THE HALIFAX FIELD NATURALIST

No. 184
September to November, 2021

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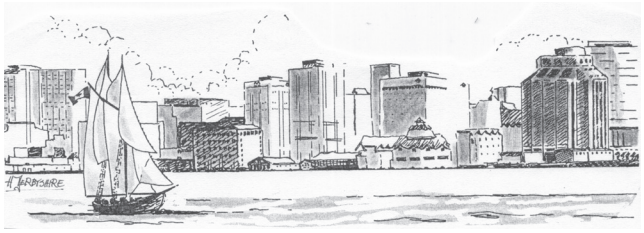

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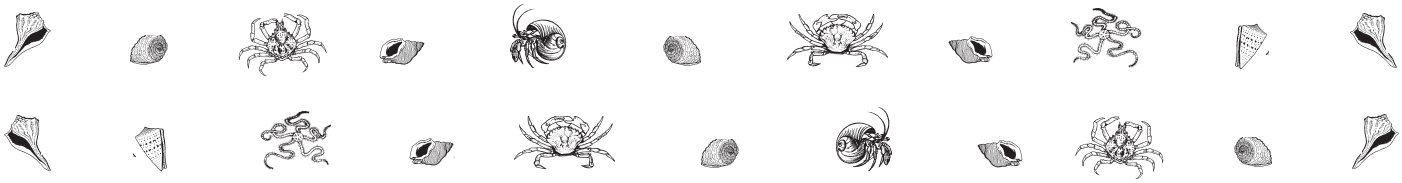

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HFN NEWS AND ANNOUNCEMENTS

IN MEMORIAM

Michael Downing, HFN member and co-founder of Nature Nova Scotia, died at home on July 11, 2021, following a brief period of illness caused by cancer.

Born in Toronto to Stuart and Joan Downing in 1947, he attended De la Salle College, and completed his bachelor's degree in English through St. Michael's College at the University of Toronto. Moving to Nova Scotia in 1979, he spent over 20 years working for Capital Health in Halifax.

Following in his father's footsteps, he was an avid naturalist and outdoor enthusiast. He was a member of the Brodie Club at the Royal Ontario Museum for his entire adult life and a longtime member of the Halifax Field Naturalists. Michael helped to form Nature Nova Scotia (inaugurated as The Nova Scotia Federation of Naturalists), in order to bring the many NS environmental and naturalist organisations together under one umbrella – for stronger environmental advocacy, research, and education. It is still going strong today. His lifelong love of singing and poetry was most recently expressed with his fellows at the Helen Creighton Folklore Society. At one of his HFN presentations, he sang a Stan Rogers piece for us in his beautiful and strong bass voice.

Michael was President of HFN when HFN Board member and HFN's YNC representative Brian Bartlett moved to Halifax 31 years ago in 1990, and Brian recalls his thoughtful, reflective writings in that capacity. At the Thoreau Bicentenary gathering in Concord, Massachusetts in July 2017, Brian was surprised to find Michael present (he'd driven there from Halifax), and they had several conversations during the conference, including one near Walden Pond. The last time Brian and Michael met was on a hike to Suzie's Lake in November 2020, the day that the suspense over vote-counting in the U.S. election ended and Biden was finally declared President. That afternoon he teased Michael that with his height, white beard, and walking stick, he looked like John Muir trekking in the mountains of northern California.

Michael was one of the first people our Almanac compiler Patricia Chalmers came to know in the Halifax Field Naturalists. She still remembers his wonderful illustrated presentation about hiking the Bruce Trail. I myself remember the first HFN 'family cornboil' he organised in Point Pleasant Park, back when the harbour shoreline boasted about ten public stone barbecues along the length of its stony beach. I also remember the very long HFN executive meetings (one lasted until 2:00 a.m.) where Michael and Colin Stewart kept us all at it with their detailed discussions about NNSs founding and all the ongoing battles to protect environmentally important Nova Scotia areas.

Michael's kindness, curiosity, and appreciation of life will be remembered and missed by many of us. Donations in his memory may be directed to Hope Cottage in Halifax, any of the groups mentioned above, or a cause with special significance to those who knew him.

Michael is survived by his sons Jonathan, Benjamin, (Elisabeth), and Peter (Katie); his sister Penny (Allan) and her children Stuart, James, and Clare.

NATURE NOTES

September

Bernie McKenna saw a large **male Snapping Turtle** trying to cross the road at Cranberry Lake, Dartmouth. He also has **Monarch caterpillars** at his Dartmouth home, (one in the chrysalis state) and some egg deposits on new vegetation.

When Burkhard and Ingrid Plache were at Shingle Lake in the mid-July they saw in some places more than 100 flower heads of the **rare Goldencrest starting to bloom**. While paddling across a small knee-deep pool there, **a Snapping Turtle** was ambling below their canoe.

The last week of August Brain Bartlett was at Economy Falls where he encountered **a Spruce Grouse** absolutely motionless in the middle of the trail. It flew off after a few minutes. Also on the last weekend in August, Judy Keating saw **a Common Weasel** with its white underbelly at her cottage on Lake Charlotte.

While running in the Purcell's Cove Backlands last month, Karen McKendry saw **a Snapping Turtle** at Flat Lake. While she was standing on a rocky ledge extending into the lake, the Turtle came up to the surface, and then went back down into the water. Carol Morrison also reported seeing **a Snapping Turtle**, which for a number of years has been coming through a ditch near Acorn Drive, Oakfield, to lay its eggs in the gravel.

Responding to a question, Jessica Ross, our presenter for the evening, remarked that Snapping Turtles travel quite some distance to a suitable place to lay their eggs, and hatchlings are frequently seen far from the nearest body of water. Shirley McIntyre saw **three Deer** near her place. On August 29th, she noticed three depressions on a gravelly beach in the Digby Area, and thought they might likely be turtle nests.

Carol Klar heard **a male Northern Cardinal** near her place in Clayton Park, but was unable to locate it. Brenda Boates suggested looking for the highest branch around, which is the preferred perch of these birds.

NEW AND RETURNING

Nicole Jordan
Kate Vitale

SPECIAL ARTICLES AND REPORTS

CSCA PRESENTATION 17 SEPT.

– Stephanie Robertson

It was an unexpectedly windless and overcast walk up to the Chebucto Head Lighthouse prominatory from the gated parking lot below. There was the lighthouse, serene in its abandonment, there was the derelict paved road with its many grass-filled cracks, and there was the minute Parliament Rock way down below in the ocean, with its own 'parliament' conference of spread-winged Cormorants. Eerily still and quiet, the scrubby, coastal shrubs, even the rocks, seemed to be in a hush, waiting… as in a calm before an oncoming storm.

Aiming to arrive at 4:45 p.m., we had left early from Halifax to account for any traffic hold-ups at the rotary. Surprised by almost none, we gained a bonus of three quarters of an hour to explore this old friend of many an HFN hiking expedition, so off we had trudged. With more and more arrivals being spotted from above, we moseyed down to gather for the 5:00 p.m. posthumous Colin Stewart Conservation Award presentation to lichenologist Dr. Wolfgang Maass. For about two years we had been slowly discovering the immense scope, importance, and merit of Wolfgang's legacy. But, with COVID restrictions in place, the award couldn't take place until recently.

Born in Finland, Wolfgang lived mostly in Germany. With his 1957 doctoral degree, in 1960 he applied for a Postdoctoral Fellowship and emigrated to Canada. He worked for the National Research Council in Halifax for 25 years until 1987, all the while collecting and studying sphagnum mosses and lichens. In the 1970s, with his growing awareness of lichens' sensitivity to environmental quality, he shifted focus to the forest-inhabiting lichens in Atlantic Canada. Much of Wolfgang's hours and hours of field work were done in his spare time, in soggy, cold, and remote conditions, and without recompense. Thousands of his collected specimens are with institutions in New Brunswick, Newfoundland, Nova Scotia, and Norway – important records of lichen diversity and abundance which will provide an essential baseline against which subsequent population changes can be assessed.

