

# THE HALIFAX FIELD NATURALIST



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March to May, 2018

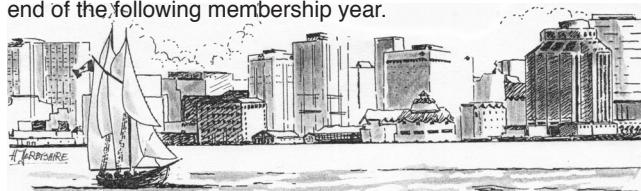


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Return address: HFN, c/o NS Museum of Natural History, 1747 Summer Street, Halifax, NS, B3H 3A6

**HFN** is incorporated under the Nova Scotia Societies Act and holds Registered Charity status with the Canada Revenue Agency. Tax-creditable receipts will be issued for individual and corporate gifts. **HFN** is an affiliate of Nature Canada and an organisational member of Nature Nova Scotia, the provincial umbrella association for naturalist groups. **Objectives** are to encourage a greater appreciation and understanding of Nova Scotia's natural history, both within the membership of HFN and in the public at large, and to represent the interests of naturalists by encouraging the conservation of Nova Scotia's natural resources. **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.



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<b>Conservation</b>	Richard Beazley ..... 429-6626
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	Doug Linzey ..... 1-902-582-7176
	David Patriquin ..... 423-5716
	Allan Robertson ..... 422-6326
<b>HFN Book Club</b>	Brian Bartlett ..... 420-0315
<b>FEES</b>	<b>2018</b>
<b>Student</b>	..... \$15.00 per year
<b>Individual</b>	..... \$20.00 per year
<b>Family</b>	..... \$25.00 per year
<b>Supporting</b>	..... \$30.00 per year
<b>Institutional</b>	..... \$30.00 per year
<b>NNS (opt.)</b>	..... \$5.00 per year

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**GRAPHICS** All uncredited illustrations are by H. Derbyshire or from copyright-free sources. **Front Cover** - Mayflower, Stephen Robertson; **p.10** - P. horse, Alan Outram; **Back Cover** - young ferns, Rebecca Robertson; **Tide Table** - Canadian Hydrographic Service, Fisheries & Oceans Canada.



# HFN NEWS AND ANNOUNCEMENTS

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## BOTTLED WATER? JUST SAY NO!

– Carl Dulvenvoorden  
from the April 2017 “Green Ideas” e-newsletter

Grace Beazley would like to share with us the following from the above source:

“... during a presentation to a high school audience last week, I let it slip that one of my greatest environmental frustrations is bottled water. Why bottled water? Because:

- Most bottled water is not natural spring water, but merely filtered tap water.
- Most bottled water is not local; it's trucked long distances and has a huge transportation footprint.
- The Maritimes have plenty of clean, clear water; surely it's the last thing we should be sending our money out-of-province for!
- Most empty water bottles are not recycled; instead, they end up in landfills, roadsides, or waterways. A recent study warned that the world's oceans may contain more plastic than fish by 2050. Yuck!
- The water bottles that are recycled don't come back as bottles; they're 'downcycled' into products like carpet, which eventually end up in a landfill anyway.

You can make a difference – with one simple choice: carry your own refillable bottle or seek out a tap or fountain, and, whenever possible, just ‘say no’ to bottled water. You'll be saving money and doing a good thing for the environment at the same time.

## A ‘MONGOLIA’ OBSERVATION

HFN member Michael Downing has brought to our attention a very minor error in Patricia Leader's excellent article on Outer Mongolia in the winter newsletter. Pat makes a brief and entirely peripheral reference to China's Great Wall being visible from space. Michael says, “This is actually one of those popular misconceptions which have been repeated so often that they have become widely accepted as fact. It must have slipped in under her radar as her attention was taken up with the real nuts and bolts of the article.”

This got Michael thinking some more about the Great Wall and its degree of visibility from above the earth. He delved into the subject more deeply, and found some interesting facts from Wikipedia. “The claim that the Great Wall of China is the only man-made object visible from the moon or outer space has been debunked many times, but remains a common misconception in popular culture. According to astronauts Eugene Cernan and Ed Lu, the Great Wall is visible from the lower part of a low Earth orbit, but only under very favourable conditions. Even if you consider that to be space, there are too many other man-made objects visible from that height for it to be remarkable.”

## EASTERN SAND WASP AND MOTH SPECIES

At Apple River along the New Brunswick border between Amherst and Advocate, Kathleen Spicer photo'd an Eastern Sand Wasp, *Bembix Americana*, (ID'd by entomologist Christopher Majka). Eastern Sand Wasps have been recorded in New Brunswick but not in Nova Scotia; this could be a new species for the province.

Kathleen has been taking photos of insects such as moths and butterflies, etc. for quite a few years. She sent at least 183 species of moth photos to Christopher; three were identified as new to Nova Scotia – *Thyris maculata*, *Idaea dimidiata*, and *Haploa confusa*.

## HEALTHY FOREST COALITION

On Monday, March 12th, the Healthy Forest Coalition submitted the following message to all members of the Legislature, hoping to bring awareness of forest-related issues to all MLAs; change is necessary if we want to preserve both the health of our forests and our forest economy.

“Joan Baxter's book The Mill: Fifty Years of Pulp and Protest is a detailed and strongly documented account of Nova Scotia's long and dispiriting experience with how multinationals exploit our forest resource. Opened with fanfare and optimism in 1967, the mill, now known as Northern Pulp, was hailed as a source of new jobs for a depressed area of the province and a new beginning for our forest economy. Over the subsequent 50 years protests and studies have focused on the effluent and air pollution emanating from the mill. Less has been said about the effect the mill has had on the province's forests, but it has been considerable. From the beginning the mill was designed to consume 400,000 cords of wood a year, a quantity that almost matched the combined consumption of the province's other mills, and that the then Deputy Minister of Lands and Forests, Dr. Wilfrid Creighton, considered unsustainable. At the time Creighton's advice was brushed aside, but today it is clear that he was right.”

Last November in The Coast Joan Baxter published an article that follows up that aspect of her book. It can be accessed at <https://www.thecoast.ca/halifax/clearcutting-our-losses/Content?oid=9896802>.

If you would like to keep informed about the great work the Coalition is doing, and/or help out, go to: <http://www.healthyforestcoalition.ca/>.

## NEW AND RETURNING

# SPECIAL REPORTS

## YEAR END REPORTS

### FROM THE PRESIDENT

The Halifax Field Naturalists started as a society in 1975. Since then, HFN has provided a space for naturalists to come together and share their experiences. Monthly presentations and field trips to special places have increased our understanding of and appreciation for nature. Regular communications via our newsletter and our website, and more recently in our Facebook group, are a valuable source of information concerning local issues. Learning about areas of concern has led to conservation initiatives, spearheaded by the Conservation Committee. All these activities are the result of volunteer groups working within the society, and they will provide an update on their activities in separate reports.

In the previous 12 months, the board met five times, to make sure the society is running smoothly. Board members identified areas where our current mode of operation is not ideal (membership database, membership payment options), and we have started looking into improving our operating procedures. Furthermore, a number of people have contacted the board regarding ideas on how to advance the goals of the society (education, conservation) and to reach more people. We endeavour to respond to those suggestions; however, we are limited in the number of actions we are able to take on at one time.

It is also prudent to look forward. As an organisation which has been around for many years we carry a lot of momentum with us, some positive (reputation, experience, knowledge) and some hindering us.

For example, with smartphones becoming a normal presence on field trips, traditional field guides are replaced by applications (apps) that serve a similar purpose. Rather than ignoring new possibilities, we might actually learn from them, and expand our options. It is often easier to resist change than to actively try new ways. For HFN, the challenge will be to hit the proper balance between keeping what is important, and embracing new options.

Another ongoing development is our facebook group. Natural history postings of high quality and reliability attracted a growing number of people, who are now engaging in conversations about nature observations. The expertise of a number of contributors is widely appreciated, and the diligent moderation by the group administrator ensures courteous behaviour and mutual respect. We initially hoped to see the online interest translate into higher attendance at our events, and possibly recruiting new members. While that is happening only to a small extent, there is, however, the success of reaching a much wider audience than before, teaching about nature and raising awareness of issues surrounding conservation.

It has been a pleasure and a good experience serving as President, and I am hopeful that the Halifax Field Naturalists can achieve the objectives that we identified

in the past year. Besides those organisational adjustments, I am anticipating interesting presentations and field trips, and will be looking forward to the quarterly copy of my newsletter.

– *Respectfully submitted,*  
**Burkhard Plache**



### CONSERVATION

The Conservation Committee's members for the past year have been Bob McDonald, David Patriquin, Clare Robinson, and Richard Beazley.

Bob McDonald's conservation efforts have continued to focus on Blue Mountain Birch Cove Lakes Regional Park (BMBCLRP). He is part of a consortium of folks lobbying for some action on the part of the Halifax Regional Municipality (HRM) towards the acquisition of land for the regional park. He is very pleased that HRM finally made its first land purchase to that end – a 197-acre piece purchased from West Bedford Holdings (Clayton/Cresco) surrounding Hobson Lake. Bob has heard that HRM's talks with landowners continue to move ahead, and he is waiting for more good news.

Bob also reports that the consortium is in the process of setting up a Friends of BMBCLRP group and is trying to organise a public meeting. HRM staff seem very reluctant to involve the public and cannot see the point in it.

David Patriquin's posts on HFN's website home page cover various topics ([halifaxfieldnaturalists.ca](http://halifaxfieldnaturalists.ca)), and his Nova Forest Notes have become a treasure chest of trusted online information for the Healthy Forest Coalition's (HFC) members and the public at large ([healthy-forestcoalition.ca](http://healthy-forestcoalition.ca)). Under David's leadership, the Conservation Committee wrote "Impacts of Forestry in Nova Scotia on Conservation of Biodiversity: Concerns and Questions" and submitted it to the Nova Scotia Department of Natural Resources (DNR) last April. This led to a meeting with DNR Minister Hines and two other MLAs, out of which came the Independent Review of Forest Management in Nova Scotia by Mr. William Lahey, and a subsequent meeting by David with Mr. Lahey. Over the summer and fall, David conducted a survey of the forests and surface waters at Sandy Lake (Bedford) for the Sandy Lake Conservation Association.

Clare and Richard's conservation efforts have mostly been put into working toward the Healthy Forest Coalition's (HFC) vision for future forest management on Crown Lands in Nova Scotia. Either one or both of them participated in email communication with HFC leaders, letter writing to politicians and Mr. Lahey, attending HFC planning meetings and the Forest Funeral at the Legislature, and reporting on a twice-a-month basis to members of HFC, including HFN President Burkhard Plache and several HFN/HFC members.

