

THE HALIFAX FIELD NATURALIST



Nos. 179/180
June to November, 2020



In This Issue.....	2
HFN News & Announcements	3
Special Articles	4
HFN Talks	6

HFN Walks	7
Nature Notes	9
Almanac	10
Tide Table	11

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

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



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

IN THIS ISSUE

HFN News & Announcements	3
First post-Covid meeting and trip	3
New NS Wildflower Guide - Blomidon Naturalists	3
HFN Support Letter Sandy Lake- development looms	3
In Memoriam - Ursula Grigg	3
New & Returning - 5.....	4
Special Articles	4
The Downsides of Fireworks - don't use them!.....	4
Beautiful Tatamagouche - NS idylls	4

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

COMMITTEES	
Membership	Ron Arsenault..... 410-6868
Programme	
AV Set-up	Burkhard Plache..... 475-1129
Talks/Trips	Chair Clarence Stevens..... 864-0802
	Carol Klar..... 443-3385
	Mille MacCormack..... 445-4522
	Bernie McKenna..... 434-3202
	Stephanie Robertson..... 422-6326
Design	
Newsletter	
Editor & Design	Stephanie Robertson..... 422-6326
Almanac	Patricia Chalmers..... 422-3970
Labels	Doug Linzey..... 1-902-582-7176
Distribution	Bernie/Heather McKenna..... 434-3202
	Lesley Jane Butters..... 422-4855
	Janet Dalton..... 443-7617
	Paris..... 425-1079
Refreshments	Vacant.....
Conservation	Heather Leslie.....
	David Patriquin..... 423-5716
	Clare Robinson..... 446-6603
NNS Rep.	Ron Arsenault..... 410-6868
YNC Rep.	Brian Bartlett..... 420-0315
Website	David Patriquin..... 423-5716
	Burkhard Plache..... 475-1129
CSC Award	Elliott Hayes..... 835-9819
	Doug Linzey..... 1-902-582-7176
	David Patriquin..... 423-5716
	Allan Robertson..... 422-6326

FEES	
Student	\$15.00 per year
Individual	\$20.00 per year
Family	\$25.00 per year
Supporting	\$30.00 per year
NNS (opt.)	\$5.00 per year

HFN Talks	6
HFN Photo Night - global in scope.....	6
HFN Walks	7
Hope for Wildlife - with Grace the Turkey	7
Shubenacadie Wildlife Park	9
Nature Notes - Cardinals; Eagle/Snake encounter..	10
Almanac - Natural Phenomena	10
Tide Table - October, November, December.....	11



GRAPHICS All uncredited illustrations by H. Derbyshire or from copyright-free sources. **Front Cover** - Long Lake, Rebecca Robertson; p. 5 - Ram's Head Lady Slipper, Roland's Flora of Nova Scotia; p. 7 - Wild Turkey, Steven Noble; **Back Cover** - Tatamagouche Green Frog, Gillian Webster; **Winter 2020 Tide Table** - Canadian Hydrographic Service, Fisheries & Oceans Canada.

HFN NEWS AND ANNOUNCEMENTS

INTERESTING TIMES ...

PART TWO

Nova Scotia has survived Covid-19 pretty well, all due to our diligently following the province's excellent directives. Let's hope it bodes well for the next year...

Note that this publication is a combined 2020 Summer/Fall one, and it contains The March Hope for Wildlife Field Trip which would have been included in the Summer Issue.

Our September 'Thursday Meeting' took place in the Public Gardens, September 5th. Twenty-two attendees were eager to get HFN's ball rolling again! Our first 'post-Covid' 2020 Fall Hike was a visit to Shubenacadie Wildlife Park on September 19th. Coincidentally, this was also that Park's first event offered after this spring and summer's activity restrictions. (See p. 9.)

NEW WILDFLOWER GUIDE

The Blomidon Naturalists have recently published a new and more user-friendly guide to our Nova Scotia native wildflowers and shrubs.

It slips easily into a pocket (10 cm x 17 cm); is clearly and simply written; and boasts 170 plant species with 75 pages of full-colour photographs and accompanying text, for much easier flower and shrub identification. It will probably join its owners for more hikes and walks than any other guide. At \$20.00 (please include an additional \$4 postage) it can be obtained from Blomidonnaturalists.ca.

HFN LETTER OF SUPPORT FOR SANDY LAKE

"Aug 27, 2020

Ms. Kathleen Fralic, Engagement Lead, Planning & Development, HRM, Regionalplan@halifax.ca

Dear Ms Fralic,

I am writing to express support of the Halifax Field Naturalists (HFN) for protecting the area of the proposed Sandy Lake-Sackville River Regional Park (SL-SRRP), as expressed in the April 24th submission (<https://www.sandy-lake-coalition.ca/rpsubmission>) to the RP+10 review by the SL-SRRP Coalition. HFN is one of 27 member groups comprising the Sandy-Lake-Sackville River Regional Park (SL-SRRP) Coalition. The SL-SRRP is approximately 2800 ha in area and is covered largely by undisturbed, mostly multi-aged Acadian forest with many pockets of Old Growth; and by surface waters and wetlands including three lakes. The SL-SRRP includes about one-half of the Sandy Lake watershed, the largest or second largest subwatershed (depending on how they are aggregated) of the Sackville River Watershed.

The area hosts remarkable plant and animal diversity for a near-urban area, in fact for any area of equivalent size (approx. 2800 ha) in NS. The recent report by the Natural Wonders Consulting Firm lists 13 species-at-risk, not including Atlantic salmon and American eel, which are found in the Sandy Lake to Sackville River watercourse. Ninety-nine avian species nest in the SL-SRRP. Just as important,

the SL-SRRP lies just above the neck of the Chebucto Peninsula, and provides critical connectivity between the lands of the Chebucto Peninsula and the greater mainland.

We understand that an application for Secondary Planning for lands immediately west of Sandy Lake is imminent by at least one developer. Thus it is urgent to incorporate measures that will continue to protect the integrity of these lands in the Regional Plan.

Sincerely,
Burkhard Plache, President, Halifax Field Naturalists"

IN MEMORIAM



PASSPORT PHOTO, 1956



RETIRED AT HOME, 2011

URSULA GRIGG

At 95, Ursula Grigg passed away peacefully in Wolfville this past August 28th. She was born in Bruton House, Mortimer West End, near Reading, Berkshire, England. She was a long-time editor of the Halifax Field Naturalist, a former HFN President, and an HFN Honourary Life Member.

Her biology interests were revealed early on by her membership, from ages 19 to 23 (1944 to 1948), in the Amateur Entomologists' Society (UK) – a substantial journal producing regular publications. She went on to attend Cambridge University.

