

BLOMIDON
NATURALISTS
SOCIETY



WINTER 2016 NEWSLETTER
Volume 43 · Number 4





A Panoramic photograph looking northeast across a clearcut near Black River Lake





ANDREW STEEVES

❧ 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.

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Patrick Kelly 902-472-2322

DIRECTORS

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Kody Crowell 902-402-7520

Ken Harrison 902-678-1424

Nick Hill

Ian Manning 902-300-4328

Marina Myra 902-538-1654

Shelley Porter 902-300-7093

Jean Timpa 902-542-5678

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BNS NEWSLETTER

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EDITORIAL BOARD

Chair: Shelley Porter (902-300-7093, blomidonrose17@gmail.com)

Committee: George Alliston,

Rachel Cooper

Production: Doug Linzey, Gary

Dunfield, Andrew Steeves

Distribution: Ed Sulis, Mary Anne Sulis

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BLOMIDON NATURALISTS SOCIETY
members are encouraged to share unusu-
al 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:
February 28, 2017

EDITORIAL:

IT TAKES A VILLAGE TO RAISE A WATERSHED

BY SHELLEY PORTER

Driving down the Valley from New Minas to Aylesford in the early summer, I noticed a plume of smoke. Drawing closer, I realized it was not smoke – it was dust. A tractor was hauling a baler through a field, raising a huge plume of topsoil that drifted away on the wind. The dried-out fields, unable to hold mass and nutrients with moisture, yielded them up to be scattered to the four directions. This past summer was the driest in 40 or more years, and water was on everyone’s mind.

Watershed maps look like networks of veins, and some comparisons can be made with circulation in the body. Changes in your watershed (and no matter where you stand on Earth, you are in a watershed) can be like changes in your blood pressure: slow, incremental, and unobtrusive. They can sneak up on you and reveal themselves in a sudden, catastrophic event, like a stroke ... or a dry well. But unlike the human circulatory system, there isn’t a central pump sending water out to all parts of the watershed. Water is pulled by gravity to sea level, carrying everything it picks up (or has tossed or drained or pumped into it), and depositing it ultimately in an ocean. Choices made by those upstream – to dump sewage into a brook, to allow unchecked erosion along a riverside field, or to drain a wetland – can have profound effects on those downstream. Watersheds are also called “drainage basins,” and it seems sometimes we take that a bit too literally and use the watery ecosystems of stream and river as just that: drains.

The Annapolis Valley is affected and sustained by rivers of five watersheds: the Canard, Pereaux, Habitant, Annapolis, and Cornwallis. Agriculture is the largest industry consumer of water in Canada, and agriculture is the biggest industry in the Valley. You would think we would be acutely aware of the quality, quantity, and distribution

of water. With clean, fresh water so essential to our livelihoods, we should be informed and vigilant stewards of this critical natural resource.

The history of European settlement and agricultural development in the Valley is one of profound alteration of natural aquatic systems. Dykes built (they don't just alter the movement of salt water; they alter the flow of fresh water, too), wetlands drained, streams moved or buried, rivers dammed. And it's not just the physical location and dynamics of water that have been changed: inputs from human activity affect water chemistry and the biology of streams, lakes, wetlands, and rivers. We tend to ignore water until there is too much of it – in a flood – or not enough of it – during a drought.

You're living in a watershed. What do you know about it? How do your daily activities affect it? What can you do to help it remain healthy, or restore it to health? Who is managing it? How are you managing it? The choices we make about how we dispose of waste, alter our landscape, and vote for managers all add up to management, whether intended or not.

I have a good friend who is a hydrogeologist, and one of his favourite admonitions to citizens and leaders alike is "You can't manage what you don't understand." Our first duty is awareness. Fortunately, awareness is not hard to get. Models of good watershed stewardship are readily available, with several organizations in Nova Scotia well established as watershed-monitoring and remediation leaders. The Clean Annapolis River Project and the Jijuktu'kwejk Watershed Alliance are local examples.

The Province of Nova Scotia recently [2014] published a watershed assessment atlas, which can be accessed online (earthsciences.dal.ca/www/PDFs/Final_Atlas_Mar_20_2014.pdf). The authors of this report evaluated and ranked 295 watersheds, using variables such as erosion, land use practices, and water quality. This assessment helps governments and researchers make decisions about where to focus monitoring, remediation, and other management efforts. Check it out, and consider the state of your ecological circulatory system.

This issue of the BNS Newsletter contains information about

myriad species and characteristics of the watersheds we inhabit, from ancient humans to new crops. I hope it inspires you to get to know your own watershed and to make informed management decisions about its stewardship.

— Club Notes —

BOARD OF DIRECTORS REPORT

BY KENT WILLIAMS, BNS PRESIDENT

One night I went for a walk by the sea along the empty shore. It was not gay, but neither was it sad – it was – beautiful. The deep blue sky was flecked with clouds of blue deeper than the fundamental blue of intense cobalt, and others of clearer blue, like the blue whiteness of the Milky Way. In the blue depth the stars were sparkling, greenish, yellow, white, pink, more brilliant, more sparkling gemlike than at home – even in Paris: opals you might call them, emeralds, lapis lazuli, rubies, sapphires. The sea was very ultramarine – the shore a sort of violet and faint russet as I saw it, and on the dunes some bushes Prussian blue. —VINCENT VAN GOGH

You only need to listen and feel the words van Gogh wrote to his brother in 1888 – as he described a stroll along the sea and his experience of wonder, awe, and enchantment – to understand how nature captures our imagination and opens up the once invisible. I often feel this on my walks: how there seems to be a process of letting go of the day’s busyness, where I am able to be present to what is happening around me – the singing of birds, the golden light reflecting on the winter grass in the field, the smell of pine trees, or the cool breeze brushing against my face. These experiences, these openings experienced in nature, remind me that we are sentient beings. It makes me believe moments in nature enable our creative selves to imagine more fully – just like I’m sure it influenced van Gogh’s masterpieces. It leaves me to ask, What latent potential lies waiting for humankind, if more of us could spend time connecting to moments of wonder, awe, and enchantment in nature?

There is emerging research that suggests wonder, awe, and enchantment enable prosocial behaviour. I say we need more of

this behaviour in our world! Yet the trend is that more people are gravitating toward an urban life: over 50 percent of the population – and growing.

Another thing that leaves me in awe is the passing of another calendar year. Yes, here we are in 2017, with another edition of the BNS calendar. Considering this, I want to acknowledge the calendar committee. Another brilliant calendar! Roy Bishop and my dear father, Sherman Williams, have played an integral part for 20 years in producing the BNS calendar, allowing us to support many educational initiatives, including the annual Acadia student bursary. Roy and Sherman have decided to step away and make way for new members to take on this important project. I believe I speak for all members of the society when I extend deep gratitude and appreciation for their fine efforts over the years – truly amazing work. Not to worry though: they have mentored Patrick Kelly and had help from members, like Barry Yoell, in recent editions. So yes, there will be a 2018 edition. If you are interested in getting involved with the calendar project, feel free to connect with Pat.

As we head into 2017, it needs to be noted that the education programs of 2016 have been brilliant, and again I am left amazed at the quality of the expert speakers we have in the area and how fortunate we are to experience the great stories from the field, along with the field trips that are available to our members. Thank you to our past education coordinator, James Churchill, for his commitment to organizing most the events in 2016. Already, 2017 is shaping up to provide outstanding talks for BNS members and the public.

I want to thank the newly elected board of directors for 2017 – a lot of the same faces, with the exception of Nick Hill. Welcome, Nick. Your BNS board members for 2017 are John Owen, Ken Harrison, Ian Manning, Jean Timpa, Kody Crowell, Shelley Porter, Ed Sulis, Jean Gibson Collins, George Alliston, Nick Hill, and me as president for one more term. Thank you to the board for taking an active volunteer role, with many hours of your valuable time through the year, as this is the engine that keeps us thriving.

In ending, I wish all of our members and those non-members who enjoy reading our Newsletter a Happy New Year 2017. See you out in the woods, along the dyke fields, or enjoying one of many valuable talks, being captured by the wonder, awe, and enchantment to imagine a new desired future.

— Club Notes —

UPCOMING EVENTS

Meetings

Unless otherwise noted, all meetings are held at 7:30 p.m., usually on the third Monday of each month (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.

MONDAY, JANUARY 16, 2017 – BNS-sponsored Fun and Nature Education for Kids in the Kentville Ravine (a report on 2016 Kentville summer day-camps), by Marina Myra (Acadia BEd student and Wild Roots Nature Education Centre leader) & Emily Le Grand (leadership mentor at Municipality of the County of Kings), and *Citizen Science*, by James Churchill.