– *Respectfully submitted,*  
**Richard Beazley**



**Halifax Field Naturalists  
Balance Sheet  
December 31st, 2017**

**Assets**

BMO Bank Account	1,480	
Accounts Receivable: HST Rebate	150	
Investments	8,631	
Pins	<u>526</u>	
	10,788	<u>10,788</u>

**Liabilities and Surplus**

**Liabilities**

Accounts Payable: Nature Nova Scotia	235	235
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**Surplus**

Restricted: Endangered Species and Spaces	2,631	
Unrestricted	7,607	
Net Income	<u>315</u>	
	10,533	<u>10,533</u>
		<u>10,788</u>

**Halifax Field Naturalists  
Statement of Income and Expenses  
January 1st to December 31st, 2017**

	<b>2017 Actual</b>	<b>2017 Budget</b>	<b>2018 Budget</b>
<b>Revenues</b>			
Membership Funds	2,985	3,300	3,050
Interest	45	45	48
Donations	150	20	0
Sales (Pin, Lists)	<u>1</u>	<u>0</u>	<u>20</u>
	3,181	3,365	3,118
<b>Expenses</b>			
Meetings	376	300	376
Field Trips	0	10	0
Newsletter Production	1,181	1,450	1,250
Newsletter Distribution	699	790	725
Memberships and Fees	236	236	236
Socials	0	18	0
Grants, Donations	0	100	100
Special Projects	0	30	0
Insurance	225	225	225
Internet Service	124	166	166
General Supplies & Expenses	0	10	10
Bank Fees	<u>25</u>	<u>30</u>	<u>30</u>
	2,866	3,365	3,118
<b>Net Income</b>	315		
<b>Unrestricted Surplus, beginning of year</b>	7,607		
<b>Unrestricted Surplus, end of year</b>	7,922		

**– Respectfully submitted,  
Ingrid Plache, Treasurer**

## NEWSLETTER

Newsletter production, printing, and distribution went mostly smoothly this year, except for the winter issue. Because of the terrible storm on January's regular monthly meeting night, not only had the museum closed down, our speaker was stranded in Cape Breton. Therefore the newsletter couldn't be hand-distributed after the meeting as we would have done, thereby saving on the cost of postage.

The 2017 quarterly issues, from the March 2017 Issue #166 to the February 2017 Issue #169 were comprised of 72 pages of all the usual – natural history reports, articles, nature notes and news, our talk and field trip write-ups, the seasonal phenomena and events Almanac, and the Halifax Tide Table. I extend a truly sincere thank you to everyone who took the trouble to record and/or write-up, and submit them.

One of the highlights reported from our March 2017 AGM – Burkhard Plache took over as President, and Janet Dalton stepped down to become Past President, along with a few other other changes to the 2017 Board of Directors as well.

I think one of the most significant talks for the year was Bob Bancroft's "Forestry in Nova Scotia and Unrestrained, Government-sanctioned Forest Liquidation" (the title says it all) in June. Along with all the hard work the Healthy Forest Coalition has been doing (EAC has honoured them with their Tooker Gombert Award, reported in the summer issue), let's hope we can have some influence upon stemming the tide of all this forest clearcutting and desecration which seems to have run amok.

## SPECIAL ARTICLES

### IN MEMORIAM – WILLIAM LISHMAN, 1938 - 2017

In 1996, shot at several locations in southern Ontario, the film "Fly Away Home" was released. It was based upon Bill Lishman's autobiography Father Goose: One Man, a Gaggle of Geese, and Their Real Life Incredible Journey South. I'm sure you've seen, if not this film, then other nature documentaries showing wonderful video close-ups of geese flying alongside ultralight airplanes containing pilot and photographer.



Bill's inventiveness and tenacity started it all.

HFN member Peter Wells shared Bill's obituary following his recent death on December 20th, 2017. It was written by Matthew Swan of Adventure Canada, and has been edited.

### NO ORDINARY LIFE

It was with great sadness and shock we learned on December 30th that our dear friend and colleague Bill Lishman had passed away at home. He was surrounded by family and friends at Purple Hill, near Blackstock, Ontario. Bill had been labouring with some health issues, but his medical advisors thought, with luck, that he would be around for another ten years.

Little did we know it would be just ten days.

A special thank you goes to Patricia Chalmers for compiling our useful Almanac, and for much appreciated proofing, I thank Allan Robertson, Bernice Moores, Patricia Chalmers, Bob McDonald, Clarence Stevens, and other HFNers who have helped from time to time. I would like to mention UPS Queen Street for reliable and skilled production of the colour covers, and to DalPrint for our 'special rates' for our newsletter's interior.

If you have any comments or topics pertinent to HFN and the Natural History of Nova Scotia, please send them to the editor, [sdhaythorn@ns.sympatico.ca](mailto:sdhaythorn@ns.sympatico.ca).

– Respectfully submitted,  
Stephanie Robertson

## MEMBERSHIP

In 2017 our membership figures indicate that we collected dues for 59 Individual, 34 Family, 17 Supporting, and four Institutional memberships. Adding these to one Life membership results in a total of 115 memberships. It should be noted that family memberships are counted as 'one' and thus the 115 does not equal the total number of members, as no multiplier is applied to Family memberships. Seven of these memberships were New or Returning members. No Complimentary memberships were given during 2017. Forty of these memberships included a Nature Nova Scotia membership.

A special thanks to Doug Linzey for maintaining the membership database and printing newsletter labels, and to Bernice Moores for her 'keen eye' in spotting errors.



– Respectfully submitted,  
Ron Arsenaault

My brother Bill Swan was the one who first introduced Bill Lishman to Adventure Canada after seeing him as a guest speaker at the 'Wings Over the Rockies' Bird Festival in Invermere almost twenty years ago. Brother Bill said, "we've gotta get this guy".

And we did. What followed was many years of great travel in Canada and around the world with Bill as a presenter. The US Department of Wildlife described 'Operation Migration' – where Bill's team first taught hand-reared geese and then later on Whooping Cranes to follow Bill as he piloted an ultralight aircraft (of his own design and construction) on migration routes – as "the wildlife equivalent of putting a man on the moon".

Bill was beyond a pioneer, he was also an inventor, sculptor, filmmaker, underground-house pioneer, activist, naturalist, author, family man, and an inspiration to those who knew him. Bill never saw limitation; for him, the world was only full of possibilities. He was a true genius and a modern day Renaissance Man.

There was also another side to that genius – Bill had a learning disability. He was both dyslexic and colour-blind, but, as we use to chuckle, he was also "beautifully unencumbered by formal education". Even in his seventies, Bill remained a seven-year-old at his core, and was certainly one of the most imaginative and creative



people I have ever met.

He was also one of the most compassionate and least judgemental people I've known. He had tremendous affection for the Inuit of Canada's North. His many travels there were reflected in the design of a revolutionary igloo-style dome housing concept, and also an installation of a forty-foot stainless steel iceberg sculpture at the Museum of Nature in Ottawa.

For those of us who had the pleasure to know and spend time with him, he was a luminous companion. God speed, Bill. Let us know when you have something to report back.

*(I highly recommend Bill Lishman's book, first published in Canada in 1992 as Father Goose, and later on with various subtitles. My volume is titled Father Goose: The Adventures of a Wildlife Hero - ed.)*



## IN MEMORIAM – ARTHUR MORRIS

– Lesley-Jane Butters

Long time HFN member Arthur Morris passed away suddenly at home in Belnan, Nova Scotia, on February 7th, 2018. He was predeceased by his younger sister Eleanor Williams and his wife of 66 years, Dorothy Morris. He is survived by his children Wendy, Susan, and Andrew; grandchildren, Cori, Ruth, Erik, Tegan, and great-child Ray and his younger sister Margret Evans.

Born in Toronto to Welsh immigrants who returned in 1938 to Chingford, England (16 kms northeast of Charing Cross, London), Arthur and his family survived WW II's devastating Blitz.

He left school at age 15 to join **Reuters**, and at age 17 threatened to run away to sea if his parents did not sign the papers necessary for joining the Royal Navy. He graduated from the Institute of Mechanical Engineers and became a Diving Officer.

Arthur returned to Canada in 1961 with his young family and was transferred to The Royal Canadian Navy. He retired in 1974 with a badge for 'bravery' in his role of taking charge in saving lives during a fire at sea on HMCS Nipigon. After his retirement, he and a friend formed Ledaire, Morris, and Associates, Architects and Engineers. They designed and redesigned many HRM buildings and structures, including the bandstand at Sullivan's Pond.

With a deep thirst for knowledge and adventure, he and Dorothy set sail on a one-year adventure over the brimy ocean toss in their sailboat Cabot's Mathew. Thirteen years later, with some 40 countries visited, they returned to Halifax!

Dorothy encouraged Arthur to join The Halifax Field Naturalists as she was a very active member before their global sea adventure. Both looked forward to our monthly HFN meetings and always made sure they arrived early so as to sit in their favourite seats – second row, fourth and fifth seats in. Lately, getting on in years, neither were able to join HFNers on field trips, but were still very keen in learning and reading about our wonderful nature excursions. After our meetings and during

refreshments, Arthur was keen on chatting up a good conversation, captivating members with his endless memories, stories, and interests – many of which related to nature and the world's natural environment.

Our 2017 December meeting and Christmas Social was Arthur's last time to sit in row 2 seat 4. After the lecture, he leaned over the back of my seat and asked if I was going to show any of my nature pictures at the March AGM and Photo Night. He really enjoyed seeing my nature pictures on the big screen as they were different than most others. I mentioned that he ought to show his photos from his recent mid-November 2017 safari to Kenya. He seemed very thrilled with the idea!

Susan, his daughter, has shared with me some of his safari pictures – perhaps we will show them at next year's AGM photo night.



## A CLEAR CUT PERSPECTIVE

– Ken Harrison, Biologist,

On Monday evening, December 4th, 2017, the Nova Scotian Institute of Science held their monthly meeting at the Irving Environmental Centre at Acadia University in Wolfville.

The speaker was Donna Crossland from the Healthy Forest Coalition, a biologist with Kejimikujik National Park and a member of the board of the Medway Community Forest Coop near Caledonia, Queens County. Donna has a Master of Science in Forestry (M.ScF.) from the University of New Brunswick and is concerned about forest management issues in southwestern Nova Scotia. The title of her presentation was "A 'clear cut' Perspective About 'science-based' Forest Management in NS".

Donna was a member of the Phase 2 forest panel of expertise with Robert Bancroft and Jonathan Porter, whose direction was to delve into the science of best forest practices and make recommendations on how to conduct sustainable forestry in Nova Scotia while remaining aligned with public sentiment that was previously expressed in Phase 1 of the strategy. This panel was to deliver on the science. In February 2010, Bob Bancroft and Donna Crossland wrote a comprehensive report emphasising the scientific basis for forest management in Nova Scotia titled "Restoring the Health of Nova Scotia's Forests". It can be found at <https://novascotia.ca/natr/strategy/pdf/phase2-reports/Forests-Health.pdf>.

The third member of that original panel, Jonathan Porter, wrote his own separate 2010 report entitled "The Roots of Sustainable Prosperity in Nova Scotia". He was a former Bowater Mersey official who has since taken up a senior position within the Nova Scotia Department of Natural Resources (NSDNR) which seems to be pushing the short rotation 'cut everything' policy favoured by the forest industry. Mr. Porter's document can be found at <https://novascotia.ca/natr/strategy/pdf/phase2-reports/Forests-Roots.pdf>.

There is also a Research Addendum with separate sections written by Jonathan Porter, Robert Bancroft,

and Donna Crossland which highlights their different approaches. This Research Addendum can be found at [https://novascotia.ca/natr/strategy/pdf/phase2-reports/Natural%20Balance\\_Addendum.pdf](https://novascotia.ca/natr/strategy/pdf/phase2-reports/Natural%20Balance_Addendum.pdf).

