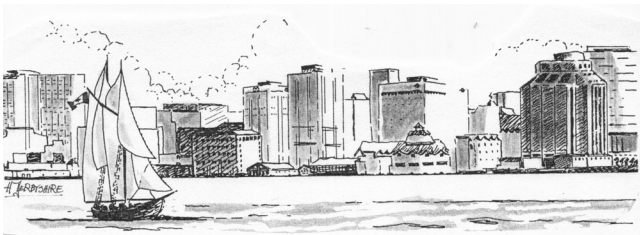
THE HALIFAX FIELD NATURALIST

No. 178
March to May, 2020

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 held, except for July and August, on the first Thursday of every month at 7:30 p.m. in the auditorium of the Nova Scotia Museum of Natural History, 1747 Summer Street, Halifax; they are open to the public. **Field Trips** are held at least once a month; it is appreciated if those travelling in someone else's car share the cost of the gas. **Participants** in HFN activities are responsible for their own safety. Everyone, member or not, is welcome to take part in field trips. **Memberships** are open to anyone interested in the natural history of Nova Scotia. Forms are available at any meeting of the society, or by writing to: Membership Secretary, Halifax Field Naturalists, c/o N.S. Museum of Natural History. Members receive **The Halifax Field Naturalist**, along with its included **Programme**, quarterly. Our membership year is from January 1st to December 31st, and new memberships received from September 1st to December 31st of any year are valid until the end of the following membership year.



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

GRAPHICS All uncredited illustrations by H. Derbyshire or from copyright-free sources. **Front Cover** - Apple Blossom, Lorien Robertson; **Back Cover** - willow buds, Roland Marek; pp. 10/11 - Frogs, Rebecca Betts. Leopard Frog, H. Derbyshire; **Winter 2020 Tide Table** - Canadian Hydrographic Service, Fisheries & Oceans Canada.

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HFN NEWS AND ANNOUNCEMENTS

INTERESTING TIMES

Well – big, *big* changes to all of our activites. The usual quarterly programme is not included here; until further notice all talks and walks have been cancelled due to the nation- and province-wide activity guidelines for trying to prevent the spread of Covid-19 Corona virus.

The pluses? There's *lots* of downtown parking, long, sunny walks with no traffic, and a general sense of relaxation and slowing down.

This issue's production rolled along merrily, with news and events which have already occurred, therefore the whole process and its publication does not violate any 'social distancing'.

Here's why. When I've printed out the master copies at home, I deliver them to one print shop, the covers to another. Only two people are involved at each, handing them over at the accepted social distance; and picking them up when ready also can also be accomplished without compromise. I then collate and box them all, leaving them in a very accommodating HFN member's front porch (no meeting required – a 'dead-drop'!). I then contact Programme Committee member Bernie McKenna, our new head of Newsletter Distribution, to let him know. He picks them up (a 'dead pick-up') to distribute – some by mail, and some to deliver to our hand-distribution volunteers – all accomplised with only one or two people.

Most probably, our summer solstice publication will be only a programme of future events (depending upon the virus's course). At time of this writing, Wuhan, China, where it started at the beginning of January, is free (for now) of new cases. Let's hope all the drastic measures are effective here.

IN MEMORIAM

PAUL BRUNELLE

Paul Michael Brunelle passed away on January 18, 2020. Paul was a graphic designer, and in 1977, with Partner Derek Day, founded Graphic Design Associates (GDA) in Halifax.

Luckily for entomologists as well as naturalists, Paul's other passion was a life-long interest in natural history; he devoted his life to the study of northeast dragonflies and damselflies which at that time were relatively poorly known. Paul's fascination never flagged, and in time it became his primary vocation. He surveyed some of the most remote bogs, streams, and marshes of the Maritimes and Maine, usually alone, and often at risk of sinking into a quagmire!

In 1995 he discovered a new dragonfly species, the Broad-tailed Shadowdragon *Neurocordulia michaeli* (named for his son Michael in 2000). This find was significant enough to attract dragonfly specialists from across the continent to St. Stephen's, New Brunswick, for the 1996 annual meeting of the Dragonfly Society of the Americas.

For HFN, Paul's many seasons of sometimes very difficult remote field research were the basis of our 2004/2005 first production of HFN's "Dragonflies of Nova Scotia Field Checklist". Paul was also instrumental in helping with and ensuring that our later 2017 update was completely accurate.

Paul knew the profound significance of natural history collections; his own, deposited in a number of museums, were meticulous. Most of them are in the New Brunswick Museum, with one of the largest dragonfly and damselfly collections in Canada, largely due to Paul's efforts. The scope of the N.B. Museum collection reflects not only Paul's decades of field study, but almost more importantly, his huge impact on other (present and future) naturalists in the Eastern Atlantic region.

Paul was a teacher without peer. He particularly enjoyed working with young people, and a number of his students are now pursuing graduate degrees in entomology at Canadian universities.

Prior to his death, Paul completed the draft of his magnum opus, a 400-page "Atlas of the Dragonflies and Damselflies of Acadia (Maine and the Maritimes)", all of which he wrote, designed, and illustrated himself. Hopefully to be published in the near future, it will be a fitting tribute, and legacy, to both Paul and the insects he loved.

Those who wish to pay respects to Paul's life may make a donation to the N.B. Museum Christie Fund, which supported Paul's work, and also still the study of natural history in the Maritimes. Its address is – The New Brunswick Museum Christie Fund, New Brunswick Museum, 277 Douglas Avenue, Saint John, NB, E2K 1E5, c/o Donald F. McAlpine.

JEAN SALISBURY

For those of you who knew HFN member (Margaret) Jean Salisbury, sadly she passed away suddenly on February 7th, in Bedford. Following her wishes, there was to be "no obituary, and no flowers". She and husband Matthew enjoyed and attended many, if not all, of our waterfall trips organised by Richard and Grace Beazley. A Service of Celebration was held at Bedford United Church. Our condolences go out to her family.

A McNAB'S ANNIVERSARY

On Saturday, July 18th ,The Friends of McNab's will host a Picnic/Garden Party to celebrate their 30th Anniversary and to officially open the now renovated Teahouse, repurposed and renamed the Outdoor Education Centre. For more information, go to **info@mcnabsisland.ca**, **mcnabsisland.ca/contact**, Twitter **@mcnabsisland**.

NEW AND RETURNING

Jo-Anne Brown
Doug & Wendy Graham

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SPECIAL REPORTS

YEAR END REPORTS

PRESIDENT'S REPORT

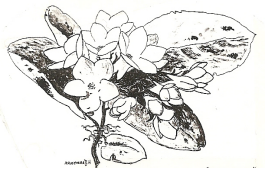
I am happy to report that our regular activities (monthly meetings, field trips) are ongoing and well attended. On a few occasions, we could not accommodate all interested in attending, highlighting the successful planning of the programme committee. The quarterly newsletter is equally highly regarded and appreciated. Articles from past issues, which are provided on our website, have been used recently to argue for land preservation in the Peggy's Cove area.

In early 2019, the Halifax Field Naturalists agreed to support a lawsuit brought by Nature Nova Scotia (the Federation of Nova Scotia Naturalists) against the province of Nova Scotia. The lawsuit alleges that the province does not live up to the legal requirements regarding the protection of species at risk. The hoped for outcome would be a judge's order that the province institute required processes and procedures. We had expected that the lawsuit would be decided by the end of 2019. However, the judge has not yet ruled, and we are still waiting.

This coming year, together with the Young Naturalists Club, we will be co-hosting the annual Nature Nova Scotia Celebration of Nature at Mount Saint Vincent University. The theme is "Exploring Urban Wilderness". Given the proximity to the city, we are expecting high attendance, and are planning on presentations and field trips showcasing areas which already have protection, or are in need of the same.

Our society is supported by a stable membership, and more than 20 volunteers, who all deserve a big thank you.

– Respectfully submitted,
Burkhard Plache



CONSERVATION

Many HFN members are interested in conserving nature in Nova Scotia. They are involved in a wide range of issues, some with HFN and some with other organizations. A few HFN members volunteer to serve on the Conservation Committee; for example, from March 2019 to March 2020 members of the Committee were Bob McDonald, David Patriquin, Clare Robinson, and Richard Beazley.

For the past year HFN and its Conservation Committee members have been engaged in the following issues:

HFN joined Nature Nova Scotia and the Blomidon Naturalists Society in filing for a judicial review of what they say is the Minister of the Lands and Forestry Department's failure to uphold a mandatory duty under the provincial Endangered Species Act, which is to protect at-risk plants and animals.

HFN members continued to support the various organisations who demanded successfully that the Government of Nova Scotia uphold the Boat Harbour Act, which orders that Boat Harbour cease to be used for the reception and treatment of effluent from Northern Pulp by the 31st of January 2020.

Bob McDonald is still representing HFN on Our HRM Alliance which has recently been rejuvenated. The focus of the Alliance now is to oversee and provide guidance to HRM on the implementation of the Green Network Plan, which has been approved by Regional Council. He continues to follow closely progress towards formation of BMBCL Regional Park, is a member of the Friends of BMBCL Society, and has made contributions on the 'Bird-watching' section of their web site. As a member of HFN, Friends of BMBCL, and the Nova Scotia Nature Trust, Bob notes that the Nature Trust has made an agreement to purchase a 575-acre property to connect the former Cox's Lake Park Reserve with the rest of the Wilderness Area, and adds that they have begun a major fund-raising venture to raise the $2.1 million required to purchase the 'Blue Connector'. Bob strongly encourages all HFN members to become 'Friends' of BMBCL via their web site. After many years of dedicated service to conservation, Bob has resigned from HFN's Conservation Committee.

