The Esquesing

Halton/North Peel Naturalist Club
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Spicebush Swallowtail ***(****Papilio troilus****)*** on Northern Spicebush (*Lindera benzoin*)
Description & Photo by Fiona Reid

These incredible caterpillars start out looking like small bird droppings. During the day they hide themselves by folding over the upper surface of a portion of leaf (unlike most caterpillars that fold underneath leaves). Spicebush is the preferred host plant for this butterfly, but they can also use Sassafras, Prickly Ash, or Tulip Trees. Although I bought two spicebush plants in hopes of attracting butterflies and moths that feed on it, they are a glorious addition to a damp spot in the garden, with pale yellow flowers in early spring, verdant green leaves in summer, and abundant red berries in fall. A few years ago I was sitting by my small backyard pond doing my daily frog count, when I saw my first Spicebush Swallowtail circling around the spicebush. My smug satisfaction at having provided a resource for this butterfly was short-lived. A frog leapt up, devoured the butterfly, and resumed its post pond-side. Thankfully, others have had better luck.

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President's Message

Summer is such a lush and glorious time in the natural world. The warm weather, the rolling succession of plants in flower, as wildlife go through their nesting and breeding seasons and rear their young is enough to keep any naturalist engaged all the time. Watching a small stand of Goldenrod recently, I was enjoying the incredible hum of activity around these unassuming but vital flowers. A truly impressive diversity of insects swarming around to collect the pollen, nectar and prey species on offer, including flies, beetles, bees and wasps, and of course butterflies.

I was reminded too that the progression of the season is rolling rapidly into the next, and that means that it is time to begin the '22-23 season for the HNPNC!

At this time, while we are still living with Covid-19, most Ontarians are now vaccinated against it, and we are excited to announce a return to in-person meetings. Circumstances have prevented us from re-booking our old meeting place at St. Alban's in Glen Williams, however, so we have had to relocate. We are pleased to inform you that we have a new location lined up at:
Hillsview Active Living Centre, 318 Guelph Street, Unit #9, **Georgetown** (entrance at the back of the building)

We are planning to meet there, in-person, at our usual time of 7:30 pm on the second Tuesday of each month. Hope you can all join us!

We have another season of excellent speakers lined up for the club, starting with:
Our speaker this month, Laura Timms, will be joining us once again to share with us what the CVC has been learning about Butterflies through their monitoring and their Butterfly Blitz program. These remarkable and spectacular insects are vital to our ecosystems, renowned for their beauty and fascinating in their own right. Join us (in person!) at our new venue and learn more about the state of affairs for Lepidopterans in our region!

In October, we will be welcoming Brian Stevens to give a talk on the work of the Canadian Wildlife Health Cooperative, some of the parasites and diseases affecting wildlife populations, and the management or conservation implications. Some of us might squirm (a little, maybe!) in our seats, but you know you won't want to miss this!

Be sure to check out the newsletter, too, and enjoy the fascinating articles and beautiful photography on subjects ranging from fish to forest fires and pumpkins to butterflies. And of course, there is the usual info about upcoming walks as well as a wrap-up at the end with a gorgeous photo quiz by Fiona Reid.

Welcome back to the new HNPNC season, and I look forward to seeing you all face-to-face very soon!

Yves Scholten

Talks and Walks

Indoor Events - Talks

We are returning to **in person meetings** at a **new venue**
Time/Date: 7:30 pm on the second Tuesday of the month
Location: Hillsview Active Living Centre, 318 Guelph Street - Unit #9, Georgetown (entrance at back of the building) Map on last page of the newsletter.

Tuesday, September 13, 2022 at 7:30 pm
Laura Timms: CVC's Butterfly Blitz with mention of West Virginia White butterflies.
Laura Timms PhD, is a Senior Specialist in Natural Heritage Management at Credit Valley Conservation.
She analyses monitoring and inventory data for different species groups including grassland birds, stream fish and plant communities.
She is the scientific coordinator of the CVC Butterfly Blitz, a citizen science program focused on butterflies.
Laura will be speaking to us about what the Butterfly Blitz has discovered about butterfly distribution and abundance in the Credit Valley Watershed.
This year the species count reached a new high (as of late August) of 66 species. Expect photos of beautiful butterflies and lots of cool information.

Tuesday, October 11, 2022 at 7:30 pm
Brian Steven: Parasites and/or wildlife disease
Brian will be speaking to us about parasites and/or wildlife disease and its impacts on conservation efforts and wildlife population management, and the work of the Canadian Wildlife Health Cooperative.

Tuesday, November 8, 2022 at 7:30 pm
Beth Anne Fischer: Conservation Halton landowner stewardship conservation programs in Halton.
More details to follow.

Tuesday, December 13, 2022 at 7:30 pm
Club members / potluck
More details to follow.

Outdoor Events - Walks

Please Note: As indicated below, please confirm your participation for each outing so that we can be sure to adhere to the ever changing Covid safety protocols.