Each of these documents makes numerous recommendations, but in my opinion the most compelling is to apply the Precautionary Principle in the management of Provincial Crown lands. At first glance it appears that NSDNR is making a large number of rosy assumptions which need to be examined with care. Sound recommendations supported by solid, peer-reviewed scientific research have been totally ignored by NSDNR (e.g. it still permits whole tree harvesting which removes vital nutrients from soils already impoverished and limited by their geology and acid rain). A major concern is the reliance on clearcutting of conifer stands and the removal of potential old growth habitat which is needed for aquatic ecosystems to ensure the survival and continuance of salmon and trout streams during drought or low summer water levels. The fauna in terrestrial ecosystems cannot thrive if the landscape is not properly managed.

NSDNR does not appear to have the will or the on-the-ground staff to honestly and transparently monitor cutting activities on provincial Crown Land which impacts the broader areas of private land beyond those Crown Land borders. It appears to be unable to do more than rubber stamp unsustainable cutting plans using flawed prescriptions throughout Nova Scotia. These pro-forma prescriptions are not transferrable to the vulnerable ecosystems in southwestern Nova Scotia. One size does not fit all!

Southwestern Nova Scotia coincides with the general area of granitic and slate soils that were identified as the most vulnerable to nutrient depletion by the Long Range Transport of Air Pollution (LRTAP) and Acid Rain National Early Warning System (ARNEWS) programs that existed within the Canadian Forest Service until the late 1990's. The acid rain impact on soils, ecosystems, and aquatic life (e.g. Atlantic salmon and brook trout) is well documented in southwestern Nova Scotia.

Crossland is concerned that the proposed 10-year lease to the WestFor group (a consortium of 13 private mills, including Northern Pulp) is going to exploit the remaining Provincial Crown land in southwestern Nova Scotia with aggressive, indiscriminate cutting for fibre and wood chips. This will jeopardise the long-term sustainability of that vanishing resource with little consideration for investing in the growth of saw log quality trees which can supply smaller, local sawmills in the future. The large companies have overharvested elsewhere, so they are turning now to the southwest as a source for fibre. This is presently occurring in addition to the cutting of matchstick-sized wood on virtually all privately-owned land parcels in the entire province.

WestFor has been heavily clearcutting southwestern Crown lands for the past two years and is poised to receive a 10-year lease to cut the last remaining Crown forests in the southwest. The audience was encouraged to visit their local MLA (representing any provincial political party) with their concerns over forest mismanagement. There is an Independent Forest Review being

presently conducted by Dr. W. Lahey for the provincial government, and the information on the review process is online at [https://novascotia.ca/natr/forestry/Forest\\_Review/](https://novascotia.ca/natr/forestry/Forest_Review/). Citizens are urged to submit forestry concerns directly to Dr. Lahey's Independent Forest Review panel via email at [forestryreview@novascotia.ca](mailto:forestryreview@novascotia.ca).

During the course of her presentation, Crossland indicated that there are many documents relating to forestry issues that are readily available online from NSDNR (drawing particular attention to the new 'Forest Management Guides which justify more 'science-based' clearcutting, using terms such as 'salvage cut', 'seed-tree release', and 'overstory removal'). There is also 'Nova Scotia Forest Notes' which delves into some of the issues behind DNR science. The Healthy Forest Coalition and Woods and Waters of NS are also informative sites.

*(Ken Harrison is a member of the Blomidon Naturalists Society which is a member of the Nova Scotia Healthy Forests Coalition.)*

## HELP CREATE AN URBAN WILDERNESS PARK IN HRM



– **Craig Smith, Nova Scotia Program Director,  
Nature Conservancy of Canada**

On Sept 6, 2017, Halifax Regional Council voted unanimously to move forward with a proposal by the Nature Conservancy of Canada (NCC) for a 379-acre urban wilderness park near Purcell's Cove. The tentative agreement between NCC, HRM, and The Shaw Group (the property owner) presents an extraordinary opportunity to conserve a rare landscape and habitat, while creating a park designed for outdoor recreation and nature appreciation, all within a densely populated part of the city. The project has already come a long way, but to make the park a reality, NCC will need wide support from the community.

The property, which borders on the Purcell's Cove Backlands, includes Williams Lake and Colpitt Lake, and is already a popular spot for swimming and hiking. The Williams Lake Conservation Company and members of the Backlands Coalition have been advocating for its protection for many years. During the consultations for the Halifax Green Network Plan, the Backlands area was identified by the public as one of top the three areas for protection in HRM. While this land will be the first, it is clear that Blue Mountain Birch Cove Lakes must also be protected, in time.

Once considered for a suburban housing project, this beautiful property should be conserved because it contains a rare forest type known as jack pine and broom-crowberry barrens, found only on exposed, glacier-scraped rock near the Atlantic coast. The property also includes sections of mature pine forest and many small wetlands, which provide habitat for more than 40 species of breeding birds and other wildlife.

The vision for the urban wilderness park is to conserve the ecology and landscape for both wildlife and people,



so future generations will always be able to get outside and connect with nature. The park will be easily accessible by road and by public transit. Most trails will be marked but kept narrow and natural. Year-round low-impact activities such as hiking, birding, interpretive walks and outdoor education will be permitted. The lakes will be open for unsupervised swimming and non-motorised boating.

As Canada's largest charitable land trust, NCC has helped conserve 2.8 million acres (more than 1.1 million hectares) of ecologically-significant land across the country, including 33,000 acres in Nova Scotia. With 50 years of experience behind us, we recognise the Backlands as a rare chance to conserve a significant and accessible natural landscape in an urban centre, in partnership with a willing land owner and a supportive municipal government.

To help create the park, NCC has committed to raising \$3.5 million: \$2.5 million for a conservation agreement with HRM ensuring no development or resource extraction can ever occur on the property; and \$1 million for legal and associated costs, including the establishment of a stewardship fund to ensure long-term care of the property. As with all our conservation projects, the Nature Conservancy of Canada uses professional appraisals conducted by independent third parties to determine fair market value of the lands to be protected.

Over the next year, NCC will be seeking financial support from a wide range partners, but particularly Nova Scotian businesses, local communities, and citizens of Halifax Regional Municipality in order to raise the necessary funds for this project. We invite people to show their support by donating online or contacting our Halifax office. With the help of the citizens of HRM, NCC can ensure in 2019 that the urban wilderness at Williams Lake will become a permanent sanctuary in the city.

## iNATURALIST - A PERSONAL PERSPECTIVE



– Burkhard Plache

After the workshop that Lara Gibson gave in the summer of last year, I began using iNaturalist to record my nature observations. In this brief note, I want to highlight the benefits the site offers me as a user, with the hope to encourage others to use the site as a tool for sharing observations, learning about nature, and connecting with other naturalists.

When I first heard about a website which collects observations of all types of species, I was intrigued. I was aware of other specialised websites (e.g., eBird, BugGuide); however, with my main interest in plants, I had not made use of any such application. Hence, I approached the site with cautious optimism, and added a few photos to give it a try.

Exploring the website, I soon realised the possibility of using it as a tool for organising my species-specific nature observations. Since each photo is tagged with the time when it was taken, its location, and if identified, by its species name, it is easy to find all my own

observations in a certain area. For example, I am often walking in the Dingle Park's Frog Pond, and the website is able to generate maps marking all my observations in that park.

Another feature I have been using is to list all my observations of a certain species. For example, Broom Crowberry is a species associated with fire-disturbed habitats. Getting all my observations of Broom Crowberry at a site and then mapping them can be very handy in reminding myself where I have seen them in the past. On top of that, I can use other people's observations to learn more about the distribution of this species, expanding my understanding of where other areas of a certain habitat might be found. Then, I can also contact the people who made observations of this kind, and find out more about the locations of interest.

Interacting with fellow naturalists can also be educational. I had often seen Baneberry in our hardwood forests, and also noted that red-berried and white-berried plants occur. However, after submitting two photos, one showing a red-berried and another showing a white-berried specimen, and tagging them as Red Baneberry and White Baneberry respectively, I got a surprise correction – a fellow naturalist had marked my White-berried Baneberry as Red Baneberry. I expressed my surprise, and in response learned that there is a white-fruited form of the Red Baneberry, *Actaea rubra* f. *neglecta*; further reading revealed there is also a red-fruited variety of the White Baneberry. The distinguishing feature is not the colour of the fruit, but the thickness of the stalks attaching the fruit to the stem. Now when encountering Baneberry, their colour still draws my attention, but their stalks get a closer look.

There was also a pleasant encounter when I attempted to identify a goldenrod from a photo. Out of a few possible candidates, I could not find a perfect match. Hence, I settled on Large-leaved Goldenrod, *Solidago macrophylla*, knowing I might be 'off', and was pleasantly surprised to find that someone else cared enough to correct my mistake. It turned out that the species in question was Squarrose Goldenrod, *Solidago squarrosa*, a newly arriving species, and therefore not in the plant lists I was checking. Additionally, my fellow naturalist told me he had observed that Goldenrod species in another year at exactly the same location. I was very pleased with myself for having taken the photo in the first place, because the plant looked a bit unusual.

Besides recording my own observations, I can also help others identifying their specimens. iNaturalist allows a user to filter all observations by location (e.g., Nova Scotia, Maritimes, Eastern North America, ...) and type (e.g., plant, mammal, bird, insect, ...). Hence, I can get a list of recent plant sightings in Nova Scotia, and where able can add identifications to those that are not yet tagged. This activity is another way of learning what is currently observed in my home region, and opens the door to conversations with fellow naturalists about identifying features or places of interest.

There is also the opportunity to learn about nature in distant places. For some obscure reason, I was checking the distribution range for our native White Pine,

*Pinus strobus*, and noticed there were a few records from my native Germany. I was aware that they are planted there in parks, due to their attractive growth form, and was surprised to find one reported from a forested region. Reading the comments connected to that observation revealed that White Pine is an invasive tree in parts of central Europe, especially on dry and sandy soils, where it out-competes native pines.

So far, I have not addressed the initial purpose of the iNaturalist website, namely – using citizen science to create a database of nature observations. These data may eventually be used by scientists to monitor populations of species, the expansion or contraction of their range, or the date of flowering or fruiting of plants or the arrival of migratory species. However, I cannot assess the usefulness of the data that are collected at iNaturalist.

I am also aware that using the website has the potential to reveal personal information about myself. For example, if I am posting photos of a vacation trip, any website user can retrace my steps. Also, I tend to take quite a number of photos near where I live; if posting many photos from that area, people can find out where I am living. Thus, I am a bit cautious when to post, and from which areas.

In summary, I am a happy user of the iNaturalist website. As with any tool, the frequency of use determines the skills one develops. And in this case, the possibilities the website has to offer are an incentive for me to visit on a regular basis. Hence I am learning more about what other people are doing, making creative use of the options that are available, and learning in the process about the natural environment and other people who share this interest.

## OUTER MONGOLIA AND THE PRZEWALSKI HORSES

– Patricia Leader

(Continued from the Fall Issue #, page 7)

After the trip to view the Przewalski horses, In darkness we bumped along the track back to our camp for a film and many displays. Then it was off to bed and preparation for the next day's trip, our last in the desert in a ger (Mongolian for 'yurt').