A suitably sized grassy/rocky area was chosen up on the trail, and CSCA's Committee members Allan Robertson and Doug Linzey; lichenologists Sean Haughian, Marion Anderson, and David Richardson; Wolfgang's family; and other HFN members comprised the 16-person gathering for the awarding. Both field and family stories were shared. Looking southwest about half a km, we could see the house where he had tried to raise peaches in pots on his deck. But the fierce Atlantic winds won out and finally one day had blown them off into the surrounding area. (Later, Lesley Jane Butters spotted some bushes with suspiciously peach-tree-like leaves). His son Oliver recounted a field trip with his Dad concentrating on varieties of wild willow. Six months afterward, Wolfgang started to complain of failing hearing; finally, he remembered he had plugged his ears with willow buds on that trip and had forgotten to remove them! NSMNH's Botany Curator, lichenologist Sean Haughian, detailed the importance of Wolfgang's work, and how it would be used by and for future generations of scientists. HFN President Burkhard Plache presented the Award Plaque to Oliver who passed it to his own son Silas – to hold up for all to see and for photographs to be taken. Finally, in a pleasant and light 'Scotch mist', we all dispersed.

Oliver and Silas Maass displaying Wolfgang's CSC Award

HFN TALKS

SPECIAL TRACKING DOGS 3 JUNE

– Mille MacCormack

Simon Gadbois gave an engaging Zoom presentation on Sniffer Dogs in Wildlife Conservation. Simon is an ethologist – an animal behaviour scientist – and Director of the Canid and Reptile Behaviour and Olfaction Research Lab/Team in the Department of Psychology and Neuroscience at Dalhousie University.

Surprisingly, the dogs his team uses in their research are recruited from the community – pets volunteered by HRM families, including some of Simon's colleagues. Once or twice per week they are left at the lab in the morning and picked up in the afternoon.

Dogs are selected for their behaviour trainability, temperament, motivation, and play drive. The predominant breeds used are Border Collies and Border Collie mixes. The team's training philosophy uses positive methods which are fear-free, force-free, distress-free, and boredom-free, with treats and chicken as positive reinforcement. Detection skills are very important and each one is trained to detect only one species's odour.

Simon outlined his work in locating foxes and coyotes with his first dog, Kafka who, after she had located her very first den, continued thereafter to find more without the need

for further formal training.

Although mechanical tracking can also be used, those devices can neither match nor replace the skill of dogs. The dogs are considered as 'tools', but in reality they are actually research assistants. As an example, in searching for Ribbon Snakes, the dogs are trained to detect this snakes' specific odour, rather than the odour of, for instance, a Garter Snake, which is diferent. A team member obtains snake scent by rubbing a hand along it to get the oils from its skin, then rubs this oil onto a cotton ball and puts it in a vial. During their research project to find these snakes in Kejimkujik Park, the dog in training was given the Ribbon Snake's scent from the cotton ball and then released to track and locate them in the field. The challenge for the human team in finding the Ribbon Snakes had been that they are very small (about the size of a pencil), they blend in with their habitat, and they are semi-aquatic. Also, research is conducted in mid-July, when grasses are very tall, making them even more difficult to find (they hide under tree stumps as well). All these factors present no difficulties whatsoever for the dogs, as they are using their scenting ability, not sight. The result? The dogs have an incredible success rate in finding them under lots of various conditions and habitats, including tall grasses and wet areas, and have made a tremendous difference in Ribbon Snake research. At this point Simon showed us a video of 'Zyla' successfully tracking Ribbon Snakes in tall grass, and amazingly, also in water.

High success rates occur mostly in summer – there is not as much success in the fall. It may be because of lower ground temperatures or because the snakes are not producing hormones in the fall. This particlular project ran out of funding before they could really determine why this is.

Ivy, a very intense red Golden Retriever, is Simon's current conservation dog. His English Shepherd Flynn, who passed away in February, tracked Wood Turtles, and he had learned this naturally by himself from Zyla. In a project with Acadia University, the team were tracking these turtles in the Middle Musquodoboit watershed to determine the cause of decline in the population. He took the opportunity to remind us that it is illegal to have Wood Turtles as pets. Despite this, they are continually being taken for the illegal pet trade.

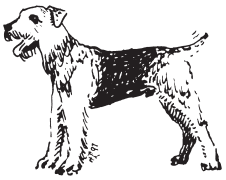
Road kills, loss of habitat caused by infilling ponds and marshes, agricultural practices when farmers kill them with machinery when mowing hay fields, and fragmentation of habitat contribute to these turtles' decline.

Turtle tracking dogs are not allowed to interact with the turtles. Interestingly, they are fascinated by the smell of baby turtles, and Simon has no idea why. The potential to find turtles is higher in late summer and early September when their scent is strongest. Unfortunately, funding has been lost to continue carrying out this research as well.

Simon reviewed some of the other projects the Dalhousie team has worked on. These included work with Emera in locating dead bats and birds at the wind farms in South Canoe, and this research determined that their numbers were low there. They were also contacted by Forest Services Canada's Invasive Species Project to help locate Longhorn Beetles in Point Pleasant Park. However, it wasn't feasible because of the cost and the number of dogs needed. Also, the team is working with Cobequid Rehabilitation Centre to detect lead poisoning in birds of prey, waterfowl, and other watershed birds through pre-screening and field screening. These dogs were trained to, and indeed able to, locate lead in species, but unfortunately, this project was stalled by COVID and the team is hoping to restart the work by next year.

They also did a non-invasive and unobtrusive project with Coyotes following the death of Taylor Mitchell in 2009 in the Cape Breton Highlands National Park. They only collected data for scent marks and scat left in specific locations. They analysed the scat for diet, hormones, and parasites. However, the reason why the coyotes attacked her were not determined. Coyotes only mark areas where they have had negative interactions with humans and they get nervous when they smell the scent of dogs. Because dogs are not allowed on the Skyline Trail in the Park, there are still more Coyotes and more negative interactions with humans.

Following his presentation, Simon was very happy to answer questions members asked him, and was very interested in what they had to say about their stories about wildlife.



HFN TRIPS

PUBLIC GARDENS TOUR

– Patti LeClerc

Date: Wednesday, July 21st
Place: Halifax Public Gardens
Weather: Lovely and warm
Leader: Sheldon Harper
Participants: 16

It felt like magic was in the air as our small group was treated to a tour of many of the garden beds in the Halifax Public Gardens – from a gardener's perspective. It was a lovely warm evening and since the mosquitos had *not* received an invitation, we could take our time and linger. Our excellent guide was retired Sheldon Harper who worked passionately at the Gardens for 26 years. Sheldon was able to share a world of insider information with us, much more than I could adequately absorb, especially with my limited knowledge as a beginner gardener, but I will try to convey a few gems about the various spots we visited.

The first space we lingered in was the 'Mediterranean Bed' – just to the right as you enter through the antique main Gate on the corner of South Park and Spring Garden. Sheldon explained that Victorian Gardens were focused on collecting many different specimens for display – they often

mixed outdoor and indoor plants, trees, stones, shells, and even sculptures to form novel and showy exhibits. During his time here, he had concentrated upon reviving this major, highly visible and highly trafficked garden bed, which for many may be among the first seen if they enter through this main gate.

