

*Blomidon  
Naturalists  
Society*



SPRING 2018 NEWSLETTER  
VOLUME 45 · 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

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## BNS NEWSLETTER

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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. Please  
note that Shelley Porter is taking  
a leave of absence from her post as  
BNS Newsletter editor and chair of  
the editorial board. All articles and  
queries should be directed to Howard  
Williams, interim newsletter editor.

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Digital photographs should be  
submitted to

*doug@fundymud.com*

**Next submission deadline:**

**May 31, 2018**

# Editorial

by *Howard Williams*

✂ An editorial can serve at least two purposes: it can provide a forum for personal opinions or to broadcast newsworthy events, and it can serve as an introduction to articles elsewhere in the magazine. This editorial is largely about volunteering.

eBird is an organization based out of the Cornell Lab of Ornithology at Cornell University in New York State. The lab acts as the clearing house for worldwide observations on birds. With 100 million observations per year and over 40,000 observers in Canada alone, enormous quantities of data enter their databases each day. The results can be viewed as a series of species maps, with one or more species graphed over time, at scales varying from individual locations to whole continents. It is a massive undertaking that has Canadian collaborators: Bird Studies Canada and QuébecOiseaux.

Another volunteering example, the 21st Great Backyard Bird Count, or GBBC, is where members of the public, worldwide, elect to count birds on up to four consecutive days in mid-February. It was launched in 1998 by the Cornell Lab of Ornithology and the National Audubon Society. Again, Bird Studies Canada joined as sponsor. The GBBC was the first online citizen science project to collect data on wild birds and to display results in near real-time. The count is carried out in the northern hemisphere, counting winter residents, and in the southern hemisphere, counting summer residents, so it achieves different things in each half. According to the GBBC website ([gbbc.birdcount.org/about/](http://gbbc.birdcount.org/about/)), this year's count was a great success worldwide: nearly 168,000 checklists were submit-

ted, with 6,148 species observed and over 24 million individual birds counted.

Feederwatch (<https://feederwatch.org/>) is in the same vein as eBird and GBBC. Volunteers record their observations at feeders for two consecutive days each week during the entire winter. Both GBBC and Feederwatch presume on the abilities and willingness of members of the public to provide accurate data for the common good.

Back in the distant past, Harold Forsyth volunteered to lead regular evening walks in the Acadia University woodlands, looking for birds and plants, using various people for assistance in identification. I am volunteering to restart these 1- to 2-hour-long walks, on Sunday mornings, probably starting in mid-March and located in the Miner's Marsh area. The walks will be publicized and open to both BNS members and others, with two goals in mind: obtaining phenological information on birds, insects, and plants for a localized area, similar to Plant-Watch ([naturewatch.ca/plantwatch/](http://naturewatch.ca/plantwatch/)); and providing a means for non-members to learn about the opportunities that BNS offers, with a view to increasing both knowledge and membership, especially among the young.

I was reminded about the importance of volunteering during an excellent presentation by Cindy Staicer at the February Nova Scotia Bird Society meeting: Species at Risk. During her talk she asked for volunteers to undertake citizen science observations for three birds: Olive-sided Flycatcher, Rusty Blackbird, and Canada Warbler.

Bird Studies Canada provides a clearing house for volunteer opportunities in the Atlantic provinces. See the website: [birdscanada.org/volunteer/index.jsp?targetpg=programs&lang=EN&region=AT&month=0&difficulty=0](http://birdscanada.org/volunteer/index.jsp?targetpg=programs&lang=EN&region=AT&month=0&difficulty=0).

Volunteering is clearly part of our social fabric. The national census asks how much time you provided to organizations as a volunteer, ([www.statcan.gc.ca/pub/89-652-x/89-652-x2015001-eng.htm#a3](http://www.statcan.gc.ca/pub/89-652-x/89-652-x2015001-eng.htm#a3)). In Nova Scotia, about 50 percent of people

(households?) volunteer their time, averaging about four hours per week, the highest in the country. Volunteering should be seen not as a burden but as a source of pride and enjoyment, especially if you are doing things that you have to do anyway, such as looking out for species at risk while walking for your health.

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CLUB NOTES

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## Citizen Science Expo

*by Ian Manning*

✚ After a two-year hiatus, we are happy to report that BNS is bringing back the Citizen Science Expo. The expo will be held on Saturday, May 5, 2018, at the Kentville Town Building. This event will be an opportunity to learn about citizen science in Nova Scotia, to meet other citizen scientists, and to interact with researchers from around the province who use citizen science to help accomplish their research goals. This will be a fun, free, all-ages/all-abilities event.

The current (and growing) list of research projects at the expo includes Landbirds at Risk in Forested Wetlands (Dalhousie University), the Canadian Sea Turtle Network, Wood Turtle monitoring and stewardship (Clean Annapolis River Project), Watch for Wildlife (Sierra Club Canada), the Striped Bass Research Team (Acadia University), Cryptic Skates (Acadia University), A Little Less Litter Cape Breton, Invasive Plants Cape Breton, Hemlock Woolly Adelgid Surveys, and Emerald Ash Borer Surveys (Canadian Food Inspection Agency).

For more information on the upcoming Citizen Science Expo, please check the BNS website or our Facebook group. If interested in having a booth to promote your citizen science

project, please e-mail Ian ([ianmanning4@gmail.com](mailto:ianmanning4@gmail.com)), or fill out the form at this link: [goo.gl/tkUTZf](http://goo.gl/tkUTZf).

Your Citizen Science Expo organizers are Marina Myra, Mary-Claire Sanderson, and me, Ian Manning.

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CLUB NOTES

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## From the President

*by Soren Bondrup-Nielsen*

☞ I have now been president of BNS for three months, and already a lot has happened. We have had three public presentations and two board meetings. Two of the presentations went smoothly. The one by Kayla Hamelin, “Working together to study sea turtles in Atlantic Canada,” was fascinating, and in the one by Carol Goodwin, “Organic wild plant gardening,” we learned how to increase the diversity of life in our gardens. I gave a presentation on coyotes and Black Bears in lieu of the talk by Daniel Kehler, who was stuck on Sable Island. But I had technical problems. First I could not make the projector work in our usual room. We could luckily move to the room across the foyer, but there the projector only worked for the coyote part of the presentation and I had to give the presentation on Black Bears without slides. Oh well, it worked somewhat!

Our board meetings have been very productive, I feel. We decided to add the financial statement as an insert in the December Newsletter so that members are informed about our financial standing. We have applied for funds to pay a summer student to collect all the natural history and environmental studies in Kings County and produce an annotated list. The student will also identify all hemlock stands in Kings County and, together with other agencies in Nova Scotia, develop a

protocol for tracking the spread of the Hemlock Woolly Adelgid, a pest that is now in the southwestern part of Nova Scotia. We have organized the process for getting the Newsletter out to members in a timely manner. We have decided on a budget for BNS, which will focus our activities.

We have already made a donation to the Young Naturalists, who are spearheading a new program called “Flying Squirrel Adventures: A Nature Group for all ages.” Monthly field trips will start out with a circle discussion by everyone—adults and kids. They will then have their separate walks/talks, but at the end everyone will come together and exchange what they have discovered. We feel this is an exciting, innovative program and should make for an interesting exchange.

Finally, on May 21 we will have a members night at the Wolfville Farmers Market at 7 pm. This will be a social where members can get to know each other better and where those interested can show a few of their favourite slides and talk about them.

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NOTICE

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## Nova Scotia Native Flora in Art

☞ Put May 18, 2018, on your calendar. Members of the Botanical Artists of Nova Scotia Association (BANSAs) will be taking part in a worldwide botanical art show.

Our regional show, Nova Scotia Native Flora in Art, will open May 18, 2018, 10 a.m. to 4 p.m. in the foyer of the KC Irving Environmental Sciences Centre. The show will be relocated to the Acadia Art Gallery annex the following day and will be on display until mid-June.

Nova Scotia Native Flora in Art is a regional show of the



Teaberry (*Gaultheria procumbens*), by Twila Robar-DeCoste



American Mountain Ash (*Sorbus decora*), by Elisabeth Hulshoff

work of BANSAs members. It will feature Nova Scotia indigenous plants in small-format works. It is part of a simultaneous worldwide art exhibition opening around the world on May 18. In this exhibition, initiated by the American Society of Botanical Artists, countries around the world are celebrating the Earth's precious plant diversity by creating shows featuring plants indigenous to their home regions.

Countries taking part are Australia, Bermuda, Brazil, Canada, Chile, China, Costa Rica, France, Germany, India, Italy, Ireland, Japan, Mexico, Netherlands, New Zealand, Russia, Scotland, Southern Africa, South Korea, Thailand, United Kingdom, and the United States.

*Art of the Plant* is Canada's contribution. This Canadian national show will officially open on May 22, 2018, at the Stone-wall Gallery in Ottawa's Canadian Museum of Nature (<https://artoftheplant.com>).

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CLUB NOTES

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## Upcoming Events

### Meetings

*Unless otherwise noted, all meetings are held at 7:30 p.m., usually on the third Monday of each month (note exception for December), 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 contact us at [info@blomidonnaturalists.ca](mailto:info@blomidonnaturalists.ca).*

MONDAY, MARCH 19, 2018—*Lady Botanical Artists*, with Twila Roabar-DeCoste.

MONDAY, APRIL 16, 2018—*Can Conserving Insects Provide Value to Agricultural Production?* Presenter: Paul Manning. Agricultural practices are known to harm the diversity and abundance of insects. Because insects provide many benefits to ecosystems, altering insect communities may affect the functions and services they support. Using dung beetles as a model system, this talk will explore how conserving insects can provide value to agricultural production.