MONDAY, FEBRUARY 20, 2017 – *Animal Health and Wildlife Conservation*, with Dr. Ted Leighton.

MONDAY, MARCH 20, 2017 – *Blomidon Naturalists Society Pecha Kucha Night*, with students and BNS members.

MONDAY, APRIL 17, 2017 – TBA, with Bob Bancroft.

Field Trips and Other Nature Events

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

SATURDAY, DECEMBER 17, 2016 – *Wolfville 2016 Christmas Bird Count*. This year's count will take place under the leadership of Alison Bogan. Contact Alison if you'd like to participate (902-678-0446, alison@bogan.ca).

FRIDAY, DECEMBER 23, 2016 – *Kingston 2016 Christmas Bird Count*. Leader: Wayne Neily. This will be the 49th annual Kingston Christmas Bird Count. As usual, we are looking for more keen birders to help get the best coverage possible of our circle, which includes everything from Lower Middleton to East Aylesford in the Valley, and from Margaretsville to Nicholville and Torbrook.

You can help either as a field observer or, if you live within the circle, as a feeder observer. Feeders strongly affect the winter distribution of many species here, so especially if yours are not visible from the road, your observations can be important, even if only for an hour or two during count day. Please contact me (neilyornis@hotmail.com, 902-765-2455) if you want to observe, so that your site can be mapped and the field party covering that area can be alerted so that we do not get duplication of counts.

Another way that you can contribute to this citizen science initiative is to let me know of any uncommon birds frequenting your area, or even seen only once, during this month. If you do not know the birds well, this is a good chance to learn more about them. For something new to you, or for which you are uncertain of the identity, note a description of it, or try to get a photo.

Enjoy the season, and take part in the world's longest-running and most extensive wildlife survey!

MONDAY, JANUARY 2, 2017 – *West Hants Christmas Bird Count*. Patrick Kelly (902-472-2322, patrick.kelly@dal.ca) will be compiling the count again this year. All are welcome to participate, but please

contact Patrick as soon as possible so that you can be included in the planning. Following the count, around 5 p.m., all participants are invited to a tally count and potluck supper at 159 Town Road, Falmouth.

FRIDAY, JANUARY 27, 2017 – *Winter on Snowshoes*, with Soren Bondrup-Nielsen.

For years I have been conducting winter field trips on snowshoes for the Blomidon Naturalists Society. These field trips have generally been some time in February, when there is a high probability for ideal conditions – below freezing, lots of snow, and a sunny day. The last few years the conditions have been ideal.

My favourite two spots to take people are the old Wolfville Reservoir at the end of Forest Hill Road and along the south side of the Gaspereau River. There are generally lots of animal tracks to identify. In the two or so hours that we are out we never get very far: there is much to talk about and there are lots of questions.

The fascinating thing about snowshoeing is that a world otherwise invisible reveals itself to us. The exploits of animals become apparent as tracks in the snow tell their stories. Although it may not be obvious what animal left the track, each species has its unique track pattern. But in loose snow the tracks are not distinct. Blowing snow may have collected in the track and obliterated some of the identifying characteristics. The track may have changed somewhat, especially if the Sun was shining and partly melted the snow. The best way to identify it is to follow it, consider the size of the track, the spacing, and ideally find extra clues as to who made it.

Squirrels often hop across the snow from the base of one tree to another. Mice generally emerge from the snow at the base of some structure, like a stump or bush, and scurry across the snow to disappear down another hole. They spend most of the time under the snow in what is called the sub-nivean space, where there is food and they are protected from the cold and predators. Coyotes often travel long distances, and one has to follow the tracks to tell what they are up to.

Grouse will often dive into the snow in the evening, if it is deep enough, and make a snow cave where they can spend the night insulated from the cold. I have come snowshoeing through the bush and suddenly had a grouse explode out of the snow just in front of me. Snowshoe Hare will hop along, maybe from a spot under some protecting scrub in search of some willow saplings that they will browse on.

It is not unusual to come across tracks of deer. If you follow them in the direction from which they came you may discover where they were bedded down for the night – in a protected area, often with evergreen trees. Their coat is heavy enough to insulate them from the cold, but they do melt some of the snow where they bed down.

If you walk along a stream or river you may see mink tracks coming out of open water and then see the tracks disappear into open water again. They enter the stream or river to look for food such as fish or clams. Last February we were lucky to find the tracks of a flying squirrel, most likely the Southern Flying Squirrel, which is known to have a disjunct distribution with individuals in Kejimikujik National Park and in the forest along the Gaspereau River.

Getting out in winter on snowshoes, there is no telling what you might discover. Not only is it exciting to follow tracks of animals in winter and interpret the stories, the scenery in winter can be so beautiful with a carpet of snow draping the landscape. To really appreciate the beauty of winter and the animals that came before you, though, it is important to dress properly. Standing around looking at the tracks we encounter makes you realize the importance of dressing right.

JANUARY 28 & FEBRUARY 4, 2017 – *Eagle Watch*, in Sheffield Mills. This annual outing, a favourite with photographers, is part of a fundraiser for the Sheffield Mills Community Hall.

FEBRUARY 25, 2017 – *Orchid Show*, at the KC Irving Environmental Science Centre, Acadia University.

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
- 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/.

**TRIBUTE: JACK MCMASTER,
ILLUSTRATOR & NATURALIST**

BY ANDREW STEEVES

When I took on the design and printing of the Blomidon Naturalists Society Newsletter in 2008, I was quick to enlist the help of my friend and frequent collaborator Jack McMaster. As well as designing a number of typographic ornaments for use in the publication, Jack regularly contributed illustrations. His wonderful renderings of birds, animals, and plants have enlivened the publication and delighted its readers. Jack died of cancer this past September. I wrote and published the following text to mark his passing at our Wayzgoose and open house this past October, and I thought it would also be of interest to the readers of this publication.

Sometime around 2003 I got a telephone call from a man who introduced himself as Jack McMaster, a freelance designer and illustrator living in Lonsdale, Ontario. In his soft, rich voice he explained that he and his wife Mary Jane had made an offer on a house in nearby Wolfville. They planned to relocate to Nova Scotia once their daughter entered university in the region. In the meantime, they had subscribed to our weekly newspaper in order to familiarize themselves with their soon-to-be new community, and through its pages they had encountered stories about Gaspereau Press. (It still tickles me that we met because of the newspaper.) What was most memorable about our conversation was that Jack mentioned that the studio in the new house was to be in the third floor attic. Would I consider lodging his 1833 Albion iron press in my shop? I said that I thought we could work something out, an answer that launched our decade-long friendship and creative collaboration.

Jack was a quietly proud person, not one to flash his credentials; he liked his privacy, avoided crowds. I think I adopted Jack for the same reason he adopted me, which was that we valued and enjoyed many of the same things. Over time, I pieced together his story. Jack



was born in Edmonton on June 17, 1943. He entered the Alberta College of Art in 1964 and completed a degree. After he married M.J. in 1968, they moved to New York City, where Jack had been admitted to the famed School of the Visual Arts. His studies barely underway, he dropped out of the program when the legendary designer Lou Dorfsman offered him a job at the Columbia Broadcasting System (CBS). Incredibly, the school still granted the dropout his credentials; they admitted that landing a job with Dorfsman was as good as



completing the coursework. His time at CBS was brief (from November 1970 to August 1971), as the McMasters did not adjust to life in New York City and decided to return to Canada after experiencing a frightening burglary.

Armed with reference letters from Dorfsman, Jack looked for a job in Toronto. He landed one on the design team at the recently opened Ontario Science Centre, where he would stay until 1978. From there, Jack embarked upon a successful career as a freelance illustrator and designer, working from his home studio in the rural community of Lonsdale, Ontario. The move to freelance also allowed Jack to pursue his own fine-art projects and to take an active role in raising their children, Evan and Mattie.