The next morning, we travelled by modern road back to Ulaanbaatar, the capital (we actually missed our desert roads) with a visit to a beautiful old temple, then on to a cashmere store where we might have been in downtown Manhattan; the rest of the day we had a chance to shop before beginning the long journey home. At that time, we were completely unaware that on the next day, Beijing airport would be hidden in pollution. With repeated delays along our air route, the homeward journey ended up taking three days – four for those who lived in Nova Scotia's outback

I referred earlier to the Mongolians love of escaping to the country. We had an opportunity to visit a family which was typical of people wanting to maintain the skills of their past. The parents had both been professional people and while their children were at university, had

now retired to the Tsenkher Valley, famous for its hot springs. Here they had two comfortable gers and a herd of horses. Twice daily the horses were milked, and the couple spent a considerable amount of time processing it in large cauldrons. Enough milk is left for the foals but the rest is converted into butter, yoghurt, cheese, fermented horse's milk, and milk tea – all of which we sampled! It was an interesting and enjoyable visit with laughter and many questions being asked on both sides, and – our five Mongolian drivers were only too pleased to be able to purchase some of their traditional foods.

My main memories of Mongolia are of travelling across its great, vast expanses interspersed with herds of animals such as goats, camels, sheep, and of course, horses. Unlike Australia where frequent dry periods leave herds looking thin, the Mongolian horses looked healthy even though the grass, especially in the Gobi, came in small dried clumps. On one long drive I awoke from a nap to see two Demoiselle Cranes standing quietly in the desert. I wondered if they were thinking, "There go the tourists again!" These blue-grey birds, at just under a metre tall, are one of the smallest and most abundant of the cranes. They weigh under three kg and range from the Black Sea to Mongolia, where their preference is for upland areas and wide-open spaces; for this, Mongolia is ideal. They prefer their own space and can be solitary in nature.

My favourite stopping area was a huge stretch of land where one green valley flowed into many, many more, all with a rich abundance of wild flowers and coniferous trees. Rivers and lush grasses provided a paradise for the animals here and it was an opportunity to stretch our legs and do some botanising.

All in all, it was a marvellous trip which I highly recommend.

## NO 'WILD' HORSES ANYMORE

– from the University of Kansas  
shared by Burkhard plache

Research recently published (February 2018) in *Science Today* overturns a long-held assumption that the Przewalski's horse is the last wild species. Phylogenetic analysis shows Przewalski's horses instead to be feral, descended from the earliest-known instance of horse domestication by the Botai people of northern Kazakhstan some 5,500 years ago. Further, the new paper finds modern domesticated horses did not descend from these Botai horses, an assumption also previously held by many scientists.

This was a big surprise," said co-author Sandra Olsen, Curator of the Archaeology division of the Biodiversity Institute and Natural History Museum at the University of Kansas, who led archaeological work at known Botai villages. "I was confident soon after we started excavating Botai sites in 1993 that we had found the earliest domesticated horses. We went about trying to prove it, but based on DNA results Botai horses didn't give rise to today's modern domesticated horses – they gave rise to the Przewalski's horse."

These findings signify there are no longer any true



‘wild’ horses left, only feral horses which descend from those once domesticated by humans” (like the Sable Island herds), “including Przewalski’s horses and mustangs which descend from animals brought to North America by the Spanish. This means there are no living wild horses on Earth, that’s the sad part,” said Olsen. “There are a lot of equine biologists who have been studying Przewalskis, and this will be a big shock to them. They thought they were studying the last wild horses. It’s not a real loss of biodiversity – but in our minds, it is. We thought there was one last wild species, and we’re only just now aware that all wild horses went extinct.”

Many of the horse bones and teeth Olsen excavated at two Botai sites in Kazakhstan, called Botai and Krasnyi Yar, were used in the phylogenetic analysis. The international team of researchers behind the paper sequenced the genomes of 20 horses from the Botai and 22 horses from across Eurasia that spanned the last 5,500 years. They compared these ancient horse genomes with already published genomes of 18 ancient horses and 28 modern horses.

Phylogenetic reconstruction confirmed that “domestic horses do not form a single monophyletic group as expected if descending from Botai,” the authors wrote. “Earliest herded horses were the ancestors of feral Przewalski’s horses but not of modern domesticates.” This gives rise to the need for a new scientific quest: locating the real origins of today’s domesticated horses.

The Botai’s ancestors were nomadic hunters until they became the first-known culture to domesticate horses around 5,500 years ago, using horses for meat, milk, work, and likely, transportation. Once they domesticated horses, they became sedentary, with large villages of up to 150 or more houses,” said Olsen, who specialises in zooarchaeology, the study of animal remains from ancient human occupation sites. “They lived primarily on horse meat and had no agriculture. More than 95 percent of the bones from the Botai sites were from horses.

She also cited bone artifacts from Botai sites used in making rawhide thongs which might have been fashioned into bridles, lassos, whips, riding crops, and

hobbles, as further evidence of horse domestication. Moreover, the Botai village sites include horse corrals. “We found a corral which contained high levels of nitrogen and sodium from manure and urine. It was very concentrated within that corral. The final smoking gun was finding residues of mares’ milk in the pottery. It’s commonplace today in Mongolia and Kazakhstan to milk horses – when it’s fermented it has considerable nutritional value and is very high in vitamins.”

The team behind the paper believe Przewalski’s horses likely escaped from domestic Botai herds in eastern Kazakhstan or western Mongolia.

“They started developing a semi-wild lifestyle like our mustangs, but they still have a wild appearance,” Olsen said. “This is partly why biologists assumed they were genuinely wild animals. They have an upright mane, something associated with wild equids. They also all have a similar dun coat, like the ones you see in the Ice Age cave paintings in France and Spain made when horses were wild. Their size, however, is very similar to what you see at Botai and other sites.”

By 1969, Przewalski’s horses were declared extinct in the wild, and all those living today originated from just 15 individuals captured around 1900. Today there are approximately 2,000 Przewalski’s horses, all descended from those captured animals, and they have been reintroduced on the Eurasian steppes. In a sense, the horses have fared better than the peoples who once domesticated them.



## HFN TALKS

### AMERICAN EELS

– **Stephanie Robertson**

**“A R-ee-ly Informative Presentation on American Eels!”**. According to Lydia Stevens, American Eels are really “big, black, and slimy three-foot fish”. Lydia grew up in Chester, Nova Scotia, where she spent a lot of her time in and around the ocean. At Acadia University she obtained BSc degrees in Biology and Psychology, with an Honours in Biology, and gained her Biology MSc with both her Honours and Master’s degree research focused on American Eels, *Anguilla rostrata* (which range from Venezuela to Greenland). Lydia currently works with the Coastal Ecosystem Science Division of the Department of Fisheries and Oceans.



Lydia’s talk elucidated the Species Range and Life Cycle; the Importance of Eels; and shared data from two Long-term Eel Monitoring Studies.

#### SPECIES RANGE AND LIFE CYCLE

All eels originate in the three million square mile Sargasso Sea which occupies almost two thirds of the North Atlantic Ocean. It is a vast ocean ‘gyre’ of four circling ocean currents rotating clockwise – the Gulf Stream, the North Atlantic Current, the Canary Current, and the North Atlantic Equatorial Current. Within the sea, these circling ocean currents accumulate mats of Sargassum seaweed (thus its name) which shelter a surprising variety of fishes, snails, crabs, and other small animals.



The Sargasso is the only sea on the planet which has no land boundaries.

All eels spawn in salt water and are mostly catadromous (spawning in salt water, but living their lives in fresh). But there can be variation; in Canada's Niagara Falls the eels there are *facultatively* catadromous, which means although they spawn in salt water, they can choose to live in either fresh water or salt. There are 16 species of eel in the world, but only one in Nova Scotia, the American Eel.

Eels are panmictic (individuals mate randomly within a population) This means the breeding individuals show no tendency to choose partners with particular traits, and there is little genetic structural differentiation across the range of eel species to clearly show where they are from. For instance, European and American eels can and will mate, but it is hard to see any differences from this crossbreeding.

There are five main phases in an eel's life cycle after the egg hatches – leptocephalus (a willow-leaf shaped very tiny eel); glass eels (a little larger but more slender,); elvers (same size but pigmented); yellow eels (the longest phase); and silver eels (the largest). It is the silver eel phase that returns to the Sargasso to spawn.

The eggs hatch into transparent leptocephali and are extremely tiny – 5 to 7 cm. They travel wherever currents take them – a passive migration. The next stage, the glass eel stage (still transparent), remains at 5 to 7 cm but now they start to become narrower, and carry out active migration across the continental shelf, meanwhile growing into elvers, the next stage. Elvers remain the same length, but now narrow down even more and also start to become pigmented. Nutritious insect larvae are now their main food, but despite this, they begin to lose weight due to the increased energy requirements of morphology changes and more active migration. It is at this elver stage that the majority of them will try to migrate to fresh water. The little elvers arrive in Nova Scotia in spring, on a night with warm temperatures, a high tide, and a full moon. This is when the great 'eel runs' take place and when they can be most easily trapped.

The next stage, yellow eel, lasts from seven to forty years! It is fully carnivorous, and now, sex is determined and its colour turns to yellow on the belly and fully dark on top. American Eels exhibit sexual dimorphism; the big eels are always female, the smaller eels male.

When they become silvers, the last stage, both males and females leave Nova Scotia for the Sargasso in the fall, at nighttime with a full moon, and this time in stormy weather. Silver eels are fully and sexually mature, are strong enough to carry out full active migration, and are 'semelparous' – that is they migrate only once. Females can carry up to 15 million eggs.

## IMPORTANCE OF EELS

American Eels are important to indigenous people, and to both the Recreational and Commercial Fisheries. Indigenous peoples consider the eel sacred. They use them for food, spirituality, medicine, and decoration. Many groups have licenses to fish for both yellow and silver eels, and one band has a license to commer-

cially fish elvers. In the Recreational Fishery there are General Angler Licenses (ten per day); Winter Spear- ing Licenses; and several hundred Recreational Eel Pot Licenses (variably-shaped mesh traps). As for the Commercial Eel Fishery, both yellow and silver eels are fished in Nova Scotia, and there are also nine licenses available for elver fishing, all of which employ several hundred people; the Nova Scotian Commercial Eel Fish- ery is worth over \$16,000,000.

Unfortunately, over the last ten years, like many other species, it has been observed that eel populations have declined significantly, especially in their northern ranges of the Great Lakes and the St. Lawrence River. In 2012, the American Eel was assessed as Threatened by COSEWIC. Parasites, river/hydro dams (i.e. the St. Lawrence River), and pollution are the most prominent causes of death.



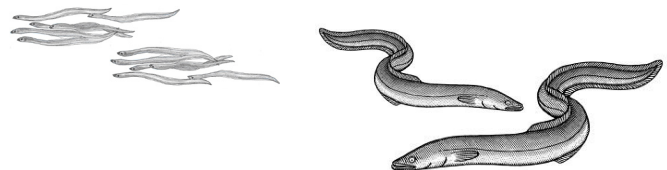
## TWO EEL STUDIES

Lydia has conducted two eel survey studies: from 2008 to the present, a Chester East River Elver Abundance Study with the Bluenose Coastal Action Foundation and DFO, to assess the numbers of 'running' elvers there, the longest running elver index in North America; and a second study, from 2009 to 2012, an American Eel Habitat Preference Study at Oakland Lake in Mahone Bay.

