

Blomidon Naturalists Society



WINTER 2019 NEWSLETTER

VOLUME 46 · NUMBER 4



THE BLOMIDON NATURALISTS SOCIETY



The primary objective of the Society shall be to encourage and develop in its members an understanding and appreciation of nature. For the purpose of the Society, the word “nature” will be interpreted broadly and shall include the rocks, plants, animals, water, air, and stars.

FROM THE BNS CONSTITUTION

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BLOMIDON NATURALISTS SOCIETY
members are encouraged to share
unusual or pleasurable nature sto-
ries through the pages of the BNS
Newsletter. If you have a particular
area of interest, relevant articles
and stories are always welcome.
All articles, queries, and letters to
the editor should be directed to
HowardWilliams,newslettereditor:
gruncle.howard@gmail.com

Digital photographs should be
submitted to
doug@fundymud.com

Next submission deadline:
February 29, 2020

From the Editor

by *Howard Williams*

☞ The editorial for this issue contains a significant topic for the local area: the catastrophic drop in bird populations in Canada as a whole, and in Nova Scotia particularly. Among items included in the Newsletter are Allan Amey's view on the climate change situation, a short natural history exploration of the Bottle Gentian wildflower by Heather Yoell, a book review by Doug Linzey, a mushroom walk report by Ken Harrison, and a description by Soren in his president's report of the Endangered Species Act court case.

In September a report was issued by Bird Studies Canada; the following are links to that report or to comment on it: www.cbc.ca/news/canada/nova-scotia/bird-decline-population-north-america-nova-scotia-reaction-1.5292081, www.cbc.ca/news/technology/bird-population-decline-1.5288454, and www.sciencedaily.com/releases/2019/09/190912140456.htm. What should we do about this decline?

Besides lobbying the government and donating money to conservation groups, there are individual actions people can take to help protect birds. There are seven actions that researchers, and the bird conservation and research groups that support them, suggest through their website 3billionbirds.org:

- 1) Reduce the chance that birds will hit windows by using film, paint, or string to break up reflections to prevent daytime collisions; and turn lights out at night.
- 2) Keep cats indoors or an enclosed "catio" or on a leash when outdoors. Remember, cats are the second-highest human-related cause of bird declines after habitat loss.

- 3) Replace your lawn with native plants, which can provide shelter, nesting areas, and food for birds, such as nectar, seeds, and berries. Grass does not provide anything except grass grub.
- 4) Avoid pesticides. Pesticides can not only harm seed-eating birds that accidentally eat treated seeds, but they can indirectly damage insect-eating birds by killing their food source.
- 5) Buy shade-grown coffee. To grow coffee in the sun, farmers often clear forests that migratory birds need for food and shelter. Shade-grown coffee preserves that forest. The Smithsonian Migratory Bird Center has even created a certification for “bird-friendly coffee” that includes organic and fair-trade standards.
- 6) Cut back on plastics. Studies have shown that at least 80 seabird species mistake plastic for food.
- 7) Watch birds and help track them. Anyone can participate in citizen science projects like Project FeederWatch, the Christmas Bird Count, or the Breeding Bird Survey, which was key to generating the data in the study. Apps like eBird can make it easy to submit your everyday sightings.

I am much saddened by a CBC report that issues of science are not being believed by sizeable sections of the community (www.cbc.ca/news/technology/science-survey-1.5291291). Apparently, 44 percent of the 14,000 people polled consider scientists to be “elitists,” and many discount science that doesn’t align with personal beliefs. Some claimed they were sceptical of science, with about one-third feeling that scientists were influenced by government agendas while another third thought science has been swayed by corporate agendas and another third said they only believed science that aligned with their personal beliefs. I guess people don’t find science a problem when it improves their lives (transportation, steel cutlery, telecommunications), but as soon as science has a nega-

tive impact on their lives, it becomes less believable. No wonder we are in a climate emergency and will likely stay there until there is a clear majority for determined action, which makes the development of Extinction Rebellion and school strikes all the more important in trying to engage the public.

On November 17, eight hardy volunteers, members of BNS, met at Elderkin's Fam market and proceeded to clean up the roadside litter beside Highway 1, from Landmark School to Deep Hollow Road. It took roughly two hours. Nine bags of litter were collected and taken to the provincial highway base in New Minas. Sadly, Tim Horton's disposable cups took the prize for the most obvious and numerous litter type. Other litter included a Kody Blois Liberal Party sign, large pieces of plastic sheeting, numerous ketchup containers, and other paraphernalia associated with fast food. It seems time for there to be a charge in the use of take-out receptacles. Once BNS has undertaken a second clean-up, slated for the spring, the provincial Transport and Infrastructure Renewal department will grant us two signs, one at each end of the cleaned stretch of road, displaying our name. It was particularly galling to notice how quickly after the clean-up, literally hours, litter reappeared. Was it worth it? Yes, given the number of thumbs up and polite horn toots we received.

Finally, the Blomidon Naturalists Society celebrates the life and work of Dr Sherman Bleakney with an obituary in this issue submitted by one of his colleagues, Dr Graham Daborn.

From the President

by Soren Bondrup-Nielsen

☞ It was supposed to snow today but it is raining. I hope this winter will not be as wet as last winter.

This report is my annual write-up to members. We have had a busy year with monthly presentations, field trips, good collaboration with Flying Squirrel Adventures, the Species at Risk lawsuit, and more. If I have any regrets, it is that the field trips did not attract that many participants. But first things first.

MONTHLY PRESENTATIONS

The monthly meetings attract lots of our members. We have had a nice diversity of presentations.

December 2018. Dr Trevor Avery, “Striped Bass: Citizens meet science.”

January 2019. Dr Graham Daborn, “Dealing with Climate Change in Nova Scotia.”

February 2019. Dr Mark Mallory, “Looking out and looking in: connections between colonial seabirds, contaminants, and conservation.”

March 2019. Dr Tom Herman, “Committee on the Status of Endangered Wildlife in Canada: the process.”

April 2019. Presentations by four Acadia graduate students: Brittni Scott, “Using hunter-sourced materials to study black bears in the Maritimes”; Danni Harper, “Better Understanding Invertebrate Fisheries: Case Study of the Orange-Footed Sea Cucumber”; Garrett Velkjar, “A 100-year paleolimnological record of environmental change from Cecil Lake,

northern British Columbia: application to the assessment of the habitat viability for migratory waterfowl”; Avery Nagy-MacArthur, “Shared Seafood, Segregated Spaces: Diet and foraging movements of breeding Arctic and Common Terns on Country Island, Nova Scotia.”

May 2019. Members Evening at the Wolfville Farmers’ Market.

June 2019. Jamie Simpson, “Eating Wild in Eastern Canada: A guide to foraging the forests, fields and shorelines.”

September 2019. Allison Walker, “Fungal friends and foes of Nova Scotia.”

October 2019. Adrien Rawley, “Forests beyond Borders: Exploring the Acadian Forest Region and More at the Coastal Maine Botanical Gardens.”

November 2019. Jordy Thomson, Marine Protected Areas: Challenges and opportunities in Atlantic Canada.”

SPECIAL PRESENTATION

We started the fall season with a presentation by Sean and Sonya Richmond, “Connecting to nature through birding.” Sonya and Sean are walking across Canada, following the Great Trail, to promote bird conservation.

FIELD TRIPS

We did not have that many field trips this year, and attendance was poor. This concerns me, and the board will be working on how to rectify this.

There were three dates for the “Winter on Snowshoes” trip, but two were cancelled due to weather. The one trip that did work out was only attended by a single person; but we had a great time and saw lots of tracks of a variety of animals.

Pat Kelly conducted two Cape Split hikes on successive Sundays in early spring, and these were reasonably well attended, as reported in the summer Newsletter.

In late spring I and Doug Kemp conducted a forest walk on Doug's property. This was organized by Wild Connections, but BNS members were invited. There were almost 70 participants.

A mushroom walk in the Kentville ravine was led by Ken Harrison in the fall. The weather was good, but only a handful of people showed up.

As I mentioned, the BNS board is in the process of designing a survey of BNS members to determine what kind of events members would like to take part in.

SPECIES AT RISK LAWSUIT

BNS, Nature Nova Scotia, and the Halifax Field Naturalists, together with Bob Bancroft, launched a lawsuit against the Ministry of Lands and Forestry for its lack of implementation of the Species at Risk Act. Jamie Simpson, with Juniper Law, was hired to represent us. Ecojustice, represented by James Gunvaldsen Klaassen and Sarah McDonald, was there as an intervenor. To cover the cost, we sought donors and initiated a GoFundMe campaign; in a month, we raised over \$20,000. The court hearing took place over two days in October. On the first day of hearings, when Jamie presented our case, there were almost 50 people present. A week later, when the lawyer for Lands and Forestry presented his case, there were slightly fewer people. We felt that it went well in our favour. As of publication of this Newsletter we are still awaiting the judge's ruling.