David Patriquin (a) has served as co-chair of the newly formed Sandy Lake-Sackville River Regional Park Coalition and continues his natural history observations of the area (view versicolor.ca/sandylakebedford); (b) was actively involved in developing a case for conservation of the Williams Lake Backlands, which has now been formally designated as the Shaw Wilderness Park under the joint administration of Nature Conservancy Canada and HRM; and (c) researched, in 2012, two blocks of land adjacent to the Five Bridge Lakes Wilderness area, which were protected in 2019 by the Nova Scotia Nature Trust and Five Bridges Trust.

Clare Robinson, a self-employed conservation planner, wife, and mother of twin ten-year-old boys, has limited time for volunteer conservation activities, but continues to follow and offer support to conservation initiatives like the implementation of the Lahey Report for better forestry practices; the establishment of more protected areas like the new Shaw Wilderness Park; the progress of the Province's Species at Risk Renewal Programme; and the movement of the Hemlock Woolly Adelgid. She will continue to provide input to the HFN Conservation Committee when able.

Richard Beazley served as the Information Officer for the Healthy Forest Coalition until the end of June of this year, during which he provided forest-related news to HFN on a twice-a-month basis. And, he acted as the Conservation Committee's liaison member to HFN's Board of Directors. After three years service, and no longer volunteering with the Healthy Forest Coalition, he

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Halifax Field Naturalists
Balance Sheet
December 31st, 2019

Assets		
Bank Account	1,258	
Accounts Receivable: HST Rebate	157	
Investments	8,716	
Pins	515	
Butterfly & Dragonfly Lists	123	
	10,769	10,769
Liabilities and Surplus		
Liabilities		
Accounts Payable: Nature Nova Scotia	195	195
Surplus		
Restricted: Endangered Species and Spaces	2,716	
Unrestricted (beginning of year)	8,085	
Net Income	– 227	
	10,574	10,574
		10,769

Halifax Field Naturalists
Statement of Income and Expenses
January 1st to December 31st, 2019

	2019 Actual	**2019 Budget**	***2020 Budget***
Revenues			
Membership Funds	2,490	2,810	*2,610*
Interest	51	51	*39*
Donations	62	50	*50*
Sales (Pins, Lists)	1	25	*10*
	2,604	2,936	*2,809*
Expenses			
Meetings	333	353	*333*
Field Trips	0	0	*0*
Newsletter Production	966	1,150	*1,000*
Newsletter Distribution	836	650	*840*
Memberships & Fees	267	267	*236*
Socials	0	10	*0*
Grants, Donations	0	100	*0*
Special Projects	27	0	*0*
Insurance	240	225	*240*
Internet Service	131	135	*130*
General Supplies & Expenses	0	10	*0*
Bank Fees	31	36	*30*
	2,831	2,936	*2,809*
Net Income	– 227		
Unrestricted Surplus, beginning of year	8,085		
Unrestricted Surplus, end of year	7,858		

– Respectfully submitted,
Ingrid Plache, Treasurer

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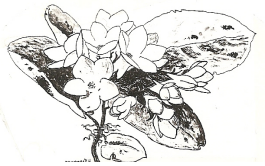
has resigned from the Conservation Committee.

In conclusion, any HFN member with a passion for conserving a piece of nature in HRM is urged to join the Conservation Committee. As this report indicates, new members are needed! Being on the committee is a unique experience. Committee members conduct their activities in an ad hoc fashion, don't have meetings, are more-or-less leaderless, and communicate with each other and HFN members in general by phone, email, or social media. Committee members usually engage individually in conservation issues of passionate interest to them, and act collectively only when warranted. The Committee is served well when one member agrees to act as a recorder of members' activities and a reporter to HFN's Board of Directors.

– Respectfully submitted,
Richard Beazley



NEWSLETTER

Our four 2019 Issues, Spring #174 to Winter #177, contained 68 pages of natural history information and articles. A sincere thank you to everyone who took the time and trouble to record, write-up, edit, and submit them all. DalPrint has 'upped' its charges, but only by 10% which I think HFN can cover.

Here are a few highlights:

Our Spring Issue announced Halifax's first partcipation in the international 'City Nature Challenge'. Bernice Moores stepped away from her always dependable seven-years of newsletter distribution; able members Bernie and Heather McKenna, Lesley Jane Butters, Janet Dalton, and paris stepped up to take over this task. Membership remained around the same as 2009 – 123 (with a high of 146 in 2015 and 2016).

Pat Leader's Special Article "Bolivia and Beyond" took us on an informative and fascinating natural history tour of Easter Island, Peru, and Bolivia, while Nova Scotia Nature Trust's (NSNT) volunteer Coordinator Ryan MacLean gave us a revealing glimpse into the Trust's history, mission, land acquisitions, and activities.

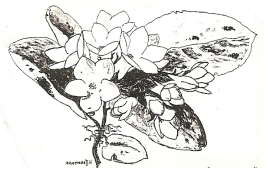
Summer's newsletter reported that out of three participating Canadian cities, despite deluges of rain, Halifax came first in the international City Challenge for its number of observations, observers, species, and identifiers. We noted the shameful, overly aggressive behaviour of a called-in RCMP officer to an invited participant ('called in' by the mining company Atlantic Gold at a public outreach meeting about the proposed Cochrane Hill goldmine). We read all about backyard bees and bees in general; about more history and details behind the conservation Blue Mountain/Birch Cove Lakes; and relevant to the above – about the very toxic legacy of Montague Goldmines in Dartmouth.

In Fall's issue, we learned from Pat Leader that the European exotics Deptford Pink *Dianthus armeris* L. and Viper's Bugloss *Echium vulgare* L. are slowly spreading throughout Bedford, and that Burkhard and Ingrid Plache had a welcome opportunity to particiate in a three-day botanical baseline study of Seal Island. A wonderful presentation by marine biologist Bob Scheibling's revealed the relationship between sea urchins, kelp, ocean storms, warming oceans, and the devastation that these can have on the ecology ocean floors.

The Winter Issue invited us to donate to the fund being raised to ensure a large, unbroken, and protected urban wildland in the Blue Mountain Wilderness/Birch Cove Lakes. Through many beautiful photos and stories, Keith Vaughan and Marion Sensen presented their eighteen-day trip through northern and central California, where we learned about the famous giant sequoias there. Global birder Jason Dain shared his beautiful photos and tips on travel photography in other countries. We had another successful Mushroom Walk with John Crabtree and an informative trip to the Purcell's Cove Quarries with Dr. Zentelli.

My thanks to Patricia Chalmers for our useful Almanac; to Allan Robertson, Patricia Chalmers, Bob McDonald and many others for much appreciated proofing; to UPS Queen St. for reliable and skilled colour-cover production; and to DalPrint for our reduced rates.

– Respectfully submitted,
Stephanie Robertson



MEMBERSHIP

In 2019 our membership figures indicate that we collected dues for 63 individual , 28 family, 16 supporting and 4 institutional memberships. We also presented one complimentary membership during the year. Adding these to one life membership results in a total of 113 memberships. It should be noted that family memberships are counted as 'one' and thus the total (113) does not equal the total number of 'members' as no multiplier is applied to family memberships. Nineteen of these memberships were new. One complimentary membership was given during 2019. Forty-two of these memberships included a Nature Nova Scotia membership; it does not include our Facebook Group members, nor our Twitter followers.

A special thanks to Doug Linzey and to Bernie McKenna all their help with membership-related tasks.

Total Memberships by Year

2010	/11	/12	/13	/14	/15	/16	/17	/18	/19
119	107	109	114	129	146	146	115	123	113

– Respectfully submitted,
Ronald Arsenault

!NOTE! These reports are written as given. The status of the Corona Virus now negates any afore-mentioned large gatherings and events such as Nature Nova Scotia's Celebration of Nature Weekend in May, 2020.

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SPECIAL ARTICLES

THE MIGHTY MISSISSIPPI

– Patricia Leader

I've always been fascinated by how the world's largest rivers, and their basins' specific characteristics, shape the past, present, and future life of its peoples. Growing up alongside London's River Thames, I was always aware of its political, financial, ecclesiastical, and naval aspects, as well as its pageantry. Upstream, the Thames flows through charming green landscapes, ancient castles, and halls of learning.

I've been fortunate to travel other great rivers – the Nile, the Amazon, the Ganges, and the Mekong. This past fall, I sailed on the 128-metre paddle steamer the "American Queen" from Memphis to New Orleans – the lower Mississippi River. This mighty waterway offered authentic southern culture – a journey through living history portraying the romantic spirit of the Antebellum or pre-civil war era. Here were vast sugar, tobacco, and cotton plantations, imposing pillared mansions, and battlefields. In contrast, local museums and cemetaries portrayed the cost of this past wealth through the lives of the thousands of immigrants forced from Africa, and the death of countless soldiers and civilians in the civil war.

