

THE HALIFAX FIELD NATURALIST



No. 175
June to August, 2019



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Return address: **HFN, c/o NS Museum of Natural History, 1747 Summer Street, Halifax, NS, B3H 3A6**

HFN is incorporated under the Nova Scotia Societies Act and holds Registered Charity status with the Canada Revenue Agency. Tax-creditable receipts will be issued for individual and corporate gifts. **HFN** is an affiliate of Nature Canada and an organisational member of Nature Nova Scotia, the provincial umbrella association for naturalist groups. **Objectives** are to encourage a greater appreciation and understanding of Nova Scotia's natural history, both within the membership of HFN and in the public at large, and to represent the interests of naturalists by encouraging the conservation of Nova Scotia's natural resources. **Meetings** are held, except for July and August, on the first Thursday of every month at 7:30 p.m. in the auditorium of the Nova Scotia Museum of Natural History, 1747 Summer Street, Halifax; they are open to the public. **Field Trips** are held at least once a month; it is appreciated if those travelling in someone else's car share the cost of the gas. **Participants** in HFN activities are responsible for their own safety. Everyone, member or not, is welcome to take part in field trips. **Memberships** are open to anyone interested in the natural history of Nova Scotia. Forms are available at any meeting of the society, or by writing to: Membership Secretary, Halifax Field Naturalists, c/o N.S. Museum of Natural History. Members receive **The Halifax Field Naturalist**, along with its included **Programme**, quarterly. Our membership year is from January 1st to December 31st, and new memberships received from September 1st to December 31st of any year are valid until the end of the following membership year.



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GRAPHICS All uncredited illustrations are by H. Derbyshire or from copyright-free sources. **Front Cover** - Bird's Foot trefoil, *Lotus corniculatus*, Richard Beazley; **Back Cover** - Ring-necked Snake, PP Park, Stephanie Robertson; **Summer 2019 Tide Table** - Canadian Hydrographic Service, Fisheries & Oceans Canada.

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Individual	\$20.00 per year
Family	\$25.00 per year
Supporting	\$30.00 per year
Institutional	\$30.00 per year
NNS (opt.)	\$5.00 per year

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HFN NEWS AND ANNOUNCEMENTS

2019 CITY NATURE CHALLENGE

– **Stephanie Robertson**

In 2016, a fierce competition between San Francisco and Los Angeles inaugurated the first ever Citizen Science Day, the City Nature Challenge (CNC). It was founded and organised by City/Community Science Teams at the California Academy of Sciences and the Natural History Museum of Los Angeles County. In 2017 it went national, and in 2018 – international.

Having taken place this past April 26th to April 29th, here are the 2019 international CNC results for the three Canadian cities which took part – Halifax; Calgary; and Richmond B.C.:

	Observations	Observers	Species	ID'ers
Hfx.	7,647	237	912	286
Calg.	4,488	140	630	235
Rich.	1,219	81	261	92

While researching ‘numbers’ discrepancies before publication, I learned from organiser Matt Wallace of CNC Calgary that “interestingly (and almost predictably), Calgary received a massive snowfall on Saturday, April 27th”, surmising it received the most snow of any other 2019 CNC participant. “Few plants were out of the ground and insects were mainly anonymous the whole weekend.” HRM received a downpour of 37 mm of rain on the same day, and that may have put *some* people off from going outside here in Halifax (we were emptying buckets of rainwater from our attic on that day). But, organiser Neill McCallum of Richmond’s A.R. MacNeill Secondary School was blessed – with sunshine and temperatures of 12° to 17°C.

159 cities took part, providing 35,126 participants who came up with a total of 963,773 observations and 31,000+ species (including 1,100+ rare/endangered). Cape Town, South Africa, came first overall for both their total number of observations (53,763) and their total number of species (4,588).

Another way they arranged the data was to allot the cities roughly under one of four climate categories – Arid, Boreal, Temperate, and Equatorial. Out of a total of 13 Boreal-classified cities, Halifax took second place internationally for both total number of observations and total number of species (Chicago came first). Calgary was also categorised as Boreal; Richmond was slotted under Temperate. Cape Town was classified as Warm Temperate.

All those sharp-eyed observations provided valuable information to scientists and naturalists about how our precious urban green places are faring both globally and here in HRM, and, for such a small city, I think Halifax did very well.

AfterWords

At the 2019 Nature NS AGM and Weekend in Liscomb, NSMNH’s Curator of Botany and lichenologist Sean Houghian tends toward classifying Nova Scotia as Cool Temperate Rainforest. The resource he referred to

regarded the ecosystem classification for much of NS as ‘cool temperate rainforest’. Nova Scotia is also referred to as per-humid, hemi-boreal or sub-boreal, depending on the classification system being used. The reference article treats these differences considerably in the following, simplified quote:

“In reality, many temperate rainforests straddle the abiotic (nonliving chemical and physical factors) boundaries between temperate and boreal, both latitudinally and altitudinally”, even more so “for oceanic boreal systems. Thus, these rainforests serve as a phyto-geographical bridge, facilitating the exchange of” moist “floral elements among neighboring systems” and as corridors for... “migrations of wildlife during periods of climate change.

How much of the forests included in the reference book are boreal versus temperate depends on “which classification system is chosen.”

For more information on this article, contact Sean at sean.haughian@novascotia.ca. For more detailed CNC results, go to Citynaturechallenge.org.



ERRATA

In the last Issue of The Halifax Field Naturalist, Spring 2019 #174, The Museum Tour write-up (p. 15), was incorrectly credited to Susan Moxon; instead, it had been submitted and written up by Mille McCormack.

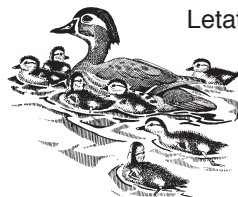


NS NATURE TRUST DINNER

For those of you who have already taken advantage of the less expensive tickets for the Trust’s October 17th “For the Love of Nature” dinner and auction (deadline before June 28th - save \$50.00 on each ticket), and also for those who plan to sign up later, there is the option of mentioning you are with HFN so that you could be allotted a place at a table with other HFNers if you wish. It is billed as a “spectacular celebration of 25 years of land conservation.” Tickets can be purchased online or by phoning 902-422-1886.



NEW AND RETURNING



Darlene Burton
Barbara Hopkin
Letatia Meynell and Andrew Fulton
Carol Morrison
Norman Pinsky (returning)
Lynda Robertson
Kyla Williams

SPECIAL REPORTS

HOW GREED DISTORTS BEHAVIOUR

– *Stephanie Robertson*

HORRENDOUS MINING GAFFE

In light of the events, information, and observations in HFN's May 25th Montague Mines field trip write-up (p. 11), I thought it very appropriate to share the following, excerpted from a late May web article in the "Mining Journal", and from a later article in the web's Halifax Examiner – both by journalist and author Joan Baxter.

The "Mining Journal" describes itself as "Founded in 1835," "...the world's most respected mining investment and business title, covering all aspects of the industry, from grass-roots exploration, through financing and development, and production and marketing. It uniquely combines this high-level investment and finance coverage with in-depth reporting on the multi-billion-dollar mining technology and services sector.", etc., etc.

Its article described what happened at a May 23rd meeting, convened by the Atlantic Gold mining company, to "share with local communities its plans for tailings storage at its proposed Cochrane Hill mine in Nova Scotia, and to provide an opportunity for locals to ask questions of a panel of experts." With so many people wanting to participate, the company agreed to hold an evening meeting in addition to the original matinée. Headlined "Atlantic joy sours from community gaffe; Atlantic Gold's deal with Australian gold producer St. Barbara could be under threat before the ink is dry following a disastrous public meeting to talk about tailings", it briefly describes how a routine public outreach activity descended into notoriety after heavy-handed Atlantic Gold Security and a Royal Canadian Mounted Police officer wrestled Sustainable Northern Nova Scotia local member John Perkins (who had a heart condition) to the ground during the second event, after forcibly ejecting him on the grounds that he had already participated in the first session.

Witnesses claim that John Perkins and a handful of others who participated in the first meeting (including Joan Baxter who documented it all, and Saint Mary's River Association president and NOPE campaigner Scott Beaver), received permission to attend the second meeting if there was space, which there was.

As a result, the St Mary's River Association (SMRA) says Atlantic Gold has lost its social licence to operate and called on environment minister Gordon Wilson to delay approval of the transfer of all mining rights from Atlantic Gold to St. Barbara (an Australian company).