The first entailed trapping elvers for counting and sampling. Lydia used four Irish-style, gravity-fed traps from the beginning of May to the middle of July (the time when they begin to darken in colour). We were shown one shoe-box shaped trap, set on a slight slant, embedded in a rocky, running brook. The trapped elvers were counted, measured, weighed, and assessed for increasing degrees of pigmentation.

The total counts for the years 2011 to 2014 kept on increasing. 2015 was a bad year; oddly, it snowed heavily every Wednesday and the melts caused rising waters to 'drown' the traps. However, 2016 revealed a bumper crop – from two to three million elvers. Adding previous years' data to Lydia's, the numbers of elvers recruited was quite astounding; two examples – in 1997 - 1,000,000; in 2014 - 1,700,000.

For the second study, Lydia chose Oakland Lake in Mahone Bay because it was a protected watershed with only one stream running to an estuary. From 2009 to 2012 inclusive, between 29 and 44 traps were set ; their depth ranged from .46 to 3.05 metres. Across all study years, a total of 842 yellow eels were caught, and she injected PIT tags into 368 of them. Small metal cylinders injected into the eel's dorsal muscle, these tags are used to differentiate the individual eels using a unique identification number.



In 2012 eight eels received acoustic tags and a PIT tag if they didn't already have one. Acoustic tags are surgically implanted into the eel's body cavity. They require receivers to detect eel movement and depth (there were four receivers). Two of the traps, set below 10 metres, captured no eels at all. The eight acoustically tagged eels were almost always detected in depths of less than five metres, regardless of the time of day or night. Most eels were caught only once; however there were 167 recaptures, and one particular eel Lydia labelled 'Trap Happy' which was recaptured 12 times! Eel length and mass were also recorded over the four-year study. Lengths varied from between 15 to 82 cm, and mass from 14 to 1373 grams. Determining the age of eels can be difficult, but in 2011, 23 eels were estimated to be between 13 to 28 years old.

Using both acoustic and PIT tag data, Lydia could follow the eels' movements over the area and record their preferred habitat sites. The summary – she found that the eels used a combination of habitat characteristics in all areas of the lake, and they were generally captured and detected in shallow water. She noted also that the study may have been good at estimating numbers of eels only of a certain size. The tagged-eel data showed the population estimate to be 90 in 2009, 87 in 2010, 119 in 2011, and 161 in 2012.”

In conclusion, eels are found in most of Eastern Canada and all throughout Nova Scotia (only the American Eel in NS), and their decline has occurred primarily in their northern range. Eels are an important species, often under-appreciated.

Quoting Winston Churchill, Lydia claims they are “a riddle wrapped in a mystery inside an enigma”.



## 2018 AGM & MEMBERS' PHOTO NIGHT

– *Allan Robertson*

Our very able Photo Night MC was Richard Beazley (returned by popular demand, he said, for his reputation of ensuring that people kept to the schedule). He had two signs – 'Two Minutes' and 'STOP' – which he displayed discreetly to exhibitors at appropriate times.

**Karen Robinson** from the Sandy Lake Conservation Association spoke about the work being done to save the Sandy Lake area of Bedford-Sackville from clear-cutting and residential development. She showed drone footage of the region which stretches from the Hammonds Plains Road in the south to Lower Sackville in the north.

Nearly 50 years ago the Sandy Lake area was regarded by recreation planners as one of the seven jewels in the crown of the Halifax/Dartmouth/Bedford area, the others being Admiral's Cove in Bedford, the Canal Lakes in Dartmouth, the Cole Harbour/Lawrencetown area, Hemlock Ravine in Bedford, McNabs Island in Halifax Harbour, Long Lake, and the Watershed Lakes (including Sandy Lake, Marsh Lake, Jack Lake, and the Sackville River).

Somehow, Sandy Lake Regional Park fell off the table during amalgamation, and only recently have local residents discovered this and begun once again to mount an effort to save the area (after a recent 200-acre clearcut of old growth Acadian forest beside the lake and the unveiling of plans to build housing for 12,000 people – to the alarm of local residents who were expecting a park).

Conservation of the Sandy Lake area would protect the existing rich ecosystem, including salmon, sea trout, gaspereau and other fish in the lake and the Sackville River, and would provide an essential link to the Chebucto Peninsula as noted in the Green Network Plan. Karin showed beautiful pictures of fauna in the Sandy Lake area, including butterflies, newts, turtles, Osprey, and Loons.

**Peter Webster** treated us to pictures from his trip to Northern Florida two years ago. He pointed out that once asphalt is left behind, areas quickly become wild and beautiful. We saw Washington Oaks State Park and Blue Spring State Park, with armadillos (they seemed to be everywhere), egrets, Manatees (but except for a suggestive smudge in the water, they are virtually impossible to photograph, he assured us), Alligators, Anhinga, White ibis, Turkey Vultures (even more ubiquitous than armadillos), and Marsh Hens.

**Brian Bartlett** displayed beautiful pictures from a three-week Costa Rican trip he and his wife took last year. He had culled pictures of people, statues, landscapes, and all things non-natural from his photos, to include only animals – mostly birds. Early on he showed a photo of Costa Rican currency, with various denominations of bills featuring realistic images of sloths, monkeys, deer, and sharks. He also shared with us a picture of an interesting road sign, yellow and black somewhat like a Nova Scotian sign, urging motorists to slow down, but this sign included silhouettes of, in order of travelling speed, a person, a dog, a monkey, and a sloth. Love it!

The birds shown included Blue-crowned Motmot, Passerini's and Blue-grey Tanagers, Black-headed Saltator, Red-legged Honeycreeper, Rufous-tailed and Green violet-ear Hummingbirds, Crested Guan, Red-billed Pigeon, Keel-billed Toucan, Emerald Toucanet, Montezuma Oropendola, Resplendent Quetzal, Magnificent Frigatebird, Yellow-crowned Night Heron, and Bare-throated Tiger-heron. Other critters included a Tarantula Wasp (which paralyses tarantulas so its young can eat them alive), lizards (including Spiny-tailed Iguana and Green Basilisk), Red-eyed Frog, Pit Viper, Agouti, White-nosed Coati, Crab-eating Raccoon (digging up and eating gecko eggs), Red-backed Spider Monkey, and White-faced Capuchin. What an assortment!

**Keith Vaughn** treated us to pictures from a 10-day trip around the Gaspé Peninsula (the Gaspésie) he took last fall. Entry to the Gaspé was across a very long bridge over the Restigouche River connecting Campbellton to Pointe-à-la-Croix. He showed us some beautiful pictures of Percé Rock from different viewpoints along the shoreline cliffs. He also showed beautiful views of Forillon National Park, Petit-Gaspé Beach, inhabited beaver lodges, huge flocks of Snow Geese resting during their migration south, plus a picture of the Cap des Rosières

lighthouse (the tallest in Canada, at 34 metres) and another of the Sainte-Anne-des-Monts lighthouse.

We also saw the museum commemorating the sinking of the Empress of Ireland in the Saint Lawrence in May, 1914, caused by a collision with a coal ship. Over 1,000 perished.

There was a beautiful montage of colourful autumn forests, plus a gorgeous red covered bridge. Keith finished off with a picture of a lumber yard in a clearcut area, showing us that forest desecration in Canada isn't restricted to Nova Scotia.

**Clarence Stevens** described the activities of the Turtle Patrol he has organised – a small group of volunteers to assist baby Snapping Turtles in gaining access to the wet areas of the woods they need to survive. The situation is caused by turtles' proclivity to lay eggs between railway tracks in abandoned sections of rail. They do this because the rail beds are filled with gravel and sand – places where holes can be easily dug and eggs laid. Unfortunately, after the eggs hatch, the tiny turtles can't climb over the rails, and they're sitting ducks (well, sitting turtles) waiting for predators to gobble them up.

The Turtle Patrol also finds baby turtles near construction sites, so the group works with the construction companies to help save the turtles – and they get good cooperation from the companies and their heavy equipment operators.

The modus operandum is to find baby turtles (which are usually a bit dried-up, with closed eyes), help them warm up by gently holding them in one's hands, wet them a bit, and then release them (after they start to move their legs a little and to stretch their necks out), to a moist, safe area nearby. They're very well-camouflaged after release, and people have to be careful not to step on them. Clarence's co-founder, Paul Turbitt, has approached a professional dog trainer to train his dog to



sniff out baby turtles next year.

Turtles will dig a number of false nests (empty, but covered-in holes) to discourage predators, and they lay from 20 to 60 eggs in each real nest. The number of eggs relates to the age of the mother turtle – young ones lay perhaps 20, and the oldest about 60.

**Lesley-Jane Butters** presented a silent movie show of beautiful nature photographs which she dedicated to the late Arthur Morris who suddenly passed away on February 7th, 2018. Arthur was a long-time HFN supporter who looked forward to our annual HFN photo night each year.

Lesley-Jane's eclectic, beautifully surreal presentation included photos of butterflies (Eastern Tiger Swallowtail, White Admiral, Great Spangled Fritillary); Moths (Rosy Maple moth, Spotted Tussock moth, Northern Pine Looper moth); and a stonefly, blue-green bottle flies, a Six Spotted Green Tiger Beetle, Tri-coloured Bumblebees, a Marbled Orb Weaver spider, an American Dog Tick, a baby American Toad, a Humpback Whale, beaver lodges, a scallop fossil, a riverscape, and new vegetation after a forest fire.

Her flowers were: Meadow Goatsbeard (in flower, bud, and seed), Red Hibiscus, Gooseneck flower, Queen-Anne's-Lace, a dried seed pod of Columbine, a gelatinous Water Shield waterlily, a bi-coloured pitcher plants, false Canada Holly on ice, and a Red Maple bud (encased in water). There were also shown edible mushrooms, tree lichens, Bay of Fundy cliff formations, seaweed, plankton, Irish Moss, a sea sponge, a Lumpfish, Orange Sea Squirrels, a Chickadee on a branch in fog at Point Pleasant Park, a beach lawn area after a storm surge (beach rock and pebbles), a partial rainbow, and the sunset on North West Arm. Lesley finished off with fantastical patterned ice and unusually patterned snow drift formations. Quite a show!



## HFN FIELD TRIPS

### DRYSDALE BOG

– **Burkhard Plache**

**Date:** Saturday, February 10th

**Place:** Goodwood

**Weather:** Overcast and light showers

**Leader:** Burkhard Plache

**Participants:** 16



The Drysdale Bog is located adjacent to the Western Commons Wilderness Park in Goodwood, and can be reached via the Pipeline Road that runs between Long Lake and Big Indian Lake. We met near the Halifax Exhibition Centre off Hwy 333. The weather forecast called for showers, and people came prepared with rain gear and umbrellas, a precaution well-justified.

When planning for the walk, a mid-February date was chosen, hoping for snow so we might be able to cross country ski. Alas, the weather did not cooperate.

As the trip leader, I want to give credit to A Walking Guide to the Old St. Margarets Bay Road, a booklet which was published in 2017 by the Five Bridges Wilder-



ness Heritage Trust. While reading about the history of the road, I was struck by a sentence which referred to the Drysdale Bog as "...one of the most ecologically sensitive areas on the Chebucto Peninsula", and I wanted to explore and share this place with fellow naturalists.