Sheldon described some of the amazing work that the Gardens' staff do, especially with weed control – it is *all* manual! It's the same way he handles his weed control at home, by adequate mulching, hand-pulling, and/or cultivating the bed to turn the weeds over then leaving them to die. Participants' enjoyed discussing their own various favourite mulches (Sheldon's preference is shredded pine). Mulching is very important to many of the park beds because one of the staff's main tasks for the Gardens is irrigation. Due to a scarcity of water sources, long, heavy hoses have to be hauled great distances and this results in the water pressure being quite low at the nozzle. So, watering takes quite a long time. Fortunately, this is going to be remedied very soon, as the Gardens will be getting more water sources spread throughout the area when the fountain's pipes are being repaired to restore water to it again.

We spent quite a bit of time admiring this lovely Mediterranean bed where the bright purple of the Butterfly Bush *Buddleja davidii,* and the Purple Heart *Tradescantia pallida,* stand in contrast to the tropicals which include Palm, Banana, and Pineapple. These tropical plants overwinter in pots in the greenhouse as they are difficult to move due to their root systems being quite large for their spindly stalks. One member of our group shared the fact that the Gardens' greenhouses used to be accessible and that she had enjoyed eating her lunch in there. This was one of the many lovely insights that were shared by participants who have lived nearby and watched the Gardens grow. Another interesting member-shared item came up when we began discussing some of the Gardens' 500 trees. Do you remember when the trees had brown signs with white lettering? Well, all those were thanks to the Halifax Field Naturalists! Recently, Gardens' interns are again hard at work to get all trees and plants properly labelled.

Sheldon's description of coming into the Gardens after approximately 100 trees were lost to Hurricane Juan made me feel even more grateful for this local treasure. Those left intact, such as a nice English Oak *Quercus robur,* were likely over 100 years old. If you've a keen eye and look to the sky you may see another English Oak, beginning to split, sporting a large rope anchoring its two halves together. Another old tree we enjoyed was a Weeping Copper Beech *Fagus sylvatica* 'Pendula', and a gorgeous Japanese Lilac *Syringa reticulata* was growing in a wonderfully twisted formation – probably as a response to the winds. Sheldon recommended another visit in June when it is in full bloom.

This trip treated me to a few personal firsts, one of which was seeing my first *Ginkgo biloba.* These trees, which are often planted for their smog-clearing ability, are among the oldest trees on earth and were around even in the days of the dinosaurs; I plan to make another visit in the fall to see it turn bright yellow. Likewise next summer I now know to be watching for the bright blue blossoms of the Jacaruda tree *Jacaranda mimosifolia,* and I look forward to smelling the cotton candy-like smell of the orange leaves on the *Katsura Cercidiphyllum* sp. this fall. In fact, this weeping Katsura is the newest tree in the garden. Another first was an Amur Cork Tree, and I also enjoyed touching the hairy, sandpaper-like leaves of the not so aptly named Slippery Elm *Ulmus rubra*. Then there was a Mulberry bush *Morus alba,* which seemed to surprise a few in our group. While I can confirm that I didn't go all the way around it, I refuse to confirm or deny if any of us tasted a mulberry!

Another fascinating stop on our stroll was to visit one of the 'carpet' beds (small raised areas with many small, low-growing different types and colours of plants used for pictures and/or words) which was then being put together; these are trimmed weekly to retain their designs Flowering plants are avoided for these beds, as any dying blooms would change the pattern. Staff balance on ladders when planting these beds to avoid stomping down the soil. Be sure to stop by and see the designs if you get a chance.

The next bed illustrated the Victorian tradition of collected specimens. Meant solely for the purposes of display rather than consumption, this bed boasted garden veggie favourites including Eggplant *Solanum melongena,* Pepper *Capsicum annuum,* Tomato *Solanum lycopersicum*, and herbs such as Basil *Ocimum basilicum*, Parsley *Petroselinum crispum,* and Dill *Anethum graveolens;* there was even some Corn *Zea mays* growing in this bed along with Marigold *Tagetes* sp. as a companion plant (marigolds deter insects).

As we meandered from area to area, some trouble spots were pointed out. For example, along the Grande Alleé, the E. Princeton Elms *Ulmus americana* 'Princeton' which were planted to replace the dying Lindens *Tilia cordata* are now also themselves splitting and dying.

Later, we admired another gorgeous flower bed where Queen Elzabeth Roses were having their best year Sheldon has ever seen. This bed also featured Japanese Anemone *Anemone hupehensis*, Swamp Milkweed *Asclepias incarna incarnata,* Red Hybiscus *Hibiscus moscheutos,* Yucca, Echinacea *Echinacea purpurea,* Blazing Star *Liatris pycnostachya,* and the biennial blooming Hollyhock *Alcea* sp. As if right on cue we were treated to an up close and personal moment with a Monarch Butterfly. It seemed to know exactly who to thank for this wonderful banquet of flowers because it touched down for a kiss right on Sheldon's head!

We took a reverent moment near the Shingle Oak *Quercus imbricaria* which Sheldon noted was a memorial to Leslie Harrold Lucas, a staff gardener who had passed away after being stung by a bee in 1999. The Gardens feature many memorials and memorial benches honouring groups and/or individuals, and one could likely spend an entire tour just on these alone.

We admired a bed which Sheldon said usually has difficulty as it is near a very thirsty American Elm Ulmus *americana.* Many of us could not believe our eyes at the size of the Hostas nearby – a cultivar called 'Sum and Substance', one of the largest breeds of Hostas.

While admiring some gorgeous double daylilies, Sheldon was asked how the garden dealt with lily beetles; apparently staff pick them off manually. Here also he noted that the Begonias have been fighting Powdery Mildew because of the excessive rain we have been having, and that the best way to treat for this is to spray them with a sulphur/water mixture. While here he also shared that the best way to get Hydrangeas a deep blue to is make the soil slightly acidic by using a good mulch.

Next up, we learned about the Serpentine Beds which mimic the shape of a serpent, and the Scroll Beds on either side of the Dolphin Fountain which mirror each other for symmetry. Stretching out the beds in these elongated pat-

terns allowed the Victorians to create great visual impact while using less plants; one superstar of these beds were New Guinea Impatients *Impatiens hawkeri*. We admired the nearby bandstand which has undergone restoration. One member of the group noted that when they changed the colour of the top of the bandstand, they also changed the colour of the flowers in the surrounding Scroll Beds. Sheldon confirmed that all of the Gardens' bed colours are carefully curated when they can be.

Indeed, the statues, buildings, ponds and benches all added richness to the Gardens, illustrating the Victorian tradition of it all being a display of novel textures, colours, scents, and sights. At a bed featuring a giant piece of brain coral of unknown origin, Sheldon noted that this bed also struggles with a lack of moisture – from a nearby large Variegated Sycamore Maple *Acer pseudoplatanus;* however, the successful, succulent sedums growing there didn't seem to mind the dryness.

Wonderfully, we encountered two Hummingbirds feeding among the Joe Pye Weed *Eutrochium purpureum,* Coral Bells *Heuchera* sp., Bee Balm *Monarda* sp., and a few more flowers of which even Sheldon was not 100% sure of their identification. As the tour progressed there were many mid-summer giggles as we joked and laughed. We tried using the app 'Leaf Snap' (available on Google Play) to identify a few 'stumpers' but it didn't seem to be all that accurate.

As we wandered, we were treated to the welcome sight of many bright young graduates happily smiling for photos in all their finery. Seeing this long-enjoyed tradition, it almost lent an air of normalcy and routine of pre-pandemic times, despite masks sometimes donned and sometimes hanging from wrists. I thought of how many photos those giant Rhododendrons have appeared in, some of which I learned are 75 years old!