Paul is an insect ecologist with broad interests in conservation and natural history. He is currently a postdoctoral research fellow at Dalhousie University.

MONDAY, MAY 21, 2018—*Members' Night at the Wolfville Farmers' Market*. Everyone is invited. If you would like to make a presentation, you are invited to show no more than five “slides” about which you are prepared to talk. You will have to provide the slides in digital format several days before the meeting so they can be preloaded on a computer. For those of you who would like to show slides, please e-mail me ([soren@bondrup.com](mailto:soren@bondrup.com)). Time: 6:30—9:30 p.m. at the Farmers' Market. There will be refreshments.

MONDAY, JUNE 18, 2018—*Hemlock Woolly Adelgid*, presented by Ron Neville (area survey biologist, Canadian Food Inspection Agency). The Hemlock Woolly Adelgid attacks Eastern Hemlock trees by feeding on the nutrient and water storage cells at the base of the trees' needles, killing them. The pests have spread throughout Nova Scotia since they were first detected here in mid-July 2017.

Ron has worked in various outbreaks, including Brown Spruce Longhorn Beetle and Hemlock Woolly Adelgid in Nova Scotia, and he has assisted colleagues with Emerald Ash Borer in Quebec and Ontario. Since 2006 he has worked as the area survey biologist in Atlantic Canada, where he coordinates plant surveys.

JULY AND AUGUST—*No meetings*

### Field trips and other nature events

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

SATURDAY, MARCH 24, 2018—*Valley Birding*. Leader: Patrick Kelly (902-494-3294(w), 902-472-2322(h), patrick.kelly@dal.ca). Meet at 9:00 a.m. at the Wolfville waterfront. We will be looking for nesting raptors (they like to get an early start), lingering winter visitors, and maybe some early arrivals. Our route will go from Grand Pré to Canning, ending at Miner's Marsh in Kentville. If you have never been to Miner's Marsh, this will be a good time to learn about this very active birding spot during the breeding season. Dress warmly and bring a lunch. Storm date: Sunday, March 25, 2018.

SATURDAY, MAY 5, 2018—*Citizen Science Expo*. After two years of absence, plans are in place to bring back the Citizen Science Expo. This was a very popular event hosted by BNS in the spring of 2015. The goal is to bring together citizen scientists to share projects, inspire others, and get people involved in citizen science in Nova Scotia. The expo is planned for Kentville. For more information please check the BNS website or social media pages. We're still looking for some folks to help organize; if this is something you're interested in helping with, please contact me (Ian Manning) by e-mail (ianmanning4@gmail.com) or phone (902-300-4328).

SATURDAY, MAY 12, 2018—*Nova Scotia Spring Migration 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:

*Local Coordinators:* Hants West, Patrick Kelly (patrick.kelly@dal.ca or 902-472-2322); Eastern Kings County, Larry Bogan (larry@bogan.ca or 902-678-0446); Western Kings / Annapolis County, Shiela Hulford (hulforde@eastlink.ca or 902-765-4023).

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/](http://blomidonnaturalists.ca/christmas-bird-counts-and-migratory-counts/nova-scotia-migration-count-kings-county-n-s/).

SUNDAY, MAY 13, 2018—*Cape Split Hike 1.* Make a trip to Cape Split with Patrick Kelly (patrick.kelly@dal.ca, 902-472-2322) and possibly other leaders. There will be interpretive stops along the way. Spring wildflowers and birds should be abundant. This walk requires good footwear, and people are reminded to stay away from the edge of the cliff. You should bring water with you and a lunch, as we usually do not get to the end of the trail until lunch time. Meet at the Wolfville waterfront at 8:15 a.m. or at the trailhead in Scots Bay at 9:00 a.m. We'll be back to the cars at about 3 p.m. No rain date for this trip. There will be a second trip on Sunday, May 20, independent of this one.

SUNDAY, MAY 20, 2018—*Cape Split Hike 2.* Make a trip to Cape Split with Patrick Kelly (patrick.kelly@dal.ca, 902-472-2322) and possibly other leaders. There will be interpretive stops along the way. Spring wildflowers and birds should be abundant. This walk requires good footwear, and people are reminded to stay away from the edge of the cliff. You should bring water with you and a lunch, as we usually do not get to the end of the trail until lunch time. Meet at the Wolfville waterfront at 8:15 a.m. or at the trailhead in Scots Bay at 9:00 a.m. No rain date.

SATURDAY, JUNE 2, 2018—*Kentville Ravine*. BNS president Soren Bondrup-Nielsen will lead this late-spring exploration of the ravine. Meet at the upper parking lot of the Kentville Ravine beside the shelter and outhouses at 10 a.m. We'll be finished by noon.

SATURDAY, JUNE 9, 2018—*Herbert River Trail*. Leader: Patrick Kelly (902-494-3294 (w), 902-472-2322 (h), patrick.kelly@dal.ca). This easy walk follows the rail bed of the former train line that ran from Windsor to Truro via Kennetcook. It runs along the Herbert River for a good part of its length. In addition to birds it is also a great walk for spotting floodplain vegetation. Meet at the Newport Rink parking lot at 9:00 am. Get there by taking Exit 5 from Highway 101 and follow Highway 14 east for about 10 km to the village of Brooklyn. At the cenotaph, keep left and follow Highway 14 north for just under 1 km. At the intersection (Petro-Canada station), Highway 14 turns right. Continue straight on Highway 215 (Note the YIELD sign. you do NOT have the right of way!) The rink is on the right as soon as you exit the intersection. Bring insect repellent. We should be done by lunch. No storm date for this trip.

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NATURAL HISTORY

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## Morels and Spring Fever

*by Ken Harrison*

✂ Like gardeners, mushroom hunters are quick to head outside whenever the warmer days of April and May began to arrive.

Every year, a serious morel hunting fever sweeps across the United States. It starts in early February in California and moves eastward into the south-central states in March and April, and then the north-central states by late April and early

May. Morel hunt events occur and attract hundreds of participants, with prizes for those who find the greatest number. The best book on this annual phenomenon is by Michael Kuo (1995).

This excitement does spill over to mushroom hunters in southern Ontario, but it rarely reaches as far east as Atlantic Canada. Unfortunately, the reason is simple, the highly prized true morels are rare in Nova Scotia and New Brunswick. A flush of morels may occur for a very brief time in May in one small area or on bark mulch under shrubs or trees, but it's a very local and rare phenomenon.

Morels are not only rare in our area, but they are hard to see in their natural habitat. They blend with the coloration of fallen leaves and seem to be as shy and difficult to see as a female Ring-necked Pheasant. In my experience, it all boils down to luck (being in the right place at the right time with very sharp eyes). As a beginner morel collector one May in Michigan, I had great difficulty seeing the shape and the tan or brown colour against the background of fallen leaves and debris until an expert collector pointed them out at my feet. He was at least 50 feet away from me at the time.

One of the many strengths of Michael Kuo's book on morels is that it illustrates and discusses both the prized true morels and their cousins, the false morels.

What is the difference?

False morels (various species of *Gyromitra*) are far more common in our region. Some years they appear in great quantities, and local people might assume that there is a dollar to be made by collecting them to dry.

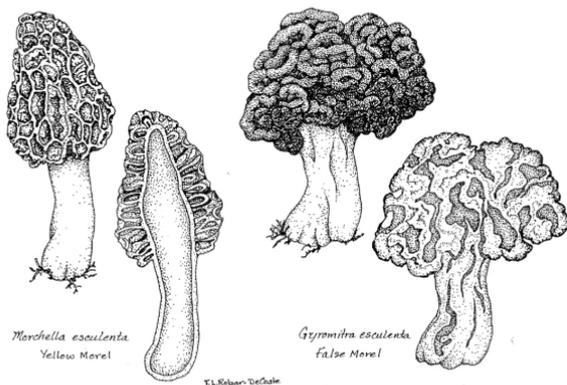
No one should ever eat a false morel. Raw false morels are especially dangerous. False morels do contain a toxin in varying amounts, and the risk of a serious poisoning event is very real and potentially tragic. The toxin, gyromitrin, is particularly tricky, and it took many years to determine how it worked.

Lincoff and Mitchel (1977) have an excellent description of

the apparently conflicting information that existed before the toxin was accurately identified and understood. The following is adapted and abridged from their chapter:

1. Parboiling the false morels and discarding the water seemed to render them harmless. (Was the toxin either destroyed by cooking or was it water-soluble and removed by boiling?)
2. On occasion the cook would become ill while cooking the mushrooms while those eating the cooked false morels would have no ill-effects. (Was this a superstition or a coincidence?)
3. Some individuals eating from the same dish of cooked false morels would become violently ill while others had no symptoms. (An “allergy” or “individual reaction”?)
4. An individual who had eaten false morels many times would suffer a severe poisoning. (Was this an acquired allergy or had a different toxic species been collected or had the batch been spoiled?)
5. Poisonings occurred in Europe and were 15–35% fatal, while poisonings in North America weren’t common and rarely fatal. (Were different species with different amounts of toxins present in European specimens or was it a case that Americans liked their false morels thoroughly cooked and Europeans tended to eat them raw or lightly cooked?)

The chemistry and structure of gyromitrin were clarified in 1967, and it was only synthesized in 1968. By coincidence, monomethylhydrazine was being used extensively as a liquid rocket fuel by the US Air Force in the 1950s and 1960s, and its toxicity to Air Force personnel was causing concern. The symptoms and injuries caused by monomethylhydrazine poisoning were found to be similar to poisonings by false morels. When gyromitrin is heated in the presence of water it breaks down into monomethylhydrazine and produces toxic vapours, so the mystery of the sickened cook was solved.



