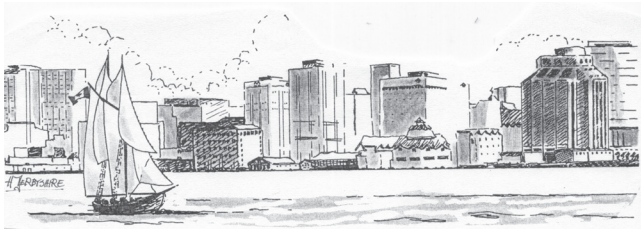
THE HALIFAX FIELD NATURALIST

No. 185
December 2021 to February 2022

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. **HFN Talks** during COVID-19 restrictions are for members only, live and/or via Zoom, on the first Thursday of every month, 7:30 p.m (except for July and August), at the NS Museum of Natural History. **HFN Field Trips** are held at least once a month; during COVID-19 restrictions they are for members only. **Participants** in HFN activities are responsible for their own safety. **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.



HFN ADDRESS
Halifax Field Naturalists, c/o N.S. Museum of Natural History,
1747 Summer St., Hfx, N.S., B3H 3A6 **Email: hfninfo@yahoo.ca**
Website: halifaxfieldnaturalists.ca

EXECUTIVE

President	Burkhard Plache	475-1129
Vice-President	Clarence Stevens	864-0802
Treasurer	Ingrid Plache	475-1129
Secretary	Peter Webster	453-9244
Past President	Janet Dalton	443-7617
Directors	Ron Arsenault, Brian Bartlett, Emma Bocking, Patti LeClerc, Allan Robertson, Stephanie Robertson	

COMMITTEES

Membership	Ron Arsenault	410-6868
Programme		
AV Set-up	Burkhard Plache	475-1129
Talks/Trips	Chair Clarence Stevens	864-0802
	Carol Klar	443-3385
	Mille MacCormack	445-4522
	Bernie McKenna	434-3202
Design	Stephanie Robertson	422-6326
Newsletter		
Editor & Design	Stephanie Robertson	422-6326
Almanac	Donald Flemming	240-8832
Labels	Doug Linzey	1-902-582-7176
Distribution	Bernie/Heather McKenna	434-3202
	Janet Dalton	443-7617
	Stephanie Robertson	422-6326
	paris	425-1079
Refreshments	Vacant	
Conservation	Heather Leslie	
	David Patriquin	423-5716
	Clare Robinson	446-6603
NNS Rep.	Ron Arsenault	410-6868
YNC Rep.	Brian Bartlett	495-8089
Website	David Patriquin	423-5716
	Burkhard Plache	475-1129
CSC Award	Elliott Hayes	835-9819
	Doug Linzey	1-902-582-7176
	David Patriquin	423-5716
	Allan Robertson	422-6326

FEES

Student	$15.00 per year
Individual	$20.00 per year
Family	$25.00 per year

IN THIS ISSUE

GRAPHICS All uncredited illustrations are by H. Derbyshire or from copyright-free sources. **Front Cover** - A stream in winter, Bob McDonald; **Back Cover** - Flemming Park in early winter, Julia Honigman; **Tide Table** - Cdn. Hydrographic Service, Fisheries & Oceans Canada.

ISSN 1485-709X Winter 2021, #185

HFN NEWS AND ANNOUNCEMENTS

IN MEMORIUM

Sadly, our very active and longtime member, Bob McDonald, passed away in the QEII on November 18th after a brief illness. He was HFN's President from 2001 to 2004, and was a stalwart and effective member of our Conservation Committee for 16 years.

Born in Winnipeg on November 6, 1944, he was the only son of Stephen McDonald and Lucienne Bedard. Bob was a Chemistry graduate of University of Manitoba (BSc., MSc.) and University of Toronto (PhD.) with a focus on Organic Chemistry. Post doctoral research took him to the University of Cambridge, England and to the University of Western Ontario, London. Sabbatical years were enjoyed at UBC and Australian National University, Canberra, and he was a Professor of Organic Chemistry for over 30 years at Mount Saint Vincent University.

Both avid naturalists, Bob with wife Wendy toured all earth's seven continents, including a sabbatical year as a family in Australia, an adventure cruise to Antarctica, and birding trips with friends and others to many countries – Portugal, Panama, the Gambia, Namibia, India, and Costa Rica. Adventure cruises to Sable Island, the Northwest Passage, and a trip to the Yukon rounded out discoveries in Canada. One of the last holidays pre-pandemic included Ecuador and the Galapagos Islands. During the pandemic, Bob joined the ranks of millions of others by adding his 3,500+ worldwide bird observations to the eBird database which will help to protect and conserve the birds we all love.

A lifelong learner, Bob enjoyed participating in lectures or workshops offered by the Nova Scotia's natural history communities – the Halifax Field Naturalists, the Bird Society, the Wildflora Society, the Mersey Tobiatic Research Institute, the Ecology Action Centre, the NS Healthy Forest Coalition, and the HRM Urban Forest team. Community advocacy and volunteering was a focus on local trails for over 15 years. As a founding board member of Halifax North West Trails, one of many successes was Bob's participation in the announcement of the Blue Mountain Birch Cove Lakes Wilderness Area, 2009, followed by a long time push for the creation of safe and sustainable trails there and elsewhere as more people were realising the health benefits of time spent in nature. He led interpretive nature walks for groups of all ages, and wrote many letters over the years speaking out for the environment, with a focus on habitat retention for biodiversity locally and provincially.

As well as birding, Bob had other outdoor interests, including geocaching and iNaturalist observations. Along with sons Andrew and Chris, being the 'B' in 'ABCTrekkers', geocaching was always included in any travels. They discovered the most remote geocaching sites at Shackleton's grave site on South Georgia Island, 11,000 kms to the south! Caches led to them find new trails, often not signed or mapped, but with GPS, they located more than 3,000 of them over the past 18 years. He viewed any time in nature as a bonus, no matter where he was, and he documented over 3,800 observations on iNaturalist.

In short, Bob was an avid birder, nature lover and custodian, geocacher, photographer, world traveller, philanthropist, and excellent hugger – of friends, family, and trees – and a doting grandfather. He is survived by Wendy, his wife of 49 years, and his sons Chris (Erin) and Andrew (Jaëlle), and grandchildren Théodore and Rosalie.

HFN will miss Bob and his great knowledge of plant and bird species, and his significant contributions to protecting nature in all its diversity.

BILL 57 – THE ENVIRONMENTAL GOALS AND CLIMATE CHANGE REDUCTION ACT

David Patriquin, HFN Conservation Committee member and webmaster, Nova Scotia Wild Flora board member, and Dalhousie biologist – submitted the following to a Law Amendments Hearing on Nov.1, 2021, to whit –

"Implementation of the 'Lahey Recommendations' must incorporate carbon accounting/modelling to ensure carbon sequestration is increased.

I am pleased that the new PC Government of Nova Scotia is putting forth a fully revised version of the landmark 2007 EGSPA in the form of Bill 57, the "Environmental Goals and Climate Change Reduction Act" (First reading October 27, 2021). It is a very important bill and I hope that there will be further opportunities to comment on it before the final version is passed.

For the moment, I simply want to point out, in relation to Clauses 10b and 10c, that one cannot make

ISSN 1485-709X Winter 2021, #185

the assumption that 'implementing the Lahey recommendations' will help to mitigate climate change. In fact, if the impacts of various scenarios on carbon sequestration are not considered, it could negate many of the gains made through reductions in GHG emissions in other sectors.

The Lahey Report never cited nor otherwise highlighted how the proposed changes in forest practices would affect carbon emissions. To illustrate, the word 'climate' is cited nine times, eight of them referring to the effects of climate change and adapting to climate change, and one to the 'business climate'. But there is nothing at all in it about climate change *mitigation*.

The Lahey Report recommends small-scale wood-energy projects, but there is no accompanying recommendation for Life Cycle Assessments in order to ensure that they reduce rather than increase carbon emissions.

I and others have expressed particular concern about the impacts of the HPF (High Production Forestry) component on carbon sequestration. I am also concerned about effects of 'intensive partial harvesting' on carbon sequestration, if partial harvesting is to be pushed too hard in the Ecological Matrix.

In fact, continued net loss of high volume, multi-aged-old growth forest across Nova Scotia, and particularly on Crown lands in southwest Nova Scotia, is likely to reduce carbon sequestration by Nova Scotia forests – unless the supply of wood from Crown lands is substantially reduced.

We need comprehensive and fully transparent carbon accounting/modelling to inform the implementation of the Lahey Recommendations in such a way that carbon sequestration is augmented, not reduced.

It is likely that some of this accounting already exists. Lands and Forestry/Natural Resources & Renewables hired a 'Carbon Modeller' in 2018, but we have yet to see in public any information about this person's activities nor indeed, any results.

I suggest that text could be added under Clause 10 to require such accounting, and that the Lahey Recommendations must be implemented in a way that increases carbon sequestration in our managed forests."

YNCNS and NNS

YNCNS - Young Naturalists of Nova Scotia

The Nature Guardians tween-aged chapter of the Young Naturalists Club would like to invite the grown-up members of their sister society HFN to their first public presentation and launch of their new publication, "The Kids Guide to Weird Plants of the Atlantic Coastal Plain", January 29th, from 2:00 to 4:00 p.m. in the Museum of Natural History's auditorium. Registration is required, with a cut-off which follows museum capacity guidelines (which may change over the new year), by filling out the google form or reaching out to Coordinator Becky Parker at **yncns@yncns.ca**. There will be copies of this new guide available for HFN members. The Google Form link is at **https://forms.gle/gvwmu5e2zY9dZcDt9**.

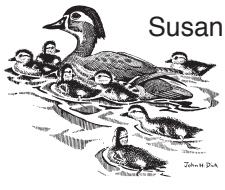
The Young Naturalists Club is concluding their 15th year of programming in Halifax. Chapter Leader and President Karen McKendry continues to provide us with thrilling natural history learning through monthly outings around HRM, giving families opportunities to learn about lichens, sustainable forestry, tide pool diversity, and more. The Halifax Chapter will finish 2021 with their annual visit to Point Pleasant Park in December, where they will engage families in the "Christmas Bird Count 4 Kids". Keep checking the website or Facebook page for dates and how to get involved.

NNS - Nature Nova Scotia

Nature Nova Scotia has grown over the past year. It now includes fifteen member groups, is much more active in conservation initiatives across the province, and has been experimenting with engagement-organising techniques in order to include all our provincial nature networks. In December, they'll be releasing a "State of Nature Report", profiling nature issues they and their members have been involved in over the last year, and outlining how Nova Scotians can get involved. To get the report by email or snail-mail, make sure you're either signed up for our email list or up-to-date on your membership – **https://naturens.ca/join/** (you can sign up for emails without a membership by scrolling to the bottom of the page). NNS will no longer be accepting the $5.00 annual memberships offered through member clubs. New membership fees, only available directly from Nature Nova Scotia, are as follows – the Individual one-year fee is $10.00; the Individual lifetme fee is $75.00. The Family one-year fee is $20.00; the Family lifetime fee is $150.00 (HFN can accept the NNS $5.00 membership fee until our AGM which is scheduled for March 3rd, 2022. After this date, NNS memberships will have to be purchased directly from Nature NS at **naturens.ca**). HFN members are encouraged to join.

More news – NNS has recently hired the accomplished biology student and former staffer of CPAWS, Unity Cooper, to take on Events and Education organising for us. She will be engaging new Canadians, and other under-represented HRM communities, in natural history learning over the winter months, including the Christmas Bird Count and other events. To reach Unity, email **unity.cooper@naturens.ca**.