Overall, it made for an enchanting evening which tickled all five senses as well as the funnybone. We too stopped for a group photo and as we parted ways I was filled with gratitude to them – for their patience with my questions, and for sharing their knowledge. Thanks go out to Sheldon and the many Gardens' stewards, such as Richard Power, the first superintendent whose descendants for three generations have tended these Gardens for many years; and to the Mi'kmaq whose unceded lands I make my home in today. We are so very lucky to have such a beautiful public space such as these Public Gardens for all to enjoy.

SOLDIER'S/MILLER'S LAKE FALLS

– Bernie McKenna

Date: Saturday, August 7th
Place: Soldier's and Miller's Lakes
Weather: Partial sun with welcome breeze
Leader: Clarence Stevens Jr.
Participants: 16

This walk was rescheduled from one slated for last April which had to be cancelled because of COVID. In early April four HFN members had done a preliminary reconoitre in the area in preparation for it, but the world was cancelled before it happened; our No. 183 Summer 2021 newsletter detailed that preliminary walk.

This Saturday's walk, taking place in August, had a bounty of plants at varying degrees of development, thus making it more interesting horticulturally.

As detailed, we met at the Fall River MTC Metro Link Depot off exit 14 on Hwy 118 at 9 a.m. After attendance confirmation, Clarence took over and immediately had us looking up to see a Turkey Vulture cruising overhead. Undoubtedly, it's one of the three which I and others have seen along this stretch of the 118 over the last few months. From that he went on to give a thorough introduction to the Goldenrod growing there. There are 19 species in N.S. and he covered some of their features and characteristics. Growing alongside the Goldenrod was Goldentop, which is a look-alike sporting only two species; he covered the identification features of it as well. Here also were Fleabane and Knapweed. The first is related to the daisy clan and to me resembled Feverfew. The Knapweed looks like a thistle both in flower and shape but thankfully has no burrs. I have to say – a lot of info on this trip had me scrambling to take notes; hopefully I got the majority correct.

We then drove further down Perrin Drive to the Soldier's Lake Nova Scotia Power (NSP) access road and parked on the road shoulder where we were joined by bird expert Fulton Lavander and his friend Jane. Fulton provided the bird expertise for this venture and is obviously very well versed in the bird world. Unfortunately, other than a Red Eyed Vireo and a Swamp Sparrow, most birds managed to easily avoid us despite Fulton's calling efforts. Walking on, Clarence showed us several types of ferns and covered their identification, characteristics, and the reasoning behind their common names. Apparently, there are 50 or so species of ferns some of which are very common in most of the province and others not nearly as much. Here he also showed us Sweet Fern; it has a woody stem and is not really a fern, but it's leaves certainly do look like ferns. Along here we also found cranberries, and he covered the three species and where they are commonly found. He mentioned the fact that cranberries often have extra protein content in the form of the worms that feed in them! There was a Witherod shrub growing here with berries not yet ripe, Clarence said they're not really good until they are dried up and look more like raisins; turns out he seems to know precisely when the various berries are at their best for eating.

The next point of interest was a pond on the right side of the road and the start of the stillwater on the left side. The pond has an active beaver lodge and we saw evidence of beaver activity. Clarence showed us a beaver chew stick and the teeth marks on it where the beaver had eaten the bark away and discarded the now bare stick. Both this pond and the stillwater are primarily fed by the lake's outflow. Among the water plants showing were white Water Lilies and Pickerelweed; both would be more abundant as summer progressed. The Water Lily flower is a bit over six cm across and later in the year they would cover a large part of the pond surface. The Pickerelweed were just staring to show their blue/purple flower heads. Onshore were further varieties of plants including the native spirea Steeplebush which, considering its flowerhead, is very well named. Leaving the pond behind we came to a large patch of Huckleberry, a deciduous plant having several varieties and most of us on the walk will attest they were at a perfect stage of ripeness and utterly delicious. They were three to five feet high and were very plentiful along here. We

then walked over the two outflow culverts from the lake and headed up a small hill to the control-dam area. The previous April's reconnaisance trip report had covered this dam and watercourse from here to Lake Thomas, where NSP cement barriers block off some water access and where their short gravel road leads to another point on the lake. Unfortunately this new road leads also to a shallow marshy area full of Pickerelweed where a Loon has had her nest for the last number of years. Normally there are two families of Loons raised on this lake every year; hopefully, this new road construction won't affect the Loons negatively.

The final stage of the walk was almost due north further along to the end of the road and another viewpoint of the lake. It's common to see people tenting along here for a night or two throughout the summer. Again, Clarence managed to find some berries to eat – Bunchberries and trailing Blackberries (just coming on); it seemed to be a trend here with Clarence and berries. This stretch had the only puddle of any size and it went from side to side with a goodly depth; unless you had boots on you had to skirt it. The road from start to finish is very firm and in this part of it the base is comprised of large granite boulders. According to Clarence it's not local granite, as the mineral makeup is not what is found in this area. Carrying on to the end of this road we crossed a small, gravel, raised road bed and entered an open wooded area with another view of the lake to the north. After some discussion it was decided that we'd go to the falls and for those who chose not, they could wrap it up and call the walk done. As an aside, it was here that I've spotted a Groundhog in the rocks on the side of the raised road on more than a few occasions but of course – not today.

Back at the cars about half of us called it a wrap and the rest of us drove further up Perrin Drive to the waterfall area. We parked and walked in to the falls – no more than a couple of minutes easy walk. Fulton, being ever watchful, spotted a Pied-billed Grebe from where we parked as well as another active Beaver den. Luckily, due to the recent heavy rains, the falls as well as the lake and stillwater levels were all high, especially for August. This made for a nice view of the falls in good flow. Also, there were several varieties of mushrooms which also drew some attention and more than a few photos.

That pretty much covers this outing and this being my fist real HFN outing in a very long time, I have to say I was impressed by the size of the turnout and the many points of interest we were introduced to in the process. I sincerely hope everyone enjoyed it as much as I had.

OAKFIELD PARK

– Brian Bartlett

Date: Saturday, July 3rd
Place: Oakfield Provincial Park
Weather: moderate temperature, scattered clouds
Leader: Fulton Lavender
Participants: 4

"Knowing birds is like being fluent in a foreign language, or adept with a musical instrument."

—Kathleen Jamie, Findings

Only three of us joined Fulton Lavender, a birder with decades of extensive in-the-field experience, for a morning and early afternoon in Oakfield Provincial Park about 35 kilometres from Halifax peninsula and near Fall River. Two sides of the park are bordered by Shubenacadie Grand Lake, but we spent most of our time away from the water, on roads and wide trails of mixed forest. Our field trip was scheduled to last three or four hours, but happily our walking and bird-searching extended to five. No surprising or rare species were among the 47 we encountered (about half of them heard but not seen), but the closeness of some singing birds and particular combinations of them gave the hours special, memorable minutes. The field trip reminded us that common birds observed closely in fresh circumstances can be as interesting as rarities.

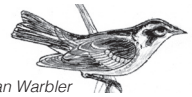
By mid-morning we were saying things like, "Kind of shocking only four of us are here" and "Too bad there aren't more of us," but it was the Canada Day long weekend. The day suggested several advantages a small group like ours had over groups of 10 or 20: more likelihood of quietness, reduced chances of scaring birds away, fewer distractions of surrounding friends and strangers, and easier exchanges of information between the trip leader and others.