ADOPT-A-HIGHWAY

Howard Williams was instrumental in organizing an Adopt-a-Highway project for BNS. The section of highway that we can now claim as ours is the stretch of Hwy 1 from Wolfville west to Deep Hollow Road. In November, eight brave souls showed up on a cold but sunny Sunday morning to conduct the first highway cleanup. It was a beautiful day, and with the sun it actually

got warm and most of us had to unbutton our coats. Thanks to those who showed up for this event. The next clean-up will take place this coming spring.

I have attended several events this year to promote BNS. People are generally interested in what we do, but it is a little difficult to attract new members. We have several new members on the board for this coming year, and, in order to attract new members, we will be strategizing how to make BNS increasingly relevant.

THE ANNUAL GENERAL MEETING

The AGM took place, as usual, during the November meeting time. We now have five new board members: Emily Legrand, Riley Scanlan, Carolyn Green, John Burka, and Marti Valiquette; thanks so much for volunteering to come on board. Ian Manning, Ed Sulis, and Andrew Steeves stepped down, and I would like to thank them for their time on the board.

I want to extend a special thanks to Ed, who has served on the board for a very long time. He has, in many ways, been the face of BNS, being present at all meetings and being the person to attend all BNS events—from the Acadia Student Union's Christmas Fair to Eagle Watch, and more. Further, Ed has been our treasurer for a long time, taking care of the handling of funds and diligently submitting the annual report to CRA. Thank you so much, Ed.

In the AGM minutes (included in this Newsletter), there is a note that Marti Valiquette had volunteered to take over the treasurer job from Ed. Marti has subsequently decided that she is unable to take on the position, so that job remains available. Anyone interested can contact me (soren@bondrup.com).

I feel we have had a good year, and as I stated at the beginning, my regret is that the field trips were generally less well attended than we would like.

(John) Sherman Bleakney

by Graham Daborn

☞ Dr Sherman Bleakney's contributions to Nova Scotia embraced a variety of forms aimed at improving our understanding and appreciation of the province within which we live, and increasing the awareness of others who are not so fortunate. Sherman taught at Acadia University for more than 30 years and was widely regarded as the best teacher in the Department of Biology. His combination of diverse knowledge, meticulous preparation, enthusiasm, and wit made him a favourite among students, and an exceptional mentor for students and young faculty alike. Among many things that his students recall is his love of practical jokes—especially when he lectured on April 1.

Sherman grew up in Wolfville, before his family moved to Boston. As a schoolboy he came under the influence of Robie Tufts, the Dominion of Canada's Chief Migratory Bird Officer. Sherman was probably one of two boys that Tufts caught hunting birds illegally (with a slingshot), but after giving the boys a thorough dressing down, rather than charging them, Tufts took them home and taught them how to collect, study, and preserve bird specimens. There were at least three boys who became Tufts' proteges: Sherman, Cyril Coldwell, and Earl Godfrey, each of whom made his mark in ornithology.

Sherman's contributions to the science of Nova Scotia are remarkably diverse. His early PhD work (1958) on the post-glacial distribution of reptiles and amphibians of Eastern Canada became the standard reference in the field and initiated close associations with the National Museum of Canada, the Royal Ontario Museum, and the Nova Scotia Museum of Natural History that have continued to this day. All of these museums

contain specimens and records from his research, not only on amphibians and reptiles, but also an extraordinary array of other organisms: mollusks, crustaceans, worms, seaweeds, and birds. For some years before returning to Nova Scotia, Sherman was the curator of amphibians, reptiles, and fish at the National Museum of Natural Science in Ottawa (now the Canadian Museum of Nature). Working with colleagues of different research interests, his subsequent studies have encompassed everything from ecology and natural history to anatomy, physiology, taxonomy, and oceanography. He became a world expert on sea slugs, and he produced the Nova Scotia Museum field guide on this group in 1996.

In the 1970s Sherman turned his attention from reptiles and amphibians to the unknown organisms that inhabited Minas Basin—the least-known area of the Bay of Fundy at that time—and the evolution and role of the large tides in the Basin. New discoveries were made continuously, including species now present and some fossils from the past, and their relationships to the tide-generated changes since the last ice age. A whole generation of students benefited from his leadership and enthusiastically followed him out onto the mudflats day and night, whenever the tides would permit. His 1984 book with Joan Bromley, *Keys to the Fauna and Flora of Minas Basin*, provided the first comprehensive list of the organisms at the head of the Bay of Fundy and remains a standard reference for the many people who have followed in his footsteps. His research on the distribution of animals and plants in the salt marshes, muds, and sands of the Minas Basin was critical for understanding the implications of the tidal power proposals of the time, laid a foundation of knowledge and understanding that many have relied upon since, and continues to be used as we assess the latest iteration of tidal power development in the Bay.

Retirement did not reduce his drive to discover. Enlarging his interest in the biology of Fundy salt marshes, Sherman began in 1994 to investigate the manner in which the Acadians con-

verted the marshlands near Grand Pré into fertile agricultural land. His 2004 book *Sods, Soil and Spades* is a unique combination of natural and social science, recording in an eminently readable way the extraordinary achievements of Acadians in creating the dykelands at Grand Pré. This research has been a fundamentally valuable basis for interpreting the natural and social history of the area, which underpins the recognition of Grand Pré as a UNESCO World Heritage site.

The fertile, inquiring mind of Sherman's never stopped its search for new understanding. In recent years his creative activities ranged as widely as ever: from the patterns of distribution of Arctic mammals to the origins of religious thought. A gifted lecturer as well as an accomplished photographer, he frequently inspired others through lectures locally and on cruise ships in various parts of the world. He was a regular and sustaining



FLYING SQUIRREL ADVENTURES

All Ages Nature Program in the Annapolis Valley

We know that nature is always teaching. Flying Squirrel Adventures helps facilitate learning about nature *in nature* by bringing people together to share, explore and grow. We will help you connect with nature through games, activities, challenges, discussions, presentations, workshops and more!

Join us for monthly nature outings on the third Saturday of each month, 9:45 a.m. - 12:15 p.m. Check monthly event details: <https://valleyflyingsquirrel.wordpress.com/calendar/> or join our mailing list to stay informed: valleyflyingsquirrels@gmail.com

Flying Squirrel Adventures is a collaborative project of BNS, Town of Kentville, & Jijuktu'kwejk Watershed Alliance. It was the recipient of the Recreation Nova Scotia Natural Environment Award in 2018.

member of the Blomidon Naturalists Society. He will be greatly missed by many of us. According to his explicit wish, his ashes were cast into the ebbing tide at Port Williams Bridge so that he could forever participate in the biological processes of the Minas Basin and vicariously join in the great migrations of birds and fish. When the shorebirds and river herrings return each year, we shall remember him.

CLUB NOTES

Marine Protected Areas: Challenges and Opportunities in Atlantic Canada

A summary of the November 18, 2019, presentation to the BNS membership by Jordy Thomson, as reported by Pat Kelly.

☞ Jordy Thomson is the Marine Science and Conservation Coordinator at the Ecology Action Centre (EAC). Marine protected areas (MPAs) are a cornerstone of effective ocean conservation. Despite the fact that Canada is an ocean nation with over 200,000 km of coastline, we have been slow to implement protected areas in our coastal and marine waters, with less than 1 percent protected as recently as 2015. However, this is now changing as our federal government has pledged to meet international conservation targets and has now set aside nearly 14 percent of marine areas for protection. In Atlantic Canada, this movement on ocean conservation presents both opportunities and challenges. Jordy's talk summarizes the progress we've made to date, current issues facing the continued expansion of MPAs, and opportunities for the future.

Jordy noted that EAC and BNS are about the same age. EAC has some 6,000 members and a staff complement of about 35. Jordy did his undergraduate work at Mount Allison University

and went to British Columbia to get his PhD at Simon Fraser University. With time, he felt a growing need to go from collecting data to influencing government policy as a way to protect nature. Until recently, declines of wildlife and biodiversity in oceans have been much harder to measure than the same processes on land. The United Nations set a target for all countries to protect 17 percent of their terrestrial habitat and 10 percent of their marine habitat by 2020. Canada has already reached 13 percent for marine habitat, and the federal Liberals' election platform called for 25 percent marine protection by 2025 and 30 percent by 2030.

