Blomidon Naturalists Society

SPRING 2017 NEWSLETTER
VOLUME 44 · NUMBER 1

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

The Blomidon Naturalists Society is a member of the Federation of Nova Scotia Naturalists (Nature Nova Scotia). The Blomidon Naturalists Society is a registered charity. Receipts (for income-tax purposes) will be issued for all donations. (Registration number: 118811686RR0001)

BNS NEWSLETTER

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BLOMIDON NATURALISTS SOCIETY members are encouraged to share unusual or pleasurable nature stories through the pages of the BNS Newsletter. If you have a particular area of interest, relevant articles and stories are always welcome. Send them to Shelley Porter at *blomidonrose17@gmail.com*

Digital photographs should be submitted to *doug@fundymud.com*

Next submission deadline: May 31, 2017

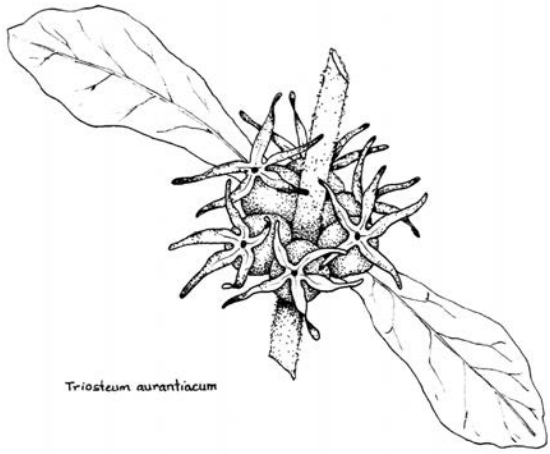
Rare Spring

Editorial by Shelley Porter

I went to Scotian Gold to buy rabbit feed today and saw a sign that made me gasp: "Garden Centre Now Open." As I write this, most of my lawn is still under 30 cm of snow, and because of that same snow cover I can't even see the low walls of my raised vegetable beds, but it surely must be spring because … Garden Centre Now Open!

Coincidentally, I had spent the morning gardening with the Friends of the Acadian Forest. In the Garden Centre I saw flats full of *Asclepias tuberosa,* the very species tiny seedlings of which I had painstakingly transplanted from trays to pots earlier in the day. The Friends of the Acadian Forest is a volunteer group based at the Harriet Irving Botanical Gardens in Wolfville. The volunteers are "engaged in a long-term education, research, and plant propagation project that benefits not only the Harriet Irving Botanical Gardens but also the wider community of environmentally aware gardeners and native plant enthusiasts" (botanicalgardens.acadiau.ca/9310.html).

Every year on the first Saturday in May, the Friends of the Acadian Forest (FAF) holds a plant sale. Generally, their offerings are different from what you find in commercial garden centres: all of the plants are native to Nova Scotia. I have met many new friends through my involvement with the FAF, and become reacquainted with a few old ones, like *Aquilegia vulgaris* (which is not truly native at all, but a naturalized garden escape—and very pretty one, too). Just as when chancing upon one member of your high school graduating class gets you wondering about others, seeing a few of the Acadian Forest herbs and forbs made me wonder about the fate and status of others.



As a graduate student I did a survey of a small remnant of riparian Acadian Forest in Hants County. The hardwood trees there were some of the largest I'd ever seen. The plant understory there included several plants uncommon in Nova Scotia: *Adiantum pedatum, Caulophyllum thalictroides, Trillium erectum, Sanguinaria canadensis,* and *Triosteum aurantiacum.* The plants were elegant, beautiful, and not at all abundant. Many readers will know these plants from spring and early summer hikes on the Cape Split trail. But most Nova Scotians have never seen them at all, and not because they eschew forest hikes. They don't see them because the habitat in which those plants grow is becoming increasingly rare. The efforts of the FAF will help keep some of those plants from edging closer to the brink of extinction by preserving them at the botanical gardens and in the gardens of members of the wider community. But what of the plants' original home, the old-growth hardwood forests? Not many gardeners have the space to plant a 30 hectare stand of hardwood and cultivate it for 300 years.

One of the goals of the Blomidon Naturalists Society is to educate the public about natural history in our little part of the world. Here, in your Newsletter, is a wealth of information about a wide spectrum of natural phenomena. Sometimes we feel pretty powerless to slow the degradation of our environment, including the loss of rare plants, animals, or habitat. I

always go back to that old adage, "The pen is mightier than the sword." I'd add to that, "Long-term data sets are mightier than short-term economic arguments." As naturalists you can do your part to influence what nature will look like here in the future: keep records, contribute to records (like the bird counts or other citizen science efforts), and write about what you observe.

We are always looking for contributions from our members. Don't worry if you are not Shakespeare—the Newsletter editors will help polish your prose to a shining finish. If writing is not your thing, just share the Newsletter with your friends and associates. Enjoy your Newsletter, and I look forward to hearing from you!

NOTE: Bugs of the Week that you might encounter in this issue are generously contributed by Paul Manning.

Members in the News

Three illustrious members of the Blomidon Naturalists Society have had contributions published in the latest edition of the *Observer's Handbook,* a compilation of "information of interest to observers" published by the Royal Astronomical Society of Canada. In its 109th year of publication, the *Handbook* "espouses the scientific method and supports dissemination of information, discoveries, and theories based on that well-established method."

Here's where to look in the *Handbook*: Roy Bishop, "Eclipse Patterns," pp. 122–25; Larry Bogan, Configurations of Jupiter's

Satellites, in "The Sky Month by Month"; Patrick Kelly, chart for "The Planets for 2017," pp. 94–121.

Interested in purchasing your own copy of the *Observer's Handbook*? You can download an order form here: https://www.rasc.ca/sites/default/files/OBSERVERS%20HANDBOOK%202017%20Canada_0.pdf

Board of Directors Report

by Kent Williams, BNS president

It's a cold afternoon as I feel the icy, brisk wind blowing on my face, but ever keen, my old canine mate jumps from the car for a walk in the Wolfville reservoir. I'm amazed at the wonder he seems to find on every walk, and it even reminds me of my mentor and father, Sherman; on every stroll or hike into the woods he too finds the sublime enchantment of it all. This Sunday afternoon hike, I find the trails empty and void of people—just me and Bayden and the creatures, like birds, happily sharing in this connection with nature. How peaceful and appreciative it is to have this time just to be present to the unfolding world, simple and authentically tranquil.

As we near the end of March, I reflect on how fast the first months of the new year have gone. Also, I reflect on how appreciative I am of the wonderful BNS programs that have unfolded early in 2017. Again, I am left amazed at the speakers and topics shared. Dr Roy Bishop shared the history of his connections with cosmic events in his years on Earth. It was kind of like a David Letterman top-ten list of great happenings for Roy and their major influences on our planet and civilization. It makes me wonder if and where the new discovery of the TRGG planetary system would fall on Roy's list. On the

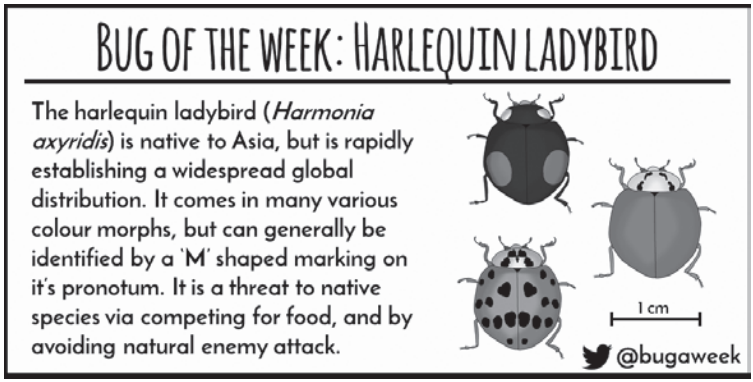
January evening of his inspiring BNS presentation, it was cool to have his daughter, Katrina, who was visiting from BC, in the audience. How proud she must be of her dad and his contributions to astronomy and BNS.

Also, a shout-out to Dr Ted Leighton for his valuable presentation at our February meeting. His talk delved into disease and its effects on animal populations, its relationship to human life on the planet, and implications for the future. I felt the post-lecture Q&A could have lasted late into the night, as the scope and value of Ted's narrative went deep and connected to the anthropocentric challenges that face us in the suggested epoch of the Anthropocene.

Recently, it seems that at board meetings we are conversing more and more on the challenges that threaten nature, although the discussion is really about what threatens human development. Locally, one of the issues that perpetually seems to be on our radar is the degradation of the sand barrens by commercial open-pit mining. We are seeking to inquire more deeply into this issue. We'd like to bring together a diversity of perspectives to set a thoughtful strategy for how BNS might be able to support an approach that will enable these sacred land spaces to be sustainable and enjoyed by all facets of life in this region for generations to come. If members are interested in being actively involved in this conversation, please contact one of the board members.

The 2017 edition of the BNS Calendar has been a great success, and we thank all of our wonderful supporters of this project. We are preparing for a 2018 edition and beyond and will take time to celebrate our long history with this calendar initiative later in 2017. We are always looking for members to be actively engaged in the calendar project, so please feel free to contact the board if you want to share in developing our 2018 edition.

Keep a watch out for more valuable programming and field trips. See you at the next meeting!