The amount of toxic gyromitrin in individual *Gyromitra* specimens is simply unknown. The most common *Gyromitra* in our region is *Gyromitra esculenta* and I know of no work that has been done to determine the amount of gyromitrin in individual specimens.

### How do I tell the difference between false and true morels?

True morels have a hollow stem, which becomes obvious when the specimen is cut from top to bottom through the stem. True morels have regular pits spaced neatly around the upper portion.

False morels have a very irregular folded and twisted top, which resembles the surface of a brain. The lower part of the stem may be hollow but the upper portion is so convoluted that it is impossible to make a neat cross section to show the interior of the folds.

See the illustration by Twila Robar-DeCoste (above).

### Symptoms of gyromitrin poisoning

The latent period between consumption and the first symptoms can be 6 to 12 hours. Nausea, vomiting, and diarrhea can

be combined with abdominal cramps. These symptoms are typical of liver and kidney damage. In severe cases, convulsions and coma can be followed by death.

In conclusion, false morels can be common in our area, but they should NEVER be eaten (either cooked or raw). They are simply too risky to consume.

#### SOURCES

Kuo, Michael. 2005. *Morels*. Ann Arbor: University of Michigan Press. 206 pp. Available at [www.press.umich.edu](http://www.press.umich.edu) for \$27.95 US

Lincoff, Gary, and D.H. Mitchel. 1977. *Toxic and Hallucinogenic Mushroom Poisoning*. New York: Van Nostrand Reinhold. Out of print.

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#### NATURAL HISTORY

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## Nature Notes from a Recent Arrival—Part 4

*by Howard Williams*

✂ I am writing this in mid-to-late February, when Mother Nature has started playing the Avian Concerto. Actually it is more like a J.S. Bach fugue because the many parts consisting of spring birdsong are initially heard in sequence, culminating in a counterpoint of strongly competing voices that never resolve into a coda. Indeed, ultimately the birdsong then shares similarities with the adagio of Haydn's Farewell Symphony, where the individual parts stop playing, some players leaving the venue and heading elsewhere, usually south. Does anybody keep records of when they first heard the "Hi sweetie" sung by the Black-capped Chickadee, or the raucous calling of the Northern Cardinal? It seems to me that the songs become more obvious and assertive as spring progresses. I suspect that if those

songs were words (git orf my patch; look at me, look at me; etc.), we would not always be as sympathetic to the message, and some might even find them verging on harassment.

On several really cold evenings this last winter I have noticed well-developed sun pillars and sun dogs representing reflected and refracted light from generally horizontally oriented ice crystals falling from high clouds. Nothing beats being aboard a ship on a slightly foggy day and seeing the shadow of one's head surrounded by a halo on the sea surface.

I have been keeping a log of heating and cooling degree-days this year, matching them to my electricity consumption. Even after accounting for occasional use of the dryer, I have noticed that there is a mild disparity between my daily power consumption and the corresponding heating degree day, probably because of the effect of wind in scavenging more heat from the house and also creating drafts of cold air through the fabric of the building. I am surprised that the calculation by Environment Canada does not take mean wind speed into account as they do for wind chill.

This winter I gathered half a dozen Christmas trees from my neighbours to use as temporary perching places and shelter for birds in the garden. Were they successful? Not really. We seem to live too far from mature trees and shrubs for birds to make the hazardous journey to our feeders. Red-tailed Hawks and the occasional Bald Eagle cruise over our rather sparse subdivision, and I suspect that most birds keep their head down and stay out of sight. This is one of the disadvantages of building a house in a subdivision where existing trees and shrubs are generally seen as a nuisance to the building process, and especially where levelling of ground is performed to assist in its drainage. In point of fact, had the land been left with its existing soil and topography it might well have drained more efficiently, not only because of the natural slope but for the fact that the ground had not been over-consolidated by an enormous bulldozer.

Let us say that spring is 50 to 100 days long. I hereby define

the term “centispring,” meaning those short periods of one to two days when the temperature rises well above freezing before diving down again. I have not lived here long enough in the Valley to know whether this February has been unusual. Annoyingly, the constant freeze/thaw process has lifted some of the small plants, put in last fall, above the surrounding ground level. Other than not planting in the fall or deep mulching, is there a solution to this problem?

On the last day of February, some of my neighbours were sitting out on their decks in the sun.

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NATURAL HISTORY

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## The Black Bear in Nova Scotia

*by Brittni Scott*

✂ Although most Nova Scotians have never seen a Black Bear, the Department of Natural Resources (DNR) has some data suggesting that, surprisingly, there are many bears in the province. Many are hunted and trapped, and nuisance complaints are on the rise. Despite this, our knowledge of Black Bears in Nova Scotia is scant. Thus, a study of Black Bears was initiated a couple of years ago by Soren Bondrup-Nielsen. I am now a part of this study as an MSc candidate in biology. The goal of my study is to investigate Black Bear ecology in Nova Scotia, with an emphasis on movement and distribution, using molecular genetic techniques.

Black Bears are solitary animals and prefer a variety of forested habitat. They were once ubiquitous across North America, but their range has shrunk dramatically in the United States. In Canada they are still present across the country except for the prairies. It was not many years ago that a Black Bear showed up in downtown Toronto.

Black Bears have an average weight of 40–70 kg for adult females by age 6, and 60–140 kg for adult males by age 12, but some males may exceed 250 kg. Black Bears may easily reach an age of 20 to 30 years. They are omnivores, feeding on vegetation, berries, mast, ants, carrion, and if they come across deer or moose fawns they will not hesitate to kill them and eat them.

It is popularly thought that bears hibernate, but this is incorrect. Hibernation is a physiological state in which an animal lowers its temperature to about 5° C. The metabolism, heart rate, and breathing rate of a hibernator slow dramatically, and it can appear dead. Woodchucks and chipmunks, for example, are true hibernators. Black Bears, on the other hand, will go into a state of torpor, in which they lower their temperature a few degrees and spend weeks sleeping, during the winter. To do this, they must put on a lot of fat to survive the winter. Thus, during the fall, Black Bears enter a state of hyperphagia, in which they forage excessively. The amount of fat a female accumulates in this stage is very important to her reproductive success.

Black Bear reproduction is rather interesting. Females come into heat in the early summer. After successful insemination, a few fertilized eggs develop into spherical structures of cells called the blastula and cease development at this stage. If the female mated with multiple males in the spring, these blastulas can have different paternities. Blastulas will float around in the fallopian tubes for months, with implantation generally not occurring until November. A female who develops good fat stores during hyperphagia increases the chance that all her blastulas will implant in the uterus. If she struggles putting on weight, chances are that only some, if any, of the blastulas will implant. Fetal development is then rapid, and the young are born in mid-to-late January. At birth the cubs weigh a mere 400 grams or so, but by nursing intensively they may weigh about 3 kg two to three months later when the mother bear emerges from her den and starts to feed. Young will stay with their mothers until about a year and a half of age, and thus females only reproduce every other year.

For some time DNR has mandated that bear trappers and hunters submit the first premolar tooth from harvested bears. By analyzing the growth rings of these teeth and knowing the sex of the animals (told to them by the hunters and trappers), DNR has been able to estimate the sex ratio and age structure of Black Bears in the province. In the past 25 years or so, between 300 and 1,000 bears have been harvested each year. Most hunters and trappers harvesting bears consume the meat, and if they sell the fur, most of it is shipped to England and possibly to other European countries with monarchies where the royal guards wear the traditional black fur hats called “bearskins.” Knowing the age of the harvested bears, DNR has also estimated the provincial bear population at between 5,000 and 10,000 animals.

Additionally, DNR has data on nuisance complaints, which appear to have increased over the years. Two women were charged by a Black Bear a couple of years ago, but this is a very rare event. There has never been a human fatality from Black Bears in Nova Scotia. Most complaints are about Black Bears getting into corn or blueberry fields, or eating garbage and compost near dwellings. Some counties in Nova Scotia experience more of these human–Black Bear conflicts than others. For instance, in Halifax County last year there were 400 complaints, while in Kings County there were only three. To effectively deal with so-called nuisance bears it is important to know something about their movement. For example, if bears move long distances, removing or killing a nuisance bear may not be very effective. A new bear will just move in and feed on the corn or blueberries or get into the garbage.

There is currently no management plan for the Black Bear in Nova Scotia. Implementing a successful management plan for a wildlife species can only result from having a deep understanding of the complex interactions between individuals of the species, their environment, and humans. In this way, the management strategy has the dual purpose of promoting both

the wellbeing of humans and the health and sustainability of the species.

Issues of key concern facing the Black Bears of Nova Scotia include human–Black Bear interactions and a good understanding of bear population structure and movement throughout mainland Nova Scotia, between the mainland and Cape Breton, and between Nova Scotia and New Brunswick. The goal of this study is to investigate these issues facing bears. Conclusions gathered from this study will support the development of an effective management plan for Nova Scotian Black Bears.

To investigate the root of human–Black Bear interactions in Nova Scotia, I will explore regional Black Bear density and sex ratios in both an area of high conflict and an area of low conflict. This will be done using a grid of hair snags in both Halifax County and Kings County. Hair snags consist of barbed-wire wrapped around a cluster of four or so trees, at a height of 30 to 40 cm above the ground. Within the tree cluster I choose a central tree to be scented with fennel oil and smeared banana. Hair-snag grids are in forested areas and cover an area of about 20 square kilometres, with approximately one hair snag per 1/4 km<sup>2</sup> (500 m by 500 m). When a bear comes to investigate the scent, a tuft of hairs is caught by the barbs as the animal goes under the wire.