There are three main purposes to Marine Protected Areas. They protect species that do not move; they provide sanctuary from human activities; and they protect important breeding or feeding grounds for mobile species. The key to doing this is to focus on the entire ecosystem, not just on a few species. Jordy reviewed the various federal pieces of legislation that protect marine areas, and the varying levels of protection they provide. Some areas are fully protected from all human activities; others do allow some level of human activities. He introduced us to a website (mpatlas.org) that shows the MPAs around the world. He zoomed in on Atlantic Canada where the differing levels of protection were easy to see. The Laurentian Channel MPA was recently "upgraded" and now has the highest level of protection. He showed images of the species found in this area, including pictures of interesting reef life, something most people do not think we have in Atlantic Canada. The proposed MPA for the Eastern Shore has been stalled over the issue of lobster fishing. With the federal election over, it is expected that a conciliator will be assigned once the new cabinet is sworn in.

One of the challenges is that oil and gas exploration is still allowed in some of the protected areas that have fewer protections. This is, in part, due to the jurisdictional differences between the federal Department of Fisheries and Oceans and the various offshore boards that were set up to regulate fossil

fuel exploration. There is a plan to phase in the stronger protection to these areas, which had originally been set up with more allowance for human activities. Jordy concluded his presentation by covering some of the ways that the voices of naturalists could be heard. Once the floor was opened for questions, he had many to deal with.

Marketing Nature and the Rise of Citizen Science

A summary of the December 9, 2019, presentation to the BNS membership by Dave Ireland, as reported by Ian Manning.

☛BNS members brave enough to brave the stormy conditions were treated with this presentation from Dave Ireland. Dave is a science communicator who has recently moved to Nova Scotia. With a background in biology and natural history, Dave has worked a variety of interesting positions in those fields, most recently in Atlantic Canada for the Ecology Action Centre, Conservation Council of New Brunswick, and the Clean Foundation. The talk was equal parts entertaining, informative, and inspiring.

Dave described his career trajectory, explaining that after university he worked with the Toronto Zoo and developed a program called the Ontario Road Ecology Group (OREG) to raise awareness about the impacts of roads on wildlife. One major success of the group was protecting a population of Jefferson salamanders by working with the Municipality of Burlington to close road traffic for a three-week period during salamander migration, an effort that continues today.

Later, Dave worked at the Royal Ontario Museum (ROM)

as the managing director of natural history, helping researchers develop new ways to share their scientific research. From his work at the museum, Dave helped to launch the Environmental Visual Communication (EVC) program, a nine-month graduate-level program offered through Fleming College, which taught students how to communicate science and conservation through various multimedia techniques.

One project undertaken in part by students in the EVC program was creative help in a new exhibit of Blue Whales featuring the mass stranding of whales in the Gulf of Saint Lawrence in 2014. This was followed by an overview of the exhibit and accompanying research undertaken by the ROM to determine the cause of death. They concluded the stranding event was caused by irregular ice events attributed to climate change. Dave mentioned other components of the exhibit, including an informative anecdote about “whale poo” and its importance for carbon sequestration and climate change, accompanied by a photo of the speaker dressed as a giant krill standing in the skeleton mouth of the blue whale.

Finally, Dave gave an overview of his experience with bioblitzes and an exciting initiative coming up this spring called the City Nature Challenge—a global initiative to document biodiversity over a defined geography and time period. Think big Christmas Bird Count, but for everything! This year, Annapolis/Kings County is entering the challenge, so we’re looking for help. (*See the notice in the Upcoming Events page in this issue.*)

Overall, Dave made a strong and entertaining argument for making a better effort to include storytelling in our messaging about natural history and environmental issues. I would encourage anyone who loves nature, storytelling, and a good laugh to check out a presentation of Dave’s in the future, and if you come across him, be sure to welcome him to Nova Scotia and the Annapolis Valley.

2019 Annual General Meeting

by Pat Kelly

☛NOTE: These are draft minutes that will be subject to approval at the 2020 BNS AGM.

MONDAY NOVEMBER 18, 2019

1. Meeting called to order by Soren Bondrup-Nielsen at 7:43 p.m. All members and guests welcomed.
2. Moved by Jim Wolford/Kent Williams that the agenda be approved. Motion Carried.
3. The minutes of the 2018 AGM were circulated and displayed on the data projector. Patrick Kelly noted that his title at the end should be “Secretary” not “Faculty Secretary.” Moved by Bea Lewis/Richard Stern that the minutes of the 2018 AGM be accepted with the aforementioned change. Motion Carried.
4. Soren Bondrup-Nielsen reported on a number of main issues: the monthly presentations; field trips undertaken; the special presentation on Walk With Us by Sonya and Sean, who are hiking across Canada to raise awareness of nature; the upcoming pocket flower guide; the species-at-risk lawsuit; the establishment of a conservation group for the Gaspereau River; the adopt-a-highway cleanup project; coming updates to the web site aimed at allowing, among other things, online donations and membership renewals; an upcoming membership questionnaire geared toward seeing what topics members would like to see for monthly meetings as well as field trips; Soren will be doing a series of presentations on ecology in Harbourville.

5. The nominating committee consisted of George Alliston and Ian Manning, with help from Soren Bondrup-Nielsen. Soren noted that there were a few board members who had left the board midterm: Rielle Hoeg, Shelley Porter, and Jake Walker. Two of the vacancies had been filled by Judy Lipp and Andrew Steeves. Judy was letting her name stand for another term while Andrew was not. Ian Manning was also stepping down at the end of this term. He thanked them all for their contributions, especially Ed Sulis who was stepping down as treasurer after 14 years of service. A round of applause followed.

The committee had prepared the following slate. Soren noted that without a treasurer, the board members would have to fill in for the various duties until one could be found. One of the members in attendance, Martha Valiquette, noted that she had experience in this area and was willing to volunteer. Her name was added to the slate. Soren gave a brief introduction of the new board members: Soren Bondrup-Nielsen (President); Jean Gibson Collins (1st Vice-President); 2nd Vice-President, vacant; Martha Valiquette (Treasurer); Patrick Kelly (Secretary); Kent Williams (Past President); George Alliston (Director); John Burka (Director); Carolyn Green (Director); Emily Legrand (Director); Judy Lipp (Director); Riley Scanlan (Director); Jean Timpa (Director); and Howard Williams (Director).

6. George Alliston made three calls for any additional nominations from the floor. There were none. Moved by George Alliston/Scott Burbidge that the slate be accepted. Motion Carried.

7. Moved by Ed Sulis/Larry Bogan that Fred Chipman be appointed as auditor for the next fiscal year. Motion Carried.

8. Ed Sulis gave the financial report and noted that the Society's net worth at the end of the last four years was: 2015-16 \$100,879; 2016-17 \$100,679; 2017-18 \$88,679; 2018-19

\$104,500. The amounts for this year was composed of three items:

- Non-profit chequing account at Valley Credit Union (VCU), \$25,100
 - Non registered laddered GIC's at VCU (1.5-3.2%), \$72,000
 - BNS books and paraphernalia at cost, \$7,400
- TOTAL: \$104,500

9. Other Business: There was none.

10. Martha Valiquette moved that the meeting adjourn at 8:26 p.m.

CLUB NOTES

Upcoming Events

Meetings

☞ Unless otherwise noted, all meetings are held at 7:30 p.m., usually on the third Monday of each month, in Room BAC241 of the Beveridge Arts Centre of Acadia University, on the corner of Main Street and Highland Avenue, Wolfville. Parking is available off Highland Avenue, on Acadia Street, and at the parking area around the Robie Tufts Nature Centre.

Everyone is welcome. For more information on any events, see the BNS website (blomidonnaturalists.ca), the BNS Facebook page (www.facebook.com/groups/blomidonNaturalists-Society/events/), or contact us at info@blomidonnaturalists.ca.

SUNDAY, JANUARY 12, 2020—A Special Series: *The Nature of Nature & Humans Within*, by Soren Bondrup-Nielsen.

Harbourville Restoration Society's (HRS) Wild Connections program is pleased to announce a series of presentations

by Soren titled *The Nature of Nature & Humans Within*. This series will provide a critical perspective on our current situation: climate change, erratic and drastic weather conditions, the loss of thousands of species, and the destruction of our lands, forests, and waters. Soren explains it this way: “I do not pretend to have the solution to our current situation and the consequences of climate change. But I do believe that in order to find our way out of the morass, we need to understand how we got there.”

This series will begin on Sunday, January 12, at 2 p.m. at the Harbourville Hall, just at the top of the road leading into Harbourville. It will take place weekly for the next five weeks, each Sunday afternoon, weather permitting. The series will include both lectures and discussions, with the information from one session forming the basis for the next, so please plan to attend all six presentations. Mark it in your calendars!

