

# THE HALIFAX FIELD NATURALIST



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In This Issue.....	2
HFN News & Announcements .....	3
Special Articles .....	3
HFN Talks .....	5

HFN Field Trips .....	7
Nature Notes .....	12
Almanac .....	13
Tide Table: Jan., Feb., Mar. ....	15

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## IN THIS ISSUE

<b>HFN News &amp; Announcements</b> .....	<b>3</b>
Wych Hazel - it's etymology .....	3
"No Pipe" Rally - Northumberland Strait in danger .....	3
Sandy Lake - promised park a long way away .....	3
<b>Special Articles</b> .....	<b>3</b>
Morar - Sapsuckers, Hummingbirds, Squirrels .....	3
<b>HFN Talks</b> .....	<b>5</b>
Mushrooms - delicious but be careful .....	5

McNab's Island - it's 'Friends' doing all .....	7
Mindshift - a powerful wake-up call .....	8
Three Habitats - rare plants in strange places .....	8
<b>HFN Field Trips</b> .....	<b>10</b>
Mushrooms - a wonderful, informative trip .....	10
<b>Nature Notes</b> - October, December, January .....	<b>12</b>
<b>Almanac</b> - seasonal phenomena dates and more ....	<b>13</b>
<b>Halifax Tide Table</b> – Oct., Nov., and Dec. ....	<b>15</b>



**GRAPHICS** All uncredited illustrations are by H. Derbyshire or from copyright-free sources. **Front Cover** - Woodland trail, Richard Beazley; p.4 - Yellow-bellied sapsucker, Pinterest; **Back Cover** - Winter waterfall, Richard Beazley; **Winter 2018 Tide Table** - Canadian Hydrographic Service, Fisheries & Oceans Canada.

# HFN NEWS AND ANNOUNCEMENTS

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## ‘WYCH HAZEL’

In a few of our articles and reports, some readers may have noticed our choice of spelling the common name for *Hamamelis virginiana* as above. This is the older spelling, and in the past it was pronounced ‘wick’.

We prefer this spelling because unlike ‘witch’, ‘wych’ specifically means ‘pliant’ or ‘bendable’, referring to this distinctive characteristic of its stems and branches. Some in the past must not have known wych’s correct pronunciation. The word ‘witch’, with all its fairy-tale connotations, and worse, has nothing to do with the historical naming of the bush, but probably more to do with a gradual incorrect spelling due to past mispronunciation, (pronouncing the ‘ch’ as it is pronounced in ‘chill’), misleading writers to then spell it as they sounded it – like Halloween’s ‘witch’.

## ‘NO PIPE & NO EXTENSION’ RALLY

Richard Beazley of The Healthy Forest Coalition regularly sends out email reports of the latest goings-on re Nova Scotia’s Forests, and sometimes other related environmental issues, such as Northern Pulp’s latest terrible plan to pump its effluents into the Northumberland Strait – a beautiful and unique relatively shallow-watered strait which supports not only a viable fishing industry but a large tourism industry as well.

In July, thousands of Nova Scotians gathered on land and sea in Pictou to protest this effluent pipe plan.

Since then, the fishermen and Pictou Landing First Nation have continued to fight against the mill’s plan to pipe their toxic pulp effluent directly into the Northumberland Strait, including a recent nautical blockade to prevent underwater survey work for the proposed effluent pipe.

Northern Pulp filed a lawsuit against the fishermen and are seeking a court injunction to stop the blockade. On Tuesday, December 18th The Healthy Forest Coalition and allies gathered outside Nova Scotia Supreme Court on Upper Water Street for a peaceful but strong show of public support for the fishermen fighting for the strait’s future health.

Richard reported that even though the day was somewhat miserable – around 0°C and windy, with slush underfoot and poor driving conditions east of Halifax – about 250 people assembled! Nearly all signs and chants were in support of ‘No Pipe and No Extension’, and perhaps a

dozen were in support of piping the treated effluent into the strait.

“For the most part the rally was peaceful, but there was one instance where tempers flared and a physical confrontation was quickly extinguished by the police. Thus we saw that this is a very emotional situation which could erupt violently at any time.” The court began its proceedings at 2:00 p.m. but as of December 20th, Richard noted that he has yet to receive any news regarding injunctions or law suits.

## SANDY LAKE IN BEDFORD

For over more than 50 years, this particular lake has been on and off the radar of local people, planners, and conservationists. Sections of the shoreline and adjacent pieces of public land were incorporated into a park, but the public lands are still transected by private parcels. A large park has been promised for a very long time, but there still remains a lot to be done.

Over the last year, there have been positive developments. The Sandy Lake Regional Park Coalition (of which the Halifax Field Naturalists is a founding member) held its first Steering Committee meeting in December. Karen Robinson and Dr. Patriquin were chosen as co-chairs. Work is continuing to raise awareness of this long-recognised ‘gem’ which stretches from Hammond’s Plains Road to the Sackville River. One thousand acres are currently protected as city parkland, but the remaining other one thousand acres, which still require protection, are slated for a housing development.

On December 6th, Dr. David Patriquin gave a presentation to the Sackville Rivers Association on “Sandy Lake and its Environs”. David’s talk is posted on line at <http://goo.gl/ipYCR2>.

Join the effort to save Sandy Lake area by following on Facebook “We love Sandy Lake Bedford”, and by going to these websites: Sandy Lake Conservation Association, [www.sandylake.org](http://www.sandylake.org); Sandy Lake Regional Park Coalition, [www.sandylakecoalition.ca](http://www.sandylakecoalition.ca); and Dr. Patriquin’s Sandy Lake and Environs website – [www.sandylake-bedford.ca](http://www.sandylake-bedford.ca).



## SPECIAL ARTICLES

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### MORAR NATURE NOTES

– Gareth Harding and Renée Lyons  
October 2018

#### A NEW RESIDENT AT MORAR

Last fall a strange bird call surprised us coming from our impenetrable jungle of second growth which has sprung up in the last 15 years following the death of a

mature Cat Spruce forest. Some 60 years before, this spruce had previously invaded a hard-earned boulder-bordered field on the MacPherson Farm.

We were enlightened later in mid-May 2017 when we saw a pair of Sapsuckers playfully pursuing each other through a mature aspen grove which dominates a section of ravine descending to the sea (the male had been

'drumming' in early May). Their drumming rhythm is similar to the clicks of a roulette wheel, markedly slowing towards the end. The flirting Sapsuckers were making that strange 'auuck' call which we had been unable to identify earlier! I had observed the neat horizontal rows of holes stacked on top of each other on some of our birch trees but had never seen a Sapsucker on our property. I had assumed that they'd made these sap holes while just passing through the area in spring or fall. The adult Sapsuckers made another call, totally different from other woodpeckers, best described as sounding a little like a catbird call. Another way to describe the call would be somewhat like the bleat produced by a child's doll being squeezed.

We began to notice that the bark of certain Mountain Ash and birch trees along our path were being neatly perforated by stacks of tidy rows of little holes. One particular Mountain Ash close to our path was heavily tapped for sap and often had a Sapsucker present. In fact, a Sapsucker was consistently observed here throughout June.

I had often wondered where our hummingbirds spent their time after the succession of flowering bushes had gone to seed and before our Scarlet Runners reached their brilliant peak. Well, low-and-behold, a Hummingbird was following one of our Sapsuckers in early July, with the two of them amiably tending the sap holes! The Sapsucker is known to consume sap, inner bark pulp, and the nutritious insects which are attracted to the sweet smell. The Sapsuckers and Hummingbirds were inseparable throughout mid-summer. However, later on in the season, the Hummingbirds found time to return to our garden to tend our Scarlet Runners and Climbing Honeysuckles.

Once their chicks had hatched, it was not hard to know where the Sapsucker nest was by the non-stop chirpy clamour they produced in mid-July; their harassed parents were oblivious to our presence as they urgently tried to satisfy their insatiable appetites. They had chosen a location 30 feet up a stunted aspen with a dead top, located below our ravine-edge trail just below head level. By the end of July juvenile Sapsuckers seemed to be everywhere, flitting around through our woodlands. In August, their 'sap stations' were now swarming with wasps and hornets. I was unable to see whether the Sapsuckers were catching the stinging insects but they were certainly in the thick of the buzz! By August, the juveniles were venturing from the forest to open areas around our house; I noticed they had perforated a major branch of our Black Pine beside it.

The power pole bordering our neighbour's field was a meeting place for up to three juveniles at a time (and a Downy Woodpecker). Sapsucker young are a little like human teenagers closely following each other in the mall. I had one of them startle me by coming so close to my head that I felt the few remaining hairs ruffle before I glimpsed the bird passing me on the trail! The last Sapsucker seen that year was a young bird meticulously delousing itself on our power pole in the last week of August.

This year they returned to entertain us all over again and nested very close to their previous nest site; but this time, 50 feet up a different mature aspen also with a dead

top. They nested two weeks earlier than in 2017, but left Morar at almost the same date.

This past Thanksgiving weekend we further witnessed how everything in nature can be interconnected. With binoculars at the ready, Renée was walking ahead of me on our ravine trail when she exclaimed in astonishment, "There's a *Flying Squirrel!*" The squirrel alighted and disappeared below us on an aspen in the ravine. This was the aspen excavated the previous year by our sapsuckers. The squirrel has obviously taken over their nest cavity, perhaps for the winter. Our neighbour Archie has had flying squirrels on the inland side of the road but this is our first observation on the ocean side. I rather think the woods have matured enough for Flying Squirrels to now homestead in our part of Morar. Some of our aspens are now over 100 feet tall, and a European chestnut which I had planted from a Sobey's sapling is right up there with the younger aspens at the top of the canopy!