Using microsatellite analysis, unique DNA fingerprints can be created for each bear that leaves a hair at the scent site. Microsatellites are regions of the DNA that have variable-length regions of repeating sequences of nucleotides, which do not code for genes. Using this method to identify individual Black Bears, mark–recapture techniques can be used to obtain a density estimate for Black Bears at the study site. The mark–recapture method has been used for over 100 years to estimate population size of a variety of animals. Animals are caught, given a mark, and then released into the population again. Animals are then caught again at a later time, and knowing how

many animals were originally marked and the ratio of marked to unmarked animals in the second capture, we can then estimate population size. When I check a hair-snag grid, the hair that I collect is used to determine the number of different bears, based on the unique microsatellite patterns of each bear. When I then check the grid again, I recapture some individuals and capture some new individuals. Thus, I know how many bears were sampled the first time, and I have the ratio of previously marked bears to new bears caught and can therefore estimate population size. Additionally, the sex of each individual Black Bear can be determined using molecular markers.

To estimate provincial bear movement, I use the bear teeth collected by DNR. When a tooth is extracted from a harvested bear some tissue adheres to the tooth. I scrape this tissue off and again use microsatellite data for analysis. Microsatellites of related individuals have greater similarity than do microsatellites of unrelated individuals. Thus, by analyzing the microsatellite similarity among all bears sampled across the province I can effectively determine how far individuals move within the province.

I expect that Black Bears from Cape Breton and mainland Nova Scotia are not closely related due to the Strait of Canso acting as a barrier to movement. If bears from southern New Brunswick and mainland Nova Scotia are not closely related, this will mean that the Tantramar Marsh serves as a barrier to movement. If Black Bears on mainland Nova Scotia show a high degree of relationship, this will indicate that bears move freely across the mainland with few barriers to dispersal. In that case local-level management strategies will not be very effective. On the other hand, if there is little connectivity between Black Bears in different regions of the province, this would indicate that the bears do not disperse great distances and that regional-scale management of Black Bears would be effective.

## What Is Biodiversity Anyway?

by Soren Bondrup-Nielsen

✚ Biodiversity is a term that most people have seen or heard of in papers, magazines, or speeches relating to humans' effect on the environment. It is a term, however, that is not well understood and is often used incorrectly. Resource extractive industries often argue that their management is good for biodiversity. Well, it depends on how you define biodiversity. Even more absurd, I remember reading a popular article in a newspaper purporting that the biodiversity of Toronto was now higher than it had ever been because of all the exotic pets and houseplants that people have in their homes.

Biodiversity is popularly thought to be the number of different species in an area. However, biodiversity is much more. It is the combined diversity of genetic variation within a population of a particular species in a given area, the number of different species within an area, the diversity of species living together within a landscape, and the diversity of landscapes over a large area. Thus, biodiversity is the combined diversity of all levels of biological organization.

The term biological diversity first appeared in 1968. It was compacted to biodiversity in 1985, but not until 1992, at the UN Earth Summit in Rio de Janeiro, was *biodiversity* officially adopted by the Biodiversity Convention, of which Canada was one of the first signatories.

So how do biodiversity considerations relate to resource extraction such as forestry? The biodiversity of a forested landscape is a function of topography, soil type, climate, past vegetation, time, and chance. Thus, forested landscapes tend to be highly diverse at all levels of organization, and they vary

through time. Forest stands may consist of a few species of trees or several species as well as shrubs and many other species of plants and animals. The trees of a particular species will have varying genetic makeup, which is good from the perspective of adaptation to changing conditions. Across a landscape there is a diversity of stand types, and across a region there will be a diversity of landscape types. The particular pattern of forests across a region is neither good nor bad; it is what it is. The species found in this diverse forested landscape have adapted to the specific conditions, and a certain harmony exists. But nature is not static; it's dynamic. Trees grow and die, and what was present at one time may be quite different—or the same—50, 100, or 200 years later.

When a forest is harvested by clearcutting, all the trees are removed, and the diverse habitats that existed for all kinds of wildlife are gone. The various animal species that lived there are either killed directly or face a slow death; they cannot just move elsewhere because elsewhere is already occupied. Clearcutting creates wildlife refuges.

After clearcutting, a process called succession starts to take place. Initially, alders, White Birch, poplars, Red Maple, and Balsam Fir, the fast-growing shade-intolerant species, may become established on the area, to be slowly replaced by Sugar Maple, ash, Yellow Birch, Red Spruce, and maybe hemlock, the slow-growing shade-tolerant species, depending on conditions. A myriad of organisms also become established in a certain sequence, depending on the habitat available. Early on there may indeed be more species in a young forest than there will be later in the older forest. This is a natural progression.

Industrial forestry, however, generally homogenates a landscape because with short-term rotation cycles forests are not allowed to get old. Thus, early succession species dominate the landscape, and late succession species are diminished. With few to no old-growth forests remaining, biodiversity across the landscape has been reduced.

The forestry industries often try to justify clearcutting by telling the public that they replant the area. However, generally only one or two conifer species are planted. These species are cloned (genetically identical), and thus biodiversity is reduced. Additionally, herbicide spraying follows planting, and this reduces diversity by killing all broadleaved trees and plants and has its own set of negative environmental effects.

Older ecosystems such as old-growth forests often have species that are unique—they exist almost exclusively as a result of slow growth or poor ability to disperse (move) to their preferred habitats. Certain species of lichens, fungi, and beetles are examples.

Commonly, when we think of wildlife and forestry we think of animals: that is, mammals and birds, and maybe reptiles, amphibians, and fish—the vertebrates—but not the insects, worms, lichens, mosses, and fungi. The organisms in forest ecosystems most significant in the process of nutrient cycling—the process that makes the forest system sustainable—are insects and fungi. Insects and fungi recycle the nutrients in the forest back into the soil. Unfortunately, these essential organisms are the ones we know the least about.

When we clearcut an area we disrupt biodiversity patterns unique to the area, with the result that the sustainable processes maintaining the area will be lost. If we have already impacted the biodiversity of an area by clearcutting there is no telling what climate change will bring.

Biodiversity should not be thought of as just the species present in an area. Rather, we have to think of biodiversity as the total variation in living organisms, animals and plants, across a large landscape. Natural processes tend to increase biodiversity, while human management tends to decrease it.

## Competitors

*with Roderick Haig-Brown*

*Roderick Haig-Brown (1908–76), though British born, lived for much of his adult life in Campbell River, BC, a forestry- and fishery-based town on the east coast of Vancouver Island. He was an ardent fly fisherman, the prime topic of many of his nearly 30 published books. At the heart of all his writing is a profound respect for nature, and he is known to this day as an important influence on the conservation ethic that pervades coastal British Columbia. The following is an excerpt from Fisherman's Spring, published in 1951.*

✂ Many years ago, on the urging of my grandfather, his keepers, my uncles, almost everyone who had an interest in fish, I used to pursue herons for hours on end across the Dorset water meadows. The herons were extremely wary and I hardly ever caught up with one. The chase was exciting because they were so difficult, and whenever I did manage to get within range I shot without reluctance. But I always felt sorry after I had killed one. They were such beautiful birds, especially on close sight, and I was never strongly convinced of their villainy. In spite of my best efforts, and the efforts of many others along those miles of stream, the herons always remained numerous and so did the trout. Undoubtedly the herons did damage, but I fancy it was rarely serious except when fish were trapped in the irrigation ditches. I have watched herons for many hours, mainly in Pacific Coast waters, since that time and have never seen them take anything but small fish. They prefer the shallow edges of lakes and salt water and the shallow eddies along streams and rivers. They are competent fishermen, patient, swift and accurate when the time comes to strike. Certainly they catch a

few small game fish, but they catch far larger numbers of coarse fish, such as bullheads, and much of their food is snakes and frogs. There is not the slightest doubt in my mind that they do much good and only negligible harm in all wild waters.

It would be possible to go down the list of warm-blooded creatures that prey on fish, analyzing the honestly observed habits of each and every one and finding the evil done far exceeded by the good, or at worst so closely balanced that the predator more than pays his way merely by being alive to be seen. It is important to remember that none of the relationships between predator and preyed upon is simple. The little bullhead of Pacific Coast streams, for instance, is a vicious predator. He is also excellent trout food. He is strongly controlled by the American mergansers, and to a lesser extent by herons. The mergansers are controlled by bald eagles and, in the pre-flight stages, by coons, mink and other creatures to such an extent that I watch brood after brood reduced from ten or twelve down to five or six before it is on the wing. In all this man can never be anything but an ignorant interloper, as likely to be working against his own best interests as for them. He had better be content to watch from the outside, except when some obvious overbalance (usually produced by some of his own interferences) needs righting. And the delicate matter of judging whether or not a certain state of balance calls for adjustment is best left to scientists.

Sportsmen who elect to assume responsibility for “controlling” predators seem to me enormously presumptuous. They are saying, in effect, that the natural world is theirs and all that’s in it. Because they want the grouse or the pheasant, the hawk or the owl must die; because they want the deer, the cougar must die; because they want the fish, the eagle must die, the merganser must die. Occasionally their needs match those of other people, of farmers perhaps and even naturalists; cougars have no place in the chicken run and crows can be too numerous around a slough where ducks are nesting. But too often

they are setting what they believe to be their own interests over those of people who have at least as much right in the natural world. Thousands of people who have never caught a fish or fired a shot find intense pleasure in watching wild creatures. Nearly all the creatures the hunter destroys are enormously satisfying to watch—geese, ducks, grouse, deer and bears, to name only a few of them. The hunter not only reduces their abundance, sometimes to the point of extinction, but he leaves the remainder wild and difficult to approach. When he adds to these offenses by killing off such birds as eagles and hawks and herons, which are spectacular delights to any sensitive traveler, he is extending his interference a long way.