Ursula immigrated to Canada in 1956 and somewhere along the way fell in love with ostracods, tiny little bi-valved crustaceans sometimes known as seed shrimp. She could very often be found in roadside ponds wearing hip waders to collect them. Eventually, Ursula became an international ostracod authority.

I first was made aware of these tiny, microscopic creatures when Ursula took me to a small stream in Beaverbank, Nova Scotia to help with her collecting. Resembling almost invisible tiny clams, unbelievably, they can also be found being globally distributed, live, in our atmosphere's four- to eight-mile high jet streams!

Ostracods had evolved by the early Cambrian, 545 million years ago, and are commonly found as fossils. They're an important link in food webs between algae and fish, and as in ancient times, they are still found living in every aquatic environment – on deep ocean floors or in the waters above; in shallow waters of seashores or estuaries; in fresh waters of rivers, lakes and ponds; also onshore and in the wet marshy areas of some river estuaries. Some even inhabit temporary ponds – their eggs are able to survive when they dry up in summer.

Ursula produced two N.S. Museum publications, "Fresh-water mussels in the Nova Scotia Museum Collection",

1972, (Curatorial report no. 8), and "An introduction to the Cenozoic Ostracoda (Crustacea) of Arctic and eastern Canada", 1985, <https://ojs.library.dal.ca/NSM/article/viewFile/3966/3628>. She worked for many years in SMU's Geology Department as a research assistant to Dr. Qadeer A. Siddiqui, whose work was funded by Saint Mary's University Research Committee. Dr. Siddiqui focused on fossil Ostracods; Ursula on those still living today. Ursula had also earned a permanent desk for her use in the Nova Scotia Museum of Natural History's biology lab.

Ursula loved to travel, and was a voracious reader. She leaves behind two successful scientist daughters, and grandchildren and great-grandchildren, of whom she was very proud and who brought her much joy. A private celebration of her life will be held at a later date. Donations in her memory can be made to the Nova Scotia Nature Trust. Online condolences and inquiries may be directed to www.whitefamilyfuneralhome.com.

SPECIAL ARTICLES

FIREWORKS' DOWNSIDES

At HFN's March 2020 monthly meeting, Regine Maass shared a June 29th 2019 Globe and Mail article about fireworks by Winnipeg-based writer and animal/environmental advocate, Jessica Scott-Reid. Here are some highlights:

Watching fireworks is a long-loved tradition. Who could possibly hate fireworks? As it turns out, there are plenty of us who do. Concerns regarding their harm to vulnerable people, animals, and the environment, are too glaring to ignore.

Firework mega-displays have had devastating effects on both people and animals. Immigrants and veterans who have experienced war suffer because of the brightness and explosive sounds which trigger PTSD's hyper-reactivity and exaggerated startle response. Loud explosions lead to flashbacks; people feel and act as if their traumatic experiences are recurring. For people with autism spectrum disorder a fireworks display is not an exciting experience; the combination of unexpected loud noises and sudden bright flashes are distressing and even painful for them.

It's not just humans who suffer. Birds can be flushed out of their nests, or suddenly fly out of cover. Netherland New Year's Eve data from 2008 to 2010 showed that promptly at midnight tens of thousands of birds exploded into flight when the fireworks began. They also badly affect pets, wildlife, and zoo and farm animals, causing fatal injuries when they become panicked and stressed. Horses are injured when blindly crashing into fencing and stables; a horse in Britain had to be put down because of injuries sustained after being spooked by fireworks. Many family pets are reported lost the next day because of fleeing the sounds. Wildlife rehabilitation centres report animals getting tangled in fencing and running onto roads.

Halifax birder and Dalhousie researcher Andrew Horn has studied fireworks' effects on nesting birds. Fireworks over bird-rich areas, including waterways, where such events are often held, is "a really bad idea. To have, all of a sudden, loud exploding fireworks overhead with all their dazzling lights – it would make them crazy," he said, adding also that birds are flushed out of their nests and fly out of cover, "when they really shouldn't be flying out of cover."

In 2011, thousands of blackbirds fell from the sky in



NEW AND RETURNING



Philip and Tamara Elwood
Linda Mills
Andrew and Lisa Zucarelli

Arkansas following New Year's Eve fireworks, and there have been reports of coastal birds becoming so frightened that they will fly too far out to sea, unable to return.

New Winnipeg parents were devastated after their premature twins of 24 weeks died in St. Boniface Hospital's neonatal unit on July 2nd. They believe nearby fireworks the night prior contributed to their babies' deaths. "It was literally like cannons were going off right outside the NICU window." Winnipeg pediatrician Dr. Lipnowski said that premature babies are particularly prone to stress from noise; it raises their blood pressure and damages their immature brains.

Fireworks also stress our already taxed environment and ecosystems, creating particle pollution on the ground, in the air, and in waterways, which can last for several days. They also increase the risk of wildfires, being essentially exploding fire missiles.

Thankfully, some cities have come to realise that the entertainment value of fireworks is not worth the harm they cause. Banff decided to cancel its 2019 concert-style pyrotechnics in order to protect people, animals, and the environment, and in 2015, Collecchio, Italy, passed a law which required all displays to use only 'quiet' fireworks (light shows). After the choreographed, illuminated drones which were used in the 2018 Winter Olympics, some US towns in California, Colorado, and Arizona followed suit for their celebrations, in order to reduce the risk of wildfires.

Fireworks hurt people, animals, and the environment in ways that render them no longer justifiable. All Canadian cities and municipalities should consider available alternatives so everyone can join in on the celebration, while minimising harm to animals and the environment around us.

BEAUTIFUL TATAMAGOUCHE

– Gillian Webster

Three times this past summer I visited the village of Tatamagouche, Colchester County, on the Northumberland Strait – 50 kilometres north of Truro and 50 kilometres west of Pictou. This area is well known for its warm waters and beautiful beaches, and those are what I aimed for. I highly recommend the beaches I visited – Rushton's, Blue Sea, and Northport.

Mary Macaulay hosted many of the Nova Scotia Wild

Flora Society members last Summer at her two Air bnb properties there. Mary owns Remember Adventures, rememberadventures.ca, and is the founder of the Insect Recovery Project, www.insectrecovery.org. She is an Environmental Engineer, has her P. Eng., and also has an Anthropology degree. Her special interest is human environmental impact in prehistory. What follows is my account (with a few words from Mary guiding my narrative here; any mistakes are entirely my own.

I chose mid-week visits which meant Mary could accompany me in her free time.