NEW AND RETURNING



Susan Holmes

ISSN 1485-709X Winter 2021, #185

OWL'S HEAD

Owl's Head might never have been a provincial park, but the fact so many Nova Scotians believed it was — and, indeed, so did government officials — should have made public consultation a requirement before the province considered selling it, the Nova Scotia Supreme Court heard on Thursday, November 3rd.

But Bill 19, 'The Owl's Head Act' (inspired by the secret delisting of Owl's Head Provincial Park) was defeated. If it had passed, the bill would have prevented this from happening again. The Act would have strengthened the protections of pending provincial parks and wilderness areas in Nova Scotia. It would have ensured that these properties (not yet legally protected) couldn't be delisted without public consultation. Lawyer and forest ecologist Jamie Simpson made the argument on behalf of his clients Bob Bancroft and the Eastern Shore Forest Watch Association. Bob, who worked for the Nova Scotia government for almost 30 years, said "If the sale of Owls Head proceeds, developers across Nova Scotia will be asking to buy other vulnerable public park lands at bargain-basement prices."

Jamie and his clients will be heading to the Nova Scotia Court of Appeal to fight for this Provincial Park and a new age of environmental law in Canada, noting that the judge "erred in deciding that, in light of all the circumstances, the appellants were not owed a duty of procedural fairness."

Here is an excellent opportunity to change what's known as our 'common law'. Our legal system is a combination of common law and civil law (legislation). Common law is law that is not written down as legislation; it evolved into a system of rules based on precedent. 'Precedent' guides judges in making later decisions in similar cases. Common law cannot be found in any code or body of legislation, but only in past decisions.

The appeal also accused the judge of having made a mistake in not applying public trust doctrine. Lawyer Jamie Simpson noted, "The underlying question in this appeal is whether Nova Scotians ought to be informed before the government makes decisions affecting the fate of ecologically important lands, especially those lands that have been identified as protected." To learn more and help support this important appeal, go to **https://saveowlshead.org/help-us-get-to-the-court-of-appeal/** or to **Nature Nova Scotia's website**.

NATURE NOTES

OCTOBER

Bernie McKenna reported that **two Deer had heavily pruned their Scarlet Runner Beans**, and that they had had a go at their Solomon Seal leaves as well! Judy Keating also noted that **Deer** had pulled down her berrypatch fence of Scarlet Runners. On Sept. 28th at Frostfish Cove, Glen Haven, she spotted **a flock of Buffleheads**, much earlier than last year's sighting of Oct. 23rd; on Oct. 2nd she spotted **27 female Cormorants** there. On Oct. 3rd she had **two juvenile Raccoons** frolicking on her grape-festooned deck, looking for grapes that did not materialise this year.

Along the Shearwater Flat trail Ingrid Plache picked from an abundant crop of **Autumn Olives *Elæagnus umbellata*** (a kind of Sea Buckthorn the size of a red currant introduced from Asia) and made jelly. At this, Stephanie Robertson mentioned making jelly this fall from an **overabundance of Chokecherries** at Melmerby Beach.

Carol Klar spotted **two Turkey Vultures** on a drive in from Tantallon/Ingramport, and saw **five Great Blue Herons** at the Frog Pond; Wendy McDonald reported **nine of them** there the previous day!

Allan Robertson spotted **a male and female Pheasant** at Melmerby in early September; Judy Keating has **Pheasants come regularly** to her berry patch. On the Shannon Park Trail in Dartmouth, Bernie and Heather McKenna encountered a calm, **young buck Deer**, six to eight feet from where they were, entirely nonplussed. Burkhard was there on Tuesday, Oct. 5th and noticed lots of **stripped branches of Autumn Olive**; he suspected **Starlings** were to blame. He also told of having a troublesome experience of **a Blue Jay in their kitchen**; it took awhile to get it safely out with the help of a towel.

At Miner's Marsh in Kentville on the 28th Sept., Brian Bartlett had the good fortune, with the assistance of two birders also there with tripod scopes, to see **a Stilt Sandpiper**. Peter Webster took guests to the 'Guzzle' and Evangeline Beach on the Fundy Shore and observed **congregations of shorebirds** close up due to the kindness of two birders there with tripod scopes. Wendy McDonald said the birders there were from Birds Canada which conducts many good birding projects; she encouraged us to support them.

NOVEMBER

At the Keji Seaside Adjunct on Oct. 19th, Grace and Richard Beazley were amazed at the **unusual abundance of Winterberry bloom**. Gareth Harding reminded us that tick season is here; and he reported that **ticks have now spread to Crystal Crescent Beach**. Renée Lyons and Gareth were canoeing on Lake Anne's and encountered **an Otter** which then dove down into the water behind them. Burkhard spotted **a curious Otter** while canoeing in Keji.

A week ago, Mille McCormack saw **a large seal** at DeWolfe Park on the Bedford waterfront; she said it was there most days. Two weeks ago, Judy Keating spotted **a Turkey Vulture** in Glen Haven.

ISSN 1485-709X Winter 2021, #185

Susan Holmes saw **a Steller's Sea Eagle** around the Falmouth boat launch area; this impressive species of eagle has an eight-foot wingspan!

DECEMBER

Judy Davies went to see the **male Mandarin Duck** at Albro Lake. A transient local sensation there, it was surmised to be an escaped(?) pet. Mid-November, Lesley Jane Butters went to watch **Crows** at about 4:30 p.m. at Mt. St. Vincent University grounds. One large tree held about two or three of them, and as they came in on their evening flight by hundreds, these 'waiting crows' seemed to give a cawing welcome as each group arrived. Lesley noted that on Bob Bancroft's programme on CBC, a caller mentioned exactly the same behaviour. In late September, Mille MacCormack noted at Martinique Beach, **that amidst a flock of plovers, there was one with only one leg**. Carol Klar reported a **Baltimore Oriole at Cuncan's Cove**. At Bayside she spotted **a Brown Creeper**.

eNOTES

Lesley Jane Butters, December 5th – One evening, in late October, I heard some commotion on my front porch. I stepped out to investigate. To my utter surprise, I saw a black-masked creature staring back at me. It was a very large raccoon with an aggressive attitude. Frightening the coon away did not seem to faze it. Suddenly, I heard my entire wild apple crop being tossed around like bowling balls. I had left them in a secure bucket to keep cool before processing them. I startled the raccoon on my third attempt and it ran away (so I thought). I proceeded to pick up the apples on the porch when I a nasty snarling and hissing behind me. I turned and whacked the coon with my umbrella, the closest thing on hand during those split seconds. It fled but not before showing me its teeth and telling me a thing or two in Raccoon language!

Lately, I have been wondering why most of my window screens have holes in them – they are far too high off the ground to be caused by cats or raccoons or people. Observing one morning, I saw a chickadee attached to the screen vigorously pecking a hole in it; they'd unvented a new game; let's see how many holes we can make today, nothing much else to do!

On an early December morning this past week, I spotted a huge wasp nest on a tree branch in the vicinity of Point Pleasant Drive in Halifax. I hope the winter winds are not too harsh, it would be wonderful to see the wasps emerge in the spring. There is another wasp nest in The Public Gardens to the left of the 'Duck House'. That too is rather a large nest.

On a calm, overcast mid-November afternoon, we were driving by a recently cut soybean field near Port Williams. To my amazement, the large field was a mass of white. At first, I thought it was white plastic; it was much too mild outside to have been snow. Stopping the car, upon getting out and venturing closer, it was made clear – it was a field of Gulls – and, literally hundreds if not thousands! They had flocked from all directions just to that one particular field. They seemed to bunch together, with no gulling sounds nor even pecking at the soil, they just seemed to be 'hanging out'. Unfortunately, neither one of us had a camera to record this amazing observation.

OUR QUARTERLY HFN ALMANAC

Sadly for me, longtime HFN member and enthusiastic naturalist Patricia Chalmers will no longer be contributing our Almanac for us, after twenty-seven years(!) of dependable and important quarterly submissions.

Patricia was born in Winnipeg, Manitoba, and moved to Nova Scotia while still in school. She graduated from the University of King's College, and earned her MSc degree from the College of Information Studies at Drexel University in Philadelphia. After her return to Nova Scotia for a librarian position at King's College, she joined and became involved with HFN in 1988/89. HFN's very successful hosting of the 1994 CNF Conference at Mt. St. Vincent University encouraged us to host the 1997 Federation of Nova Scotian Naturalists' (now Nature Nova Scotia) Conference in Annapolis. Patricia was the very able Chair of its Organisation Committee, and also at that time the HFN Representative on the Federations's Board of Directors. It was then that I became more closely acquainted with Pat after we 'pulled an all-nighter' together in front of my computer – producing the registration forms, events rosters, and other printed information for it.

Patricia was a founding member of the Nova Scotia Wild Flora Society, and has always taken part in the Christmas Bird Counts. She is a keen 'phenologist', interested in the periodic events in biological life cycles and how these are influenced by habitat and by seasonal and interannual variations in climate. Thus her involvement with HFN's Amanac, instituted for the very first time in our Spring 1994 Issue #74 with both Natural and Organisational Events, on the insistence of late member Ursual Grigg, and compiled by Pat then and ever since.

I would like to express my gratitude to Patricia, from myself and on behalf of HFN, for so long supplying The Halifax Field Naturalist with this wonderful and important column.

Serendipitously, on happening to mention the loss of our Almanac to comparatively new members Don and Jane Flemming, I received an enthusiastic offer to take it on! Don is a retiree from BIO, and has always had an interest in all things weather-related. Thank you so much Don, and once again many nods of gratitude to Patricia. Patricia – thank you.

ISSN 1485-709X Winter 2021, #185

HFN TALKS

BENEFICIAL INSECTS 6 OCT.

– Stephanie Robertson

The Nova Scotia Museum's retired Zoologist Andrew Hebda gave this Zoom talk, presenting a variety of the beneficial insects upon which most people tend to heap praise, then a variety of others which most tend to slot into the 'pest' category, but who are, in fact, doing good for us as well. *(I'll never forget a local Garden Society request - a talk on how to encourage butterflies while getting rid of caterpillars! -ed.).*

So important to us naturalists and our planet, Andrew's approach to the topic of insects is broader, more ecological, and factual rather than the usual annihilation approach. *All* insects are not only beneficial, but also essential for ecological stability. Most are benign and usually play a necessary regulatory role within all the functions of stable ecosystems. As to the latter, he alluded to the infamous Spruce Budworm saga and to the Brown Spruce Longhorn Beetle fiasco in Point Pleasant Park.

As an other example, we were shown an image of crows decimating a lawn in order to get at Cranefly and/or June Bug larvae. I have seen a neighbour continually trying to discourage crows from this, whereas the crows were performing a valuable service by getting rid of those succulent fat larvae which would have fed on and destroyed his grass's roots. When one species becomes over-numerous due to favourable conditions for it, another comes to restore the balance.

Andrew divided his presentation into the topics of Pollinators; Predators; Decomposers/Recyclers; and Indoor Insect Residents/Visitors.