Before setting sail we had a few days in the bustle and glitz of Nashville and Memphis; it set the backdrop for this region, with its distinctive music, and Creole and Cajun culinary arts. Locals were well aware of Nova Scotia's Acadian connection and how their culture had been transposed there. Arriving on the banks of the Mississippi, our tour group was greeted with its first sight of the paddle steamer, decorated with gleaming, intricate white woodwork and large half-moon pleated rosettes. The large red paddle in the stern and the two, tall black chimneys added to its grandeur (each chimney could be lowered to accommodate the many bridges crossing the river). The dining room and theatre were extremely elegant and reminiscent of the latter half of the steamboat era.

On the Mississippi, paddle steamers first made their appearance in the 1800s for plantations to ship their goods downriver. By 1810 to the 1830s, the number of paddle steamers had increased to 1,200. On the American Queen, each of its corridors was lined with paintings of that era; iIn some, the number of boats crossing the river in all directions showed the popularity and chaos of this means of transport. As years passed, the utilitarian paddle boat, where of necessity the passengers slept on deck, changed to became more luxurious, perhaps comparable to travelling on the Cunard 'Queen' boats.

The Mississippi (6,275 km) is the third longest river after the Nile (6,650 km) and the Amazon (6,400 km). However, as many scientists report, it is often difficult to accurately measure a river. Old ones are continually changing their courses so it is difficult to measure accurately its meanderings through lakes and/or a wide delta. Should one also consider the volume of water and its flow and the contribution of the river's major tributaries? Climate change will present scientists with even more difficulties in accurate measurements. Challenges have already arisen to contain rising seas and control increasing river volumes with outdated dams and riverbanks.

The US Army Corps of Engineers are responsible for maintaining a safe depth for river traffic and also for the safety and stability of their embankments; in one area we saw giant erosion control mats of coconut coir (which had fostered plant vegetation).

For the geographer and nature lover, this river has much to commend. From its source at Lake Itasca in Minnesota to its delta at the Gulf of Mexico, some 325 species of birds make the round trip annually; these vary from small warblers to pelicans and eagles; with its adjoining floodplains, wetlands, and forests, it forms an avian super highway. The lower half has some 150 species of fish. Its delta comprises three million acres and is home to two of the world's most ancient – the Shovelnose Sturgeon and the Alligator Gar. Elsewhere, the slow flowing water attracts bottom feeders like catfish, crayfish, and both black and white crappie; there are also mussels and bass.

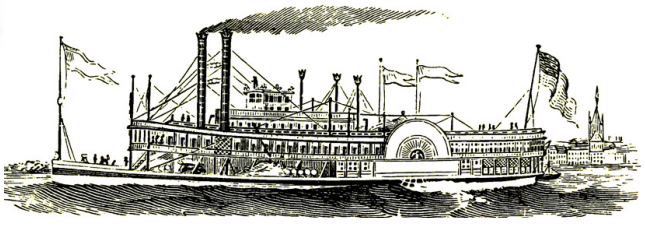
Fur-bearing animals include muskrat, racoons, opossums, skunks, beaver, river otters, and the Eastern Grey Squirrel. Its abundance of sedges, pondweeds, and millet provides both shelter and food.

Inland there are black bears and white-tailed deer and, of course – alligators. Flowers include Jack-in-the-Pulpit and Goatsbeard (much taller than our species). There are also crested blue irises, Lily-of-the-Valley, hyacinths, swamp hibiscus, and Blazing Stars. Trees include the southern magnolia which is both the state tree and state flower, myrtle, the tulip tree, red maple, oak, pawpaw, sweet gum, and the evergreen Live-oak. Although it was November, the magnolia and myrtle were in bloom and one could stroll down long, shady 'Live-oak avenues', perhaps with a traditional Mint Julep in hand.

My first impression was that this river was extremely wide with long, curving meanders. Mark Twain had likened these to the careful, unbroken curly parings of an apple. The water was a slow moving, murky brown – "too thick to drink yet too thin to plough". Certainly, it had none of the transparency which marks the seas and rivers of our province.

Tugs came downriver, pushing ahead of them 20-30 barges apiece, filled with rocks, sand, and other cargo. Some had the help of a second tug at the front and I wondered how much skill was needed to keep it all intact around the wide bends. I was reminded of log booms in B.C. and barges on the Yangtze, and of how river transportation is still very much alive. The western shore of Louisiana is generally flat with low vegetation, marshes and bayous; in contrast, the other bank is populated inland with charming towns.

The difficulties of navigating the river in earlier times was clearly described by Samuel Clemens (Mark Twain), who trained as a river pilot, earning his licence in 1859. Dur-



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ing each watch of his early training, the boat's pilot would continuously identify various elements along the shore. Young Samuel, overjoyed by being in the pilot house, barely listened. Later he realised such landmark knowledge was essential; pilots had to know every inch of the river on both sides. In both fog or utter darkness, the pilot was key to the boat's safety.

I enjoyed standing on the top deck at night, especially if it was a starless sky. There was no way one could see the faraway banks, (let alone on a night of fog or pelting rain). It was totally disorienting. Even with a full moon, the west bank had few distinguishing groups of trees or hills, and no buildings. I tried to imagine those former eras before technological navigating aids came into being, but felt secure as I returned to the Mark Twain reading room below deck and took up another chapter of life on this great river.

Before each daily stop the 'Riverlorian', (derivation – river, lore, historian) explained what the next town had to offer. On the previous evening we had picked up a ticket for the time of our choosing and a map for the day's Hop-On-Hop-Off buses. Each bus had a guide and all entrance fees were included.

The first stop was Vicksburg (1719), built by French colonists on a bluff and which withstood an attack by the native Natchez peoples. In the Civil War it was the key commercial riverport. Now, it is home to three large installations of the U.S. Army Corps of Engineers. Natchez (1710) is the oldest city on the river. After the Seven Year's War it was ceded to Spain, later becoming the centre for the cotton industry and river trading. There are many opulent homes open to the public such as the Greek revival Stanton Hall and the William Johnson House, built in 1840 by a freed slave. Many of the mansions and grounds are kept up by local horticultural societies. Volunteers, often descendants of the original families and dressed in period costume, conducted tours. Gardens, pillared entrances, lofty ceilings, and high doors were typical features of 1800s plantation homes, blatantly demonstrating their owners' wealth. The Museum of African American History there covers a period of some 300 years. Lastly, there is the Lower Mississippi Museum, with its 1,515-gallon fish tank of local river fish. Interactive displays show the steps needed to control floods, such as that in 1927 which devastated the area – 70,000 km^2 was under nine metres of water and was declared the largest flood in American history. The federal government responded by building the world's longest system of levees and floodways.

Louisiana's State Capital, Baton Rouge, has an extensive Rural Life Museum set on a former plantation. It had a large collection of tools and ornate travel and funeral carriages. Heavy, metal devices which were used to restrain slaves were also shown. Beyond the house, there were rows of dwellings used by workers. Each was raised off the ground to deter animals and each had different quantities and qualities of furnishings reflecting the hierarchy of each slave's role on the plantation.

The State Capital building's Art Deco architecture had an impressive view from its observation deck on the 27th floor – America's tallest capital building. The legislative room was highly decorated for Christmas although I was told that everyone had returned to their constituencies and homes for their long break and the decorating was traditional. Nearby, Lafayette is the Acadian Cultural Centre which celebrates French colonists, or Cajuns, who immigrated here after the Seven Years' War in the mid 1700s

St. Francisville is the oldest town in the parishes of Louisiana. Built on a ridge created by dust storms in the last glacial age, it measures only a few km long by two metres wide! Spanish settlers, looking for a burial site, were attracted to the bluff. Later, the Anglo settlers moved in but by 1811 the area was annexed to the United States. Below the bluffs, there was the nearby settlement of Bayou Sara – a safe anchorage and another large cotton port. It had a reputation for rowdy transient adventurers, horse trading, and other unsavoury activities, which all probably led to its demise. The Grace Episcopal Church (1860) had a wonderful collection of 34 coloured windows, including six made by the Tiffany Studios in New York.

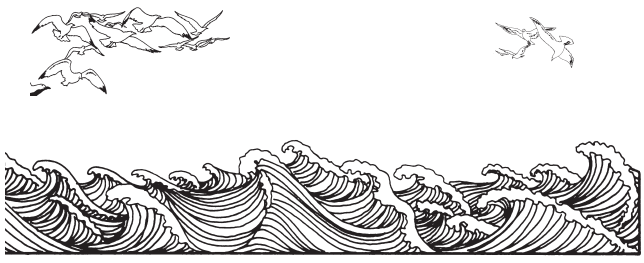
Just above New Orleans, Nottoway has the Nottoway Plantation, with the largest and most glorious remaining antebellum mansion. Locals were quick to point out that it is larger than Trump's White House – with 365 door and window openings, and 64 bedrooms! The most elegant feature is the extensively mirrored White Ballroom, all in white and gold. Interestingly, the ornate friezes there were made from local Spanish Moss, river mud, clay, and plaster. The readily available Spanish Moss was also used for stuffing the seat pads of ornate chairs.

Our final port was in the heart of New Orleans (1718). At breakfast we were greeted by pelicans swimming at dining room level. Passing ocean liners, freighters, and tugboats took on the enormous river bends; there was still some 100 km for them to go, through the Mississippi's immense delta estuary to the ocean. I looked forward to seeing what progress the city had made since Hurricane Katrina (2005) when 200,000 inhabitants fled the city to live permanently elsewhere. Katrina's conservative damage bill of $160 billion and a death toll of between 1,000 to 2,000 people would be nothing to what major cities might experience in the future.