Sapsuckers obviously have had quite a far-reaching influence in our disturbed forests. They provided nourishment for Hummingbirds, wasps, hornets and other insects by tapping tree syrup; their excavated dens could ultimately be used by squirrels, etc.; and resulting tree deaths, such as second-growth Mountain Ash, cause sunny gaps in the forest canopy for the shade-growing climax-tree saplings to shoot up.



**Addendum, November 12th:** I decided to take our Jack Russell Terrier Millie for a short walk at dusk to see whether I could spot our Flying Squirrels before I drove back to Halifax. Instead, close by, we came across a Barred Owl watching us in the semi-gloom from a large dead aspen in the centre of the ravine. The owl showed little concern for my presence but was very interested in Millie's activity in the underbrush. To get a better view of her, it telescoped its neck and wobbled its head from side to side like one of those car dashboard ornaments on a rough road. Once Millie spotted the owl, she charged beneath it – growling, leaping, and barking most ferociously. It was impossible to get her attention so I moved on, being reassured from past reading that owls' talons were no match for an aggressive mammal. Sure enough, Millie rejoined me shortly afterwards where the trail crosses a field-stone wall, now buried in the woods. At the same time, the owl alighted overhead, ghost-like, to stare intently. Millie didn't notice its presence this time but instead was off ahead to check out her favourite Chipmunk burrows.

This beautiful owl did not follow us further into the younger birch and Bird Cherry growth which now occupies an old field following the death of its colonising White Spruce forest.





# HFN TALKS

## MUSHROOMS

4 OCT.

– *Stephanie Robertson,*  
edited by *John Crabtree*

John Crabtree is a Director at Large with the Nova Scotia Mycological Society, established in 2008. Years ago, working for British Petroleum, he emigrated from Yorkshire to Australia, then to Ottawa after obtaining a position with Atomic Energy of Canada. He then moved on to work for Michelin Tire in Nova Scotia and retired in 2010 after working for them for thirty years. In 2017 he moved from Pictou County (where he was a Director of the Mycological Society for Northumberland Shore), to Bedford, bringing along his passion and knowledgeable expertise on mushrooms. John has always loved the natural world, but has a special fascination for fungi.

John's presentation centred on the significant importance of fungi to our forests (forests could not grow without them); on greatly enhancing our understanding of mushrooms; and on peaking people's interest in them. John also wanted to share his proudest moment of discovery in the world of fungi.

About 12 to 13 years ago he discovered a fungus which didn't look like anything he had ever seen before. John pored over his many fungi field guides but was unable to find the identity of this elusive mushroom. The following year John visited the three sites where the mushroom appeared, all being within about 200 yards of each other, and he took many photographs during its development. Finally, he picked up a book he rarely consulted – a book authored by a native of the Czech Republic. It was later translated into English and sold in the U.K. John bought it from a secondhand book seller in Ontario. In previous guises the mushroom had been known as *Tyromyces ptychogaster* and also *Oligoporus ptychogaster*. Unfortunately, these previous names did not help him discover its current name. John believed it to be *Postia ptychogaster* and he had it confirmed by Agriculture Canada in Ottawa after sending them dried specimens. It is known from Europe and in North America west of the Rockies. There is one record of it from Quebec and none from Ontario or the Maritimes – until John found it.

### THE IMPORTANCE OF FUNGI TO FORESTS

If tree roots are excluded, the biomass of a forest floor is 90% fungal material. The other 10% consists of insects, algae, springtails, rotifers, dead plant matter, and other organisms. Fungi and mushrooms are everywhere. The hyphae, which is collectively known as mycelium (a fungi's underground network) take in water and certain nutrients and then share these nutrients with trees via the trees' roots. Meanwhile, the tree is busy manufacturing sugars through photosynthesis which are then shared with the fungus through their roots to the fungi's hyphal grid.

The two main fungal components in forest soil are mycorrhizal fungi and wood-rotting fungi. Wood consists mainly of lignin, cellulose, and hemi-cellulose. Some fungi only attack the cellulose and leave the lignin behind untouched; this results in 'Brown Rot'. Other fungi attack lignin and cellulose leaving behind wood that appears



*Rhytisma candelaria*



*Amanita vaginata*

white or bleached in colour. This is known as 'White Rot'. All of this decomposition returns 80 billion tons of carbon per year in to the atmosphere, mostly in the form of CO<sub>2</sub>.

### FUNGI IMAGES AND FACTS

The first photo was a fungi with a stalk and gills beneath its cap (where its spores are borne) – the usual shape which immediately comes to mind when people think of mushrooms (like an umbrella). When mature, the spores are forcibly expelled and then carried off by the wind to germinate in a suitable place.

Then we were shown a 'Bolete'. The Boletes are the largest family of edible mushrooms in North America. They don't have gills; instead, they have 'tube mouths' which carry their spores. A rule of thumb with boletes is that if they stain blue, or if they have red tube mouths, don't eat them. This eliminates approximately 40% of potentially edible mushrooms. However, for someone who is new to mushrooming this is a good rule to follow until you gain experience in identification of boletes to species.

Next, a ubiquitous and wrinkly yellow Chanterelle – Chanterelles don't have true gills, instead they have 'wrinkles' which fork and separate as they run from the stem to the cap's edge, like a river delta. True gills are non-forked and knife-like, with each one a separate entity from the stem to the cap's edge.

We saw a Stinkhorn, and it truly does stink – like rotten meat! A Stinkhorn's spores are stored at the top of the stalk, the gleba, which is a sticky mass of spores. Its horrible smell attracts flies and beetles, which, after alighting, pick up these spores which are then dispersed for germination elsewhere when the insect flies off.

Next – a Puffball. In a puffball the spores are borne within. These can only be eaten if the centre is pure white; once the spores start to mature and turn brown, it should not be consumed. When fully ripe, even just one rain drop or other slight disturbance easily breaks open the now dried and thin outer skin, its dark spores then explode out in a cloud into the air.

Bird's Nest fungi look just like eggs in a nest. At maturity, when raindrops hit them, their spores are expelled up to nine feet outwards. Earthstars also expel their spores as Puffballs do but they are very difficult to find amongst a forest's deep leaf litter where they like to reside.

Many toothed Fungi in the genus *Hericium* are edible and are found on hardwoods, particularly birch. Coral fungi (which look just like fingered coral) bear their spores on the outside and are notoriously difficult to identify.

We saw a Bracket Fungus on a tree; they are also called Polypores. Like the Boletes, their pores are beneath the cap. But, Boletes are soft and fleshy while Polypores are hard and woody. Next – Jelly Fungi; they look awful but some species can be eaten after being boiled.

True Morels, with their longish caps looking like convoluted brains, are rare. Some species can be found in orchards. Associated with conifers, there is also a False Morel, *Gyromitra esculenta*, which is quite common in Nova Scotia in the springtime; it has a toxin, monomethyl-

hydrazine, which is chemically similar to rocket fuel! This mushroom should be treated as deadly.

Cup Fungi (they look like cups) are usually small, flimsy, and wet looking. Their spores are released when the cups break down with age.

What is a Toadstool? There is no scientific definition, but the word is usually associated with fungi which are poisonous. Humorously, John showed us a picture of a toad sitting upon one, a *Tricholoma flavovirens*.

Which mushrooms are edible and which are deadly? Mushrooms which sicken people are classified into two camps – poisonous, where a person becomes very, very ill; and deadly, which is fatal in almost all cases.

We saw a *Lepiota naucina*, a smooth-looking mushroom sporting a cap which expands as it erupts from the ground. As it grows, it's 'veil' breaks and becomes a moveable ring around its stem. The Horse Mushroom has a strong smell of the spice anise (like licorice). Its meaty gills are 'free', in other words, they don't touch the stalk. It is a thick mushroom and its veil protects its immature gills.

The edible Meadow Mushroom, *Agaricus campestris*, has pinkish gills but its spore print is chocolate brown. In contrast, all Amanitas have a white spore print, and Amanitas cause approximately 80% of all mushroom deaths in North America. Found in forests, the Destroying Angel, *Amanita virosa*, is deadly poisonous, one of many in the genus Amanita, and it is mycorrhizal (fungi/plant symbiotic relationship) with trees. Its large fruiting bodies (the mushrooms) appear in summer and autumn; their caps, stipes, and gills are all white. Immature Destroying Angels resemble several edible species commonly consumed by humans, increasing the risk of accidental poisoning. To non-experts, small specimens may resemble a puffball as it erupts from the ground, but just one cap of it is enough to kill two healthy adults. The symptoms of poisoning generally manifest themselves only after several hours, a fact which makes this fungus even more problematic. There is a remission of symptoms for two to three days, but then the liver begins to be destroyed. It is one of the most poisonous of all known poisonous mushrooms. Its principal toxic constituent, the peptide  $\alpha$ -amanitin, damages the liver and kidneys, is usually fatal, and its consumption necessitates a liver transplant in order to survive.

We saw a Horse Mushroom which is good to eat, and a Smooth Lepiota, which to the novice can resemble a white Amanita; therefore it should be avoided.

Shaggy Manes are edible; John's neighbours have some in their yard. The stalks are woody, but the caps are good to eat. This mushroom will deteriorate very quickly after picking and should be eaten on the same day that it is are picked. Olive-green, late fall Oyster Mushrooms are also good eating; they are found on the hardwoods birch and maple, and one needs to peel back the cap so they are not so tough to eat.