POLLINATORS

In their everday foraging for food, insects such as bees, wasps, butterflies, flies, moths, mosquitoes, and beetles pick up various amounts of pollen. As they fly from flower to flower eating and foraging for nectar, this incidental pollen cargo is rubbed off onto other flowers thereby fertlilising them. Pollination is not the insect's purpose; food and reproduction are. However, all this by-the-by cross-pollination enables not only the growth and harvesting of all those vegetables and fruits we so desire, but also the consequent production of fertilised seeds from which more of these desirable plants will grow – benefitting both both the insects and us in ensuring future flowers and crops. How do insects unintentionally pick up pollen when eating? Andrew showed us close-ups of some of them, revealing hairiness (the hairs are functionally sensory organs), scales, and/or lots of setae (bristles) – and these are the very traits that enalble insects to get covered in sticky pollen during foraging.

Bees and Wasps – Ground dweller common bumblebees are large and very hirsute; honeybees are very hairy also and also have little 'baskets' on their hind legs which collect even more pollen to feed their larvae back at the hive (pollen is 27% protein and has many essential amino acids). Leaf-cutter bees also collect nectar and pick up pollen, and Northern Paper Wasps will collect nectar for energy, and interestingly, also small bits of meat, wherever they can be found, to feed their larvae. **Butterflies** – on clover we saw a Zebra Largewing Butterfly with pollen on its proboscis. This it will eat along with the nectar, but along the leading edges of its wings, the pollen there will fertilise other flowerheads as it crawls over them getting nourishment. Interestingly, as an aside from pollinators, we saw a Sphynx Moth hovering over a monkshood-like flower head to collect nectar. Hovering requires a *lot* of of energy (and gives no chance to pick up pollen), so this moth requires several times its body weight in nectar.

Flies – We saw a Tachinid fly characterised by stout black bristles on each of its abdominal segments and elsewhere, then a 'bee fly', a Bombycillus, covered with pollen on its very hairy body. Some pollinators are specialists and use only one type of plant. It's much more difficult for these to find food, and a consequent co-dependence evolves between the plant and the insect.

Mosquitoes – There are 49 species here in Nova Scotia! Like all pollinators, mosquitos feed *only* on nectar; it is only the female that 'goes for blood' – a meal which is necessary for her to produce eggs. Mosquitoes are an important pollinator of our grasses, apparantly especially so in the western United States. A close up of a mosquito's leg revealed their many pollen gathering scales and setae.

PREDATORS

Predatory insects are critical in controlling overpopulations of others. One of these we saw was the beautiful ground beetle, the iridiscent green Tiger Beetle. These beetles are very active predators and can fly very fast; there are several species of these in Nova Scotia. With another colourful predatory beetle, Andrew pointed out its elitra, or protective wing covers, for when it is not flying. Many predatory beetles can be found in leaf litter, actively and continually looking for insect

ISSN 1485-709X Winter 2021, #185

prey, larvae, and even very small crustaceans. Another shown was a robust Carabid, a shiny, black ground beetle with menacing mandibles exactly like those in the accompanying Gerry Larson cartoon.

Predatory insects are critical in controlling over-populations of others.

RECYCLERS & BIOTURBATORS

Bioturbation is the reworking and breaking down of soils and dead matter by animals, fungi, and bacteria. Andrew opened this section with a beautiful shot of a mossy, green, old growth forest. Trees die and fall naturally here, as is normal, and it takes 75 to 150 years for recyclers and bioturbators to return them back into the micro and macro carbon store whch will stimulate new growth of other trees and shrubs. Recyclers and bioturbators play a large part in the maintenance of a large diversity of species always found in these areas. We saw a healthy White Spruce with a large, solid exudate of thick spruce gum. (In the 1830s, East Hants was North America's largest exporter of spruce gum – four tons every year!) When insects attack it, this thick gum is how the tree combats and traps the insect, preventing entry, egg-laying, and eating. An unhealthy weak and dying spruce will display many rivers of ineffective, watery sap – 'resinosis' – which cannot stop insect entry. Insects can detect these weak trees by the turpenes their watery sap emits, and this is what they are looking for, 'easy prey' to enter and lay eggs. Their hatched, ravenous larvae start munching tunnels to grow and emerge as adults, and over time further invasion by fungi and other insects into these holes break down the trees's hard lignin and start its long downward spiral from tree to soil.

Our province has 75 different species of these mechanical decomposers, and the Longhorned Beetles are one of them. They are fairly large, with the males' antennae being longer than its body length, while the females' antennae are the same as its body. North-eastern Pine Sawyers can be up to 25 mm; their eggs are laid under bark, and the larvae bore further in when hatched. Exit hole shapes of young adults are one way to help identify species; for instance the *Dicera divaricata* makes a D-shaped hole; the 'whip-tail' Horntail *Tremex Columba,* which looks like an elongated wasp, makes a circular one. Andrew told a sorry story about a house which had been made with 'bargain' wood (it had come with an unknown bonus – Horntail eggs and larvae which emerged and starting making holes in the gyprock overlaying this wood).

Comparatively short and stubby Bark Beetles take the next step in recycling a dying tree, excavating many galleries under the bark; the indication they're there is the subsequent loss of bark, usually about a metre to a metre and a half up from its base.

The next group of mechanical decomposers take care of dead animals, which after death start to give off sulphur-based chemicals. Green Bottle Flies and others are attracted by the smell and lay their eggs on the dead flesh; the maggots convert the eaten protein to more flies when they hatch. There are also Carrion beetles; we saw two – a black one with yellow stripes, and another with orange stripes. Two summers ago I had sent Andrew an image of a small black and white beetle taken at Melmerby Beach; surprisingly for me, it was one of the many species of Carrion Beetle.

INDOOR BENEFICIAL INSECTS

In the 1960s Asian ladybugs were introduced for biological control of insect 'pests' in North American greenhouses. The benefit – they substantially reduced the use of chemical insecticides. The downside – in Nova Scotia, there used to be 46-47 ladybug species, and we've lost two or three due to that introduction; as well it is possible that more of our native ladybugs may have been displaced, we just don't know. These aggressive feeders have spread far and wide, and can be found overwintering in homes and buildings. They have up to six generations per year, while our native ladybugs have only one.

Next, a Rove beetle, long, and black and orange. These quite aggressive beetles will get rid of the larger house mites found in carpets and elsewhere; they also go for fly maggots (handy for cleaning up a green bin!). Small 'book lice' found in your library are helping to preserve your books by feeding on any mould and fungi in them; this gives you a chance to address the problem of the dampness that must be there. The downside is that once the moulds are consumed, they'll carry on eating the pages.

Insects in a house are a symptom of conditions which need to be rectified. The most prominent is leftover bits of food – bits of cereal in the kitchen, flour dust, and small crumbs and droppings in couches and carpets. Carpet Beetles go for these bits, but will also consume cotton and wool rug fibres after the crumbs which first attracted them have been consumed. Most beetles fly at night, so can be found anywhere in a house. They lay their eggs right next to the best source of unstored food available, such as in a pantry, or even in walls (where dead mice can be found which have also been attracted to any available bits of food). Large, black Carpenter Ants – if you have these, you have damp wood somewhere in your home. If you suddenly have myriads of the winged stage, this means they've successfully laid their eggs there, then hatched and grown, looking to go off and start nests elsewhere (just open a window and off they'll go). if you've had them for several years, you will need a carpenter to find the dampness and what is causing it. There are even beetles which can be found in damp plaster; they scavenge any mould and/

ISSN 1485-709X Winter 2021, #185

or fungus to be found there.

Small Phorid flies can be found wherever there are drains, even in the build up of organic matter in bathoom and bathtub overflow drains. They are not a problem otherwise. Tiny *Melanogaster* sp. – fruit or vinegar flies – can be found wherever there is overripe fruit available giving off their metabolic aromas and chemicals of fermentation. Surprisingly for me, a close up showed them to have intense red eyes, something I certainly never noticed – I suppose because they are so small.

So, there is a whole suite of insects around us doing 'insect activities'. They are not a problem in themselves. We need to ask "What are they doing and why?" "Why at this time of year?'

What usually appeals to humans to engender support for wildlife are baby mammals; so, Andrew showed us a close up of a very young earwig, and indeed, it was 'very cute' with a 'baby face' and large eyes. Earwings, labelled another insect scourge, are necessary scavengers, cleaning up waste organic matter and producing fertiliser. For the wise, all these indoor insects are communicating to owners on what is going on environmentally within their dwellings.

QUESTIONS

Stephanie Robertson told of her spiders and their eggs, (which she deliberately keeps to predate summer flies and ants) that she finds in the same place upon opening up their cottage every spring – the two north front corners of the ground floor; why? Andrew said there must have been the right amount of dampness there. She asked about Silverfish in her bathroom; apparently they are primitive insect scavengers who like damp areas, such as drains, which accumulate organic matter; Andrew considers them small, tapered sheep! To lessen numbers, increased air circulation is needed.

Janet Dalton had learned somewhere that Spruce Budworm only attacks spruce which are over 40 years old. Andrew explained that their preferred food is the newest and most succulent of buds, and the reason the older trees seem to attract hordes of them is because they have many, many more of those buds.

Brian Bartlett wanted to know why he gets quite a few ladybugs in the winter in a certain corner of his book-filled study. Andrew said the humidity is probably higher there, and that it would have greater temperature and humidity stability with no open windows in the winter and all the books for insulation; they won't do any damage and are just waiting around for spring. The introduced Cluster Flies were mentioned; they were brought in on earthworms in soil. These are harmless and don't eat much. Burkhard asked "What *do* they eat then?" Not much at all to worry about because their main purpose is to seek out cooler places in houses to overwinter where they will require less energy.

Andrew encourages diversity on his farm property which boasts an old farmhouse, a few barns, and 300 sheep (which function as lawnmowers). Their windows have no screens, and they too keep spiders to deal with any insect overflow. He feels that as a species, most of us don't like to share with other species; however, insects like our homes because of their shelter and abundance of available food.

Janet Dalton brought up the subject of bedbugs; Andrew reported that they are parasites rather than foragers, but that they do not carry any diseases. Parasites have to keep their hosts happy so that the 'supermarket' (us) stays open and nutrtious. The most resistant form of insects are their eggs, for which chemical controls are usually used. "But hey, they are just trying to make a living; think what our planet would say about us!".

Emma Bocking asked whether earwigs were parasites or beneficial insects. Earwigs are grazers and gleaners which feed on decaying bits of vegetation. They secrete themselves away in cracks, crevices, and under clapboards – hiding away from predators. Andrew shared "If you have an earwig 'problem', get yourself some ducks!"

To show how all these critters are so much a part of our environment and have to be accepted, we learned that Proctor and Gamble allow no more than 40 insect parts per cm^3 of Cambell's Soup! (Better than constantly spraying their facilities with neurotoxic insecticides. Remember, these microscopic 'parts' have been cooked at high temperatures and are edible and not dreadfully poisonous. P&G made the right choice.).

HRM WETLANDS 4 NOV.

– Stephanie Robertson

ADVENTURES IN MOSS AND ALDER

Emma Bocking was astonished to learn that there are tens of thousands of wetlands in HRM (so was I!). Emma is originally from the Kawartha Lakes region of Ontario, where she first fell in love with water, wetlands, and nature on canoe trips. Previously working in Newfoundland and Labrador, she moved to Nova Scotia in 2015 to work for Ducks Unlimited Canada. Her work here focuses on wetland stewardship, conservation, and policy – particularly in HRM and Southwest Nova Scotia.

Ducks Unlimited was established by hunters during the Canada's prairie dustbowl years in response to decining waterfowl populations, when they made the connection between declining habitat and declining waterfowl. Its mandate is to conserve, restore, and manage wetlands and grasslands in order to benefit waterfowl, wildlife, and people. The very first wetland conservation project, called the 'Duck Factory', was carried out in Manitoba in 1937. Since then, their protection mandate has grown to include water qualitiy, plants, and other wetland animals.