Rock-rose Study

The board has recently been approached by Drs Rodger Evans and Kirk Hillier of the Acadia University biology department for support for a study of Rock-rose (*Crocanthemum canadense*). Rock-rose is a herbaceous perennial native to sand barrens of Eastern North America, including the sand barrens in the Aylesford and Kingston areas of Nova Scotia. Nova Scotia populations (disjunct from other populations located in Quebec and Maine) of this species are considered endangered. Evans and Hillier are examining the relationship between florivery* by insects and genetic diversity in the Rock-rose. The research is mainly funded by an Irving Family Foundation research grant, but additional support is required for the collection of samples from the northeastern United States. Two Acadia students will be hired to carry out the field work. At its February meeting, the BNS board unanimously voted to support this project. We look forward to a report on the research findings in the fall of 2017.

**We're not acquainted with this term, but it appears to refer to the eating of flowers. —Ed.*

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. Note that no meetings are scheduled for July or August. Everyone is welcome. For more information on any events, contact us at info@blomidonnaturalists.ca.*

Monday, March 20, 2017—*Youth and Nature Education,* by Marina Myra and Emily LeGrand. Youth today are bombarded with an increasing amount of competing distractions. It's the dilemma of the technological age. Studies are showing that young people (and in fact all people) today are more stressed and not getting enough anti-stress activity in their lives.

There is a cheap and relatively easy solution: Let them play in nature. Join Marina Myra (nature educator and pre-service teacher) and Emily LeGrand (leadership mentor at Municipality of the County of Kings) as they talk about nature camps for kids, local initiatives to increase activity in nature, and nature education in schools.

Monday, April 17, 2017—*What's Happening to Nova Scotia Forests?* with Bob Bancroft. In the 25 years leading up to 2014, 42 percent of the operable forests in Nova Scotia have been clear-cut. Clear-cuts are the quickest way for companies to make short-term profits. Clear-cutting results in long-term

degradation of forest soils and waterways, and in diminishing prospects for regenerating forests. Wildlife populations and nature are rapidly deteriorating as these forests are flattened.

For decades the forest industry, with government assistance and the public purse, has been converting complex Acadian forests to boreal-style, simplified forests for fibre production. No valid scientific rationale for doing this exists. Corporate greed is involved.

Successive provincial governments of all political stripes have failed to manage public lands in the public interest. Harvests are now recurring in 20–55 year cycles, whereas many Acadian Forest trees can live for centuries.

There will be ample discussion time.

As the regional biologist in eastern Nova Scotia, Bob Bancroft realized that forest "managers" and single-minded harvesters were rapidly altering forest habitats to the detriment of nature and many wildlife species. He served as an extension (education) biologist, editor, and fisheries biologist before leaving the provincial civil service in 1999. He led a scientific panel in 2009/2010 that was asked by government to make recommendations for a new forest strategy. Currently the president of Nature Nova Scotia, Bob operates a wildlife/forestry consulting business, writes for magazines like *Saltscapes,* and continues with his CBC and news radio wildlife commentaries. Bob lives with his wife, landscape artist Alice Reed, on 56 acres of former farmland beside Pomquet Harbour, where he has been restoring a healthy forest for 42 years.

Monday, May 15, 2017—Bees

Monday, June 19, 2017—Marine Animal Rescue Group

July/August 2017—Summer break: No meetings

September 18, 2017—*Pecha Kucha*

October 16, 2017—Joint meeting with the Valley Gardeners Club

Field Trips & Other Nature Events

Visit the BNS website for upcoming events and field trip maps and directions.

Saturday, May 13, 2017—*Nova Scotia Migration Bird Count.* This is an all-day count to record sightings of bird numbers and species. We need participants to be field observers and feeder watchers. If you are a field observer please select an area in the county you wish to survey that day. Please let your nearest coordinator know if you want to be involved:

- *Eastern Kings County:* Larry Bogan (larry@bogan.ca or 902-678-0446)
- *Western Kings / Annapolis County:* Shiela Hulford (hulfords@eastlink.ca)

Information on the count is available on the BNS website (blomidonnaturalists.ca). The specific link is blomidonnaturalists.ca/christmas-bird-counts-and-migratory-counts/nova-scotia-migration-count-kings-county-n-s/

May 26–28, 2017—*Nova Scotia Celebration of Nature 2017.* This year's annual conference and AGM weekend of Nature Nova Scotia is at Milford House, near Kejimkujik National Park (Route 8, Annapolis Co.). Presentations will include "Loon monitoring in southwest Nova Scotia," by Amanda Lavers (Mersey Tobeatic Research Institute); "Up close and personal with flying squirrels," by Matt Smith (Parks Canada); and "Kejimkujik trout telemetry study," by Reg Baird (Parks Canada). The youth program, courtesy of the Young Naturalist Club of Nova Scotia, will include a variety of games and activities led by guests from MTRI, Parks Canada, and CARP, including geocaching, building turtle nest cages, and migratory bird

parades. Plus: a Little Miss Moffat sing-along and a campfire with Chief Frank Meuse and Shalan Joudrey from Stone Bear.

For details and registration information, go to blomidon-naturalists.ca and follow the links.

Saturday, June 17, 2017—*Proposed Tour of the South Canoe Wind Farm.* In the summer 2015 issue of this Newsletter, Roy Bishop gave us a tour of the largest wind farm development in Nova Scotia—South Canoe, in Lunenburg County.

Now, after 18 months of operation, here is an opportunity for BNS members to visit South Canoe in operation—an opportunity to reflect on the benefits, environmental impacts, and any other issues you may be concerned about.

We understand that at this point electricity production meets its targets; there is a full-time site manager and a full-time turbine maintenance crew of nine, most of whom live in the area and own property nearby; and ongoing environmental work includes wetland assessment and protection, bird and bat mortality counts, mammal counts, tree monitoring, and pollinator release.

The tour proposal:

- Bus leaves Wolfville at 12 noon.
- Visit site office to view turbine monitoring, control, and production information.
- Visit a turbine—base will be open for inspection. Listen to and sense the surroundings as the turbine above you produces up to the maximum of 3 MW (4,000 horsepower) (average for the year is 1.1 MW continuous).
- Visit selected environmental study sites.
- Return to Wolfville by 5 p.m.

Up to 50 people can be accommodated at a cost of $20 each. This is a great opportunity to review a major industry producing electricity from wind and contributing to the de-carbonization of our electricity supply. If you'd like to attend, please contact

Ed Sulis ASAP (902-678-4609, edmasulis@ns.sympatico.ca). For more information on the wind farm, see southcanoewind.com/.

FIELD TRIP

Winter on Snowshoes

by Soren Bondrup-Nielsen

March 1, 2017—The temperature outside is 9°C. I am sitting down to write about this year's field trip, Winter on Snowshoes. The snow left on the ground is quickly disappearing. Many folks are jubilant about this, but wait a minute—this is not normal. Not that the weather in Nova Scotia can ever be called normal, but it's the beginning of March and it is this warm. I do not see how anyone can discount climate change!

February 4, 2017—the Winter on Snowshoes field trip was originally scheduled for January 28, but there was no snow, and it was warm. The following Saturday we were in luck: there was snow, and it was certainly cold. Sixteen brave souls—from Halifax, Lunenburg and, of course, the Wolfville area—showed up. We headed over to the Gaspereau Valley, took the Gaspereau Valley Road, and parked by the baseball diamond. We headed up along the Gaspereau River, (without snowshoes), walking in maybe 10 cm of snow through the mature oak, maple, ash, and primarily hemlock stand.

We did see some tracks, but not many had accumulated on the recent snow. The first set we came across was that of a deer mouse (*Peromyscus* sp.) These tracks are quite characteristic in that the long tail drags across the snow as the mouse jumps along. One set of tracks ended at the base of a tree, and this mouse probably climbed the tree. They climb trees to find

insects to eat, or they may have a nest in a hollow, but what it was doing this time of year I am not sure. We saw a few different tracks from deer mice despite the cold. Deer mice do not hibernate like Chipmunks (*Tamias striatus*) and jumping mice (*Zapus* sp. and *Napeozapus* sp.), which can be found in Nova Scotia, but they do go into torpor during the winter. Torpor is a state wherein the animal's temperature drops slightly and it sleeps for extended periods of time.

Soon after we entered the forest and headed down toward the river, we saw American Mink (*Neovison vison*) tracks. These followed the edge of the river but also headed into the forest in places. Despite the cold day (and no doubt very cold water) the mink was in and out of the water looking for small fish and clams to eat. We did not see any signs that it was successful in catching anything. Mink jump along, and their tracks appear as two side-by-side imprints where their hind feet land barely in front of their front feet. Mink are well insulated, and their fur sheds water so they do not get cold swimming and diving in the frigid water.

Had we walked continuously, people may not have gotten as cold as they did, but I like to stop and talk about the tracks we come across. So after less than an hour about half the people turned around and headed for their cars.

The rest of us continued and saw a number of tracks from Red Squirrels. These tracks generally started at the base of a tree and ended at the base of another tree. Red Squirrels spend most of their time in the trees, but when it is quite cold they may seek shelter underground. Red Squirrels feed mainly on evergreen cones in winter, and it is common to find their middens—piles of cone scales that they have peeled off to get at the seeds.