After moving to Wolfville, Jack wasn't long getting involved with Gaspereau Press, which had just relocated to its present 47 Church Avenue premises. The range of illustration and lettering Jack executed for the press was impressive. From the complex pochoir stencil work he did for a letterpress project to multicoloured book jacket illustrations, Jack was always game for a challenge. In art directing Jack, I was struck by his good humour and openness, his commitment to collaboration. Press-side, the delight he took in experiment – in discovering that the physical execution of an idea had strayed fruitfully away from the original intent – was a playful contrast to his usual perfectionist tendencies. (I liked nothing better than inking

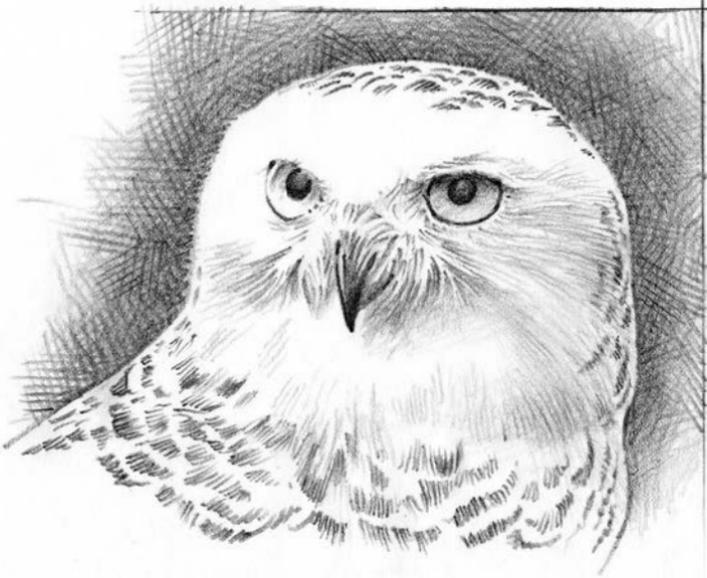


up and printing a test form and hearing Jack emit an amused Ohh!, a bushy eyebrow cocked, when I handed him the test sheet.)

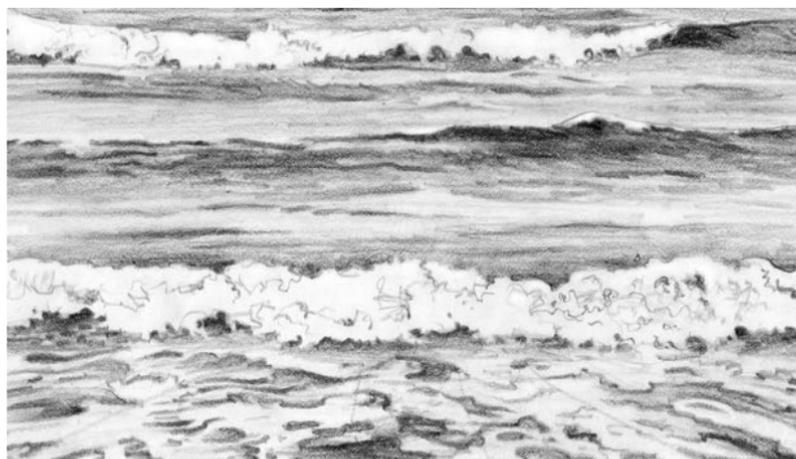
Jack had many skills, but I think that he was strongest with a pen or a brush in his hand, making letters; this was where his execution was most fluid and free. If you left Jack alone, he could sometimes “flatten out” an illustration with excessive precision; he excelled when needled into uncertain territory. Many of his best illustrations had calligraphic attributes or retained the immediacy of a sketch.

Jack’s Albion printing press became a sort of mascot in our shop. As well as using it to print his annual Christmas cards, Jack delighted in seeing it used by wood engravers like Wesley Bates and George Walker at our annual Wayzgoose, and with my demonstrating it to students of all ages. Jack never lost his passion for teaching through hands-on experience, a notion he retained from his time at the Ontario Science Centre. He was a great encouragement to everyone here at the shop, and was particularly generous to my youngest son, Joseph, often bringing him into the shop for an afternoon of puttering with one printing project or another. It tickled me to see them working together, learning from each other.

Sometime in 2015 it became clear that Jack’s tussle with cancer was escalating, and that he was dying. He neither dwelled on nor denied the truth of what was coming. We kept going, working on projects as long as he could physically manage it, completing a com-



A sample of the many illustrations Jack McMaster made for the BNS Newsletter



plex four-colour, letterpress-printed illustration for the jacket of the book arts journal *Parenthesis* 31 in July 2016. This would be our final collaboration.

Jack McMaster died at home early in the morning of September 24, 2016. Three days earlier, still lucid but struggling to speak, Jack had asked our mutual friend Dave McNeil to install a handrail so that he could get himself down the hallway to the living room. We knew it was unlikely that Jack would go anywhere under his own steam again, but Dave agreed to undertake the hopeful gesture. Jack, grinning, deadpanned “no hurry” – a defiant flourish of his humour.

One Saturday, while sitting in Jack’s kitchen discussing craftsmanship, I commented that life was too short to be drinking coffee from indifferent, mass-produced mugs. The next Monday morning, I arrived at the printshop to discover that Jack had selected a fine hand-crafted ceramic mug from his own kitchen and spirited it onto my desk. That’s the kind of man Jack was. It has been a great privilege to know and work with a man like Jack McMaster.

— *Natural History* —

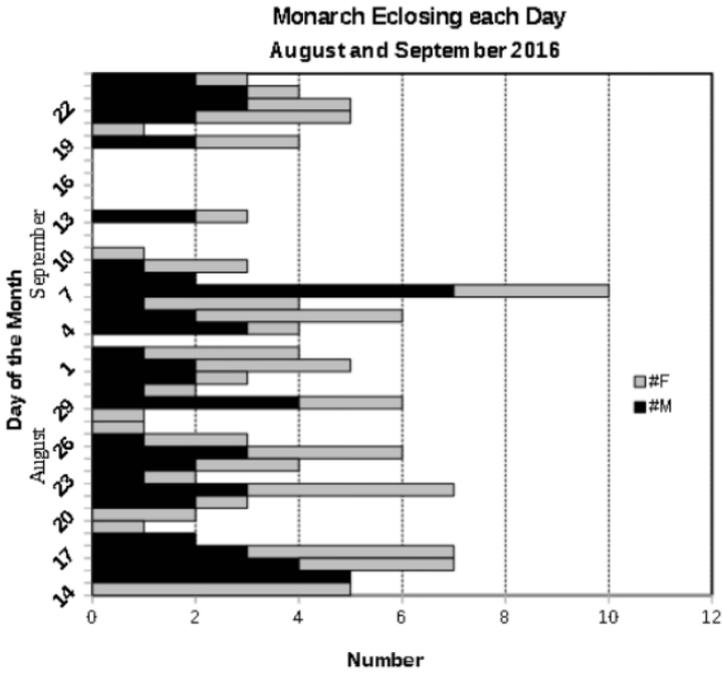
MONARCH UPDATE – 2016

BY LARRY BOGAN

The Brooklyn Street Milkweed Patch

For raising Monarch butterflies, this year was our most successful yet. “Mothering” eggs, larvae, and adults kept Alison and me busy from July 13 through September 24, when we released the last of 131 Monarchs. It takes approximately a month for the Monarch to grow from egg to adult, so the first adult was released on August 14. As in 2015, we tagged 50 of the adults to identify them when they reach Mexico, where they roost for the winter. Last year we raised 75 Monarchs, and we thought that was a good number .

The accompanying chart shows release dates and numbers for both sexes of the Monarchs. There were equal numbers of males



and females. Additional Monarch larvae were living in our field of Common Milkweed, and we continued to see fresh adults the rest of September, the last one leaving on October 1. We estimate that about 40–50 additional wild Monarchs flew out of the field.

The Monarchs released after September 13 are from the second generation in Nova Scotia. We saw young male and female Monarchs from the field coupled in mid-August, which resulted in a new series of egg laying on milkweed plants. By this time the original female Monarchs were ragged and had finished laying. We collected those eggs, raised them, and released the adults.

Monarch Raising and Outreach in Annapolis Royal

Lisa Proulx, at Lake LaRose near Annapolis Royal, also had a fantastic year. She released 127 Monarchs and tagged 50 of them. She collected her first caterpillars on July 31 in Lequille and released the last

five adults at the Historic Gardens in Annapolis Royal on October 1. She collected about 200 wild larvae, 132 coming from Judy Eggleton's butterfly garden in Clarence. Like our procedure, Lisa protects the eggs and caterpillars from predators by raising them in her home. When she ran out of milkweed she would kayak daily across Jerry Lake to get fresh Swamp Milkweed

Lisa was a great ambassador for the Monarch butterfly and did a number of releases all through the Annapolis Valley – from Deep Brook, Annapolis County, to Windsor, Hants County. She also put caterpillars in all the classrooms in Rutherford Memorial School (Cornwallis), where she works. The students fed the caterpillars with fresh milkweed and watched them grow and turn into a beautiful butterflies. She also instructed all classes on the life cycle of the Monarch.

Every Saturday Lisa would display Monarch caterpillars and/or butterflies at the farmers' market in Annapolis Royal and hand out Swamp Milkweed seeds to interested people. This was a great educational venue because many people asked questions and took pictures. Lisa became known as the Butterfly Lady and was written up in the *Digby Courier* (digbycourier.ca/living/2016/8/17/the-butterfly-lady-of-lake-larose-anna-4618083.html).