Topics will include the first forms of life, the evolution of humans, the structure of early human societies in the natural world, the development of science, current understanding of ecology, and technology/humans within the biosphere.

More information on this series will be made available on January 3, 2020, through the HRS website and Facebook.

We hope you will be able to participate in this series, which promises to be interesting and thought provoking. Following the series, HRS is planning a special one-day discussion on the way forward—how we, within the Kings County / North Mountain area, can become good stewards and partners of our natural environment.

All the presentations are free, though we ask that you register through the HRS website (www.harbourville.ca/) or through Linda Dale by email (caplindadale@gmail.com).

MONDAY, JANUARY 20— *Biological Expedition to Isle Haute*, with James Churchill and Alain Belliveau

MONDAY, FEBRUARY 17—Presentation on geology, by Richard Haworth

MONDAY, MARCH 16—TBA

MONDAY, APRIL 20—Acadia student presenters

MONDAY, MAY 18—*Ecology of the Minas Basin Mud Flats*, by Glenys Gibson

MONDAY, JUNE 15—*Global Biodiversity Surveys and Citizen Science*, by Mike Gill

FIELD TRIPS AND OTHER NATURE EVENTS

Visit the BNS website for upcoming events and for field trip maps and directions. If you do not receive e-mail alerts for events and would like to, please let Pat Kelly know and he'll make sure you're on the list (info@blomidonnaturalists.ca).

APRIL 24–27, 2020—City Nature Challenge (CNC). CNC is a global bioblitz sponsored by the Natural History Museum of Los Angeles and the California Academy of Sciences. The first CNC took place in 2016, featuring Los Angeles and San Francisco, and has grown exponentially since then, with 159 locations competing in 2019. Since its inception in 2016, the challenge has grown from involving cities to other defined geographic areas. In 2019, the global event saw more than 35,000 people participate, resulting in a total of over 963,000 nature observations.

In 2019, Halifax Regional Municipality entered the contest and had great participation, capturing 7,646 observations representing 895 species. Halifax had the distinction of recording the most lichen species of all competing areas. In 2020, the Annapolis Valley (defined by the boundaries of Kings and

Annapolis Counties) is putting its hat in the ring with 250 other regions around the world!

To participate in the City Nature Challenge, use iNaturalist to upload photos of species observed between the dates of April 24 and 27 anywhere within the boundaries of Kings and Annapolis Counties. This is followed by an identification period from April 28 to May 3 through the iNaturalist website. We're looking for people to get involved as both identifiers and observers.

Plans are in place to launch some smaller, more-focused events during the CNC observation period, and we're still working on what this will look like. For more information on these events, helping with your own event, or technical information about how to upload or identify observations, please send an email to Mary Kennedy (cnc2019hrm@gmail.com), Dave Ireland (daveireland@yahoo.ca), or Ian Manning (ianmanning4@gmail.com).

FIELD TRIP

Mushroom Walk at the Kentville Ravine

☛ OCTOBER 26, 2019—A small yet erudite group of mycophiles gathered at the Kentville Ravine on this Saturday morning. The cool, showery and damp weather did not deter them from exploring the Ravine. Led by Bill Shaw and Ken Harrison, the group found many old, decaying honey mushroom (*Armillaria mellea* or related) fruiting bodies on stumps and buried woody debris that dated from the September rains provided by tropical storm Dorian. We used George Barron's book *Mushrooms of Ontario and Eastern Canada* as our primary field guide since the book is resistant to wet conditions.

Both *Phyllotus porrigens*, or Angel's Wings (also known as



KEN HARRISON

Angel's Wings (*Pleurocybella porrigens*)

Pleurocybella porrigens), and *Panellus serotinus*, or Late Fall Oyster, were found in good condition and in small quantities.

The following were also observed:

- *Cantharellus* sp.—probably *C. tubaeformis* (Trumpet Chanterelle in Gary Lincoff's *Audubon Society Field Guide to North American Mushrooms*)
- *Ganoderma applanatum* (Artist's Conk)—young specimens
- *Ganoderma lucidum* (Lacquered Polypore)—a young fruiting body
- *Hygrophorus* sp.
- *Lactarius* sp.—badly decayed
- *Trametes versicolor* (Turkey tail)
- a scattering of "little brown mushrooms"
- and the foliose lichen *Platismatia tuckermanii*, associated with Eastern White Pine

Fall Nature Notes

by *Howard Williams*

☞ It seems a long time ago now, but hummingbirds were operating what in New Zealand used to be called “6 o’clock swill,” stoking up on nutrients before dusk. In New Zealand this term related to men coming in from labour to down as much beer as possible before the pubs closed at 6 p.m. We were still seeing hummers on September 19 until the 21st. A hummer in our garden on the 21st went to a once-favourite spot on our runner beans, but I had just cleared them away, so it hovered there for a while, confused by the lack of its favourite perch. The observation recording website eBird does not expect hummers this late in the year; it had to be recorded as a rarity.

This August and September especially, the hummers had to contend with wasps that had made a nest in my loft. The wasps were trying to scare hummers from the feeder.

The reality of “confusing fall warblers,” as Peterson would have them, became all too clear in that third week of September when they flitted about with Black-capped Chickadees and Song Sparrows. The only warbler I could identify was a young Common Yellowthroat.

With the occurrence of the first frost, Song Sparrows change song. Birds seem to congregate in gangs now, especially starlings, while Mallards started massing on Elderkin’s Pond. A Great Blue Heron has been seen feeding and resting beside Elderkin’s Pond until at least mid-November.

One of my favourite nature sounds is the almost continuous humming of bees in turtlehead flowers.

This fall, on the Lorax property we spotted the Black and Yellow Garden spider in early September. This spider spins a distinctive “ladder” web.



HOWARD WILLIAMS

Black and Yellow Garden Spider, with typical ladder



HOWARD WILLIAMS

Yellowlegs on log, Wolfville

An adult male Northern Cardinal was having a learned discussion about bad behaviour with a youngster. (Unfortunately, the photo does not work well in greyscale, so we won't try to picture it here.)

Our last Monarch butterfly was seen in the garden on September 27.

On the last day of September we went walking on the dykes near Wolfville Harbour to look at the spring tide only to find that it was not as high as the one in March. Regardless, it was an opportune walk because seven Greater Yellowlegs were flitting from and dancing between floating mats of eel grass, and one was balancing on a floating log, reminding me of the Log Driver's Waltz.

One of the joys of living in North America is that one can enjoy flowering Witch-hazel twice a year. The possibly garden hybrid flowers in the spring, best seen along the western edge of Clock Park in Wolfville. The native to Nova Scotia version (*Hamamelis virginiana*) flowers in October.

The things you see when you don't have your camera with you. We saw 20 Snow Buntings at Houston beach on November

3, congregating at the top of the cliff beside the sandy soil horizon that lies above the bedrock sandstones and shales. Dozens of holes have been made in that soil layer by swallows earlier in the year. The buntings were perhaps feeding on flies associated with that material.

Like clockwork, American Goldfinches returned to my feeders exactly as the sleet started on November 8, as did a party of crows. Bad weather seems to make seed-eating on plants more difficult, so to the feeders they come. The same happened during the snowfall at the end of November. This is my third Feederwatch year, and going into previous data one thing is very noticeable this fall and early winter: there have been reduced numbers of birds coming to the feeder. My feeding procedures are no different, though there has been less snow than last year. Time will tell if this is a permanent loss of visitors.

ENVIRONMENT

Reflections on Climate Change

by Allan Amey

☞ A few thoughts looking through the rear-view mirror and the windshield.

I worked in the oil and gas business for 23 years. During that time I developed a pretty good understanding of the economics of energy supply and demand.

Near the end of this period, I was involved in a number of strategic analyses for the senior management of a big energy company. One day the senior vice president I worked for asked me to lead a planning exercise that would produce a climate change strategy for the company. He felt that climate change was a strategic issue rather than an environmental issue.

This initiation into the climate change world has led to 10

years (a decade) of concentrated work on this topic. Incidentally, I am a relative novice. I have many friends who have worked on this topic for more than 20 years—long before the media got heavily involved.

Since I knew absolutely nothing about climate change, I proceeded to read some 200+ scientific articles on the topic and talked to a number of scientific experts in North America and abroad. I became increasingly convinced that there were going to be significant climate change effects felt worldwide. I also became convinced (and remain so) that mankind is contributing to climate change through increased greenhouse gas emissions (GHGs) produced from a variety of energy, agricultural, and forestry practices.