Joan's refutation of various other press releases in a later "Halifax Examiner" posting revealed exactly what happened at that meeting in more detail (Google "Setting the record Straight on Atlantic Gold's Spin Job"). At the end of it, here's how she sums up what she observed to have actually happened.

"I'm going to try to count the ways that all these claims by Atlantic Gold" (in their own press release, and others'

press releases as well) "are either highly misleading or downright inaccurate (to use a polite word):

At no time did Atlantic Gold inform the public that it maintained the right to keep people out of the sessions or to ask them to leave.

No one I asked who was present at the event witnessed the 'individual' in question — John Perkins — say or do anything that could be construed as conduct that would raise any security concerns.

Four people were told to leave, not just one individual.

A 'polite request' for people to leave the meeting would mean the person doing the requesting would identify himself and provide a reason for the expulsion. He didn't. Nor did I hear more than one 'request' for us to leave.

The RCMP officer did not ask anyone in the room any questions about what had been happening, did not pause to assess the situation in the room to see if there was indeed any disturbance being caused by anyone, and instead went straight after John Perkins.

The statement refers to 'officers' when there was only one RCMP constable and Atlantic Gold's security manager, who refused to identify himself.

There was no 'protest'. People present were law-abiding. Apart from ... two tense exchanges in the first session — which involved another participant (who was long gone when the second session began) and Atlantic Gold's COO Maryse Belanger — no one I heard was belligerent or disrespectful before the ugly incident of Perkins' arrest.

As for 'open, transparent and respectful' dialogue with residents in and around their projects, the man who was rudely interrupted by Atlantic Gold's COO might beg to differ, as might Scott Beaver, a lifelong resident of Sherbrooke, who was another one of the four told to leave."



NNS AGM AND CONFERENCE

– *Stephanie Robertson*,
(this report has been edited for length)

Here is a run-down of our Nature Nova Scotia's (NNS) 2018-2019 AGM Directors' Report delivered by President Bob Bancroft at its AGM and Weekend, Liscombe Lodge, Sunday, May 26th:

Over the year, the NNS board has been dealing with new as well as ongoing issues. Memberships are increasing in some clubs, others remain steady, and new volunteers are coming forward. A general interest in nature and some pressing provincial environmental issues have NNS and many of their participating member organisations attracting new people interested in learn-

ing about and dealing with environmental challenges.

NNS currently has seven active organisational members, about 120 federate and individual members, and its website continues to undergo steady improvements; thanks to Larry Bogan and input from other board members, it now includes more information and links. The 'Big Tree Project' has a new site, and Larry is looking for a successor to take over his webmaster position. Board meeting minutes are now posted once they've been approved, and a Blog Site is open for member contributions. Larry has also established a Facebook page; this has been adopted by some NNS email list members for posting photos. Also, Board member Chris Kennedy is contributing his communication expertise.

The Canadian Nature Network is more active; Matt Price from BC is heading the programme. NNS President Bob Bancroft represents our interests there, and forwards relevant information from Graham Saul, Stephen Hazell, and other Nature Canada staff to the NNS Board.

With Nature Canada, NNS continues to participate on a federal-provincial initiative to increase Canadian protected areas to 17 percent. The latest federal budget has money which is being directed to protect more land in Nova Scotia. Bob attended Nature Day in Ottawa on April 9th, meeting with members of Parliament and Senators to acknowledge the day and the value of nature.

After consultations with informed parties, a letter was sent to Lands and Forestry Deputy Minister Julie Towers about government obstacles facing Nova Scotia's Hope for Wildlife staff in Seaforth.

NNS is a member of the Healthy Forest Coalition (HFC), which was formed in 2016. Three meetings were held in late 2018 and 2019. The forest industry continues to exert a nature-indifferent influence over our Liberal provincial government. Forest industry dominance, with the plundering of recently acquired Crown (public) lands, continues unabated. Long-term management responsibilities for 1.4 million acres of public forest land in central and western Nova Scotia are being handed over to 13 companies, represented by one entity – Westfor.

NNS also wrote to Premier Stephen McNeil and Lands and Forestry Minister Iain Rankin, urging the government to enact the recommendations of the Lahey Independent Review of Forest Practices. Released last August, it addressed many forest issues, calling for ecologically based forestry and immediate change. Although the government accepted the recommendations, change simply has not happened on Crown harvest lands.

Both NNS President Bob Bancroft and Vice President Donna Crossland spent the past year making a series of presentations around the province and visiting many Crown harvest sites. News 95.7 Radio's Rick Howe has been very active on this subject. Also, working with the Ecology Action Centre, Donna and Bob facilitated the showing of the biomass documentary "Burned".

The NNS Board generated a 2016 biomass policy as a response to Nova Scotia Power's announcement that it was increasing biomass content in its energy 'renewables' – from 2.8 percent to 7 percent – in the next four years (to 2020). The biomass plant at Point Tupper

continues to operate with some of its wood supply coming from old-growth forests, clearcut to produce electricity at an efficiency rate of less than 21.5 percent! Two other biomass electrical plants, at Brooklyn and Abercrombie, are digesting young forests at a frenetic pace. Biomass burning is more polluting than burning coal, yet the government labels it 'green energy'. Hardwood from clearcuts on public land is also being chipped for shipment overseas, a very low-end use for a potentially valuable commodity which holds much habitat value for nature. This is simply criminal.

Initiated last fall, the Blomidon Naturalists Society, the Halifax Field Naturalists, and Nature Nova Scotia hired lawyer Jamie Simpson to take the Nova Scotia Minister of Lands and Forestry and the Attorney General of Nova Scotia to court for their failure to comply with the province's own laws regarding Species at Risk. With half of wild species across Canada in decline, concerned conservationists felt forced to take serious action. The collusion between government and industry to exploit natural resources must change if nature and healthy forests are to survive. The next court appearance is June 19th.

NNS has maintained a close working relationship with the Young Naturalists Club and once again provided financial help for YNC families to attend the 2019 Celebration of Nature weekend. Karen McKendry and Robin Musselman are stepping down from YNC after years of tenuous financial support. We thank them for all they have done to instil nature awareness and appreciation in young people.

The NNS Board meets face-to-face three times a year in addition to the AGM. Between these meetings, it continues to function online via an active email forum. The next meeting will be held in September, 2019, and any member of NNS is welcome to attend. Board meetings provide an opportunity for nature society representatives to give updates on the activities of their respective clubs.

NNS continues to use the internet for linking long-distance board members, keeping each other up to date on environmental happenings in the province; Jim Wolford represents NNS on the Nova Scotia Wildlife Habitat Conservation Fund, alerting everyone to environmental assessments in the province. They also maintain an awareness of environmental issues across Canada. A written presentation to the Senate committee regarding bill C-69, about restoring environmental protections, was sent by mail after they were unable to present it in person at a recent hearing held in Halifax.

NNS Board members who attend or monitor various meetings – either through their own clubs, jobs, or directly for Nature Nova Scotia – continue to report on their activities. Bob thanked all the NNS directors for their continued enthusiasm and participation.



HFN TALKS

ZERO WASTE SHOP

4 APRIL

– Janet Dalton and Stephanie Robertson



Kate Pepler came to love and respect nature during her childhood on her Toronto Island home, where she had fun enjoying the natural outdoors there. During her presentation she shared her stories, her emotions, and her actions all around trying to do something positive and uplifting to help mitigate the increasing human desecration and pollution of our planet.

For instance, before launching off to her years of study at Dalhousie, (where she completed her BA in Sustainability and Environmental Science with a minor in Marine Biology), she decided to first ‘fill-up-with-nature’ with a different, exciting, and more intense outdoor experience – a two-month canoe trip in the Northwest Territories. Unfortunately, instead of being invigorating and uplifting, it was exhausting! Besides pouring rain for the entire two weeks, the canoe work was much, *much* harder work than she had envisioned.

For a year after completing her degree, she was feeling overwhelmed with the doom and gloom narrative of our Earth’s health and also feeling helpless about being able to do anything to reduce pollution.

Then, she had a ‘Eureka’ moment’. Last fall, that moment came to fruition with the Tare Shop (‘tare weight’ is the weight of an empty vehicle or container) on the corner of Cornwallis and Creighton Streets (5539 Cornwallis). With ‘bring-your-own-container’, ‘no plastic packaging’, and other strategies, this shop has satisfied Kate’s burning desire to reduce plastic pollution while allowing her to promote environmental ideas and to be a part of Halifax’s business community.