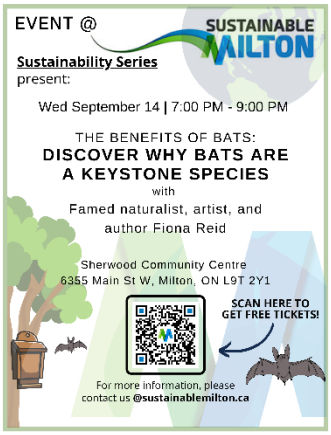
Sunday Sept 11, 2022 at 9 am
Bird Walk
Meet Fiona and Ian for a birding trip to Guelph correctional ponds, to look for waders, waterfowl and migrant songbirds. Departing from Winners in Georgetown at 9:00 a.m. Contact Ian Jarvie for more info (auldscot1@cogeco.ca).

Saturday, October 15, 2022 at 2 pm
Seedy Saturday and Mulch Madness!
Please join us at Joseph Gibbons Park (on Delrex, near Weber) at 2 p.m. for a native plant seed exchange. Don't worry if you don't have any seeds to contribute, we will have plenty to give away, and we hope to have a few small plants to hand out as well. We will also be extending the pollinator garden we created last fall, putting down cardboard and mulch to kill off the grass. We are shaping the garden to blend with the shrubs behind, and need to lay down two triangles, one at each end of the existing bed. Please contact Katherine Shaw, butterflyway ranger, at butterflyway20@gmail.com for more information.

Date & Time TBD, email auldscot1@cogeco.ca for updates
Fall Lakewatching for Pelagic Seabirds
From September through to November there are occasions when rare pelagic seabirds are seen on the western end of Lake Ontario. Parasitic and other Jaeger species, Black-legged Kittiwake, Sabine's Gull and even Northern Gannet and Razorbills have all been reported. Some of these birds find their way up the St. Lawrence, and some are on their migratory route from James Bay. Strong easterly or north-easterly winds push these vagrants westwards to the end of the lake where doughty lake watchers gather at Van Warner's Beach in Hamilton in the hopes of catching sight of these rarities. Regular winter ducks such as Scoters and Long-tailed Ducks also arrive, sometimes in their thousands to spend the winter on the lake.
Ian Jarvie will be leading an outing at some point in the fall, mid to late afternoon is apparently best, but will necessarily be with only a day or two's notice when it looks like the winds will be favourable. But be warned, conditions will definitely be windy, possibly cold and wet too! Appropriate clothing and warm drinks are definitely needed.
Watch for an email blast at some point in the next while. If you are interested drop Ian an email at auldscot1@cogeco.ca and he will keep you in the loop.

Other Events

The Benefits of Bats
Wed., Sept. 14, 2022
7:00 - 9:00 p.m. at the Sherwood Community Centre, Milton.
Our Club's own **Fiona Reid** will take the podium and present "**We're Batty for Bats!**" A long time Naturalist, Author and Illustrator, Fiona is regarded as an expert on this subject. How many mosquitos do they eat? What good are they? How is their eyesight?
Get your FREE tickets on **EventBrite** and get the answer to these questions.



Getting Off of Gas
Wed., September 28, 7:00 - 9:00 p.m., Venue TBD
Professional Engineer and climate change enthusiast **Jim Fielder** will give you all the details about how electric heat pumps can be used to replace your gas furnace. Information and details on getting tickets to this event will be available soon in an email to you.

Joseph Gibbons' Garden Takes Off

Article & Photos by Fiona A. Reid & Desmond MacNeal

Joseph Gibbons' Pollinator garden was planted by a group of volunteers in late May. The combination of healthy plants and a deep mulch layer resulted in exuberant growth, despite the serious lack of rain and only occasional watering. The garden is full of insects!