The month of June was hardly over, but spring and early-summer blossoms like those of Rhodora, Bunchberries, and Clintonia (Corn Lily) were well past their prime—faded or crinkled or fallen away. Some small birds were out of their nests, beginning to flex their muscles and voices. Fulton pointed out Black-capped Chickadees learning to call and sing, their sounds distinctly different from those of adult chickadees, yet recognisably similar. He also told us that sometimes the buzzy voices of young small birds don't allow for confident IDing of species by sound alone; once he said, tentatively, "If I had to guess, young Juncos." Yet he also drew our attention to seasonal changes in adult-bird behaviour: he said of the plentiful, vocal Blackburnian Warblers, "They only have two weeks of singing left."

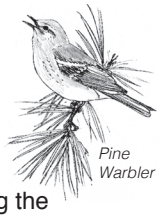
Some species we heard stayed completely or mostly out of sight: Black-throated Green Warblers (zee-zee-zee-zoo-zee); Common Yellowthroats (whichery-whichery-which), a White-breasted Nuthatch; a Swainson's Trush; a Blue-headed Vireo (with a 'bleat' as the first note in its song); Northern Parulas (with the zipper-like end to their ascending call); four or five Eastern Wood Peewees (Fulton noticed the infrequency of their calls: "now it's all about feeding your young and not letting us know where you are"); and a Least Flycatcher (its soft gathering-food call translated as 'whit'). A flock of Purple Finches fidgeted in faraway trees but didn't come closer. Birds which moved in nearer to us included Cedar Waxwings, Yellow Warblers, American Goldfinches, and American Redstarts (I grumbled, as I have before, that so many species native to Canada have 'American' as the first half of their complete English names.)

Two warbler species were so active and populous that Fulton said, "The woods are full of Blackburnians and Pine Warblers," and, later, "It's as if there's a Burnian in every tree—they own this park." ("Burnian"—like "Maggie" for a Magnolia Warbler—sounded like an affectionate nickname, not just convenient shorthand). Much of the time we all remained silent, but when Fulton did speak it was usually to make comments we could learn from. He let us know that "Burnians are fond of Hemlocks, Bay-breasteds [other warbler species] of Red Pine." Of the Burnians' most vivid

colour, in contrast to its whites and blacks, he said, "Some people call them 'pumpkin face' – but it's brighter than that." (Later at home I found eBird's striking comment: "Its flame-orange throat seems to glow even through fog and rain.") Over the years Fulton has also learned much about the Blackburnians' voices. Sibley transcribes their best-known song as tsi tsi tsi tsi tsi ti ti ti ti ti seeeeee. Fulton added that sometimes the Burnians "try to do their best Redstart imitation, with real squeaks at the end." The highest seeeeee pitches of their voices, he said, have been calculated to be "the second highest among bird songs," beyond the range of some people's hearing. He's also been in their presence enough at various times of morning, afternoon, and evening to say, "They love mid-day" – not a comment we'd make about many birds, which tend to be most active in early mornings or evenings.



Blackburnian Warbler



Pine Warbler

Pine Warblers, plainer and paler than Blackburnians, were the other bird species most often noticeable during the field trip. We saw at least five, and heard others' speedy trills. Fulton informed us that the Pine Warbler's song "always changes in tune after May," and it makes sounds "not in the books or on the recordings." (It was a healthy reminder to hear a seasoned birder suggest that books and recordings are inevitably approximate and incomplete.) At one point we watched Pine Warblers and Black-capped Chickadees close together. Because they were mostly silhouetted, the details of their plumage weren't easy to make out, but Fulton drew our attention to the warblers being larger and moving more slowly, not darting so much; they're "bouncy" and "take bigger hops." At another point, we found a female Pine Warbler nearby, with food clutched in its beak. Soon Fulton told us about a habit he adopted years ago: when he sees adult birds with food in their beaks, rather than gaze hard at them through binoculars, he quickly looks away and turns around, sometimes to jot down a note, but mostly to help assure the parent bird that he has no intention of stealing and it doesn't need to gobble down the food meant for its young. Some statistics-minded birders rush to maximize their sightings; others like Fulton care about the science but also the behaviour of species, and birds as individual creatures in the world.

Some of our most unexpected minutes were spent close to the simultaneous singing of a Hermit Thrush and two Winter Wrens. We watched and listened to the two species, both with voices surprisingly loud and resonant for such small birds. What a contrast between the two songs – the Thrush's rich-toned, fluting, and ascending the scale; the Wrens' (one in the distance might've been responding to the one closer to the trail), high-pitched and extremely speedy (in Fulton's words, "like a little mad fiddler"). We would've been happy to hear either of the species so clearly, so closely and for such a length time; but listening to them singing at the same time for so long (who knew if they made anything of each other's voices?) was one of the morning's highlights.

Though some birds born in the spring were out and about, others kept close to their beginnings. An immature Bald Eagle still rested in its nest; now and then it let out one low-pitched, squeaky moan (or moaning squeak). At least while we were nearby, it showed no intention to fly off. Fulton mentioned that Bald Eagles favour pine and hemlock branches for nesting, and that spruce branches would break too easily. (Later, out of the forest, and near the park's picnic area, we saw two adult Eagles – likely the parents of the young one in the nest – soaring overhead.) The other, much smaller nest we watched was that of a Red-eyed Vireo. In a suspended basket nest hung from a branch overhanging the trail, an adult Vireo – pale eye-stripe visible – was likely sheltering its young with its weight and warmth. We kept our distance and didn't hang around.

Once we moved out of the forest and into the more open spaces of Oakfield Park Road, walking along a section of the park's perimeter, other bird species emerged: Cedar Waxwing, Northern Flicker, Savannah Sparrow, Swamp Sparrow, Tree Swallow (several of them winging their way across the sky), Catbird (giving full-fledged songs, not merely calling), and European Starlings (making what Fulton called "snerky-snarky really harsh robin-sounds"). Those birds were generally easy to spot because the trees were few and far between. While we watched a Hairy Woodpecker for a couple of minutes, Fulton clarified that it was a female because its neck lacked the red patch on the back of a male's head. He pointed out one value of being able to distinguish the species' females from its males, other than simply comprehending better what you're were looking at: on a Christmas Count. If you see a Hairy Woodpecker but don't note whether it's male or female, later when you spot the species farther along the trail you can't be sure whether it's a different individual or the same one; checking for and finding the red spot in one but not in the other gives evidence that you've seen two birds.

On almost any birding trip, not only what's seen and heard but also what's not seen and heard can be significant. Barred Owls have often been found in Oakfield Park, so during the field trip Fulton tried to attract one by doing uncannily accurate imitations of its famous who-cooks-for-you call – but the time of day wasn't ideal for spotting owls, and when two Blue Jays called we couldn't be sure whether or not they were responding to Fulton's mimicry.

This field trip had actually been advertised with the phrase "Birds and Butterflies," but the absence of the latter led us to talk briefly about declining butterfly populations in HRM; up until a few years ago, field trips in the park provided plenty of chances to see many species of butterflies in their many colours and flight patterns. In a wet area along Oakfield Park Road, Fulton had previously heard and seen Alder Flycatchers, but we had no luck finding any. While for Homo sapiens the day was surprisingly, comfortably short on mosquitoes, the summer's dryness had reduced food available for insectivores like flycatchers. As naturalists do so often these days, we sombrely related the blanks in our encounters to climate change. In the final minutes of the field trip, however, an encounter with a boy and his father on the road provided a more positive note. The boy (maybe eight or nine years old) said he lives nearby, asked us what we'd seen, and told us, "In pre-school I did a project on the Barred Owls!" He sounded excited to share that memory with us. After he and his father had bid us goodbye, one of our group said, "A birder in the making," and another added, "Or maybe a birder already. It gives hope."

SHAW WILDERNESS PARK

– Susan Moxon

Date: Wednesday evening, September 15th
Place: Shaw Wilderness Park, Purcell's Cove Road
Weather: Cloudy and warm
Leader: Burkhard Plache
Participants: 12

On a warm summer evening we discovered several varied habitats on a two-hour, two-kilometre walk in Shaw Wilderness Park.