There are four or five Canadian Ducks Unlimited offices across the Atlantic Region; Emma works with

ISSN 1485-709X Winter 2021, #185

the Atlantic Team which does such things as funding, education, restoration, and policy making,

In 1989 the North American Wetlands Conservation Act was passed, a concerted continental approach to wildlife conservation in response to waterfowl populations which were still not up to normal levels. It essentially moves money from various agencies into wildlife conservation. Ducks Unlimited realised they had to protect all areas along wildlife migratory pathways – from boreal breeding grounds right down to Mexico. Here in Nova Scotia, an EHJV (Eastern Habitat Joint Venture) has been set up to identify and enhance sustainable environmental protection efforts, a consortium of Ducks Unlimited, the Nova Scotia Government, Wildlife Habitat Canada, Nature Conservancy Canada, and the federal Environment and Climate Change Canada. This has been extremely successful for waterfowl. As of 2016, waterfowl have increased by 150%, birds of prey 110%, wetland birds by 30%, Canadian nesting seabirds by 15%, and forest birds by 7% – all since 1970. We need to do more for shorebirds and interior land birds, as shorebirds have decreased by 40%, grassland birds by 57%, and aerial insectivores by 59%.

Nova Scotia is fortunate to have an excellent Wetland Conservation Policy, instituted in 2011. Its goal is to prevent any net loss of wetland across the province through wetland conservation practices which integrate the need for wetland protection with the need for sustainable economic development, now, and in the future. Its mitigation sequence is **Avoidance** of adverse effects; **Minimisation** of unavoidable adverse effects; and **Compensation** for adverse effects which cannot be avoided (the compenstion is dispensed at a 2:1 ratio). The pros – compensation cost discourages many developments in wetlands, especially smaller ones; wetland loss that does occur is compensated; and wetlands of special significance are protected. The cons – the offsetting of certain current environmental losses for potential future environmental gains; compenstion cannot always deliver equal value; and the value of restored wetlands does not equal the full value of natural ones.

What is a wetland? It's land which is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation, and various kinds of biological activity which are adapted to a wet invironment. There are two types, **Mineral** – shallow open water, (pond-like, no more than two metres deep); marshes (even shallower, get more vegetation, can be fresh or tidal); and swamps (treed or shrubbed wetlands); and **Organic** – (areas with years of built up peat lands), fens which receive all their water from ground sources; and bogs which receive their water from rainfall only.

Why are wetlands important? They harbour great species diversity; are an essential resting place for migratory birds; help regulate and mitigate flooding; are buffers against sea level rise; store lots of carbon; and clean our water for us.

How can we measure their ecosystem services and identify functionally important wetlands? Enter WESP-AC in 2018 – the Wetland Ecosystem Services Protocol for Atlantic Canada. Developed in Oregon, it's being calibrated for all of the Atlantic Provinces.

The field work for this project in any particular wetland being studied starts out with the question "What are the inputs?" (to this particlular wetland). In the field they record the vegetation, the hydrology, public use, and any local stressors; back in the office, they research surrounding land uses, public use and investment, and any regulations in place.

The next question is "What are the outputs?"**;** many various benefits and functions are listed and measured such as water storage and delay, sedimentation rate, organic nutrient export, carbon sequestration, waterbird nesting habitat, etc. The wetland is then assigned a function rating and a benefit rating, and these ratings numbers are calculated relative to other wetlands in the province.

With a five-colour-coded map, Emma gave us a rundown of what WESP has been doing in HRM for the last two summers – in evaluating at 85 sites the percentage of cover of wetland lost since the inventory was digitised, and the selecting of WESP sites to represent watersheds with the greatest losses. The least amount of cover is found in Halifax Peninsula and along the Bedford Basin; Dartmouth; MacNab's Island; the coastal stretch from Tantallon to Peggy's Cove and across St. Margaret's Bay which has been heavily developed. The highest cover is a large area to the northwest of Cole Harbour Provincial Park; from Dartmouth out to Eastern Passage; the Sackville River watershed; Long Lake Provincial Park; and another area surrounding the Jack Pine Barrens.

In urban areas, even though any remaining small wetlands may not have a high function score for water storage, they do have a high benefit score for that same trait; in other words, they are still necessary for what they can still do, however diminished. We were shown Marsh Lake wetland in the Sackville River watershed, one of Emma's favourites; Emma had given an assessment presentation about this one to the Sackville River Association. Some highlights of the results – habitats for aquatic invertebrates, amphibians and turtles, waterbird feeding, waterbird nesting, songbirds/raptors/mammals, and pollinators all had the highest score of 10; water storage and delay, nitrate removal and retention were also graded 10.

Bog Plants

ISSN 1485-709X Winter 2021, #185

BMBC LAKES 2 DEC.

– Mille McCormack

The Water Quality of the Blue Mountain Birch Cove Lakes Dr. Donald Gordon, who obtained his PhD in Oceanography from Dalhousie University and is a retired research scientist with Bedford Institute of Oceanography, gave a presentation on the water quality of the lakes within the Blue Mountain-Birch Cove Wilderness area. He is involved in promoting the area as a regional urban wilderness park to serve Halifax Regional Municipality. This project has been ongoing for more than 30 years.

HRM Council made a commitment in 2006 to develop Blue Mountain-Birch Cove lakes and their wilderness areaa as a regional park, and they reaffirmed their commitment in 2014 following a well attended public meeting in 2012. City Council has provided $750,000.00 to Nova Scotia Nature Trust to purchase connector lands within the proposed park. As well, Parks Canada has identified the area as a candidate site for a national urban park.

In April of 2021, five volunteers from Friends of Blue Mountain-Birch Cove Lakes conducted a water quality survey of 21 lakes within the conceptual boundary of the proposed urban wilderness park. Three sampling expeditions were done by canoe on April 8th, 10th, and 14th. Both the Nine Mile River and Kearney Lake Run watersheds were sampled.

The depth, water transparency, temperature, dissolved oxygen, conductivity, and pH were measured throughout the water column using equipment provided by the Atlantic Water Network at Saint Mary's University. The phosphorus in the surface water was analysed by the Environmental Services Lab of Nova Scotia Health Authority. Water quality studies in previous years had been done by HRM, the provincial and federal governments, universities, and volunteers.

This past April's survey results showed the following:

Water transparency is affected by the amounts of plankton, sediment, and dissolved organic matter.

Previous studies revealed that dissolved oxygen undergoes seasonal variation in the deeper waters. The April measurements showed readings of 70-101% saturation.

The pH values revealed the waters' acidity. It is naturally low because of the type of underlying and nearby bedrock; it is also influenced by acid precipitation. A wide range of values was found.

There was also a wide range of values for conductivity. The lowest was in the isolated lakes, the highest in Kearney, Susie's, Quarry, and Washmill Lakes, road salt being the primary source there.

Overall, the lakes within the park boundary were judged to be in a good natural state and are in excellent condition!

In the next stages, the role of Parks Canada is to be determined. A planning committee of stakeholders will be established, and a Park Plan developed. An important step will be to acquire additional private lands, and to develop good public access.

Full details, results and data interpretation can be found at **bluemountainfriends.ca/reports**. This survey provided important baseline data which will be very valuable as park planning proceeds.

WHY ISN'T THE SHORTEST DAY OF THE YEAR THE COLDEST DAY OF WINTER?

Extracted from our 1997 Winter Issue No. 89. "There are at least three good reasons why the shortest day of the year, which falls on December 21st, isn't usually the coldest.

First, the ground and particularly water bodies absorb and hold heat, in much the same way barbecue coals retain heat long after the barbecue is extinguished. It requires many weeks of cold weather before that stored heat is lost.

Secondly, regions in the far north of Canada receive no direct heat from the sun until early February. As a result, pools of arctic air which accumulate over the country get progressievely colder until the north's long winter night is over.

Thirdly, as the winter advances, the snow cover usually increases in depth. Snow is one of the best insulators in the world – it can stop the upward flow of heat from the earth below as readily as it can reflect the incoming heat from the sun back into the air.

Accordingly, winds originating over snow-and-ice-covered terrain tend to be colder in January and February (when the snowfields have had a chance to get established) than they are in December.

So that is why the coldest day of the year often occurs in early February, on average – a month and a half after the shortest day of the year."

– Colombo's Canadian Global Almanac, 1997
reprinted by permission

ISSN 1485-709X Winter 2021, #185

HFN TRIPS

MUSHROOM FIELD TRIP

– Mary Kennedy with John Crabtree

Date: Tuesday, September 28th
Place: Shubie Park, Dartmouth
Weather: Rainy
Leader: John Crabtree and Scott Cunningham
Participants: 17

Mushroom talks and walks are traditionally hosted each fall by HFN. These events are excellent opportunities to get out and improve and/or refresh skills. Over the years we have had the privilege of having John Crabtree lead these events; this year Scott Cunningham assisted. Both John and Scott are mushroom experts and regional directors in the Nova Scotia Mycological Society; **https://www.nsmycologicalsociety.org/**.

The beginning light rain did not deter our group gathering in the parking area next to the Fairbanks Centre off Locks Road in Dartmouth, and the distance we travelled over our two-hour adventure was not great but there were many stops as new, or the same, species of mushrooms were spotted. All participants listened attentively to John Crabtree and Scott Cunningham as they shared their knowledge about the various finds. There were few forays off the main trail into the woods because of the rain – at times, it poured!

On any mushroom foraging adventure useful items to bring along include not just baskets, paper bags, cameras, and bug spray, but also a loupe (10x magnification is sufficient), a handy knife, and useful guidebooks.

As different types of mushrooms were found along the trail the scientific and common names were announced; at times our two experts politely disagreed on name pronunciation!

It was a bit too wet for many of us to take notes on paper or even to use our electronic devices, so a bit of memory digging and review of photos after the event was required to produce a proper species list of all the taxa observed.

Participants were encouraged to share their photo observations with iNaturalist. This citizen science programme's objectives are to help people connect with nature while learning about species observed, and also for them to share these observations with others. The free iNaturalist app may be downloaded, or you can merely go online at **iNaturalist.ca** to explore already existing content and to share your own photos. (Note – this Shubie 2021-09-28 query may include photos taken by others not in our group.) Here is the link to view what fungi were observed; hopefully, local experts will take time to review what mushrooms we observed and recorded on this walk **– https://inaturalist.ca/observations?on=2021-09-28&place_id=133698&subview=map&taxon_id=47170&view=species**.

Rather than focus on remembering species names, we were directed to hone our skills at observing – what was the shape and colour of the cap? Did the colour change if the mushroom was cut or bruised? What shape/length was the stem/stipe? What shape was the bulb/volva? Did the mushroom cap have gills or pores? What was the shape of the gills? Do the gills go down the stem and what is the spacing of the gills? (The more crowded the gills, the more surface area there is and that increases the amount of spores).

Having a knife enabled the slicing of our mushrooms in half and this revealed interesting colours. For example, slicing the gill edges of species in the genus Lactarius produces a white, milky fluid which is known as latex. Slicing for colour is diagnostic and helps in species identification.

Mushroom texture also gave clues as to species. For instance, snapping the stems of some species produced a nice popping sound, while others merely bent – like rubber. And, the caps of some species were waxy while others were warty. Two ways of identifying a mushroom to the genus *Russula* are to use a knife and strike across the gills at right angles (the gills will fracture easily); and to also break the stalk in two. *Russula* will break cleanly and discernably snap just like chalk. In the genera *Hygrophorus* and *Hygrocybe* the gills have a very waxy feel which will help in separating them out from other gilled genera.