Overall Outlook for Monarchs in 2016

Reports from Monarch Watch (monarchwatch.org) indicate that this was not as good a year for the migration numbers as last year. The prediction is that the area of roosting trees this winter in Mexico will be below 2 hectares, down from the 4 hectares of last winter. The decrease is a result of the low numbers of first-generation Monarchs moving north in May and early June. Low numbers were reported in the central mid-west states, where most Monarchs reproduce.

Not very many Monarchs migrated into the Atlantic provinces in July and early August. The online reporting site e-butterfly.org reports show four in the Liverpool area; two near Barrington; one in Halifax; five in the Annapolis Valley at Berwick, Brooklyn Cor-

ner, Kentville, Miners Marsh, and Greenwich. In the other Atlantic provinces four were reported in New Brunswick (one each near Sussex, Moncton, Riverside, and Laketon), none in PEI, and two in Newfoundland (both at the most southeastern part of the Avalon Peninsula). These were not all the Monarchs present because most are not reported, but it does indicate low abundance.

We were lucky again this year to be visited by migrating Monarchs at our milkweed patches and to have them stay around to lay eggs. If those few Monarchs had not laid eggs here, we would not have been able to help raise and release all the butterflies that we did. I hope that many of those we released do make it to their winter grounds.

— *Natural History* —

GIVING SHOREBIRDS SPACE TO ROOST IN THE MINAS BASIN OF THE BAY OF FUNDY

BY SUE ABBOTT, BIRD STUDIES CANADA

With over 80 percent of the Semipalmated Sandpiper's global breeding population within its borders, Canada bears a high stewardship responsibility for this declining shorebird species. The majority of Canada's Semipalmated Sandpipers stop over in the Bay of Fundy during late summer. Taking advantage of the bay's food-rich mud flats, they rest and fuel up for an incredible 4,000 km migration to their South American wintering grounds. Past research estimated that one to two million shorebirds – mostly Semipalmated Sandpipers – migrated through the Bay of Fundy. Recent surveys by Environment & Climate Change Canada's Canadian Wildlife Service have documented a steep drop in numbers. Despite the decline, the Bay of Fundy remains extremely important to this and other shorebird species. It is designated as a Western Hemisphere Shorebird Reserve Network (WHSRN) site of hemispheric importance. The Minas Basin, which is included in the WHSRN site, is also designated as an Important Bird Area of global significance to Semipalmated Sandpipers.

Public awareness of shorebirds in the Minas Basin is strong in the

area – thanks to vital work by the Blomidon Naturalists Society and focused stewardship initiatives at Evangeline Beach with private landowners and the North Grand Pré Community Association, led by Eastern Habitat Joint Venture and NS Natural Resources. Despite these important steps, human pressures on shorebirds and their coastal habitats have not gone away. High tides are particularly sensitive periods as shorebirds seek safe places to roost along the shore when mudflat foraging areas are covered by water. High-tide roost sites are typically open areas free of dense vegetation, such as sand or cobble beaches. Rock armouring has hardened shorelines and altered coastal habitats where shorebirds have traditionally roosted. Moreover, intense summer recreational pressures at roost sites coincide with peak fall migration in late July and August. Hundreds of thousands of shorebirds must share limited coastal real estate with diverse coastal users, such as recreational Striped Bass fishers, swimmers, photographers, birders, and dog walkers. Disturbances by people can cause shorebird flocks to fly over water in search of safe roost sites, sometimes for several hours, which depletes their critical energy reserves. This poses serious risks, as they have only a short period to obtain adequate reserves to complete their long journey south.

To address conservation challenges, Bird Studies Canada initiated a three-year project in collaboration with the Blomidon Naturalists Society, Dalhousie University, NS Natural Resources, Canadian Wildlife Service, and Eastern Habitat Joint Venture in summer 2016. The Space to Roost project aims to reduce recreational pressures on Semipalmated Sandpipers and other fall migrant shorebirds at key high-tide roost sites within the Minas Basin: Evangeline Beach, the Guzzle, Avonport Beach, and Blue Beach. The project has four main objectives: 1. Evaluate human and shorebird use patterns at the four roost sites during peak shorebird migration (year 1). 2. Collaborate with recreational users and partners to develop concrete conservation strategies that reduce pressures to shorebirds at roost sites (year 2). 3. Pilot and evaluate the effectiveness of conservation strategies at a minimum of two roost sites during peak migration (year 2). 4.

Adapt conservation strategies at roost sites to improve effectiveness and share results with recreational users and partners (year 3).

Upon receiving funding notification from the Government of Canada's Habitat Stewardship Program Prevention Stream, NS Habitat Conservation Fund (supported by hunters and trappers), and the Committee for Environmental Cooperation, we kick-started the Space to Roost project in June 2016. Working with researchers at Dalhousie University's School for Resource and Environmental Management, we developed and conducted "human-use audits" at each roost site to help us understand numbers, types, and patterns of recreational use and the areas where recreational activities caused disturbances to shorebird flocks. Staff and nine volunteers conducted 10 or more audits per site during high-tide periods from August to early September, including at least one night-time audit.

We documented a total of 166 disturbance incidents to shorebirds. With the exception of Avonport Beach, the main cause of shorebird disturbance was walkers (31% of total incidents). We also conducted 61 interviews with recreational users to help us understand the value of each site to users and their awareness of shorebirds, and to gather ideas and develop contacts for people who are interested in helping with the project. We're currently summarizing and mapping much of this information in order to guide the project's next steps. It's encouraging that 80 percent of interviewees provided contact information in order to stay informed, and 33 percent expressed interest in helping find solutions. Our next step is to work with recreational users and partners to develop and test conservation strategies that give shorebirds safe spaces to roost during peak migration in 2017.

We're grateful for the support from the Blomidon Naturalists Society, especially Rick Whitman. We look forward to sharing project results, and we welcome questions, ideas, and volunteers to help us evaluate the effectiveness of conservation strategies during summer 2017. Please get in touch and stay connected through Facebook (facebook.com/spacetoroost) or by contacting Sue Abbott (sabbott@birdscanada.org).

JIJUKTU'KWEJK WATERSHED ALLIANCE – FALL UPDATE

BY JENNIFER WEST, ALLIANCE COORDINATOR



As our organization grows, we feel it is important to share with you what we are working on and how we are working toward our goals and vision.

Over the summer, the Alliance has been meeting monthly, with 8–12 people attending meetings when they can. Members learn about our meetings through Facebook, the *Grapevine*, radio announcements, our website, and other means. Our meetings are loosely structured, with a review of any past work or discussions, and then updates and discussions. Our discussions have focused on the name of the group and the vision and mission, which form the base of our strategic plan and are the foundation of our incorporation as a non-profit society in Nova Scotia. Meetings are open to anyone interested in learning about the river. We have also developed a logo for the group.

We hosted a group paddle in July, with more than 10 people putting canoes in at Lovett Road and floating down the river together. They enjoyed the scenery and talked about the plants, trees, fish, and other conditions.

As our capacity for research is currently low, we are looking for ways to learn more about the watershed. We are fortunate to have connected with several groups already doing research on the Jijuktu'kwejk watershed this season, and we are helping them in any way we can. The Mi'kmaw Conservation Group (MCG) is starting a two-year project exploring the impact of pesticides and other contaminants on the river. They are collecting samples and reviewing data from the Friends of the Cornwallis River over the past decade, as well as using other datasets to look for long-term trends. They

have connected with the Annapolis Valley First Nation to learn more about traditional uses and sacred places along the river, and the impact of pollutants on these activities and places.

As the MCG is launching its study, McCallum Environmental is finishing up a study prioritizing wetland restoration sites along the north mountain of the watershed. This project is extremely valuable, as we hope to be able to apply for funding to restore some of the high-priority wetlands when our capacity allows it. During McCallum Environmental's public consultation we were able to share datasets and maps with them that greatly improved their study.

Finally, we are meeting with academic advisers at Dalhousie and Acadia Universities to engage with a student or group of students to start summarizing the research that exists for the watershed. We are hopeful that a student project will be able to synthesize the large amount of data collected from government and various research groups over the past 10 years. To protect and restore this watershed, we must first understand it.

Please plan to attend our next meeting. We look forward to meeting new friends of the Jijuktu'kwejk River.

— *Community* —

A FARMER'S REPORT

BY SHANE GERRITS

I run a small business, called Odds and Herbs, in Sheffield Mills. I cultivate a variety of plants and sell them at the Spryfield farmers' market. I do not use any animal products, fossil fuel fertilizers, or chemical pesticides in the growing process.