Fortunately, the angler is only a minor offender in these respects. He is, almost by definition, a close observer, and the birds and mammals that follow the creeks and lakes to prey on fish are an integral part of his pleasure. It is obvious that even if he could, by killing them, increase the numbers of fish available to him he would only be reducing the total of his sport. So he can afford to forget guns and traps and go his way with peace in his heart towards all but the rare, rash trout or salmon that dare molest his fly.

NOTE: *Many of Haig-Brown's books are still available in both physical and online bookstores.*

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ENVIRONMENT

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## Responsible Birding in a Threatened World

*by Todd Watts, Bocabec, NB*

✂ For the birds: In the twenty-first century, we are aware of the innumerable threats to the planet. Climate change is begin-

ning to reshape the world, pesticides as well as other pollutants can be found in the most remote and seemingly pristine areas, habitat loss threatens countless species of flora and fauna, and human numbers continue to grow at alarming rates. Seabird populations have been reduced by approximately 70 percent since 1950, aerial insectivores losses are around 10 percent per year, and many once-common species are becoming increasingly uncommon, if not rare. With all this news, which is based on very solid peer-reviewed science, one would think that people as a whole, and certainly naturalists, would change their ways.

The well-educated naturalist/birder has many things to consider these days. Will our love for birds cause us to do more harm than good? If we drive countless miles in search of list birds, are we being hypocritical in demanding something be done about climate change? How far is too far to drive in a day? How close is too close when photographing birds? Is feeding birds okay? Will my use of playbacks be too disruptive? There are many questions we might ask ourselves or others.

Let's examine these issues one at a time.

- *Chasing birds*: This activity has a very heavy carbon footprint. Some birders travel immense distances just to add a single species to a list.
- *Photographing birds*: Nearly all of us have seen birders and photographers get too close to birds. Sometimes flushing a bird is due to a simple miscalculation. But sometimes it is not. Unethical behaviour is quite common with photographers getting too close to birds in an attempt to get a better shot. If a bird is flushed, it is likely time to back off or change one's approach. This is true for those of us with a camera or without.
- *Playbacks/mobbing calls*: Use of mobbing calls has become quite common in New Brunswick. Opinions on their use vary. Some claim they should never be used. Others feel that their use is generally okay outside of breeding season

or outside of popular birding areas. For most of us, it is a judgment call. However, there is no doubt that playbacks of any type can be disruptive during breeding season. Anyone using them around breeding birds should have a very good reason for their use (like taking part in an official study).

- *Feeding birds*: This activity is likely pretty benign in general. However, disease can be spread at feeders, and the production of bird food does have a footprint of its own. On an overpopulated planet, everything we do has potential to be harmful in some way.

So, what is a birder to do? One suggestion is to think about all of these things every time we leave our homes, start up our cars, or reach for our gadgets. We can enjoy nature without destroying it. The information gathered by amateur birders is extremely valuable. Many of us have taken part in backyard bird counts, breeding bird surveys, migration counts, and more. Some of us have discovered unknown bird populations, previously unknown concentration points, and, of course, numerous vagrants.

For me, I can't help but think about my footprint on the Earth whenever I plan a trip. That is why I am generally not seen at rare-bird stakeouts or out chasing individual birds. I find these activities to be way too consumptive. Instead, I tend to search for the interesting birds near my home. Or if I do venture far I try to spend significant periods of time there, pick up goods along the way, or fill my vehicle with other birders in an attempt to lower our collective footprint. In doing this I have missed out on seeing some rarities. However, I have found a fair number of my own and have made other discoveries of importance (such as hawk migration concentration points).

There are still many discoveries we can make. As the climate changes, unusual phenomena could become more common. Sea-ice is being reduced, allowing seabirds to cross from the Pacific to the Atlantic Basin. Storm strengths are increasing,

which will leave more displaced birds far from their normal ranges. Breeding and wintering ranges are moving north. There are so many things to discover and document.

It is my hope that all of us will be open to learning about the state of the world and how we contribute to it.

NOTE: *The original version of this article first appeared as a post to the NatureNB e-mail discussion list under the subject line The Ethical Birder, where it generated considerable attention, including on the NatureNS list; it is adapted here with the permission of the author.*

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ENVIRONMENT

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## Two Reviews

### World Scientists' Warning to Humanity

William J. Ripple, Christopher Wolf, Thomas M. Newsome, Mauro Galetti, Mohammed Alamgir, Eileen Crist, Mahmoud I. Mahmoud, William F. Laurance. "World Scientists' Warning to Humanity: A Second Notice." 15,364 scientist signatories from 184 countries. *BioScience*, Volume 67, Issue 12, 1 December 2017, pp. 1026–28, <https://academic.oup.com/bioscience/article/67/12/1026/4605229>

✚ Back in 1992, the Union of Concerned Scientists issued a warning to humanity, in the form of indicators, that called for a halt to environmental destruction. The indicators included ozone depletion, the availability of freshwater, forest loss, oceanic dead zones, biodiversity loss, population growth, and climate change. In the intervening period to the present, only ozone depletion has been addressed. All the other issues are worse, not better, than in 1992.

As a result, eight scientists have issued a second notice that has been endorsed by over 15,000 scientists worldwide. This new document, published in November 2017, is a catalogue of

referenced science showing the generally downward slope of all the indicators cited in the first notice. As you might expect, the general thrust of the notice is that environmental degradation has worsened since 1992, not improved. This is despite the general acknowledgement of environmental issues worldwide. It seems that most of the warnings associated with the first notice went unheeded. Words, rather than deeds, reflect the reaction to the first notice. The second notice ends with a large raft of positive steps that could be taken, from the top down, by politicians (e.g., reducing wage inequality, promoting green technologies, removing subsidies for fossil fuels), and from the bottom up, by the population at large (e.g., reducing food waste, moving toward vegetarianism, increasing outdoor education).

The second notice states, “Soon it will be too late to shift course away from our failing trajectory, and time is running out. We must recognize, in our day-to-day lives and in our governing institutions, that Earth with all its life is our only home.”

Please read this document (see the web link following the citation at the head of this article) and attempt to live up to its recommendations. Your children and grandchildren will thank you. REVIEWED BY HOWARD WILLIAMS

## Rain: A Natural and Cultural History

Cynthia Barnett. *Rain: A Natural and Cultural History* (New York: Crown Publishers, 2015). ISBN 9780804137096

☼ In Nova Scotia, as in many parts of the world, rain is often a topic of conversation. For something so vital to life, many of us think about it only in terms of having too little, or too much, of it. This book is a fascinating look at all aspects of rain, from how it is produced (or why it fails) to even something as subtle as the smell of rain, which depends on where you live. In the book you will visit some of the driest places on Earth and the

place on the planet that gets the most annual rainfall (and it is not in Nova Scotia even if it sometimes feel like it should be).

Rain arrives in many forms, and over the centuries there have been documented cases of red rain, black, inky rain, and rainstorms full of both fish and frogs. Luckily, the saying “raining cats and dogs” is not based on real occurrence! Rain has been the key to scenes in many famous movies, from Gene Kelly singing in the rain, to Spider-Man kissing in the rain (while hanging upside-down from a web, naturally). Writers have often used rain to set the mood for their books ... to the point where one book’s opening, “It was a dark and stormy night ...” is now a metaphor for poor writing. Even fashion has been changed by the rain, as inventors finally found ways to make clothes that were relatively waterproof and didn’t smell like a chemistry lab. Long before the computer, one such inventor, Charles Macintosh, made his last name synonymous with rainwear.

People have spend a lot of time trying to control the rain. The people who settled the western part of North America in the 1800s tried many desperate things to bring rains back as that half of the continent dried out. There is now an international treaty banning the use of weather as a weapon of war, which came out of those early attempts to change where the rains fall. If we couldn’t control the weather, at least we had better luck figuring out how to predict where the rain would fall, although even that is still not as reliable as many would hope. The development of weather offices and weather forecasts, which started in the United Kingdom and quickly spread around the world, made life better for most. I say most because when storm forecasts were introduced in England there was strenuous opposition to them from those people, especially in Cornwall, Devon, and Dorset, who made their living by salvaging shipwrecks, which were no longer occurring at their past rate.

Anyone with an interest in the weather will find this book

of to be a wonderful read, regardless of the weather currently outside, but it will likely be best appreciated while curled up on a dark and stormy night. REVIEWED BY PATRICK KELLY

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NATURE COUNTS

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## Wolfville Christmas Bird Counts 1987–2017: What Are the Trends?

*by Soren Bondrup-Nielsen*

✂ For years, birders have taken part in Christmas Bird Counts (CBC) across North America. As far as I can tell the Blomidon Naturalists Society has been the sponsor for the Wolfville CBC since 1987. Each year we receive a report of the current year's total count, but are there any trends over time? Historical CBC data are available for download from the Audubon Society website. Thus, I thought it would be interesting to analyze the 31 years of CBC data for Wolfville to determine if there are any trends over this period. The following is an attempt to summarize those 31 years.

The cumulative number of species seen over the 31 years is 160. Of these, 35 species are seen every year, and 28 have been seen only once.