I'm sure most of us would recognise the terrestrial, white, round Puffballs which grow right out of the soil. We have some which come up every year on the grass in front of our cottage at Melmerby Beach, white and solid on the inside. John said that the Gem-studded Puffball is especially good. There is also an edible Puffball which

grows on wood.

The Orange Latex Milky is a *Lactarius* species. All *Lactarius* 'bleed' latex of different colours, and the colour is a handy diagnostic tool to aid in their identification. We were then shown a Lobster Mushroom, *Hypomyces lactifluorum*, which is parasitic on some species of *Lactarius* and also *Russula* spp. Interestingly, it turns a normally inedible mushroom into an edible one. At maturity, *H. lactifluorum* thoroughly covers its host, rendering it unidentifiable. It is commercially marketed, commonly found in some of the larger grocery chains, and has a seafood-like flavor and a firm, dense texture.

*Boletus edulis*, The King Boletes, are commonly found in Nova Scotia; John feels they are one of the best edible mushrooms. We were shown one which had a fat, apricot-coloured cap on its thick stalk, then, another shot of four baskets full of them! They 'flush up' eight or nine years out of twelve, and can be successfully frozen when cooked; they are very good in turkey stuffing.

Honey Mushrooms, *Armillaria ostoyae*, are also common in Nova Scotia as well. *Armillaria* is a genus of parasitic fungi which live on trees and woody shrubs. They are long-lived and form some of the largest living organisms in the world. In the state of Oregon, there is a four-square-mile area of them estimated to be 2,400 years old! This species is edible as long as it is thoroughly cooked. Some display bioluminescence, resulting in 'foxfire'. There are about 50 bioluminescent mushrooms world-wide. The Jack-o-Lantern is another that does this.

*Paxillus involutus*, commonly known as the Poison Paxillus, has a 'hump' in its cap's centre and is found in deciduous and coniferous woods and grassy areas in late summer and autumn. It is another commonly found mushroom in Nova Scotia. It was widely eaten in central and eastern Europe with apparent impunity. However it was later discovered that their toxins build up in the bloodstream over many years and eventually cause immune hemolytic anemia.

We saw an edible Comb Tooth growing on birch, eighteen by four inches in size! Then, a rare Scarlet Waxycap, and the cut-open, chambered insides of a poisonous False Morel; edible Morels have generally a single chamber which extends from the cap to the stalk.

Following was a delicious Oyster Mushroom, then a Netted Stinkhorn, and a Sweet Tooth. There are not many toothed mushrooms but two of the most notable terrestrial toothed mushrooms are *Hydnum repandum* and *H. umbilicatum*.

The packed auditorium for this talk certainly revealed many peoples' intense interest in John's subject. During his presentation, he recommended George Barron's *Mushrooms of Ontario and Eastern Canada* (Amazon - \$75.00) or the *Mushrooms of Northeastern North America* (exactly the same book! - \$32.00). There were lots of good questions afterward, and with his information- and illustration-loaded presentation, John certainly heightened our interest in all things 'mushroom'.



*Helvella caninus*



*Amanita vaginata*



*Coprinus micaceus*

## REDISCOVER MCNAB'S 1 NOV. – Burkhard Plache

Catherine McCarthy, president of The Friend of McNab's Island Society, gave a presentation to 55 participants on the history and current state of both McNab's and Lawlor Islands which are situated in the approaches of the Halifax harbour.

Today, the two islands form McNab's & Lawlor Island Provincial Park. (A few parcels of private land on McNab's and Fort McNab National Historic Site are not part of the designated park.) The park has had a management plan since 2005; however, as of 2018, the park is non-operational, which means that there are no park facilities and no park operations. Hence, a lot of the activities and maintenance work is done by the Friends.

Access to the island is provided by private boats operating from downtown Halifax, Eastern Passage, and the Northwest Arm. This arrangement makes visits to the park somewhat difficult, compared to an arrangement where there might be a public ferry. Thus, despite being located close to a large population centre, the island has remained protected, which has its own advantages.

Catherine stressed the importance of understanding the historical use of the islands for a clearer appreciation of today's status. The only known pre-European record is a shell midden, which shows that at that time the islands were used at least seasonally. With European arrival, Halifax harbour was quickly seen as a point of strategic importance. Initial plans by the French, which included a major fortification in what is today Purcell's Cove, and a second fortress on McNab's Island, were shelved when they lost their influence in North America.

Under British rule, McNab's was granted to the nephews of Cornwallis, and for a time, the Island was named after him. Around 1860, the admiralty purchased land in order to build Fort Ives on its north end, and Fort McNab's at its centre. Peter McNab, whose family was on the island until the 1930s, bought McNab's Island for £1000. During that time, much of the island was cleared for farming. (Presumably, any pre-European sites would have been damaged or destroyed by these activities.) The two forts fortifications were utilised during the first and second World Wars, when an anti-submarine net was submerged between McNab's Island and a point close to Purcell's Cove.

The first lighthouse on McNab's was built. Its base was a martello tower, a military installation which quickly became obsolete. It was used as a test installation for kerosene lighting, a first of its kind in Canada. The brightness of its light was such that Haligonians remarked upon it. Today's lighthouse is situated at the same location as the first one.

In the subsequent decades, McNab's Island became a popular recreation place. Two fairgrounds were established (Woolnough's Pleasure Grounds, 1873; and Findlay Picnic Grounds, 1900), which on good days would accommodate up to 4000 visitors. Both lost their appeal in the 1900's and were subsequently closed.

The final permanent resident on McNab's Island was Gladys Conrad. Until 1976, she lived in the Davis-Conrad House, which was built in 1917. This mansion, an island landmark, has now fallen into disrepair and is in dire

need of renovation. Today, there are only a few seasonal island residents.

Starting in the 1950s, a number of ideas were floated regarding various developments on McNab's. They included residential subdivisions and a sewage treatment facility. That last proposal was one of the reasons for members of the community to get together and decide to speak up for the islands, founding the charitable, not-for-profit, The Friends of McNab's Island Society.

Since then, McNab's has seen increased use for outdoor activities such as hiking, guided walks, beachcombing, and kayaking. Schools use the island as an outdoor classroom, and over the summer months, the Friends offer guided walks on the cultural and natural history of the island.

The natural environment on McNab's contains eight different terrestrial habitats with a diverse flora and fauna. Each summer, the Friends hire summer students for outdoor programming, which include tours into the intertidal zones.

An ongoing research project is monitoring the population of Barn Swallows which are nesting in a number of buildings of Fort McNab's. As with many birds which capture insects in flight, the number of Barn Swallows is generally declining.

Hurricane Juan had a huge impact on the island. By flattening extensive stands of trees, the character of the island changed in those places. The landscape is more open, supporting early succession plants and also, unfortunately, Japanese Knotweed. For a number of years, the Deer population was fairly high, and they did browse the Knotweed. During a long winter with heavy snow cover a few years back, Deer numbers declined significantly, and they no longer suppress it.

Another, indirect, effect of the hurricane was severe damage to the trails by too heavy equipment being used to clean up fallen trees. Further, the pond behind the lighthouse beach was formerly separated by a barrier beach from the ocean. During the hurricane, the barrier was breached and the former pond has now become a tidal lagoon, which is slowly filling in and transforming into a salt marsh. In general, any storm increases already existing coastal erosion, which heavily impacts some near shore trail sections.

Since its founding in 1990, the Friends Society has been working hands-on in many ways to maintain and improve the islands. The best known of these activities are the beach cleanups. A lot of garbage accumulates on the beaches, especially during storms, resulting in 450-500 garbage bags per year! Disposable beverage containers and plastic bags and bottles make up a large part of the total. Other large volume items originate offshore, such as ropes, fishing gear, and lobster traps, which due to weight and size, are difficult to manage. Other events organised by the Friends are Fall Foliage Tours, Picnics (every five years), and trips for schools.

The Friends are looking for naturalist volunteers, for example from within the Halifax Field Naturalists, so they can offer more nature walks during the upcoming season. The contact email is [info@McNab'sisland.ca](mailto:info@McNab'sisland.ca).

Besides advocating for the islands, the Friends have published a guidebook, worked on the restoration of the





Victorian Gardens, set up park benches (which they have had to purchase from the Province at \$125 per piece), and installed a composting toilet.

In the future, they are hoping to eventually convert the old teahouse into an outdoor education centre, offering school and community groups a place to assemble and shelter. Their logistically and financially most challenging project, however, is trail maintenance. Even though they have managed to raise \$500,000, this amount of money will be eaten up quickly due to the high cost of transporting equipment and material to the island. It is a shame that the province, after designating the islands as a park, have done very little to make it accessible and useable for the general public, and that all these efforts have been left in the hands of a small volunteer society.

This presentation was followed by a lively and extensive question and answer period. I would like to express my thanks to Catherine for reminding us of the treasure we have in the entrance to our harbour, and for bringing to life its past and present.

## MINDSHIFT



**6 DEC.**  
– *Molly LeBlanc*

MindShift proved to be very different than our regular HFN monthly talks. Instead of the usual powerpoint slides, we had an interactive, live performance by a group of seven energetic young people, ages 14-17, and their team coordinator Libby Moss from the Adventure Earth Centre.

MindShift began as a sustainability education and youth leadership programme for high school students. It involved the development of high school peer education teams with the aim of promoting knowledge about sustainability and positive environmental attitudes and behaviours among students. It was designed in 2007/08 by a first team of seven students working with the HRM Adventure Earth Centre. Today, MindShift is performed for people of all ages in order to inspire action towards more sustainable lifestyles. It uses an interactive approach to engage people in understanding humanity's role and impact on the earth, while at the same time identifying how we can all reduce our impact on a personal level.