The last set of tracks we saw were from a Red-backed Vole (*Myodes rutilus*), a rodent slightly smaller than the deer mouse. Red-backed Voles have short tails, and there is no imprint from the tail when they jump over the snow. They spend most of

their time under the snow, where they are somewhat safe from predators, and where it is relatively warm and they can find berries from the previous fall, maybe some seeds, and other goodies to eat. They are active all winter but may keep warm by several individuals huddling together in underground nests.

These were the four species whose tracks we encountered. Not many, but then the snow was fresh and there had been little time for tracks to accumulate. But it was probably good that there weren't any more because the remaining people were getting quite cold, including myself, and we headed back to the cars.

Maritimes Butterfly Atlas Update

by John Klymko, director, Maritimes Butterfly Atlas

While the Maritimes Butterfly Atlas is in the rear-view mirror for most, it's front and centre at the Atlantic Canada Conservation Data Centre (AC CDC). Work continues on writing a book about the project, in collaboration with the Maine Butterfly Survey. We've been busy finalizing data sets and planning the book's layout. Work on the AC CDC has been helped by a recent grant from the Gosling Foundation, not to mention all the other funders who have helped this project along the way (see accdc.com/mba/en/about.html for the complete list of funders).

Why We Should Learn to Love All Insects—Not Just the Ones That Work for Us

by Paul Manning

Insects, which include more than a million known species, represent roughly two-thirds of the described biodiversity on Earth. But they have a big PR problem—many think of insects as little more than crop-eating, disease-carrying jumper-munchers. But in reality, species fitting this bill are but a tiny part of an enormous picture.

A dominant narrative has emerged in an effort to clear the good name of our six-legged friends. Insects are the unsung heroes, the little things that run the world. This fact is undeniable. Insects are critical to the existence of the world as we know it, whether through pollinating plants, controlling populations of agricultural pests, or helping with the decomposition of animal waste.

These numerous benefits provided by our environment are known as ecosystem services. A widely cited paper from 2006 estimates that these insect services are worth an annual US$57 billion to the US economy alone. These valuations are an important step in starting conversations about the importance of insect conservation.

However, economic arguments can only take us so far.

Imagine a field of tomatoes. For an appreciable harvest, flowers must be pollinated. To achieve this, farmers might choose to enlist the help of native pollinators by setting aside part of their land for flowering plants.

CREDIT: RAMÓN PORTELLANO

Just doing its bit for the economy

In some cases this works exceptionally well. For instance, a recent paper has shown that converting 5–8 percent of arable land to pollinator habitat supports greater or equivalent crop yields, even after accounting for loss of field area.

But how much insect diversity do we need to support ecosystem services? Generally speaking, a more diverse species assemblage means higher levels of functioning. Keeping with our pollinator analogy, we might find that two species of bee can provide a greater service of pollination than one species—even if the overall numbers of bees are the same. A three-species community might perform better still.

But not every species plays an equally important economic role, and the presence of a dozen rarer bee species may provide no additional monetary benefit. Recent research shows that the majority of pollination services of agricultural crops by wild bees are performed by a tiny handful of species; the authors argue that crop pollination is not a sufficient argument to justify bee conservation. This exemplifies the danger of relying too heavily on economic arguments. If we only worry about the species that provide us a given service, we risk losing a large amount of diversity.

But what do they do for us?

I am asked this question frequently. Its ubiquity provides two important pieces of information. The first is great news: the public recognizes that insects are key components of our ecosystems. The second piece is concerning. It shows that we're not doing enough to demonstrate that insects have any real purpose aside from some service to humans. And, given the overwhelming diversity in the insect world, it's likely there are many species that don't ever make a significant contribution to our lives.

There are many ways to advocate the importance of those insects. One can correctly suggest that insects are vital links in food webs. Or that by having multiple species present there is insurance for providing services when systems are disturbed. But there is a simple solution that is hugely successful in encouraging people to value insect conservation: getting them to learn more about insects.

CREDIT: AXEL ROUVIN

Working for themselves – not humans

Rather than focusing primarily on their functional value, we could instead place a greater emphasis on sharing the fascinating behaviour and wonderful appearances commonplace in the insect world. Once people become better acquainted with these qualities, they fall in love. And when people love something they will fight for its protection, regardless of whether or not it contributes to the provision of a particular ecosystem service.

Insects can make us laugh, like the fuzzy caterpillars within the genus *Megalopyge*. These ridiculous-looking larvae are covered in irritating hairs used to deter predators. One especially fuzzy species has often been likened to the hairstyle of a certain president. Or consider the chirping call of Lesser Water Boatman males. This species calls at over 100 decibels, as loud as a car horn. It produces this noise with its genitalia.

Insects often surprise us. When you're as tiny as an insect, everything seems to want to eat you. Insects have evolved endless strategies to avoid this unfortunate fact. For instance, bombardier beetles fend off enemies by blasting a boiling chemical cocktail from their abdomen, and some species of hawk-moth caterpillars do a truly convincing impression of a snake.

The closer we look at the world around us, the more wonderful pieces of natural history we discover. When we experience the fascinating world of insects firsthand, the dominant dialogue of "insects as ecosystem service providers" begins to shift. Instead, we start to recognize the beauty, mystery, and wonder of the insect world for what it is: beautiful, mysterious, and wonderful. Through building a stronger appreciation of the important inherent value of insect biodiversity, hopefully What do they do for us? will share more space with What can we do for them?

NOTE: *Paul Manning is a postdoctoral researcher in Dalhousie University's Faculty of Agriculture. This article is adopted from the*

original, published Jan 12, 2016, in The Conversation (*theconversation.com*) *under Creative Commons licence. If you want to follow the links to some of what Paul describes here, go online to the article: theconversation.com/why-we-should-learn-to-love-all-insects-not-just-the-ones-that-work-for-us-49925.*

NATURAL HISTORY

The Iron Cloud

by John Belbin

"It's an ill wind that blows nobody good"
—SIR WALTER SCOTT IN *Rob Roy*

Dust and sandstorms are usually considered to be a menace. Originating in arid, sterile areas, they spread their misery elsewhere, smothering the vegetation, blocking out the Sun, and threatening the lives of both people and animals who are unable to breathe or function. This is certainly true of the world's largest dust source, the North African desert. It sends streams and huge volumes of dust north over the Mediterranean to Europe and west across the Atlantic Ocean to the Caribbean and both North and South America. Many people in Texas have recently been surprised to learn that their breathing problems come from the Sahara and not from local pollution sources. In the United States the heaviest airborne dust levels are found east of the Mississippi and not in the arid southwest where you would expect it. This has been going on for millennia, but recent climatic and environmental change is making it much worse.

The strong winds that create the storms will transport anything they are able to move. The poor nations of North Africa do not have the environmental restrictions we have now come

to think of as normal. Many of them still use long-banned pesticides, such as DDT and chlordane, and allow their people to burn plastic and other rubbish in huge open fires. All this is picked up and transported along with the dust. The skies over Barbados sometimes turn an evil yellow colour because of the density of the dust. Breathing problems are becoming far worse on that island in recent years. All this rains down on the beaches of the Caribbean, the coral reefs of the Bahamas, exotic homes in Florida, and the jungles of the Amazon rain forest.

The dust storms are increasing rapidly. According to Andrew Goudie of Oxford University, in Mauritania there were two storms a year in the 1960s; now there are 80. The dust levels measured off the North African coast are now multiples of what they were just a few years earlier and are easily strong enough to suppress hurricane formation in the area—and thus the weather patterns of much of the Atlantic Ocean.

Dust storms have been shown to significantly increase the spread of some diseases across the globe. Virus spores are simply blown up into the atmosphere with the dust and deposited with the rain, sometimes thousands of miles away. The dust particles can actually carry these minute pathogens.

It is the trade winds that bring us these problems—those strong, dominant winds that brought us the European explorers and drove the sailing ships that created much of the prosperity of the Americas and Caribbean nations. It is also those same trade winds that move an "iron cloud" from Africa to the Americas and create living conditions from which we benefit immensely. There are two sides to everything, it seems.

It has long been known that the tropical rain forests of Central and South America receive most of their mineral nutrients from the Sahara. The "lungs of the world" would not function without huge regular inputs from North Africa; all of that exotic vegetation and wildlife would cease to exist without the bounty of the winds. Large areas of tropical seas would be

almost sterile without the iron raining from the skies. What has not been appreciated until very recently is how extensive these effects are and how dependant we are upon them.

Compared to the vastness of the Sahara and Sahel regions, which occupy almost all of North Africa, the source of most of these materials is relatively small. It is Mega-Lake Chad, in north-central Africa, particularly an area known as the Bodele Depression and the lowest point in Chad. Here, dust storms occur about 100 days a year on average. This tiny, nutrient-rich bowl, which occupies only about 1/500th of the Sahara Desert, alone supplies half the dust that makes it to the Amazon. More than 50 million tons per year come from this one source.

The Bodele is a remnant of the world's largest freshwater lake, Mega-Lake Chad. Just a few thousand years ago it occupied more than 140,000 square miles (by comparison, Lake Superior is only 32,000 square miles). It is still shrinking; Lake Chad has dropped by 95 percent in the last 50 years. The dried lake surface is composed of huge layers of phosphorous- and iron-rich remains of plankton, much of which was deposited even earlier in history, when the Bodele was part of the ocean. It is an ideal fertilizer. The phosphorous is exactly what the rain forests need; the iron causes an explosion of growth in tropical marine areas and is basic to the creation of many coral reefs.