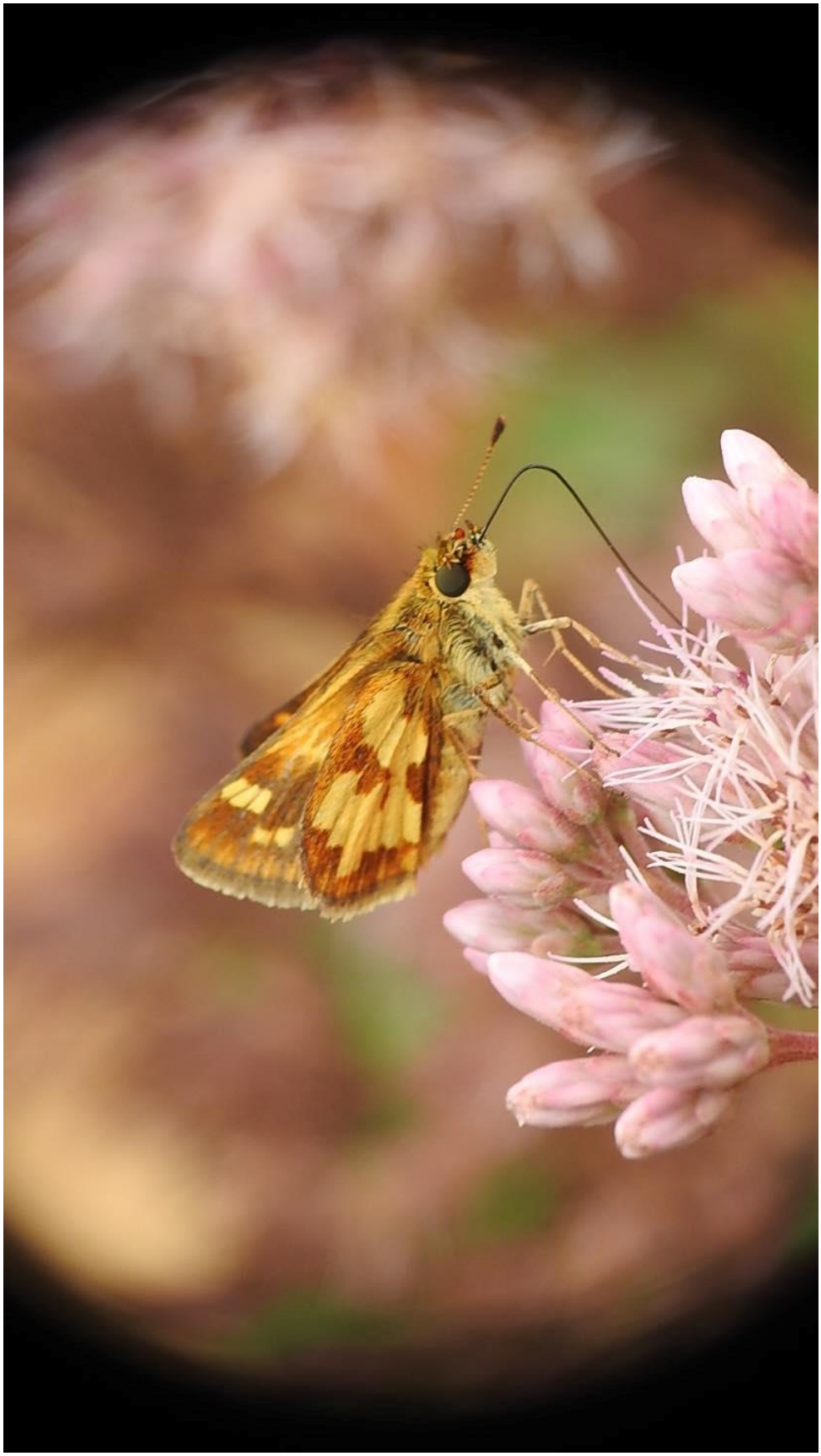
Joseph Gibbons' new pollinator garden is a green oasis. Photo credit Fiona Reid.

Blue Vervain, Dense Blazing Star and Black-eyed Susan blooming in July in the new pollinator garden at Joseph Gibbons, just 2 months after planting. Photo credit Fiona Reid.

Insect life abounds in the garden:

Red-belted Bumblebee on Lance-leaved Coreopsis. Photo credit Desmond MacNeal.

Great Golden Digger Wasp on Swamp Milkweed. Photo credit Desmond MacNeal



Peck's Skipper on Joe-pye Weed. Photo credit Desmond MacNeal.

Ambush Bugs on Lance-leaved Coreopsis. Photo credit Desmond MacNeal.

Lance-leaved Coreopsis, Pearly Everlasting, Dense Blazing Star, Virginia Mountain Mint, and Purple Hyssop in bloom in August. Photo credit Fiona Reid.

Swallowtail Butterflies

Article and Photos by Don Scallen

Perhaps the most charismatic group of butterflies we have are the swallowtails (family Papilionidae). Beauty is one of their defining characteristics. These butterflies have background colours of black or yellow but add flourishes of iridescent blues and orange spotting to amplify their appeal. These colours, and dimensions rivalling that of monarch butterflies, make them showstoppers.

There are over 550 swallowtail butterfly species on earth. Among them are the birdwings, the largest butterflies in the world, with wingspans up to 28cm. Many swallowtails, including the seven species in northeastern North America, have extended lobes on their lower wings that they are named for.

The adaptive radiation of swallowtails into so many species has allowed their caterpillars to avail themselves of a diversity of foodplants. The swallowtail caterpillars in northeastern North America vary from strict specialists to generalist feeders. Zebra swallowtails are one of the specialists. Their caterpillars feed only on the leaves of pawpaw (Asimina triloba) trees. These small trees of the largely tropical custard apple family (Annonaceae) thrive in rich bottomland soils and edge habitats throughout much of the Midwest and mid-Atlantic states, north into Pennsylvania and western New York. They also grow in extreme southern Ontario, but their scarcity that far north means that zebra swallowtails are only occasional visitors to the province. This could change in the future. Planting pawpaws in Ontario and beyond their natural range in the northeastern U.S. is becoming de rigueur because of their tropical appearance and their large, tasty fruit.

Pawpaw flower & young leaves.

Another specialist feeder is the pipevine swallowtail. This lovely butterfly has a black and iridescent blue upper side. The lower side of the lower wings flaunt more blue, highlighted with prominent orange spots. As revealed by its name, this swallowtail feeds on pipevines. In the northeast and Midwest, Dutchman's pipe (Aristolochia macrophylla) is a host plant along with Wooley Dutchman's pipe, (Aristolochia tomentosa). Virginia snakeroot (Aristolochia serpentaria), is also eaten by the pipevine swallowtail caterpillars. These plants in the Birthwort family (Aristolochiaceae) contain the potent toxin, aristolochic acid that causes kidney damage and cancers in humans. This toxin is incorporated into the tissue of the caterpillars and adults, conferring some protection from predators in the same manner as the toxic alkaloids in milkweed protect monarchs. None of the pipevine swallowtail foodplants grow naturally in Canada, but Dutchman's pipe, grown as an ornamental in Ontario, occasionally attracts breeding pipevine swallowtails.