We set out by crossing Hwy 333 to its northern side, before starting on the Pipeline Road. It is a narrow service road, parallel to the water pipeline from Big Indian Lake to Long Lake. Its surface was quite icy; thus the walking proved to be challenging. Most of the way, we were surrounded by a fairly wet spruce forest, with some Balsam Fir and Red Maple. The trail is for the first half surrounded on both sides by HRM lands which are part of the Western Commons Wilderness Park, whereas in the latter part there are private lands on its Southern side.

After some 15 minutes, a constant machine noise from the HRM composting plant in Goodwood became noticeable. The plant is located south of the trail, and HRM staff is proposing to create a buffer around the current composting facility and rezone the expanded area to



I-3 (General Industrial). If approved by Halifax Council, the rezoning would permit heavy industrial use, set a precedent for other such use in this area, remove approximately 36 acres from designated Park lands, and possibly restrict public access to a historic road. A short distance later we came across two cut lines delineating the buffer for the proposed rebuilding of this facility. The buffer zone lines extend on both sides across the Pipeline Road.



A little further on, the road crossed a small stream. Here, the old pipeline which supplied water to Halifax some 50 years ago was visible, and we noted that the stream had washed away some of the material that used to cover it.

Finally, after a bit more than an hour, we reached the bog, which is located on privately owned land. Looking out from the edge, its extent is impressive. Equally striking is the absence of small trees and shrubs which are frequent features of other bogs and fens in Nova Scotia (e.g., Black Spruce, *Picea maritima*; Tamarack, *Larix laricina*; Sweet Gale, *Myrica gale*; and Leatherleaf, *Chamaedaphne calyculata*).

At this point, it is important to point out the features which make Drysdale Bog special: It is a raised bog, which means that its surface is higher than the surrounding land, more so in its centre than at the edge. The raised part of the bog is due to the growth of sphagnum moss which forms the bulk of the peat in the bog. Sphagnum plants grow continuously, with the old material dying and getting transformed into peat. Due to lack of oxygen, the peat does not decay as most other dead plant material does, therefore it accumulates over millennia. Sphagnum plants, and also peat, have high water absorption and retention; they serve as buffers – soaking up water in the wet season, and then releasing it slowly in the dry season.

A raised bog receives its water only via precipitation, and its nutrients and minerals only from the underlying mineral ground, airborne particles, and what animals bring in. This contrasts with other types of wetlands, which receive their nutrients also from inflowing streams. Therefore a raised bog is a comparatively low-nutrient environment, which explains its sparse tree and shrub vegetation. It also implies a slow growth rate, which means that any disturbance to the vegetation will take a long time to recover. Aerial photos of the bog, available at some well-known websites, show many ATV tracks which could very well be many years old.

We spent some 10-15 minutes at the edge of the bog, with participants exchanging observations of plants growing nearby (cranberry, *Vaccinium* sp., and Lamb-kill, *Kalmia angustifolia*). We also learned about the mechanisms which insectivorous plants (e.g., sundew, *Drosera* sp., Pitcher Plant, *Sarracenia purpurea*, and bladderworts, *Utricularia* sp.) use to catch prey in order to obtain nitrogen.

Since we were already 90 minutes into the two-hour hike, at this point most participants decided to turn back while five people continued to Big Indian Lake before then returning as well. A big thanks to all participants who braved water from above and ice below our feet, ensuring an enjoyable afternoon.

While preparing for the walk and researching the



Drysdale Bog, the guide book Bogs & Fens: A Guide to the Peatland Plants of the Northeastern United States and Adjacent Canada, by Ronald B. Davies (Univ. Press of New England, 2016), has been a valuable resource. It gives a concise introduction to peatlands, and contains descriptions and high-quality photos of close to 100 plant species which are frequently found in such places. This book is available for loan in the Halifax Public Library.



## RECYCLING PLANT TOUR

– Susan Moxon, with input from Marcel Maessen

**Date:** Tuesday, March 6th

**Place:** Bayer's Lake

**Weather:** Overcast, cool, and windy

**Leader:** Marcel Maessen

Participants: 16

Waste Resource Education Officer Marcel Maessen of HRM Solid Waste Resources met us at the HRM Recycling Facility at 20 Horseshoe Lake Drive, Bayer's Lake Business Park. Finally, when we were all assembled (two had mistakenly gone to the Otter Lake facility!), we traipsed upstairs to a large room overlooking the 'tip-ping floor'. This is where the trucks of blue bags, clear bags of paper products, and corrugated cardboard are dumped and sorted.

Marcel told us that prior to 1997 all garbage was brought to the Highway 101 Landfill, sited between exits 2 and 3 in Sackville, and that exceptional items such as motor oil, paint, asbestos, poison, medical waste, batteries, TV's, etc., etc., were just buried! This landfill was used from 1978 to 1996. This was also the time when there was an unlimited number of garbage bags allowed per household, and that number did not include the spring or fall cleanups. A new strategy had to be found.

For close to six months, fifty citizens met bi-weekly and came up with an integrated waste/resource management plan. They came up with a 'four-stream' source separated strategy. There would be a second generation landfill, two organics facilities, a recycling facility, a hazardous waste depot, and a facility to collect construction and demolition material. The four streams included Paper; Recyclables (glass, aluminum, milk cartons, and plastic); Organics (food and garden waste, now excluding grass); and Garbage. Later on, Corrugated Cardboard was added as a fifth stream.

At this point participants couldn't resist asking questions, which Marcel dutifully and entertainingly answered, afterwards returning to Halifax's waste management history. Between 1997 and 1998 garbage collected from HRM was being sent to Little Forks Landfill, a second generation landfill located in Cumberland County (near the town of Springhill). Then, in 1999, the collection of green bins and garbage bins started on alternate weeks. In 2007, the allowance of ten bags of garbage per week was cut down to six. In 2015, the '5 and 1 rule' was passed whereby a maximum of one 'privacy gar-

bage bag' and 5 clear bags for garbage was allowed per collection cycle, and citizens were expected to sort out the rest into clear bags (paper) or blue bags (recycling). Green bins were for food waste and leaves, grass cuttings were now to be kept on the lawn, and boxboard was to be placed in the bag with paper. Corrugated cardboard was to be separate from the rest.

There are seven landfills in Nova Scotia. There is only one in HRM – the Otter Lake Landfill in the Timberlea/Beachville area. Its residents agreed to this accept the landfill as long as several conditions were met: could not see it; could not smell it; there was to be adequate environmental water protection; the residents were to have first bids on landfill jobs; and that an independent committee, the Community Monitoring Committee, be established to look after the interests of the community. At Otter Lake there are currently seven 'engineered boxes', called cells, which are used to contain garbage. Cells one to six are filled already, and they are currently filling cell seven! Each cell is as large as ten football fields, around ten metres deep. Their layered-material walls and floors are a massive seven feet thick. The most recent cell being used cost \$18 million to build, and it cost another \$4 million to cap and close cell 6. The overall footprint is for a total of nine cells to be constructed and filled at the Otter Lake Landfill.

After the history, we moved downstairs to the tipping floor where we watched recycling trucks first dump the clear bags of paper and also the corrugated cardboard, and then continue on to the other end of the building to dump the blue bags of recyclables. About forty-five workers sort out the recyclables and the paper/boxboard after they are transferred to moving conveyor belts. Approximately 100 metric tonnes (220,000 pounds) of waste is processed here per day!

People continued to ask questions, and Marcel gave out interesting information. For instance, steel and aluminum can be recycled usefully forever, fibre can be recycled about ten times, and plastics anywhere from ten to fifty times depending on the 'resin code'. Milk cartons are counted and shipped to the United States or to overseas markets. There, the wax coating is removed, and they get recycled into high quality art paper. If liquid in a container is drinkable, it should remain uncapped to ensure there are no liquids left inside, otherwise it will not be recycled. Other liquid containers, such as liquid soap, can stay capped, but empty. Tires are to be returned to places wherever they are sold. Plastic grocery bags from Sobey's, Superstore, Walmart, etc., besides being put in the blue bags, can also be returned to designated bins outside Sobey's stores; from there they will be remade into more bags. Since they are 100% petroleum products, if put in the blue bags, most plastic bags and film (e.g. Saran Wrap), are sold and sent to Quebec to be used as an alternate energy source for making cement.

A few other interesting tidbits – Styrofoam™ is 90% air. Since it costs so much to transport and densify it to a manageable size, no sustainable markets have been found as yet. The only truly biodegradable bags are paper bags or 'Bag-to-Earth'™ bags which are lined with



cornstarch, and as such can be used in the green bin. A tissue box is considered garbage if you do not remove its plastic, and a used tissue does not go in the green bin if it contains bodily fluids; it is considered garbage. Mixed material such as a paper potato bag with plastic netting is considered garbage; but take the netting away and both parts can be recycled in their respective categories. For more information about where doubtful things should go, visit [Halifax.ca/recycle](http://Halifax.ca/recycle) or phone 311.

We all came away from the tour knowing and being told by Marcel that our careful home-sorting is indeed lessening our carbon footprint and improving our environment. Marcel reiterated that the two most important reasons for sorting our waste is first, because it works, and secondly, because it does make a difference. Thank you Marcel, for a most interesting and informative tour.



## NATURE NOTES

### FEBRUARY

While in Pleasant Valley, Clarence Stevens saw **55 Bald Eagles feeding on Tommy Cod**, *Microgadus tomcod*, (also commonly known as Frostfish, Atlantic Tomcod, or Winter Cod) in the Shubenacadie River. He also saw **two Fox Sparrows** at a bird feeder and a **King Eider** at Point Pleasant Park. The rather sociable **Pileated Woodpecker** is still to be found around Heather Road, as it was last year.

In Hubbards on Monday, January 29th, Judy Davies saw a **Tundra Swan** on the grass at the Yacht Club there. It stayed around for two weeks.

Lesley Jane Butters enthused about January 31st's spectacular super moon, a 'blue blood moon' which she witnessed from the 17th floor of the Atlantica Hotel. She said it looked just like a giant 'bubble' at the top of a geyser. Coincidentally, she caught a good picture of it, perfectly framed by the 'o' in the hotel's sign. She also witnessed a bit of the lunar eclipse, which was not a full one over Nova Scotia. (A blue moon is when two full moons occur in the same calendar month. The second full moon in the month is called a blue moon, or a blue blood moon, because it often looks blue or even red due to dust particles in the atmosphere. Lunar eclipses happen when the moon passes into Earth's shadow. Super moons occur when the moon's perigee — its closest approach to Earth in a single orbit — coincides with a full moon. This January, the super moon also happened to be the same day of the lunar eclipse.)

Stephanie Robertson observed an **American Wigeon** and several **Scaup** on the frigid waters off Point Pleasant Park.

Clarence Stevens Sr. reported a Nova Scotia Year List of 301 bird species for 2017. December highlights included **Bullock's Oriole**, **Black-headed Grosbeak**, **two Yellow-breasted Chats**, and a **Pink-footed Goose**.

In Clayton Park's Flamingo Drive Keith Vaughan saw **six Deer** in his yard coming through at night from Nightingale Drive and Dunbrack St. Marion Sensen said they were hanging about in peoples' gardens close to Tremont Plateau Park.



# 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.

Later, the wind blew up a storm and lightning forked  
and tore the eastern sky, breaking the air apart  
crashing thunder over the frogs in the stream.  
The thousands sang on and on about the rain,  
about wetness and bogs and everything that flowed.  
Their song called to the lightning inside things,  
the fingers of water lacing the green reeds.