My first visit was to Angevine Lake near Wentworth, where Mary's winterised chalet is located. On June 10th, a beautiful spring day, we launched one of her canoes and set off in search of the rare and famous Ram's-head Lady Slipper *Cypripedium arietinum*, a small, herbaceous, perennial orchid of open forests. Their stems are 15-30 cm high and bear three to four (rarely five) narrowly ovate leaves. There were a few known small pockets along the lake's banks and we did locate some while searching for them from the canoe; it's a bit easier to spot them from the water. For me, these tiny ghostly flowers with their likeness to Rams' heads looked a bit skull-like. I certainly wouldn't have spotted any, even from the banks of the lake, unless Mary had known where to find them. Many readers may know, as I did not, that major conservation efforts had gone into protecting this particular patch of Crown Land orchids from aerial glyphosate treatment and much else besides.

Sadly, there were small outlines of the remains of two spotted fawns next to one of the orchid patches. It was a fairly steep, wooded area so it wasn't hard to see why the fawns might have had a hard time if they had become separated from their mother. It was a shock for me to see such rare, lovely flowers, alive and vibrant, next to the beautiful but silent fawns, just a foot or two away. It's a scene that is still vivid in my mind.

We explored a little inlet off the lake and submitted ourselves to the dizzying flight of small dragonflies. We were also greeted (or so it seemed) by large, yellow, Eastern Tiger Swallowtails *Papilio glaucus*, a native of eastern North America. I've never been surrounded for so long by so many large butterflies, and once among them, they seemed to follow us. I only have to close my eyes and see their large floppy wings gliding alongside our canoe – for more than an hour! Given that I had seen only one other place full of butterflies all summer, (apart from the Public Gardens), this was a feast!

That one other place was the Tangled Garden in Grand Pré, (tangledgarden.ca), which, for \$8.00 per adult, is a treasure trove of flowers, hummingbirds, and butterflies. I visited it three times, and I can't describe how uplifting it was!

Mary and I did see some early dragonflies, including the rare Ebony Boghaunter *Williamsonia fletcheri* Williamson in the pond between her lakeside cottage and Angevine Lake. She was kind enough to give me a copy of the HFN field checklist, "Dragonflies of Nova Scotia" but without any specific dragonfly knowledge, all I can remember is that there were Pond Damsels and Darners. I had taken my hat and sunglasses with me, but I

neglected to use either very much and I suffered from sunstroke the day after – you know how it is on a beautiful spring day on a lake – it doesn't feel hot because there's a wonderful breeze. I hope to visit again next year when I will surely be more careful!

My second visit was in August, and Mary found time to take me out in her tandem kayak up the Waugh's River on the 20th. We stopped at one of the river's shallow curves which she knew quite well. We got out and explored the riverside plants and trees where, according to Mary, there had been a Mi'kmaq settlement.

It is believed the Mi'kmaq of the area gave protection and a new home to some of the fleeing French Acadian women. This Acadian community had been founded in 1710. Forty-five years later, in 1755, the brutal and sudden clearance of it by the British happened within only three days. As some of you may know, many women were left behind when they hid during this deportation. (The Tatamagouche Creamery Square Heritage Centre, www.tatamagoucheheritagecentre.ca, is a wonderful resource for this history, and has good displays. Mary herself was consulted on some of the information relating to the relationship between the Mi'kmaq and Acadians there.)

Stepping on some wild mint in my water shoes released its pungent scent, and it heightened my awareness of the living community around me. There was a sense of quiet liveliness at that bend in the river which reminded me of books I had read as a child in Tasmania – of 'lost' Australian aboriginal tribes who lived beside and within nature as a matter of course.

With Mary's help, I became acquainted with French Willows and many other species – such as the Duck Potato plant *Sagittaria latifolia* which produces edible tubers; it is also known as Broadleaf Arrowhead. This was a delicacy traded far and wide. Another plant I was introduced to was the groundnut *Apios americana*. This groundnut was carefully wrapped and traded to other native American communities up and down the north-eastern seaboard. The Mi'kmaq called this groundnut 'Absinthe Wormwood'. It is a bushy perennial which grows from a woody base with multiple stems. The foliage has a strong aroma, (similar to sage, I have read), and it is used for various digestive problems such as loss of appetite, upset stomach, gall bladder disease, and intestinal spasms. Wormwood is also used to treat fever, liver disease, depression, muscle pain, memory loss, and worm infections; to increase sexual desire; as a tonic; and to stimulate sweating. Verbena was also in bloom. Mary mentioned its use in flavouring rye whiskey.

Tatamagouche has been translated as 'meeting place of the waters'. It's clear that pre-European arrival, there was an abundance of wild food all year round. In any case, the fare of the time included a lot of seafood (I read that the sea, tidal marshes, and rivers provided up to 90% of the diet at one time), and so there was not much need, historically, for the Mi'kmaq to plant food crops here. There is still a healthy salmon and trout run, and Tatamagouche oysters are world renowned. There were of course thousands of ducks and birds, and eels

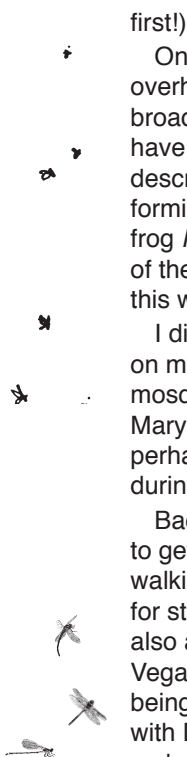


were a popular food item, too. Speaking of birds, just kayaking up the river gave us close-ups of many Kingfishers, Osprey, and Bald Eagles.

Back at Mary's house, situated on the main road through Tatamagouche, I could sit out on the deck during the day and watch hummingbirds, mosquitoes, and dragonflies flying in and around the gazebo and the many lilac bushes and wildflowers. Despite the floral lushness, there were not many butterflies in her lovely wildflower garden this summer, and this year, I had to use a lot of mosquito repellent.

September 8th to the 10th was my last visit, and for our mid-week trip, Mary and I paddled out into Tatamagouche Bay and walked about Steele's Island, an important (but hard to find unless you know its there) site revered by the Mi'kmaw as a burial ground. We landed on a little beach and made our way through thick woods for a few minutes until we came to the ceremonial firepit and wigwam. (While you can see a long way from very near the wigwam, you cannot see the wigwam from the water). Spiritual retreats often gather there, led by First Nations elders based at the town's Tatamagouche Centre still owned by the United Church of Canada. On our return, Mary and I paddled up the Waugh's River again on the tranquil tide.