PLASTIC PRODUCT HORRORS

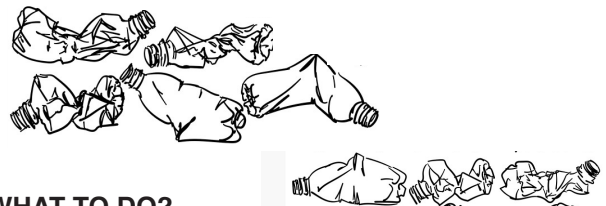
Plastics are so convenient, waterproof, lightweight, and overly available everywhere in every sphere of human activity that they have become a society addiction. But – they last *forever* and 33% of them are ‘single use’ plastics. They have been around long enough now that it has been possible to amass enough significant data to bear witness to their eventual resulting breakdown into micro-beads and granules. There are more of these micro-granules in the ocean than their are stars in our Milky Way. These plastic micro-particles severely harm wildlife by causing starvation and poisoning; they have even been found in our bodies as well.

Plastic bags and bottles are a big problem. She showed us pictures of mound upon mound of baled, used plastic products, ‘ready to go somewhere’, and

then pictures of bottles and other debris floating on the surface of the ocean. Plastic litter can start out by creating ugly problems on our beaches. Examples found on beach clean-ups include coffee cups, cigarette butts, plastic bags, food wrappers, and fast food containers, to name only a few (some of the weirdest things found were counterfeit money, a urinal, and a merry-go-round horse!).

Plastic does *not* biodegrade. Thirty percent of all plastics are only used once, and eighty percent of them found in our oceans originates from the land (and a lot is dumped by ocean-going mega-ships along with tons of plastic fish netting which entangles and strangles birds and other sea life).

By 2050, without global regulatory changes, there will be more plastic in our oceans than fish. Over the last ten years, there has been more plastic manufactured than in the last century, and a truckload of plastic is dumped in an ocean somewhere every minute. Ocean gyres (a ‘gyre’ is a system of circular ocean currents formed by the Earth’s wind patterns and the forces created by the rotation of the planet) hold tons of microplastics, plastics, and other garbage. There is one in the Pacific Ocean at 1,391,324 km² – twice the size Texas – known as the Great Pacific Garbage Patch. It is not only horizontally on the surface in great congealing swathes, but also, like an iceberg – as the plastics slowly break into smaller and smaller pieces – it is also vertically downward as the whole area becomes an ever-deepening, cloudy soup from top to bottom. Finally, a lot of this drops further and further down to the oceans’ depths, where it creates even more problems.



WHAT TO DO?

Kate set up a website, and along with her own ideas, received many others.

Use less plastics and ask question such as: Where was it made? Who made it? Can it be re-used?

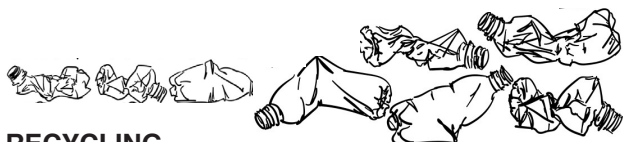
Everything we buy is over-wrapped and usually in plastic; bring cloth bags when you go shopping and try to buy what you need in a ‘not pre-wrapped’ state. Speak to your store’s owners about this problem.

We have to commit to building new habits into our every day actions around what we buy, why, and what we throw away. For lunches, buy a re-useable cutlery set, a water-bottle, and a travel mug. Drink ‘in’ and use glass mugs or even better, bring you own. See if you can go a week without drinking coffee in plastic.

Bring your own contains, boxes, jars, bags to stores. Educate and inspire your friends to do the same. She suggested we do as she has done and make a commitment to collect our plastic waste just for a week to see

how much plastic we really throw out by setting up a 'trash jar', analysing what is in it, and then seeing what we could eliminate by not using/buying it anymore. She also suggested we develop the following good habits:

Re-purpose items and educate your family, friends, and peers about all these activities. Start a 'mug library'; set up a 'zero-waste kit'; learn to speak up at appropriate times (at a December 2018 Environmental Conference which Kate attended, she argued quite emotionally with the VP of a Plastics Association about plastics' deleterious effects on the environment); organise beach and park/forest clean-ups; challenge your household and/or office to change their habits too. Educate and inspire others (for instance, one of her friends started to pick up Kate's habits and other friends started to change their habits as well).



RECYCLING

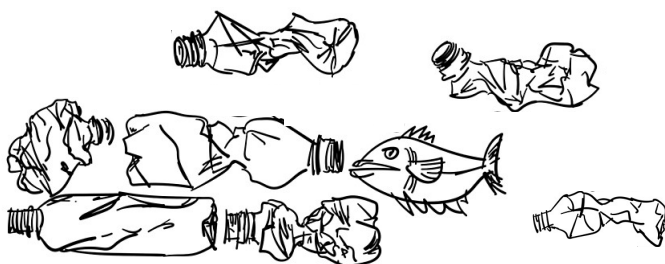
This is *not* the complete answer. Recycled plastic is manufactured into small pellets called 'nerdles'. We were shown tons of these which had fallen out of a ship and it was everywhere on the ocean and washed up on beaches. Recycling is also expensive, and the more that plastic is recycled over and over again, the more unuseable it becomes. Also, recycled plastics just go to another country for someone else to deal with (most likely in the wrong manner). There is no 'away' of plastic; once it is made it is always here, in ever increasing quantities and degrading, poisonous qualities. We were shown a very sad and ugly shot of a beach literally smothered in plastic garbage – there was no 'beach' at all to be seen.

With her photos, Kate showed us the irreparable harm that plastics do to wildlife – a seal caught in plastic fish netting, a tangled seabird, a dead seabird with its open stomach absolutely full of plastic trash, and both a seahorse and a deer endangered by plastic encounters. There was also a shot of a tree with plastic bags caught up in it.

Kate has also experimented with making her own beauty products; anyone can do this and they are very acceptable, less dangerous and polluting, and they work.

THE TARE SHOP

As of April 3rd, this environmentally innovative shop has eliminated the use of 7,015 throw-away cups and 16,124 plastic bags.



BACKYARD BEES

2 MAY

– Stephanie Robertson



McPherson Conservation's Michelle McPherson has more than 15 years of experience in research and writing on ecology, including conservation planning for protected areas, Species at Risk, biodiversity standards, and environmental assessment. In these fields she also does project management, event planning, and workshop delivery.

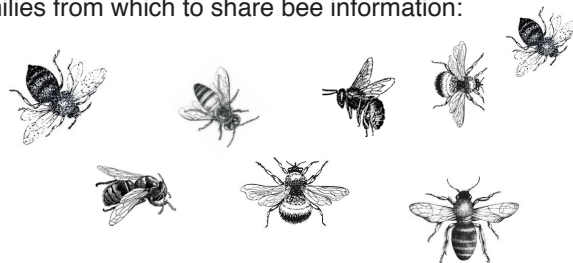
Michelle graduated with a Zoology Specialisation degree from the University of Alberta and obtained her Master of Science (Biology) from Acadia for research on landscape ecology of peatland dragonflies. Her research has included temperate, arctic, and tropical work on various insects, birds, mammals, herptiles, and plants. In recent years, she's added bee ecology and is now an experienced 'bee speaker' and apiculturist. She raises and sells honeybees, being a local, 'natural' beekeeper going into her eighth season – with eight hives in Cole Harbour, two of which are sited at the Cole Harbour Heritage Farm Museum.

Wild bees matter. Society is over-focusing on the plights of honeybees when our wild bees also need support and care and are just as important; like honeybees, they are also experiencing declines. Our efforts are really needed for them because they are a part of our natural ecosystems and are so important for the pollination of not only wild plants but our crops as well.

There are 200+ species of wild bees in Nova Scotia – the bees in your backyard and gardens. Bees have different pollination habits. Some pollinate in all seasons, and each species has different cycles and daily rhythms. Some species are general pollinators, and some need specific plants. Bees are hairy and this enables them to pick up pollen as they go from flower to flower. Sometimes bees can be identified by recognising the pollen they are carrying.