Differences between groups of similar mushrooms such as puffballs and earthballs were discussed – earthballs are tougher on the outside and dark purple on the inside. Puffballs on the other hand are white on the inside when fresh (they must not be consumed once the context, or flesh, turns brown.

Another discussion was about the relationships between certain mushrooms and the trees around them, where neither do well without the other. Mycorrhizal mushrooms have a symbiotic relationship with specific trees. A tree uses solar power to convert light energy into chemical energy. The tallest and largest trees reach above the canopy and therefore make the fullest use of photosynthesis. The largest trees require only about 80% of the energy that they produce, the rest is given up to fungi through the mycelial network. While trees give up sugars to the fungi, in return the fungi provide water and mineral nutrients to the tree, such as phosphorus. Certain species of mushrooms are associated with specific species of trees, while others are not so fussy and will form mycorrhizae with several different tree species.

ISSN 1485-709X Winter 2021, #185

It's always useful to note, when finding a mushroom, which trees are nearby. If you know the tree you will know the mushroom. Two other ways that other types of mushrooms receive their nutrition from organic matter are as saprophytes living on dead organic matter, or as parasites attacking living plants or animals.

Mushrooms and other fungi also perform a valuable role as decomposers. In particular, polypores are amongst the most efficient decomposers of lignin and cellulose, the main components of wood.

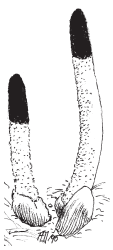
The honey mushroom *Armillaria mellea,* a parasitic fungus which grows in bunches around conifers and also broadleaf trees, is well known for causing damage to forests in North America (the most common species of Armillaria which grows in Nova Scotia is *A. ostoyae).* Of course, other species, such as slugs, help to destroy and decompose the mushrooms!

One of our lengthier discussions was related to 'growth' of a mushroom. We are all aware that mushrooms seem to pop up out of nowhere after a damp spell and then – they seem to spread everywhere. "Mushrooms do not grow – they simply 'expand'." (an indirect quote!). A mushroom is like a small ball inside an all-encompassing sheath. With the addition of water this ball expands as its cells absorb it. These cells then fill the sheath and consequently break free. Bits of the sheath may be left visible on the stipe as a partial veil (the annulus) or on the cap of the mushroom, (the universal veil), and these characteristics will help identify a species. Any warts observed on the cap of a mushroom are simply bits of the universal veil.

The colour of mushroom spores is also a feature worth noting when trying to identify genus. To do this a 'spore print' must be taken. This is achieved by cutting off the stalk about ½ inch below the level of the bottom of the cap; this will act as a 'pedestal'. Gill side down, place the mushroom on a piece of white paper and cover with a bowl (this is to stop the spores from being blown around by air currents). The mushroom may drop its spores within a few hours but sometimes it is necessary to leave it overnight.

Now armed with lots of terminology, it was possible for us to dig out our guidebooks and interpret their content. Over 300 species have been found in Nova Scotia by the Nova Scotia Mycological Society, and there are many, many others which have been documented in the Atlantic Maritime Eco Zone. It is therefore unlikely that many novice foragers will be able to ID beyond the genus level.

Identification becomes easier with time and practice. It's always necessary to note *all* physical characteristics of your latest find. If taking photos, remember to include top and side views of the cap, examine and photograph the underside, and note the presence of gills or pores. Take a mushroom 'selfie' with your phone – this is a simple way to view the underside of the cap without disturbing the mushroom. It was pointed out that digging up a mushroom is similar to picking an apple from a tree. You are removing the fruit – you are not destroying the organism underneath. But, if you do pick them, remember that the next person to come along won't get to enjoy their beauty.



Once you have identified your mushroom then it is advisable to consult with a local expert to verify your identification. Then, armed with lots of knowledge, get outdoors and keep practicing!.

GUIDEBOOKS

Mushrooms of Ontario and Eastern Canada by George Barron, ISBN 177213001X.

A Little Illustrated Book of Common Mushrooms of Newfoundland and Labrador by Andrus Voitk, ISBN-10 0969950942.

MUSROOM WALK SPECIES LIST

Birch polypore	*Piptoporus betulinas*
Boletes	Family Boletaceae
Brittlegills	*Russula* spp.
Amanitas	*Amanita gemmata*
	A.citrina
	A. muscaria var. guessowii
Witch's Butter	*Tremella mesenterica*
Common Earthball	*Scleroderma citrina*
Turkey tail	*Trametes versicolor*
Waxy Caps	*Hygrophorus* sp.
	Hygrocybe sp.
Honey Mushrooms	*Armillaria* sp.
Coral Mushrooms	*Clavulina* sp.
Milk Mushrooms	*Lactarius* sp.
Web Caps	*Cortinarius spp:*
	C. armillatus;
	C. spp.
	C. *sub genus phlegmacia* sp.
Bolete	*Tylopilus* sp.
Earth tongue	*Geoglossum* sp.

RUSSELL LAKE TRAIL

– Bernie McKenna

Date: Saturday, October 16th
Place: Russell Lake Trail, Woodlawn, Dartmouth
Weather: Sunny, warm and calm
Leader: Clarence Stevens Jr.
Participants: 18 including leader Clarence

What a glorious day we were given, just shy of 20˚C, and sunny and calm. Meeting at 9:00 a.m. we covered a few preliminary items and then Clarence got us all moving.

Russell Lake is truly a most accessible little gem and the area has excellent walking. The lake's surface is about 86 acres, with a maximum depth of 30 feet and an average depth of 12 feet, and is pretty much contained between Baker Drive and Portland Estates. On this trip its shores were cloaked in full fall colours and drew many comments and more than a few photos.

Its main inflow is from Penhorn Lake and also storm sewer outlets from the surrounding area. Barely a minute into the walk Clarence was showing us

Chicory plants with their pale blue blossoms. Most were past their best but enough were hanging on to show us their beautiful colour. He took time to explain its numerous uses as well as its characteristics.

In the same area there was a large pear tree with lots of fruit still hanging (none of which was low enough to pick); no doubt it is a leftover from an orchard or farm from days past. Turning south towards the boardwalk he pointed out a Common Buckthorn at the corner and covered the identification of its three species – all of which are poisonous. The boardwalk heads west and passes over a marshy area which had lots of cattails growing. Scattered on the water's surface were the remnants of this year's Duckweed crop, now dwindling as the season changed. Clarence explained that it is much more common than decades past and that it is a very valuable food resource with many uses.

Past the boardwalk on a hard earthen path we were shown where the bottom trunks of the trees, especially the birch, were wrapped in wire to prevent Beavers from taking them down. In this same stretch on the earthen path there were several stands of Huckleberries. Being past their fruit bearing period they were now putting on their fall colour display. They look very much like blueberry plants in both leaf and form, except that they are three or more feet in height.

Our travel now brought us to a junction with the paved path. This path separates the lake proper to the south from an extensive marsh area to the north. According to Clarence, the marsh area is actually the more productive as far as bird watching goes, especially for waterfowl, although in this instance the Canada Geese we saw were all on the lake side. That said, several different species were on the marsh side but most were at a distance so binoculars were an asset for their identification. It was here that we observed most of the trip's bird species – Red Wing Blackbirds, Canada Geese, Gadwalls, Ring Neck Ducks, Lesser Scaup, Widgeons, Yellow Rump Warblers, Female Pine Warbler, Black and Mallard Ducks, Black Capped Chickadees, Juncos, Bluejays, Robins, and Great Blue Heron and a Merlin (these last two were flying).

Heard but not seen were White Throat and Chipping Sparrows, Cedar Waxwings, and a Winter Wren. Luckily we had avid birders along who could do the audio identification; left to me it would not have worked nearly so well. Clarence said on the previous day he had done an advance walk and saw a Bobolink which was passing through. I found this interesting as I'm not sure I've ever seen a Bobolink in HRM although possibly I've spotted one in the Musquodoboit Valley. Bobolinks are having a hard time because of changing farming practices and the shrinking of their preferred habitat. While we were viewing the marsh area, I heard someone say they had tallied 23 birds up to that point and were still counting. On the marsh side of the paved path there are normally four or five Muskrat dens/houses, however the vegetation was so high that they couldn't be seen. In early August I had counted four of them, all of which were on the east side of the marsh. On the west side of the marsh there's an abandoned Beaver den. However, there may be Muskrats still using it as they are known to cohabitate with Beavers.

Going east to west, on both gravel sides of the paved path, large sewage pipes have been situated while a sewage pumping project is being worked on. They block off an area where there are often four or five Snapping Turtle nests. This year there were no successful nests along this area, obviously not a good thing.

Continuing west we came to a gravel road which leads up to Baker Drive. Along here Clarence pointed out Wych Hazel and as usual gave us some of its background and its uses as well. Beyond this we split into two groups; those feeling nimble of foot took a trail along the water's edge on the west of the marsh, the remainder stayed on the road and we met up again before cresting out at Baker Drive. Here the two warblers were seen, but they were shy and soon disappeared. Reversing direction, we headed back to the paved path. Just before reaching it there was a large Yellow Birch on the right displaying its full fall colours. One of three different birch species, Clarence said how most of it is edible, and when chewed, the branches have a wintergreen taste. Also, being very flammable, its bark's oil makes an excellent fire starter – even when wet.

Now back on the paved path heading east we stopped to note that because it's so busy with foot and bicycle traffic, snakes and young turtles get run over on occasion. Along here, particularly on the marsh side of the path in the gravel, it's very common to see Garter Snakes out sunning or hunting – on a good day you're almost guaranteed to see one or two. At the eastern end of it, where the paved path meets the original earthen path, there had been a sewage leak this summer; this caused an algae bloom in one corner of the lake. Once the leak was fixed mother nature took over again (as she does) and has now pretty much rectified things. Along this stretch we saw where the Painted Turtles normally make their nests, and it's not in an area where the Snappers nest. Here too we saw both White and Grey Birch trees. The Whites were the taller of the two, and one White Birch sported a few polypore fungi. All three types of birch have many uses and benefits.

Here too was an excellent example of Virginia Creeper showing fall colour from the bottom to the top, and because it is used by about 150 species it's a welcome addition to any natural landscape. Here, and in other locations, there were wild pinks and asters putting on a beautiful autumn show.

Back past the pear tree we saw at the start, we went

ISSN 1485-709X Winter 2021, #185

further on to the lake's outflow, where wire fencing had been installed to prevent Beavers from damming up the outlet. Not to be outdone, they have started to use the fence itself as the base of their dam, and very successfully too, as there was barely a trickle coming through. However, if allowed to persist, it will become a problem as the lake hosts both anadromous and catadromous fish. Full grown Gaspereau travel from salt water up Cow Bay River, through Morris Lake, and then up to the outflow into Russell Lake. There they spawn, and later on the young reverse the route and find their way to salt water where they grow to maturity themselves. North American Eels do the opposite; the adults leave the lake, go down the outflow through Morris Lake and on to the salt water where they congregate in the Sargosso Sea to spawn. There the young eels hatch and eventually find their way to Cow Bay River where they swim up to Russell Lake to live while they mature and start the process all over again.

This about wrapped up our morning, and a good one it was. Most headed back to their vehicles but a few crossed Eisener Boulevard and hiked down the trail towards Morris Lake. I do sincerely hope everyone enjoyed the outing as much as I did and that HFN Programme volunteer Carol Klar is right – that we'll soon be back in the Nova Scotia Museum of Natural History for talks once again!