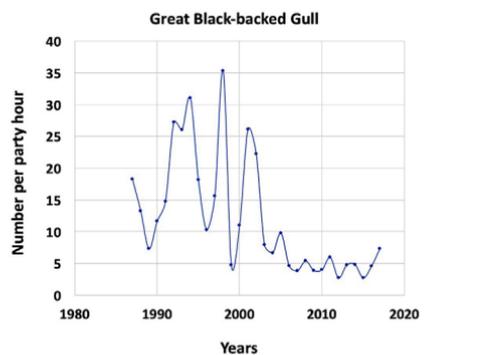
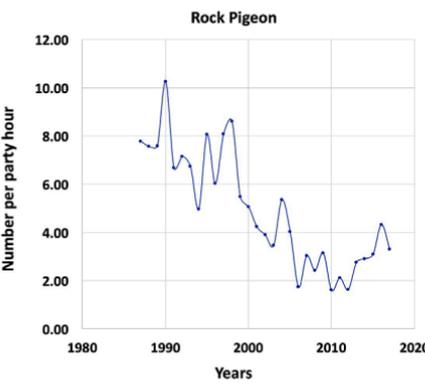
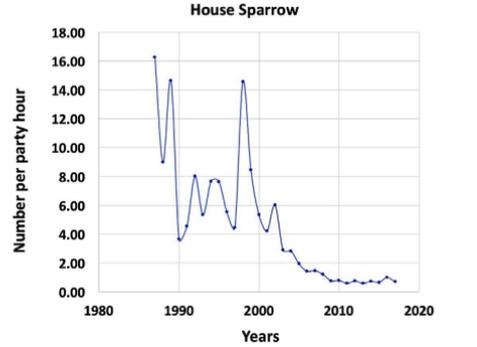
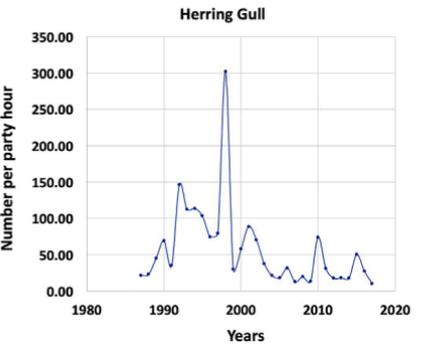
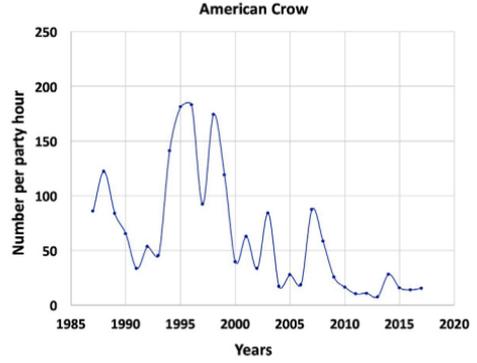
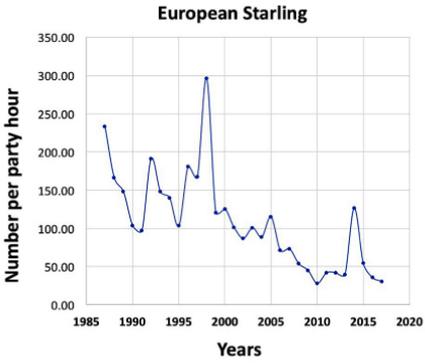
The total number of hours spent in the field by observers is likely to affect the number of individual birds seen. The total number of hours varies each year due to a number of factors, most likely the weather. In the following graph the total number of hours in the field has varied between 100 and 190 hours. The total number of hours of a particular count seems to have increased in the early years but then decreased and settled at between 130 and 160 hours. The analysis of abundance over the years has been adjusted for the number of hours spent in the

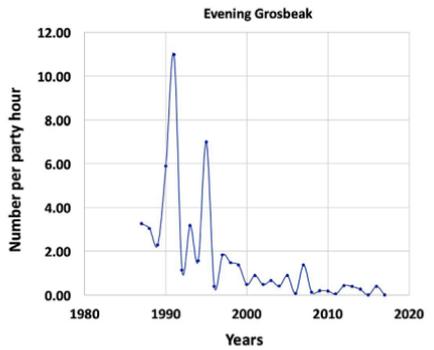
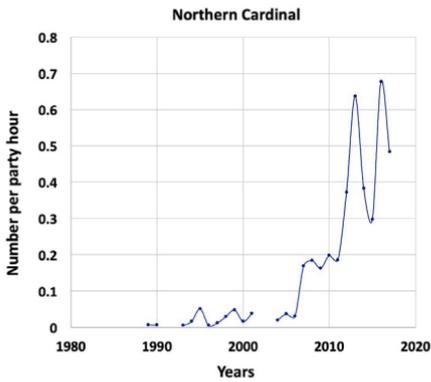
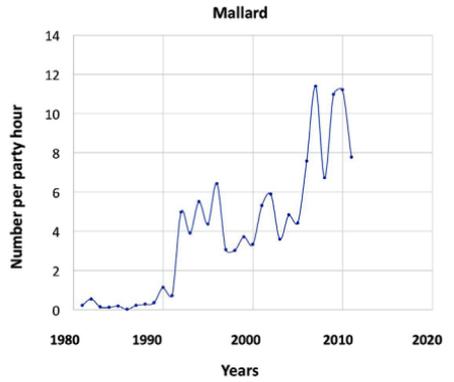
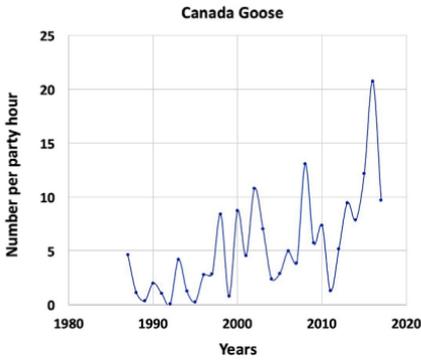
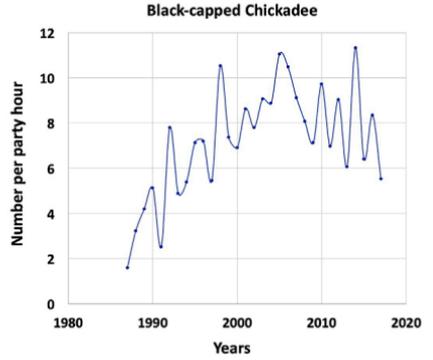
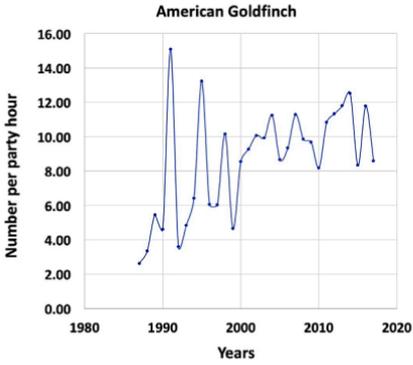


field. That is, abundance of a particular species is reported as number per party hour.

The total number of species counted each year has fluctuated between 61 and 86, with an average of about 73, and there is no trend over the years. However, the total number of birds seen per party hour seems to have decreased over the years. This decrease is still there when Starlings and Herring Gulls, which have decreased drastically over the period, are removed from the analysis.

It is interesting that 1998 had the highest total number of





birds counted but was also the year with the least time (100 hours) spent in the field. That year Starlings and Herring Gulls were especially numerous.

Starlings, Crows, and Herring Gulls are the three most abundant species each year, except for 2016, when there were more Canada Geese than Crows.

Starlings, Crows, Herring Gulls, House Sparrows, Rock Pigeons, and Great Black-backed Gulls have seen impressive declines over the years.

American Goldfinch, Black-capped Chickadee, Canada Goose, Mallard, and Northern Cardinal have increased over the years.

Evening Grosbeaks have never been abundant, but they have decreased dramatically.

All species seen over the years are listed in the following table, including total number seen, percentage of years seen, and trends.

✂ *A note on the following table:* Species seen on the Wolfville Christmas Bird Counts 1987 to 2017, arranged in order by percent of years seen and average number seen per hour for years when seen. *Trend* is interpreted as follows: a *number* indicates the average rate of change in percent between five-year periods; *rare*—seldom observed; *down*—few observed and decreasing; *sporadic*—varies from some to many during some years; *uncommon*—low numbers each year.