Walking along the waterfront park I noticed how the levees had been enlarged and how their light traffic could be directed through heavy, horizontally-sliding gates. Elsewhere, more pumping stations had been installed. It was estimated that with winds up to 260 kmh, the sea had caused 50 breaks in the levees; this resulted in 80% of the city becoming badly flooded.

oday, New Orleans remains as vibrant as before and has welcomed many immigrants to boost the population which earns its revenues from music and tourism. Street music and decorative balconies add to the flavours of Jambalaya, ribs, grits, crawfish, and sticky bread pudding.

In the last decade we have come to realise that natural events which we considered exceptional are now the new norm. The land surrounding the Mississippi is but one area of the world where a watchful eye and new advances civil engineering will always be needed.



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HFN TALKS

NORTHERN RIGHT WHALES 2 JAN.

Janet Dalton

"The Northern Right Whale Past, Present, and Future as Revealed by Their Genes" Whales have been long over-exploited by humans; some are endangered and of serious conservation concern. But they are most difficult to study; spending most of their time underwater, much of their life occurs out of sight. Genetic analyses can be particularly useful for revealing otherwise hidden behaviours, and also the threats they face. A researcher with St. Mary's University since 2009, Timothy Frasier and his wife Brenda McLeod, who met in grad school, now focus their research on using genetics for improving our understanding and conservation of the Northern Right Whale.

Slow-moving plankton eaters which lack a dorsal fin, Northern Right Whales are robust baleen whales about 50 feet long, weighing about 50 metric tonnes, and are not very streamlined due to their large head which sports a very large lower lip. Newborns actually have teeth, but these disappear as their flexible baleen plates eventually take over. On each side of their head, adults have over 250 of these hairy-fringed, two metre long baleen plates. Timothy showed an image of some baleen which was over seven feet tall.

There are two groups of Right whales – the 'gulpers' which have expandable underjaw plates; and the 'skimmers' – the 'lawnmowers of the sea'. Northern Right Whales (the "Mobey Dick" whale) are skimmers, along both the ocean's bottom and its surface. Their jaws are expandable in order to take in huge quantities of copepod-rich water, using their tongues to force the water out between the baleen plates. The baleen fringe acts like a sieve, retaining the copepods (many species of crustaceans) while filtering out almost everything else.

There are three types of Right Whales: The North American Right Whale, The North Pacific Right Whale, and the Southern Right Whale. In both the North Atlantic and the Pacific oceans, the Right Whale is not doing well. In the South Atlantic however, its seems to be thriving better.

At six to eight months calves develop distinct 'callosities', which are cornified epithelium, like the callouses on our heels. Hard, crusty, and jagged, they're found on the head, chin, lip, belly, throat, and above the eyes. These make it very easy to identify different whales for scientific study and tracking; they have different shapes, and even different colours depending upon which species of cyamids (lice) infect them. A similar looking Arctic whale, the Bowhead, is easily distinguishable because it has no calousities.

There are five areas where they can be seen. In winter they feed and give birth in the south near Florida. In spring they seem to feed near Cape Cod, and all summer they use to feed in the Bay of Fundy; presently, they seem to prefer the Gulf of St. Lawrence.

History of Right Whale Hunting. Right Whales are coastal, so they are easy to get to. They were hunted in Red Bay off Labrador by the Basques from France and Spain, and they were called 'Right Whales' because they were the best and easiest whales to kill; they swim slowly at the surface, often close to shore; have huge amounts of blubber and valuable baleen; and they float when dead whereas other whales sink when killed. Among many other things, the plastic-like sturdy baleen was used for for women's corsets, and the lucative whale oil also had myriad uses. From between 1000 to 1600, it is estimated that beween 12,500 to 15,00 were killed (from tax-record data; whalers had to pay taxes on the barrels of whale oil they produced). American whalers took over in the 1600s up to 1932, and this took the numbers down to about 3,000.

In 2004 Parks Canada did an intensive study of a sunken galleon found in 30 metres of water in Red Bay. They found very many whale limb bones there. They realised it was because Basque whalers used large canoes to get the whales to shore. Cutting off their large flippers in order to fit them in, they would then toss them overboard. DNA studies were done on twenty-one of these bones and only one of the was identified as belonging to a Right Whale – all the others were identified as Bowheads. It is believed now that Right Whale populations were low even before the Basques began to kill the them in such large numbers.

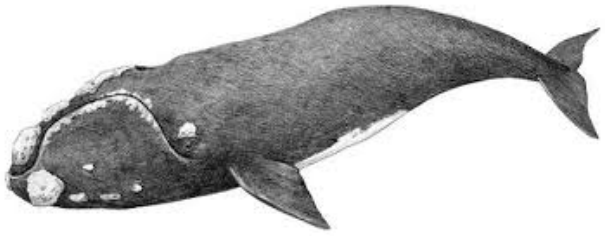
The female Northern Right Whale gives birth every ten years (it was more often in the past) and they may have their first calves at the age of eight. Presently, the birth rate is dangerously lower than the death rate. Right Whales engage in mating activities throughout the year, with females making loud cow-like mooing sounds which can be heard by males from a great distance. The males rush in, bumping and pushing the female in what scientists call 'surface-action-groups' or SAGs. Females lie on their backs when they want to avoid males. But they must eventually breathe, and when they flip over to do so the males try to mate at this moment. Females are pregnant for twelve months. Somehow, males have the capablility to remove previous mating males' sperm. Recently, only older males seem to be mating, with the younger males right out of it.

Other reasons for a slow population recovery are increased levels of pollution, harmful algal blooms, climate change causing food shifts, ship strikes, entanglement in stronger, longer-lasting fishing gear, and constant stress from increasingly noisy oceans.

Genetic material is collected with an arrow or spear designed to penetrate the whale's skin and to extract a measured, small amount. DNA sampling enables the matching of a calf to its mother, to identify dead whales when they are found in a badly decomposed condition, and to build up a picture of what is happening to subsequent popluations.

What is the future for Northern Right Whales? Tim and Heather believe that because the whales survived the ice age, hopefully they will survive all they are facing today.

With continued genetic work and strong government shipping and fishing restrictions, maybe these beautiful creatures will slowly make a comeback.



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AMPHIBIANS OF N.S. 6 FEB.

– S. Robertson

The cold, windy, freezing rain and snow on this particular Thursday prevented Andrew Hebda driving from his farm on the Noel shore to give us his highly aniticipated presentation on turtles, a decision which, under the circumstances, had to be left to the last possible minute. Uncertain that he might not have been able to return home on most probably dark, icy, and dangerous roads, he had to cancel for the sake of his farm animals who need to be fed every evening. He has agreed to give his presentation sometime in the near future

We were fortunate to have HFN Membership Chairman Ron Arsenault step into the breach at the last moment, meaning we didn't have to cancel our February presentation *(thank you very much Ron)*. He gave a wonderfully informative and knowledgeable talk on Nova Scotia's Amphibians – our frogs, toads, and salamanders.

Ron gew up in P.E.I., but moved to New Brunswick where he lived for 26 years. A naturalist since before he could walk, he was always especially fascinated with all things amphibian. His presentation opened with a perfect and beautiful close-up of four frogs in a row on top of each others' backs, taken in June 2010 on a woods road northwest of Moncton.

What is an amphibian? Amphibians are both aquatic and terrestrial, 'amphibian' means just that; part of their lives are spent in water; part on land. They have neither hair, fur, feathers, claws, nor scales, and are cold-blooded – they take on the temperature of their environment, not maintaining a species-specific constant temperature under changing seasonal weather conditions. This affects their lifestyle in that they must hibernate in winter in order to survive.

General amphibian identifying characteristics are an amplexus mating postion, in which males clasp females about the back; external fertilisation; reproduction in water; predominantly herbivourous larvae and carnivorous adults; females larger than males; and an ability to make sounds, sometimes very loud ones. Amphibians' skins are smooth, glandular, and protective, and some species' skins can be poisonous. They have a complex and interesting life cycle, with the phases of egg; larva; juvenile; and adult.

Amphibians are in trouble world-wide; 300 have gone extinct since 1980. Everything seems all right so far in Nova Scotia (officially), but that could all change, and it's suspected not enough work might have been done to assess their present populations in relation to those in years past; also, numbers can slowly drop without being noticed right away.

Frogs are threatened by climate change; habitat destruction/modification; pollution; exotic species; disease (there is a fungal disease present in the Eastern states – it is not a major threat here as yet, perhaps because of Nova Scotia's colder climate); and species-specific over-harvesting such as the Bullfrogs in Ontario and the United States (but generally, bullfrog populations have exploded in other places in the world).

Amphibians are extremely ecologically important – as food for other animals, as significant bio-indicators of general environmental health, and by their playing a very significant part in habitat nutrient recycling.

There are three Orders of Amphibians:

Anura (with no tails) – frogs, tree frogs, and toads – 7,071 global species and growing;

Caudata (*with* tails) – salamanders and newts – 715 global species; and

Gymnophiona – worm-like, legless, burrowing amphibians that inhabit wet, tropical areas of Asia, Africa, and the Americas, 214 global species.