Spicebush swallowtail caterpillars are not quite as selective as their pipevine and zebra swallowtail relatives. They have evolved to eat the pleasantly aromatic leaves of spicebush (Lindera benzoin) and sassafras (Sassafras albidum), both in the Lauraceae (Laurel) family. Spicebush, a shrub of moist soils throughout almost the entirety of the eastern United

States, is also found in southern Ontario. Sassafras, a small to medium sized tree has a similar range. The intimate relationship that spicebush swallowtails have with these plants dictates that they have almost precisely the same distribution.

Spicebush swallowtail caterpillar, snake mimic.

Spicebush swallowtail caterpillars are stars of the insect world. In the early stages of their development, they mimic slimy, repulsive bird droppings, as is the case with some other swallowtail caterpillars. But then they transform into gorgeous lime-green snake mimics with impressive false eye spots. At this stage in their development these caterpillars roll the edge of a leaf around their bodies and hide inside. It is speculated that birds hunting for a caterpillar meal peer into these leaf tubes, see the head of a "snake" and then recoil.

Giant swallowtails are the largest butterflies in North America. Their caterpillars feed on plants in the citrus family (Rutacea). This might suggest that the northeastern U.S. and Canada are out of bounds for these butterflies, but there are, in fact, two wild citrus family plants that make residency in the north possible. One is hop tree (Ptelea trifoliata). Small and rather non-descript, hop tree, also known as "stinking ash" in reference to the ill scent given off by crushed leaves, grows widely in the Midwest, the southeast, and sporadically elsewhere. The other native food plant for giant swallowtails in the north is prickly ash (Zanthoxylum Americanum), colloquially known as "toothache tree" for the reputed analgesic properties of its bark. Prickly ash, like hop tree, ranges widely in the Midwest, extending northeastward into Ontario and Quebec. It is sparingly distributed in many other parts of eastern North America. A shrub of the understory of deciduous woodlands and of edge habitats, it is aptly named. It is impressively armed with sharp thorns that sometimes provide the first – and painful! – notice of its presence in the landscape. Prickly ash ranges further north than any other native citrus family plant. This has allowed giant swallowtail butterflies, in recent decades, to colonize parts of eastern Ontario, Quebec and New England, a northward movement that has likely been assisted by climate change. Rue, a citrus family herb from the Mediterranean area, and widely planted in gardens, is also favoured by giant swallowtail caterpillars.

Hop tree leaves.

These giant swallowtail caterpillars are extraordinary creatures, employing a grab bag of adaptations to avoid being eaten. Like the early stages of spicebush swallowtails, they mimic bird droppings, but unlike the spicebush caterpillars they maintain this ruse throughout their caterpillar-hood. This allows them to sit atop leaves during the day as they feed, instead of hiding. Giant swallowtail caterpillars, like other swallowtail cats, also use snake mimicry and will raise their heads as if poised to strike. And, like other swallowtail caterpillars, they can extend bright orange organs called "osmeterium" that look like a snake's forked tongue. These osmeterium also release a pungent scent, probably imbued with repellent chemicals.

Black swallowtails eschew tree leaves. Instead, these common butterflies are carrot family specialists (Apiaceae), laying their eggs on dill, fennel, carrot, parsnips and celery and a host of garden herbs including dill and fennel. This makes them frequent garden visitors. Beyond our yards these black and yellow butterflies lay their eggs on several carrot family plants that, in some jurisdictions, have become concerning invasives: Queen Anne's lace, wild parsnip and giant hogweed among them. Native carrot family plants including golden alexanders (Zizia aurea), yellow pimpernel (Taenidia integerrima), sweet cicely (Osmorhiza claytonia) and several others, also feed black swallowtail caterpillars. It was these natives that sustained the black swallowtails prior to the arrival of European settlers.

Black swallowtail male on butterfly milkweed.

Black swallowtails and spicebush swallowtails are thought to be mimics of their toxic pipevine swallowtail kin. All three species are similar in colouration – basic black with blue iridescence and orange spotting on the lower wings.

The two final northeastern members of the flamboyant swallowtail tribe are the Canadian tiger swallowtails and eastern tiger swallowtails – near doppelgangers. Both have bright yellow wings, veined with black. It takes expertise and perhaps a dollop of chutzpah to separate them in the field. Their close resemblance speaks to a recent shared evolutionary past and that is demonstrated by the overlap in the food plants of their caterpillars. Both species are generalist feeders, eating a variety of tree leaves, including ashes (Fraxinus sp) and cherries (Prunus sp). The eastern tiger swallowtail, ranging further south than the Canadian, adds tulip tree (Lirodendron tulipifera), sweetbay (Magnolia virginiana), and other southerly species to its palate.

Tiger swallowtail caterpillar on white ash showing osmeterium.

Tiger swallowtail nectaring on teasel.

A recent discovery found that eastern tiger swallowtails are important pollinators of flame azaleas (Rhododendron calendulaceum) in the Appalachian Mountains. And, surprisingly, this pollen transfer is accomplished by the flapping wings of the swallowtails. The stamens and stigma of the bright orange flowers of Flame azaleas extend well beyond the petals. As the butterflies use their long tongues to sip nectar from these flowers, the elongate stamens, capped with pollen-rich anthers, are perfectly placed to dust their wings with pollen that is then transferred to stigmas of other flowers to accomplish pollination.