As I look back on 10 years of working on this topic, I am conditioned from having done detailed reviews over the years of the politics, the economics, the technology challenges, and the public perceptions of climate change and energy use and options.

During this decade, I worked in the energy sector thinking through ways to deal with their energy/emission challenges, started a non-profit agency attempting to educate the public on how to reduce their energy use and emissions, worked in government attempting to bring about change in climate change policy, and worked in consulting to industry and governments attempting to quantify their climate change risks and potential opportunities.

The following are a few observations on the topic:

1. Energy use and greenhouse gas emissions are inextricably tied together. To bring emissions down significantly will require a complete revolution in the way we use energy and the energy options we can choose from.
2. The world population growth is supposedly stabilizing, but there are a lot of people on this planet and they all aspire

to the lifestyle (and energy consumption) they see in North America and the rest of the developed world.

3. The politics of climate change requires a united global effort, and the United Nations (as one example of a global body) provides a clear example of the immensity of united global efforts (related to poverty, war, and now climate change?).
4. The economics of climate change and energy are challenging, and so far it has been difficult to find a “silver bullet” that is going to bring about the revolution mentioned above. Nuclear energy, clean coal, carbon sequestration, wind power, solar power, energy efficiency, electric cars (and others) could all be contributing factors, but all have some limitations and do not provide the absolute solution that is desperately being sought by governments and environmental groups.
5. The science of climate change appears to get stronger each year as more and more evidence of global climatic changes is recorded. Along with this feverish level of scientific activity, the dichotomy of views as to mankind’s contributions to climate change continues to grow. The stridency of views—regarding wind farms, nuclear power, carbon taxes, cap & trade, forestry preservation, farm practices, etc.—grows daily. Everyone likes heat and light and power and equity (I don’t need to do anything until my neighbour across the street or in the next country has to). It is a classic example of the “tragedy of the commons,” where the allocation of responsibility regarding the common good is in continual debate. I am continually amazed that everyone has an opinion and everyone has a solution. One taxi driver explained to me that the problem was there were too many buses.
6. The timeline on this topic is long. According to the scientists, the supposedly disastrous effects will occur over the next 20, 50, 100 years. This creates generational friction between the young and old as to the urgency of the topic, and it creates economic friction with the belief that free market enterprise (not government intervention) will develop the technolo-

gies to solve this problem (if the populace thinks there is a problem at all).

7. The topic seems to have staying power but waxes and wanes as individuals and governments eventually default to their immediate self-interests and needs (getting votes, feeding and clothing the family, etc.).

As I look through the windshield, what am I to make of this issue?

- Perhaps (hopefully) the scientists are wrong and we have been engaged in a number of no-regrets efforts to modify our energy consumption. Perhaps. Unfortunately, I doubt they are wrong.
- Perhaps there will be some macro global breakthrough in technology that will solve our energy needs—with no greenhouse gas emissions from power generation (for electricity or transportation). Perhaps.
- Perhaps there will be some macro global intervention that slows the climate change effects (seeding the atmosphere or storing huge amounts of GHGs under the oceans). Perhaps.
- Perhaps we need to think globally and act locally. Work on reducing our individual energy bills through insulation, solar water heating, geothermal heating, turning down our thermostats, etc. and let the rest of the world work on similar solutions as their economies grow. China is aware of its environmental challenges and is working on them in a similar manner to London's working on its air pollution problems 150 years ago.
- Perhaps we should continue to educate and mentor the next generation as to the prudent use of energy and the potential effects of climate change.
- And perhaps we need to realize that after we've done what we can on this topic, we need to let go and pass the baton on to the next generation to run with. We are a primordial speck of

dust in a space-time continuum, and that is not a bad thing if we can contribute to the moment, share the moment, and be content in our role as progenitors of the next generation.

FROM THE PAST

Mrs Clark's Notes

by Wendy Elliot

☛ *Mary Elizabeth Clark wrote the social notes from Clarksville in The Hants Journal from 1912 to 1948. A farmer's wife and keen observer of nature, she was one of a legion of social note writers from small villages across this country. This comes from her notes in February 1944:*

BUGOLOGY . . . OR WHATEVER THEY CALL IT

I saw in the Chronicle that insects will stand any amount of frost and still live. I want to know will butterflies or moths hatch in February out of doors. I have to confess I do not know whether a small winged affair is a butterfly or not, but I was standing at the kitchen window and something came flying toward me that I thought for a while was a white feather but then thought where did that come from? We have no hens. When it came closer I saw its almost transparent wings pure white. It came close by the window and lit on a shrub for a minute and then flew across the driveway. The only solution that came to me where it came from was that a couple of loads of wood came over the river the day before and I wondered if it had hatched in the bark and was disturbed by the saw and floated out in the sun for me to see. It was larger than the white mischiefs that spoil things in the spring, so I decided it was a butterfly. Maybe Gordon Crawford, my young professor, who spent his honeymoon out on the Ches-

ter Road hunting bugs would know whether it is living in zero weather or not. I wish I was able to get out over the barren and show him some of the things I have seen, but he would likely tell me a scientific name for I do not know a beetle from a bug. I never had the time to study bugology or whatever they call it. But I do know that a toad will not eat a potato bug on his tongue and I could feed him any other bug but he wouldn't eat a potato bug, which may be a beetle. But we don't care what he is as long as we can get rid of the pest ...

NATURAL HISTORY

Bottle Gentian

by Heather Yoell

☞ Bottle Gentian (*Gentiana andrewsii*) is a wildflower species of the Gentianaceae family. It is native to central and eastern North America, although not Nova Scotia. According to www.wildflower.org, the Canadian range is from western Quebec to Saskatchewan; iNaturalist has sightings in eastern Quebec.

Last summer I planted a few seedlings of Bottle Gentian in one of my wildflower gardens at my home in Dundas, southern Ontario. By this summer, I had forgotten what they were. As I wasn't familiar with the Gentian family, the leaves didn't give me any hints, so I waited impatiently for my seedlings to flower. Late in the summer, each stem formed an apical cluster of beautiful deep purplish-blue football-shaped buds. I waited impatiently for the buds to open, which never happened. It is called "bottle" gentian or "closed bottle" gentian for that reason.

I was puzzled as to how the tightly closed flowers could be pollinated. Recently, I was expanding that part of my garden, and as I pattered nearby, I discovered the answer. The flowers are composed of overlapping individual petals that meet at a

tiny hole at the top, like a three-dimensional camera shutter. Determined bumblebees pry open the top of the flower, squeeze themselves inside, and the flower closes around them. When a bee realizes it is trapped, there's a high-pitched angry buzzing, and the flower bulges and shakes. Soon, the hind legs of the bee emerge from the flower like Winnie the Pooh stuck in Rabbit's front door. After much kicking and frantic buzzing, the bee hauls itself out. After they escape, some bees shake themselves off, check out and reject the other bottle gentian flowers, and fly off in disgust; but some actually go into other bottles for further punishment. There must be something very good inside!

A better naturalist than I could perhaps tell you exactly which species of bumblebee braves the bottle gentian, whether co-evolution has occurred, and whether the presence of one determines the range of the other. All I can tell you is that the flowers are beautiful, the pollinators are mid-sized bumblebees, and the pollination process is very entertaining to watch! If you are interested, you can find videos on YouTube.

NATURAL HISTORY

Moths

by Doug Linzey

☞ Every summer I marvel at the plethora of moths that show up on our deck whenever the lights are on. Some years, of course, are more prolific than others (this year was not the greatest), but a side-effect is that we emerge from moth season with the impression that one or two species predominated—rarely the same one from year to year.

Moths are fascinating. Their morphological variety is amazing, and they're in the right size range for rank amateurs like me to be able to reliably identify at least a few of them. Also,



DOUG LINZEY

Whitemarked Tussock Moth caterpillar

their tendency sooner or later to settle down from their frantic light-seeking activity is gratifying to us.

One of our perennial favourites is the Luna Moth (*Actias luna*), the females arriving during the night and sticking around often for more than 24 hours, clinging to screen doors or the wooden house siding, all the while emitting pheromones to attract those males so necessary to enabling continuation of the species. As *homo sapiens*, we find it puzzling and sad that such gorgeous creatures are destined to live for only a few days—just long enough to fertilize some eggs and deposit them on suitable hardwood leaves. They don't even get to eat—no mouth parts—relying on pupal nourishment to see them through the reproductive stage. I've only once come across a caterpillar (spectacular in its own right), but I've no doubt trampled the odd pupa overwintering in the leaf litter. This year for the first time, I witnessed the arrival of a male and its seemingly mad attempts to interest one of the females. (If this were a human story, the guy would be in the slammer.)