FROGS

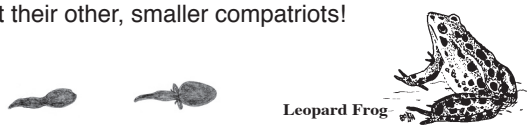
The Order Anura is represented by 33 families worldwide; three of those families are present here in Nova Scotia – Ranidae - the true frogs (N.S. has six); Hylidae - the tree frogs (N.S. has one); and Bufonidae - the toads (N.S. has one) – a total of eight species.

As for the Ranidae, the 'true frogs', one of their identifying characteristics is that their front toes are unwebbed. Nova Scotia has six:

Wood Frog

The Wood Frog *Lithobates sylvaticus* is first to call in spring, *(not* the spring peeper, as is usually thought). It sounds a lot like a duck, but you need to be close to hear it, unlike spring peeper calls which, especially en masse, are very loud and also carry very far indeed. (Ron played recorded calls for each frog he showed).

Wood frogs have the ability to change their colour. They are 'explosive breeders', highly motivated, assertive, and aggressive during mating season. They will even jump on other male frogs, and Ron has witnessed one jumping on a salamander! Mating takes place mostly at night, as with Spring Peepers and Salamanders. The Wood Frog lays its eggs in jellied masses, usually in one section of a pond. They use only ephemeral or vernal pools (seasonal pools which provide habitat for distinctive plants and animals and which contain no fish, thus avoiding predation). Their hatched tadpoles take about two months to develop into fully formed frogs. Some tadpoles have been observed to eat their other, smaller compatriots!



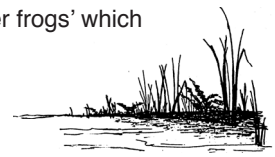
Leopard Frog

The Northern Leopard Frog *Lithobates pipiens (previously Rana pipiens)* makes a snoring sound. One easily distinguishable feature is discernable green rings around its spots, paler than its background green skin. This frog is fairly terrestrial and is found all over Nova Scotia. They overwinter underwater, and have two colour phases – green, and also brown.

Pickerel Frog

The Pickerel Frog *Lithobates palustris* is never green. It is always brown and its spots are distinctly squarish. It is thought that it is able to hybridise with other frogs. Pickerel Frogs come out a little later than others. These frogs winter underneath the ice.

The next three frogs are 'summer frogs' which need permanent bodies of water.



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The Mink Frog *Lithobates septentrionalis* has a distinctively mottled look to its skin, more noticeable foot webbing, more prominent lateral ridges, and a large tympanum. The farther north you travel, the more Mink Frogs you will see.


Mink Frog

The Green Frog *Lithobates clamitans, (previously Rana clamitans)* has crosswise bars on its legs, noticeable lateral ridges, but is not very 'spotty'. These frogs need to overwinter for at least one season. They lay large egg masses which, strangely, increase in size after being deposited.


Green Frog

The American Bullfrog *Lithobates catesbeianus* is native to Nova Scotia, and likes to wander between different ponds. It's an aggressive omnivore which can live up to eight or nine years. The Bullfrog has a smaller tympanum than the Green Frog, and unlike the Green, its prominent dorso-lateral ridge goes only around it alone. Their tadpoles, which can spend up to three winters in that stage, are very, very big. It's the first to wake up in spring, and the first to go back into hibernation.


American Bullrog

The Northern Spring Peeper *Pseudacris crucifer crucifer* is our only tree frog (Hylidae family), a tiny frog with a very loud voice which can be deafening in large numbers. Ron once took some young, rambunctious children on a field trip. To give them a focus, he set them the task of finding Spring Peepers (he had always found it hard to spot them). Surprisingly, they found many! He figured their lower height had given them a better point of view. Spring Peepers have a much longer breeding season than other frogs; one can hear them calling well into the fall. Both the Spring Peepers and the Wood Frog can survive freezing. They can breed and call at 4˚C; they stop in mid-June.


Spring Peepers

The Eastern American Toad *Bufo americanus americanus* are mostly brown, but can range from grey-brown to red-brown. Breeding males have a black throat and are smaller than females. Toads emerge from hibernation and fill the night air with long, trilling calls in May and June. Strings of eggs are laid in warm shallows. The small, dark tadpoles develop rapidly, transforming into miniature toads by September. Toads are among the last amphibians to hibernate each fall, and may be seen into late November. They have a dry, 'warty' skin; the warts are glands which contain a white sticky substance to turn away predators. They are the most commonly seen frog in towns because they frequent backyard garden and lawns, often staying in one area all summer.


American Toad

SALAMANDERS

The Salamanders, Order Caudata, have tails throughout their lifetime, and are voiceless. It's not known for certain whether thay can hear, but they do sense vibrations through the earth. Males deposit packets of sperm on the ground – spermatophores– which are then picked up and taken in by the females.

There are three Families in Nova Scotia – Ambystomatidae; Plethodontidae; and Salamandridae – and five species.

The Family Ambystomatidae (mole salamanders), is represented by **the Yellow-spotted Salamander** *Ambystoma maculatum,* and the **Blue-spotted** *Ambystoma laterale*. The Yellow-spotted behaves a little like the Wood Frog in that its mating is very quick and in its mating 'dance' it will travel up and down in moving water columns. The Blue-spotted is a little smaller than the Yellow and is not so common; it lays cylindrical egg masses. Both these salmanders winter underground.


Yellow-spotted Salamander

Our lungless **Four-toed Salamander *Hemidactylium scutatum*** and **Eastern Red-backed Salamander** *Plethodon cineras* represent the Family Plethontidae.

The Eastern Red-backed Salamander *Plethodon cinereus* has teeth! It is more boreal and prefers hardwood forests; Ron showed us one in a red colour-phase. It's the most abundant vertebrate, by biomass, in N.S. This salamander is more of a land creature, there is no aquatic stage at all. It lives in all sorts of moist forests and often invades suburban backyards (we have very many in our back garden, much to our grandchildrens delight; they are always a dark grey-brown, with an orange-red stripe down their backs). Its eggs are laid in damp places under rocks or logs; they aren't difficult to find, just carefully turn over rocks or logs, gently turning them back to preserve that mini-habitat.

The Four-toed Salamander *Hemidactylium scutatum* is secretive and our least common species. It's found in only one area in New Brunswick, but in many places in Nova Scotia. They also have teeth, and like sphagnum moss where they lay their eggs on top of the water with sphagnum underneath. It is orange to reddish brown above with patches of black spots; it's the only white-bellied salamander here. Its hind feet have four toes instead of five. Peat bogs or mossy areas bordering streams are good breeding sites. The little larvae live in the water for a short while, then move to live on land.

The **Red-spotted Newt** *Notophthalmus viridescens viridescens* is our one Salamandridae. It breeds in water and after hatching develop like tadpoles, with external gills, but unlike them, keep their tails. After two years of living in damp woods, the adults return to their weedy ponds to stay for the rest of their lives. Many salamanders, and frogs as well, are able to breathe through their skin.

After this wonderful compilation of information about Nova Scotia's amphibians, Burhard Plache talked about hearing and seeing our Spring Peepers at the Heart-shaped Pond. I myself in the past have been on more than one trip there when it was an annual HFN favourite. For more about these wonderful creatures, consult John Gilhen's knowledgeable "Reptiles and Amphibians of the Maritimes".

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HFN FIELD TRIPS

SUSIE'S LAKE HIKE

– Susan Moxon

Date: Saturday, January 25th
Place: Susie's Lake
Weather: Cloudy, damp, and cold
Leader: Burkhard Plache
Participants: 12

Since my name is Susan I always wanted to go to Susie's Lake. Therefore I was eager to join Burkhard and the other participants on the Susie's Lake excursion. I was not to be disappointed.

The day was cloudy and cool with no wind, and we entered the trail behind the Kent Store in Bayer's Lake Industrial Park. It was a narrow, snow-covered path; cleats made it an easy stroll as there was some ice.

We came across some brown, matted growth. Burkhard explained that it was Broom Crowberry *Corema conradii* which can grow in poor soil conditions. On we went through a mostly spruce forest, and then down the hill to the snowy expanse of Susie's Lake. We could smell wood smoke and soon saw the source along the shoreline.

Burkhard felt the ice was safe to walk on and since he volunteered to be first, we all followed! It was so amazing to be in this beautiful wilderness space having only left the Bayer's Lake shopping mecca perhaps 20 minutes earlier. We ventured on down the lake and then noticed the well-defined cracks in the ice surface. We would learn that the 'boom' noises one often hears on frozen lakes is caused by variations in the ice's temperature. Like any solid, ice expands and contracts. When the sun shines, the top of the ice heats up and expands, and when the sun sets, the ice temperature cools and the ice contracts. The booming sounds are made by the ice moving and adjusting to temperature changes.

Also spotted were animal prints in the ice's snow cover; we decided they were nade by a White-tailed Deer. We continued traversing Susie's Lake until the snow became slushy, and at that point we changed direction and headed for Quarry Lake.

As we approached, we saw a rocky cliff with an overhang; after some discussion we concluded it was not human-made but natural. Burkhard then pointed out Leatherleaf *Chamaedaphne calyculata* growing along the shoreline. Its leaves get smaller near the tip, and It keeps its leaves over the winter months. In the same area we compared it to Lambkill *Kalmia angustifolia* which is another shrub which keeps its leaves over the winter.

Some participants were interested in the Jack Pines and there was a very large one growing alongside a smaller, approximately 10-year-old one. Jack Pine *Pinus banksiana* often grows in areas after a forest fire. The fire's heat opens up the cones, releasing the seeds over the burned-over land, where they can grow with little competition. However, these Jack Pines were growing amongst spruce and birch trees, and a White Pine *Pinus strobus* grew in the area as well.