The flower structure of our native orange lilies Lilium superbum and Lilium michiganense is very similar to that of flame azaleas and it is no surprise that tiger swallowtails – both eastern and Canadian – are attracted to these lilies.

Michigan lily close up showing anthers loaded with pollen and stigma (female flower part) in centre. Flower parts ideally placed to dust butterfly wings.

Tulip tree foliage and flower buds.

The dependence of swallowtail butterflies on their foodplants allows us to attract them to our gardens. If you grow their larval food plants, you'll be rewarded with exotic caterpillars and the flamboyant beauty of the adults.

Originally published in *Blazing Star* the newsletter of the North American Native Plant Society.

Disposal Of Jack-o'-Lanterns

Article and Photos by W.D. McIlveen

Each year sees the production of millions of Pumpkins on extensive areas of agricultural land. Some of those Pumpkins are used to make pies, various baked goods and other sorts of edibles including Pumpkin seeds. The vast majority of the large orange fruit are either destined for Jack-o'-Lanterns at Halloween or are not even harvested. A cynic may suggest that the entire cultivation of Pumpkins involves rather frivolous use of agricultural land. Those people that do grow the crop in a conscientious manner can realize a good profit for their efforts.

Pumpkin crop, Huttonville, 2003

Pumpkin harvest, Scotch Block, 2016

Of the pumpkins that are acquired by members of the general public, the majority become Jack-o'-Lanterns but some are kept intact as ornaments. The latter obviously remain in an intact form. When Jack-o'-Lanterns are produced, two basic products will result. One of these is the outer shell that is further carved into the standard Halloween face. But in order to get that stage, the innards and seeds become a material that needs to be managed. Sometimes, the seeds are saved as a snack food. The inner part is something that has no real value to humans and the shells of the seeds fall into the same category. After a short life as a Jack-o'-Lantern, Pumpkins become a bit of a problem on November 1st each year. They soon start to show signs of deterioration (loss of water due to the cut surfaces) and people start to look for ways to dispose of them. This issue regarding what to do with them is at the core of this article.

In recent years, it has become increasingly apparent that people are not following good practices regarding their used Jack-o'-Lanterns. A fair number appear to be smashed in place by vandals while others have ended up being thrown out along roadsides, in parks, and in various woodlots. There may be some value of the Pumpkins as food for wildlife but disposal could lead to attraction of the wrong kinds of wildlife or possibly even releasing Pumpkins as a wild plant if seeds are left within the Jack-o'-Lantern. Disposal of Pumpkins in natural areas may be contrary to local by-laws. Most municipalities have had to develop rules or guidelines for their own local area because of the scale of the Pumpkin waste. There may be some slight variations from place to place regarding the disposal of the unwanted

Pumpkin waste so people are advised to check the rules that are relevant to their own particular location. Generally, in our area, people are asked to place their unwanted Pumpkins in with their yard waste or to include them in their own backyard compost pile. They are preferably not to be included within green bins and are definitely not wanted in general garbage where they take up landfill space. They should not be thrown out along roadsides or in natural areas.

Pumpkins at Nassagaweya Line, 2021

Pumpkins at Nassagaweya Line, 2021

Jack-o'-Lantern, Guelph Radial Trail, 2016

Correction Notice: In the last issue's Vernal Pools and Saving Amphibians article we referred to a group in Vermont These heroic community scientists count migrating amphibians and safely usher the animals across roads during one or more "Big Nights." Please note that the Harris Center for Conservation Education is in Hancock, New Hampshire not Vermont.

Forest Fire Impacts

Article and Photos W.D. McIlveen

During this last year (2021), there were many news media reports about severe forest fires in many places but the fires in British Columbia and California were particularly prominent among those reports. Fires were very newsworthy in other places such as Australia, Brazil and in the Mediterranean area. While the fires were indeed extremely concerning, it seems appropriate to gain some perspective on how those fires, at least the more local ones, compare with recent years. The degree of news coverage about fires on any given day may be influenced by other news stories of other topics including COVID developments and other tragic events.

Some data for the latest five years relating to Ontario, Canada and the USA are summarized in Table 1. While there is variation from year to year, the situation in 2021 was neither the worst nor best in the last five years. The fires in Ontario may seem like a small part of the numbers for Canada but in relation to its proportion of the rest of the country, the number of fires in Ontario is much greater than there should be. The number of fires in the United States is much greater than in Canada; however, the average fire size in Canada is very much greater (56 ha in USA vs 424 ha in Canada).

Table 1. Summary of forest fires in North America

Year	Ontario		Canada		USA	
	No. Fires	Area*	No. Fires	Area	No. Fires	Area
2017	776	112,337	5,652	3,415,856	71,499	4,046,800
2018	1,327	365,587	7,114	2,278,080	58,083	3,561,184
2019	537	269,635	3,921	1,842,612	50,477	1,901,996
2020	608	15,480	3,916	227,385	59,362	4,156,168
2021	1,185	773,404	6,224	4,182,542	47,884	2,636,848

*Area burned in hectares; Fire season is not completed for 2021

In the past, some remarkable fires occurred in Ontario proving that recent fires are not novel to the provincial environment. Several large early fires were noted by Lambert [1967]. One in 1851 occurred at the mouth of the Bonnechere River in the Ottawa Valley. In 1855, a fire that started at Lady Evelyn Lake burned to the west for 200 miles to Michipicoten and consumed 2000 square miles of forest. A fire at the Thessalon River in 1864 joined with a fire on the west arm of Lake Nipissing meeting at Wanapetei and burned through forests on the slopes of the Killarney Mountains. It burned again in 1871. An 1894 fire in Minnesota spread into Rainy River District in Ontario. Doubtless there were many other less spectacular fires than those listed here (Fig. 5).