Most wild bees in North America are ground nesters. Some, such as bumble bees and mason bees, use pre-existing cavities. Also, most wild bees are solitary, with individual female bees working on their own. They build nest tunnels where they lay their eggs in a constructed cell. Bumbles do have colonies of about 60 to 500, but unlike honey bees, they don't survive the winter as a colony, and each season the queen starts a new one.

Michelle chose four out of the six Nova Scotia bee families from which to share bee information:



FAMILY APIDAE

Bumble bees are in this family and there are fourteen species in Nova Scotia. They are superstar generalist pollinators and are the best for commercial growers, a good example of which is greenhouse tomatoes. Comparatively, they can carry very large pollen loads, and they are harder in that they are able to generate their own body heat. They are also 'buzz' pollinators; their combined buzzing shakes plants' flowers which spreads the pollen throughout the plant. They make new nests in the ground each spring, using rodent burrows, hollow logs, piles of wood, and even thick tufts of grass!

The Common Eastern Bumble bee *Bombus impatiens* is found in eastern temperate forests and is the most commonly encountered bumble bee across much of Eastern North America. It is a pollinator of flowers and numerous fruit and vegetable crops, including tomatoes, blueberries, and cucumbers. The Tri-coloured Bumble *Bombus ternarius*, which is found around woodlands, sports a distinctive 'V' on the back of its thorax. Tri-coloureds occur where there are good supplies of nectar, pollen-rich blooms, and suitable small-cavity nesting habitat, such as abandoned mouse nests or beneath the base of a large patch of grass. Nova Scotia has a Half-black Bumble bee, *Bombus vagans*, a little smaller than the first two, which likes to hang around forests, wetlands, parks, and gardens. It nests mostly underground and its hair patterns are more variable. The cuckoo bumbles, of which there are four in Nova Scotia, are 'social parasites'. They sneak into other bees' nests, kill the queen, and then lay their eggs there.

The Anthophorini are a large tribe in the subfamily Apinae of the family Apidae. Species in this tribe are often referred to as digger bees which are mostly solitary in habit. They fly quickly and are very noisy. In Nova Scotia they are found in rotted wood.

In another subfamily of Apidae, the Eucerini or long-horned bees, are the most diverse of the Apidae, so called because most of the males have very long antennae, longer than the females'. They are late-season bees which love asters and sunflowers. There are over 32 genera worldwide that were previously classified as members of the family Anthophoridae. All species are solitary, though many nest in large aggregations, and large 'sleeping' aggregations of males are found occasionally. Most genera are distinctive by the unusually long male antennae from which the tribe derives its name ('eucer' means true-horned).



FAMILY MEGACHILIDAE

In this family are the mostly solitary leaf cutter bees. Their pollen-carrying structure is restricted to the ventral surface of the abdomen rather than the legs. They utilise cut-up leaves and petals to divide their nest tunnels and they make their nests in deadwood. They love the pollen of roses, alliums, cornflowers, and goldenrods.

Also in this family are the mason bees, which are small so can be mistaken easily for flies. They partition their nest tunnels with clay; to thrive well, they need both the clay soil and also dead wood to be left around. These bees have narrow waists and long antennae. They pollinate borage, mint, legumes, honeysuckles, lupins, roses, dandelions, and fruit trees.



FAMILY ANDRENIDAE

This family is commonly known as the miner bees, and are the largest family found in Nova Scotia. They nest in the ground and also are solitary in habit. Generalist pollinators, they prefer fruit trees, blueberries, cranberries, sunflowers, the alliums, and milkweed.



FAMILY HALICTIDAE

Halictid species occur all over the world and are usually dark-colored and often metallic in appearance. These are the sweat bees, so called because they are attracted to the smell of animal perspiration. They like many types of flowers and especially Pickerel Weed; most nest in the ground, preferring bare soil.

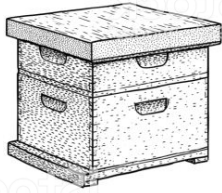
To sum up: Climate change is the biggest threat to bees, with its storms, droughts, and cold and hot spells. Any unusual changes in temperature and precipitation can reduce and change times of flower bloom, kill queens, and even kill whole colonies. Because of climate change, bumble bees are disappearing from the southern parts of their ranges, and they are *not* moving north. Most bumble bees in North America and Europe will experience drastic range losses in the coming decades. "Climate change is crushing bumble bee species in a vice," says Dr. Jeremy Kerr, diversity decline biologist of the University of Ottawa.

What we can do: Like honey bees, wild bees are also seriously declining due to loss of habitat; 40% of the wild ones are now classified as 'threatened' in both the USA and Canada. We need to help support this important family by growing more of what they need in our cities and gardens. Backyard habitat for bees is critical. Because you have control over your own property, any special plants, trees, deadwood, or soil you may have put in especially for wild bees will remain there.

Leave deadwood, old plant stems, rotting wood, leaves, weeds, dandelions, and long grasses (so that these can develop their blooms). Wild bees also like rock gardens, well-drained bare ground, and some like clay soil. Favourite plants in gardens are herbs, fruit trees and berries, borage, bee balm, roses, Russian Sage, sunflowers, asters, goldenrods, and stonecrops. Bees need us to support organic farmers, and to vote to

protect the environment and reduce carbon emissions.

We depend on our diverse bee fauna. Wild bees need us to provide nesting habitat (i.e. a 'messy garden'); to plant nutritious flowers; to grow and eat our own garden produce; to reduce our lawn mowing; and to actively support the organic movement (i.e. no pesticides or herbicides).



BLUE MOUNTAIN

6 JUNE

– Burkhard Plache

Can You Hear the Quiet?: an introduction to the Blue Mountain/Birch Cove Lakes.

At our June monthly meeting, we learned about the past, the present, and the possible future of the Blue Mountain/Birch Cove Lakes (BMBCL) from Richard Vinson, Communications Chair with the Friends of BMBCL, who gave a lively and beautifully illustrated presentation.

He started with a bit of background information, emphasising the intent of HRM to establish a regional park in the general BMBCL area. While this plan lines up with the wishes of many people living around there, there are a number of obstacles to be overcome. The best illustration to these hurdles was shown on a map illustrating the lands which are already available for the future park, and the gaps which are still present. Such a park would be within a ten-minute reach for some 200,000 residents, providing them with easy, year-round access to its beautiful, natural landscapes. Recreational possibilities include walking, swimming, and canoeing, as well as winter snowshoeing and skating.

Also, the area provides more general values to HRM as a whole – its clean waters are the source for two watersheds, which are already under pressure from runoff from developed parts of the city. For example, Kearney Lake receives stormwater runoff containing many contaminants, and there is already a dead zone in Susie's Lake into which water from nearby Bayers Lake Industrial Park makes its way. Another important aspect of a large, connected natural area is its moderating impact during hot summers. Forests are generally cooler than built-up areas, and can be expected to mitigate the impact of a warming climate.

On a smaller scale, this wilderness area is home to a large portion of our native fauna and flora – Beaver, Muskrat, and Deer are frequently observed. Bear and Bobcat are known to frequent the area, and Moose are probably visiting as well. More than 100 species of birds have been recorded, with the Loon and the Bald Eagle among the birds known by many visitors; however, the less frequently seen and more rare Common Nighthawk is also regularly observed. The plant life is what is typically seen in our forests, wetlands, and barrens –

Mayflower, Goldthread, Purple Lady's Slipper, Rhodora, and Hobblebush, among many. However, there are also some rare species, the Greenland Stitchwort being one of them.

Looking back from the year 2019, it is sad to observe that already in the early 1970s, forward-looking people envisioned a park for the BMBCL area. Today, 45 years later, we are still in the process of getting there. However, now there is a more focused effort under way to complete the original vision. Some smaller parcels of land have already been purchased, and more negotiations are going on. One major challenge is the future route of the planned Hwy 113, which would cut a 500 metre-wide band across these wilderness lands; this proposed ten km stretch of road would come at a cost of at least \$100 million!

To coordinate citizens' efforts, in 2018 the Friends of Blue Mountain/Birch Cove Lakes was formed. Since then, they have been active in networking, educating, and promoting the area. They are working to ensure that there will be future access points into the regional park, and also committed stewards for these lands. They want to make sure that the currently existing self-established trails can be converted into low impact tracks. Their ultimate hope is to make sure we all have a future place, near the city, where we can escape its fast pace and noise, and to 'hear the quiet' and experience nature's calming influence.