This season, I relied on the existing soil fertility to provide the nutrients the plants needed to grow. The only crop that I noticed might be affected by the lack of fertility was spinach. Some crops did surprisingly well, such as the watermelon, some of which were as big as basketballs!

After I harvested my crops, I sowed cover crops. The cover crops will be turned into the soil before planting next year. This will be one source of fertility. Other sources of fertility will be nettle and/or comfrey compost teas, worm-casting teas, and composted plant material.

The only pest control I used was bug netting. I used the netting on the arugula, tatsoi, and napa cabbage to keep off flea beetles. It works very well and makes the difference between holey and whole leaves. Unfortunately, the netting does not protect the plants from earwigs. I watched the napa cabbage size up under the netting for weeks. I finally decided it was time to harvest some. The first one I cut was full of earwigs. So was the second, and the third, and all the rest. The napa cabbage was planted in a fairly sandy section, which one farmer suggested was partly to blame for the large number of earwigs. The other reason was that the dry weather we had this season may have been beneficial to earwig populations.

A big challenge for me this year, like many others, was the lack of rain. I have an irrigation system, but it is very time consuming. The system consists of a large water tank from which I fill watering cans and then pour water from the cans, one by one, onto the rows. Next year I might try connecting drip tape to the water tank.

I did mulch many crops, which ended up being very beneficial because of the moisture it helped retain.

I enjoyed my growing season. It was a pleasure providing fresh food to appreciative people and has left me excited for next spring's new beginnings and old continuations. Enjoy your winter; stay cozy.

— *Environment* —

BIOMASS FOR POWER GENERATION IN NOVA SCOTIA

BY GARY NESS

Sustainability of Nova Scotia forests is a complex, challenging, and controversial topic, and there are abundant issues about managing

our forests. Forestry – like so many other Nova Scotia resource-based industries – is under intense pressure to operate for the benefit of a number of sectors, including resource (forest) owners, harvesters, producers and consumers of wood products, business interests, government, and the public at large. The diverse interest groups each have their specific views on every issue, the major ones being clear-cutting, whole-tree harvesting, and using biomass for power generation. Over the years, a veritable war of words has ensued, with experts on all sides holding forth. Recently, using trees as biomass to generate electricity seems to have created one central issue that brings all the other concerns into the debate.

The first Nova Scotia Power (NSP) proposal to build a \$208 million “renewable co-generation” plant at Port Hawkesbury was rejected in 2009. However, in April 2010, NSP announced its intention to renew its application for the project. The plan noted that forest biomass was to become a significant fuel in the Nova Scotia government initiative to provide 25 percent of its power needs through renewable resources by 2015. The NDP government was asked to provide provincial policies and project regulations. The plant was to be operated 24/7 at full capacity, which would provide about 3–5 percent of provincial electricity needs, a step toward replacing coal use. The “locally sourced” fuel – hardwood with no commercial use – would be crooked, knotty, or diseased. Stem-wood (branches and roots) was to be left to fertilize the soil. Interveners (stakeholders and experts) in the Nova Scotia Utility Board hearings expressed considerable concerns, most notably that there was not sufficient “waste wood” to fuel the plant and that clear-cutting Nova Scotia forests might ensue.

It seemed evident at the outset that the project was too big to be sustainable. By 2010 there already was little waste wood available in Nova Scotia; the forest industry had already been forced into more-efficient use of previously discarded by-products (sawdust, branches, etc.). Raymond Plourde and Jamie Simpson of the Ecology Action Centre noted that the plan would entail burning up to 1,000,000 new tons of wood every year – the equivalent of adding

a new Nova Scotia pulp mill and then clear-cutting 2,800 hectares (or, as one source suggested, a kilometre-wide strip from Yarmouth to Sidney) every 4.5 years.

The plant was approved and opened in 2013 after province-wide consultations indicated that changes to greener methods of power generation were critical. This input also indicated that clear-cutting needed to be reduced. Industry experts agreed, but noted reservations about biomass sourcing for the proposed plant and suggested that the plant operate on a trial basis with ongoing reviews.

In 2014, the biomass plant burned 530,000 tonnes of wood, 10 percent of which was purchased and shipped from sources outside the province. Given that the original concept was to procure wood from “local suppliers,” this raised questions about a demand for wood that required long-haul trucking – and the related green issues. A shortfall in harvesting capacity in Nova Scotia was cited as the reason for this reduced availability of wood in the province.

Throughout 2014–15, the plant was underperforming, producing up to 80 percent of expected power, and was incapable of meeting its original targets in the province’s renewable energy strategy. According to a Department of Natural Resources official, the plant was operating at “close to full capacity,” but other sources cited the lower figure. Further, generating that power was more expensive than using coal or natural gas. As a result, the province was forced to cancel several small-scale biomass projects, and negotiations for a biomass project involving Minas Energy (formerly Minas Basin Pulp and Power) and NSP was halted.

Biomass burning for power seemed reasonable in 2000. It was argued that it reduced greenhouse gas emissions because the trees would re-grow and sequester carbon (“burn a tree, grow a tree”), and the argument for burning waste wood seemed to have some merit. However, the Port Hawkesbury plant’s fuel has been 35–50 percent waste wood from local mills; the rest is harvested wood (about 335,000 tonnes), much of it by clear-cutting and some of it by whole-tree harvesting. Trees take a long time to grow, and whole-tree harvesting does not leave nutrients behind to foster a

sustainable forest. One source suggested that clear-cutting is seen as a “responsible method” because it is the most economical approach and keeps the cost of power down; selective cutting is too expensive, and passing the NSP costs on to power consumers has long been an issue. However, as Bob Bancroft (Nature Nova Scotia) stated, clear-cutting and full-tree chipping may be the cheapest way to harvest, but decisions to cut forests should not be based on economic reasons alone. Clearly, forest ecology, regeneration, and sustainability must be taken into account.

Burning biomass is inefficient. The energy liberated by converting dry wood chips to electricity appears to be about 21 percent. However, the wood consumed in the Port Hawkesbury plant has been stored outside in all weather and is quite wet. One source stated that it takes four times as much wood chips to produce the same energy as a tonne of coal. Further, the cost of wind energy production is 12 percent lower than burned biomass.

Between 2010 and 2016, the debate had switched from whether the plant was green enough by using waste wood to a justification of how we should harvest whole forests, including hardwoods, none of which was supposed to happen in the first place. The ongoing concerns expressed about the ecological impacts on our forests have gained considerably more attention.

Thus, in April 2016, the provincial government announced that it was amending the regulations to reduce the use of primary forest biomass for generating electricity. The Port Hawkesbury plant does not have to function at full capacity. This is expected to reduce harvesting trees specifically for biomass. The extent of that change is not yet clear, but it is projected that removing the “must run” requirement will also reduce annual power costs by \$9 million. It is also projected that power bills are expected to be higher next year.

There is a hope that in 2017, the start-up of the new Muskrat Falls hydroelectric generating facility will allow for phasing out of any clear-cutting of our forest for biomass. Also, based on the abundance of negative feedback reviewed in the preparation of this article about clear-cutting generally, it appears that new, more-stringent

regulations are needed. Many experts contend that the old ones are not working well.

— *Seen in the Wild* —

THE ELLERSHOUSE WIND FARM STORY

BY KRIS MACLELLAN, MINAS ENERGY

Driving along Highway 101 from Halifax to the Annapolis Valley, you might catch a glimpse of the Pockwock Wind Farm, if you know where to look. Then you'll see the more-prominent Ellershouse Wind Farm rising behind the trees near the Hamlet of Ellershouse, the first good look at a wind farm after leaving the city. Modern wind turbines measuring nearly 100 metres tall and made of sleek concrete, steel, and high-strength fibre are part of the new norm of distributed renewable energy generation that has swept Nova Scotia in the past decade. In fact, as of 2016, more than 200 wind turbines are spread out across the province, contributing around 22 percent (2015 figures) of Nova Scotia's overall energy needs.

But there is more to these tall turbines than meets the eye. It is the story of how each project came to be that makes each wind farm a uniquely Nova Scotian project.

The Ellershouse Wind Farm presents one such story. It is the product of collaboration and unprecedented intra-governmental cooperation, making it an independent power producer like no other in Canada. It all started nearly 10 years ago when Nova Scotia Power Inc. created an opportunity for municipalities to seek alternative power sources. Hoping to capitalize on this opportunity, Hantsport-based Minas Energy (formerly Minas Basin Pulp and Power) approached the municipalities of Berwick, Mahone Bay, and Antigonish with an idea: create a new energy utility, build a wind farm to generate electricity, then buy that power back (from themselves). The cost for energy would be comparable to the coal-generated electricity currently available, but the additional benefits to the communities as part of this partnership would be remarkable.