Most of this material would never leave North Africa if it weren't for some uniquely strong winds that characterize the region. The prevailing winds approaching the Bodele Depression are literally squeezed between two massive topographic features, the Tibesti Mountains and the Ennedi Massif, which rear up over the Djourab Desert of Chad. Forced through a narrow gap, the winds run down into the Bodele with amazing speed and pick up anything in their path. Storm winds move at 50 km per hour or more, much faster than the needed minimum to create a dust storm. The scouring effect of these dominant winds is so obvious that the straight-line patterns headed southwest can be clearly seen from NASA's Terra and

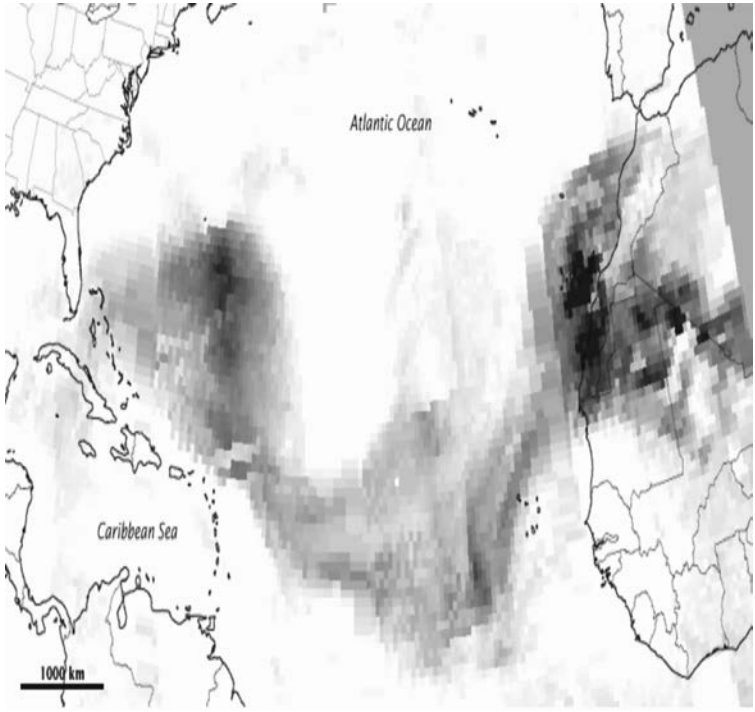
Aqua satellites. The winds are known as the "Bodele Low Level Jet."

Vast quantities of material are blown off the African coast, especially in our summer and fall seasons. Many of the heavier particles, such as sands and silts, soon fall into the sea, leaving the smaller clay-sized materials to continue on a far-longer journey. The clay particles become coated with the iron from the Bodele deposits and act like a sponge, absorbing other materials and pollutants that enter the cloud. This iron layer can now transport a variety of pathogens and nutrients over a large region of the world. It can contain aluminum, silicon, iron, phosphates, nitrates, and sulphates. Hans Paerl of the University of North Carolina calls it "Geritol for bugs"! It can also carry arsenic and other undesirable elements, plus fungi and bacteria. The iron is a relatively small proportion of the total volume, but it is a critical one, and it affects us even here in Nova Scotia.

Wind transport is amazing. In 1988 a swarm of live locusts made it all the way to the Windward Islands from Africa, a five-day journey three miles up in the atmosphere.

The falling particles off the West African coast have an immediate effect. Sunlight is reduced and sea temperatures drop. As this region is the birthplace of most of the tropical storms that eventually hit the Caribbean and sometimes Nova Scotia, this can be very significant. The sea surface temperature dropped 30–40 percent from 2005 to 2006 near the Canary Islands. Hurricane formation dropped from 15 to 5, confounding the long-range weather forecasts. The air quality on the Canaries sometimes gets so bad that people are advised not to go outside for days, a major headache for a huge tourist destination.

The remaining cloud of particles spreads out over a huge area and has been doing so for a very long time. It is now clear that most of the soils in the Bahamas, Jamaica, Barbados, and Caribbean Mexico are fundamentally derived from the Sahara



Colour coded map of Aerosol concentrations, July 21, 2012. Obtained by the Ozone Mapper Profiler Suite on the Suomi National Polar Orbiting Satellite (*S-NPP*)

Desert. So are large parts of Florida and elsewhere. The most recent significant discovery is that the soils of Bermuda and some parts of the Carolinas are also Saharan. The dependent area is immense. In fact it is now believed that the Bahamas would not exist without this regular influx; there would be no islands, no coral reefs—simply a largely sterile region of ocean. Think about that the next time you look at the teeming marine life off a Bahamian beach!

The iron has a critical role in all this.

Falling on what would otherwise be a sterile ocean area, the iron and other elements lead to a great explosion in plankton and phytoplankton levels. These absorb huge amounts of

atmospheric carbon dioxide and create carbonates, which fall to the bottom of the ocean. These are your fundamental building blocks for many islands and all coral reefs and the beaches near them. Bacteria and cyanobacteria are also stimulated, many of which fix atmospheric nitrogen; and the nitrogen cycle, which is the basis for most marine life, is launched. The swarming life about a reef depends on this process. The Great Bahama Bank is now a 4.5 km-thick platform in the Western Atlantic Ocean, formed over millions of years by a steady supply of airborne nutrients. Without soils transported from Africa, the Bahamas, Florida Keys, and many other islands would simply not exist.

The same material pours down onto Bermuda and the surrounding ocean with the same effects. The nearby Sargasso Sea, with its massive floating vegetation mats and no obvious local source of nutrients for them, has always been a mystery. Scientists looked to the nearby coasts and ocean currents for an answer, but didn't find one. It is now obvious that the airborne iron cloud is supplying much of the needed materials. The Sargasso shelters most of the eels and many of the turtles and fish life that make their way to Nova Scotia each year. We directly benefit. Many of our migratory birds depend on the islands created by the iron cloud and the life they shelter.

It is more than probable that the recent plague of Sargassum weed, which has turned Caribbean beaches into stinking messes, is caused by an increase in the volume of Saharan dust. If so, don't look for a quick solution to that problem!

The diminished cloud continues in the prevailing winds up the east coast of North America; however, it is soon somewhat rejuvenated. As it passes over the industrial heartland of the continent it blends with the huge volume of particulates and emissions that are being sent skyward. The minor iron content again ensures that more pollutants are carried further than would otherwise be the case. Much of it passes right over our heads, and some is deposited in the rain. This contributes to Nova Scotia's sometimes being referred to as "the tailpipe

of North America," with relatively high levels of acid rain and respiratory problems caused by ozone and smog. We have very high levels of juvenile asthma.

The cloud continues over the North Atlantic and is again somewhat rejuvenated when picking up the industrial pollution from Britain and Northern Europe. Settling over the mid-European region, it adds to the atmospheric misery there. Europe has its own stream of iron cloud direct from the Sahara at other times of the year. Interestingly, if a large high-pressure system develops over Europe at that time, the cloud can back up and move down to North Africa. This completes the Atlantic cycle. This dominant system was active even during the Ice Ages; it has formed major characteristics of much of our part of the world.

COMMUNITY

Jijuktu'kwejk Watershed Alliance: Winter Update

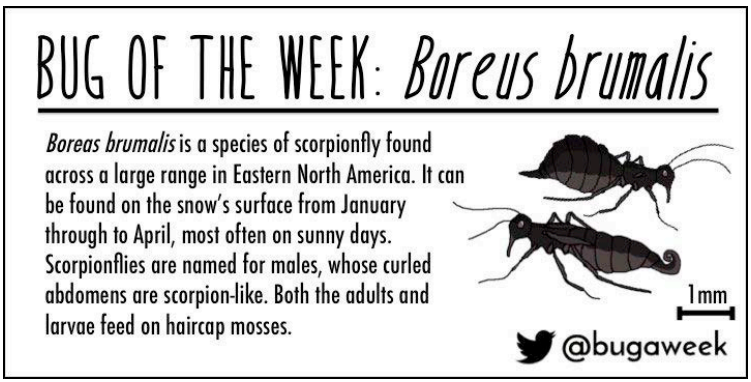
by Jennifer West, Alliance coordinator

Over the past few months, a small team of Alliance members have been meeting to talk about the organization, and this has developed into an interim board of directors. Shelley Porter has taken on the role of interim chair of the board; John Brazner, Sean Basquille, and Sarah MacDonald have become interim board members, and I also sit on the board as the secretary in addition to my role as coordinator.

This group has taken on planning the first Annual General Meeting on March 25 from 1 to 3 p.m. at the Kentville Recreation Centre (350 Main St). The meeting will include a presentation by Nick Hill from the Fernhill Institute for

Plant Conservation about local plants and ecosystems in the Jijuktu'kwejk watershed. This will be followed by a short talk about the strategic direction of the Watershed Alliance, and then we will open the floor to hear about what members are concerned about in the watershed. We hope to have lots of members and new members attend and share their stories. The official AGM will be a short meeting from 3:00 to 3:30 to review our bylaws and present our financial report, but since we have no money it will also be a great photo opportunity!