My last mention is of the Wallace Bay National Wildlife Area (NWA) which is located 42 km east of Amherst. It sits at the upper limit of Wallace Harbour on Northumberland Strait. There is a four km hiking trail around the dyked wetlands. (On my August visit, I had been surprised to see a hummingbird. It perched quietly on a branch above me, where I sat overlooking the wetlands. I thought it would stop only for a second, but after five minutes of watching it groom, I was the one to leave

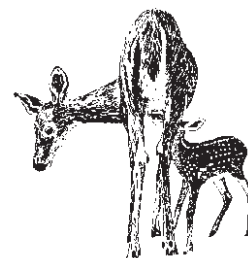


first!)

On this September visit, I glimpsed a hawk close overhead – all I remember is a reddish raptor with a broad white band; from what I have read since, it might have been a Northern Harrier. Words can't adequately describe the colourful flash I saw – like a graceful but formidable projectile. I also saw more than one Green frog *Rana clamitans* hopping about in the shaded parts of the dyke. The Tatamagouche area is spectacular in this way.

I did try to visit the Pugwash Estuary Nature Reserve on my way home but as I drove into the entrance, the mosquitoes bombarded my windshield and I lost heart. Mary says she noticed fewer dragonflies this year and perhaps this explains the droves of mosquitoes I met during my time in the wetlands.

Back to the nights of September 8 and 9th; I was able to get a good view of the night sky at around 10:00 p.m, walking around Mary's Air bnb with my binoculars. Just for starters, I saw Saturn, Jupiter, and the Milky Way and also a lot of constellations such as Lyra the Harp, with Vega as its most prominent star; Aquila the Eagle, Altair being its first magnitude star; and Cygnus the Swan, with Deneb as its brightest star – those three together make up the overhead and lovely 'Summer Triangle'. I came away each time with that marvellous sense of wonder and well-being which being immersed in nature gives us.



HFN TALKS

HFN PHOTO NIGHT

5 MAR.

– Peter Webster

For many years our HFN Photo Night has long been an enjoyable way to round out the evening after the Annual General Meeting. Everyone with natural history-related images to share is welcome to participate. This year Peter Webster coordinated the photo presentation. Five presenters showed a wonderful selection of images.

First up was **Stephanie Robertson**. Stephanie presented a selection of images from her and her husband Allan's wide travels, and from home in Nova Scotia. Stephanie began with images from a recent trip to England. These included scenic views from the roof of Dover Castle looking out across English Channel, toward France. Next we met horses and ponies who roam freely in the English village of Beau Lieu. We got views of the impressive nearby Winchester Cathedral, with stained glass windows depicting scenes of local wetlands wildlife. Photos from the area included a local Morris dance competition with the familiar brightly clad, flower adorned, Morris dancers. But there were also bands of masked, black clad Morris dancers, represent-



ing a darker aspect of the Morris dance tradition.

Stephanie's travel tour next took us to Vancouver Island and an explosion of cherry blossoms and other Spring flowers, including views of spectacular floral displays in Victoria's Butchart Gardens.

Finally, Stephanie returned us home with images of seaside flowers, closeup images of nestling birds, and a video of a Rosy Maple Moth, filmed near her family cottage at Melmerby Beach, Pictou County.

Next up was **John Crabtree**. John's expertise on mushrooms and fungus is well known to HFN members. His past HFN presentations on mushrooms have been extremely popular. This evening he presented a series of images introducing us to the world of Slime Molds. These small and gelatinous fungus-like growths are not uncommon in woodland undergrowth. They might be easy to overlook as part of the forest decay process, and they come in a variety of forms, colours, and shapes, some of them quite beautiful. They are soil-dwelling, single-celled entities on the boundary between plant and animal, with the ability to move in search of food. Common names such as Tapioca Slime and Scrambled Egg Slime give apt descriptions of these fascinating species.

John gave us a wonderful introduction to these remarkable organisms and left us wanting to learn more.

Richard Beazley shared images from a trip which he and wife Grace recently made to the Haida Gwaii islands off the coast of British Columbia. Richard began with a Haida Gwaii map and also one of the northern Graham Island in particular. We were introduced to Graham Island's lush forests with their magnificent trees, and he also gave us a look at the tributes to the rich Haida culture there. His pictures focused on the Tow Hill Ecological Reserve, which is part of the Provincial Park. We got good views of its well-organised and maintained trails, and its all-weather boardwalks. Richard's photos took us up steep stairs and a switchback trail leading to Tow Hill lookoff, the island's high point. It offered spectacular vistas of Agate Beach in one direction, and in the other direction, North Beach, and then Rose Spit, the northernmost tip of the Haida Gwaii.

Peter Webster showed a selection of animal photographs from his trips to the western United States and Canada. We saw several photos of bears going about their business in Wyoming's Yellow Stone National Park. These included a mother Grizzly Bear and her yearling



HFN FIELD TRIPS

HOPE FOR WILDLIFE

– *Denyse Contrasty*

Date: Saturday, March 14th

Place: Seaforth, eastern shore

Weather: Sun and cloud, brisk westerly winds, high 7°

Leader: Hope For Wildlife guide Shiela

Participants: 17

GRACE THE TURKEY AND HER TWO FRIENDS

Nine HFNers plus eight members of the public who joined our tour along the way gathered in the Learning Centre at Hope for Wildlife (HfW) in Seaforth. There we met our guide Sheila who introduced us to the various animals which make the Centre their home.

It was unfortunate that the Centre was noisy with visitors that day as Topaz, a Double Yellow Headed Amazon parrot, would only *listen* to his favourite song, (Andrea Bocelli singing "A Perfect Symphony"), eschewing us his customary dance to it. Topaz did enjoy the melody though, as he had puffed up the feathers around his neck, indicating he was happy to hear it.

Next to Topaz was a terrarium of Green Anoles, little lizards found on plants which had arrived at Walmart and IKEA, and also in suitcases as stowaways. As they love a warm, moist climate year-round, they will never be released, unlike 80 to 90 percent of our native animals treated by HfW. Sheila asked that visitors to exotic lands check their suitcases for native wildlife



foraging, and a young Black Bear getting a meal from the remains of an Elk or Antelope. We also saw Elk, Mountain Goats, and Pronghorn Antelope, and herds of adult and young Bison. Bison were shown stopping traffic as they crossed the park's road, and tourists were shown getting perilously close to them. His images also highlighted the 'prey-versus-predator' interaction between Coyotes on the hunt for food, and alert and vigilant Prairie Dogs guarding their burrows.

