derek Connelly
Promotion: Jay Thibert
Member at Large: Mark Humphrey
Facebook Coordinator & Website: Mark Dorriesfield

Newsletter Editorial Board

Geoff Carpentier – Editor/writer

Proofreaders – James Kamstra, Jane Batterink and Carly Davenport