The screen presentation began with the dramatic transformation of the auditorium into the deck of 'Starship Earth Spaceship' with seven astronauts in command. They wore bright orange jumpsuits complete with helmets, and were dispersed throughout the room. As the spaceship travelled through time from the year 1890, it experienced increasing challenges to its life-support systems – water, atmosphere, terrain, health, and energy. Despite dire warnings, we saw through graphs of data and pictures that spaceship earth stayed on course but reached maximum distress in the year 2030, just before it crashed. The scene highlighted the magnitude and importance of the environmental problems we are currently facing today, and the immense need for immediate action.

After the crash, there was a quick transition back to 'real life'. The young actors presented a series of humorous skits which translated the large environmental problems into actions applicable to our everyday lives. The skits depicted the daily events of high school – the

*Winter 2018, #173*

morning routine, a chemistry class, lunch time, shopping, leisure time and watching TV, and they also addressed issues such as recycling, reusing, reducing, and rethinking our use of materials and energy. In each skit a shift was made from less to more sustainable choices.

Overall, it was a powerful and moving performance, and it left the audience feeling inspired and hopeful for the future.

From the beginning, MindShift teams have shared their performance with many other organisations and groups, including the national Canadian Environmental Education Conference and the provincial Recreation Nova Scotia Conference, as well as to more than a thousand HRM staff, council members, the Mayor, Nova Scotia's Premier, plus a wide range of smaller conferences. They have even had the opportunity to visit Ontario and Quebec. They've consistently received standing ovations and elicited deep emotion and commitments among audience members to make a difference in their lives, workplaces, and communities. In 2009, they were awarded the provincial youth environment award for their work. MindShift is on its 10th generation of youth (high school passes very quickly!), with each generation tweaking and updating the performance with their own spin on the issues and their solutions.

The presentation was then followed by our annual HFN holiday social, where our group gathered and enjoyed many delicious snacks and cider brought by HFN members and guests.

If you are interested in finding out more about MindShift, or contacting them to plan a performance for another organisation, you can get in touch through the Adventure Earth Centre, at <https://www.halifax.ca/recreation/facilities-fields/rec-centres/adventure-earth-centre>.

## THREE HABITATS

**3 JAN.**  
– *Burkhard Plache*

On this chilly January night, Bob Kennedy treated us with an illustrated excursion to three regions he visited over the warm Summer of 2018. A self-declared botanical enthusiast with no formal training, but a *lot* of self-acquired knowledge in the sciences, he has been exploring the Maritime provinces since moving to Nova Scotia a few years ago. Joining and becoming involved in the Nova Scotia Wild Flora Society has provided him with many opportunities to learn about the interesting plant communities found in Nova Scotia and to share his findings with like minded botanists.

Bob gave a brief overview of botanical treasures he had explored in previous years (remnant populations of arctic plants in the Parrsboro/Cape d'Or area, and the unique Atlantic Coastal Plains Flora (ACPF) of South-western Nova Scotia), before stepping into his explorations of 2018: Arctic plants in **Albert Mines, New Brunswick**; plants of **arctic Barrens in Cape Breton**; and Blue Curls, found in the Maritimes only near **Shingle Lake, Lunenburg County**. There is a recurring theme in his choice of destinations – habitats which support plants seen only there and in places far away. However, as will become obvious when visiting the different places, the search is not for the rare plant for its own sake, but in order to



understand the reason why the plants occur there and not in other nearby sites.

The first location visited was a gypsum outcrop near Albert Mines in Southern New Brunswick. This is the only known place for the White Mountain Avens (*Dryas integrifolia*) in the Maritime Provinces. Other arctic species like Myrtle-leaved Willow (*Salix myrtillifolia*), Small-flowered or Northern Anemone (*Anemone parviflora*), and Mountain Goldenrod (*Solidago multiradiata*) are also present, indicating that this is truly a remnant of a formerly arctic habitat. Using aerial photos from the internet, Bob identified a number of possible gypsum outcrop candidates in the vicinity of Albert Mines. They started out in 1854 as solid petroleum (asphalt) mines, but in 1884 tapered off to the mining of gypsum. After traversing a mixed successional forest, he arrived at the outcrop; the gypsum was eroding from it, forming a steep talus field on the north-east facing side. Given the soil conditions, it was not surprising to find calciphile species like Shrubby Cinquefoil (*Dasiphora fruticosa*) and Buffalo Berry (*Shepherdia canadensis*). However, after a bit of searching, he first located Myrtle-leaved Willow, then Northern Anemone, and finally – the White Mountain Avens.

After getting home, Bob found himself challenging himself to answer why this arctic plant is persisting in this particular location. In other areas, it inhabits typically rocky, frost-heaved tundra in the Canadian Arctic; however, the Albert Mines site does not provide those exact conditions. He speculates that the northern slope, combined with the highly reflecting white of the gypsum, creates particularly cold soil conditions which suppresses other shrubs and trees from outcompeting the Mountain Avens. The low nutrient content of gypsum soils is likely another factor in keeping competition low; Mountain Avens, which has nitrogen fixing bacteria in its root nodules, is able to persist even under such limited conditions.

On the second trip, Bob visited a number of sites in Cape Breton. While the focus was again the arctic flora which has been persisting in scattered places since the end of the last glaciation, he was equally interested in other rarities.

His trip-planning utilised both printed and online resources. *The Flora of Nova Scotia* by Roland/Zinck provided the list of plants of interest, as well as their flowering dates. The geological map of Cape Breton provided direction on where to expect certain soil conditions, and the iNaturalist website gave indication of recent observations. Combining all information, he planned an eight-day trip, and for part of the time would join with Jeff White and Louise Cook, fellow plant enthusiasts from the Nova Scotia Wild Flora Society.

At the first stop, Bob visited a number of fens and bogs near Gracieville and Point Michaud, where the ACPF New Jersey Rush (*Juncus caesariensis*), had been reported. However, he could not locate it nor any other similar looking rushes. A compensation for this disappointment was that all three of Nova Scotia's showy pink bog orchids – Rose Pogonia (*Pogonia ophioglossoides*), Dragon's Mouth (*Arethuse bulbosa*), and Tuberous Grass Pink (*Calopogon tuberosus*) – were in flower. Alongside them were other regular bog plants: sedges (*Carex* sp.), Virginia Rose (*Rosa virginiana*), Sheep Laurel (*Kalmia*

*angustifolia*), Marsh Cinquefoil (*Comarum palustre*), Bog Rosemary (*Andromeda polifolia*), Golden Ragwort (*Packera aurea*), and Shrubby Cinquefoil (*Dasiphora fruticosa*), noted previously on the gypsum near Albert Mines.

Other stops were in Cape Breton National Park. Beginning at Paquet's Lake, a trail leads up to Mica Hill barrens, where an abundance of mica shards testify to the presence of a former mica mine. Botanical highlights of this walk were two species of crowberry, Black and Red, (*Empetrum rubrum*, *E. nigrum*), as well as Bog Bilberry (*Vaccinium uliginosum*) and Interrupted Club Moss (*Spinulum annotinum*). According to Bob, the best hike of the whole trip was at Aspy Fault, with its many orchid species – Pink Lady's Slipper, (*Cypripedium acaule*), Large Leaved Bog Orchid (*Platanthera macrophylla*), Broad-lipped Twayblade (*Neottia convallarioides*), Western Rattlesnake Plantain (*Goodyera oblongifolia*), Checkered Rattlesnake Plantain (*Goodyera tessellata*), and Spotted Coralroot (*Corallorhiza maculata*) along the trail. The mixed forest there supports a rich herbaceous plant layer of ferns (including the rare Maidenhair Spleenwort) as well as many other plants, for example Mountain Sweet Cicely (*Osmorhiza berteroi*). At the end of the marked trail, a path continues uphill through savannah and meadows, with a suite of plants more typical of open habitat, with White Bog Orchid (*Platanthera dilatata*) and Swamp Thistle (*Cirsium muticum*) among others. Due to premature GPS battery failure, they decided to abandon the attempt to ascend the peak of a hill which held the promise of barrens, and instead returned a bit prematurely.

Continuing further north, the Kautzmann trail near the northern tip of Cape Breton runs along an exposed ridge. Bob and Jeff managed to locate the previously reported rare Alpine Azalea (*Kalmia procumbens*), along with Bog Bilberry (*Vaccinium uliginosum*) and possibly a Northern Blueberry (*Vaccinium boreale*).

A bit further north, in meadows at Bay St. Lawrence, Marsh Lousewort (*Pedicularis palustris*), another arctic species, had been reported. It is a semi-parasitic plant which is rare in Nova Scotia, and more abundant in Newfoundland and parts of Northern Europe. Bob and Jeff found it, as well as Canada Burnett (*Sanguisorba canadensis*) and the normally more southerly Marsh Marigold (*Caltha palustris*).

The road in this northernmost tip of Cape Breton ends at Meat Cove, from where Bob and Jeff followed a hiking trail to Cape St. Lawrence. On the way, they spotted a number of interesting plants such as Maryland Black-Snakeroot (*Sanicula marilandica*), Red Baneberry (*Actea rubra*), Lesser Rattlesnake Plantain (*Goodyera repens*), and Rattlesnake Fern (*Botrypus virginianus*). The cleared land around the cape has borne long time human use, and there are goats (possibly feral) keeping the vegetation low.