Rounding out the presentations, **Burkhard Plache** offered a selection of images from a trip to Seal Island off the southwest coast of Nova Scotia. This remote and starkly beautiful island is now owned by the Nova Scotia Nature Trust.

Burkhard began with images of the boat trip to the island; the trip lasted several hours. Images included rocky cobblestone island shorelines, sea grass barrens, evergreen forests, and wetlands. Seal Island has been used for seasonal sheep grazing, and some sheep have remained on the island year-round. It also has a large rabbit population, being free of predators. Burkhard included photos of the sheep and of the rabbits, along with the bones of sheep which have succumbed to the harsh environment there. He spoke about the changes to the island's ecosystem, and showed areas where trees have died or been greatly stunted, and areas where trees are being replaced by Sheep Laurel and other shrubs. These are changes likely brought about by the grazing habits of both the sheep and the rabbits.



before departing for home.

We moved to the snakes next, where the Ball Python Stormy, left behind in a Halifax apartment, was living in a tank next to Cornelius's, a native Corn Snake. Snakes have very poor eyesight, smell with their tongue, and have two nasal spots which are really heat sensors. Cornelius sheds his skin every five weeks at which time his skin feels spongy and his eyes turn milky as his outermost layer of skin peels off.

In the corner was Clover, a Greek Spur-thighed Tortoise, who was found in a suitcase at the Halifax airport. The suitcase's owner saw Clover on his travels and picked him up as a souvenir. Sheila, who makes school visits with Clover, said that even kindergarten children are horrified at the story of Clover being 'kidnapped' from his home. Sheila encourages them to speak up on behalf of animals such as Clover who cannot speak for themselves. The differences between tortoises and turtles? – tortoises have lines on their shells which can be counted to determine their age; they are more 'domed' than turtles; and they do not swim, unlike turtles which are at home in the water.

Next door was a Sugar Glider, a nocturnal squirrel from Australia, who chattered loudly at being woken up. Someone thought a Sugar Glider would make a unique pet but didn't do their research, as Sugar Gliders sleep all day, party all night, and pee outside their cage. Given

its wild lifestyle, this Sugar Glider was surrendered to HfW.

A newcomer was Wendy, a Red Squirrel who had arrived the week before. Wendy had suffered head trauma and kept losing her balance. She was greatly motivated by food and had become overweight. Wendy demonstrated how she did her own rehab by running frequently on her wheel.



A huge saltwater aquarium under interpretative boards depicted plastic pollution in the oceans. It was home to starfish, sea cucumbers, sea urchins, a crab, and a flounder. These particular creatures had come to the surface by hitching a ride on divers and their diving gear.

There was a pen for Sully, an old Skunk which had brown fur, a V-shaped yellow stripe, and no tail. Sheila said a skunk only discharges its scent after first stomping its feet, looking over its shoulder, putting its tail up, and then pausing to give its intended target a chance to back off. Once the scent has been discharged, a skunk is without defence for a few days before the scent accumulates in its glands again.

Twistie, a Groundhog, almost got its walking papers when it was discovered that its head trauma was permanent; Twistie can only randomly move in a circle instead of a straight line. In a big cage, Norman and his nameless girlfriend, both American Kestrels, were sitting side by side on a perch. Both had suffered wing injuries and subsequently each had lost a wing. Kestrels have been clocked at 100 miles per hour. They have a high metabolic rate and eat at least two mice plus mealworms each day.

By the door was an aquarium for Norbert, a Bearded Dragon from Australia – another abandoned exotic pet who at the moment was basking under a sunlamp on a rock. When upset, Norbert puffs up his chin and turns black to discourage predators. He has three eyes, the third being a tiny dot on the top of his head. With this eye, he can see the shadow of a bird of prey and take evasive action accordingly. Norbert gets doses of vitamins which are required by all exotic pets.



Outside, we almost tripped over Grace, a Turkey who had just arrived at HfW and about whom little was known. Clucking softly, she followed us all slowly as Sheila led us to the animal hospital. As the outside red light was not on (an indication to stay out), we went into the examination room which was very similar to what is found at any veterinarian's. But, there was a difference – the large volumes of anti-parasitic shampoos and drugs lining the shelves; most wild animals have mites and these will multiply when they are injured or unwell.

The x-ray room had a table which looked suitable for a child. Next to it was a cylinder of gas used to sedate an animal while being x-rayed; the amount of radiation is adjustable for the size of the animal. Sheila pointed out the operating room which had a table that expanded to accommodate an animal's length and which could be raised up and down. There were many different varieties of anaesthesia masks, sized for different shapes of heads and snouts.

Upstairs, the Baby Raccoon nursery isolates its orphans, as they are carriers of disease. Volunteers



must change into special clothes to nurse them, and then leave their apparel behind when done. The kits are quite cute until their hormones kick in, then they become quite impossible to handle. It's then that they're transported into the woods to be released.

In spite of the high number of mammals we saw, HfW treats mostly injured birds. Sheila pointed out a cat bib which was developed to give fledglings, who spend about a week on the ground before flying, a chance to escape a cat. It's a 'foam flap' which attaches to the front of a cat collar and drags on the ground, essentially hindering the cat in its pursuit of prey.

In an outside enclosure, a Grey Squirrel was scampering up its net door. Grey squirrels were at first seen only occasionally in Nova Scotia, but as a result of climate change, daily sightings have become the norm.

In another enclosure was Athena, a Red-tailed Hawk, also known as a Chicken Hawk. It is rare to see one close up and Athena had suffered a broken leg and also a wing which hadn't healed correctly.

The next large enclosure housed the Porcupines; most of them were recovering from mange or car injuries. It contained many discarded Christmas trees in order to make the pen smell better. Porcupines are excellent mothers; when their young are orphaned, they need to be cuddled, making it necessary to have human volunteers to do this. Their barbs are like fish hooks and contain an anti-bacterial substance. It is not unusual for one to fall off a tree and poke itself with its own barbs! Fishers, members of the weasel family, are their only predators.

Sheila showed us the Education room (a work still in progress) and then pointed out the back acres where large animals such as Bobcats, Bears, Deer, and Foxes are kept. There, visitors and handlers are kept to a minimum in order to avoid them imprinting upon humans.

Our last stop was Fenton Farmhouse where Seals and Owls are kept. It also houses freezers and storage bins for the various types of food each animal requires; the nutritionist notes on a large blackboard the daily meals for each animal. There are two dishwashers there which run all day, and enough animal laundry is generated to keep the washers and dryers going 24 hours, seven days a week. The laundry room is also home to Oliver, a Barred Owl, who had lost one eye and now has a cataract in the other. He was found by a family who had the best of intentions of rehabilitating him, but sadly did not understand owls' needs; he arrived at HfW quite underweight, making a recovery not possible. Back to our cars, Turkey Grace made another appearance. Her woebegone and submissive stance induced many to fuss over her, especially including two little girls who tried their best to comfort her even more.