The Luna Moth is of the Saturniidae family, specifically the Saturniinae subfamily—the giant silkworm moths. True to this descriptor, the Luna and two of its cousins—the Polyphemus (*Antheraea polyphemus*) and the Cecropia (*Hyalophora cecropia*)—are the three largest North American moths. This year we had the pleasure of hosting all three on our back porch within four days.

But apart from these three behemoth (ha!) adults, the one that's occupied more of my attention this year is the White-marked Tussock Moth (*Orgyia leucostigma*). The adult is one of those brown moths whose pattern is quite distinctive but overall not particularly noteworthy. It's the larval stage, the caterpillar, which appeared in huge numbers this summer, that drew my attention. Remember a few years ago the invasion of Painted Lady butterflies? They were everywhere; you couldn't miss them. That's what the tussock moth larvae were like this year around our yard, and on the house, and the garage, and

every possible surface. The remains of their pupae are abundant enough to tempt a guy to head for Canadian Tire and buy a pressure washer (but I'm not that kind of guy, and will probably settle for a broom when spring cleanup time arrives).

There is a mystery in this information (at least in my mind). This moth overwinters in the egg stage, so logically eggs must be laid on a potential food source. The female adult is non-flying, so theoretically any females emerging on my house are unlikely to be successful breeders. On the other hand, the fully grown larvae I'm seeing look pretty healthy; they're obviously finding sufficient food.

The Whitemarked is known to be particularly fond of Balsam Fir, and therefore is a serious pest in Christmas tree farms. At the same time, it can be a ferocious consumer of greenery, fir or not. Here in the Valley, I live in a chunk of Acadian forest, with mixed species, hardwood and softwood, but I've seen no evidence of overconsumption on my property. On close inspection of various forms of greenery, there is a tremendous amount of insect-related damage, but clearly not enough to kill the vegetation. This tells me that at least for now, the local biome is in reasonable balance.

The Whitemarked caterpillar is much more interesting visually than the moth. I find all the tussock moth larvae to be quite extraordinary—why has nature given this intermediate, non-breeding stage such colourful and complex features? It most likely has something to do with deterring predation, and those pretty little bristles can't be all that digestible. Apparently, the caterpillars are attractive food for birds, but therein lies another story: the seemingly steady decline of songbirds and other avian species in our part of the forest.

That, and a general scarcity of mammals, is worrying—and a topic for another day.

Berwick Ramblers

by Nick Hill

☞ The newly formed Berwick Ramblers Club is devoted to Sunday rambles that start in Berwick. The club's intention is to walk for the sake of walking and talking and keeping brisk movement going. Although it is not a naturalist club, the club attracts those interested in nature. All those who enjoy brisk walking are invited.

The inaugural meeting was held on December 1, 2019, starting by spinning a coffee mug which pointed east-southeast, indicating the chosen direction for starting. Members rambled through the outskirts of Berwick, across fields to Morse Lane and woods north of Industrial Park. Some remarked on hawthorns and the multiflora rose and the benefit of the latter exotic shrub to birds for food and as a spinney for nests. We followed Morse ponds to the southeast, noting raccoon and beaver activity. Woodlands alternated between Red Pine and Black Spruce. The woodlands of upland Red Pine and wetland Black Spruce and, further on, Red Maple swamp, were in good condition and a pleasure to walk through. The forest looked to be about 80–90 years old, and a line Red Maple with barbed wire through the centre suggested the area had been pasture until it was abandoned before WWII.

Ramblers came out of orchard land and crossed Highway 1 and found woods south of the road. We found another line tree, a big Red Oak with barbed wire strands through the centre. This tree might exceed 200 years old and we saw that it had recently lost a large branch. Continuing on, we rambled north down Bentley Road, commenting on how fecund and red the Canada Holly was. We crossed Highway 1 and found woods that

had been an ATV trail and walkway but were now overgrown in blackberry. We pushed west through the woods, then emerged to a newly cleared area but found the ATV path heading north that links to the rail-trail at Berwick.

These forest landscapes and swamps were a good walking area with woodland stretches almost four kilometres along the Valley floor.

YOUTH

Conservation Dogs, Monarch Party, and Lichens

by Judy Lipp

☛ After a summer of adventure around the Valley, we resumed our regular nature outings at the Kentville Ravine in September with a fascinating morning being tracked by a conservation canine. Ivy the canine tracker is used to searching for endangered species, but on the third Saturday in September she was put to a different test: tracking a group of not so endangered children and youth.

Ivy's handler and conservation dog trainer Simon Gadbois from Dalhousie University told us about the work he does training and using dogs in conservation work, and then he allowed Ivy to demonstrate her skills. Simon's lab assistant, Josh, hid among the trees in the Ravine, and we all followed Ivy as she tracked him down at a frenzied pace. Then the kids got to join the hiding game and were amazed at how quickly Ivy was able to follow their trail despite various bold attempts to throw her off. Thanks Ivy, Simon, and Josh for an exciting and informative morning.

In October we had a Monarch send-off party. For our second annual Nature Appreciation Party we decided to trial a new idea.

Inspired by Monarch butterflies through the summer, both in terms of their incredible migration journey from Nova Scotia to Mexico and by communities in the South that welcome the Monarchs to their winter home, we got to thinking—someone needs to send these beautiful, complex creatures off from here. So that’s what we did on October 19.



JUDY LIPP

How many lichens on this stick?

Together with 40 others, we gathered with games, music, snacks, well-wishing, and more. Despite the cold, damp weather we had a great turnout, including one honorary Monarch butterfly that had emerged in Larry Bogan’s house the day before. We recognize mid-October is a bit late for Monarchs, so we’re planning to hold this event mid-September next year. Thanks to everyone who participated and helped make this a superb inaugural event.

On our November outing we learned about lichens, thanks to Alain Belliveau, botanist and collections manager at the EC Smith Herbarium. We learned that Nova Scotia is a hotbed for lichens, and that the Ravine is home to a few rare lichen species; Alain showed us two (Yellow ribbon Lichen was one). These have been recorded and loaded to iNaturalist already! We also conducted an experiment to determine if lichen are reliable direction finders. Conclusion—not in the Ravine. Thanks to everyone that came out on a brisk morning and took part.

Our next outing falls on December 21. We will celebrate the solstice with mapping and fire-making.

If you'd like to stay informed about Flying Squirrel Adventures (FSA) and other nature events around the Valley, consider signing up for our monthly newsletter. At the beginning of each month we share a few fun nature facts about local species, FSA events, and news and events from our collaborators in the Valley. If you'd like to receive the newsletter, please e-mail valleyflyingsquirrels@gmail.com with "newsletter" in the subject line, or subscribe on our website (see the subscribe button on the side of the page): valleyflyingsquirrel.wordpress.com/calendar/.

FSA is a monthly nature event for nature lovers aged 2 to 102. We run year-round, rain or shine, usually in the Kentville Ravine. FSA is a collaboration between Blomidon Naturalists Club, Jijuktu'kwejk Watershed Alliance, and the Town of Kentville. We meet the third Saturday of every month. Be sure to visit the website or Facebook page for details of our monthly outings.

Judy Lipp is program coordinator for Flying Squirrel Adventures and loves running outdoor nature programs for all ages. If you have a naturalist topic you'd like to share or otherwise want to get in touch, e-mail valleyflyingsquirrels@gmail.com.

REVIEW

Prophet of the Wilderness

reviewed by Doug Linzey

Allison Mitcham, *Prophet of the Wilderness: Abraham Gesner* (Nimbus, 1995 [2018]).

☛ Are you familiar with the monument to Abraham Gesner in Chipmans Corner (south of Church Street on the east side of Middle Dyke Road)? If not, and if you don't already know much about Gesner, I highly recommend spending a little time in the presence of this brilliant and important figure in Mari-



DOUG LINZEY

At the Gesner monument, Chipmans Corner, NS

times natural history. The current monument, by the way, was installed in May of this year (2019), financially supported by the federal and provincial governments, the Atlantic Geoscience Society, and Dr Allen Eaves, president of Stemcell Technologies. There's also a monument to Gesner in Camp Hill cemetery,

placed by Imperial Oil in 1933 “for his important contribution to the oil industry.”

From his birth on the family farm in Chipmans Corner in 1797 to his death in Halifax in 1864, Gesner lived an amazingly productive life. He’s best known internationally as the inventor of kerosene, but his legacy here, particularly in Nova Scotia and New Brunswick, lives on in painstaking records and collections from his annual travels in service to provincial governments as a surveyor. Trained as a physician, Gesner’s true interests lay in exploration, geology, paleontology, agriculture, teaching, writing, and inventing. He was an extremely popular lecturer and a prolific collector of samples. Much of what he learned in his forays into the bush he gained from good relationships with the Mi’kmaq. In New Brunswick Gesner is best known as creator of the provincial natural history museum, the first of its kind in Canada.