After an hour and a half of exploring, we decided to return. On the way back on the trail through the woods, Burkhard pointed out Rhodora *Rhododendron canadense,* which sheds its leaves in the winter but can be easily recognised by its thick buds. We also saw Black Huckleberry *Gaylussaccia baccata* bushes; there is a tinge of red on Huckleberry buds, which helps to identify them. We also saw Mountain Holly *Ilex mucronata* which still had a few dried berries, and Canada Holly *Ilex verticillata* with its bright red berries.

We spotted some trees with the bark stripped off, and suspected they had been eaten by a Porcupine. And there, up in a tree, it was – a sleeping porcupine – a great finale for a lovely hike. Thank you Burkhard. It was a great refreshing way to spend a Saturday afternoon!

ST. MARY'S MP_SpARC LAB

– Mille McCormack

Date: Saturday, February 8th
Place: MP_SpARC Lab, St. Mary's University
Weather: Wintry
Leader: Greg Baker
Participants: 12

Research Instrument Technician Greg Baker, with the Maritime Provinces Spatial Analysis Research Centre (MP-SpARC) at Saint Mary's University, gave a very informative and lighthearted presentation to an attentive audience of twelve people.

SpARC studies where and why physical and human phenomena are located on the Earth's surface and how they interact. The Centre received a grant from the federal Canada Foundation for Innovation, which enabled them to purchase their initial equipment. Various Saint Mary's departments, other universities, and even private organisations use the Centre. They pay a fee for their use, making the Centre self-sufficient; it is thought of as an 'equipment co-op'. Greg is the one who teaches people how to use the equipment for their own particular research.

Spatial analysis looks for patterns and changes in the geographical environment, monitoring any changes in where and what is there. He gave us one example – a research project being undertaken by Danika Van Proosdij which is being funded by "Making Room for Wetlands" under the Department of Fisheries and Oceans' Coastal Restoration Fund. Danika is studying the intertidal sediments in the Bay of Fundy.

Greg also talked about the Nova Scotia Coordinate Referencing System which allows surveyors to make measurements relative to the earth's surface. This system uses geodetic markers located throughout the province to ensure accuracy. He demonstrated some of the equipment and discussed how the various devices are used.

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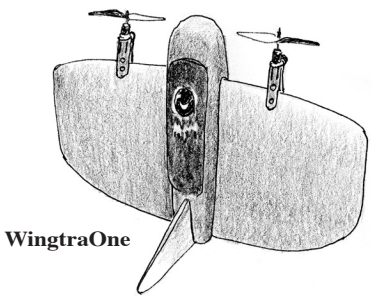
The 'Total Station' is a device which can be attached to a tripod; it is one of the original pieces of equipment that the Centre purchased. Their Global Positioning System (GPS) equipment utilises radio waves from satellites; these Survey Grade GPS devices provide very accurate information. They rely on geodetic base stations, part of the Nova Scotia Active Control Network, which are run by the provincial government and provide real-time information to surveyors. The GPS *receivers* are 'absolute positioning devices', they do not need access to a geodetic benchmark to know its location; access is provided through both the internet and satellites and it is able to store lots of information.

Remote Sensing Devices do not need to be on the ground. The one in use at the Centre is mainly for archaeological purposes.

Greg then exhibited the Centre's drones; they started using the helicopter types in 2013. The first drones were operated manually; they then moved to automatic ones. Some use infrared-sensitive cameras to measure chlorophyll, assessing the extent of algae blooms for example. Drone cameras have very high image resolution and are therefore extremely accurate. There is a place on the Halfway River near Hantsport where an aboiteau has broken, allowing salt water to leak in. With their photogrammetry (the science of making measurements from photographs), drones can create orthomosaic* and digital surface model maps of the area which help determine what size aboiteau to reconstruct.

The latest equipment they have acquired is a 'WingtraOne', a small, plane-like device with a GPS on top and a camera below. It can perform fast aerial surveys across wide or hard-to-reach areas, producing reliable maps with unparalleled resolution and accuracy. It's a 'fixed-wing', flies like a plane, and is flown at 120 metres – flying horizontally and landing vertically, like a rocket. This aircraft can fly for a longer time (one hour) than other devices, and it provides even more accurate information. An area is plotted for the Wingtra before it is flown and it is programmed to follow that plot.

Following his talk, Greg invited participants to look at the equipment and offered to answer any questions.



**(An orthomosaic photo is an aerial photograph geometrically corrected such that the scale is uniform. Unlike an uncorrected aerial photograph, it is an accurate representation of the Earth's surface, having been adjusted for topographic relief, lens distortion, and camera tilt. – ed)*

JANUARY

In the Northwest Arm area, Burkhard Plache observed **two Bald Eagles being harassed by a Crow**. Judy Keating saw **10-12 male and female Ring-necked Pheasants** on the water at her property in Indian Harbour. Peter Wells spotted **a Cardinal** in his garden, while Max Westhead saw **the Pileated Woodpecker** which frequents Point Pleasant Park the weekend of December 28/29th.

Lesley Jane Butters reported an **abundance of Canada Holly berries** and wondered if this indicated there were fewer birds around eating them. Grace Beazley also noticed that Canada Holly seemed to be very prolific and full of berries.

In Hantsport Ray Provencher saw **five male Northern Cardinals** at a birdfeeder next door to his brother-in-law's. Also, he had **Goldfinch, many woodpeckers, and a Northern Flicker** at his balcony. During Christmas, in Canmore, Alberta, **three Elks** strolled across the property where he was staying.

FEBRUARY

For quite awhile Charles Cron has had **a Cooper's Hawk** around his place in the Dingle, especially around visiting flocks of **Mourning Doves**. Recently, he spotted the Cooper's Hawk finishing off a dove's gory remains! Bernie McKenna has had **four or five American Robins** hanging around, but they seem to be using neither the nearby **Highbush Cranberry nor the Canada Holly**. He wondered what they could be eating.

Mike Bradfield observed **Mallards** to be back in the Public Gardens, in a small area of open water near the decorative bridge. Bob McDonald, looking over the water of the Northwest Arm, was pleased to see **four Dovekies**; he hasn't seen any of these for several years.

Grace Beazley spotted **a beautiful Bald Eagle** perched on top of a tree. In Point Pleasant Park, Richard Beazley saw what he was told by another bystander to be five or six Purple Plover. There is a species of **Purple Sandpiper**, *Calidris* maritima in Nova Scotia, and someone in the audience said it must have been that.

Lesley Jane Butters attended this year's Bald Eagle watch in Canning and observed **an unusual predominance of immature Bald Eagles**. She reminded us that HFN was the first to inaugurate the annual 'Eagle Watch'. She reported lake ice this year to be 'divine' for kick sledding; while on one run on Zwicker's Lake, she spotted **a white Weasel**. On the Gaspereau River there were **active Beaver dams** around and many beaver tracks as well as **Coyote tracks**. She surprised what she thought was **a dead frog** on some ice; upon approach, it slipped back into the water!

Stephanie Robertson reported **a Cranefly, a fruit fly**, (to which Mike Bradfield remarked "Time flies like an arrow while fruit flies like a banana") and her usual coterie of very slow-moving **Western Conifer Seed Beetles**, Leptoglossus occidentalis.

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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.

A cold spring:
the violet was flawed on the lawn.
For two weeks or more the trees hesitated;
the little leaves waited,
carefully indicating their characteristics.

– Elizabeth Bishop, opening lines of "A cold spring" (1955)

NATURAL EVENTS

8 Mar. Daylight Saving Time begins.

9 Mar. Full Moon. Moonrise at 19:13 ADT.

20 Mar. Vernal Equinox at 00:49 ADT. Spring begins in the Northern Hemisphere.

7 Apr. Full Moon. Moonrise at 19:22 ADT.

28 May The date of last spring frost in Halifax; Env. Canada says there is only a 1:10 chance that a spring frost will occur after this date; look forward to 155 frost-free days.

7 May Full Moon. Moonrise at 20:54 ADT.

5 Jun. Full Moon. Moonrise at 21:04 ADT.

8 Jun. World Oceans' Day.

9 Jun. **-20 Jun.** The earliest mornings of the year: sun rises at 5:28 ADT.

20 Jun. Summer Solstice at 18:44 ADT. Summer begins in the Northern hemisphere. The longest day of the year, with 15 hours and 34 minutes of daylight at Halifax.

20 Jun. **-30 Jun.** The latest evenings of the year: sun sets at 21:03 ADT.

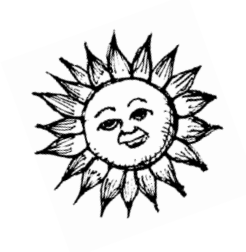
– Sources: Atmospheric Environment Service, Climate Normals 1951-80 Halifax (Shearwater A) N.S.; Blomidon Naturalists Society's 2019 Calendar; www.timeanddate.com

THE COVID-19 CORONA VIRUS

has caused cancellation of all Organistaional Events. Hopefull, we will be back to normal for the Fall Issue of The Halifax Field Naturalist. Most probably, there will be no Summer Issue, because there will have been neither HFN Talks nor HFN Field trips on which to report.

Keep well everyone.