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
European Starling	108.17	100	-22
American Crow	62.93	100	-24

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
Herring Gull	57.14	100	-7
American Black Duck	12.55	100	1
Great Black-backed Gull	12.02	100	-18
American Goldfinch	8.62	100	13
Black-capped Chickadee	7.19	100	16
Mourning Dove	6.81	100	10
Dark-eyed Junco	6.46	100	2
Blue Jay	5.65	100	3
Canada Goose	5.41	100	43
Rock Pigeon	4.94	100	-25
House Sparrow	4.63	100	-47
Mallard	3.94	100	60
Common Raven	2.37	100	-4
Bald Eagle	1.86	100	16
Ring-necked Pheasant	1.51	100	-18
Song Sparrow	1.44	100	13
American Robin	1.19	100	26
American Tree Sparrow	1.08	100	-24
Horned Lark	1.00	100	-11
Red-tailed Hawk	0.86	100	-10
Downy Woodpecker	0.52	100	10
Golden-crowned Kinglet	0.50	100	-15
White-throated Sparrow	0.46	100	28
White-breasted Nuthatch	0.30	100	30
Red-breasted Nuthatch	0.28	100	-6
Hairy Woodpecker	0.28	100	15
Northern Flicker	0.24	100	33
Purple Finch	0.24	100	-8
Common Merganser	0.19	100	-10

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
Savannah Sparrow	0.14	100	-19
Sharp-shinned Hawk	0.06	100	-2
Northern Harrier	0.05	100	14
Ruffed Grouse	0.04	100	4
Ring-billed Gull	1.47	97	-34
Iceland Gull	0.08	97	56
Common Goldeneye	0.07	97	8
Rough-legged Hawk	0.05	97	-34
Brown Creeper	0.05	97	10
Pileated Woodpecker	0.04	97	6
Evening Grosbeak	1.74	94	-70
Merlin	0.02	94	-3
Pine Siskin	0.67	90	-16
Cedar Waxwing	0.47	84	38
White-winged Scoter	0.11	84	-29
Northern Cardinal	0.16	81	95
Chipping Sparrow	0.04	81	20
Barred Owl	0.02	81	-10
Snow Bunting	1.52	77	-26
Red-winged Blackbird	0.10	77	-12
Common Grackle	0.04	77	33
Northern Mockingbird	0.03	77	2
Swamp Sparrow	0.02	77	-36
Great Blue Heron (blue form)	0.02	77	-4
Pine Grosbeak	0.34	65	sporadic
Boreal Chickadee	0.10	65	down (?)
Brown-headed Cowbird	0.44	61	down
Peregrine Falcon	0.02	61	rare
Northern Goshawk	0.01	61	uncommon

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
Common Redpoll	3.39	58	sporadic
White-winged Crossbill	0.25	58	sporadic
Bohemian Waxwing	1.92	55	sporadic
Northern Shrike	0.01	55	consistent rare
Baltimore Oriole	0.01	52	consistent rare
Green-winged Teal	0.18	48	consistent sporadic
Common Eider	0.14	48	consistent sporadic
White-crowned Sparrow	0.01	48	consistent rare
Northern Pintail	0.03	45	consistent rare
Gray Jay	0.02	45	down (?)
Short-eared Owl	0.02	45	consistent rare
Great Horned Owl	0.01	45	consistent rare
Ruby-crowned Kinglet	0.01	42	rare
Surf Scoter	0.08	39	consistent sporadic
Pine Warbler	0.01	39	become consistent rare
Black Scoter	0.08	35	consistent sporadic
Hooded Merganser	0.06	35	consistent rare
Red-breasted Merganser	0.03	35	consistent rare
Red-throated Loon	0.02	35	consistent rare
Common Loon	0.02	35	consistent rare
Lesser Black-backed Gull	0.01	35	consistent rare
Common Yellowthroat	0.01	32	consistent rare
Red Crossbill	0.04	29	down
Long-tailed Duck	0.02	29	sporadic rare
American Wigeon	0.02	29	become consistent rare
Glaucous Gull	0.01	29	consistent rare
Yellow-breasted Chat	0.01	29	consistent rare
Lapland Longspur	0.13	26	sporadic rare
Red-bellied Woodpecker	0.02	26	rare

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
Belted Kingfisher	0.01	26	rare
Yellow-rumped Warbler	0.02	23	sporadic
American Kestrel	0.01	23	sporadic
Killdeer	0.01	19	rare
House Finch	0.01	19	rare
Palm Warbler	0.04	16	rare
Red-necked Grebe	0.01	16	rare
Fox Sparrow	0.01	16	rare
Rusty Blackbird	0.01	16	rare
Bufflehead	0.01	16	rare
Vesper Sparrow	0.01	16	rare
Orange-crowned Warbler	0.01	16	rare
Greater Scaup	0.02	13	rare
American Coot	0.01	13	rare
Wilson's Snipe	0.01	13	rare
Cooper's Hawk	0.01	13	rare
American Pipit	0.21	10	rare
Gray Partridge	0.08	10	rare
Sanderling	0.03	10	rare
Northern Shoveler	0.01	10	rare
Rose-breasted Grosbeak	0.01	10	rare
Black-backed Woodpecker	0.01	10	rare
Nelson's/Saltmarsh Sparrow	0.01	10	rare
Snowy Owl	0.01	10	rare
Dickcissel	0.01	10	rare
Black Guillemot	0.01	10	rare
Clay-colored Sparrow	0.01	10	rare
Dunlin	0.21	6	rare
Eastern Bluebird	0.02	6	rare

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
Lesser Scaup	0.01	6	rare
Hoary Redpoll	0.01	6	rare
Razorbill	0.01	6	rare
Spruce Grouse	0.01	6	rare
Osprey	0.01	6	rare
Wilson's Warbler	0.01	6	rare
Barrow's Goldeneye	0.01	6	rare
Eastern Towhee	0.01	6	rare
Eastern Phoebe	0.01	6	rare
Marsh Wren	0.01	6	rare
Hermit Thrush	0.01	6	rare
Dusky Flycatcher	0.01	6	rare
Turkey Vulture	0.01	6	rare
Northern Saw-whet Owl	0.01	6	rare
Alcid (sp.)	0.04	3	rare
Great Cormorant	0.03	3	rare
Bullock's Oriole	0.02	3	rare
Ring-necked Duck	0.01	3	rare
Horned Grebe	0.01	3	rare
Cape May Warbler	0.01	3	rare
Pacific/Winter Wren	0.01	3	rare
Dovekie	0.01	3	rare
Pied-billed Grebe	0.01	3	rare
Yellow-throated Warbler	0.01	3	rare
Le Conte's Sparrow	0.01	3	rare
Bonaparte's Gull	0.01	3	rare
Nashville Warbler	0.01	3	rare
Red-headed Woodpecker	0.01	3	rare
Eurasian Wigeon	0.01	3	rare

SPECIES	Average number seen per party hour (for years when seen)	% of years seen	Average rate of change between 5-year periods (%), or status
Ruddy Duck	0.01	3	rare
Gadwall	0.01	3	rare
Gray Catbird	0.01	3	rare
Broad-winged Hawk	0.01	3	rare
Carolina Wren	0.01	3	rare
Greater Yellowlegs	0.01	3	rare
Mute Swan	0.01	3	rare
Blue-winged Teal	0.01	3	rare
Black-crowned Night-Heron	0.01	3	rare
Black-headed Gull	0.01	3	rare
Brown Thrasher	0.01	3	rare
Lincoln's Sparrow	0.01	3	rare
House Wren	0.01	3	rare



RICHARD STERN

Common Raven (from Wolfville Xmas Bird Count 2017)

# Winter Weather 2017-18, Eastern Annapolis Valley

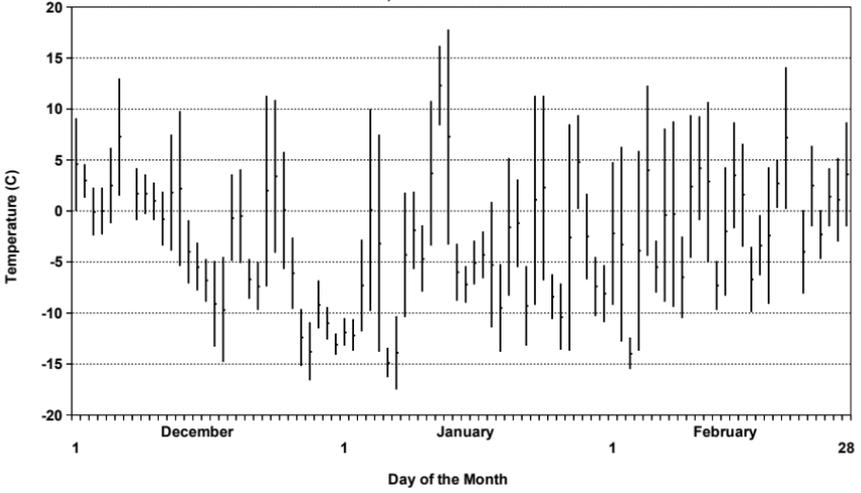
by Larry Bogan, Cambridge Station

	TEMPERATURE			PRECIPITATION
	Max (°C)	Min (°C)	Mean (°C)	Total (mm)
December 2017 (30 yr. average)	0.8 (1.5)	-6.3 (-6.1)	-2.9 (-2.3)	105 (122)
January 2018 (30 yr. average)	0.7 (-1.3)	-9.2 (-9.8)	-4.3 (-5.6)	111 (116)
February 2018 (30 yr. average)	4.3 (-0.5)	-6.3 (-9.2)	-1.0 (-4.9)	184 (101)
Season (30 yr. average)	1.9 (-1.1)	-7.3 (-8.3)	-2.8 (-4.2)	400 (339)

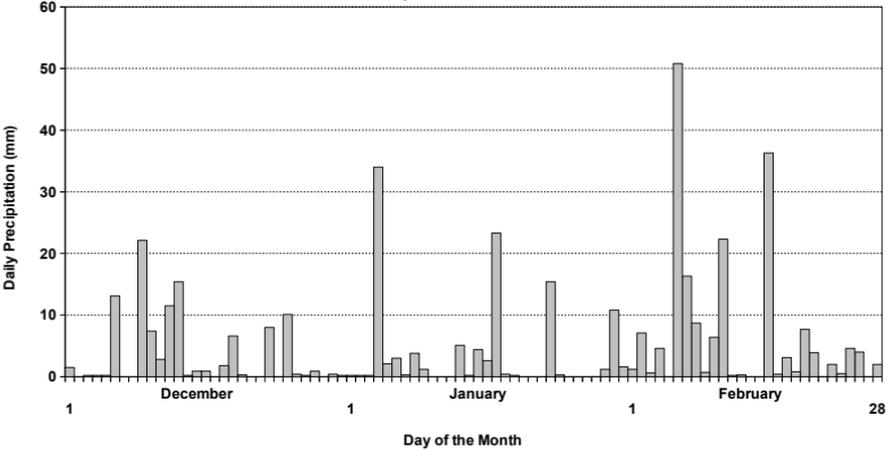
SOURCE: *Environment Canada data for Kentville, NS (<http://weatheroffice.gc.ca>).  
30-yr. averages: 1981-2010.*

Lately we have had mild weather, but remember the cold days we had in December and January. When winter started in December, the ground was dry and small ponds were empty, whereas now there is a lot of water lying around, and the streams are flowing briskly. This winter has been very changeable.