At the beginning of the trail Burkhard drew our attention to the dark understory which was too dark for many native plants to grow under this canopy of broad-leaved trees like Red Oak, Yellow Birch, and Striped Maple. However, underneath them we did find non-native Japanese Knotweed, Japanese Barberry, and our native Hobblebush. Near the parking lot Burkhard found Broad-leaved Helleborine *Epipactis helleborine* – an introduced orchid. Its seed was probably carried there from someone's shoe.

We followed the wide trail to Williams Lake, a lake artificially enlarged when a dam was built there. The water level was currently low, and we could see that the foundation of the dam was leaking. Before refrigerators, in the winter this lake was used for cutting ice for old-fashioned 'iceboxes'.

On we went to our second habitat and here we found tall pines. There were Red Pine with reddish bark and White Pine with its more greyish bark; both can thrive on dry soil. White Pine has five needles per bunch and produce long cones while Red Pine have two needles per bunch and produce shorter cones. Also in this area grew Paper Birch, Black Huckleberry, and Rhodora.

We then moved into a barren landscape where we spotted a Juniper shrub; this plant requires a lot of sunlight. Here also grew Red Maple, Bigtooth Aspen, American Mountain-ash, Grey Birch, and Paper Birch. The rock in this area was ironstone or bluestone – a type of stone used for many buildings in Halifax. In other parts of the barrens Broom Crowberry is also found; despite its name, it does not produce any berries.

A seasonal wetland (meaning it is wet in the winter and spring but dries out over summer) was the next habitat we encountered. Here we found Cinnamon Fern and Sphagnum Moss, the latter acting as a kind of buffer zone by storing water and keeping back any run-off. The soil is richer here in this wetland. We moved a few metres along where the water would eventually drain into Williams Lake. There we came across an open area which was a permanent wet bog; Cotton Grass is a plant which can be found in this habitat.

Moving uphill away from the wetland there was Red Oak, Paper Birch, and Poplar growing. Huckleberry, Lambkill, and Wild Raisin (or Witherod) grew here too. Witherods are very popular for basket weaving.

At another barren, Black Huckleberry and Lambkill grew in a large open area along with Bayberry, whose berries have a waxy coating and are used to add scent in candle making. Burkhard noted that this particular area is slowly filling in with trees. One participant pointed out that solitary trees like the White Pine we saw there are often known as pasture trees. Here they need not grow tall but have room to spread their branches. This particular White Pine was branched in such a way as to indicate the prevailing winds.

Finally we stopped at an outcrop of ironstone which overlooked the Northwest Arm and Halifax – a lovely panoramic view. With twilight setting in quickly, we headed back to the parking lot.

This park was spared development because many residents spoke out against it; they felt Williams Lake would be negatively impacted. There were some quite steep areas on the hike – this too probably discouraged development.

Fortunately for the public, it has been declared a wilderness park, and now these varied habitats can be enjoyed and noted by all. Thank you Burkhard for your time and expertise with the Halifax Field Naturalists!

E-NOTES

– Lesley Jane Butters

ALBANY NEW

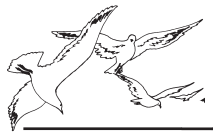
On an early September evening an hour before sunset, I just so happened to look down on the path leading to the house and notice **a tiny baby Ring-Necked snake**; I was very pleased I'd noticed it before trodding on it! Earlier that week while mowing the lawn, I had brushed away a pile of leaves and debris before mowing, and out squigled **a brilliant Green Snake**. Another lucky miss!

September 21st, sitting watching the sunset over the Northwest Arm, I observed **two large Heron**; one was sitting on a floating raft, the other flying back and forth hoping to perch upon the very same raft. Suddenly, with a tremendously loud squawk, they flew off across the water, battling back and forth. Finally, one flew off, losing the battle, and the other returned to 'its' raft where it stood with great posture and pride.

At Saint Mary's Boat Club on Equinox evening, I heard some peculiar bird sounds; I saw **Chickadees and Starlings** but no others. Then, three birds flew past me, one to the ground and the other two to a decaying tree branch. The latter two had woodpecker-type beaks but to me were not behaving like woodpeckers. Suddenly, they both pointed their heads to the sky and started bobbing up and down, touching each other's beaks as if they were fencing. During the bobbing and pattern-making figures in the air, there were interspersed high-pitched sounds ' Weeeka', 'Weeeeka', 'Weeeeka' similar to that of a Pileated Woodpecker. They then flew to the ground, one with wings fully extended in a crouched position, the other flying down on top of it; the third then flew in, disturbing them. Suddenly, all three flew off into the tree canopy making this 'WEEEEKKKA, Weeeeka' call, eventually landing on the original tree, each on a different branch, and all the while making their 'Weeeeka' call.

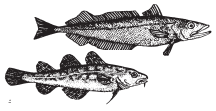
Eventually, I identified the birds as Northern Flickers. Would the birds be mating at this time of year or is this sort of behavior a characteristic thing Flickers do at Equinox?

HALIFAX TIDE TABLE



October-octobre

Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0344	**1.4**	4.6	**16**	0449	**1.6**	5.2
	0950	**0.8**	2.6		1111	**0.5**	1.6
FR	1539	**1.5**	4.9	SA	1657	**1.6**	5.2
VE	2218	**0.5**	1.6	SA	2332	**0.3**	1.0
2	0449	**1.5**	4.9	**17**	0538	**1.7**	5.6
	1043	**0.7**	2.3		1205	**0.4**	1.3
SA	1643	**1.6**	5.2	SU	1750	**1.7**	5.6
SA	2310	**0.4**	1.3	DI			
3	0536	**1.6**	5.2	**18**	0024	**0.3**	1.0
	1133	**0.6**	2.0		0619	**1.7**	5.6
SU	1735	**1.7**	5.6	MO	1254	**0.4**	1.3
DI	2358	**0.3**	1.0	LU	1836	**1.7**	5.6
4	0616	**1.7**	5.6	**19**	0109	**0.3**	1.0
	1222	**0.4**	1.3		0657	**1.8**	5.9
MO	1821	**1.7**	5.6	TU	1337	**0.3**	1.0
LU				MA	1918	**1.7**	5.6
5	0043	**0.2**	0.7	**20**	0150	**0.3**	1.0
	0654	**1.8**	5.9		0734	**1.8**	5.9
TU	1310	**0.3**	1.0	WE	1415	**0.3**	1.0
MA	1906	**1.8**	5.9	ME	1959	**1.7**	5.6
6	0126	**0.1**	0.3	**21**	0226	**0.4**	1.3
	0732	**1.9**	6.2		0809	**1.8**	5.9
WE	1358	**0.2**	0.7	TH	1450	**0.3**	1.0
ME	1951	**1.8**	5.9	JE	2039	**1.7**	5.6
7	0209	**0.1**	0.3	**22**	0257	**0.5**	1.6
	0813	**2.0**	6.6		0844	**1.8**	5.9
TH	1446	**0.1**	0.3	FR	1522	**0.3**	1.0
JE	2037	**1.8**	5.9	VE	2119	**1.7**	5.6
8	0253	**0.1**	0.3	**23**	0324	**0.6**	2.0
	0855	**2.0**	6.6		0918	**1.8**	5.9
FR	1536	**0.0**	0.0	SA	1554	**0.3**	1.0
VE	2124	**1.8**	5.9	SA	2157	**1.7**	5.6
9	0342	**0.2**	0.7	**24**	0351	**0.7**	2.3
	0939	**2.0**	6.6		0954	**1.7**	5.6
SA	1629	**0.1**	0.3	SU	1628	**0.4**	1.3
SA	2212	**1.8**	5.9	DI	2234	**1.6**	5.2
10	0438	**0.3**	1.0	**25**	0425	**0.7**	2.3
	1025	**1.9**	6.2		1030	**1.7**	5.6
SU	1726	**0.1**	0.3	MO	1707	**0.5**	1.6
DI	2301	**1.7**	5.6	LU	2312	**1.6**	5.2
11	0544	**0.4**	1.3	**26**	0512	**0.8**	2.6
	1113	**1.8**	5.9		1108	**1.6**	5.2
MO	1828	**0.2**	0.7	TU	1754	**0.6**	2.0
LU	2353	**1.6**	5.2	MA	2352	**1.6**	5.2
12	0655	**0.5**	1.6	**27**	0615	**0.9**	3.0
	1204	**1.7**	5.6		1149	**1.6**	5.2
TU	1932	**0.3**	1.0	WE	1847	**0.6**	2.0
MA				ME			
13	0052	**1.5**	4.9	**28**	0039	**1.5**	4.9
	0804	**0.6**	2.0		0719	**0.9**	3.0
WE	1304	**1.6**	5.2	TH	1237	**1.5**	4.9
ME	2036	**0.3**	1.0	JE	1944	**0.6**	2.0
14	0205	**1.5**	4.9	**29**	0138	**1.5**	4.9
	0909	**0.6**	2.0		0819	**0.9**	3.0
TH	1418	**1.6**	5.2	FR	1335	**1.5**	4.9
JE	2137	**0.3**	1.0	VE	2039	**0.6**	2.0
15	0336	**1.5**	4.9	**30**	0251	**1.5**	4.9
	1012	**0.6**	2.0		0915	**0.8**	2.6
FR	1545	**1.6**	5.2	SA	1446	**1.5**	4.9
VE	2237	**0.3**	1.0	SA	2133	**0.5**	1.6
				31	0359	**1.6**	5.2
					1009	**0.7**	2.3
				SU	1558	**1.6**	5.2
				DI	2225	**0.4**	1.3