Gesner’s early interest in geology led to his discovery of what he termed “asphaltum,” a bituminous mineral from which, before long, he figured out how to distill a liquid that he subsequently named “kerosene,” which could be burned much more safely, cleanly, and efficiently than the expensive and dirty coal gas and whale oil then widely used for lighting.

Not only did Gesner make important discoveries of local sources of useful mineral resources (such as coal, iron ore, salt, natural fertilizers, quarry materials, and the aforementioned asphaltum) but he made it clear to his provincial employers how such resources could be extracted, processed, and used to the benefit of Maritimers, replacing expensive imports and greatly improving efficiency. His public demonstrations of making and burning kerosene were extremely popular and impressive. In fact, his invention of kerosene is credited with saving a number of whale species from possible extinction—within 20 years of its discovery, the US whaling fleet had vastly shrunk.

Like many brilliant minds ahead of their times, though, Gesner faced entrenched ideas and corporate interests that had

no time for scientific progress. Throughout his adult life he was frustrated in his attempts both to secure himself and his family financially and to encourage local governments and businesses to use his discoveries profitably. As the author writes,

... his suggestions, at the time he made them, were frequently disregarded and sometimes mocked in his homeland. Like several other imaginative Maritimers with ideas which were much in advance of their time, Gesner, in the early 1850s felt it necessary to move to the United States where the intellectual climate was more conducive to the nurturing of inquiring minds and energetic pursuits of imaginative goals.

Ultimately, though his time in New York was very productive and his sons profited from excellent educational opportunities, the corporate world again defeated him, leading him back to Nova Scotia.

Prophet of the Wilderness has a nice balance of straightforward biography and storytelling. It easily transported me into the nineteenth century wilderness of the Maritime provinces and their growing port cities of Halifax and Saint John. Mitcham, a professor of literature and well-practised writer of history, makes good use of annotation and references for those who want to delve a little deeper into the subject. The book is available in the Annapolis Valley Library system.

And speaking of delving, the Wikipedia page on Gesner has direct links to many of his published reports. My favourite title (which demonstrates his all-encompassing interests): *The industrial resources of Nova Scotia : comprehending the physical geography, topography, geology, agriculture, fisheries, mines, forests, wild lands, lumbering, manufactories, navigation, commerce, emigration, improvements, industry, contemplated railways, natural history and resources, of the province* (1849).

The Invention of Nature

reviewed by Howard Williams

Andrea Wulf, *The Invention of Nature: Alexander Humboldt's New World* (Vintage, 2015)

☞ Until I read this book, the name Humboldt was vaguely associated in my mind with an ocean current. This book opened my eyes to recognize that he was one of the first true naturalists, a polymath, inventing ecology, plant zones, isotherms; he was the first environmentalist and encouraged education in the face of 19th century statements like “knowledge exalts the poor above their humble and laborious duties.” Some of his books were written for the common man, not for those steeped in arcane language, while his free lectures were mobbed by a very diverse audience, especially by women who at that time were not admitted to universities. He abhorred slavery and harangued Jefferson about it on a visit to the USA.

Humboldt was probably the first naturalist to think in ecological terms, of a web of life, and he saw the importance of scale in observation, from looking at the very small to the issues of global scale. He was dismayed at the clear-cutting of tropical forest in Venezuela (topical?), realizing that it changed the local climate and the natural habitat. In Siberia he recognized that mines deforested their surroundings because of both tree-felling and toxic fumes—think Sudbury. Humboldt recognized from the similarity of the coastlines of Africa and South America that there might be a process such as continental drift, much predating the hypothesis suggested by Alfred Wegener.

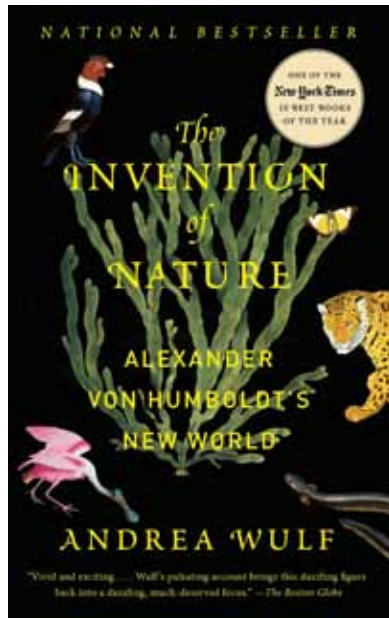
Darwin was strongly influenced by Humboldt, to the extent that after reading his book on South America Darwin was moti-

vated to become a naturalist. Without Humboldt there might not have been a Darwin. Similarly, the astronomer and mathematician Mary Somerville, John Muir of national park fame, and George Marsh the environmentalist were just a handful of the many influenced by Humboldt's writings.

Humboldt was the patriarch of physical geography and biology; using his extraordinary curiosity, he managed to embrace an interdisciplinary approach to science, consuming huge amounts of scientific data that he gleaned, reviewed, and collated simply by meeting with or writing thousands of letters a year to other scientists. Sadly, it is rare now for an individual scientist to have such broad knowledge. Discoveries are often made when experts talk to each other and reveal information that otherwise might remain hidden.

He left France for his native Germany as the royalists became stronger after Napoleon and made life dangerous or difficult for scientists and intellectuals. Sound familiar?

This excellent biography of Humboldt and his legacy of 19th century disciples is to be found in the Wolfville library system.



Fall Weather 2019, Eastern Annapolis Valley

by *Larry Bogan, Cambridge Station*

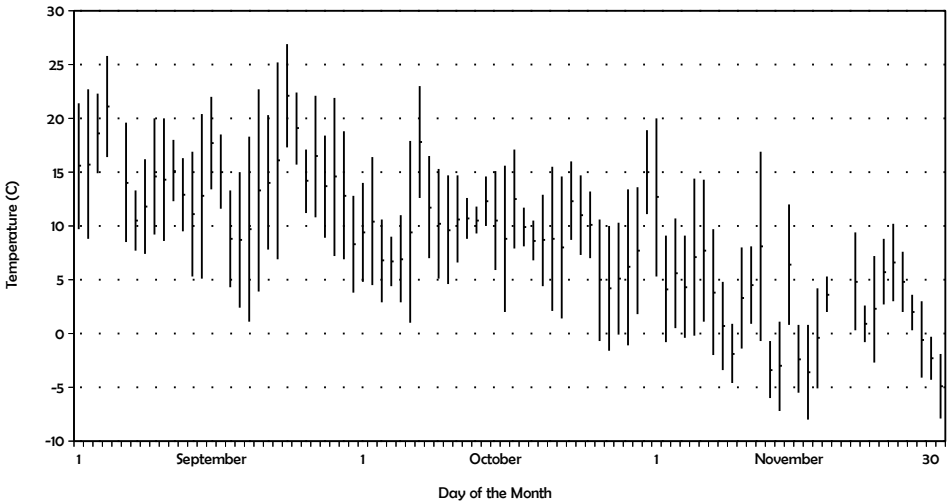
	TEMPERATURE			PRECIPITATION
	Max (°C)	Min (°C)	Mean (°C)	Total (mm)
September 2019 (30 yr. average)	19.6 (19.5)	8.9 (9.5)	14.2 (14.5)	134 (85)
October 2019 (30 yr. average)	14.1 (13.7)	5.0 (4.9)	9.5 (9.4)	99 (89)
November 2019 (30 yr. average)	7.2 (7.8)	-1.4 (0.3)	2.9 (4.1)	151 (109)
Season (30 yr. average)	13.6 (12.0)	4.2 (4.9)	8.9 (9.3)	384 (283)

Source: Environment Canada data for Kentville, NS (weatheroffice.gc.ca). 30-yr. averages: 1981–2010.

I remember the fall as a pleasant, sunny season until we got to November, and the numbers in the above table verify that feeling. September and October were normal except for the precipitation, but November was cool as well as wet. Early September was unusual because hurricane Dorian dropped over 100 mm of rain in the Valley and its winds damaged lots of trees, corn fields, and orchards.