While Jeff had to depart on the following day, Bob decided to follow the Pollet Cove Trail from Meat Cove, hoping to reach what had looked like barrens on aerial photos. With fog moving in, and a discrepancy between the GPS map and the trails, Bob found himself a bit disoriented. Equally, the hoped-for barrens turned out to be fens, with difficult walking through brush, marshes and windfalls. While encountering some of the plants



expected from such habitat, the hoped for barren fauna remained elusive.

The final destination of the summer was Shingle Lake. It is well known for hosting a number of Atlantic Coastal Plains Flora species, but on this trip, the goal was to locate the only known population of Blue Curls (*Trichostema dichotomum*), a small annual in the mint family which had been originally found by Alain Belliveau and Sean Blaney in 2011.

Shingle Lake is characterized at its eastern shore by a series of rocky ridges, with pines the dominant species on the thin, dry soils. Barren plants like Pink Corydalis (*Capnoides sempervirens*), Eastern Burnweed (*Erechtites hieraciifolius*), Narrowleaf Pinweed (*Lechea intermedia*), and Greenland Stitchwort (*Monoeuria grœnlandica*) are frequently seen on the exposed ridges, whereas the shoreline supports plants belonging to the ACPF – Virginia Meadow Beauty (*Rhexia virginica*), Golden Pert (*Gratiola aurea*), and Slender Goldentop (*Euthamia caroliniana*).

Traversing these ridges is a challenge – while they do slope gently on one side, they have vertical, six-foot drops on the other. The rare Blue Curls had been reported from one of these ridges and Bob, Charles Cron, and David

Patriquin were successful in crossing a number of these until finally locating the plant at the previously reported site.

But why are Blue Curls growing at this spot? The closest sites where other populations are found are some 800 km to the west in Quebec and nearly 500 km away in Maine. Given its remoteness, human-caused distribution is unlikely, however, its seeds are available in Florida, where Blue Curls are grown in gardens. Assuming a natural origin of the plants at this site, a dispersal by birds is unlikely, since the round seeds do not readily adhere to feathers. Given these facts, Bob stated that he leans toward the hypothesis that the Nova Scotian Blue Curls represent a remnant population which has been able to re-seed year after year.

I would like to thank Bob for the thoroughly researched and wonderfully illustrated talk, and for generously providing his notes in order to assist with this brief summary of his well received presentation.



## HFN FIELD TRIPS

### MUSHROOMS

– Carol Klar & Ingid Plache,  
edited by John Crabtree

**Date:** Monday, October 8th  
**Place:** Kearney Lake, Halifax  
**Weather:** Sunny, 15°C  
**Leader:** John Crabtree  
**Participants:** 28



It could not have been a more glorious fall day – with clear blue skies, a few puffy white clouds, and no wind – as a large crowd began to assemble in the parking lot behind the Maskwa Aquatic Club. Just when I thought the restricted number of 20 (at John's request) had arrived and we were getting set to begin, more folks came towards us. I advanced to greet and welcome them while glancing back at John indicating "Is this okay?" "The more the merrier" was his response and with that I undertook the task of having them all sign the waiver form thereby missing out on John's introduction.



From what I remember in the basket that someone had brought were – *Amanita muscaria*, which if eaten is hallucinogenic; a Stinkhorn, *Dictyophora duplicata*, which to my surprise did *not* smell; and a jelly fungus, *Dacrymyces palmatus*. There were two other mushrooms in the basket but I'm afraid my memory fails me.

John began with a 'show and tell'. Someone had brought a box of mushrooms with half a dozen or so specimens for John to identify. Halfway through it I ran to my car for my camera to get a few pictures of the crowd gathered there and to do a participant count (28 of us plus John). I never did hear or see the box's contents.



He concluded by displaying his favourite mushroom/fungi field guide from his own collection of some 40 of them. I myself have several books on various genera of mushrooms; Boletes, Tricholoma, Hygrophorus and Hygrocybe, Amanita, and Lactarius. My latest book is on Ascomycetes of N. America which is a treasure of information.

Armed with knives, loupes, cameras, magnifying lenses, and our inquiring minds, by 11:15 we followed John up and into the woods of the Maskwa Aquatic Club Trail. The ensuing one and a half hours was pure magic, as almost all the participants came toward John having discovered mushrooms and fungi large and small growing on the ground in the mosses, on trees, and anything else living. This was a bounty considering John had spent time here two days earlier finding a total of six genera of mushrooms. Before the day was over the count had multiplied exponentially, John's greatest hope being realised with another 28 sets of eyes to bring about such multiplication!

While John attempted to balance his walking stick, field guide, and loupe walking along the rugged terrain of the trail we thrust specimens under his eyes as we gathered around him – some with cameras, others taking notes, others up ahead gathering, and still others assaulting him with our endless questions to satisfy our curiosity of this passion of his. This was a magical world of which we knew little and we were sure he had all the answers. However, we learned as the day progressed that John relied heavily on his field guide as fungi identification is not easy compared to identifying wild flowers, in which he also has an interest. For a newcomer to mushrooms the key is to try and learn the genera and their various



diagnostic features. Some are fairly easy to learn such as *Russula*, *Lactarius*, *Amanita*, *Cortinarius*, and *Bolete* amongst the easier ones. Once you can confidently identify these then one can move on to other genera.

Fortunately there was one other gentleman, a friend of John's, who had some knowledge as well. They were at times able to confer with each other and that was most helpful in deciding upon what we were looking at. His friend offered to get his basket from his car for collecting specimens for later ID-ing, following a lengthy process called 'taking a spore print'.

According to google "The spore print involves removing the stem of the mushroom and placing the cap, gills, or pores downward on a piece of paper or glass and leaving it for two to 24 hours. The spore print is the powdery deposit obtained by allowing the spores of a fungal fruiting body (mushroom) to fall onto white paper (or glass) placed beneath it. It shows the colour of the spores when viewed en masse, and it is the spore print which helps in identifying mushrooms according to genus."

Following is the order in which John identified the specimens brought to him by the enthusiastic and observant participants.

*Clitocybe clavipes*, common name Clubfoot; gills decurrent on stalk, a flat and depressed cap, gills well spaced, white to cream, 7cm high, common in woods. An LBM – a little Brown mushroom on wood, no smell. There are many LBM's whose names will elude even the most experienced 'shroomer'. *Trichaptum bifforme*, common name Purple-toothed polypore; thin, tough, and velvety. *Pholiota granulosa*, no common name; found on decaying wood – a wood-decaying mushroom. A Polypore on wood, identity unknown. *Lactarius* spp. *Piptoporus betulinus*, common name Birch Polypore. Possibly a *Cortinarius* species but it lacked the identifying cortina on its stalk. I asked someone at the end of the walk to take it home to make a spore print to either confirm or not that it was in fact a mushroom from the genus *Cortinarius*. *Lactarius* spp. again. *Marasmius* spp.; dainty, beautiful on moss, with grooves. Mushrooms growing on a pine cone, this was probably *Auriscalpium vulgare*.

*Hygrocybe nitida*, common name Nested Waxcap. *Clavulina cristata*, common name Coral Mushroom. This one had been parasitised by another fungi (tell-tale blackening at its base). Overall, coral fungi are difficult to identify and in many cases a microscope is needed. *Amanita* spp.; in hindsight this was likely *Amanita citrina*, medium-sized, with a floppy veil present on its stalk. Amanitas are responsible for approximately 80% of deaths by mushroom poisoning in North America. *Cerrena unicolor*; a polypore. *Clitocybe* spp. *Clitocybe clavipes* *Hypholoma* spp. in clumps; many species in this genus are poisonous although some are edible but are difficult to identify except by a very experienced eye. *Lycogala epidendrum*, common name Wolf's-milk Slime; it is not a fungus but a slime mold and when squeezed exudes a pink liquid which has the consistency of toothpaste.

A maze polypore in the genus *Daedalea*, *Daedaleopsis lenzites*; the name *Daedalea* is a reference to the labyrinth maker of Greek mythology. *Marasmius* spp.; tiny, grooves on cap. A large Bolete in the genus *Leccinum*, common name Scaber Stalk; cinnamon brown. Boletes

are the largest family of edible mushrooms in North America. *Mycena* spp. *Leccinum holopus*; edible, a member of the Bolete family. *Tyromyces chioneus*, common name Cheese Polypore.

*Tricholoma* spp.; veil attached, notched gills stalks not solid, stuffed with pithy material joins gills at an approximate 45 degree angle, mature and immature specimens. Waxcap; colourful. *Hygrocybe* spp.; very small but a mature specimen. An Umbonate; gills close, flares at the base. Spore print required for a definite ID. (An 'umbo' is a raised area in the center of a mushroom cap; caps which possess this feature are called umbonate.) *Mycena osmundicola*, no common name; pretty, clusters on wood.

*Russula fragilis*, no common name; convex to flat, bitter tasting. *Lactarius*, a relative of the *Russula* genus, bleeds latex from the gills whereas *Russulas* don't. It was at this point that John shared that tasting a mushroom and then spitting it out can be helpful in identifying a mushroom, but *only* of a definitely KNOWN genus to species. He also explained that the colour of a mushroom doesn't necessarily help with identification as its colour can fade due to weathering, unlike wildflowers. Corsage Lichen on trees, identified by Wendy MacDonald. An unknown Polypore on a tree; a bracket fungi genus not in John's field guide. (It was at this point that Wendy MacDonald pointed out the bloom of Wych Hazel.) *Rhodocollybia maculata*, common name Spotted Collybia. *Fomitopsis pinicola*, common name Red-belted Polypore. *Suillus cavipes*, common name Hollow-stemmed Bolete; this is mycorrhizal with Larch. Its pores are radially arranged, like the spokes of a bicycle.