Three very destructive fires occurred in Northeastern Ontario in the early part of the 20th Century. They each have provincial historic plaques in place (Fig. 3). The first of these (Porcupine Fire of 1911) occurred in the area between South Porcupine and Pourquis Junction. Seventy-one people died in the fire that burned 200,000 ha. Five years later, another large fire on July 29 broke out along a 40-mile front and burned the area of Pourquis

Junction, Iroquois Falls and Matheson. It burned 500,000 acres (about 20 townships) and caused 223 deaths. It is recognized as the Great Fire of 1916. It was followed only six years later by the Great Fire of 1922. It burned about 18 townships between Cobalt and Englehart on October 4 when several smaller fires in the area combined into one. The death toll from that one was 43 human lives.

Forest fires occur in various numbers and areas depending upon factors such as temperature, rainfall, wind, and sources of ignition (human and natural). Fires, especially, the larger ones, cannot go unnoticed when they pose threats to human life, property and resources. This resulted in the Province of Ontario creating the first forest ranger positions in 1885. After some time and different progressions, forest management commenced to erect a network of fire towers in 1917 (Fig. 1). By 1962, the number of fire towers had increased to 317 (Fig. 2). The rangers performed various tasks in support of forest health and growth but a key role was to watch for forest fires. It was expected that early detection would minimize the damage that any fires might cause through early action. The fire rangers and the network of fire towers were gradually eliminated because any fires can now be reported by the pilots of the many aircraft that now travel around the province. As well, the expanded network of roads and greater human population in the north help to access much more of the province. All of these factors have largely replaced the services once provided by the fire tower system.

Fig. 1 Willisville Fire Tower

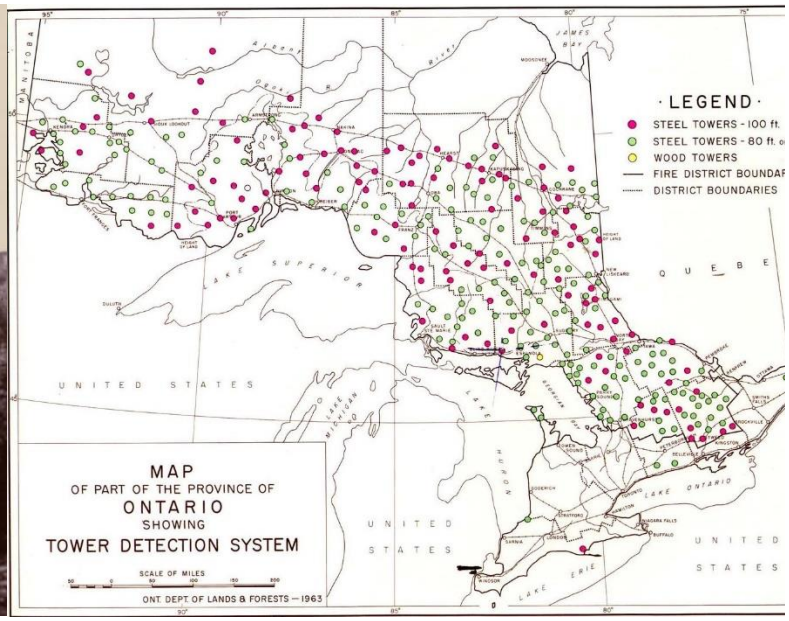


Fig. 2 Map of Ontario fire towers

Despite the presence of the fire towers, fires still occurred. One of the largest of all fires in Ontario occurred in 1948 which is well after many towers were established. It is known as the Mississagi Fire. It started about 40 miles north of Thessalon and spread mostly to the north and east. At the same time, the Chapleau blaze began at Flame Lake 40 miles farther north and blew south and east. Both began about May 25 but within two days, the two fires had burned over 29,000 and 6,000 acres respectively. By June 15, they had merged to become one big fire. That fire scorched a combined area of 747,520 acres and resulted in

Ontario's largest recorded forest fire. The fire not only directly destroyed extensive timber resources, it led to considerably-reduced value of any salvage logs from the burned area [Prebble].

The signs of the Mississagi Fire have largely disappeared due to regrowth of vegetation. In addition to natural vegetation, some areas were re-planted. It is not perfectly clear if this was the case that the Kirkwood tree located near Thessalon was established primarily to provide planting stock to replant the burned land. That nursery began to operate in 1956 so that might well have been a consideration. If one has a keen eye, pine plantations in the area might be noticed. As well, some burned stumps might be discovered still in place more than 60 years after the fire occurred (Fig. 4.) Charred wood is not prone to decay.