JACK PINE BARRENS

– Stephanie Robertson

Date: Saturday, October 30th
Place: McIntosh Run Trail
Weather: Overcast and cool
Leader: Burkhard Plache
Participants: 15

Driving southeast through an Amara Developments' spread of tightly spaced homes with not an original tree in sight, it was hardly imaginineable to me how heavy, large, four-wheeled equipment was able to get safely in amongst this hilly, granite-bouldered area to remove all the trees and vegetation and then somehow make the terrain useable for building upon. Alabaster Way and its crowded, treeless subdivision ends in a circular cul-de-sac edged with three or four power poles. As each participant and/or group for this field trip arrived, they discovered, upon looking up, a large and beautiful Osprey nest. This spot is one of the trailheads for the McIntosh Run Trails area to which I had never been before – a natural-surface narrow trail system linking neighborhoods and people to wildlands in the area's watershed. Built and maintained by many hours of volunteer work (some of it paid) mostly to accommodate mountain bikes, it's also intended for all users – runners, hikers, dog walkers, snowshoers, and ordinary bikers.

The first plant noted was the Huckleberry *Gaylussacia baccata*. With its intensely red leaves, for me this is the plant which makes the low scrubby areas of HRM so beautiful in autumn. All during the trip, Burkhard was testing and coaching us about the usual plants we would encounter here (as he has done on all his hikes) in order that we would be able to ID them ourselves on our own.

We met quite a few hikers, dogwalkers, and also intrepid and daring cyclists. The trail wound in and around, up and down, and over mostly bare granite boulders; later in the hike some of these were monstrous. The different trail-loops are clearly but discretely marked with coloured rectangles representing different degrees of difficulty (as is done for for ski trails); blue, yellow, red, and green are the ones I remember. About fifteen minutes in we came upon a wetland area with quite a beautiful show of seemingly floating fluffy white flowerheads – the cottongrass *Eriophorum* sp. Here also a sharp-eyed member spotted a Pitcher Plant *Sarracenia purpuria* L. amongst the scrub.

Many plants and trees were noted throughout the hike, and also the fire-effects upon them from the latest one which roared through in 2009, destroying 12 homes. Nick Hill and David Patriquin's field work and research shows that this Jack Pine/Broom Crowberry Barrens community's fire dependence/adaptation predate European settlement – a biome unique to Nova Scotia and globally rare.

Near the end of the hike we stopped to survey the landscape, and, like successive waves approaching one on a beach, we saw long, bare 'rolls' of granite, row behind row of them, like giant oval lozenges marching from northwest to southeast. It was breathtaking.

Thank you Burkhard, for a wonderful hike to such a unique location. If you haven't been, it is very well worth it to go and see.

BARRENS SPECIES LIST

Trees	
Jack Pine	*Pinus banksiana*
Grey Birch	*Betula populifolia*
Red Maple	*Acer rubrum*
Northern Red Oak	*Quercus rubra*
Black Spruce	*Picea mariana*
Tamarack/Larch	*Larix laricina*
Shrubs	
Black Huckleberry	*Gaylussacia baccata*
Sheep Laurel/Lambkill	*Kalmia angustifolia*
Rhodora	*Rhododendron canadense*
Leatherleaf	*Chæmedaphne calyculata*
Sweet Gale	*Myrica gale*
(Northern) Bayberry	*Morella pensylvanica*
Lowbush Blueberry	*Vaccinium angustifolium*
Mountain Holly	*Ilex mucronata*
Witherod/Wild Raisin	*Viburnum nudum* var. *cassinoides* (formerly *Viburnum cassinoides)*
Black Chokeberry	*Aronia melanocarpa*
Sweetfern	*Comptonia peregrina*
Very Low Shrubs	
Wintergreen	*Gaultheria procumbens*
Broom Crowberry	*Corema conradii*
Golden Heather	*Hudsonia ericoides*
In Passing	
British Soldier Lichen	*Cladonia cristatella*
Sphagnum Moss	*Sphagnum* sp.
Cottongrass	*Eriophorum* sp.
Pitcher Plant	*Sarracenia purpuria* L.

ISSN 1485-709X Winter 2021, #185

COLE HARBOUR HERITAGE PARK

– Don and Jane Flemming

Date: Saturday, November 6th
Place: Cole Harbour
Weather: Sunny and cool
Leader: Burkhard Plache
Participants: 13

On a beautiful late fall afternoon, with the able assistance of Ingrid Plache, Burkhard Plache led a dozen HFN members on a walk to explore some of the wooded trails in Cole Harbour Heritage Park. As mentioned in our announcement for this trip, this was a time of year when nature slows down. The trails would lead us through an early succession forest which is reclaiming former fields, and also into an area which would show a more natural plant community as it is not suitable for agriculture.

Starting from the parking lot on Bisset Road, the walk followed the Costley Farm Trail westward, then south on the Poor's Farm Road and finally eastward along the Heritage Trail leading back to the parking lot. This was a moderate walk of approximately four km in two and a half hours.

This Heritage Park was built and is maintained by the Cole Harbour Parks and Trails Association (CHPTA). Its website notes that the Costley Farm Trail was named after John Costley who, in 1865, became the fisheries inspector in Cole Harbour. The open fields along this trail are the only remaining evidence of his farm, and the trail transects a large block of more or less undisturbed terrain.

Poor's Farm Road, which crosses brooks and skirts fields, follows the abandoned access road to Poor's Farm itself. From 1887, this farm was the site of Halifax County's residence for "the aged and homeless poor and the intellectually challenged." The Heritage Trail is mainly through the area which was not suitable for agriculture, as mentioned in the first paragraph.

As we made our way along Costley Farm Trail we encountered land once farmed but now fully reclaimed by nature. Burkhard pointed out unfamiliar species of interest but also used this opportunity to sharpen our memories by quizzing members on plants which he had described on previous field trips. At our first stop he pointed to an evergreen shrub and asked who could recall the name. A couple of members replied correctly that this was Lambkill (or Sheep Laurel) *Kalmia Angustifolia*, and Burkhard went on to point out that Kalmia is the only shrub in Nova Scotia exhibiting leaves arranged in layers of three. As its common name implies, this shrub is toxic to livestock.

One of us asked the name of a fern which could be seen nearby, Burkhard replied it was Bracken *Pteridium aquilinum* ('of an eagle', from its wing-shaped fronds) and noted this is the most common Canadian fern. Its fronds are divided into three blades which bend at right angles from the stem and give it an eagle-wing effect. This fern is also toxic to cattle and horses.

Further along, he pointed out a low evergreen with red berries. He noted that common names for many local plants can vary from place to place and, as an example, explained that the common names for this plant include Foxberry, Mountain Cranberry, Lingonberry, and Partridge Berry, therefore it's important to use its Latin name when specifying a plant having one or more common names. The latin for this one was *Vaccinium viti-idaea*, of the Heath Family Ericaceae, having glossy evergreen opposite leaves. So low that it's nearly prostrate, it tends to creep; it's found in cooler regions, especially in coastal headlands and barrens. Its red berries are mealy and tasteless when raw but similar to cranberries when cooked.

Other Heath Family shrubs examined included Mayflower or Trailing Arbutus *Epigea repens,* Rhodora *Rhodendron canadense,* and Wintergreen *Gaultheria procumbens*. Mayflower's Latin name reflects its trailing habit – Epi (upon) + gaea (earth). Mayflowers can be readily identified by both their broad, oval, and leathery evergreen leaves, and their white flowers suffused with pink which appear from mid-April to mid-May. Rhodora has brown or red twigs in winter with thin and smooth bark. It has one leaf per node along its stem, and winter buds have three or more scales which overlap like shingles. Wintergreen, aka Eastern Teaberry, Checkerberry, and Boxberry, is a low, erect plant with leathery leaves having, as the name implies, the fragrance and taste of wintergreen. Its fruit is a red berry which persists over winter.

Beneath an evergreen tree, Burkhard spotted a small herb which formed a mat exhibiting six leaves, usually whorled at the top. He left it to participants to correctly identify it as Bunchberry *Cornus candensis*. He passed a leaf around noting that its veins arise from its leaves' midrib and run nearly parallel toward the tip. Its fruit is in clusters of orange-red berries. Bunchberry is found on heaths, barrens, edges of thickets, and mature bogs, and is regarded as a 'woodland pioneer'.

Another plant from previous field trips and again on this occasion was the Witherod or Wild Raisin *Vibernum nudum*. Witherod can be easily identified at this time of year by the tips of its branches which show opposite buds, swollen at the base and extending to sharp points. It was interesting to note that Witherod was used by early settlers for basket making, particularly in fishing communities, where cod baskets are still made from its young stems.

A little further along Burkard asked us to identify a shrub from the few leaves which still remained attached to its stems. After a bit of discussion, it was correctly identified as Bayberry *Myrica pensylvanica,* a deciduous shrub with glossy leaves that are lance-shaped or oval but always with the broader part at the tip. The female plant produces small clusters of berries which are nearly round nutlets, only a few millimetres wide, covered with a grey-blue waxy substance. These berries can be boiled to extract a sweet smelling wax which is used to make clean-burning candles. Burkhard also pointed out another member of the Bayberry Family Myricaceae – Sweetfern *Comptonia pergrina,* a low growing shrub with fern-like leaves which give off a pleasant fragrance when crushed. It spreads by rhizomes as well as seeds.

ISSN 1485-709X Winter 2021, #185

Another low evergreen was the Partridgeberry *Mitchella repens* (creeping) vine. Its opposite leaves are small and nearly round with white veins, its fruit a red berry at the end of its branch which can be easily identified by having two small 'eyes'; a pair of flowers produces a single berry (hence its two eyes).

North American Black Chokeberry *Aronia melanocarpa* of the Rose Family Rosaceae was also examined. It is a small (three to six feet tall) multi-stemmed shrub that grows well in wet, poorly drained areas. It has clusters of from five to six white, five-petalled spring flowers which produce black berries in the autumn.

It is sometimes a challenge to see, let alone identify, small non-evergreen plants in late fall. An example seen on this trip was the wild Lily of the Valley *Maianthemum canadense*. A familiar ground cover found under evergreens, this plant spreads by rhizomes and in the summer has shining, light green lance-shaped leaves and white flowers in late May and June which later form pale red berries with purplish dots. However, at this time of year, all that could be seen was a small dark stalk with two berries still attached!

Moving on from small plants and shrubs, our attention was turned to the area's larger trees, one of which growing in abundance was Tamarack (also commonly known as Eastern Larch or Hackmatack) *Larix laricina.* In spring and summer this tree sports short, soft blue-green needles arranged in clusters on short lateral spurs arising from its branches. At this time of year they were a beautiful yellow, as they are one of only three deciduous conifers whose needles turn bright yellow before they fall in autumn.

Burkhard gave us some great tips on how to distinguish Balsam Fir *Abies balsamea* from members of the Spruce Family Picea. Fir has soft flat needles attached directly to its twigs, whereas Spruce needles are four-sided (and thus can be rolled between the fingers) and are attached singly to small persistent peg-like structures along the twigs and branches. Also, fir cones stand upright whereas spruce cones hang downwards after pollination. It was noted that fir and spruce are both high in Vitamin C, and can be used to make a tea, especially in spring. Spruce can also be used to make spruce beer, and the hardened resin found on its bark can be chewed as gum.