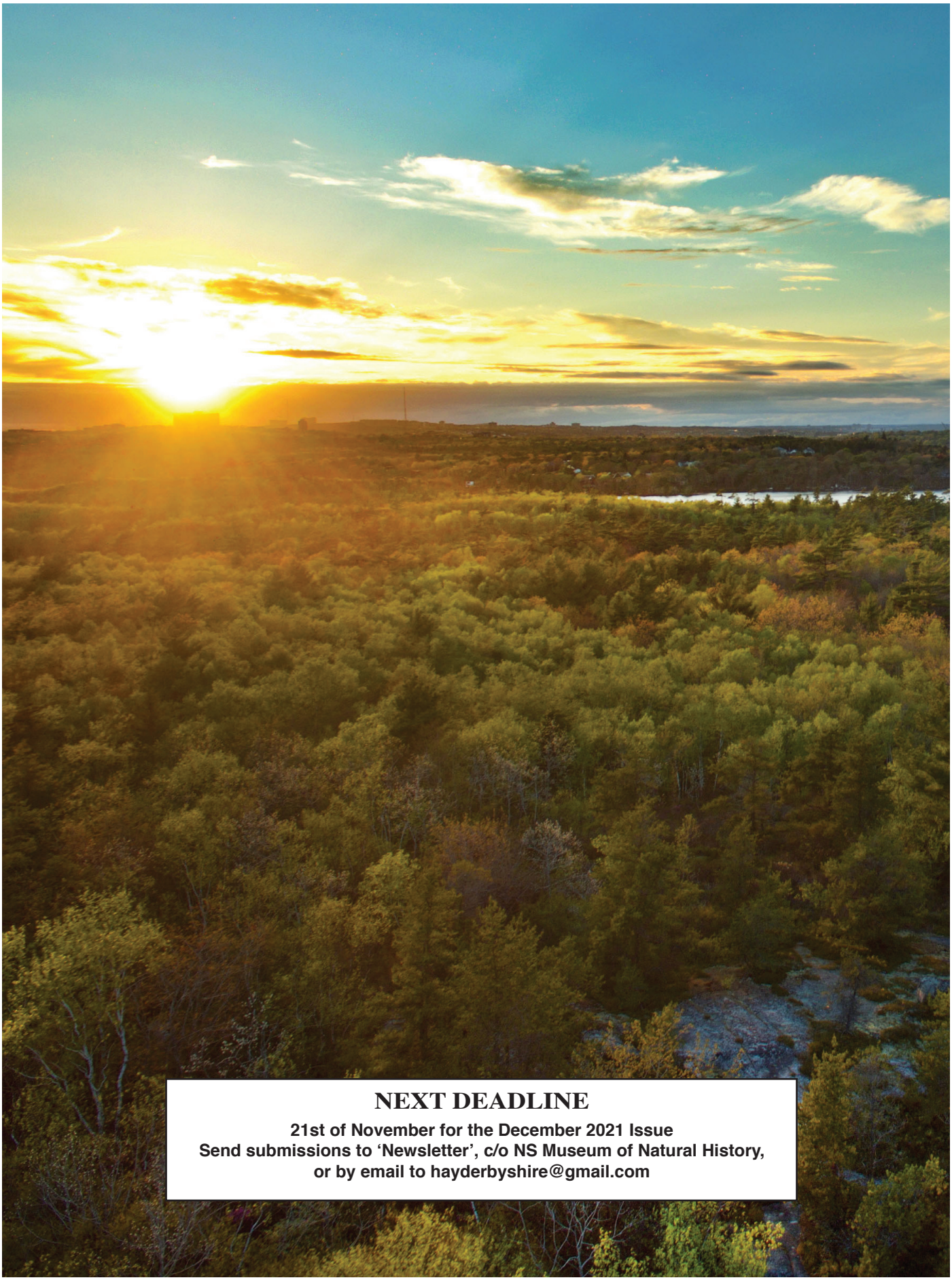
November-novembre

Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0449	**1.7**	5.6	**16**	0547	**1.7**	5.6
	1102	**0.5**	1.6		1231	**0.3**	1.0
MO	1658	**1.6**	5.2	TU	1813	**1.6**	5.2
LU	2315	**0.3**	1.0	MA			
2	0532	**1.8**	5.9	**17**	0043	**0.4**	1.3
	1155	**0.3**	1.0		0625	**1.7**	5.6
TU	1750	**1.7**	5.6	WE	1313	**0.3**	1.0
MA				ME	1856	**1.6**	5.2
3	0003	**0.3**	1.0	**18**	0124	**0.5**	1.6
	0613	**1.9**	6.2		0701	**1.7**	5.6
WE	1246	**0.2**	0.7	TH	1349	**0.3**	1.0
ME	1840	**1.7**	5.6	JE	1938	**1.7**	5.6
4	0051	**0.2**	0.7	**19**	0201	**0.5**	1.6
	0656	**2.0**	6.6		0737	**1.7**	5.6
TH	1337	**0.0**	0.0	FR	1423	**0.3**	1.0
JE	1929	**1.8**	5.9	VE	2019	**1.7**	5.6
5	0140	**0.2**	0.7	**20**	0232	**0.6**	2.0
	0741	**2.0**	6.6		0812	**1.7**	5.6
FR	1427	**0.0**	0.0	SA	1454	**0.3**	1.0
VE	2018	**1.8**	5.9	SA	2058	**1.7**	5.6
6	0232	**0.2**	0.7	**21**	0301	**0.7**	2.3
	0828	**2.0**	6.6		0848	**1.7**	5.6
SA	1519	**0.0**	0.0	SU	1526	**0.3**	1.0
SA	2108	**1.8**	5.9	DI	2136	**1.6**	5.2
7	0327	**0.3**	1.0	**22**	0331	**0.7**	2.3
	0917	**2.0**	6.6		0925	**1.7**	5.6
SU	1614	**0.0**	0.0	MO	1601	**0.4**	1.3
DI	2159	**1.8**	5.9	LU	2212	**1.6**	5.2
8	0430	**0.4**	1.3	**23**	0407	**0.8**	2.6
	1007	**1.9**	6.2		1003	**1.7**	5.6
MO	1713	**0.1**	0.3	TU	1640	**0.4**	1.3
LU	2252	**1.7**	5.6	MA	2249	**1.6**	5.2
9	0538	**0.5**	1.6	**24**	0452	**0.8**	2.6
	1058	**1.8**	5.9		1041	**1.7**	5.6
TU	1814	**0.2**	0.7	WE	1725	**0.5**	1.6
MA	2346	**1.7**	5.6	ME	2329	**1.6**	5.2
10	0648	**0.5**	1.6	**25**	0548	**0.8**	2.6
	1153	**1.7**	5.6		1122	**1.6**	5.2
WE	1916	**0.2**	0.7	TH	1815	**0.5**	1.6
ME				JE			
11	0045	**1.6**	5.2	**26**	0012	**1.6**	5.2
	0754	**0.6**	2.0		0647	**0.8**	2.6
TH	1253	**1.6**	5.2	FR	1207	**1.6**	5.2
JE	2016	**0.3**	1.0	VE	1907	**0.5**	1.6
12	0155	**1.6**	5.2	**27**	0103	**1.6**	5.2
	0857	**0.6**	2.0		0745	**0.8**	2.6
FR	1404	**1.5**	4.9	SA	1259	**1.6**	5.2
VE	2115	**0.4**	1.3	SA	1959	**0.5**	1.6
13	0313	**1.6**	5.2	**28**	0201	**1.6**	5.2
	0956	**0.5**	1.6		0841	**0.7**	2.3
SA	1525	**1.5**	4.9	SU	1401	**1.5**	4.9
SA	2211	**0.4**	1.3	DI	2051	**0.5**	1.6
14	0417	**1.6**	5.2	**29**	0301	**1.6**	5.2
	1053	**0.5**	1.6		0937	**0.6**	2.0
SU	1633	**1.5**	4.9	MO	1513	**1.5**	4.9
DI	2305	**0.4**	1.3	LU	2142	**0.4**	1.3
15	0506	**1.7**	5.6	**30**	0357	**1.7**	5.6
	1145	**0.4**	1.3		1033	**0.4**	1.3
MO	1727	**1.6**	5.2	TU	1621	**1.6**	5.2
LU	2356	**0.4**	1.3	MA	2235	**0.4**	1.3

ALL TIMES ARE AST

December-décembre

Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0447	**1.8**	5.9	**16**	0013	**0.5**	1.6