In the four years since that proposal was made, the municipalities created AREA – the Alternative Resource Energy Authority – an entity the purpose of which is to take ownership of the wind farm and manage the electricity produced there. Minas Energy was chosen to lead development of the project, including serving as a facilitator for the inter-municipal units’ operations, managing the development of the wind farm, and leading community engagement (including the establishment of a community liaison committee, or CLC). With the first turbines installed in 2015, the project is expected to generate power until at least 2035.

Not all locations are ideal for generating wind power. Ultimately, the site for the project near Ellershouse (located near the junction of Hartville and Ellershouse Roads) was chosen because it is a high point in the region and relatively dry, precluding the disturbance of wetlands during the building and operation of the turbines. The site is near NSPI transmission lines, so there was no need to build extensive new power transmission infrastructure, and the land is privately owned – simplifying many siting conversations. The size is spacious, easily allowing turbines to be located at least a full kilometre (twice the legal limit) from the nearest home.

More than availability of land and location, people have provided this project with much of the boost it needed to succeed. This includes the Municipality of West Hants, in which the wind farm is situated, which has proved to be a dependable and practical partner. And the community of Ellershouse proved to be a welcoming home for the project. Interestingly, because the community of Ellershouse is not a member of AREA, it will not directly receive energy generated from the wind farm. This has not prevented numerous other benefits from pouring into the hamlet – more on this later.

Stand at the base of a wind turbine at the Ellershouse Wind Farm and look up. Each turbine is 98 metres tall, with each of the four blades measuring 45 metres (a 92 metre span, blade tip to blade tip). The turbines were designed and built by the German firm Enercon, one of the world’s largest manufacturers of wind turbines. Seven turbines are currently in place, costing approximately \$24 million dol-

lars to build. Each can generate 2.3 megawatts of renewable energy. The seven turbines have an annual production of 45 million kWh, or enough to power 4,500 Nova Scotia homes. A wind farm of this size is equal to a 25,000 tonne reduction in CO emissions. Construction of the wind farm took place over the 2015–16 summer season, with over 33 local companies hired to do the work.

Bullfrog Power was brought on as project partner and is buying renewable energy certificates (RECs, also known as green energy credits) from this project, which they can then sell to customers across Canada. Bullfrog Power also donated \$15,000 to install a 4.5 kW solar photovoltaic system on the roof of the Ellershouse Community Hall. With this system in place, along with other energy-saving initiatives taken by the community, the hall no longer relies on fuel oil for heat – even in the winter. Now, the only oil used in the community hall is to make french fries!

The Hamlet of Ellershouse receives \$6,000 annually from a sponsorship fund created by the AREA municipalities to ensure that the hamlet receives benefits from the project, if not directly through power generation. The project's community liaison committee created a second entity to manage this fund, the Ellershouse Wind Farm Sponsorship Society, which to date has directed thousands of dollars toward maintenance of important local cultural sites and local goodwill causes, as well as bursaries and scholarships for local youth. This fund will persist throughout the lifetime of the project.

The four AREA municipalities took a risk in embarking on a project of this magnitude together, yet the success of the wind farm has been greater than expected. This and other sentiments were echoed by all four AREA communities and by project leader Minas Energy in a recent online film on the wind (*Ellershouse Wind Farm: As The Wind Blows*). With two construction seasons now past and seven turbines erected on the site, only three are waiting for electrification and final commissioning (expected before Christmas 2016).

Minas Energy is seeking permits for additional turbine sites, to be located near the existing turbines. The proposed expansion must first pass through both municipal and provincial environmental and

developmental permitting processes. The environmental assessment is complete, including monitoring for birds and bats in the area, and modelling the sounds and shadows anticipated to be cast by the blades. Photomontages (a process whereby wind turbines are inserted digitally into photos of the current site) have been completed as well. These, along with the findings from the environmental assessment, have been shared with the community and are available online (novascotia.ca/nse/ea/). If approved, construction on the expansion would take place next summer.

Renewable energy projects are about more than generating electricity. They have the potential to bring people and communities together. The Hamlet of Ellershouse is a new and different place as a result of its involvement in the Ellershouse Wind Farm. Today, the residents of Berwick, Mahone Bay, and Antigonish know that through sound planning and smart investments, they are diversifying their own local economy and building an asset that will help stabilize their own electricity rates – an incredible benefit in these times of uncertainty. Further, they have built a piece of infrastructure that allows them to make a small but significant contribution in the global fight against climate change.

This project is indeed special to Minas Energy, which has, over the past 10 years, become partners with the communities of Chester, Vaughn, New Ross, and Ellershouse. Stories like this tell the story of Nova Scotia's transition to the green economy – a story whose ending we may not know for years to come. Nova Scotia's dependence on coal, and the noxious legacy that history carries, is only surmounted through projects like the Ellershouse Wind Farm, and it has been a pleasure to contribute to that change.

[EDITOR'S NOTE: *For the past 20 years Minas Pulp and Power, now Minas Energy, through Scotia Investments has supported the Blomidon Naturalists Society with a substantial donation for our natural history calendar, thus indirectly supporting our various environment awareness endeavours.*]

AWL'S WELL THAT ENDS WELL

BY CYNTHIA A. HENRY, GLEN MARGARET, NS

He gently placed the piece in his hand, then slid his thumb along the well-worn edge, the shine of use still evident after all these years. He spoke quietly and with reverence, as if in the presence of some sacred object. And then he told me how old it was.

Dr. Matthew Betts is the Curator of Eastern Archaeology with the Canadian Museum of History. He is doing a study on coastal erosion and its effects on archaeological sites in Nova Scotia. When he saw what I had found, I was invited down to the Sipuke'l Gallery (pronounced See-boo-gale) in Liverpool, where he was meeting with the Acadia First Nation Band Council.

What I found was not what I was looking for. I have devoted much of my life uncovering history on my family property in Glen Margaret, first settled by Irish immigrants in 1826. Inside the walls of the old homestead, under foundations, in dumps along the old stone wall, and down on the shore, I have amassed over 20,000 fragments, which I have documented and stored in boxes and buckets for future display.

I remember the evening in August 2003, when Dr Marie Elwood, Chief Curator at the Nova Scotia Museum, visited me at the shoreline. I had just rescued my boots from two feet of muck, trying to escape drowning from the incoming tide. It was not a pleasant smell that oozed from my clothes as I began showing her some of my finds.

Dr Elwood was honoured by Kings College University, and also by the Province of Nova Scotia, for her knowledge of cultural history, and it was to her that I turned for advice in documenting my domestic history.

She stood before my trays, rearranging the artifacts in order of their age, from the oldest hand-painted ceramics to those machine-printed in the early 1900s. She pointed to a piece that defined my Scottish roots, and to others she said were from my Irish ancestry.



Of all the fragments and paperwork I uncovered over the years, she smiled and said, “They left these behind for you to find.” I am blessed to have known Dr. Marie Elwood, extremely gracious and generous beyond words. She was a national treasure.

I gathered my fragments and put them into buckets for cleaning. Sifting through the remaining mud and debris, I discovered several unusual pieces. There was something about them that made me stop and take a closer look – how they fit in my hand, how they felt, how they seemed to have a singular purpose, not part of something else. I put them aside and placed them on my shelf. There they remained until last Wednesday, November 23, when Dr. Betts explained to me what they were.

The top piece in the accompanying photo is a spirally fractured moose or deer bone, measuring 4 inches long. This is how the bone normally breaks when striking it with a hard object, typically a rock. The bone marrow extracted would have been consumed as food, valued for its high fat content. He tapped the bottom piece against his teeth. The sound indicated stone. It’s use? He really wasn’t sure.

Then he held the middle piece. Almost three inches long, this

piece is an awl made from a deer bone. The round nub on the end is a natural feature of the bone (the sesamoid) found at the back of the hoof of the deer. This is the bone an early native craftsperson worked into an awl, an essential tool used to punch holes into hides.

I had uncovered something much older than artifacts from my Irish and Scottish ancestors. The tools I found are good evidence of Mi'kmaw activity at the site as recently as 400 years ago. They might be even older: Dr. Betts said tools like these haven't changed much in 2,500 years.

Four hundred years!?! My heart skipped a beat. That's Champlain. Shakespeare. Membertou. Galileo. To think that I discovered something unknown until today – that in our tiny cove, along that quiet stretch of shoreline, an ancient people once lived. Humbling, to say the least.

“How best can I honour this piece?” I asked, but I already knew the answer. Behind glass in a shadowbox for all to see, an amazing addition to Glen Margaret's rich and colourful history.

P.S.: If you find any artifacts, it is best to leave them in the ground where you found them and contact Dr. Matthew Betts at matthew.betts@historymuseum.ca.