There were 36 species in total!

Toward the end of our time on the trail there was a short lull in which I suggested to John we might want to slowly make our way back to our cars. It was nearing 1:00 p.m., lunchtime, and I felt it might be about as much knowledge as we could retain believing most participants, like myself, were 'newbies'. It was a spectacularly fun time and I sensed everyone enjoyed themselves and learned a great deal from John.

I was most grateful for Ingrid Plache who stayed close by taking photos of most of the specimens as well as recording them; we agreed to make this a collaborative effort and once we merged our stories, to send them off to John for correction of the species names, spelling, and any other facts needed to make this article accurate and more informative for the readers.

Before allowing John to go, many participants wondered if this magic could happen again and I was able to assure them that question had already been put forth at his talk on Thursday. He had replied in the affirmative and noted that when time would permit, there would be another walk in 2019. A well-deserved round of applause was elicited and John reminded us of the next opportunity to join him on Oct 13th at the Annual Mycological Society's Mushroom Foray in Mooseland, on the Eastern Shore.

Thank you John for a most successful walk and talk, and for whetting our appetites (no pun intended) for the magical world of mushrooms!



## NATURE NOTES

### OCTOBER

– *Stephanie Robertson & Janet Dalton*

Regine Maass heard a **Spring Peeper** in her vegetable patch!

Lesley Jane Butters noticed a **Beechnut tree, circled with holes** around its trunk, at her cottage in Albany New; she then noticed **six Sapsuckers** hanging around it! At the base of the tree she observed **three young Spruce Grouse**. She also spotted a **Ribbon Snake** there. On the evening of October 4th she caught sight of a **juvenile Pileated Woodpecker** on Cornwall Street off Jubilee Road. Back again at her cottage she saw a **Ribbon Snake**; she noted that Ribbon Snakes are becoming increasingly rare.

Bob McDonald observed **Wych Hazel in bloom** with its tiny yellow flowers at both Belcher's Marsh and the Halifax Common. (Later input revealed that Wych Hazel is an important shrub; its bark and leaves contain several compounds with portent anti-inflammatory and antiviral properties. It's used for facial cleansing, acne treatment, and for the soothing of razor burns and diaper rash.)

Stephanie Robertson reported a **female Red Cardinal** in the suet-feeder tree outside her kitchen window, also, two noisy, moaning **Seals** on the rocks at Point Pleasant's southeastern shoreline.

### DECEMBER

– *Stephanie Robertson & Janet Dalton*

Christine Wysmyk saw a grey **Harbour Seal** on the Scotch Cove side of Grave's Island, East Chester. She also reported seeing **many Goldfinch, Blue Jays, both White- and Red-breasted Nuthatches**, and a **Pine Siskin** (her favourite).

Judy Keating spotted a **duck being attacked by a Bald Eagle**. The duck dove under the water, the Eagle hovered; the duck surfaced and flew off followed by the Eagle, which by then was being chased by a **Crow**. She also reported a **flock of Buffleheads**.

Lesley Jane Butters noticed a dearth of mushrooms at the end of October in Albany New; she did see some Boletes though. She also spotted a Squirrel and a Chipmunk; she noticed the Squirrel going for a mushroom to eat.

On the morning of December 6th Ray Provencher saw a **Northern Flicker** at his veggi-based bird feeder in Bedford near Hemlock Ravine.

Stephanie Robertson noted a **live mosquito** at her home near Point Pleasant Park.

Gareth Harding saw a **Sharp-shinned Hawk** eating a **Pigeon**, with an audience of **one Crow** waiting for scraps.

Bob McDonald noted seeing a **River Otter** in Belcher's Marsh. He wondered where it must have come from, being surrounded by Fox Lake housing development. He reported that his back garden **Wych Hazel was still in bloom**.

On November 27th and 28th in Beavertown Sarah Hayes saw **one dozen Red-backed Salamanders** crawling up the outside of her house next to her driveway.

### JANUARY

Ray Provencher had a **male Northern Flicker** visit his feeder on January 3rd, and Mary Kennedy reported **Flickers** at their feeder in Dartmouth.

Pat Leader spotted two Pheasants.

John Crabtree saw two Deer in Bedford at the beginning of January. A few years ago around Kearney Lake Road, Millie MacCormack saw a **male Deer with a broken leg** in her neighbourhood. This past November, she was so happy to see the crooked-legged Deer again! It had a very large antler rack, and seemed to be doing quite well.

Gareth Harding remarked that this was the 'year of the bunny', as he has seen **more Hare than usual** around the Northumberland strait. He commented that Hare have an eight-year cycle of building up their numbers, than the population crashes, to start all over again.

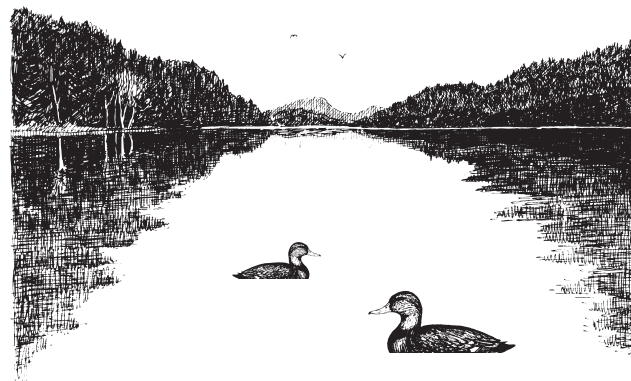
Valerie Brimicombe looked for Wood Duck at the Frog Pond on Purcell's Cove Road but there were none there. She did find some at the Dingle beach along with **25 Common Mergansers, two Eiders, and ten Scaup**.

Mary Kennedy noted **lots of Crows** still at the Motherhouse area at Mt. St. Vincent's, despite the clear-cutting of all the trees. She saw **Deer** there as well.

The week before Christmas, Patrick Moriarty saw, near his home on Bridges St. off Tower Road, two Deer ambling along toward Atlantic Street.

## NEW AND RETURNING

Catherine Bradshaw  
Gladys Dimal  
Sunetra Ekanayake  
Jen Georgeff  
Mike and Patti Leclerc  
Heather Leslie  
Anne and Joe Mason  
Anja Pearre  
Lynda Robertson





# 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.

"The intensely northern atmosphere of Canada, I suppose. We have hot summers and resplendent autumns, but it is winter that establishes the character of our country and our psychology."

– *Robertson Davies, in Murther and Walking Spirits (1991)*

## NATURAL EVENTS

- 5-14 Dec.** Earliest Sunset of the year at 16:34 AST.
- 7 Dec.** Daily average temperature goes below 0 C.
- 13/14 Dec.** Geminid Meteor Shower.
- 14 Dec.** **-5 Jan.** Audubon Christmas Bird Count Period.
- 21 Dec.** Winter Solstice at 19:23 AST: Winter begins in the Northern Hemisphere: But though the temperature drops, the days begin to lengthen.
- 22 Dec.** Full Moon. Moonrise at 16:51 AST.
- 27 Dec.** **-9 Jan.** Latest Sunrise of the Year at 07:51 AST.
- 21 Jan.** Full Moon. Moonrise at 17:51 AST.
- 21 Jan.** Total Lunar Eclipse. Maximum Eclipse is at 1:12 a.m.
- 22 Jan.** Venus and Jupiter will be very close in the morning sky.
- 26/27 Jan.** Eagle Watch Weekend 1 in Sheffield Mills.
- 2/3 Feb.** Eagle Watch Weekend 2 in Sheffield Mills.
- 19 Feb.** Full Moon. Moonrise at 17:56 AST.
- 19 Feb.** Anniversary of White Juan, the huge blizzard of 2004.
- 10 Mar.** Daylight Saving Time begins.
- 20 Mar.** Full Moon. Moonrise at 19:02 ADT.
- 20 Mar.** Vernal Equinox at 18:58 ADT. Spring begins in the Northern Hemisphere.

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

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



<b>1 Dec.</b>	07:31	16:36	<b>5 Jan.</b>	07:51	16:48
<b>8 Dec.</b>	07:39	16:34	<b>12 Jan.</b>	07:49	16:56
<b>15 Dec.</b>	07:44	16:35	<b>19 Jan.</b>	07:46	17:05
<b>22 Dec.</b>	07:49	16:38	<b>26 Jan.</b>	07:40	17:14
<b>29 Dec.</b>	07:51	16:42			
<b>2 Feb.</b>	07:32	17:24	<b>2 Mar.</b>	06:51	18:03
<b>9 Feb.</b>	07:24	17:34	<b>9 Mar.</b>	06:38	18:12
<b>16 Feb.</b>	07:14	17:44	<b>16 Mar.</b>	07:25	19:21
<b>23 Feb.</b>	07:02	17:54	<b>23 Mar.</b>	07:12	19:30
			<b>30 Mar.</b>	07:00	19:39

## ORGANISATIONAL EVENTS

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

- 17 Sept.** "Sable Island", with speaker Dan Kehler, Sable Island National Park Reserve.
- 21 Jan.** "Climate Change and Nova Scotia", with speaker Graham Daborn.
- 18 Feb.** "Contaminants and Key Marine Sites for Seabirds", with speaker Mark Mallory.
- 18 Mar.** "Species at Risk", with speaker Tom Herman.

**Burke-Gaffney Observatory:** Free Public Open Houses are scheduled on at least one weekend each month. On the scheduled weekend, the open house will take place on the first clear evening of Friday, Saturday, or Sunday. Tickets must be reserved online. At the times of year when it gets dark early enough, two events are scheduled per evening - refer to the schedule. For more information phone 496-8257 (and press1), or go to <http://www.ap.smu.ca/pr/bgo-visit/public-open-houses>.