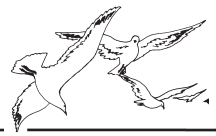
SUNRISE AND SUNSET ON SPRING AND EARLY SUMMER SATURDAYS FOR HALIFAX: 44 39 N, 063 35 W



7	**Mar.**	06:40	18:10	**4**	**Apr.**	06:48	19:46
14	**Mar.**	07:27	19:19	**11**	**Apr.**	06:36	19:54
21	**Mar.**	07:14	19:28	**18**	**Apr.**	06:24	20:03
28	**Mar.**	07:01	19:37	**25**	**Apr.**	06:12	20:12
2	**May**	06:02	20:20	**6**	**Jun.**	05:29	20:56
9	**May**	05:52	20:29	**13**	**Jun.**	05:28	21:00
16	**May**	05:44	20:37	**20**	**Jun.**	05:28	21:03
23	**May**	05:38	20:44	**27**	**Jun.**	05:31	21:03
30	**May**	05:33					

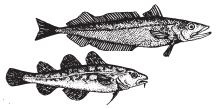
ISSN 1485-709X Spring 2020 #178

HALIFAX TIDE TABLE



April-avril

Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0037	**1.6**	5.2	**16**	0227	**1.5**	4.9
	0756	**0.5**	1.6		0940	**0.5**	1.6
WE	1327	**1.5**	4.9	TH	1535	**1.5**	4.9
ME	2017	**0.8**	2.6	JE	2217	**0.6**	2.0
2	0136	**1.6**	5.2	**17**	0348	**1.5**	4.9
	0857	**0.5**	1.6		1035	**0.5**	1.6
TH	1439	**1.5**	4.9	FR	1643	**1.6**	5.2
JE	2119	**0.7**	2.3	VE	2312	**0.6**	2.0
3	0248	**1.6**	5.2	**18**	0453	**1.5**	4.9
	0957	**0.4**	1.3		1126	**0.5**	1.6
FR	1600	**1.5**	4.9	SA	1731	**1.6**	5.2
VE	2219	**0.6**	2.0	SA			
4	0406	**1.7**	5.6	**19**	0000	**0.5**	1.6
	1054	**0.3**	1.0		0543	**1.6**	5.2
SA	1705	**1.7**	5.6	SU	1213	**0.4**	1.3
SA	2320	**0.5**	1.6	DI	1811	**1.7**	5.6
5	0513	**1.8**	5.9	**20**	0042	**0.5**	1.6
	1149	**0.2**	0.7		0625	**1.6**	5.2
SU	1758	**1.8**	5.9	MO	1253	**0.4**	1.3
DI				LU	1847	**1.7**	5.6
6	0019	**0.3**	1.0	**21**	0117	**0.4**	1.3
	0611	**1.9**	6.2		0704	**1.7**	5.6
MO	1242	**0.1**	0.3	TU	1327	**0.4**	1.3
LU	1846	**1.9**	6.2	MA	1920	**1.7**	5.6
7	0115	**0.2**	0.7	**22**	0148	**0.4**	1.3
	0705	**1.9**	6.2		0742	**1.7**	5.6
TU	1333	**0.0**	0.0	WE	1357	**0.4**	1.3
MA	1934	**2.0**	6.6	ME	1952	**1.7**	5.6
8	0210	**0.0**	0.0	**23**	0219	**0.3**	1.0
	0757	**1.9**	6.2		0819	**1.7**	5.6
WE	1423	**0.0**	0.0	TH	1424	**0.5**	1.6
ME	2021	**2.1**	6.9	JE	2023	**1.7**	5.6
9	0304	**0.0**	0.0	**24**	0250	**0.3**	1.0
	0848	**1.9**	6.2		0856	**1.7**	5.6
TH	1514	**0.1**	0.3	FR	1453	**0.5**	1.6
JE	2108	**2.1**	6.9	VE	2055	**1.7**	5.6
10	0357	**0.0**	0.0	**25**	0324	**0.3**	1.0
	0938	**1.8**	5.9		0932	**1.6**	5.2
FR	1609	**0.2**	0.7	SA	1525	**0.6**	2.0
VE	2154	**2.0**	6.6	SA	2128	**1.7**	5.6
11	0452	**0.1**	0.3	**26**	0402	**0.3**	1.0
	1027	**1.8**	5.9		1007	**1.6**	5.2
SA	1707	**0.3**	1.0	SU	1603	**0.6**	2.0
SA	2240	**1.9**	6.2	DI	2204	**1.7**	5.6
12	0549	**0.2**	0.7	**27**	0445	**0.4**	1.3
	1116	**1.7**	5.6		1044	**1.6**	5.2
SU	1810	**0.4**	1.3	MO	1650	**0.7**	2.3
DI	2327	**1.8**	5.9	LU	2242	**1.7**	5.6
13	0647	**0.3**	1.0	**28**	0535	**0.4**	1.3
	1207	**1.6**	5.2		1125	**1.6**	5.2
MO	1915	**0.6**	2.0	TU	1751	**0.7**	2.3
LU				MA	2324	**1.7**	5.6
14	0018	**1.7**	5.6	**29**	0633	**0.5**	1.6
	0745	**0.4**	1.3		1211	**1.6**	5.2
TU	1303	**1.5**	4.9	WE	1857	**0.8**	2.6
MA	2018	**0.6**	2.0	ME			
15	0115	**1.6**	5.2	**30**	0013	**1.7**	5.6
	0843	**0.4**	1.3		0733	**0.5**	1.6
WE	1412	**1.5**	4.9	TH	1306	**1.5**	4.9
ME	2119	**0.6**	2.0	JE	2001	**0.7**	2.3