I would like to take the opportunity to thank Richard Vinson for bringing us up to date on the current status of the area, and also for introducing us to the Friends of BMBCL and the valuable work they are doing.



HFN FIELD TRIPS

MCINTOSH RUN WINTER PLANTS

– Burkhard Plache

Date: Tuesday, January 15th

Place: Sambro

Weather: Sunny/cloudy, 1°C, winds 33 kmh

Leader: Burkhard Plache

Participants: 17



It was a wintery day at the small park off Norawarren Drive in Herring Cove, the access point to the southern section of the McIntosh Run single-track trail system. This trail, as shown on the map at the trailhead, offers a short, figure-eight loop section and a longer section leading along Western Pine Island Pond and further towards the McIntosh Run. Offering a wider range of ecosystems, we took the longer of the two.

Plant identification during winter differs in a number of aspects from that in summer which is mostly based on flower, fruit, and leaf features; most of those are absent outside the growing season. Also, in winter, herbaceous plants are completely absent or have only dried remains, which often have insufficient features for accurate identification. In our situation, the snow-covered ground imposed another limitation – a few low growing plants were hidden from view. On the positive side, the limited number of identifiable plant species constitute a more easily remembered plant list.

Shortly after setting out, we came across a pair of Eastern White Pines, *Pinus strobus*, some spruces, *Picea* sp., and Baslam Fir, *Abies balsamea*.

Some five to ten minutes later, we reached a small, barren area around a rocky outcrop and caught our first glimpse of the expanse of the Herring Cove Backlands. Besides some birch (Paper Birch or Grey Birch *Betula* sp., identified by its white bark), and Red Maple, *Acer rubra* (buds opposite on the reddish twigs), we saw a lot of Lambkill, *Kalmia angustifolia*, which keeps its leaves throughout winter.

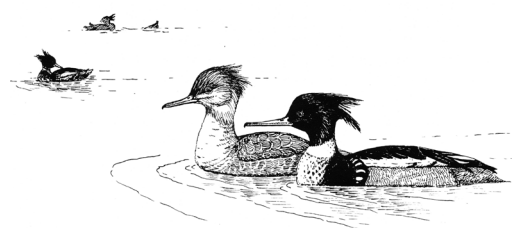
While descending from this rocky ridge, we came across a steeply sloped area which was snow-free. Among the mosses we saw Wintergreen, *Gaultheria procumbens*, a tiny shrub growing maybe 5-10 cm tall. Its leaves, also present throughout the year, smell like wintergreen when crushed.

Further down the trail, we descended to Western Pine Island Pond and along its shoreline we saw Leatherleaf, *Chamaedaphne calyculata*. One of its characteristics is that its leaves get progressively smaller towards the tips of its twigs. Another shrub present there was Canada Holly *Ilex verticillata*, recognised by its bark and one or two dried berries. Most berries were gone, having fed birds over the winter.

Heading back up from the pond, we took the trail parallel to its shoreline. The forest here was dominated by Red Maple, *Acer rubra*, with scattered Aspen, *Populus* sp., Paper Birch, *Betula papyrifera*, and Black Spruce, *Picea mariana*. Near its northern end, the trail enters an area burned over some ten years ago. Traces of the fire

are still visible in the blackened tree trunks which are still standing or in the process of toppling over. Another indication of the past fire is the presence of many Jack Pine, *Pinus banksiana*, saplings. The heat of the fire opened their cones, and the seeds found their prime germination conditions and limited competition on the burned soil.

At this point all expected plants had been seen, and since it was past the planned duration, the majority of participants decided to return to the trailhead, with a small contingent continuing on to the current trail's end at McIntosh Run. A planned bridge will eventually permit easy crossing to the other side of it, continuing the trail towards Flat Lake, and eventually reaching the other trailheads in Governor's Brook subdivision.



CRYSTAL CRESCENT BIRDS

– Diane LeBlanc

Date: Saturday, April 13th

Place: Bedford

Weather: Cold and windy

Leader: Diane LeBlanc

Participants: about 15

The birding highlights of this trip were: seeing the Savannah Sparrows, *Passerculus sandwichensis*, feeding off the wracks of seaweed on the beaches at Coote's Cove and Mackerel Cove; and, excellent views of an Ipswich Sparrow, *Passerculus sandwichensis princeps*, side by side with a Savannah Sparrow, enabling participants to easily study the differences in size and plumage.

CRYSTAL CRESCENT SPECIES

American Black Duck 2	<i>Anas rubripes</i>
Common Eider 12	<i>Somateria mollissima</i>
Long-tailed Duck 5	<i>Clangula hyemalis</i>
Red-breasted Merganser 1	<i>Mergus serrator</i>
Ring-necked Pheasant 1	<i>Phasianus colchicus</i>
Black Guillemot 1	<i>Cephus grylle</i>
Herring Gull 2	<i>Larus argentatus</i>
Northern Flicker, Yellow-shafted 2	<i>Colaptes auratus</i>
American Crow 3	<i>Corvus brachyrhynchos</i>
Black-capped Chickadee 5	<i>Poecile atricapillus</i>
Hermit Thrush 1	<i>Catharus guttatus</i>
American Robin 3	<i>Turdus migratorius</i>
Dark-eyed Junco, Slate-coloured 1	<i>Junco hyemalis</i>
White-throated Sparrow 1	<i>Zonotrichia albicollis</i>
Savannah Sparrow 3	<i>Passerculus sandwichensis</i>
Savannah Sp. (Ipswich) 2	<i>Passerculus sandwichensis princeps</i>
Song Sparrow 9	<i>Melospiza melodia</i>
Yellow-rumped Warbler (Myrtle) 3	<i>Setophaga coronata</i>



MONTAGUE GOLD MINES

– Denyse Contrasty

Date: Saturday, May 25th

Place: Montague Mines, near Lake Charles, Dartmouth

Weather: Sunny and dry

Leader: Michael Parsons

Participants: 15



On a sunny, dry morning in Montague Mines, thirteen people, plus Susan Moxon and I taking notes, joined Dr. Michael Parsons (Mike) from Natural Resources Canada to view the environmental damage caused by 20th century gold mining, and to find out about possible remedial solutions.

Once, there were 64 gold districts in Nova Scotia which were mined intermittently from the 1860s to the 1940s. Given the most recent renewals in gold mining interests, it is important not to repeat the environmental mistakes of the past in future ventures. With maps at the ready, Mike explained about our three distinct terrains here in Nova Scotia. The Meguma Terrain, stretching south from Truro to Canso, is composed of a mix of older sandstone and compressed ocean floor sediments into which were distributed magma fluids containing gold and arsenic about 360 million years ago. Today this terrain has long skinny veins of quartz which hold deposits of both of them; prospectors look specifically for quartz with rusty streaks, as this is indicative of the presence of gold.

Mike then led us down a very wet trail through the woods to the foundations of the mine office. He pointed out the orange Danger signs posted by the province to warn hikers of overgrown and open shafts; old shafts tend to contain water and low levels of oxygen. One nearby shaft had been completely filled in with small rock and gravel, then capped by a mound of the same material.

We proceeded a bit further where we saw a large shaft surrounded by a wire fence topped with barbed wire, its opening covered with several metal plates. Mike pointed out that ATVs most likely had charged the fence at some time; a couple of the metal plates had been displaced revealing a pool of water underneath. Consequently, the fencing off of dangerous shafts is not a safe solution as there are people who are determined to prove such out-of-bounds places are indeed accessible. This fenced-in shaft is called Skerry Shaft, the deepest in the area, going down 300 feet. Once, this shaft would have been capped with a headframe which would have covered two separate lifts that brought men up and down in one, and ore up in the other. Fist-sized rocks were mined and brought to the surface to feed into the nearby stamp mill, a type of machine which crushes material by pounding rather than grinding.

From the shaft we proceeded to the stamp mill site; only the concrete back of it remains. This particular mill had four chutes leading to five stamps each and therefore was called a 20-stamp mill. Once the ore was pulverised into sand or silt-sized particles, mercury was added to them as they passed over copper plates on a recovery table into a shaker box. There the mercury would combine with the free gold particles and



they stayed on top of the screen while the tailings were flushed out of the mill downhill to a wetland, pond, or creek. As arsenic was part of the quartz rock mined, it too was flushed out with the tailings into Mitchell Brook that in turn emptied into Lake Charles. Mike said that in the 1930s there was so much arsenic going into Lake Charles that it took on such a milky appearance that local residents complained. Even today it remains the lake with the highest concentration of arsenic out of the 25 Dartmouth lakes. In addition, arsenic went into the groundwater of the area and many residential wells were contaminated. Not only could residents get arsenic poisoning but as well could develop bladder cancer as arsenic is also carcinogenic.