Helpful posts at the Interpretative Centre – 1) **Skunk Spray Remedy** – 2 cups 3% hydrogen peroxide; 1/8 cup baking soda; 1 tsp liquid dishwashing soap. Apply liberally and immediately in a tepid bath. 2) **Wildlife Deterrent for the Garden** – Mix water, dish soap, and caster oil in equal parts. Spray the area you want protected.

HfW has 300 busy volunteers and five paid staff. It is open five days per week in summer and only weekends

in winter. People can visit, and donations such as raw eggs, root vegetables (no potatoes), and loose lettuce are welcome. The "Hope for Wildlife" TV Series, shown in 100 countries, is now into its 11th season.

SHUBENACADIE WILDLIFE PARK

– Stephanie Robertson



Date: Saturday, September 19th
Place: Shubenacadie Wildlife Park, Hants Co.
Weather: Sunny; cooler as it became dark.
Leaders: Park Staff Tabitha and Breagh
Participants: 10 plus Tabitha and Breagh

Forty minutes from Halifax, this beautiful wildlife park presently houses about 60 species of animals. Other trips I had attended here in the past had started off in the dark; it was a joy to be here when the sun was still out, with the well-maintained facilities and park so beautiful in the late-afternoon slanting, golden sunshine. Some of the wildlife we would be seeing were wolves, peacocks, coyotes, and maybe, bears. The Groundhog would *not* be seen - he had already gone into hibernation.

We set off, and met most of the inhabitants (the bears did not show themselves) in the following order.

Red Deer - In a very large, open, and semi-wooded enclosure, we saw two young ones. Like cows, Deer 'cud'; eating lots of greens by day, then 'bringing them up' later to be more efficiently chewed thereby extracting all possible nutrients. These deer lie down to sleep at night, but not together. These particular two had gotten into the **Elk** enclosure when the frost had heaved up a bottom part of the fencing, high enough so that they were able to get in under it. Staff could not get them out, no matter what they tried, so they are now happily ensconced in the same area. Elk are western animals; there was one magnificent male and two females. In North America, Elk are second in size only to the Moose.

While here, we spotted a large Bald Eagle's nest in an old White Pine. This was the third year for its use; they will use and reuse it, mending and adding to it over and over again. We also saw and heard two Peacocks above us in a White Pine - a Peahen and its large chick keeping safe from nocturnal ground predators.

Bobcat - The Park's one Bobcat is a 19-year old male orphan; his female companion died last year and he is now solitarily 'retired'. His enclosure was a very large, wire-mesh 'quonset hut'. Bobcats are nocturnal and are common in Nova Scotia. Their grey-tan coat is good camouflage. Bobcats carry themselves with a straight line to their backs, while, due to their longer back legs, Lynx have a sloping line (down from their tail to their head) This makes it easier to spot the difference between them. Lynx also have large tufts on their ears while Bobcats have tuftless, much smaller and compact ones. (To be continued in the next issue - ed.)

NATURE NOTES

SEPTEMBER

On August 28th, at about 8:50 a.m., Michael Bradfield noted a **large Bald Eagle** flying north to south across the Public Gardens, about 20 feet higher than the nearby apartment buildings. He also noted an **unusual plethora of bees** on the dahlias there.

Janet Dalton was surprised to see a **Hummingbird at her feeder** so late in the year; she usually notes that they disappear around August.

Carol Klar saw a large white clump of her first ever native **Turtlehead *Chelone glabra*** in Lake William, Barrs Corner, Lunenburg Co. Burkhard noted that he had also seen some along MacIntosh Run.

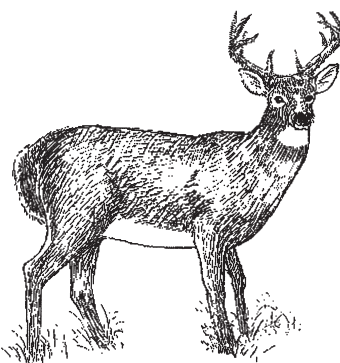
At NSNT's protected Wilson's Lake in the Tusket River watershed, Yarmouth Co., Ingrid Plache saw her first **Plymouth Gentian *Sabatia kennedyana*, Pink Coreopsis *Coreopsis rosea*, and Water Pennywort *Hydrocotyle umbellata***; all three are endangered Atlantic Coastal Plain Flora wetland plants.

At Melmerby Beach, Stephanie Robertson observed **Cedar Waxwings** hanging around a Lilac hedge for a few days; The Waxwings were a first ever sighting for her there. Another first sighting were **three Red-breasted Mergansers** swimming slowly from east to west very close to the beachline, synchronously and intermittently for one or two minutes lowering their heads and necks underwater as they continued along.

Ian Taylor remarked that their back garden **pair of Cardinals** seemed to have departed, replaced with **noisy Blue Jays**. Pat Chalmers mentioned that right now Blue Jays were sulky because they were moulting.

On August 21st, around Wilson's Lake, Yarmouth Co., Burkhard and Ingrid saw many dead or dying **Eastern Hemlock** trees infected with the **Hemlock Woolly Adelgid (HWA)**. It was a sad sight to see so many mature trees succumbing to this insect that was accidentally introduced from Asia. We were warned to not enter the woods, so as not to inadvertently spread it elsewhere. However, it is very likely to reach all of Nova Scotia over the coming years, and to kill off most Hemlock trees.

On a golf course Richard Beazley observed a **Raven** swoop down then fly up with a captured **Garter Snake** which vigorously whipped back and forth in its beak. The Raven consequently dropped it and the snake made a beeline for a lake there, however, the Raven managed to get it again, this time successfully keeping it, and off it flew with its prize.



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.



NATURAL EVENTS

- 22 Sept.** Autumnal Equinox at 10:30 ADT: Fall begins in the Northern Hemisphere.
- 28/29 Sept.** Seventeenth anniversary of "Hurricane Juan".
- 30 Sept.** Average date for first frost in Halifax (i.e. Environment Canada says that there is only a one in ten chance that we will have frost before this date.) Look forward to 210 days of frosty weather.
- 1 Oct.** Full Moon. Moonrise at 19:15 ADT.
- 31 Oct.** Full Moon. Moonrise at 18:24 ADT.
- 1 Nov.** Daylight Saving Time ends (clocks are set back one hour) and Atlantic Standard Time begins at 2:00 a.m.
- 22 Nov.** Daily minimum temperature goes below 0 C.
- 30 Nov.** Full Moon. Moonrise at 16:52 AST.
- 7-11 Dec.** Earliest Sunset of the year at 16:33 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 06:02 AST: Winter begins in the Northern Hemisphere: But though the temperature drops, the days begin to lengthen.
- 29 Dec.** Full Moon. Moonrise at 16:14 AST.
- 29-31 Dec.** Latest Sunrise of the Year at 07:51 AST.