This winter has also seen the JWA complete a Canada Summer Jobs federal grant application for two summer students. We are hopeful that we will hear about this grant in April. The students will work together on two projects: the first is a cleanup along a stretch of the Jijuktu'kwejk River near the Annapolis Valley First Nation community. This work will include documenting the narrative from this area, including existing conditions, special plants, community activities, historic use and stories, and community goals for restoring that section of the river. The second project is to collect data for the watershed and to outline areas with the highest priority for cleanup and restoration, and areas with the greatest potential for positive change. This project will inform our organization's path toward restoring other sections of the river throughout the



year. It will be a great start to our research and our outreach to receive this grant and start working on the river.

Again, please plan to attend the first Annual General Meeting of the Jijuktu'kwejk Watershed Alliance on March 25. We need to learn from everyone's stories of the watershed and make the best plan for improving the river.

COMMUNITY

A Bit of Community

by Ed Sulis

For a number of years the Blomidon Naturalists Society has participated at Eagle Watch weekends in Sheffield Mills. Upstairs, we set up our photo displays, put up the BNS banner, organize a book sales table with Glenn Ells (Glenn has several of his own books), and Jim Wolford brings in a range of stuffed bird specimens from Acadia.

Other groups may be there as well, with photographs or handicrafts for sale. Lots of space is available, and on any one of the four Eagle Watch days there are a good number of visitors; many are families with young folk. It's neat to watch the small fry poking a little finger at the photos of the squirrel, the turtle, the raccoon (all mounted low on purpose), and the concerned parent pulling the little hand back. A chance to see an eagle or a raptor up close, even when stuffed, is amazing to most visitors.

Book sales this year contributed over $1,000, $300 of which was contributed back to the Sheffield Community Hall. We also distribute free copies of the BNS out-of-date newsletters to young and old for their reading pleasure. This goes over very well, and always picks up the occasional new member.

The annual Eagle Watch dates are the last weekend in January and the first weekend in February, for four days total, from

9 in the morning till 1 in the afternoon. I would like to see BNS provide on-site volunteers for sales and birding questions for all open hours, much as we do for the Acadia Craft Fair.

A request will go out early in 2018: please consider this valuable community activity.

SEEN IN THE WILD

Spring in Our Neck of the Woods

by Twila Robar-DeCoste

Spring, this most reluctant and tantalizing of seasons, comes again to our land here on the valley floor, in the Annapolis Valley, on the Aylesford Plain. The Sun rises earlier and sets later each day. The Sun has a lot more heat when shining through our windows, and each day seems warmer than the last, and then there is a setback, slushy snow moves in or a drenching cold rain, and we think that spring will never shed its wintry cloak. It seems like November in reverse, freezing us with wind off an iceberg one day, then teasing us with glorious warm breezes and blazing sunshine another. We have to learn to be patient; good things take time, and life unfolds on a schedule all its own.

I am enchanted with the goldfinches that come in a chattering flock to our feeders through the winter months. Like most small songbirds they have a complete spring moult, getting new body feathers.* The males are particularly interesting, as they seem to change from day to day from their winter drab coat to their brilliant yellow breeding plumage. No wonder some

* David Sibley, *The annual plumage cycle of a male American Goldfinch*, [online], May 1, 2012, sibleyguides.com/2012/05/the-annual-plumage-cycle-of-a-male-american-goldfinch/.

people think they migrate south or that they are completely different species. The wing and tail feathers change later, and by late summer they appear completely black. By late summer the moult starts all over again. The brightest and boldest males are a sign to the females that they will be the strongest of their group and the best providers.

The goldfinches have nearly finished their moult when the Spring Peepers start a few tentative peeps. There is still old snow in the woods when the full chorus rises. Several waterholes, ditches, and a dug-out in our woodlot provide safe lodging for these tiny frogs with huge voices. For us, spring is officially underway when the peepers start their nightly concert. The din is both deafening and wonderful.

In warmer spots vernal pools teem with life. The craggy branches of the mature spruces and larches are covered with old man's beard lichen, swelling and thriving on the spring dampness. In sunny patches Mayflower leaves lift to the warming Sun and the buds swell; the lovely blooms soon follow. How amazingly sweet and precious they are, the first in a parade of spring wildflowers to cover the forest floor. The Wild Lily of the Valley sends up its smart green leaves, a carpet of brightness throughout our woodlot. Young ferns unfurl; the mad frenzy of growth has begun.

Further out, Graves Brook wends its way through a lush meadow; the grasses, reeds, and cattails are poking up brave spears of green. On the alders along the brook edges catkins have expanded and dance in the breeze like a fringe on a fancy shawl. Cold drizzle doesn't seem to deter the fisher folk who stand hopefully at the edge of the brook hoping for a brown trout to find their bait. Mud from spring flooding and stems and branches washed down from neighbouring pastures give the banks a bedraggled look, but in only a day or two the meadow is covered in green furze. The willows and Red Maples put on a vibrant display of yellow and red branches before being

lost in obscurity of full leaf. The Indian pear (*Amelanchier*) and hawthorns (*Crataegus*) take turns showing off their display of white blossoms.

Dare I mention the bird life that flocks to the meadow and woodlot for spring courting, nesting, and rearing their young? The warblers are flitting from tree to tree, Black Duck pairs rise from the brook at our approach, and Red-winged Blackbirds boldly proclaim their territory. That splash of red epaulette and glistening black body is unmistakable. Swallows swoop and dip for an insect lunch, and if we're lucky we'll catch sight of the first Great Blue Heron in the neighbourhood.

How fortunate we are to have this season unfold around us. The very earth awakens from its winter sleep one day and one hour at a time. The same life force that causes the sap to rise in the great Sugar Maples lifts the spirit of every other living creature: a magnificent unfolding, unstoppable force. It seems like it will never come, and then all of a sudden it's summer. Each new flower is a miracle, each returning bird an old friend that we have missed. The cycle of life continues, reappearing, reawakening—the most anticipated and most exciting season of the year.

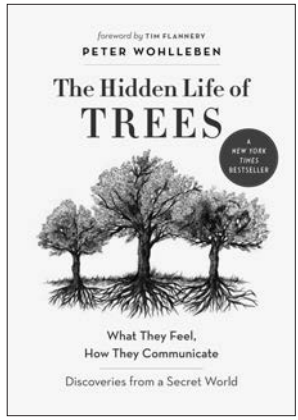
BOOK REVIEW

The Hidden Life of Trees

Reviewed by George Alliston

The Hidden Life of Trees by Peter Wohlleben
(Greystone Books, 2016. ISBN 978-1771642484)

A book on trees is not an obvious candidate for a number-one best-selling non-fiction book on two continents, but *The*



Hidden Life of Trees—What They Feel, How They Communicate is just that! Author Peter Wohlleben, a German forester, integrates his 30 years of experience in European forests with current research emanating from such institutions as the University of British Columbia, Aachen University, the Max Planck Society, and McGill University (to name just a few) to present a picture of forests that is in stark contrast to historic, commonly held views (at least by foresters).

Trees have commonly been viewed as robotic, genetically programmed fibre-producing machines locked in constant competition with their neighbours for light, water, and nutrients. The picture that Wohlleben paints of trees in mature forests is quite different. He views the forest as a community where trees communicate, help each other, recognize "friends," family members and their own offspring, and can "learn," and interact in ways that suggest resourcefulness and intelligence.

Helpful interaction is not limited to members of the same species. Research conducted at UBC has demonstrated that Douglas Fir and birch can form relationships where the fir feeds the birch during spring and fall when photosynthesis can take place but the birch has no leaves, and the birch reciprocates during summer when the fir has reduced access to light because of its leafy deciduous neighbours.

It has been known for some time that mycorrhizal fungi penetrate the roots of trees and help extend the trees' root systems, but more recently it has been shown that these same fungi are the vehicle that permits trees to communicate with each other over great distances (the "wood wide web") and also permits the transfer of food between plants. The fungi are not simply being

used by the trees but demand a price for their services, generally on the order of a 30 percent cut for their food delivery services.

The book contains 36 short chapters, each focusing on some fascinating aspect of trees and their interactions. To illustrate the tone of the book, here are a few of the chapter titles: Friendships, Social Security, Love, Slowly Does It, Tree School, Woody Climate Control, Mother Ships of Biodiversity, Immigrants, …

Wohlleben purposely uses anthropomorphism as a tool in presenting his observations and the results of scientific research. While this might be frowned on by scientists, it facilitates an immediate connection by the layperson to the ideas being presented. The success of this style has been confirmed by the popularity of the book.

After having read this book, even the most avid naturalist will look at forests differently.

ENVIRONMENT

Time for Dead Awakening

by Kent A. Williams

I'm reading inspiring words from the late, great George Bernard Shaw: "… and that what remains to be seen as perhaps the most interesting of all imminent social development is what will happen when we dead awaken." He wrote these words many years ago, yet today we are still waiting for our sleepwalking society to wake up to our present realities.

Dead awakening is a time of awakening consciousness. The optimist in me believes that the sleepwalkers are coming awake. As we are faced with the grim realities of climate change, mass species extinction, and many other global issues that affect spe-

cies development, there is beginning to be a collective reality: it is no longer such a lonely thing to open one's eyes to what is happening in the social-ecological systems we live in.