May-mai

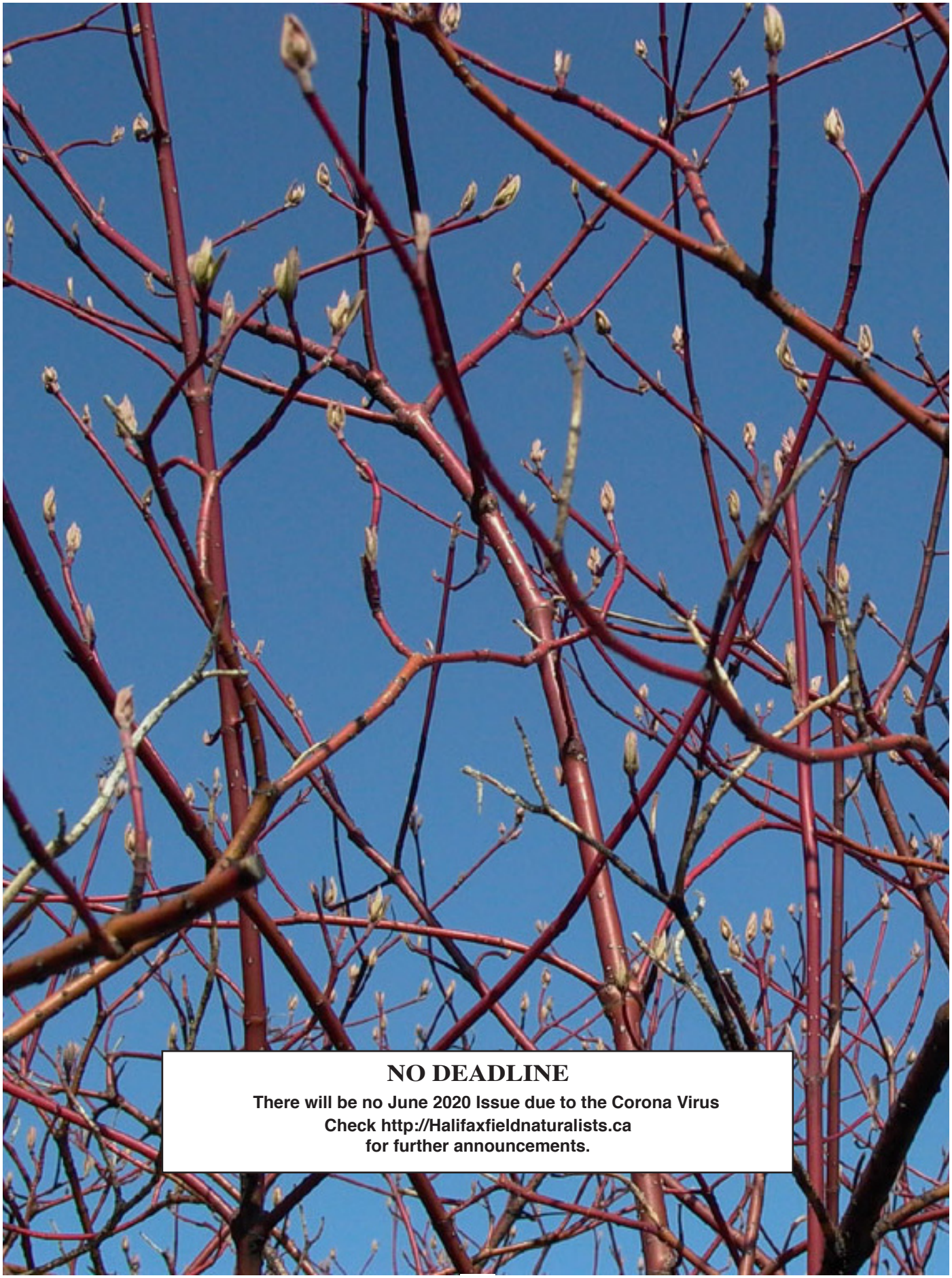
Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0112	**1.6**	5.2	**16**	0308	**1.5**	4.9
	0832	**0.4**	1.3		0952	**0.5**	1.6
FR	1415	**1.6**	5.2	SA	1558	**1.6**	5.2
VE	2103	**0.7**	2.3	SA	2239	**0.6**	2.0
2	0223	**1.6**	5.2	**17**	0415	**1.5**	4.9
	0929	**0.4**	1.3		1042	**0.5**	1.6
SA	1530	**1.6**	5.2	SU	1650	**1.6**	5.2
SA	2204	**0.5**	1.6	DI	2326	**0.6**	2.0
3	0342	**1.7**	5.6	**18**	0509	**1.5**	4.9
	1025	**0.3**	1.0		1128	**0.5**	1.6
SU	1634	**1.8**	5.9	MO	1732	**1.7**	5.6
DI	2304	**0.4**	1.3	LU			
4	0452	**1.7**	5.6	**19**	0007	**0.5**	1.6
	1121	**0.2**	0.7		0554	**1.5**	4.9
MO	1728	**1.9**	6.2	TU	1210	**0.5**	1.6
LU				MA	1808	**1.7**	5.6
5	0003	**0.2**	0.7	**20**	0044	**0.4**	1.3
	0553	**1.8**	5.9		0636	**1.6**	5.2
TU	1216	**0.2**	0.7	WE	1247	**0.5**	1.6
MA	1818	**2.0**	6.6	ME	1842	**1.7**	5.6
6	0059	**0.1**	0.3	**21**	0117	**0.3**	1.0
	0647	**1.8**	5.9		0716	**1.6**	5.2
WE	1310	**0.2**	0.7	TH	1322	**0.5**	1.6
ME	1906	**2.1**	6.9	JE	1915	**1.7**	5.6
7	0153	**0.0**	0.0	**22**	0151	**0.2**	0.7
	0740	**1.8**	5.9		0755	**1.6**	5.2
TH	1403	**0.2**	0.7	FR	1355	**0.5**	1.6
JE	1954	**2.1**	6.9	VE	1949	**1.7**	5.6
8	0245	**0.0**	0.0	**23**	0227	**0.2**	0.7
	0831	**1.8**	5.9		0833	**1.6**	5.2
FR	1456	**0.2**	0.7	SA	1430	**0.6**	2.0
VE	2042	**2.0**	6.6	SA	2024	**1.8**	5.9
9	0337	**0.0**	0.0	**24**	0305	**0.2**	0.7
	0921	**1.8**	5.9		0911	**1.6**	5.2
SA	1551	**0.3**	1.0	SU	1508	**0.6**	2.0
SA	2129	**2.0**	6.6	DI	2102	**1.8**	5.9
10	0429	**0.1**	0.3	**25**	0346	**0.2**	0.7
	1010	**1.8**	5.9		0949	**1.6**	5.2
SU	1649	**0.4**	1.3	MO	1552	**0.6**	2.0
DI	2216	**1.9**	6.2	LU	2142	**1.8**	5.9
11	0523	**0.2**	0.7	**26**	0431	**0.3**	1.0
	1059	**1.7**	5.6		1028	**1.6**	5.2
MO	1750	**0.6**	2.0	TU	1643	**0.7**	2.3
LU	2304	**1.8**	5.9	MA	2224	**1.8**	5.9
12	0618	**0.3**	1.0	**27**	0522	**0.3**	1.0
	1148	**1.7**	5.6		1111	**1.6**	5.2
TU	1853	**0.6**	2.0	WE	1743	**0.7**	2.3
MA	2354	**1.7**	5.6	ME	2309	**1.7**	5.6
13	0713	**0.4**	1.3	**28**	0617	**0.4**	1.3
	1241	**1.6**	5.2		1158	**1.6**	5.2
WE	1953	**0.7**	2.3	TH	1846	**0.7**	2.3
ME				JE	2359	**1.7**	5.6
14	0050	**1.6**	5.2	**29**	0713	**0.4**	1.3
	0808	**0.5**	1.6		1252	**1.6**	5.2
TH	1342	**1.6**	5.2	FR	1948	**0.7**	2.3
JE	2052	**0.7**	2.3	VE			
15	0155	**1.5**	4.9	**30**	0057	**1.7**	5.6
	0901	**0.5**	1.6		0809	**0.4**	1.3
FR	1452	**1.6**	5.2	SA	1353	**1.6**	5.2
VE	2147	**0.7**	2.3	SA	2049	**0.6**	2.0
				31	0205	**1.6**	5.2
					0905	**0.3**	1.0
				SU	1459	**1.7**	5.6
				DI	2150	**0.4**	1.3

June-juin

Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0320	**1.6**	5.2	**16**	0426	**1.4**	4.6
	1001	**0.3**	1.0		1034	**0.6**	2.0
MO	1603	**1.8**	5.9	TU	1645	**1.6**	5.2
LU	2249	**0.3**	1.0	MA	2325	**0.5**	1.6
2	0432	**1.6**	5.2	**17**	0519	**1.5**	4.9
	1059	**0.3**	1.0		1121	**0.6**	2.0
TU	1659	**1.9**	6.2	WE	1726	**1.7**	5.6
MA	2348	**0.2**	0.7	ME			
3	0535	**1.7**	5.6	**18**	0005	**0.4**	1.3
	1156	**0.3**	1.0		0606	**1.5**	4.9
WE	1751	**2.0**	6.6	TH	1206	**0.6**	2.0
ME				JE	1804	**1.7**	5.6
4	0043	**0.1**	0.3	**19**	0045	**0.3**	1.0
	0631	**1.7**	5.6		0649	**1.6**	5.2
TH	1253	**0.3**	1.0	FR	1248	**0.6**	2.0
JE	1841	**2.0**	6.6	VE	1842	**1.7**	5.6
5	0137	**0.0**	0.0	**20**	0124	**0.2**	0.7
	0724	**1.8**	5.9		0730	**1.6**	5.2
FR	1349	**0.3**	1.0	SA	1329	**0.6**	2.0
VE	1931	**2.0**	6.6	SA	1920	**1.8**	5.9
6	0228	**0.0**	0.0	**21**	0205	**0.2**	0.7
	0815	**1.8**	5.9		0811	**1.6**	5.2
SA	1442	**0.4**	1.3	SU	1410	**0.5**	1.6
SA	2020	**2.0**	6.6	DI	2001	**1.8**	5.9
7	0317	**0.1**	0.3	**22**	0248	**0.2**	0.7
	0905	**1.8**	5.9		0851	**1.6**	5.2
SU	1536	**0.4**	1.3	MO	1453	**0.5**	1.6
DI	2108	**1.9**	6.2	LU	2044	**1.8**	5.9
8	0407	**0.1**	0.3	**23**	0332	**0.2**	0.7
	0954	**1.8**	5.9		0932	**1.7**	5.6
MO	1630	**0.5**	1.6	TU	1540	**0.5**	1.6
LU	2156	**1.9**	6.2	MA	2127	**1.8**	5.9
9	0456	**0.2**	0.7	**24**	0418	**0.2**	0.7
	1040	**1.8**	5.9		1015	**1.7**	5.6
TU	1726	**0.6**	2.0	WE	1632	**0.6**	2.0
MA	2243	**1.8**	5.9	ME	2212	**1.8**	5.9
10	0545	**0.3**	1.0	**25**	0507	**0.2**	0.7
	1127	**1.7**	5.6		1059	**1.7**	5.6
WE	1823	**0.7**	2.3	TH	1731	**0.6**	2.0
ME	2332	**1.7**	5.6	JE	2259	**1.8**	5.9
11	0635	**0.4**	1.3	**26**	0559	**0.2**	0.7
	1214	**1.7**	5.6		1146	**1.7**	5.6
TH	1919	**0.7**	2.3	FR	1833	**0.6**	2.0
JE				VE	2349	**1.7**	5.6
12	0022	**1.6**	5.2	**27**	0653	**0.3**	1.0
	0723	**0.5**	1.6		1236	**1.7**	5.6
FR	1306	**1.6**	5.2	SA	1934	**0.5**	1.6
VE	2013	**0.7**	2.3	SA			
13	0117	**1.5**	4.9	**28**	0044	**1.7**	5.6
	0811	**0.6**	2.0		0749	**0.3**	1.0
SA	1403	**1.6**	5.2	SU	1330	**1.7**	5.6
SA	2106	**0.7**	2.3	DI	2035	**0.4**	1.3
14	0219	**1.4**	4.6	**29**	0148	**1.6**	5.2
	0858	**0.6**	2.0		0845	**0.3**	1.0
SU	1503	**1.6**	5.2	MO	1430	**1.7**	5.6
DI	2156	**0.6**	2.0	LU	2134	**0.4**	1.3
15	0325	**1.4**	4.6	**30**	0259	**1.6**	5.2
	0946	**0.6**	2.0		0944	**0.4**	1.3
MO	1558	**1.6**	5.2	TU	1532	**1.8**	5.9
LU	2242	**0.6**	2.0	MA	2234	**0.3**	1.0

ALL TIMES ARE AST

ISSN 1485-709X Spring 2020, #178



NO DEADLINE

There will be no June 2020 Issue due to the Corona Virus
Check http://Halifaxfieldnaturalists.ca
for further announcements.