– Sources: Atmospheric Environment Service, *Climate Normals 1951-80 Halifax (Shearwater A) N.S.*; Blomidon Naturalists Society's 2019 Calendar; www.timeanddate.com

SUNRISE AND SUNSET ON SPRING AND EARLY SUMMER SATURDAYS FOR HALIFAX: 44 39 N, 063 35 W



5 Sept.	06:42	19:42	3 Oct.	07:15	18:50
12 Sept.	06:50	19:29	10 Oct.	07:23	18:37
19 Sept.	06:58	19:16	17 Oct.	07:32	18:25
26 Sept.	07:06	19:03	24 Oct.	07:41	18:14
			31 Oct.	07:51	18:03
2 Nov.	07:00	16:54	5 Dec.	07:35	16:34
9 Nov.	07:10	16:46	12 Dec.	07:42	16:34
16 Nov.	07:19	16:40	19 Dec.	07:47	16:36
23 Nov.	07:28	16:36	26 Dec.	07:50	16:40

ORGANISATIONAL EVENTS

Halifax Field Naturalists: Meetings are normally held, except for July and August, on the first Thursday of every month at 7:30 p.m. in the auditorium of the Nova Scotia Museum of Natural History, 1747 Summer Street, Halifax; they are open to the public. **Field Trips** are held at least once a month; it is appreciated if those travelling in someone else's car share the cost of the gas. For more information, go to <http://www.halifaxfieldnaturalists.ca/>.

- 3 Sept** 7:00 p.m. at the Public Gardens, the "First post-Covid 'Thursday Monthly Meeting'".
- 26 Sept.** "Shubenacadie Wildlife Park I", 6:30 p.m. at the Park, with Park Staff guides.
- 1 Oct.** HFN "Monthly Meeting", 6:00 p.m. at the Public Gardens near the Bandstand.
- 3 Oct.** "Shubenacadie Wildlife Park II", 6:30 p.m. at the Park, with Park Staff guides.