Shaw's words are inspiring and profound, for I believe we find ourselves in an epoch of imminent social change—and "we" are the sleepwalkers that awaken! With the mounting scientific evidence and with the many critical challenges we face both socially and physically as a human race, it can be argued that there needs to be a mass awakening of our collective consciousness to shift us toward a more-creative existence on the planet—and prolonged survival of our and other species for generations to come.

It's exciting that we are part of this reawakening, using fresh eyes to gain and share new perspectives through our social experiences in the world so that we may co-inspire others to exchange patterned realities for new, diverse perspectives that coalesce socially in a more coherent culture of humanity.

Our pattern has been to resist change and, in doing so, fragment ourselves into different cultural and social labels. We call each other capitalist, communist, anarchist, environmentalist, socialist, westerner, easterner, liberal, conservative, republican, democrat, Canadian, American, Muslim, European, Asian, men, women, straight, gay, lesbian, transgender, etc. These labels that we give ourselves only serve to separate and limit our perspectives, where we are unable to see the integral possibilities before us as a human race. I would suggest we have forgotten to learn from our history, in which labels have repeatedly separated us so dramatically that we have horrifically harmed one another (e.g., The Holocaust, Rwanda genocides, French revolution, Stalin regime, 9/11, Iraq, Syria, … the list goes on), not to mention the exploitation of, and harm we have done to, other species. This "optical delusion" of our subjective labels acts as a prison for each one of us, as Einstein alluded in this commonly quoted version of a letter written in 1950:

> A human being is a part of the whole called by us "universe," a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest, a kind of optical delusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and affection for a few persons nearest to us. Our task must be to free ourselves from this prison by widening our circle of compassion to embrace all living creatures and the whole of nature in its beauty.

We have become this rational being with the inability to recognize the other, losing touch with our intuitive self that was born a sentinel being of nature. How do we build cultures that recognize the other subjectively, not just as a disconnected object? According to Jessica Benjamin, as you connect with others, "the act of knowing can be felt as a communion, not conquest" (*The Bonds of Love: Psychoanalysis, Feminism, & the Problem of Domination,* p. 192, Pantheon. 1988). With conscious eyes we begin to put names and faces to these people and other beings we oppose and oppress, and it opens an opportunity for empathy, and the grand facade of "us versus them, us versus nature" begins to dissipate and we start to experience a paradigm shift toward a commonality—that we are all interdependent and connected in the web of life in our beautiful planet. Yes, we face many challenges ahead, but coalescing our diversity into a dialogue enables an emergence of innovation and evolution. We can begin to evolve to a whole new level of humanity.

This all may sound great, and some might even feel it is impossible, but it starts with a dead awakening with each one of us—to personally act, to co-inspire but not force others to change. In the kindest way, I say, "The time is now, to wake the f*&k up: to open our eyes in broad daylight and start living with a growing consciousness—imbued with courage, wonder, and curiosity—of the social and physical world we are deeply immersed in, that we share with all beings, big and small."

West Hants Christmas Bird Count

by Patrick Kelly, coordinator

Monday, January 2, 2017—This was a bit later than the usual date of the Sunday between Christmas and New Years, but every now and then the holidays have the audacity to occur on weekends! The weather was quite pleasant, sunny, and around freezing, with only a small amount of snow on the ground. Still water was frozen, but all moving water was open.

We saw 45 species, the same as last year but well below the count average of 55. That now makes 14 straight years when the number of species has been at or below the average. No new species were added this year, although this was only the second time a Peregrine Falcon had been recorded on the count. This long-term trend will cause a change to the tally sheets for next year's count. Three species, having previously been seen on 5 to 12 of the first 20 counts have now only been reported in 4 of the last 20 counts and will be dropped. They are Great Horned Owl, Northern Mockingbird, and White-winged Crossbill.

The total number of birds counted, 6,085, is also well below the average of 10,540. Both American Crows and Europeans Starlings were below the average. The count of Great Black-backed Gulls was the lowest ever. On the other hand, this is the second time we had the maximum count (12) for Northern Cardinals.

Here is a list of all species seen. Italics indicates species for which only a single bird was found.

Canada Goose 705, American Black Duck 605, Mallard 87, Common Merganser 5, Ring-necked Pheasant 77, Ruffed Grouse 2, Bald Eagle 27, Sharp-shinned Hawk 4, Red-tailed Hawk 18, *Rough-legged Hawk* 1, *Peregrine Falcon* 1, Ring-billed

Gull 15, Herring Gull 148, Great Black-backed Gull 6, Rock Pigeon 282, Mourning Dove 121, Downy Woodpecker 13, Hairy Woodpecker 11, Northern Flicker 3, Pileated Woodpecker 5, *Northern Shrike* 1, Blue Jay 343, American Crow 512, Common Raven 66, Black-capped Chickadee 379, Red-breasted Nuthatch 9, White-breasted Nuthatch 19, Brown Creeper 3, Golden-crowned Kinglet 5, American Robin 6, European Starling 1803, Bohemian Waxwing, 258 Cedar Waxwing 54, American Tree Sparrow 11, Savannah Sparrow 2, Song Sparrow 15, White-throated Sparrow 4, Dark-eyed Junco 82, Snow Bunting 23, Northern Cardinal 12, *Red-winged Blackbird* 1, Purple Finch 7, American Goldfinch 290, Evening Grosbeak 39, House Sparrow 5.

Party-hours totalled 52:25, with 36:10 by car and 16:15 on foot. The total distance covered was 539.1 km, 512.4 km by car and 26.7 km on foot.

There was one count week bird: a Green-winged Teal found in the Windsor sewage lagoons by Jim Wolford.

There was some sad news on the day of the count. Covering Area 10, Sherman Williams always stops in at the home of Frank and Beth Woolaver. He did again this year and Beth and her daughter were both there, but Frank, who has had dementia for some time, had died the day before. I have fond memories of the many years when the wrap-up was held at their place, and I'm sure that is true for anyone who has participated in this count.

As usual, I would like to thank all of those who helped in the field or as feeder watchers this year: George Alliston, Margaret Alliston, Joanne Cook, Louis Coutinho, Celeb Davar, Tony Duke, Kathy France, Ryan Harvey, Andrew Harvie, Susan Harvie, Patrick Kelly, Dorothy King, Peggy Kochanoff, Virginia Mackenzie, Bob McDonald, Wendy McDonald, Stan Moeller, John Robertson, Barry Sabean, Peter Salnikowski, Walter Urban, Jane Wambolt, and Sherman Williams.

Woods, Water and Sky: Writings by Robie Tufts

by Rachel Cooper

Robie Wilfred Tufts (1884–1982), of Wolfville, was Chief Migratory Birds Protection Officer for the Maritime provinces from 1919 to 1947. He was also founding president of the Nova Scotia Bird Society and author of the highly regarded *Birds of Nova Scotia,* first published in 1961. He held honorary degrees from Acadia and Dalhousie universities, and his papers are housed in Acadia University's archives.

From the early 1940s to the 1970s, Robie Tufts wrote a regular column, "Woods, Water and Sky," for the *Chronicle Herald.* BNS has been given the opportunity to publish a sampling of Robie's columns.

This sampling, our seventh, is believed to be from 1946 (exact dates of the columns are unknown). In this excerpt, Robie describes a time in our history when dogs were free to roam and could more easily be predators of wildlife. But he also describes the determined and persistent efforts of a wild creature—in this case, a Black Duck—to gauge the risk and protect her young.

Dogs molesting game birds

From Aylesford, Middleton, Wolfville and Sydney have recently come reports which tell of bands of roving dogs which range over the countryside daily in search of game birds. In one instance a setter was in the vanguard, but in all other cases the canines were described as merely mongrels. In one instance they were seen in hot pursuit of a hen pheasant which, from her actions, was leading them away from her young.

The report which comes from Sydney tells of a mother Black Duck, followed by three babies, which were being pursued by two swimming dogs. The old duck was making frantic efforts to get her small family to the sheltering rushes on the far side of the river, but being very young they could not out-swim the dogs which our observer, who was fishing from his boat nearby, tells us were rapidly overtaking them.

When the foremost dog was within three or four yards of the rear duckling, the ever-watchful mother realized the time had come when she must put on an act. Leaving her little ones she cut back toward the dogs and with flapping wings outstretched on the water and agonized quackings, as though in great pain, she struggled out across their bow, heading downstream. Of course it was successful. It always had been before and she knew it always would be. In close pursuit the dogs gave chase, much to the amusement of our fisherman, who watched them as they disappeared around the bend.

Within a few moments she came flying in from another direction and began herding the little ones to safety. Two of

them seemed well behaved and hid in the reeds, but the other one dodged back and took after the fisherman in the boat. As the old bird drew near and was about to round it up, the two dogs were back and, seeing the bird, plunged in after her, and the curtain rose on the second act.

At their close approach she again left the erring child and drew the dogs off down river again. Soon she returned and joined the little duck, but in no time the dogs were back, and before she could reach the rushes they were closing in so rapidly that she was forced to put on a third show, which was just as successful as had been the other two. Though at this point the sheltering reeds were close by, the adventurous little scamp, instead of going in to join its playmates which were still in good hiding, turned back and headed to open water.