Our next stop was the remains of the powerhouse where huge, steam-powered flywheels ran cables to the Skerry shaft and stamp mill to operate the lifts, the four stamp units, and the shaker boxes.

We left the insects behind in the woods and headed towards a wetland. On our way Mike pointed out white signs which were NS health warnings to keep off the site at the request of the Chief Medical Officer of Health. These are largely ignored, removed, or vandalised. Mike said the hardest element of any remediation is working with local people who have used the area for recreation for generations. While some people with children may heed warnings, most view Mike and other researchers negatively. Thus it is very important to keep lines of communication open between both parties.

We stopped at the upper tailing field near the edge of a wetland. While the area looked like a sandy beach by the ocean, Mike said these sand particles were very different; the rock crushing at the stamp mill had made them angular, while the wave action makes beach sand particles round.

We then stepped carefully through pools of water to get to the main tailings field called a hardpan. Resembling poured concrete, its smooth and fairly level surface is used as a summer racetrack by local residents. Every year the wheels of racing vehicles tear up the ground, releasing dust particles of arsenic that are blown over the neighbourhood. This arsenic cloud is unstable in the presence of oxygen and creates secondary arsenic compounds. An example was the presence of white slime in a water run-off channel which is a secondary form of arsenic.

While we were at the tailing field, a man and his small son came racing by on ATVs. Several times their ATVs got stuck in the mud and trying to get them out splattered both the operators and their vehicles. People expressed their concern over such a small child being exposed to arsenic, and Mike stated this is a very good example of why signs and fences don't work at keeping people away from environmental health risks.

Our last stop was a test plot which has been under observation since 2009. A geosynthetic clay layer had been put over the tailings and then clean soil had been piled on top. Rain goes through the soil, soaks the underlying clay which then swells, preventing groundwater from coming up from the tailings. To date, this appears to be the most effective remedial process. Where this

will be used will depend on the bio-accessibility of arsenic in any particular area, that is – how much of it can be absorbed by the human body. It will also determine where money will be spent on cleanup. On our way back, Mike asked that we clean our shoes and boots in a pool of water in order to any leave arsenic-containing dirt and mud behind.

Before leaving we thanked Mike for such an informative guided walk. With the very recent renewed international interest in leasing gold mineral rights from our province, it is very important that people understand all the potential impacts of gold mining on themselves and the environment, and the high cost we as citizens must pay to mitigate the damage caused in the past – all in the pursuit of gold.



NATURE NOTES

APRIL

– *Stephanie Robertson & Janet Dalton*

Bernie McKenna has seen **no Red-Winged Black Birds** to date this spring. However he *did* reported seeing that the **Grackles** were back in the Cole Harbour Pond.

On his way back from the Annapolis Valley, Raymond Provencher saw **a Bald Eagle** diving into the Gaspereau River (for smelts?). Near Mount St. Vincent, Cecil Publicover saw **six Deer** around his bird feeder eating the seeds which had fallen to the ground!

Around March 22nd, Regine Maass saw **a fly** in her garden and **a honeybee**. Marion Sensen spotted **Song Sparrows** and **Juncos** which stayed for a whole day under a neighbour's shed during a heavy snowfall. One of the three Song Sparrows actually went to her suet feeder, the first time she had seen one using this for food. Around March 22nd, they also had **a Grackle** at the suet feeder as well.

At Indian Point, Judy Keating saw **a Red-winged Blackbird** at her suet feeder around March 29th. She also spotted **six Common Loons** in her cove there.

On March 29th, Lesley Jane Butters saw her **first Coltsfoot in bloom**; on Sunday, March 30th she was at Porter's Lake across from Lawrencetown Beach and saw **a group of Red-Winged Blackbirds**. At Point Pleasant Park, at the cobblestone beach near the Cenotaph, the cobblestones began to move and suddenly, out came **hundreds of spiders** (she photographed them. Were they coming out to sun themselves, she wondered?). On March 28th, at her home on Walnut Street, she spied **a honeybee**. Regine Maass reported seeing **honeybees** as well.

At Point Pleasant Park Stephanie Robertson reported seeing **rafts of Scaup**, and **one or two flocks of Canada Geese** flying low over the harbour. While walking on Franklyn Street, she heard, then found, two male Red Cardinals mellifluously singing their territories to one another from tall, leafless deciduous trees, each tree on opposite sides of the street.

MAY

Bernie McKenna spotted **a pair of last year's young**



Deer and a Scarlet Tanager hanging around Russell Lake in Dartmouth. Bob McDonald saw **a pair of Osprey fishing** at Belcher's Marsh, **Redwinged Blackbirds, Grackles**, and his first **Great Blue Heron**.

Keith Vaughan had **Robins** on their front lawn and what he thought were **two Bohemian Waxwings on a Holly bush** (Keith wondered whether they may have been Cedar Waxwings instead). At this juncture, Bob McDonald noted seeing **many Cedar Waxwings** at the Frog Pond.

On May 2nd Burkhard Plache saw **an Osprey chasing a Crow** in the Halifax Public Gardens. On Sunday April 28th Lesley Jane Butters spotted **12 to 13 Barn Swallows flying** over the Medway in Albany New. At her Walnut St. home in Halifax she has an outside doormat decorated with flowers. For two weeks it was saturated with **buzzing bees**, as loud as a chainsaw. On May 2nd, passing a property with a hockey rink, she noticed **a Male Cardinal and a Starling taking baths** in the puddles.

Carol Klar saw **an Osprey** at Spectacle Lake and **40 to 45 Tree Swallows**. At the end of Kearney Lake Judy Hayes observed **Osprey sitting well down into their nest**. Brian Bartlett also saw **a pair of Osprey** the last week of April.

Last fall, Mille MacCormack had **a Junco with a 'gimpy leg'** round her feeder. To her great joy, it is back this year – minus that one leg, but – plump and healthy; (her cats were very interested in it!). The last week of April Michelle McPherson saw her **first Canada Geese** of the year. At Red Bridge Pond in Dartmouth Cathy McCarthy saw **an Osprey** splash down near a Beaver lodge there.

Wendy McDonald has seen **Mayflowers in bloom** and Brian Bartlett mentioned that **Bobcats** had been sighted in Tantallon over the winter. Mille MacCormack then mentioned that her brother, who also lives in Tantallon, had spotted **a Bobcat** in his back yard. Ron shared the fact that around January and February, Bobcat mothers reject last year's kittens. Newly out on their own, this causes spikes in observations to go up at that time of year.

JUNE

Stephanie Robertson commented on the excessive rain this spring, and David Patriquin reported seeing **Painted Trillium** at Sandy Lake. He also observed **male Robins**, over a period of four plus hours, repeatedly attacking his windows.

Grace Beazley mentioned **the plethora of blackflies** at Liscombe Lodge during the Nature Nova Scotia AGM, and from some other participants, Carol Bethune heard that only females swarm in those annoying 'clouds'. Carole Klar added that, like mosquitos, only the females bite.

Bernie McKenna noted that with this fawning season, you may come upon dead deer on the highways. For HRM roads, call 311. For provincial highways, call 1-888-432-3233. Make sure to be able to give good GPS or other coordinates/directions to the site.

And, last but not least, Ray Provencer has **Cardinals** frequenting his back garden in Bedford.



ALMANAC



This almanac is for the dates of events which are not found in our HFN programme: for field trips or lectures which members might like to attend, or natural happenings to watch for, such as eclipses, comets, average migration dates, expected blooming seasons, etc. Please suggest other suitable items.

"I must have dozed off. The trees were bare when I fell asleep but now their leaves are that impossible newly minted green."