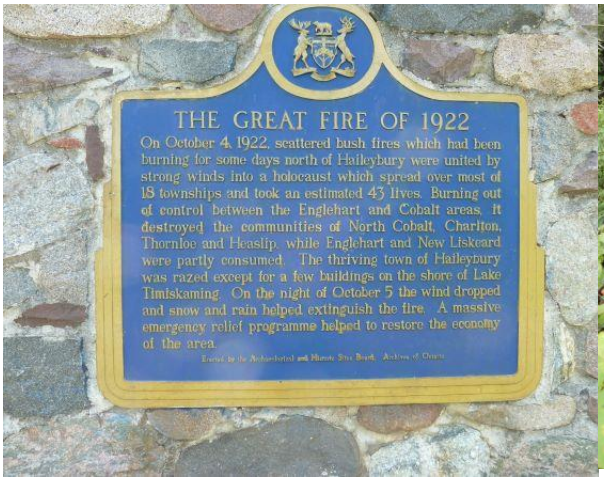


Fig. 3. Historical Marker Fire of 1922 North of Thornlow

Fig, 4. Tree stump with scars from 1948 Mississagi Fire, Aubrey Falls, 2010.

It is not necessary for forest fires to occur within Ontario itself to have a negative influence on the residents. One such fire was known as the Chinchaga Fire. It started on June 2, 1950, as a small wildfire in the northeast corner of British Columbia but crossed into the Chinchaga wild lands of Alberta a few days later. It burned for 222 days and consumed a stretch of forest that was 245 kilometres long covering at least 14,000 square kilometres. Some estimates place it at 17,000 square kilometres. It burned until October of 1950. The smoke drifted into Ontario darkening the sky there before moving across the Atlantic into Europe [McIlveen].

More recently, smoke from forest fires in Quebec drifted south into Ontario in early July 2002. It was conspicuous south of Kirkfield (Fig. 6) before moving further south and east towards Boston and New York. While investigations of the potential smoke impacts failed to show a direct like with increased mortality in those cities, it did raise concerns about potential health impacts [Zu *et al*.]. Wherever a large fire does occur, there typically is smoke that extends over very large areas depending upon the prevailing wind. In 2021, smoke was visible in the Halton area on days around July 13. Some smoke remained aloft but could be seen and occasionally could be smelled. The smoke was primarily from fires in Northwestern Ontario.

Burning produces ash, charred wood, and numerous chemicals. Ash eventually is incorporated into the soil and fertilizes future forests. In general, this is considered as a useful material. Charred wood breaks down slowly but it will convert to CO_2 and organic matter in the soil if given adequate time. Burning immediately produces huge quantities of CO_2, particulate matter (soot and fly ash), and a large suite of other chemicals depending upon the precise burning conditions and constituents of the vegetation. One group of chemicals of concern is the dioxin and related furans [Tashiro]. Some of these are extremely toxic while others are more benign. Fire will add to the background environment concentrations of all these undesirable chemicals.

Fig. 5. Forest fire site at Kenogamissi Lake, south of Timmins. burned in 2012, photo 2018.

Fig. 6. Forest fire smoke from Quebec Forest Fire at Argyle, 2002.

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Movers and Shakers

Article and Photos by Don Scallen

Meet the male river chub, an aquatic mover and shaker par excellence. In spring these robust minnows carry stones in their mouths to create nests, aka “redds”, that can span a metre wide and rise 30 cm or so. Truly herculean labour for creatures the length of ballpoint pens.

River chub male carrying a stone.

These aquatic stonemasons scour the streambed for the materials they need. Watching them lift large rocks recalls the effort of human weightlifters hoisting dumbbells.

River chub male on his nest.

After toiling for a day or more, the nests are complete, and the females arrive to inspect the quality of the males' work. Big nests may signal males with the chops to father healthy, vigorous young. Larger nests also offer more nooks and crannies for the females to hide their eggs.

Perhaps the females are also charmed by the winsome bumps or tubercles, that adorn male river chub heads during breeding season. The males further heighten their appeal by engaging in a sort of piscine tango, enticing females to join them on the redds by shaking their bodies.

River chub male surrounded by smaller females. Rosyface shiners also present.

Other minnow species including common shiners and rosyface dace breed on river chub redds. Why do the hard work of nest making if another species can do it for you?

Then there are the aquatic brigands, like longnose dace, that arrive at river chub nests with nefarious intent. They scarf down the eggs laid by the chub and the other spawning minnows.

The breeders and the egg stealers make a river chub nest a happening place in springtime. Fish of several species swarm above the nests. For observant naturalists it's a treat to watch. Male river chub are ecosystem engineers, creating crucial nesting habitat for themselves and other minnow species. That they do this by carrying thousands of stones in their mouths is another great example of the endless wonders of nature.

Photos taken in Bronte Creek, Halton Region. For videos of this nest building behaviour go to https://www.inthehills.ca/2022/06/movers-and-shakers-river-chub/

Photo Quiz

Photos by Fiona Reid

Answers on page 23

1

2

3

4

5

6

7

8

9

Answers to the Photo Quiz on page 22

1. Red-spotted Purple *Limenitis arthemis*
2. Spiny Oak Slug *Euclea delphinii*
3. Brown Hooded Owlet *Cuculia convexipennis*
4. Pandorus Sphinx *Eumorpha pandorus*
5. Showy Emerald *Dichorda iridaria*
6. Spotted Tussock *Lophocampa maculata*
7. Abbott's Sphinx *Sphecodina abbotti*
8. Milkweed Tussock *Euchaetes egle*
9. Hickory Tussock *Lophocampa caryae*

Halton/North Peel Naturalist Club Membership Form

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: _____

Email: _____

Application Type: New_____ Renewal_____

Membership Type: Single ($30)____ Family ($40)____

If "Family Membership", please list additional names:

_____

The membership year is September 1 to August 31. Renewals are due in September. For new members who join after April 1, the fees are applied to the following year's membership.