HALIFAX TIDE TABLE



October-octobre

November-novembre

December-décembre

Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0149	0.3	1.0	16	0101	0.1	0.3	1	0216	0.5	1.6	16	0225	0.2	0.7	1	0220	0.6	2.0	16	0309	0.4	1.3
	0738	1.7	5.6		0705	2.0	6.6		0808	1.7	5.6		0814	2.1	6.9		0811	1.7	5.6		0846	2.0	6.6
TH	1408	0.4	1.3	FR	1340	0.1	0.3	SU	1441	0.3	1.0	MO	1509	0.0	0.0	TU	1451	0.2	0.7	WE	1544	0.1	0.3
JE	1953	1.8	5.9	VE	1930	1.9	6.2	DI	2045	1.7	5.6	LU	2056	1.8	5.9	MA	2059	1.6	5.2	ME	2133	1.8	5.9
2	0221	0.3	1.0	17	0151	0.1	0.3	2	0243	0.5	1.6	17	0321	0.3	1.0	2	0255	0.6	2.0	17	0406	0.5	1.6
	0812	1.8	5.9		0752	2.1	6.9		0841	1.7	5.6		0904	2.0	6.6		0848	1.8	5.9		0936	1.9	6.2
FR	1439	0.4	1.3	SA	1434	0.0	0.0	MO	1512	0.3	1.0	TU	1602	0.0	0.0	WE	1530	0.3	1.0	TH	1635	0.1	0.3
VE	2031	1.7	5.6	SA	2020	1.9	6.2	LU	2121	1.6	5.2	MA	2147	1.8	5.9	ME	2137	1.6	5.2	JE	2222	1.8	5.9
3	0249	0.4	1.3	18	0242	0.1	0.3	3	0313	0.6	2.0	18	0421	0.4	1.3	3	0335	0.6	2.0	18	0503	0.5	1.6
	0845	1.8	5.9		0839	2.1	6.9		0914	1.7	5.6		0953	1.9	6.2		0927	1.8	5.9		1025	1.8	5.9
SA	1509	0.4	1.3	SU	1527	0.0	0.0	TU	1547	0.3	1.0	WE	1657	0.1	0.3	TH	1612	0.3	1.0	FR	1726	0.2	0.7
SA	2108	1.7	5.6	DI	2111	1.8	5.9	MA	2156	1.6	5.2	ME	2237	1.8	5.9	JE	2215	1.6	5.2	VE	2309	1.8	5.9
4	0313	0.5	1.6	19	0336	0.2	0.7	4	0347	0.7	2.3	19	0524	0.5	1.6	4	0421	0.7	2.3	19	0601	0.6	2.0
	0916	1.8	5.9		0926	2.0	6.6		0949	1.7	5.6		1043	1.8	5.9		1007	1.7	5.6		1114	1.7	5.6
SU	1539	0.4	1.3	MO	1621	0.0	0.0	WE	1626	0.4	1.3	TH	1753	0.2	0.7	FR	1658	0.3	1.0	SA	1817	0.3	1.0
DI	2144	1.7	5.6	LU	2201	1.8	5.9	ME	2232	1.6	5.2	JE	2328	1.7	5.6	VE	2255	1.6	5.2	SA	2356	1.7	5.6
5	0338	0.5	1.6	20	0435	0.3	1.0	5	0431	0.7	2.3	20	0628	0.6	2.0	5	0515	0.7	2.3	20	0659	0.6	2.0
	0948	1.7	5.6		1014	2.0	6.6		1026	1.7	5.6		1133	1.7	5.6		1049	1.7	5.6		1204	1.6	5.2
MO	1612	0.4	1.3	TU	1718	0.1	0.3	TH	1713	0.4	1.3	FR	1850	0.3	1.0	SA	1749	0.4	1.3	SU	1907	0.4	1.3
LU	2220	1.6	5.2	MA	2252	1.7	5.6	JE	2311	1.6	5.2	VE				SA	2338	1.6	5.2	DI			
6	0408	0.6	2.0	21	0539	0.4	1.3	6	0527	0.8	2.6	21	0021	1.6	5.2	6	0614	0.7	2.3	21	0046	1.7	5.6
	1021	1.7	5.6		1102	1.8	5.9		1106	1.7	5.6		0730	0.6	2.0		1135	1.7	5.6		0755	0.6	2.0
TU	1651	0.4	1.3	WE	1817	0.2	0.7	FR	1807	0.5	1.6	SA	1228	1.6	5.2	SU	1842	0.4	1.3	MO	1257	1.5	4.9
MA	2255	1.6	5.2	ME	2343	1.7	5.6	VE	2353	1.6	5.2	SA	1946	0.4	1.3	DI				LU	1956	0.5	1.6
7	0447	0.7	2.3	22	0646	0.5	1.6	7	0631	0.8	2.6	22	0118	1.6	5.2	7	0026	1.6	5.2	22	0139	1.6	5.2
	1056	1.7	5.6		1152	1.7	5.6		1151	1.6	5.2		0830	0.6	2.0		0715	0.7	2.3		0849	0.6	2.0
WE	1737	0.5	1.6	TH	1917	0.3	1.0	SA	1904	0.5	1.6	SU	1329	1.5	4.9	MO	1227	1.7	5.6	TU	1355	1.5	4.9
ME	2333	1.6	5.2	JE				SA				DI	2040	0.5	1.6	LU	1936	0.4	1.3	MA	2044	0.6	2.0
8	0542	0.8	2.6	23	0038	1.6	5.2	8	0044	1.6	5.2	23	0225	1.6	5.2	8	0121	1.6	5.2	23	0237	1.6	5.2
	1133	1.6	5.2		0751	0.6	2.0		0734	0.8	2.6		0926	0.6	2.0		0815	0.6	2.0		0940	0.6	2.0
TH	1831	0.6	2.0	FR	1248	1.6	5.2	SU	1244	1.6	5.2	MO	1440	1.5	4.9	TU	1328	1.6	5.2	WE	1459	1.4	4.6
JE				VE	2017	0.4	1.3	DI	2002	0.5	1.6	LU	2133	0.5	1.6	MA	2029	0.4	1.3	ME	2133	0.6	2.0
9	0015	1.5	4.9	24	0143	1.5	4.9	9	0145	1.6	5.2	24	0332	1.6	5.2	9	0221	1.7	5.6	24	0334	1.6	5.2
	0649	0.8	2.6		0854	0.6	2.0		0834	0.7	2.3		1020	0.6	2.0		0915	0.5	1.6		1029	0.6	2.0
FR	1217	1.6	5.2	SA	1356	1.5	4.9	MO	1349	1.6	5.2	TU	1550	1.5	4.9	WE	1438	1.6	5.2	TH	1605	1.4	4.6
VE	1931	0.6	2.0	SA	2115	0.4	1.3	LU	2057	0.4	1.3	MA	2224	0.5	1.6	ME	2124	0.4	1.3	JE	2223	0.6	2.0
10	0107	1.5	4.9	25	0304	1.5	4.9	10	0256	1.6	5.2	25	0427	1.6	5.2	10	0323	1.8	5.9	25	0425	1.6	5.2
	0755	0.8	2.6		0954	0.6	2.0		0934	0.6	2.0		1110	0.5	1.6		1014	0.4	1.3		1114	0.5	1.6
SA	1311	0.5	1.6	SU	1517	1.5	4.9	TU	1504	1.6	5.2	WE	1649	1.5	4.9	TH	1552	1.6	5.2	FR	1702	1.4	4.6
SA	2031	0.5	1.6	DI	2211	0.4	1.3	MA	2152	0.4	1.3	ME	2313	0.5	1.6	JE	2220	0.4	1.3	VE	2312	0.6	2.0
11	0214	1.5	4.9	26	0418	1.6	5.2	11	0402	1.7	5.6	26	0512	1.7	5.6	11	0422	1.9	6.2	26	0510	1.6	5.2
	0856	0.8	2.6		1050	0.6	2.0		1033	0.5	1.6		1155	0.5	1.6		1113	0.2	0.7		1156	0.4	1.3
SU	1418	1.6	5.2	MO	1630	1.5	4.9	WE	1618	1.7	5.6	TH	1738	1.5	4.9	FR	1659	1.6	5.2	SA	1753	1.5	4.9
DI	2129	0.5	1.6	LU	2305	0.4	1.3	ME	2246	0.3	1.0	JE	2359	0.5	1.6	VE	2319	0.3	1.0	SA	2358	0.6	2.0
12	0334	1.5	4.9	27	0510	1.6	5.2	12	0457	1.8	5.9	27	0551	1.7	5.6	12	0517	1.9	6.2	27	0551	1.6	5.2
	0955	0.7	2.3		1141	0.5	1.6		1131	0.3	1.0		1234	0.4	1.3		1211	0.1	0.3		1235	0.3	1.0
MO	1536	1.6	5.2	TU	1724	1.6	5.2	TH	1721	1.7	5.6	FR	1822	1.6	5.2	SA	1759	1.7	5.6	SU	1838	1.5	4.9
LU	2225	0.4	1.3	MA	2354	0.4	1.3	JE	2341	0.2	0.7	VE				SA			DI				
13	0441	1.6	5.2	28	0552	1.7	5.6	13	0547	2.0	6.6	28	0039	0.5	1.6	13	0018	0.3	1.0	28	0041	0.6	2.0
	1053	0.5	1.6		1227	0.5	1.6		1228	0.1	0.3		0627	1.7	5.6		0610	2.0	6.6		0629	1.7	5.6
TU	1646	1.7	5.6	WE	1808	1.6	5.2	FR	1818	1.8	5.9	SA	1309	0.3	1.0	SU	1307	0.0	0.0	MO	1313	0.3	1.0
MA	2319	0.3	1.0	ME				VE				SA	1904	1.6	5.2	DI	1855	1.7	5.6	LU	1920	1.6	5.2
14	0532	1.8	5.9	29	0038	0.4	1.3	14	0035	0.2	0.7	29	0115	0.6	2.0	14	0116	0.3	1.0	29	0120	0.6	2.0
	1150	0.4	1.3		0629	1.7	5.6		0636	2.0	6.6		0701	1.7	5.6		0703	2.0	6.6		0708	1.7	5.6
WE	1745	1.8	5.9	TH	1306	0.4	1.3	SA	1323	0.0	0.0	SU	1342	0.3	1.0	MO	1400	0.0	0.0	TU	1352	0.2	0.7
ME				JE	1849	1.7	5.6	SA															



DEADLINE

21st November for the December 2020 Issue

**Send submissions to 'Newsletter', c/o NS Museum of Natural History,
or by email to hayderbyshire@gmail.com**