**Nova Scotia Bird Society:** Indoor meetings usually take place on the 4th Thursday of the month, September to April, at the Nova Scotia Museum of Natural History, 7:30 p.m. For more information email the trip leader, or [fieldtripcoordinator@nsbirdsociety.ca](mailto:fieldtripcoordinator@nsbirdsociety.ca).

**5 Jan.** "Winter Warriors Beginner Bird Walk in Point Pleasant" with leader David Currie [david\\_currie@ns.sympatico.ca](mailto:david_currie@ns.sympatico.ca).

**19 Jan.** "Beginner Bird Walk, Downtown Dartmouth", with leader Sue Abbott [nsplovers@gmail.com](mailto:nsplovers@gmail.com).

**24 Jan.** "Nova Scotia Nature Trust Properties" with speaker John Paterson.

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

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

**24 Jan.** "Dinosaurs Unearthed" a new exhibit opens.

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

**28 Jan.** "Members' Slide Night".

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

**4 Feb.** "Sable Island/Marine Pollutants", with speaker Zoe Lucas, President, Sable Island Institute.

**4 Mar.** "100 Wild Islands", with speaker Ross Firth, Director of Conservation, Nova Scotia Nature Trust.

**1 Apr.** "Aquatic Issues in Cape Breton", with speaker Shelley Denny, Director, Aquatic Research & Stewardship, Unama'ki Institute of Natural Resources.

**6 May** "Bras d'Or Lakes Ecosystems", with speaker Dr. Bruce Hatcher, Chair in Marine Ecosystem Research, CBU.

**Royal Astronomical Society of Canada (Halifax Chapter):** Meets the third Friday of each month (except July and August) in Room AT101 of the Atrium Building at Saint Mary's University, 8:00 p.m. For more information go to <http://halifax.rasc.ca/>.

**10 Aug. -13 Aug.** "Nova East 2018", Atlantic Canada's longest-running star party, held at Smiley's Provincial Park.

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

**Jan. 25** "Stargazing at York Redoubt", with members of the Royal Astronomical Society. Powerful telescopes will reveal moons and nebula, and we'll learn some constellation folklore! **Registration necessary at [yncns.ca](http://yncns.ca)** in case the date has to be changed.