****

Participation in our outings involves walking or hiking on various trails. By voluntarily participating, you assume full responsibility for all risks of personal injury. Make sure that any outing you choose to participate in is within your fitness level. Please wear appropriate clothing and footwear.

****

Please fill out this form and bring it to our next indoor meeting, or mail it along with a cheque payable to Halton/North Peel Naturalist club to:

Halton/North Peel Naturalist Club,
P.O. Box 115,
Georgetown, Ontario,
L7G 4T1

Halton/North Peel Naturalist Club

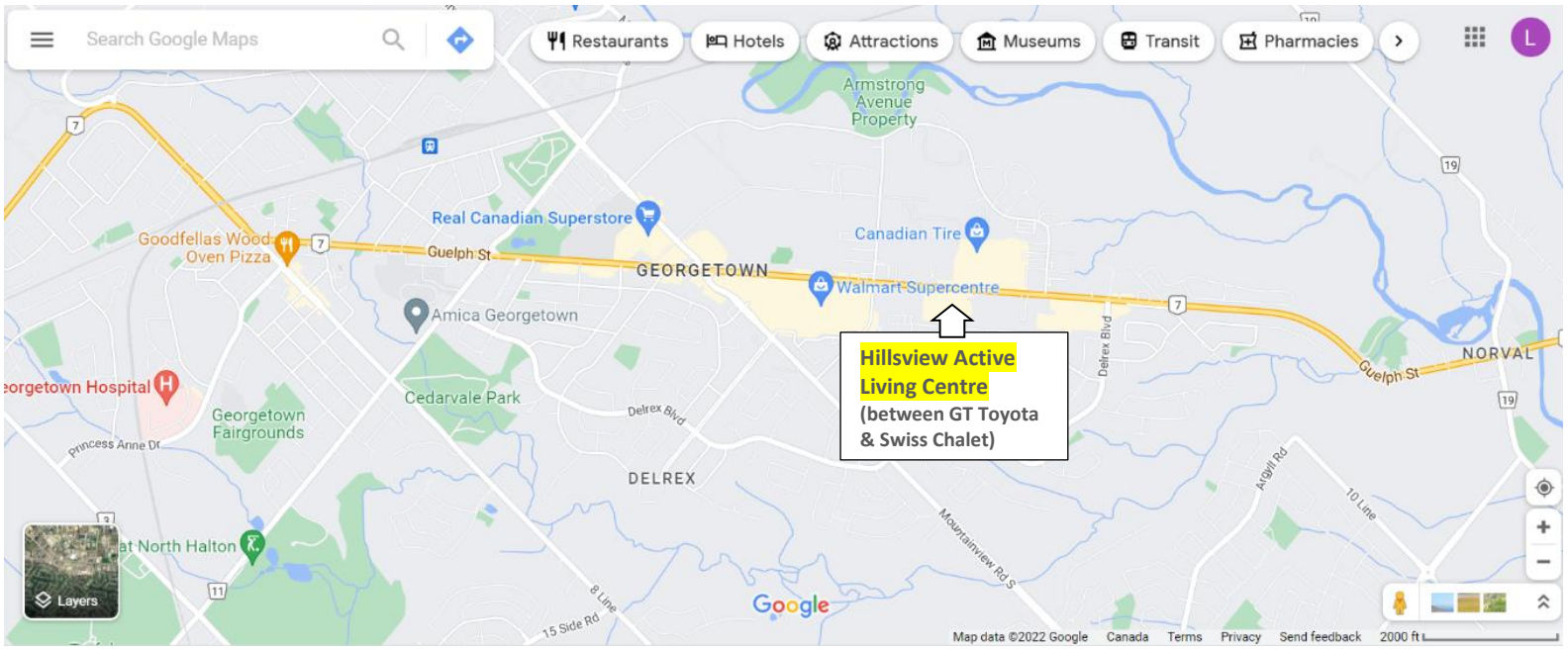
Box 115, Georgetown, Ontario L7G 4T1
Charity Registration number 869778761RR0001
www.hnpnc.com

Board of Directors

President: Yves Scholten yvesjs9@gmail.com
Past President: Don Scallen (905) 876-6180
Interim Vice President: Ian Jarvie (905) 877-1441
Secretary: Helen Pinchen (519) 766-8876
Treasurer: David Williams (905) 877-1539

Appointments

Membership: Lorysa Cornish
Newsletter: Laura Weihs
Webmaster Communications Director: John Beaudette
Member at Large: Fiona Reid
Member at Large: Andy Kovacs
Ontario Nature Rep: Don Scallen
Roving: William McIlveen
Hardy Property Steward: TBD
Crozier Property Steward: Pedro Pereyra

We are returning to **in person meetings** at a **NEW venue**

Time/Date: 7:30 pm on **the second Tuesday of the month**
at
Hillsview Active Living Centre
318 Guelph Street - Unit #9, Georgetown
Note: the entrance is at the back of the building