— Natural History —

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 sixth, is believed to be from the late 1940s or early 1950s (exact dates of the columns are unknown). In this excerpt, Robie explains the term “ecology” and illustrates the concept by telling a story of tiny fish, domestic ducks, and swarms of mosquitoes. The optimism in his final paragraph may appear misplaced to us today, when we consider the many threats to our environment worldwide. Apparently, we are still learning.



A FEW WEEKS AGO this space was devoted to an explanation of the term “ecology,” which one so often sees used these days by writers who deal with wildlife conservation matters. Briefly, it means the study of the relation of any species to its environment.

By way of emphasizing how important it is for Government agencies entrusted with the care and management of wildlife to have knowledge of the ecology of the particular species with which they may be about to deal, we relate an account of what actually happened a few years ago on Long Island, New York.

Many Shallow Creeks

It appears that a large area on Long Island is low-lying marshy ground with an intricate system of shallow creeks running through it. These brackish waters were the home of countless numbers of small minnow-like fish which were locally called “shiners.”

It seems that a group of enterprising men, bent on making money, conceived the idea that these little fishes could be utilized to that end. Forthwith they approached the proper municipal authorities requesting a lease of the marshes and authority to catch the fish. They explained that they proposed to raise domestic ducks for the

New York market and that the fish were to be used as a cheap source of food. The idea seemed sound, and no difficulty, we are told, was encountered in the matter of obtaining the lease, for which our financiers paid a paltry sum.

The erection of a small dam flooded a section of the marsh, and in due course the artificial pond held thousands of white pekin ducks. The fish were caught in bag-nets and processed into a sort of fish meal, and for a time all went well.

But the supply of fish, great as it was, was not inexhaustible. They were being destroyed faster than they could reproduce, and after a short space of time were all but exterminated. What finally happened to the duck-ranch is unimportant. What was important was that after the little fish were gone, the people living in the adjacent residential districts began to complain about the mosquitoes which had begun to swarm over their premises.

Found the Answer

They came in from the marsh in clouds the like of which had never before been known. So general and insistent were these complaints that finally the authorities were compelled to secure the services of a biologist in order to determine the cause of the mosquito plague.

And we are told that it did not take him long to find the answer. These little shiners, which in the first instance were considered to be of no value whatsoever in their natural environment on the marsh, were found to have been preying upon the larvae of the mosquitoes, which as is generally known, live in the water prior to their taking wing.

With their arch enemy the fish gone, life had become very easy for the insects, and so rapid was their increase that they soon got out of bounds. The final result was the spending of some millions of dollars of taxpayers' money, which was used to spray some sort of oil on the breeding grounds of the mosquitoes in an attempt to do what the little fishes had quietly been doing down the years, and at no cost to the general public.

In this day and generation these government agencies when confronted with applications of such nature are able to turn to some competent officer in the service – a wildlife technician – and after giving him the facts ask him whether or not it is a good thing to do. The foregoing incident is but one of many similar blunders we humans have made in our handling of projects of various kinds which deal either directly or indirectly with wildlife. There will be fewer such in the years which lie ahead, for we have learned the hard way.

— Environment —

A PERSPECTIVE: OUR TRUE NATURE OF RESILIENCE

BY KENT WILLIAMS

“All [people] dream: but not equally. Those who dream by night in the dusty recesses of their minds wake up in the day to find it was vanity, but the dreamers of the day are dangerous [people], for they may act their dreams with open eyes, to make it possible.” —T.E. LAWRENCE, SEVEN PILLARS OF WISDOM

As of late, it has been difficult to listen to the news, with such turbulence in the world, especially south of our Canadian border. At times, it seems that our world is crumbling, and we often get caught up in the fears the media spreads to sell their news. Yes, it is a concern that we now have climate deniers taking charge of one of the most powerful offices in the free world. This is happening at a time when, more than ever before, we need to wake up to our own self-deceit – that how we live our lives today is okay. Maybe what is happening, this great challenge or conflict in power and political transitions, is just the harshness and pain needed to awaken us from our slumber or pull us away from swimming in our sea of circuitry. For so long we have been living in world separate from nature – nature is something outside of us; it’s somewhere to go for a walk or connect with wildlife. Or the cultural truth that capitalists hold – that cheap nature is something to tap into. This myth – that nature is there for

the taking, that it is infinite and provides resources to exploit and turn into profit – is what is pushing human development toward the brink of potential collapse.

We have forgotten that the very essence of nature is us – human-kind. Humans are born of this universe: our origins are from nature. Living in our cultural truths of capitalism and our pursuit of wealth and material, with our hubris we have conveniently placed nature outside of us, fracturing our empathy and caring for what is really us. Our future depends on awakening to a truer reality – that we need to protect that which human development depends on: the diversity of nature.

Our fatal flaw is that we have been transformed into consumers of everything. There is nothing sustainable in how we live life on this beautiful planet. We have reached a boiling point in exponential population growth, and through the vehicles of globalization and technology we continue to move toward new levels of thirst for material goods. Not only is this quest for progress and material creating violent tensions throughout the world, but through our needs and wants, humans and other extra-humans (all beings other than humans) are losing their natural habitat. Loss of cultures and rapidly increasing extinction rates of other beings are the very diversity that holds the answers for our own survival on Earth. Yet we look the other way and continue our patterns and habitual way of living our respective lives because – in the end – it's comfortable.

Humanity's challenges are great, and sometimes our self-denial of not being able to do anything about what is transpiring is a numbing strategy to avoid the apparent – that the opportunity to turn the tide on this turbulent world starts with each one of us. There is an opportunity to look at each of our lives and sense the separation we have built between ourselves and nature. We can start by asking ourselves, "How can I connect more deeply with nature and that which is really me?" This might mean asking more reflective questions on how we live our lives and what is the impact of our consumption habits: What are the connections and impacts to the choices I make?

Another important strategy is to start having dialogues with the people in our lives, where we listen deeply to each others' perspectives and share our visions on how to live a more authentic way of life that promotes fairness, prosperity, and sustainability. Through these dialogues, we have the power to co-inspire and co-create more-fully desired futures – where we sense the social-ecological systems that support all living beings in a symbiotic network of relationships. Interrelating is what is most fulfilling to people. In this there is an opportunity to connect more fully to what it means to be human.

There is no easy answer to the challenges that face each one of us today, or to the looming challenges that are just over the horizon. The opportunity lies in each one of us to tap into our latent potential, to move away from the familiar to the foreign, to be more resilient as citizens in our interconnected communities. According to Judith Rodin, “Resilience is the capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.” Living in the Anthropocene and the rapidly changing complexity of our biosphere, it will be our resiliency that will enable us to thrive as a human species. The challenges are assured and unpredictable, and it will be our ability to be adaptable and learn from our failures that will enable us to be sustainable on the planet. Moreover, I feel that sustainability is part of resiliency, as are fairness and prosperity. Having a resilient mindset will enable hope for desired futures for humankind.

In the end, we all need to take responsibility for the cultural world that we have created. This includes the demagogues and their rhetoric. We each need to start to dream by day with eyes wide open to the world we want to create. To really think about and understand what it means to be a human living in the planet – that nature is human, and humans are nature – that we are indivisible.

[Reference: Judith Rodin. (2014). *The Resilience Dividend: Being Strong in a World Where Things Go Wrong*. PublicAffairs.]

FALL WEATHER 2016, EASTERN ANNAPOLIS VALLEY

LARRY BOGAN, CAMBRIDGE STATION

The Annapolis Valley normally has a pleasant fall, and this year was no exception. However, November is usually the “bad” month – and it was in 2016. Fortunately, cloudy, wet weather did not start until halfway through November, when low-pressure systems started to roll through, one after the other.