Along the same vein, Burkhard asked if anyone knew an aide-mémoire to help distinguish White Pine *Pinus strobus* from other pines. One of us answered correctly that White Pine has long soft needles which grow (and later fall to the ground) in bundles of five; she had been taught this particular aide-mémoire – the word 'white' has five letters. *('Red' has three letters, for Red Pine, which sports three needles - ed.)*

As we approached the end of Costley Farm Trail where it meets Poor's Farm Road, the landscape became one of fields which were more open and readily seen to be once used for agriculture. This change in soil and environment brought with it a different group of trees along the trail and in the borders of the fields here, including:

- Red Oak *Quercus rubra,* with its pointed-lobed leaves (unlike English Oak, which has rounded-lobed leaves) and acorns which are as long as they are wide.
- American Beech *Fagus Grandifolia,* with its coarsely serrated/toothed oval leaves (with a tooth at the end of each vein), and its triangular nuts. It can be identified by its long, thin pointing buds once the leaves have fallen.
- Trembling Aspen *Populus tremuloides,* with finely toothed or wavy leaves which are usually wider than long, and winter buds that are glossy and shiny.
- Large-toothed Aspen *P. grandidentata,* with oval and coarsely toothed leaves, and winter buds that are white and hairy.
- Mountain Ash (or Dogberry) *Sorbus americana,* with sharply toothed pinnate leaves gradually tapering to a sharp point.
- Black Ash *Fraxinus nigra,* the only native tree in Nova Scotia with compound leaves. Formerly abundant, it is threatened to near total extinction as a result of infestation of a parasitic insect known as the Emerald Ash Borer *Agrilus planipennis*.
- White Ash *F. americana,* with its five to nine leaflets to each leaf and a white colouring on the lower leaf surface.

It was getting late in the afternoon by the time we left Poor's Farm Road and started down the Heritage Trail, so less time was spent on flora discussions; this area was not suitable to agriculture and showed a more natural plant community. Burkhard pointed out Knapweed *Centaurea nigra* L. Native to Europe, Knapweed is known there as a noxious weed; however, it's a great source of nectar for pollinators and rated among the top five plants in the UK for honey production. Also seen here was Glossy Buckthorn *Rhamnus alnifolia,* a tall deciduous shrub which, unlike other buckthorns, does not bear thorns, and Coltsfoot *Tussilago farfara,* which can be identified by its large basal leaves and, according to Burkhard, makes a good alternative to toilet paper should the need arise (although it is important to have a good supply)!

One final note before our return to the parking lot: in a move from the botanical to the zoological, Stephanie Robertson pointed out a number of now abandoned bird nests thought to be those of the Red-eyed Vireo *Vireo olivaceous.* These small birds like to build their nests in a 'V' formed by tree branches. Carol noted that these tireless little birds have a repetitive call, and she produced a very creditable impression. This feature is backed up by the Audubon Field Guide, which notes that the male sings 'persistently' throughout the day during breeding season.

Many, many thanks to Burkhard and Ingrid for this highly informative and enjoyable field trip!

ISSN 1485-709X Winter 2021, #185

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.

"Miles of frost –
On the lake
The moon's my own."

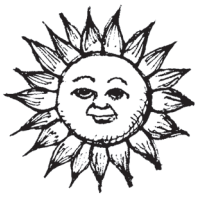
– Winter Haiku by Yosa Buson (1716-1784)

NATURAL EVENTS

1 Mar. Full Moon rises at 17:44 AST.
4 Dec. New Moon (best time to observe faint objects such as galaxies and star clusters).
13-14 Dec. Geminids Meteor Shower (meteors radiate from constellation Gemini).
19 Dec. Full Moon rises at 16:03 - Mi'kmaw moon cycle name Kesikewiku's (Chief Moon).
21 Dec. December Solstice at 11:50 AST (first day of winter in the Northern Hemisphere) occurs.
21-22 Dec. Ursids Meteor Shower (meteors radiate from the constellation Ursa Minor).
2 Jan. New Moon.
3-4 Jan. Quadrantids Meteor Shower (meteors radiate from constellation Bootes).
7 Jan. Mercury at Greatest Eastern Elongation (from the Sun) - look for Mercury low in the western sky just after sunset.
17 Jan. Full Moon rises at 16:32 - Mi'kmaw moon cycle name Punamjuiku's (Tomcod Spawning).
1 Feb. New Moon.
16 Feb. Full Moon rises at 17:39 – Mi'kmaw moon cycle name Apuknajit (Snow-Binding).
2 Mar. New Moon.
13 Mar. Daylight Saving Time starts at 02:00 AST.
18 Mar. Full Moon rises at 19:55: Mi'kmaw moon cycle name Siwkewiku's (Maple Sugar).
20 Mar. March Equinox occurs at 11:24 AST (first day of spring in the Northern Hemisphere).

– Sources: Sea and Sky Astronomy Calendar; SkyNews; Mi'kmaw Moons Connects with Two-Eyed Seeing (Brunjes 2021)

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



4 Dec.	07:34	16:34	**1 Jan.**	07:51	16:44
11 Dec.	07:41	16:33	**8 Jan.**	07:50	16:51
18 Dec.	07:46	16:35	**15 Jan.**	07:47	17:00
25 Dec.	07:49	16:39	**22 Jan.**	07:43	17:09
			29 Jan.	07.36	17:18
5 Feb.	07:28	17:28	**5 Mar.**	06:44	18:07
12 Feb.	07:18	17:38	**12 Mar.**	06:32	18:16
19 Feb.	07:08	17:48	**19 Mar.**	07:19	19:25
26 Feb.	06:56	17:58	**26 Mar.**	07:06	19:34

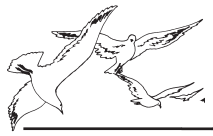
– Source: www.timeanddate.com

ORGANISATIONAL EVENTS

There will be no lists of Nova Scotia Naturalist Societies' events, trips, nor talks, until the COVID Omicron variant's resrictions allow. Let's hope they do not last too long, and that soon we can look forward to more meetings and full field trips.

ISSN 1485-709X Winter 2021, #185

HALIFAX TIDE TABLE



January-janvier

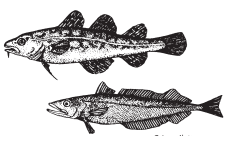
Day	Time	Metres	Feet
1	0008	0.4	1.3
	0621	2.0	6.6
SA	1301	0.0	0.0
SA	1853	1.7	5.6
2	0109	0.4	1.3
	0659	2.0	6.6
SU	1357	0.0	0.0
DI	1949	1.8	5.9
3	0209	0.4	1.3
	0755	2.0	6.6
MO	1451	0.0	0.0
LU	2044	1.8	5.9
4	0308	0.4	1.3
	0849	2.0	6.6
TU	1544	0.0	0.0
MA	2137	1.8	5.9
5	0408	0.4	1.3
	0943	1.9	6.2
WE	1637	0.1	0.3
ME	2227	1.8	5.9
6	0508	0.4	1.3
	1033	1.8	5.9
TH	1729	0.1	0.3
JE	2316	1.8	5.9
7	0608	0.5	1.6
	1123	1.7	5.6
FR	1822	0.3	0.7
VE			
8	0023	1.8	5.9
	0707	0.5	1.6
SA	1213	1.6	5.2
SA	1914	0.3	1.0
9	0051	1.7	5.6
	0803	0.5	1.6
SU	1306	1.5	4.9
DI	2006	0.4	1.3
10	0143	1.7	5.6
	0858	0.5	1.6
MO	1405	1.4	4.6
LU	2059	0.5	1.6
11	0238	1.6	5.2
	0951	0.5	1.6
TU	1511	1.4	4.6
MA	2151	0.6	2.0
12	0335	1.6	5.2
	1041	0.5	1.6
WE	1620	1.4	4.6
ME	2247	0.6	2.0
13	0431	1.6	5.2
	1129	0.4	1.3
TH	1720	1.4	4.6
JE	2340	0.6	2.0
14	0520	1.6	5.2
	1213	0.4	1.3
FR	1813	1.5	4.9
VE			
15	0028	0.7	2.3
	0605	1.6	5.2
SA	1254	0.3	1.0
SA	1858	1.6	5.2
16	0108	0.7	2.3
	0648	1.7	5.6
SU	1332	0.3	1.0
DI	1939	1.6	5.2
17	0142	0.6	2.0
	0728	1.7	5.6
MO	1409	0.3	1.0
LU	2018	1.6	5.2
18	0215	0.6	2.0
	0808	1.8	5.9
TU	1445	0.3	1.0
MA	2054	1.6	5.2
19	0249	0.6	2.0
	0847	1.8	5.9
WE	1521	0.3	1.0
ME	2130	1.6	5.2
20	0327	0.6	2.0
	0924	1.8	5.9
TH	1558	0.3	1.0
JE	2206	1.7	5.6
21	0409	0.6	2.0
	1002	1.8	5.9
FR	1636	0.3	1.0
VE	2242	1.7	5.6
22	0456	0.6	2.0
	1041	1.7	5.6
SA	1717	0.3	1.0
SA	2319	1.7	5.6
23	0549	0.6	2.0
	1122	1.7	5.6
SU	1801	0.3	1.0
DI	2358	1.7	5.6
24	0645	0.5	1.6
	1209	1.6	5.2
MO	1850	0.4	1.3
LU			
25	0041	1.7	5.6
	0743	0.5	1.6
TU	1302	1.6	5.2
MA	1945	0.5	1.6
26	0131	1.7	5.6
	0842	0.4	1.3
WE	1404	1.5	4.9
ME	2045	0.5	1.6
27	0220	1.7	5.6
	0943	0.3	1.0
TH	1516	1.5	4.9
JE	2149	0.5	1.6
28	0335	1.8	5.9
	1046	0.3	1.0
FR	1632	1.5	4.9
VE	2254	0.5	1.6
29	0444	1.8	5.9
	1148	0.2	0.7
SA	1741	1.6	5.2
SA	2359	0.5	1.6
30	0549	1.9	6.2
	1247	0.1	0.3
SU	1843	1.7	5.6
DI			
31	0101	0.4	1.3
	0649	2.0	6.6
MO	1343	0.1	0.3
LU	1956	1.8	5.9