– compiled by Patricia L. Chalmers





# HALIFAX TIDE TABLE



## January-janvier

## February-février

## March-mars

Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds
<b>1</b>	0400	<b>1.7</b>	5.6	<b>16</b>	0256	<b>1.7</b>	5.6	<b>1</b>	0525	<b>1.6</b>	5.2	<b>16</b>	0421	<b>1.8</b>	5.9	<b>1</b>	0359	<b>1.5</b>	4.9	<b>16</b>	0242	<b>1.7</b>	5.6
	1059	<b>0.3</b>	1.0		0953	<b>0.5</b>	1.6		1218	<b>0.3</b>	1.0		1121	<b>0.3</b>	1.0		1059	<b>0.4</b>	1.3		0958	<b>0.4</b>	1.3
TU	1640	<b>1.5</b>	4.9	WE	1538	<b>1.5</b>	4.9	FR	1812	<b>1.6</b>	5.2	SA	1719	<b>1.6</b>	5.2	FR	1656	<b>1.5</b>	4.9	SA	1546	<b>1.5</b>	4.9
MA	2314	<b>0.4</b>	1.3	ME	2153	<b>0.6</b>	2.0	VE				SA	2331	<b>0.5</b>	1.6	VE	2323	<b>0.6</b>	2.0	SA	2216	<b>0.6</b>	2.0
<b>2</b>	0455	<b>1.7</b>	5.6	<b>17</b>	0354	<b>1.7</b>	5.6	<b>2</b>	0038	<b>0.5</b>	1.6	<b>17</b>	0527	<b>1.9</b>	6.2	<b>2</b>	0504	<b>1.6</b>	5.2	<b>17</b>	0359	<b>1.8</b>	5.9
	1152	<b>0.3</b>	1.0		1049	<b>0.4</b>	1.3		0614	<b>1.7</b>	5.6		1219	<b>0.1</b>	0.3		1150	<b>0.4</b>	1.3		1059	<b>0.3</b>	1.0
WE	1738	<b>1.6</b>	5.2	TH	1644	<b>1.5</b>	4.9	SA	1304	<b>0.3</b>	1.0	SU	1818	<b>1.7</b>	5.6	SA	1751	<b>1.6</b>	5.2	SU	1700	<b>1.6</b>	5.2
ME				JE	2251	<b>0.5</b>	1.6	SA	1859	<b>1.6</b>	5.2	DI				SA			DI	2320	<b>0.5</b>	1.6	
<b>3</b>	0008	<b>0.5</b>	1.6	<b>18</b>	0451	<b>1.8</b>	5.9	<b>3</b>	0123	<b>0.6</b>	2.0	<b>18</b>	0033	<b>0.4</b>	1.3	<b>3</b>	0013	<b>0.6</b>	2.0	<b>18</b>	0511	<b>1.9</b>	6.2
	0545	<b>1.7</b>	5.6		1145	<b>0.2</b>	0.7		0659	<b>1.7</b>	5.6		0626	<b>2.0</b>	6.6		0555	<b>1.6</b>	5.2		1157	<b>0.2</b>	0.7
TH	1241	<b>0.2</b>	0.7	FR	1743	<b>1.6</b>	5.2	SU	1345	<b>0.3</b>	1.0	MO	1314	<b>0.0</b>	0.0	SU	1236	<b>0.4</b>	1.3	MO	1800	<b>1.8</b>	5.9
JE	1829	<b>1.6</b>	5.2	VE	2350	<b>0.5</b>	1.6	DI	1941	<b>1.7</b>	5.6	LU	1913	<b>1.8</b>	5.9	DI	1836	<b>1.6</b>	5.2	LU			
<b>4</b>	0059	<b>0.5</b>	1.6	<b>19</b>	0547	<b>1.9</b>	6.2	<b>4</b>	0200	<b>0.6</b>	2.0	<b>19</b>	0132	<b>0.3</b>	1.0	<b>4</b>	0056	<b>0.6</b>	2.0	<b>19</b>	0021	<b>0.3</b>	1.0
	0631	<b>1.7</b>	5.6		1240	<b>0.1</b>	0.3		0740	<b>1.8</b>	5.9		0723	<b>2.0</b>	6.6		0639	<b>1.7</b>	5.6		0613	<b>1.9</b>	6.2
FR	1326	<b>0.2</b>	0.7	SA	1838	<b>1.7</b>	5.6	MO	1422	<b>0.3</b>	1.0	TU	1407	<b>-0.1</b>	-0.3	MO	1317	<b>0.3</b>	1.0	TU	1253	<b>0.1</b>	0.3
VE	1916	<b>1.7</b>	5.6	SA				LU	2020	<b>1.7</b>	5.6	MA	2005	<b>1.9</b>	6.2	LU	1916	<b>1.7</b>	5.6	MA	1853	<b>1.9</b>	6.2
<b>5</b>	0144	<b>0.5</b>	1.6	<b>20</b>	0048	<b>0.4</b>	1.3	<b>5</b>	0232	<b>0.6</b>	2.0	<b>20</b>	0230	<b>0.2</b>	0.7	<b>5</b>	0132	<b>0.5</b>	1.6	<b>20</b>	0120	<b>0.2</b>	0.7
	0715	<b>1.8</b>	5.9		0642	<b>2.0</b>	6.6		0820	<b>1.8</b>	5.9		0816	<b>2.0</b>	6.6		0719	<b>1.7</b>	5.6		0708	<b>2.0</b>	6.6
SA	1408	<b>0.2</b>	0.7	SU	1334	<b>0.0</b>	0.0	TU	1454	<b>0.3</b>	1.0	WE	1458	<b>-0.1</b>	-0.3	TU	1352	<b>0.3</b>	1.0	WE	1345	<b>0.0</b>	0.0
SA	1959	<b>1.7</b>	5.6	DI	1931	<b>1.8</b>	5.9	MA	2056	<b>1.7</b>	5.6	ME	2055	<b>2.0</b>	6.6	MA	1952	<b>1.7</b>	5.6	ME	1943	<b>2.0</b>	6.6
<b>6</b>	0224	<b>0.6</b>	2.0	<b>21</b>	0145	<b>0.3</b>	1.0	<b>6</b>	0302	<b>0.6</b>	2.0	<b>21</b>	0327	<b>0.2</b>	0.7	<b>6</b>	0203	<b>0.5</b>	1.6	<b>21</b>	0216	<b>0.1</b>	0.3
	0758	<b>1.8</b>	5.9		0737	<b>2.0</b>	6.6		0858	<b>1.8</b>	5.9		0908	<b>2.0</b>	6.6		0757	<b>1.8</b>	5.9		0800	<b>2.0</b>	6.6
SU	1445	<b>0.3</b>	1.0	MO	1427	<b>-0.1</b>	-0.3	WE	1524	<b>0.3</b>	1.0	TH	1549	<b>-0.1</b>	-0.3	WE	1423	<b>0.3</b>	1.0	TH	1435	<b>0.0</b>	0.0
DI	2042	<b>1.7</b>	5.6	LU	2023	<b>1.9</b>	6.2	ME	2131	<b>1.7</b>	5.6	JE	2144	<b>2.0</b>	6.6	ME	2026	<b>1.7</b>	5.6	JE	2030	<b>2.0</b>	6.6
<b>7</b>	0259	<b>0.6</b>	2.0	<b>22</b>	0243	<b>0.3</b>	1.0	<b>7</b>	0334	<b>0.6</b>	2.0	<b>22</b>	0424	<b>0.2</b>	0.7	<b>7</b>	0233	<b>0.5</b>	1.6	<b>22</b>	0310	<b>0.1</b>	0.3
	0839	<b>1.8</b>	5.9		0831	<b>2.0</b>	6.6		0934	<b>1.8</b>	5.9		0958	<b>1.9</b>	6.2		0833	<b>1.8</b>	5.9		0851	<b>1.9</b>	6.2
MO	1520	<b>0.3</b>	1.0	TU	1519	<b>-0.1</b>	-0.3	TH	1554	<b>0.3</b>	1.0	FR	1642	<b>0.0</b>	0.0	TH	1452	<b>0.3</b>	1.0	FR	1525	<b>0.0</b>	0.0
LU	2121	<b>1.7</b>	5.6	MA	2115	<b>1.9</b>	6.2	JE	2205	<b>1.7</b>	5.6	VE	2230	<b>2.0</b>	6.6	JE	2058	<b>1.7</b>	5.6	VE	2116	<b>2.0</b>	6.6
<b>8</b>	0332	<b>0.6</b>	2.0	<b>23</b>	0342	<b>0.3</b>	1.0	<b>8</b>	0409	<b>0.6</b>	2.0	<b>23</b>	0522	<b>0.2</b>	0.7	<b>8</b>	0306	<b>0.4</b>	1.3	<b>23</b>	0402	<b>0.1</b>	0.3
	0920	<b>1.8</b>	5.9		0923	<b>2.0</b>	6.6		1010	<b>1.7</b>	5.6		1047	<b>1.8</b>	5.9		0908	<b>1.8</b>	5.9		0939	<b>1.9</b>	6.2
TU	1553	<b>0.4</b>	1.3	WE	1612	<b>-0.1</b>	-0.3	FR	1626	<b>0.4</b>	1.3	SA	1736	<b>0.1</b>	0.3	FR	1522	<b>0.3</b>	1.0	SA	1615	<b>0.1</b>	0.3
MA	2159	<b>1.7</b>	5.6	ME	2206	<b>1.9</b>	6.2	VE	2238	<b>1.7</b>	5.6	SA	2315	<b>1.9</b>	6.2	VE	2130	<b>1.7</b>	5.6	SA	2200	<b>2.0</b>	6.6
<b>9</b>	0406	<b>0.7</b>	2.3	<b>24</b>	0443	<b>0.3</b>	1.0	<b>9</b>	0450	<b>0.6</b>	2.0	<b>24</b>	0619	<b>0.2</b>	0.7	<b>9</b>	0341	<b>0.4</b>	1.3	<b>24</b>	0455	<b>0.2</b>	0.7
	0959	<b>1.8</b>	5.9		1015	<b>1.9</b>	6.2		1045	<b>1.7</b>	5.6		1135	<b>1.7</b>	5.6		0943	<b>1.7</b>	5.6		1026	<b>1.8</b>	5.9
WE	1626	<b>0.4</b>	1.3	TH	1707	<b>0.0</b>	0.0	SA	1701	<b>0.4</b>	1.3	SU	1832	<b>0.3</b>	1.0	SA	1553	<b>0.3</b>	1.0	SU	1707	<b>0.3</b>	1.0
ME	2235	<b>1.7</b>	5.6	JE	2255	<b>1.9</b>	6.2	SA	2313	<b>1.7</b>	5.6	DI				SA	2203	<b>1.7</b>	5.6	DI	2244	<b>1.9</b>	6.2
<b>10</b>	0443	<b>0.7</b>	2.3	<b>25</b>	0545	<b>0.3</b>	1.0	<b>10</b>	0536	<b>0.6</b>	2.0	<b>25</b>	0001	<b>1.8</b>	5.9	<b>10</b>	0420	<b>0.4</b>	1.3	<b>25</b>	0549	<b>0.2</b>	0.7
	1037	<b>1.7</b>	5.6		1106	<b>1.8</b>	5.9		1122	<b>1.6</b>	5.2		0717	<b>0.3</b>	1.0		1019	<b>1.7</b>	5.6		1112	<b>1.7</b>	5.6
TH	1700	<b>0.4</b>	1.3	FR	1803	<b>0.1</b>	0.3	SU	1742	<b>0.5</b>	1.6	MO	1225	<b>1.6</b>	5.2	SU	1628	<b>0.4</b>	1.3	MO	1803	<b>0.4</b>	1.3
JE	2312	<b>1.7</b>	5.6	VE	2344	<b>1.9</b>	6.2	DI	2348	<b>1.7</b>	5.6	LU	1931	<b>0.4</b>	1.3	DI	2236	<b>1.7</b>	5.6	LU	2328	<b>1.8</b>	5.9
<b>11</b>	0527	<b>0.7</b>	2.3	<b>26</b>	0646	<b>0.3</b>	1.0	<b>11</b>	0628	<b>0.6</b>	2.0	<b>26</b>	0049	<b>1.7</b>	5.6	<b>11</b>	0504	<b>0.4</b>	1.3	<b>26</b>	0643	<b>0.3</b>	1.0
	1115	<b>1.7</b>	5.6		1157	<b>1.7</b>	5.6		1202	<b>1.6</b>	5.2		0813	<b>0.4</b>	1.3		1056	<b>1.6</b>	5.2		1159	<b>1.6</b>	5.2
FR	1739	<b>0.5</b>	1.6	SA	1900	<b>0.2</b>	0.7	MO	1831	<b>0.5</b>	1.6	TU	1320	<b>1.5</b>	4.9	MO	1709	<b>0.5</b>	1.6	TU	1901	<b>0.5</b>	1.6
VE	2350	<b>1.7</b>	5.6	SA				LU				MA	2030	<b>0.5</b>	1.6	LU	2311	<b>1.7</b>	5.6	MA			
<b>12</b>	0617	<b>0.7</b>	2.3	<b>27</b>	0033	<b>1.8</b>	5.9	<b>12</b>	0027	<b>1.7</b>	5.6	<b>27</b>	0143	<b>1.6</b>	5.2	<b>12</b>	0555	<b>0.5</b>	1.6	<b>27</b>	0014	<b>1.7</b>	5.6
	1154	<b>1.6</b>	5.2		0745	<b>0.3</b>	1.0		0723	<b>0.6</b>	2.0		0910	<b>0.4</b>	1.3		1136	<b>1.6</b>	5.2		0738	<b>0.4</b>	1.3
SA	1822	<b>0.5</b>	1.6	SU	1251	<b>1.6</b>	5.2	TU	1249	<b>1.5</b>	4.9	WE	1424	<b>1.4</b>	4.6	TU	1800	<b>0.6</b>	2.0	WE	1251	<b>1.5</b>	4.9
SA				DI	1958	<b>0.3</b>	1.0	MA	1926	<b>0.6</b>	2.0	ME	2129	<b>0.6</b>	2.0	MA	2351	<b>1.7</b>	5.6	ME	2002	<b>0.6</b>	2.0
<b>13</b>	0030	<b>1.7</b>	5.6	<b>28</b>	0124	<b>1.7</b>	5.6	<b>13</b>	0113	<b>1.7</b>	5.6	<b>28</b>	0247	<b>1.6</b>	5.2	<b>13</b>	0652	<b>0.5</b>	1.6	<b>28</b>	0106	<b>1.6</b>	5.2
	0710	<b>0.7</b>	2.3		0843	<b>0.3</b>	1.0		0821	<b>0.5</b>	1.6		1005	<b>0.4</b>	1.3		1222	<b>1.6</b>	5.2		0833	<b>0.5</b>	1.6
SU	1237	<b>1.5</b>	4.9	MO	1351	<b>1.5</b>	4.9	WE	1345	<b>1.5</b>	4.9	TH	1543	<b>1.4</b>	4.6	WE	1902	<b>0.6</b>	2.0	TH	1352	<b>1.5</b>	4.9
DI	1911	<b>0.5</b>	1.6	LU	2056	<b>0.4</b>	1.3	ME	2025	<b>0.6</b>	2.0	JE	2228	<b>0.6</b>	2.0	ME			JE	2101	<b>0.7</b>	2.3	
<b>14</b>	0114	<b>1.6</b>	5.2	<b>29</b>	0222	<b>1.6</b>	5.2	<b>14</b>	0207	<b>1.7</b>	5.6	<b>29</b>	0037	<b>1.7</b>	5.6	<b>14</b>	0037	<b>1.7</b>	5.6	<b>29</b>	0210	<b>1.5</b>	4.9
	0804	<b>0.6</b>	2.0		0940	<b>0.4</b>	1.3		0920	<b>0.5</b>	1.6		0753	<b>0.5</b>	1.6		1316	<b>1.5</b>	4.9		0928	<b>0.5</b>	1.6
MO	1328	<b>1.5</b>	4.9	TU	1459	<b>1.4</b>	4.6	TH	1454	<b>1.5</b>	4.9	TH	1316	<b>1.5</b>	4.9	TH	2007	<b>0.7</b>	2.3	FR	1509	<b>1.5</b>	4.9
LU	2003	<b>0.6</b>	2.0	MA	2154	<b>0.5</b>	1.6	JE	212														





### **NEXT DEADLINE**

**21st of February for the March 2019 Issue**

**Send submissions to 'Newsletter', c/o NS Museum of Natural History,  
or by email to [sdhaythorn@ns.sympatico.ca](mailto:sdhaythorn@ns.sympatico.ca)**