– *Eve Joseph, from her poem, "A five year old asks his mother ..." (2018)*

NATURAL EVENTS

- 8 Jun.** World Oceans Day.
- 15 Jun.** -**16 Jun.** The earliest mornings of the year: Sunrise at 5:28 ADT.
- 17 Jun.** Full Moon. Moonrise at 21:25 ADT.
- 21 Jun.** Summer Solstice at 12:54 ADT. Summer begins in the Northern hemisphere. The longest day of the year, with 15 hours and 34 minutes of daylight in Halifax.
- 23 Jun.** -**30 Jun.** The latest evenings of the year: Sunset at 21:04 ADT.
- 16 Jul.** Full Moon. Moonrise at 20:59 ADT.
- 20 Jul.** Canada's 'Parks Day' – look for events at local parks.
- 5 Aug.** -**12 Aug.** Average dates of the hottest days of summer (average daily maximum is 22.5°C).
- 12 Aug.** -**13 Aug.** Perseid Meteor showers peak.
- 13 Aug.** Average date for temperatures to start decreasing.
- 15 Aug.** Full Moon. Moonrise at 20:47 ADT.
- 14 Sept.** Full Moon. Moonrise at 20:06 ADT.
- 23 Sept.** Autumnal Equinox at 22:54 ADT: Fall begins in the Northern Hemisphere.
- 28 Sept.** /**29 Sept.** Sixteenth anniversary of Hurricane Juan.
- 30 Sept.** Average date for first frost in Halifax (i.e. Env. Canada says there is 1:10 chance we will have frost before this date). Look forward to 210 days of frosty weather!

– *Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2018 & 2019 Calendars; United States Naval Observatory Data Services.*

SUNRISE AND SUNSET ON SUMMER AND EARLY FALL SATURDAYS FOR HALIFAX: 44 39 N, 063 36 W



1 Jun.	05:32	20:53	6 Jul.	05:36	21:02
8 Jun.	05:30	20:58	13 Jul.	05:41	20:59
15 Jun.	05:28	21:01	20 Jul.	05:48	20:53
22 Jun.	05:29	21:03	27 Jul.	05:55	20:46
29 Jun.	05:32	21:04			
3 Aug.	06:03	20:38	7 Sept.	06:44	19:41
10 Aug.	06:11	20:28	14 Sept.	06:52	19:27
17 Aug.	06:19	20:17	22 Sept.	07:00	19:14
24 Aug.	06:27	20:06	28 Sept.	07:08	19:01
31 Aug.	06:35	19:53			

ORGANISATIONAL EVENTS

Blomidon Naturalists Society: Indoor meetings are held on the 3rd Monday of the month, in Room BAC241 in the Beveridge Arts Centre, Acadia University, 7:30 p.m. Field trips usually depart from the Wolfville Waterfront, Front St., Wolfville. For more information go to <http://www.blomidonnaturalists.ca/>.

Burke-Gaffney Observatory: Free Public Open Houses are scheduled on at least one weekend each month. On the scheduled weekend, the open house will take place on the first clear evening of Friday, Saturday, or Sunday. Tickets must be reserved online. At the times of year when it gets dark early enough, two events are scheduled per evening - refer to the schedule. For more information phone 496-8257 (and press 1), or go to <http://www.ap.smu.ca/pr/bgo-visit/public-open-houses>.

Nova Scotia Bird Society: Indoor meetings usually take place on the 4th Thursday of the month, September to April, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information phone Kate Steele, 476-2883, **fieldtripcoordinator@nsbirdsociety.ca**, or email the trip leader.

- 15 Jun.** "Bird Songs Taylor Head Provincial Park", with leader Jim Cameron, 902-885-2970, Warren Parsons, 902-772-2207.
- 16 Jun.** "Abraham's Lake Bird Walk" with leader Jim Cameron, 902-885-2970. Contact Warren Parsons, 902-772-2207.
- 21 Jun.** "Out of Town Weekend" in Yarmouth/Shelburne Counties". **Register ahead for boat tour.**
- 3 Aug.** "Mid-Summer Bird Watching Walk Taylor Head Provincial Park", with leader Jim Cameron, 902-885-2970, Warren Parsons, 902- 772-2207.
- 28 Sept.** "Fall Migrants Taylor Head Provincial Park", with leader Jim Cameron 902-885-2970, Warren Parsons 902-772-2207.

Nova Scotia Department of Natural Resources: Many outings which will take place in Provincial Parks are listed in the "Parks are for People" Programme, available at museums, parks, and tourist bureaus, and on the web at **<http://www.novascotiaparks.ca/>**.

Nova Scotia Museum of Natural History: For more information phone 424-6099 or 424-7353, or go to **<http://naturalhistory.novascotia.ca/>**.

to 8 Sept. "Spiders! The Art & Science of Arachnids" - a touring exhibit.



Nova Scotia Nature Trust: For questions or to register for their 'Connecting with Nature' events, please contact events@nsnt.ca, or phone 902-425-5263. There are charges for these events. For more info, go to <http://www.nsnt.ca>.

- 18 Jun.** "Annual General Meeting and Conservation Showcase" NSMNH, 6:00 to 6:45 p.m. **RSVP 425-5263**, or at **events@nsnt.ca**. There will be free Museum Parking for this event.

Nova Scotia Wild Flora Society: Meets the fourth Monday of the month, September to May, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information email **nswildflora@yahoo.ca** or go to **<http://www.nswildflora.ca/>**.

Nova Scotian Institute of Science: Meets the first Monday of the month, September to April, usually at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information <http://nsis.chebucto.org/>.

Royal Astronomical Society of Canada (Halifax Chapter): Meets the THE FIRST SATURDAY of the month in the AFTERNOON. The meeting will run from 1:00 p.m. to 4:00 p.m. in Room AT101 of the Atrium Building at Saint Mary's University, 8:00 p.m. For more information go to **<http://halifax.rasc.ca/>**.

- 30 Aug. -2 Sept.** "Nova East 2019", Atlantic Canada's longest-running star party, will be held as usual at Smiley's Provincial Park.

Young Naturalists' Club: A fun, free nature club for children seven to 12 years. Meetings take place every third Saturday of the month (excepting July and August), at the Museum of Natural History, 1747 Summer St., from 10:30 to 11:30 a.m. Field trips take place every fourth Sunday, at 1:00 p.m. For more information, Karen McKendry, 404-9902, **ynchalifax@yahoo.ca**; or **<http://yncns.ca/>**.