– *Sophia Kaszuba, from “The Chorus”, in Like a Beast of Colours (1998)*

## NATURAL EVENTS

- 1 Mar.** Full Moon. Moonrise at 17:44 AST.
- 11 Mar.** Daylight Saving Time begins.
- 20 Mar.** Vernal Equinox at 13:15 AST. Spring begins in the Northern Hemisphere.
- 31 Mar.** Full Moon. Moonrise at 19:55 ADT.
- 29 Apr.** Full Moon. Moonrise at 19:53 ADT.
- 12 May** Nova Scotia Spring Migration Count.
- 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.
- 29 May** Full Moon. Moonrise at 20:50 ADT.
- 8 Jun.** World Oceans Day.
- 14Jun. -16 Jun.** The earliest mornings of the year; the sun rises at 5:28 ADT.
- 21 Jun.** Summer Solstice at 07:07 ADT. Summer begins in the Northern hemisphere. The longest day of the year, with 15 hours and 34 minutes of daylight at Halifax.
- 22 Jun. -30 Jun.** The latest evenings of the year; the sun sets at 21:04 ADT.
- 28 Jun.** Full Moon. Moonrise at 21:23 ADT.

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

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



<b>3 Mar.</b>	06:48	18:05	<b>7 Apr.</b>	07:51	19:49
<b>10 Mar.</b>	06:36	18:14	<b>14 Apr.</b>	07:49	19:58
<b>17 Mar.</b>	07:23	19:23	<b>21 Apr.</b>	07:45	20:07
<b>24 Mar.</b>	07:10	19:32	<b>28 Apr.</b>	07:39	20:15
<b>31 Mar.</b>	06:57	19:41			
<b>5 May</b>	05:59	20:24	<b>2 Jun.</b>	05:32	20:53
<b>12 May</b>	05:50	20:32	<b>9 Jun.</b>	05:29	20:58
<b>19 May</b>	05:40	20:43	<b>16 Jun.</b>	05:28	21:02
<b>26 May</b>	05:36	20:47	<b>23 Jun.</b>	05:30	21:04
			<b>30 Jun.</b>	05:32	21:04

## ORGANISATIONAL EVENTS

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

- 19 Mar.** “Botanical Art”, with well-known valley artist and illustrator Twila Robar-DeCoste.
- 24 Mar.** “Early Valley Birding”, led by Patrick Kelly, 902-472-2322(w), 902-472-2322(h), [patrick.kelly@dal.ca](mailto:patrick.kelly@dal.ca)
- 16 Apr.** “Can conserving insects provide value to agricultural production?”, with speaker Paul Manning.
- 13 May** “Cape Split Hike I”, led by Patrick Kelly, 902-472-2322, [patrick.kelly@dal.ca](mailto:patrick.kelly@dal.ca)
- 20 May** “Cape Split Hike II”, led by Patrick Kelly, 902-472-2322, [patrick.kelly@dal.ca](mailto:patrick.kelly@dal.ca)
- 2 Jun.** “Kentville Ravine”, led by Soren Bondrup-Nielsen.
- 9 Jun.** “Herbert River Trail”, led by Patrick Kelly, 902-472-2322, [patrick.kelly@dal.ca](mailto:patrick.kelly@dal.ca)



**Burke-Gaffney Observatory:** Public shows at the Burke-Gaffney Observatory at Saint Mary's University are held on the 2nd and 4th Friday of each month, except from June through September when they are held every Friday. Tours begin at 7:00 p.m. between November 1st and March 30th, and at either 9:00 p.m. or 10:00 p.m. (depending on when it gets dark), between April 1st and October 31st. For more information, 496-8257, or go to <http://www.astronomynovascotia.ca/index.php/burke-gaffney-observatory>.

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

**22 Mar.** "Hope for Wildlife", with speaker Hope Swinimer.

**25 Mar.** "Baccaro & Blanche Peninsula, Shelburne Co.", led by James Hirtle, 902-693-2174, [jrhbirder@hotmail.com](mailto:jrhbirder@hotmail.com).

**28 Apr.** "Wild things, Wild Places", with speaker Jane Alexander.

**8 Jun. -10 Jun.** "Out of Town Weekend in the Cape Breton Highlands" **Pre-registration is necessary.**

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

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

**13 Jan. -22 Apr.** "Body Worlds Rx: the biology/physiology of human health and the dramatic effects of disease."

**April TBA.** "Salamander Meander in Hemlock Ravine", **Pre-register at** [Heather.McKinnon@novascotia.ca](mailto:Heather.McKinnon@novascotia.ca).

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

**26 Mar.** "Biodiversity of Nova Scotia's Barrens: Not so Barren After All", with speaker Dr. Jeremy Lundholm, SMU.

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

**9 Apr.** "Aquatic Invasive Species in Nova Scotia: Are they Spreading Disease to our Native Species?" with Dr. Sarah Stewart-Clark, Dalhousie Faculty of Agriculture. This lecture at the NSMNH starts at 7:00 p.m.

**7 May** "Tidal Energy Solutions: Pro-testing not Protesting", with speaker Dr. Anna Redden, Acadia; Annual Banquet at the Dalhousie University Club.

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

**Young Naturalists' Club:** A fun, free nature club for children seven to 12 years. Meetings take place every third Saturday of the month (excepting July and August), at the Museum of Natural History, 1747 Summer St., from 10:30 - 11:30 a.m. Field trips take place every fourth Sunday, at 1:00 p.m. For more information, Karen McKendry, 404-9902, [ynchalifax@yahoo.ca](mailto:ynchalifax@yahoo.ca); or, go to <http://nature1st.net/ync>.