Daily Temperatures - Sep, Oct, Nov 2019

Kentville, Nova Scotia



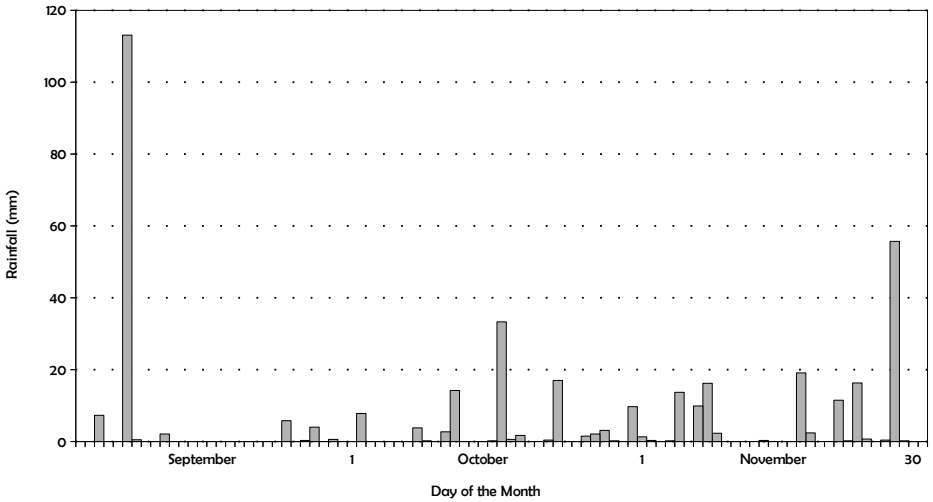
TEMPERATURE

Both September and October's mean temperatures were within a quarter of a degree of the 30-year averages for those months. Even November was only cooler than the long-term average by 1.2°C , but the shortening days, cloudier weather, and increased wind speeds made it dramatically less pleasant than the early part of autumn. The trend to lower temperatures is obvious from the chart of the season's temperatures.

PRECIPITATION

Rainfall of 113 mm dropped on Kentville on September 8 from tropical storm Dorian. That accounted for 85 percent of the rain in September, leaving the rest of the month relatively dry. October had a normal rainfall pattern during the month, while November had frequent rainy periods that yielded nearly half again as much rain as usual. The heaviest rain was at the end

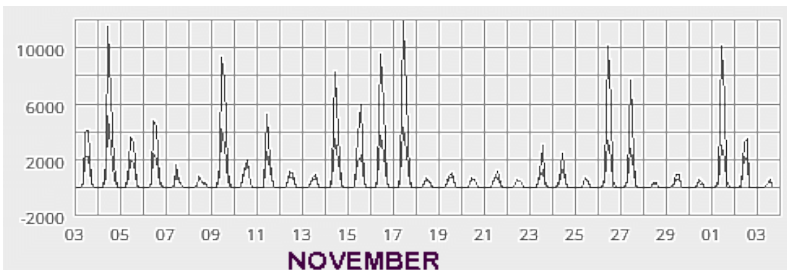
Daily Rainfall - Sep, Oct, Nov 2019
 Kentville, Nova Scotia



of the month when 56 mm fell on the 28th. That day plus the Dorian dump accounted for 44 percent of the whole season’s rainfall. Overall the season had one-third more rainfall than the long-term average. The rainfall chart emphasizes the huge rainfall from Dorian compared to the rest of the season.

WIND AND SUNSHINE

Winds gusted to 93 km/hr in Greenwood during the September 7–8 storm, and 84 km/hr gusts were recorded at Kentville.



Generally, as we head into winter the average winds increase, but Dorian's were exceptional. I have monthly average wind speed from my weather station, and from July through November 2019 those numbers were 2.8, 2.7, 3.0, 4.0, and 6.9 km/hr, respectively. I also collect solar radiation information and have it in the form of the accompanying chart for November. You can see the increased cloudiness late in the month. Each peak is the level of sunshine that day.

What's in the Sky?

by Patrick Kelly

🦋 Highlights for December 2019 to April 2020

*December 11: Full Moon**

December 22: Winter Solstice

December 26: New Moon

December 28: Venus 3° north of Moon (6 p.m.)

*January 5: Earth closest to Sun (you will *not* feel warmer!)*

January 10: Full Moon

January 24: New Moon

*February 8: Full Moon**

February 10: Mercury visible (~6:30 p.m.)

February 11–12: High tides

February 23: New Moon

* For some Full Moons, the date shown is that of the best evening view. e.g., Full Moon officially occurs on February 9 at 3:33 a.m. AST. Thus, I have used February 8, as most people expect a Full Moon in the evening sky on the date of the Full Moon.

March 8: Daylight Silly Time starts
March 9: Full Moon
March 10–12: High tides
March 18: Moon and three planets (5:00 a.m.)
March 19: Equinox
March 20: Mars and Jupiter 0.7° apart (5:30 a.m.)
March 24: New Moon
March 24: Venus at greatest elongation
March 31: Mars and Saturn 1° apart (6:00 a.m.)

April 3: Venus in Pleiades! (9:30 p.m.)
April 7: Full Moon
April 8–10: High tides
April 15: Moon and three planets, take 2 (5:00 a.m.)
April 22: New Moon
April 28: Venus at greatest brilliance (p.m.)

Planetary gathering of March 18: On the morning of March 18 around 6:00 a.m., look eastward for the waning crescent Moon. Directly above the Moon, and about 2° away will be a bright red “star,” actually the planet Mars. Just over 1° to the left of Mars, the really bright “star” is Jupiter. About 7° away and at the 8 o’clock position from Jupiter you will find Saturn—about the same brightness as Mars, but showing a pale yellow. If you look at the same time the following morning (March 19), you will see that the Moon’s motion has carried it well past Saturn!

Planetary gathering of April 15: As the outer planets move relatively slowly against the background stars, they have not moved that far since the Moon went past them a month ago. Mars moves most quickly and is now to the left of Saturn and Jupiter instead of right of them. The three planets are now spread over twice the angular distance, 15° compared with only 8° back in March. On the morning of April 15 around 5:00 a.m., look eastward for the waning crescent Moon. Directly above the Moon, and about 3° away will be a bright yellowish “star,” the planet

Saturn. About 5° to the right of Saturn shines brilliant Jupiter. About 9° away and at the 8 o'clock position from Saturn is red-dish Mars. If you look at the same time the following morning (April 16) you will see that the Moon's motion has carried it past Mars!

Mercury: Mercury is too close to the Sun for January viewing, but by the end of the month it reappears in the evening sky. On February 10, look in the west for brilliant Venus at 6:30 p.m. If you look at the 5 o'clock position from Venus, about three-quarters of the way to the horizon, the bright star will be Mercury. If you miss this chance you can try again on May 20.

Venus: Venus continues to rise higher in the evening sky and get brighter for the first four months of 2020. This will be the best evening view of the planet from the Northern Hemisphere since 2012. On March 24 it reaches the greatest angular distance from the Sun. April 3 features a rare treat—Venus will appear within the Pleiades star cluster in a dark sky! The Pleiades (or Seven Sisters) is an open star cluster of about 1,000 stars that formed about 100,000,000 years ago. As they are all at the same distance from the Sun, the brightest members of the cluster are also the most luminous. You may be more familiar with this cluster by its Japanese name, Subaru! At the end of April, Venus will reach its brightest and will be high in a black sky at 10 p.m. Only the Sun and Moon will be brighter.

Earth: Has your planet been sending information-containing radio waves into space for about 100 years? If so, you are likely on Earth.

Mars: As the year starts, Mars is in the early morning sky, keeping essentially the same angular distance from the Sun and not brightening appreciably. On the morning of March 18 the Moon passes within 0.7° of Mars and a few days later, on March 20, Jupiter also comes within 0.7° of the red planet. At that time,

Mars will be 1.6 astronomical units (au) from Earth, Jupiter will be 5.5 au away, almost 3.5 times farther. At 6:00 a.m. on the morning of March 31, Mars comes within 1° of Saturn, which is 10.3 au away.

Jupiter: Jupiter emerges from behind the Sun, in the morning sky, early this year and slowly grows farther from the Sun. It is the brightest star-like object in the morning sky. It will spend most of the next few months in the company of Mars and Saturn. As a result of this, Jupiter and Mars will come to within 0.7° of each other at 5:30 a.m. on the morning of March 20.

Saturn: Like Jupiter, but noticeably fainter than Jupiter, Saturn also comes from behind the Sun and begins to climb higher into the morning sky over the first four months of the year. Saturn stays in the same part of the sky as Mars and Jupiter during this time. Mars comes within 1° of Saturn at 6:00 a.m. on the morning of March 31.

POEM

Who robbed the woods?

Considering the state of our Nova Scotia forests, this poem by Emily Dickinson seems an apt comment:

Who robbed the woods,
The trusting woods?
The unsuspecting trees
Brought out their burrs and mosses
His fantasy to please.
He scanned their trinkets, curious,
He grasped, he bore away.
What will the solemn hemlock,
What will the fir-tree say?

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