**Daily Temperatures - Kentville, Nova Scotia**  
**Dec 2017, Jan and Feb 2018**

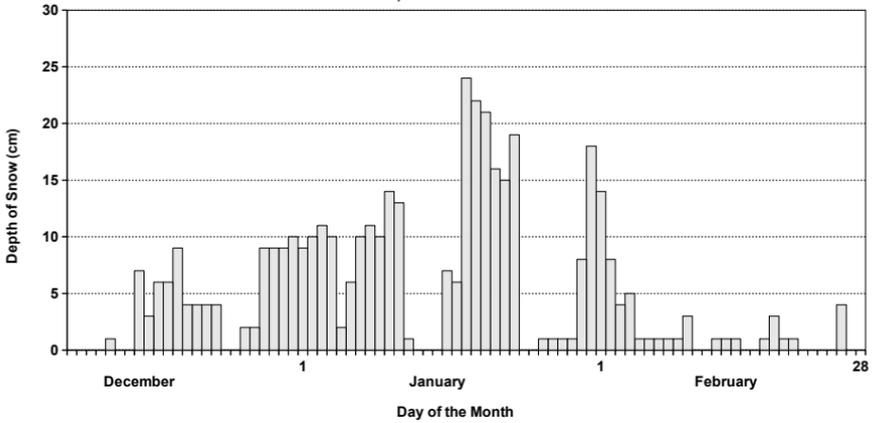


**Daily Precipitation, Kentville, N.S.**  
**Dec 2017, Jan and Feb 2018**



### Depth of Snow on the Ground, Kentville, N.S.

Dec 2017, Jan and Feb 2018



## Temperatures

The winter warmed as we progressed through it. December was 0.6° C colder than the 30-year average, while January was warmer by 1.3° and February was warmer by all of 3.9°. As a result the season was warmer by 1.4°. Looking at the chart of daily temperatures, you can see that in December there was a continual decrease in daily temperatures during the month, with a brief warming near Christmas. The temperature stayed cold in the first week of January but was interrupted by a few warm days. After the middle of January the temperatures were up and down right through to the end of February, caused by a continuing series of warm air flow up from the south. This caused the warmer weather of February.

## Precipitation

There never was a deep cover of snow on the ground this winter, and it was very intermittent (see the chart of depth of snow on the ground). In mid-January we briefly had over 20 cm, but that disappeared in a few days when temperatures warmed

well above freezing. The winds that accompany rapidly moving low pressure systems accelerated the melting. There was little snow and mostly rain in February. There was more than adequate moisture this winter, and it was spread throughout the season with the last month receiving slightly more than the earlier ones. December had slightly less than the normal for the month, whereas February had more than expected. In total, the season had 18 percent more precipitation than average.

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ASTRONOMY

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## What's in the Sky?

*by Patrick Kelly*

Highlights for April 2018 to June 2018

APRIL 2: Mars and Saturn 1.3° apart (a.m.)

APRIL 16: New Moon

APRIL 29: Mercury at greatest elongation west (a.m.)

APRIL 29: Full Moon (*Note:* For some events, such as Full Moons, the date shown is the date at which one will get the best view. For example, Full Moon officially occurs in the early morning of April 30 at 0:58 Universal Time, which would be on April 29 at 9:58 p.m. AST. Thus, I have used April 29, as most people expect a Full Moon in the evening sky on the date given.)

MAY 9: Jupiter at opposition

MAY 15: New Moon

MAY 21: Regulus 1.5° south of the Moon (p.m.)

MAY 28–29: Full Moon (*Note:* The Moon is full near midday, so you will see an almost-full Moon on both evenings.)

MAY 31: Saturn 1.6° from the Moon (p.m.)

JUNE 13: New Moon

JUNE 15–16 Large Tides (Moon at perigee June 14)

JUNE 21: Solstice, the first day of summer

JUNE 27: Saturn at opposition

JUNE 27: Full Moon (see note for April 29)

JUNE 28: Saturn  $1.8^\circ$  from Moon (a.m.)

## Planets and the Moon

**VENUS:** Venus will spend the spring and summer months slowly moving up into the evening sky while maintaining an almost constant brightness. During this period, only the Sun and the Moon will shine more brightly.

**EARTH:** Looking down while outdoors will yield a highly localized view of Earth.

**MARS:** Mars continues to slowly brighten in the morning sky. On April 2, Mars and Saturn appear to be only  $1.3^\circ$  apart. Mars will be the brighter of the two and appear with a red tint; Saturn is described by many as a very pale yellow. Looking at them with binoculars will make the colour more vivid. Unlike Mercury and Venus, these planets move more slowly relative to the background stars, especially Saturn, which takes about 30 years to circle the celestial sphere. Few indeed get to see it return to the same constellation three times. That also means that they will be almost as close for a few days on either side of April 2. You can actually see both planets rise together in the southeast around 3:00 a.m., but if you prefer to sleep at that time of morning, look for them in the southern sky at around 5:30 a.m. If you wait until 6:30 a.m. they will be very hard to see, as the Sun is about to rise.

**JUPITER:** Jupiter reaches opposition on May 9, so it is south

around midnight and in the night sky from dusk to dawn. When it gets this close to Earth it appears to be quite large. That is a relative term—you would still need about 35 Jupiters to cover the apparent diameter of the Full Moon. Despite that, even a small telescope can show lots of features on the planet, and it is also interesting to watch Jupiter's four large moons as they appear to move from one side to the other from night to night. If you don't see all four, there is no need to panic—as seen from Earth they will occasionally pass in front of or behind Jupiter. In the case of the former, a larger, good-quality telescope can be used to see the Moon. In the case of the latter, you have to wait for it to reappear from behind the planet.

**SATURN:** Saturn has moved into the early sky and will reach opposition in late June, when it will be in the evening sky all night. At that time, it will be highest in the sky around midnight and best for viewing. See Mars for the close approach of Mars and Saturn on April 2. On the evening of May 3, the almost-full Moon rises at 11:00 p.m., with Saturn just to its right. Saturn and the Moon meet again at 1:00 a.m. on the morning of June 28. This event is very close to midnight, so one could just as easily stay up past midnight on June 27.

**THE MOON:** On the evening of May 21, at 10:00 p.m., the Moon will appear very close to Regulus, the brightest star in Leo the Lion. (The Moon actually passed in front of Regulus on both March 28 and April 24, but those events were not visible from Nova Scotia.)

## SOURCES OF LOCAL NATURAL HISTORY

Amphibians & Reptiles	Sherman Bleakney	H: 902-542-3604
	Jim Wolford	H: 902-542-9204
Astronomy	Roy Bishop	H: 902-542-3992
	Sherman Williams	H: 902-542-5104
	Larry Bogan	H: 902-678-0446
Birds—General	Bernard Forsythe	H: 902-542-2427
	Richard Stern	O: 902-678-4742 H: 902-678-1975
	Gordon & Judy Tufts	H: 902-542-7800
	Jim Wolford	H: 902-542-9204
	Jean Timpa	H: 902-542-5678
Butterflies & Moths	Jean Timpa	H: 902-542-5678
	Devin Johnstone	H: 902-679-3611
Fish & Wildlife	NS Department of Natural Resources	O: 902-679-6091
Flora	Ruth Newell	O: 902-585-1355
		H: 902-542-2095
Fungi	Nancy Nickerson	H: 902-542-9332
Hawks & Owls	Bernard Forsythe	H: 902-542-2427
Indian Prehistory & Archeology	James Legge	H: 902-542-3530
Mosses & Ferns	Ruth Newell	O: 902-585-1355
		H: 902-542-2095
Mammals	TBA	
Rocks & Fossils	Geology Dept., Acadia University	O: 902-585-2201
Seashore & Marine Life	Sherman Bleakney	H: 902-542-3604
	Jim Wolford	H: 902-542-9204

# BLOMIDON NATURALISTS SOCIETY

## 2018 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

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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

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No.	Description	Price	Total
_____	Individual/ Family Membership	\$30.00	\$ _____
_____	Junior (under 16 years) Membership	FREE	\$ _____
_____	Nature Nova Scotia Membership	\$5.00	\$ _____
_____	2018 BNS Calendar	\$15.00	\$ _____
_____	<i>Natural History of Kings County</i>	\$15.00	\$ _____
_____	<i>Within the View of Blomidon</i>	\$15.00	\$ _____
_____	<i>Eagles of the Maritimes</i>	\$5.00	\$ _____
_____	<i>My Life with Trees</i>	\$25.00	\$ _____
_____	<i>Merging</i>	\$25.00	\$ _____
_____	Blomidon Naturalist hat	\$15.00	\$ _____
	Postage: (calendar \$2) (parcel \$6)		\$ _____
	Tax-deductible Donation		\$ _____
	(Registration number: 118811686RROO1)		
		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.





RICHARD STERN

Hairy Woodpecker (from Wolfville Xmas Bird Count 2017)