**25 Mar.** Hobson Lake Hike, Blue Mountain/Birch Cove Lake Wilderness Area.

**4 Apr.** Youth Nature Art Exhibition Opening Night at the Halifax Central Library

**18 Apr.** Salamander Spotting at Hemlock Ravine Park.

**25 May** Nature Nova Scotia Celebration of Nature, Debert Hospitality Centre, Debert.

**27 May** Halifax Chapter – Forest Birds Field Trip



– compiled by Patricia L. Chalmers

# HALIFAX TIDE TABLE



## April-avril

## May-mai

## June-juin

Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds
<b>1</b>	0251	<b>0.2</b>	0.7	<b>16</b>	0210	<b>0.2</b>	0.7	<b>1</b>	0309	<b>0.2</b>	0.7	<b>16</b>	0235	<b>0.0</b>	0.0	<b>1</b>	0354	<b>0.3</b>	1.0	<b>16</b>	0405	<b>0.0</b>	0.0
SU	0831	<b>1.9</b>	6.2		0806	<b>1.8</b>	5.9		0854	<b>1.8</b>	5.9		0829	<b>1.8</b>	5.9		0956	<b>1.7</b>	5.6		0956	<b>1.9</b>	6.2
DI	1505	<b>0.2</b>	0.7	MO	1420	<b>0.2</b>	0.7	TU	1520	<b>0.4</b>	1.3	WE	1442	<b>0.3</b>	1.0	FR	1605	<b>0.7</b>	2.3	SA	1629	<b>0.3</b>	1.0
	2050	<b>1.9</b>	6.2	LU	2020	<b>1.9</b>	6.2	MA	2059	<b>1.8</b>	5.9	ME	2036	<b>2.0</b>	6.6	VE	2153	<b>1.8</b>	5.9	SA	2202	<b>2.0</b>	6.6
<b>2</b>	0336	<b>0.2</b>	0.7	<b>17</b>	0254	<b>0.1</b>	0.3	<b>2</b>	0347	<b>0.2</b>	0.7	<b>17</b>	0325	<b>0.0</b>	0.0	<b>2</b>	0429	<b>0.4</b>	1.3	<b>17</b>	0502	<b>0.0</b>	0.0
	0915	<b>1.8</b>	5.9		0849	<b>1.8</b>	5.9		0936	<b>1.7</b>	5.6		0917	<b>1.8</b>	5.9		1035	<b>1.7</b>	5.6		1048	<b>1.8</b>	5.9
MO	1547	<b>0.3</b>	1.0	TU	1503	<b>0.2</b>	0.7	WE	1556	<b>0.5</b>	1.6	TH	1536	<b>0.3</b>	1.0	SA	1644	<b>0.7</b>	2.3	SU	1734	<b>0.4</b>	1.3
LU	2131	<b>1.9</b>	6.2	MA	2100	<b>1.9</b>	6.2	ME	2139	<b>1.8</b>	5.9	JE	2124	<b>2.0</b>	6.6	SA	2233	<b>1.7</b>	5.6	DI	2255	<b>1.9</b>	6.2
<b>3</b>	0419	<b>0.3</b>	1.0	<b>18</b>	0341	<b>0.1</b>	0.3	<b>3</b>	0425	<b>0.3</b>	1.0	<b>18</b>	0419	<b>0.0</b>	0.0	<b>3</b>	0507	<b>0.5</b>	1.6	<b>18</b>	0600	<b>0.1</b>	0.3
	0958	<b>1.8</b>	5.9		0932	<b>1.8</b>	5.9		1017	<b>1.7</b>	5.6		1006	<b>1.8</b>	5.9		1114	<b>1.7</b>	5.6		1141	<b>1.8</b>	5.9
TU	1627	<b>0.4</b>	1.3	WE	1550	<b>0.3</b>	1.0	TH	1634	<b>0.6</b>	2.0	FR	1637	<b>0.4</b>	1.3	SU	1731	<b>0.8</b>	2.6	MO	1839	<b>0.4</b>	1.3
MA	2210	<b>1.8</b>	5.9	ME	2143	<b>1.9</b>	6.2	JE	2219	<b>1.8</b>	5.9	VE	2213	<b>1.9</b>	6.2	DI	2314	<b>1.7</b>	5.6	LU	2349	<b>1.8</b>	5.9
<b>4</b>	0502	<b>0.3</b>	1.0	<b>19</b>	0432	<b>0.1</b>	0.3	<b>4</b>	0504	<b>0.4</b>	1.3	<b>19</b>	0516	<b>0.1</b>	0.3	<b>4</b>	0550	<b>0.5</b>	1.6	<b>19</b>	0659	<b>0.2</b>	0.7
	1040	<b>1.7</b>	5.6		1017	<b>1.7</b>	5.6		1058	<b>1.7</b>	5.6		1057	<b>1.8</b>	5.9		1155	<b>1.7</b>	5.6		1235	<b>1.8</b>	5.9
WE	1709	<b>0.5</b>	1.6	TH	1645	<b>0.4</b>	1.3	FR	1717	<b>0.7</b>	2.3	SA	1744	<b>0.5</b>	1.6	MO	1824	<b>0.8</b>	2.6	TU	1942	<b>0.4</b>	1.3
ME	2251	<b>1.8</b>	5.9	JE	2228	<b>1.9</b>	6.2	VE	2300	<b>1.7</b>	5.6	SA	2305	<b>1.8</b>	5.9	LU	2356	<b>1.6</b>	5.2	MA			
<b>5</b>	0547	<b>0.4</b>	1.3	<b>20</b>	0528	<b>0.2</b>	0.7	<b>5</b>	0546	<b>0.5</b>	1.6	<b>20</b>	0617	<b>0.1</b>	0.3	<b>5</b>	0637	<b>0.6</b>	2.0	<b>20</b>	0046	<b>1.7</b>	5.6
	1123	<b>1.6</b>	5.2		1105	<b>1.7</b>	5.6		1140	<b>1.6</b>	5.2		1151	<b>1.7</b>	5.6		1240	<b>1.6</b>	5.2		0758	<b>0.2</b>	0.7
TH	1756	<b>0.6</b>	2.0	FR	1749	<b>0.5</b>	1.6	SA	1810	<b>0.8</b>	2.6	SU	1852	<b>0.5</b>	1.6	TU	1919	<b>0.8</b>	2.6	WE	1332	<b>1.7</b>	5.6
JE	2333	<b>1.7</b>	5.6	VE	2316	<b>1.8</b>	5.9	SA	2343	<b>1.6</b>	5.2	DI	2359	<b>1.8</b>	5.9	MA				ME	2042	<b>0.4</b>	1.3
<b>6</b>	0635	<b>0.5</b>	1.6	<b>21</b>	0629	<b>0.2</b>	0.7	<b>6</b>	0633	<b>0.6</b>	2.0	<b>21</b>	0718	<b>0.2</b>	0.7	<b>6</b>	0042	<b>1.5</b>	4.9	<b>21</b>	0149	<b>1.6</b>	5.2
	1207	<b>1.6</b>	5.2		1157	<b>1.7</b>	5.6		1225	<b>1.6</b>	5.2		1249	<b>1.7</b>	5.6		0726	<b>0.6</b>	2.0		0855	<b>0.3</b>	1.0
FR	1852	<b>0.7</b>	2.3	SA	1858	<b>0.5</b>	1.6	SU	1908	<b>0.8</b>	2.6	MO	1957	<b>0.5</b>	1.6	WE	1331	<b>1.6</b>	5.2	TH	1434	<b>1.7</b>	5.6
VE				SA				DI				LU				ME	2013	<b>0.8</b>	2.6	JE	2140	<b>0.4</b>	1.3
<b>7</b>	0018	<b>1.6</b>	5.2	<b>22</b>	0008	<b>1.7</b>	5.6	<b>7</b>	0030	<b>1.6</b>	5.2	<b>22</b>	0059	<b>1.7</b>	5.6	<b>7</b>	0136	<b>1.5</b>	4.9	<b>22</b>	0259	<b>1.5</b>	4.9
	0725	<b>0.6</b>	2.0		0732	<b>0.3</b>	1.0		0722	<b>0.6</b>	2.0		0818	<b>0.3</b>	1.0		0817	<b>0.6</b>	2.0		0951	<b>0.4</b>	1.3
SA	1257	<b>1.5</b>	4.9	SU	1256	<b>1.6</b>	5.2	MO	1318	<b>1.6</b>	5.2	TU	1355	<b>1.7</b>	5.6	TH	1427	<b>1.6</b>	5.2	FR	1536	<b>1.7</b>	5.6
SA	1950	<b>0.8</b>	2.6	DI	2005	<b>0.6</b>	2.0	LU	2004	<b>0.8</b>	2.6	MA	2059	<b>0.5</b>	1.6	JE	2106	<b>0.7</b>	2.3	VE	2235	<b>0.4</b>	1.3
<b>8</b>	0110	<b>1.5</b>	4.9	<b>23</b>	0108	<b>1.7</b>	5.6	<b>8</b>	0124	<b>1.5</b>	4.9	<b>23</b>	0210	<b>1.6</b>	5.2	<b>8</b>	0239	<b>1.5</b>	4.9	<b>23</b>	0409	<b>1.5</b>	4.9
	0815	<b>0.6</b>	2.0		0834	<b>0.3</b>	1.0		0813	<b>0.6</b>	2.0		0917	<b>0.3</b>	1.0		0908	<b>0.5</b>	1.6		1047	<b>0.4</b>	1.3
SU	1358	<b>1.5</b>	4.9	MO	1405	<b>1.6</b>	5.2	TU	1421	<b>1.5</b>	4.9	WE	1507	<b>1.7</b>	5.6	FR	1524	<b>1.6</b>	5.2	SA	1632	<b>1.7</b>	5.6
DI	2048	<b>0.8</b>	2.6	LU	2109	<b>0.5</b>	1.6	MA	2058	<b>0.8</b>	2.6	ME	2159	<b>0.4</b>	1.3	VE	2158	<b>0.6</b>	2.0	SA	2328	<b>0.3</b>	1.0
<b>9</b>	0212	<b>1.5</b>	4.9	<b>24</b>	0221	<b>1.6</b>	5.2	<b>9</b>	0229	<b>1.5</b>	4.9	<b>24</b>	0327	<b>1.6</b>	5.2	<b>9</b>	0346	<b>1.5</b>	4.9	<b>24</b>	0510	<b>1.5</b>	4.9
	0906	<b>0.6</b>	2.0		0935	<b>0.3</b>	1.0		0905	<b>0.6</b>	2.0		1015	<b>0.3</b>	1.0		1000	<b>0.5</b>	1.6		1141	<b>0.5</b>	1.6
MO	1512	<b>1.5</b>	4.9	TU	1526	<b>1.6</b>	5.2	WE	1528	<b>1.6</b>	5.2	TH	1611	<b>1.7</b>	5.6	SA	1615	<b>1.7</b>	5.6	SU	1722	<b>1.7</b>	5.6
LU	2142	<b>0.8</b>	2.6	MA	2211	<b>0.5</b>	1.6	ME	2149	<b>0.7</b>	2.3	JE	2257	<b>0.4</b>	1.3	SA	2251	<b>0.4</b>	1.3	DI			
<b>10</b>	0324	<b>1.5</b>	4.9	<b>25</b>	0343	<b>1.6</b>	5.2	<b>10</b>	0337	<b>1.5</b>	4.9	<b>25</b>	0437	<b>1.6</b>	5.2	<b>10</b>	0446	<b>1.5</b>	4.9	<b>25</b>	0017	<b>0.3</b>	1.0
	0957	<b>0.6</b>	2.0		1034	<b>0.3</b>	1.0		0956	<b>0.5</b>	1.6		1111	<b>0.4</b>	1.3		1052	<b>0.5</b>	1.6		0602	<b>1.6</b>	5.2
TU	1621	<b>1.5</b>	4.9	WE	1636	<b>1.7</b>	5.6	TH	1623	<b>1.6</b>	5.2	FR	1704	<b>1.7</b>	5.6	SU	1702	<b>1.8</b>	5.9	MO	1232	<b>0.5</b>	1.6
MA	2232	<b>0.7</b>	2.3	ME	2311	<b>0.4</b>	1.3	JE	2238	<b>0.6</b>	2.0	VE	2350	<b>0.3</b>	1.0	DI	2343	<b>0.3</b>	1.0	LU	1807	<b>1.7</b>	5.6
<b>11</b>	0428	<b>1.5</b>	4.9	<b>26</b>	0454	<b>1.7</b>	5.6	<b>11</b>	0436	<b>1.5</b>	4.9	<b>26</b>	0533	<b>1.6</b>	5.2	<b>11</b>	0540	<b>1.6</b>	5.2	<b>26</b>	0102	<b>0.3</b>	1.0
	1047	<b>0.5</b>	1.6		1131	<b>0.3</b>	1.0		1046	<b>0.5</b>	1.6		1204	<b>0.4</b>	1.3		1145	<b>0.4</b>	1.3		0649	<b>1.6</b>	5.2
WE	1713	<b>1.6</b>	5.2	TH	1730	<b>1.8</b>	5.9	FR	1708	<b>1.7</b>	5.6	SA	1750	<b>1.8</b>	5.9	MO	1748	<b>1.9</b>	6.2	TU	1318	<b>0.5</b>	1.6
ME	2319	<b>0.6</b>	2.0	JE				VE	2327	<b>0.5</b>	1.6	SA				LU				MA	1850	<b>1.7</b>	5.6
<b>12</b>	0519	<b>1.6</b>	5.2	<b>27</b>	0007	<b>0.3</b>	1.0	<b>12</b>	0527	<b>1.6</b>	5.2	<b>27</b>	0040	<b>0.2</b>	0.7	<b>12</b>	0034	<b>0.1</b>	0.3	<b>27</b>	0143	<b>0.2</b>	0.7
	1134	<b>0.4</b>	1.3		0551	<b>1.7</b>	5.6		1134	<b>0.4</b>	1.3		0622	<b>1.7</b>	5.6		0630	<b>1.7</b>	5.6		0734	<b>1.7</b>	5.6
TH	1754	<b>1.6</b>	5.2	FR	1225	<b>0.3</b>	1.0	SA	1747	<b>1.8</b>	5.9	SU	1254	<b>0.4</b>	1.3	TU	1238	<b>0.4</b>	1.3	WE	1359	<b>0.6</b>	2.0
JE				VE	1816	<b>1.8</b>	5.9	SA				DI	1832	<b>1.8</b>	5.9	MA	1836	<b>2.0</b>	6.6	ME	1931	<b>1.8</b>	5.9
<b>13</b>	0002	<b>0.5</b>	1.6	<b>28</b>	0059	<b>0.2</b>	0.7	<b>13</b>	0014	<b>0.3</b>	1.0	<b>28</b>	0125	<b>0.2</b>	0.7	<b>13</b>	0126	<b>0.0</b>	0.0	<b>28</b>	0221	<b>0.3</b>	1.0
	0604	<b>1.7</b>	5.6		0641	<b>1.8</b>	5.9		0613	<b>1.6</b>	5.2		0708	<b>1.7</b>	5.6		0720	<b>1.7</b>	5.6		0816	<b>1.7</b>	5.6
FR	1218	<b>0.3</b>	1.0	SA	1314	<b>0.3</b>	1.0	SU	1221	<b>0.3</b>	1.0	MO	1339	<b>0.4</b>	1.3	WE	1332	<b>0.3</b>	1.0	TH	1435	<b>0.6</b>	2.0
VE	1831	<b>1.7</b>	5.6	SA	1859	<b>1.9</b>	6.2	DI	1826	<b>1.8</b>	5.9	LU	1913	<b>1.8</b>	5.9	ME	1926	<b>2.0</b>	6.6	JE	2012	<b>1.8</b>	5.9
<b>14</b>	0045	<b>0.4</b>	1.3	<b>29</b>	0146	<b>0.2</b>	0.7	<b>14</b>	0101	<b>0.2</b>	0.7	<b>29</b>	0206	<b>0.2</b>	0.7	<b>14</b>	0218	<b>0.0</b>	0.0	<b>29</b>	0255	<b>0.3</b>	1.0
	0645	<b>1.7</b>	5.6		0727	<b>1.8</b>	5.9		0658	<b>1.7</b>	5.6		0752	<b>1.7</b>	5.6		0811	<b>1.8</b>	5.9		0856	<b>1.7</b>	5.6
SA	1259	<b>0.3</b>	1.0	SU	1359	<b>0.3</b>	1.0	MO	1306	<b>0.3</b>	1.0	J	1420	<b>0.5</b>	1.6	TH	1427	<b>0.3</b>	1.0	FR	1507	<b>0.6</b>	2.0
SA	1906	<b>1.8</b>	5.9	DI	1940	<b>1.9</b>	6.2	LU</															





### **NEXT DEADLINE**

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