– compiled by Patricia L. Chalmers

HALIFAX TIDE TABLE



July-juillet

August-août

September-septembre

Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0043	0.2	0.7	16	0151	0.2	0.7	1	0201	0.0	0.0	16	0244	0.3	1.0	1	0319	-0.1	-0.3	16	0308	0.3	1.0
	0644	1.6	5.2		0742	1.7	5.6		0759	1.8	5.9		0842	1.7	5.6		0916	2.0	6.6		0915	1.7	5.6
MO	1247	0.5	1.6	TU	1409	0.5	1.6	TH	1414	0.3	1.0	FR	1455	0.5	1.6	SU	1553	0.1	0.3	MO	1527	0.4	1.3
LU	1842	1.9	6.2	MA	1942	1.8	5.9	JE	2005	2.0	6.6	VE	2045	1.8	5.9	DI	2132	1.9	6.2	LU	2132	1.7	5.6
2	0132	0.1	0.3	17	0232	0.2	0.7	2	0252	-0.1	-0.3	17	0315	0.3	1.0	2	0410	0.0	0.0	17	0336	0.4	1.3
	0731	1.7	5.6		0825	1.7	5.6		0850	1.9	6.2		0917	1.7	5.6		1003	2.0	6.6		0947	1.7	5.6
TU	1337	0.4	1.3	WE	1449	0.6	2.0	FR	1511	0.3	1.0	SA	1525	0.5	1.6	MO	1650	0.1	0.3	TU	1603	0.4	1.3
MA	1930	1.9	6.2	ME	2025	1.8	5.9	VE	2057	2.0	6.6	SA	2123	1.8	5.9	LU	2222	1.9	6.2	MA	2207	1.7	5.6
3	0221	0.0	0.0	18	0310	0.3	1.0	3	0342	-0.1	-0.3	18	0343	0.3	1.0	3	0504	0.1	0.3	18	0407	0.4	1.3
	0818	1.7	5.6		0906	1.7	5.6		0939	1.9	6.2		0951	1.7	5.6		1049	1.9	6.2		1019	1.7	5.6
WE	1429	0.4	1.3	TH	1525	0.6	2.0	SA	1610	0.2	0.7	SU	1557	0.5	1.6	TU	1748	0.2	0.7	WE	1643	0.4	1.3
ME	2020	2.0	6.6	JE	2107	1.8	5.9	SA	2148	2.0	6.6	DI	2159	1.7	5.6	MA	2311	1.7	5.6	ME	2242	1.6	5.2
4	0311	0.0	0.0	19	0345	0.3	1.0	4	0435	-0.1	-0.3	19	0411	0.4	1.3	4	0602	0.2	0.7	19	0444	0.5	1.6
	0907	1.8	5.9		0945	1.7	5.6		1028	1.9	6.2		1024	1.7	5.6		1135	1.9	6.2		1053	1.7	5.6
TH	1524	0.4	1.3	FR	1559	0.6	2.0	SU	1710	0.3	1.0	MO	1634	0.5	1.6	WE	1846	0.2	0.7	TH	1729	0.5	1.6
JE	2110	2.0	6.6	VE	2147	1.8	5.9	DI	2238	1.9	6.2	LU	2234	1.7	5.6	ME				JE	2320	1.6	5.2
5	0402	0.0	0.0	20	0417	0.4	1.3	5	0529	0.0	0.0	20	0442	0.4	1.3	5	0000	1.6	5.2	20	0531	0.6	2.0
	0956	1.8	5.9		1022	1.7	5.6		1116	1.9	6.2		1058	1.7	5.6		0702	0.4	1.3		1129	1.7	5.6
FR	1624	0.4	1.3	SA	1634	0.7	2.3	MO	1811	0.3	1.0	TU	1716	0.6	2.0	TH	1222	1.7	5.6	FR	1823	0.5	1.6
VE	2200	1.9	6.2	SA	2226	1.7	5.6	LU	2329	1.8	5.9	MA	2310	1.6	5.2	JE	1945	0.3	1.0	VE			
6	0456	0.0	0.0	21	0449	0.4	1.3	6	0626	0.1	0.3	21	0519	0.5	1.6	6	0053	1.5	4.9	21	0001	1.6	5.2
	1046	1.8	5.9		1059	1.7	5.6		1203	1.8	5.9		1132	1.7	5.6		0803	0.5	1.6		0631	0.7	2.3
SA	1726	0.4	1.3	SU	1715	0.7	2.3	TU	1912	0.3	1.0	WE	1805	0.6	2.0	FR	1314	1.6	5.2	SA	1212	1.7	5.6
SA	2252	1.9	6.2	DI	2304	1.7	5.6	MA				ME	2348	1.6	5.2	VE	2042	0.4	1.3	SA	1923	0.5	1.6
7	0552	0.1	0.3	22	0523	0.5	1.6	7	0022	1.6	5.2	22	0604	0.6	2.0	7	0154	1.5	4.9	22	0051	1.5	4.9
	1136	1.8	5.9		1136	1.7	5.6		0725	0.3	1.0		1208	1.7	5.6		0904	0.5	1.6		0737	0.7	2.3
SU	1830	0.4	1.3	MO	1801	0.7	2.3	WE	1253	1.7	5.6	TH	1858	0.6	2.0	SA	1415	1.6	5.2	SU	1303	1.7	5.6
DI	2344	1.8	5.9	LU	2343	1.6	5.2	ME	2011	0.3	1.0	JE				SA	2140	0.4	1.3	DI	2025	0.5	1.6
8	0649	0.1	0.3	23	0603	0.5	1.6	8	0118	1.5	4.9	23	0030	1.5	4.9	8	0310	1.4	4.6	23	0152	1.5	4.9
	1228	1.8	5.9		1215	1.7	5.6		0825	0.4	1.3		0659	0.6	2.0		1005	0.6	2.0		0842	0.7	2.3
MO	1932	0.4	1.3	TU	1852	0.7	2.3	TH	1347	1.7	5.6	FR	1250	1.6	5.2	SU	1529	1.5	4.9	MO	1406	1.7	5.6
LU				MA				JE	2109	0.3	1.0	VE	1955	0.6	2.0	DI	2236	0.4	1.3	LU	2126	0.4	1.3
9	0040	1.7	5.6	24	0024	1.5	4.9	9	0223	1.5	4.9	24	0122	1.5	4.9	9	0432	1.5	4.9	24	0310	1.5	4.9
	0747	0.2	0.7		0648	0.6	2.0		0925	0.5	1.6		0759	0.7	2.3		1103	0.6	2.0		0945	0.6	2.0
TU	1322	1.7	5.6	WE	1256	1.6	5.2	FR	1449	1.6	5.2	SA	1340	1.6	5.2	MO	1642	1.6	5.2	TU	1522	1.7	5.6
MA	2033	0.4	1.3	ME	1944	0.7	2.3	VE	2206	0.3	1.0	SA	2053	0.5	1.6	LU	2330	0.4	1.3	MA	2227	0.3	1.0
10	0142	1.6	5.2	25	0111	1.5	4.9	10	0338	1.4	4.6	25	0225	1.4	4.6	10	0533	1.5	4.9	25	0429	1.6	5.2
	0845	0.3	1.0		0739	0.6	2.0		1025	0.5	1.6		0901	0.7	2.3		1156	0.6	2.0		1048	0.5	1.6
WE	1421	1.7	5.6	TH	1342	1.6	5.2	SA	1557	1.6	5.2	SU	1441	1.7	5.6	TU	1738	1.6	5.2	WE	1638	1.8	5.9
ME	2131	0.3	1.0	JE	2037	0.6	2.0	SA	2302	0.3	1.0	DI	2153	0.4	1.3	MA				ME	2325	0.2	0.7
11	0251	1.5	4.9	26	0207	1.4	4.6	11	0452	1.5	4.9	26	0341	1.5	4.9	11	0020	0.4	1.3	26	0531	1.7	5.6
	0944	0.4	1.3		0834	0.6	2.0		1123	0.5	1.6		1002	0.6	2.0		0620	1.6	5.2		1150	0.4	1.3
TH	1523	1.7	5.6	FR	1433	1.6	5.2	SU	1701	1.6	5.2	MO	1551	1.7	5.6	WE	1243	0.5	1.6	TH	1742	1.9	6.2
JE	2229	0.3	1.0	VE	2131	0.5	1.6	DI	2356	0.3	1.0	LU	2253	0.3	1.0	ME	1825	1.7	5.6	JE			
12	0404	1.5	4.9	27	0315	1.4	4.6	12	0551	1.5	4.9	27	0454	1.5	4.9	12	0104	0.3	1.0	27	0021	0.1	0.3
	1043	0.4	1.3		0931	0.6	2.0		1218	0.5	1.6		1104	0.6	2.0		0700	1.7	5.6		0625	1.9	6.2
FR	1624	1.7	5.6	SA	1530	1.6	5.2	MO	1755	1.7	5.6	TU	1659	1.8	5.9	TH	1322	0.5	1.6	FR	1249	0.2	0.7
VE	2324	0.3	1.0	SA	2226	0.4	1.3	LU				MA	2351	0.2	0.7	JE	1906	1.7	5.6	VE	1839	1.9	6.2
13	0509	1.5	4.9	28	0423	1.5	4.9	13	0046	0.3	1.0	28	0554	1.6	5.2	13	0141	0.3	1.0	28	0113	0.0	0.0
	1141	0.5	1.6		1029	0.6	2.0		0641	1.6	5.2		1204	0.4	1.3		0737	1.7	5.6		0714	2.0	6.6
SA	1719	1.7	5.6	SU	1628	1.7	5.6	TU	1306	0.5	1.6	WE	1759	1.9	6.2	FR	1356	0.5	1.6	SA	1346	0.1	0.3
SA				DI	2322	0.3	1.0	MA	1843	1.7	5.6	ME				VE	1944	1.8	5.9	SA	1933	1.9	6.2
14	0017	0.2	0.7	29	0524	1.5	4.9	14	0130	0.3	1.0	29	0046	0.1	0.3	14	0213	0.3	1.0	29	0204	0.0	0.0
	0606	1.6	5.2		1126	0.6	2.0		0724	1.7	5.6		0648	1.8	5.9		0811	1.7	5.6		0802	2.1	6.9
SU	1235	0.5	1.6	MO	1725	1.8	5.9	WE	1348	0.5	1.6	TH	1302	0.3	1.0	SA	1426	0.5	1.6	SU	1440	0.0	0.0
DI	1809	1.7	5.6	LU																			



NEXT DEADLINE

21st of August for the September 2019 Issue

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