February-février

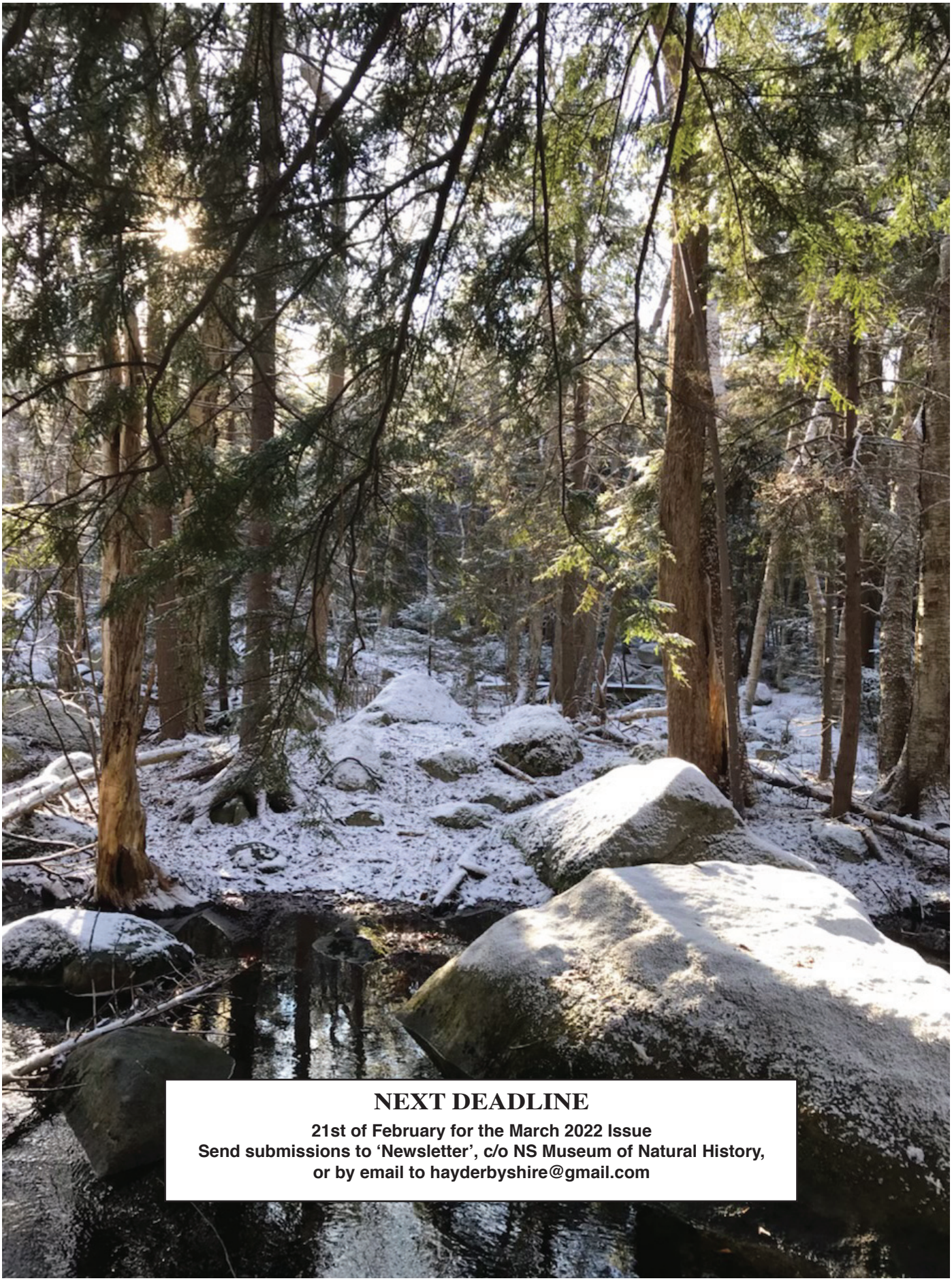
Day	Time	Metres	Feet
1	0159	0.4	1.3
	0745	2.0	6.6
TU	1434	0.0	0.0
MA	2030	1.8	5.9
2	0256	0.4	1.3
	0837	2.0	6.6
WE	1524	0.0	0.0
ME	2119	1.9	6.2
3	0350	0.4	1.3
	0926	1.9	6.2
TH	1611	0.1	0.3
JE	2204	1.9	6.2
4	0443	0.4	1.3
	1013	1.8	5.9
FR	1657	0.2	0.7
VE	2246	1.9	6.2
5	0536	0.4	1.3
	1058	1.7	5.6
SA	1743	0.3	1.0
SA	2328	1.8	5.9
6	0629	0.5	1.6
	1143	1.6	5.2
SU	1830	0.4	1.3
DI			
7	0010	1.8	5.9
	0722	0.5	1.6
MO	1230	1.5	4.9
LU	1920	0.5	1.6
8	0055	1.7	5.6
	0815	0.5	1.6
TU	1322	1.4	4.6
MA	2013	0.6	2.0
9	0145	1.6	5.2
	0907	0.5	1.6
WE	1423	1.4	4.6
ME	2109	0.7	2.3
10	0243	1.5	4.9
	0958	0.5	1.6
TH	1537	1.4	4.6
JE	2208	0.7	2.3
11	0347	1.5	4.9
	1048	0.5	1.6
FR	1650	1.4	4.6
VE	2303	0.7	2.3
12	0449	1.5	4.9
	1135	0.5	1.6
SA	1747	1.5	4.9
SA	2352	0.7	2.3
13	0541	1.6	5.2
	1220	0.4	1.3
SU	1834	1.5	4.9
DI			
14	0034	0.7	2.3
	0626	1.7	5.6
MO	1302	0.3	1.0
LU	1914	1.6	5.2
15	0111	0.6	2.0
	0707	1.7	5.6
TU	1341	0.3	1.0
MA	1951	1.6	5.2
16	0147	0.5	1.6
	0746	1.8	5.9
WE	1418	0.2	0.7
ME	2026	1.7	5.6
17	0224	0.5	1.6
	0824	1.8	5.9
TH	1454	0.2	0.7
JE	2101	1.7	5.6
18	0304	0.4	1.3
	0902	1.8	5.9
FR	1529	0.2	0.7
VE	2136	1.7	5.6
19	0347	0.4	1.3
	0941	1.8	5.9
SA	1606	0.2	0.7
SA	2212	1.8	5.9
20	0434	0.4	1.3
	1021	1.7	5.6
SU	1646	0.2	0.7
DI	2248	1.8	5.9
21	0525	0.4	1.3
	1108	1.7	5.6
MO	1732	0.3	1.0
LU	2328	1.8	5.9
22	0611	0.4	1.3
	1150	1.6	5.2
TU	1817	0.4	1.3
MA			
23	0011	1.7	5.6
	0721	0.4	1.3
WE	1241	1.6	5.2
ME	1930	0.5	1.6
24	0101	1.7	5.6
	0814	0.4	1.3
TH	1342	1.5	4.9
JE	2037	0.6	2.0
25	0201	1.7	5.6
	0928	0.3	1.0
FR	1456	1.5	4.9
VE	2144	0.6	2.0
26	0314	1.7	5.6
	1032	0.3	1.0
SA	1615	1.5	4.9
SA	2251	0.5	1.6
27	0423	1.7	5.6
	1135	0.2	0.7
SU	1736	1.6	5.2
DI	2354	0.5	1.6
28	0543	1.8	5.9
	1235	0.2	0.7
MO	1854	1.7	5.6
LU			

March-mars

Day	Time	Metres	Feet
1	0054	0.4	1.3
	0641	1.9	6.2
TU	1326	0.1	0.3
MA	1924	1.8	5.9
2	0149	0.3	1.0
	0732	1.9	6.2
WE	1414	0.1	0.3
ME	2010	1.9	6.2
3	0239	0.3	1.0
	0820	1.9	6.2
TH	1459	0.1	0.3
JE	2053	1.9	6.2
4	0327	0.3	1.0
	0905	1.9	6.2
FR	1541	0.2	0.7
VE	2133	1.9	6.2
5	0413	0.3	1.0
	0949	1.8	5.9
SA	1621	0.3	1.0
SA	2212	1.9	6.2
6	0458	0.4	1.3
	1031	1.7	5.6
SU	1700	0.4	1.3
DI	2350	1.8	5.9
7	0545	0.4	1.3
	1114	1.6	5.2
MO	1740	0.5	1.6
LU	2328	1.8	5.9
8	0633	0.5	1.6
	1157	1.5	4.9
TU	1827	0.6	2.0
MA			
9	0011	1.7	5.6
	0723	0.5	1.6
WE	1343	1.5	4.9
ME	1924	0.7	2.3
10	0057	1.6	5.2
	0814	0.6	2.0
TH	1356	1.4	4.6
JE	2026	0.8	2.6
11	0151	1.5	4.9
	0905	0.6	2.0
FR	1450	1.4	4.6
VE	2126	0.8	2.6
12	0259	1.5	4.9
	0958	0.6	2.0
SA	1613	1.4	4.6
SA	2222	0.8	2.6
13	0412	1.5	4.9
	1049	0.5	1.6
SU	1716	1.5	4.9
DI	2312	0.7	2.3
14	0511	1.6	5.2
	1139	0.5	1.6
MO	1802	1.5	4.9
LU	2356	0.7	2.3
15	0557	1.6	5.2
	1224	0.4	1.3
TU	1841	1.6	5.2
MA			
16	0037	0.6	2.0
	0839	1.7	5.6
WE	1305	0.3	1.0
ME	1916	1.7	5.6
17	0118	0.4	1.3
	0718	1.8	5.9
TH	1343	0.2	0.7
JE	1951	1.7	5.6
18	0220	0.3	1.0
	0758	1.8	5.9
FR	1420	0.1	0.3
VE	2026	1.8	5.9
19	0243	0.3	1.0
	0838	1.8	5.9
SA	1457	0.1	0.3
SA	2103	1.8	5.9
20	0327	0.2	0.7
	0920	1.8	5.9
SU	1536	0.2	0.7
DI	2140	1.9	6.2
21	0414	0.2	0.7
	1003	1.7	5.6
MO	1620	0.3	1.0
LU	2219	1.9	6.2
22	0506	0.2	0.7
	1047	1.7	5.6
TU	1713	0.4	1.3
MA	2303	1.8	5.9
23	0604	0.3	1.0
	1135	1.6	5.2
WE	1817	0.5	1.6
ME	2348	1.8	5.9
24	0707	0.3	1.0
	1227	1.6	5.2
TH	1928	0.6	2.0
JE			
25	0041	1.7	5.6
	0813	0.3	1.0
FR	1329	1.5	4.9
VE	2037	0.6	2.0
26	0145	1.6	5.2
	0916	0.3	1.0
SA	1450	1.5	4.9
SA	2143	0.6	2.0
27	0305	1.6	5.2
	1020	0.3	1.0
SU	1623	1.5	4.9
DI	2247	0.5	1.6
28	0430	1.7	5.6
	1120	0.3	1.0
MO	1729	1.6	5.2
LU	2348	0.5	1.6
29	0536	1.7	5.6
	1216	0.2	0.7
TU	1818	1.7	5.6
MA			
30	0044	0.4	1.3
	0829	1.8	5.9
WE	1306	0.2	0.7
ME	1903	1.8	5.9
31	0134	0.3	1.0
	0716	1.8	5.9
TH	1952	0.2	0.7
JE	1943	1.9	6.2



ISSN 1485-709X Winter 2021, #185



NEXT DEADLINE

21st of February for the March 2022 Issue
Send submissions to 'Newsletter', c/o NS Museum of Natural History,
or by email to hayderbyshire@gmail.com

THE FIRST 40 YEARS (1975-2015)

A History of the Halifax Field Naturalists
as recorded in the pages of the
HALIFAX FIELD NATURALIST

FIRST DECADE (written by Doris Butters)

Part 1 History Issue No. 80, pp 4-7; PDF pp 2-5
Part 2 Community Projects Issue No. 82, pp 6-9; PDF pp 6-9

SECOND DECADE (written by Ursula Grigg)

Part 1 People/Activities Issue No. 84, pp 6-7; PDF pp 9-10
Part 2 People/Activities Issue No. 87, pp 8-9; PDF pp 11-12

THIRD DECADE (written by Stephanie Robertson)

Part I - 1995-1997 Issue No. 118, pp 18-20; PDF pp 13-15
Part II - 1998-2001 Issue No. 119, pp 12-15; PDF pp 16-19
Part III - 2002-2005 Issue No. 120, pp 10-12; PDF pp 20-22

30TH ANNIVERSARY ISSUE

Reminiscences Founding Members - Issue No. 122, pp 9-16; PDF pp 23-30
Reminiscences Joe Harvey - Issue No. 123, pp 6-7; PDF pp 31-32

SEE

http://halifaxfieldnaturalists.ca/HFNfirst40years.pdf
for the complete issues of the Halifax Field Naturalist in which these segments were included.

ISSN 1485-709X Winter 2021, #185