But this time the old bird was taking no chances, and she must have led those dogs a merry chase, for she was gone much longer than before, and the dogs were not seen again. When she finally came in from the opposite direction she quickly joined the little one, and when last seen they were disappearing among the protecting reeds.

ENVIRONMENT

The Importance of a Field Course

by Amy Prescott

Amy is a third year biology major at Acadia University. This article appeared in a recent issue of the Athenaeum *and is reprinted here with the author's permission.*

In my mind, I am the type of biology major who knows they are going to medical school. I am the type of biology major who

has this deep, profound interest in microbiology rather than macrobiology. I am the type of biology major who is inclined to focus on the complex and intricate world of tiny things as opposed to the way that multicellular organisms relate to one another. I am the type to pride oneself on the ability to distinguish between the convoluted biological processes of cellular communication and the somewhat indeterminate science of how organisms relate to one another. Or so I thought.

Try as I might to ignore it, we exist in the world as it is—living, breathing, and decomposing. Though we cannot exist without our microscopic determinants, the large field is where we gain our credibility and therefore our existence. We tend to forget this, as we are focused in the academic pursuit of science and knowledge. As budding scientists, we have a tendency to focus more on smaller and smaller particles. However, science exists at all stages of complexity, whether the smallest stages of life or the large, multicellular organisms that constitute the study of biology as we know it today. While it is important to understand our origins, we exist in a larger ecological picture, and we affect said environment as we move through our world each and every day.

I was first drawn toward the Bon Portage field course at the persuasion of a close friend. As BIOL3013: Natural History and Field Biology counted as a full three hour a week class (an additional fall credit), and as it was a part of the biology core as a biodiversity course, what more could I ask for? All that was required of me was the course enrollment fee and to sacrifice two weeks of my summer. What I drew from the course was more than I had hoped for.

Bon Portage renewed my passion in biology, the passion that had me signing up to dedicate 100+ hours to the course load. When you are removed from the real world experience, you tend to forget the real world applications of a biologist's actions When thinking from a purely scientific approach, it

is easy to remove yourself from the natural world. However, when immersed in the field, one can visibly see the interactions between our objective understandings and the living, breathing ecological world. The Bon Portage field course reminded me of the reasons why I fell in love with the scientific study of life in the first place.

Bon Portage gave me a hands-on view of biological processes that I would otherwise, in class, have learned only the theory of. Before, the idea of waking up before the Sun to tag birds trapped in towering nets in the forest's understory would have unsettled me. I could not have pictured myself stomping through worn-down mossy trails hunting mycorrhizal fungi fruiting bodies and actually enjoying myself. Never would I have seen myself reaching into a dark, damp, mysterious burrow in search of a fluffy petrel chick and measuring its physical properties for population estimates. Bon Portage showed me how to be comfortable sleeping in the company of arachnids despite my initial unrest. The island taught me how to live without taking a shower for 14 days and still remain completely at ease in a worn-out baseball cap and a sweater that I had not changed for three days on end.

I expected to finish the Bon Portage field course with an additional credit to my diploma and extra time on my fall course-load agenda. Instead, the Bon Portage field course taught me how to remain immersed in the field, as compared to being comfortable in the realm of theory. For all Acadia biology majors looking to extend their realm of understanding, I encourage you to enrol. Bon Portage left me not only with a newfound understanding of my own environment but with a renewed context of myself in relation to my environment.

Winter Weather 2016/17, Eastern Annapolis Valley

Larry Bogan, Cambridge Station

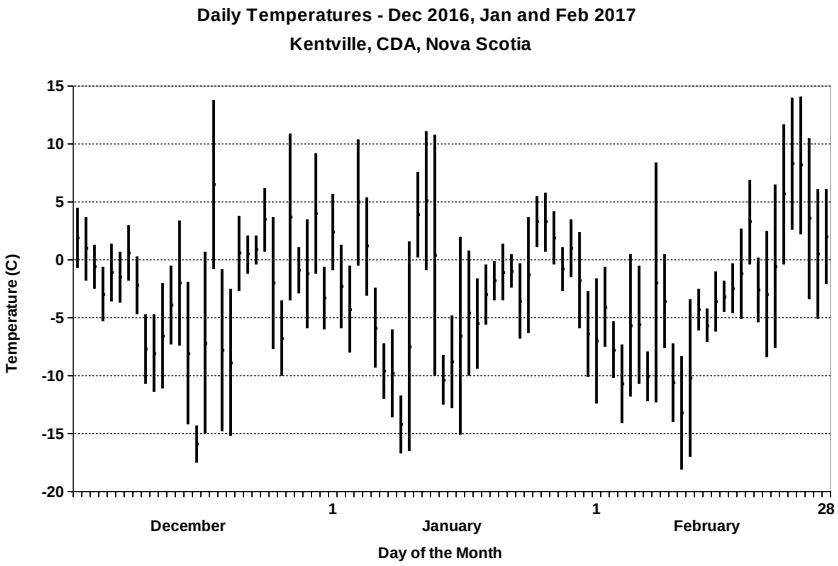
	TEMPERATURE			PRECIPITATION	
	Max (°C)	Min (°C)	Mean (°C)	Total (mm)	Max Snow (cm)
December 2016	1.5	–6.1	–2.3	90	18
(30 yr. average)	(1.5)	(–6.1)	(-2.3)	(122)	(47)
January 2017	1.3	–6.6	–2.7	119	33
(30 yr. average)	(–1.3)	(–9.8)	(–5.6)	(116)	(53)
February 2017 *	1.4	–7.5	–3.1	119	77
(30 yr. average)	(–0.5)	(-9.2)	(–4.9)	(101)	(48)
Season (Winter)	1.4	-6.7	–2.7	328	
(30 yr. average)	(–0.1)	(–8.3)	(–4.2)	(339)	

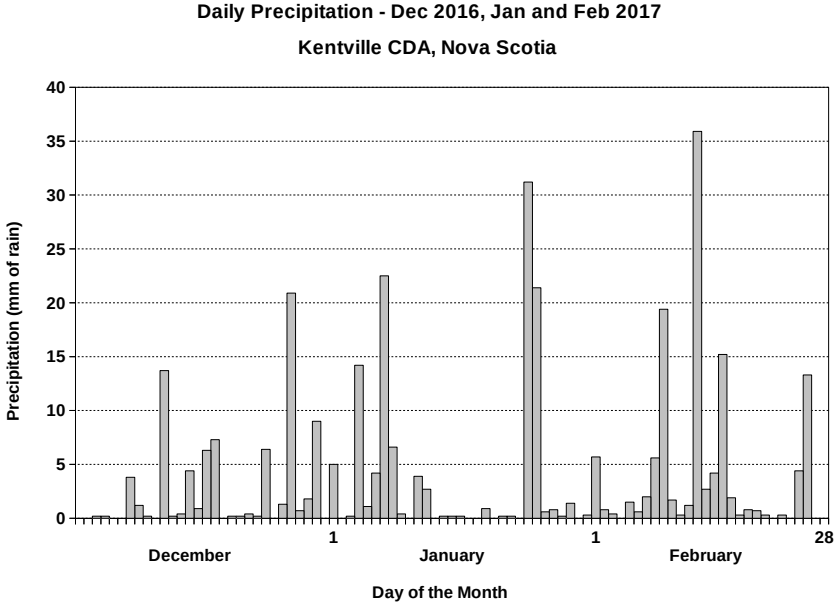
*Source: Environment Canada data for Kentville, NS (http:weatheroffice.gc.ca). 30-yr. averages: 1981–2010. *Corrected for missing data using Greenwood data.*

The winter started normally in December, but after New Year's, it changed. Both January and February were very warm, but with the severe snowstorms in February that we all remember.

Temperature

The mean temperatures for January and February were 2.9°C and 1.8°, respectively, above the average. As a result the season

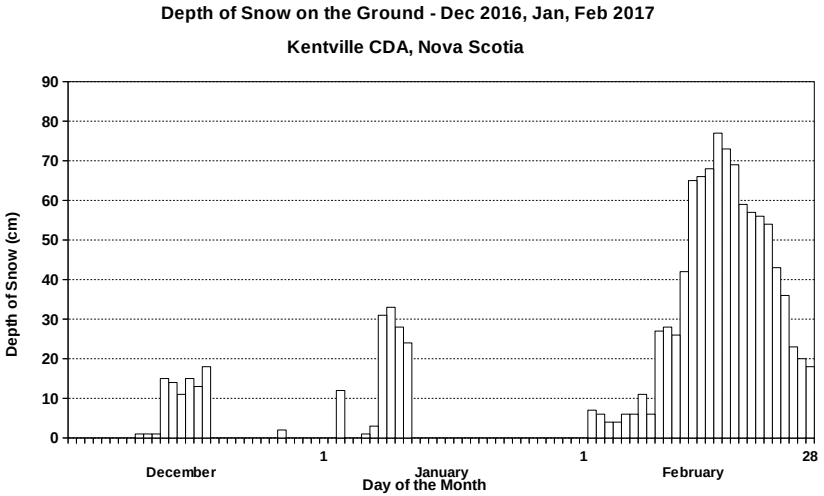

Daily Temperatures - Dec 2016, Jan and Feb 2017
Kentville, CDA, Nova Scotia
Temperature (C)
15
10
5
0
-5
-10
-15
-20
December
1
January
1
February
28
Day of the Month


Daily Precipitation - Dec 2016, Jan and Feb 2017
Kentville CDA, Nova Scotia
Precipitation (mm of rain)
40
35
30
25
20
15
10
5
0
December
1
January
1
February
28
Day of the Month

ended with average temperature 1.5° above the 30 year average. We did have cold days that got to −17° at least once during each month, but as you can see in the daily temperature chart, the temperatures were quite variable. We had 21 days that got above 5°. February was cold early in the month, with mean temperatures near −10°, but then the last week had four days above +10°.