	1128	**0.3**	1.0		0552	**1.7**	5.6
WE	1721	**1.6**	5.2	TH	1245	**0.3**	1.0
ME	2329	**0.4**	1.3	JE	1834	**1.6**	5.2
2	0536	**1.9**	6.2	**17**	0057	**0.6**	2.0
	1223	**0.1**	0.3		0631	**1.7**	5.6
TH	1816	**1.7**	5.6	FR	1323	**0.3**	1.0
JE				VE	1918	**1.6**	5.2
3	0024	**0.3**	1.0	**18**	0136	**0.6**	2.0
	0625	**2.0**	6.6		0710	**1.7**	5.6
FR	1317	**0.0**	0.0	SA	1358	**0.3**	1.0
VE	1909	**1.7**	5.6	SA	1959	**1.6**	5.2
4	0121	**0.3**	1.0	**19**	0209	**0.7**	2.3
	0716	**2.1**	6.9		0748	**1.7**	5.6
SA	1411	**0.0**	0.0	SU	1431	**0.3**	1.0
SA	2002	**1.8**	5.9	DI	2039	**1.6**	5.2
5	0218	**0.3**	1.0	**20**	0240	**0.7**	2.3
	0808	**2.0**	6.6		0826	**1.7**	5.6
SU	1505	**–0.1**	–0.3	MO	1506	**0.3**	1.0
DI	2055	**1.8**	5.9	LU	2116	**1.6**	5.2
6	0318	**0.3**	1.0	**21**	0312	**0.7**	2.3
	0901	**2.0**	6.6		0905	**1.7**	5.6
MO	1600	**0.0**	0.0	TU	1542	**0.3**	1.0
LU	2149	**1.8**	5.9	MA	2152	**1.6**	5.2
7	0421	**0.4**	1.3	**22**	0349	**0.7**	2.3
	0954	**1.9**	6.2		0943	**1.7**	5.6
TU	1657	**0.1**	0.3	WE	1620	**0.4**	1.3
MA	2242	**1.8**	5.9	ME	2229	**1.6**	5.2
8	0527	**0.5**	1.6	**23**	0431	**0.7**	2.3
	1047	**1.8**	5.9		1022	**1.7**	5.6
WE	1755	**0.1**	0.3	TH	1702	**0.4**	1.3
ME	2336	**1.7**	5.6	JE	2307	**1.6**	5.2
9	0632	**0.5**	1.6	**24**	0521	**0.7**	2.3
	1141	**1.7**	5.6		1101	**1.7**	5.6
TH	1853	**0.2**	0.7	FR	1747	**0.4**	1.3
JE				VE	2347	**1.6**	5.2
10	0030	**1.7**	5.6	**25**	0617	**0.7**	2.3
	0735	**0.5**	1.6		1143	**1.6**	5.2
FR	1237	**1.6**	5.2	SA	1834	**0.4**	1.3
VE	1950	**0.3**	1.0	SA			
11	0128	**1.6**	5.2	**26**	0030	**1.6**	5.2
	0835	**0.5**	1.6		0713	**0.7**	2.3
SA	1339	**1.5**	4.9	SU	1231	**1.6**	5.2
SA	2045	**0.4**	1.3	DI	1923	**0.4**	1.3
12	0230	**1.6**	5.2	**27**	0118	**1.7**	5.6
	0932	**0.5**	1.6		0810	**0.6**	2.0
SU	1448	**1.5**	4.9	MO	1328	**1.6**	5.2
DI	2138	**0.4**	1.3	LU	2014	**0.5**	1.6
13	0331	**1.6**	5.2	**28**	0211	**1.7**	5.6
	1026	**0.5**	1.6		0907	**0.5**	1.6
MO	1557	**1.5**	4.9	TU	1434	**1.5**	4.9
LU	2232	**0.5**	1.6	MA	2108	**0.5**	1.6
14	0424	**1.7**	5.6	**29**	0308	**1.8**	5.9
	1117	**0.4**	1.3		1005	**0.4**	1.3
TU	1656	**1.5**	4.9	WE	1546	**1.5**	4.9
MA	2324	**0.5**	1.6	ME	2205	**0.5**	1.6
15	0510	**1.7**	5.6	**30**	0406	**1.8**	5.9
	1203	**0.4**	1.3		1104	**0.2**	0.7
WE	1748	**1.5**	4.9	TH	1654	**1.6**	5.2
ME				JE	2306	**0.4**	1.3
				31	0505	**1.9**	6.2
					1203	**0.1**	0.3
				FR	1755	**1.6**	5.2
				VE			



NEXT DEADLINE

21st of November for the December 2021 Issue
Send submissions to 'Newsletter', c/o NS Museum of Natural History,
or by email to hayderbyshire@gmail.com