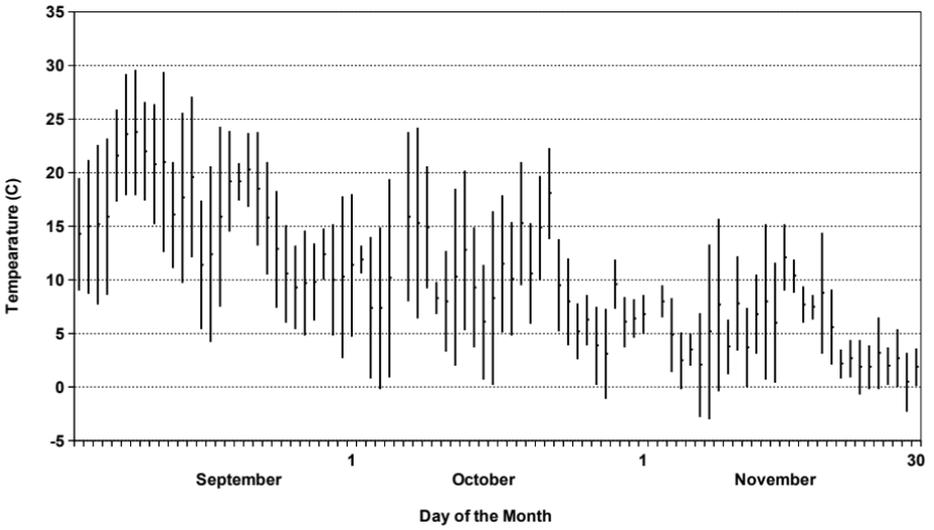
	TEMPERATURE			PRECIPITATION
	Max (°C)	Min (°C)	Mean (°C)	Rainfall (mm)
SEPTEMBER 2016 (30 yr. average)	21.6 (19.5)	10.6 (9.5)	16.1 (14.5)	59 (84)
OCTOBER 2016 (30 yr. average)	15.0 (13.7)	4.7 (4.9)	9.9 (9.4)	149 (89)
NOVEMBER 2016 (30 yr. average)	8.4 (7.8)	1.8 (0.3)	5.1 (4.1)	79 (122)
SEASON (FALL) (30 yr. average)	15.0 (13.7)	5.7 (4.9)	10.4 (9.3)	287 (295)

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

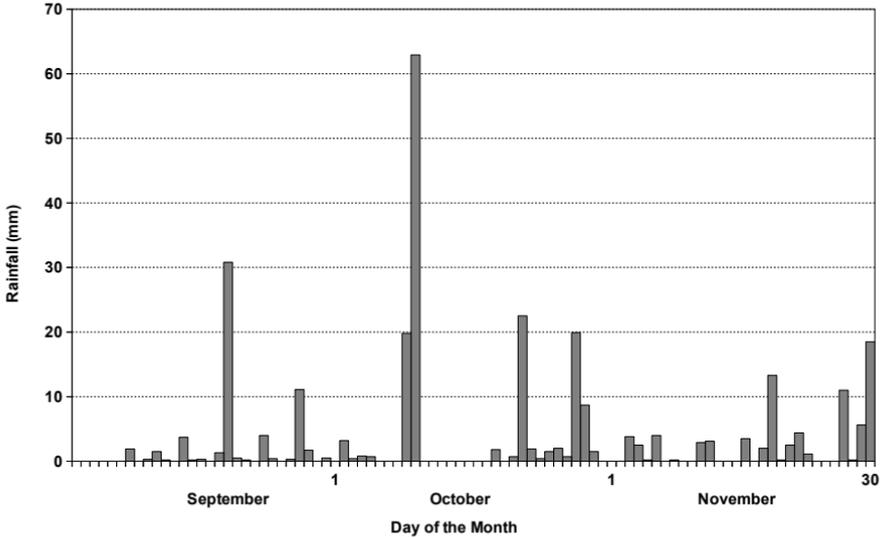
Temperature

The season was warmer than normal, and that was true for all three months: September by 1.6°C, October by 0.5°, and November by 1.0°. Overall the season averaged 1.1° above the 30-year average. The

Daily Average Max, Min and Mean Temperatures
 Kentville, NS -- Oct, Nov and Dec 2016



Daily Precipitation
 Kentville, N.S. -- Oct, Nov, Dec 2016



daily temperature chart also indicates cloudiness to some extent. A clear, sunny day will have a wide swing in temperature, while a cloudy day usually has a narrower range of temperatures. September was warmer due to abundant sun, while November was warmer due to clouds associated with warm, moist air from the south.

Precipitation

The only significant snow this fall came on the last day of November and that only amounted to a couple of centimetres. A normal snowfall for the month is 13 cm. Total precipitation for the season was nearly normal but not evenly distributed. October was the wettest month, receiving more than half the total for the season. However, 83 mm (56%) of October's precipitation came in two days (9th and 10th), and the rest of the month was relatively dry. The precipitation chart shows how there was only light rain throughout most of the season. It took a long time for the dried-up normally wet areas to regain their water from the dry summer, and I did not see recovery until very late in November.



RICK WHITMAN

Coyote on dyke

WHAT'S IN THE SKY?

BY ROY BISHOP

Highlights for January through May 2017

JANUARY 2: Latest sunrise of 2017

JANUARY 2: Crescent Moon between Mars and Venus in the southwestern evening sky 6–8 p.m.

JANUARY 4: Earth closest to the Sun in 2017

JANUARY 12: Full Moon

JANUARY 12: Venus at maximum distance east of the Sun

JANUARY 12–14: Large tides

JANUARY 27: New Moon

JANUARY 31: Moon, Venus, and Mars form a triangle in the southwestern sky 6–9 p.m.

FEBRUARY 10: Full Moon, penumbral eclipse with maximum shading of Moon at 8:44 p.m.

FEBRUARY 16: Venus brightest (early evening, in west)

FEBRUARY 26: New Moon

FEBRUARY 28: Moon, Venus, and Mars in west 7–8 p.m.

MARCH 4: First-quarter Moon in Hyades star cluster, watch in binoculars 8:10 to 8:20 p.m. as the Moon occults two stars

MARCH 12: Daylight Saving Time begins

MARCH 12: Full Moon

MARCH 19: Mercury (left) and Venus (right), nine degrees apart, very low in west at 8 p.m.

MARCH 20: Equinox 07:29 ADT

MARCH 27: New Moon

MARCH 29: Mercury at 4 o'clock from crescent Moon in west at 8:30 p.m.

MARCH 29–30: Large tides

APRIL 7: Jupiter at opposition

APRIL 11: Full Moon

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 26–28: Large tides

Planets

Where are the six naked-eye planets this winter and spring?

MERCURY is well-placed in the evening twilight during late March. See March 19 and 29 in the above list.

VENUS is the brightest star-like object in the western evening sky during January and February (see the several Venus items in the above list). During that time Venus is approaching Earth. In a telescope it grows in size and changes from a gibbous disk to a crescent, resembling a miniature, brilliant, crescent Moon. Venus is at “inferior conjunction” on March 25 as it passes between Earth and Sun. It spends the rest of the spring in the morning sky, where often it is a UFO for many early morning risers: an unidentified flying object shining brightly, low in the mystical dawn twilight.

EARTH – if you can’t find it, you have a problem.

MARS, long past its opposition of May 2016, spends the first half of 2017 low in the western evening sky, becoming progressively dimmer as Earth in its faster orbit leaves it behind (see the several Mars items in the above list).

JUPITER spends the first couple of months of 2017 in the morning sky but becomes more conveniently positioned with the arrival of spring. At opposition on April 7, Jupiter is well-placed for observations in the late evening sky during April and May.

SATURN is not well-placed for observations during the first half of 2017. It is in the morning sky for most of this period and is quite far south, unfavourable for telescopic viewing from the latitude of Nova Scotia. Saturn reaches opposition in mid-June.

Tides

What's with the large tides for the next few months?

In the above list I use the term "large tides" for tides that exceed a low-to-high range of 15 metres in Minas Basin. You may have noticed that large tides are not mentioned for February. The reason for that omission is that perigean-spring tides (i.e., extra-large tides caused by a close Moon at the time of a new or full Moon) recur on a 206-day cycle, alternating with New Moon and Full Moon. The previous peak in that cycle occurred in mid-November 2016 with the Full Moon. The next peak occurs in May/June 2017 with the New Moon. February 2017 happens to be halfway between the two peaks.

If you visualize the elliptical lunar orbit with its perigee and apogee points and think about the previous paragraph, you will see why the perigean-spring peaks alternate with new and full Moon as Earth orbits the Sun. However, thinking further you are apt to say, Wait a minute! Shouldn't the peaks recur at half-year intervals? Half a year is 183 days, not 206 days.

The reason for the extra $206 - 183 = 23$ days is that the Sun's gravity causes the Moon's elliptical orbit to slowly twist in the same direction that Earth orbits the Sun. It takes Earth 23 days more than six months to reach the point where the major axis of the lunar orbit is once again aligned with the Sun.

The variations in the tides lapping at the Wolfville waterfront are a consequence of these celestial motions, including the 18.61-year cycle I mentioned in the previous Newsletter, plus variations related to the tilt of Earth to its orbital plane, and the varying distance of Earth from the Sun. Isaac Newton, the first person to understand the tides, said that trying to understand the motions of the Moon made his head hurt.

SOURCES OF LOCAL NATURAL HISTORY

Compiled by the Blomidon Naturalists Society

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	
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 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 _____

E-MAIL _____

TEL _____

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	\$ _____
_____	<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: 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.