Precipitation

Most of the winter was free of snow on the ground. It was only with a series of extreme snowstorms in mid-February that we got significant snow. This is easily seen in the chart of depth of snow on the ground. December had 10 cm on the ground for six days in mid-month before an above-freezing week melted that, and January had a 30 cm snowfall that lasted for only four days early in the month. February had snow cover all month, dropped there by three memorable storms. By Valentine's Day the depth on the ground was 77 cm in Kentville and 88 cm in Greenwood. (The record for extreme snow depth is 100 cm.) Significant winds accompanied the storms and created large drifts.



Precipitation occurred regularly all winter. December had the least precipitation, with three-quarters of the expected amount, while January and February were closer to the average. Kentville does not separate snowfall and rainfall in its precipitation report, but Greenwood CFB does. The fraction of precipitation as rainfall was 60 percent, 54 percent, and 11 percent, respectively, for December, January, and February. For the three months, Greenwood had snowfall of 43 cm, 72 cm, and 144 cm. As a comparison, average snowfall for the three months is 53 cm, 71 cm, and 59 cm. The overall precipitation amount for the season was normal.

ASTRONOMY

What's in the Sky?

by Roy Bishop

Highlights for April through July 2017

April 7: Jupiter at opposition
April 10: Full Moon and Jupiter rise together (7:28 p.m.)
April 26: New Moon
April 26–29: Large tides
April 28: Left-to-right, low in WNW sky, 9–10 p.m.: Moon, Hyades cluster, Mars, Pleiades cluster

May 7: Waxing gibbous Moon near Jupiter
May 10: Full Moon
May 25: New Moon
May 25–28: Large tides

June 9: Full Moon
June 15: Saturn at opposition

June 21: Solstice (01:24 ADT), summer begins
June 23: New Moon
June 24–26: Large tides

July 3: Earth farthest from Sun (aphelion)
July 9: Full Moon
July 23: New Moon
July 24, 25: Large tides
July 28, 29: Nova East Star Party (Smileys Provincial Park)

Planets

Mercury is well placed in the evening twilight during the first week of April but vanishes into the glare of the Sun by mid-month, arriving at inferior conjunction on the 20th. It reappears low in the eastern morning twilight by mid-May and vanishes again into the solar glare by June 10, arriving at superior conjunction on June 21. Mercury reappears in the WNW evening twilight early in July but stays low near the horizon throughout the month.

Venus passed inferior conjunction on March 25, and in April reappears in the eastern morning twilight, where it remains as the bright morning "star" (or a UFO if you do not know what it is) until early December. The waning crescent Moon is near Venus on the mornings of April 23, May 22, June 20, and July 20.

Mars, a year past its opposition of May 2016, is low in the western evening sky, becoming progressively dimmer as Earth in its faster orbit leaves it behind. It disappears into the solar glare by late May and is in conjunction with the Sun on July 27.

Jupiter is at opposition on April 7 and thus is well placed for observations in the late evening sky during April and May, and

in the evening sky during June. During July it drops progressively lower in the SW evening twilight. If the sky is clear on April 10, look toward the eastern horizon near 7:30 p.m. Jupiter and the full Moon will rise together, less than 2 degrees apart!

Saturn is in the morning sky during April and is quite far south, unfavourable for telescopic viewing from the latitude of Nova Scotia. It reaches opposition on June 15 and is conveniently positioned for observations in the late evening sky during July. A telescope will reveal its spectacular rings.

Snowbirds

To members of the Blomidon Naturalists Society, the word *snowbirds* likely inspires thoughts of Snow Buntings. However, in the remainder of this article, I am referring to the *Homo sapiens* variety of snowbirds, those of our species who, in the colder months, often spend time further south, where the air is warmer and sunny days more frequent, in places such as Florida, Arizona, Mexico, and the Caribbean.

Snowbirds with knowledge of natural history get more enjoyment from such trips than does the average tourist. In addition to the sun and sand, the flora and fauna of the tropics are of particular interest to them.

Yet there is another aspect of southern travel that few snowbirds appreciate—the night sky. Only those who are intimately familiar the portion of the universe visible from Canada (e.g., amateur astronomers) can appreciate the part of the sky that can be seen from more southerly latitudes. My priority on trips south is not the sun, warm breezes, and sunny beaches. My priority is the chance to see the third of the universe not visible from Canada.

Much of the richest portion of our Milky Way galaxy comes into view from the Caribbean and ascends higher into the sky the further south one travels. Among the sights not visible from

Canada are the great star of the south, Canopus; the nearest star to our Sun, Alpha Centauri; Omega Centauri, the most impressive globular star cluster; the Eta Carinae Nebula, the most spectacular star-forming complex; NGC 3532, the richest open star cluster; and the most famous constellation in the southern sky, Crux, the Southern Cross. South of the equator more sights come into view, such as 47 Tucanae, the most beautiful globular star cluster, and the Clouds of Magellan, satellite galaxies of our Milky Way galaxy.

Perhaps my most memorable view under the southern sky occurred nine years ago, one moonless night in southeastern Australia. I was flat on my back on the ground in an inky-dark forest far from the light pollution of towns and cities, viewing with 10×42 image-stabilized binoculars. The kookaburras, rosellas, and parrots were silent and asleep. Through an opening in the treetops, at the zenith I gazed at the silhouetted dust cloud known as the Coal Sack, the best dark nebula in the entire sky, framed by sparkling clumps and tendrils composed of thousands of stars.

Late winter is the preferred time of year to see the highlights of the southern sky, because then the richest part of the Milky Way galaxy is accessible. Also, pick your dates to encompass several days centred on new Moon, so that the nights are dark and the splendour of the southern sky is not washed out by bright moonlight.

Unfortunately, most tourist accommodations suffer from excessive and poorly designed night-time lighting that obscures a spectacular view of the sky. For tourists who enjoy bird watching, the equivalent situation would be one in which every hotel used explosive noise makers and cats to keep birds away. In recent years a few hotels have recognized the natural wonder overhead and have begun to cater to tourists who want to see the southern sky.

Words of Wisdom—Still?

The situation is so familiar to us that the following could have been written yesterday. But it wasn't. It's from a brochure called This Land, *by J. Lynton Martin, director of the Nova Scotia Museum—published in 1972 (45 years ago) "as a part of the Cultural Services Program of the Department of Education."*

The land has been good to us, and because of its generosity we live in comfort and security today. Have we in turn been good to the land? Have we, like the Indian who lived here 10,000 years, felt ourselves to be a part of the land community, ready to give as much as we take?

I am very much afraid this has not been the case. Because of our carelessness one-third of our forest land lies barren. Numerous animals and birds have disappeared forever. Much productive land which was formerly farmed lies idle, producing only weeds. Many of our streams and waterways are polluted with sewage and waste, and the clean air of yesterday is gone in many districts. Even the products of our mighty ocean have become drastically reduced.

If all this has happened in the last 200 years, what do you foresee for the next two centuries? [. . .]

If we are to live successfully on this land, we must recognize that we are all a part of it. We are a part of it just as much as the rocks and trees and animals and birds and water and air. If we recognize our position we become part of the real orchestra, and the music we produce is a vast pulsing harmony. If we refuse to recognize ourselves as part of the land, if we insist on doing our own thing, the orchestra produces nothing but a mad composition which eventually destroys its instruments and their players.

BLOMIDON NATURALISTS SOCIETY

2017 Membership Fees & Order Form

Members receive four issues of the BNS newsletter annually.
As a registered charity, BNS issues receipts for all donations.
Members may also join Nature Nova Scotia through BNS.
(Neither BNS nor NNS membership is tax deductible.)

NAME

ADDRESS

POSTAL CODE

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In signing this membership application, I/we hereby waive & release the Blomidon Naturalists Society, its executive committee and members, from all claims for injury and/or damage suffered at any function or field trip organized by the Blomidon Naturalists Society.

SIGNATURE DATE

No.	Description	Price	Total
_____	Individual/ Family Membership	$30.00	$_____
_____	Junior (under 16 years) Membership	FREE	$_____
_____	Nature Nova Scotia Membership	$5.00	$_____
_____	2017 BNS Calendar	$15.00	$_____
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_____	*Merging*	$25.00	$_____
_____	Blomidon Naturalist hat	$15.00	$_____
	Postage: (calendar $2) (parcel $6)		$_____
	Tax-deductible Donation		$_____
	(Registration number: 118811686RR0001)		
		TOTAL	$_____

Address cheques or money orders to BLOMIDON NATURALISTS SOCIETY for membership and other purchases to: Ed Sulis, 107 Canaan Avenue, Kentville, NS B4N 2A7. Due date is January 1 of current year.

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