

Beyond THE Tides

The Seasonal Journal of the Blomidon Naturalists Society

FALL 2023

Vol. 50 No. 3

Coastal
Protection

Positive, Local
Climate Stories

Pollinator
Gardens

A THANK YOU FROM THE EDITOR

Fall is a season of transition, not more so than for the Blomidon Naturalists, since our coordinator of nearly two years, Caroline Beddoe, has headed back to school to complete a master's degree in planning at Dalhousie. Thank you Caroline for your tremendous work over the past two years to support the BNS. Caroline has worked tirelessly, way beyond what was expected of her, or for what she was paid. A list of her gifts is long and multifaceted: a strategic thinker, a problem solver and advocate for nature, a sensitive and caring listener, a prolific and superb writer, a leader working for environmental and social justice, etc. One quality that particularly stands out for me is her passion and caring for nature. It seems fitting then to give Caroline the last words on this... excerpts from her journal from her June field trip to the proposed Chain Lakes Protected Area.

"Thin light drips through these old wet woods where ancient, twisting yellow birch hold up the damp ceiling of the sky. Lungwort gleams glossy and emerald. Bearded lichen dangles overheard, lowering down rain drops to young moose maple leaves reaching out, cinnamon ferns softly unfurling. There isn't so much of a trail, only what in us seeks out a warbler's song or the sound of water.

Everything is so green here. It makes you wonder if being alive can be superlative, wonder if the land must still believe in loving us.



Later, the dark gnarled thicket of the cut line spits us out, gasping, along this old logging road, out onto granite and tree stumps and ruts and pits. A mother spruce grouse trills gently to her young, finding safety in the bushes. What is this tender ache in my chest?

There is much I don't understand yet. I unravel my heart and find it the shape of birch and sphagnum, the shape of the wind moving through old forests, the glimmer of rain on a sugar maple, the sound of the stream and the call of the flycatcher. Remember. This connection to the land and these old forests, as tender and vital as the spider's web glimmering between the maples, this elation of being alive within all of life, feels always like a coming home. It is the realest thing."

Alan Warner
editor@blomidonnaturalists.ca

LAND ACKNOWLEDGEMENT AND RECONCILIATION



Blomidon Naturalists Society activities take place in the district of Sipekne'katik in Mi'kma'ki, the traditional, ancestral and unceded territory of the Mi'kmaq. This territory is covered by the "Treaties of Peace and Friendship," first signed in 1726. These treaties did not imply or affirm the surrender or transfer of land to the British, but recognized Mi'kmaq and Wolastoqey title, and a set the rules for what was to be a long-standing relationship between nations.

We are grateful above all to the land, air, water, and countless non-human beings that make life possible and inspire us every day. We recognize that outdoor learning, exploration and recreation would not be possible without access to the natural world, which has been stewarded for thousands of years by the many Indigenous peoples of this land. We have a responsibility to honour and learn about their histories and current cultures, and to actively work in support of reconciliation. We are committed to fostering respectful and sustainable relationships with the Indigenous peoples of this land, with all other organisms, and with the land and the water. We are all Treaty People.

Beyond the Tides is committed and working to include Indigenous voices and perspectives in this publication, and we are committed to a process of relationship-building to facilitate contributions from Indigenous peoples. We also recognize the 400+ year history of communities of African descent and the 50 African Nova Scotian communities throughout the region today, and are committed to seeking out their perspectives, and those of others not traditionally included in the work of the Society. We invite you to contribute to this process and/or encourage others to do so. We welcome all comments and suggestions.



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FROM THE PRESIDENT

I am very proud of *Beyond the Tides*, the new BNS magazine, but I have heard that not all members like it—it has become too political. However, we have entered the Anthropocene, the epoch where human impacts on the environment will be visible long into the future.

Nothing stays the same over time. When I joined Acadia's Biology department, I had to teach Wildlife Management—the trapping and hunting of so-called game species. There was a long Acadia history of turning out wildlife managers who came to dominate positions within provincial and federal wildlife departments in the Maritimes. However, times changed, and students began arguing against hunting and trapping—enrolment dropped. I changed the course to Conservation Biology, and enrolment increased. Students wanted to learn how to protect wildlife.

The BNS used to be an organization of naturalists interested in observing and enjoying birds, plants and other species, but shied away from advocating for nature. Times have changed in some ways—the BNS members continue to enjoy and deeply appreciate being in nature, observing plants and animals, but there is an increasing sense that we must actively speak up for nature. We

cannot just enjoy nature and disregard the enormous impact that humans are having, from climate change to species loss. Effects of climate change are becoming apparent here in Nova Scotia, with the largest wildfire in history occurring this spring, and the deluge of rain in late summer that washed away roads and cost lives. Increasingly, species are added to the province's endangered species list, and the clearcutting of our old forests is rampant.

If naturalists do not advocate for nature, who will? *Beyond the Tides* celebrates the wonder of nature, but also serves the critical role of alerting people to humans' impact on the environment. Advocating for nature is political; there is no way around it.



Soren Bondrup-Nielsen
President, Blomidon Naturalists Society



The primary objective of the Blomidon Naturalists Society is to encourage and develop understanding, appreciation, and stewardship of nature in its members and the interested public. The word 'nature' is interpreted broadly and includes rocks, plants, animals, water, air, and the stars. We are a community grounded in nature exploration, education, and stewardship. We welcome everyone who is curious and wants to learn and share about nature. Our core values are environmental stewardship, building a connection to nature, community engagement and diversity, and collaborative knowledge -sharing.

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Climate Mapping: Growing through Positive, Local Stories

This interactive website provides individuals with inspiration and hope regarding climate action in their communities.

BY JENNA HAMPER

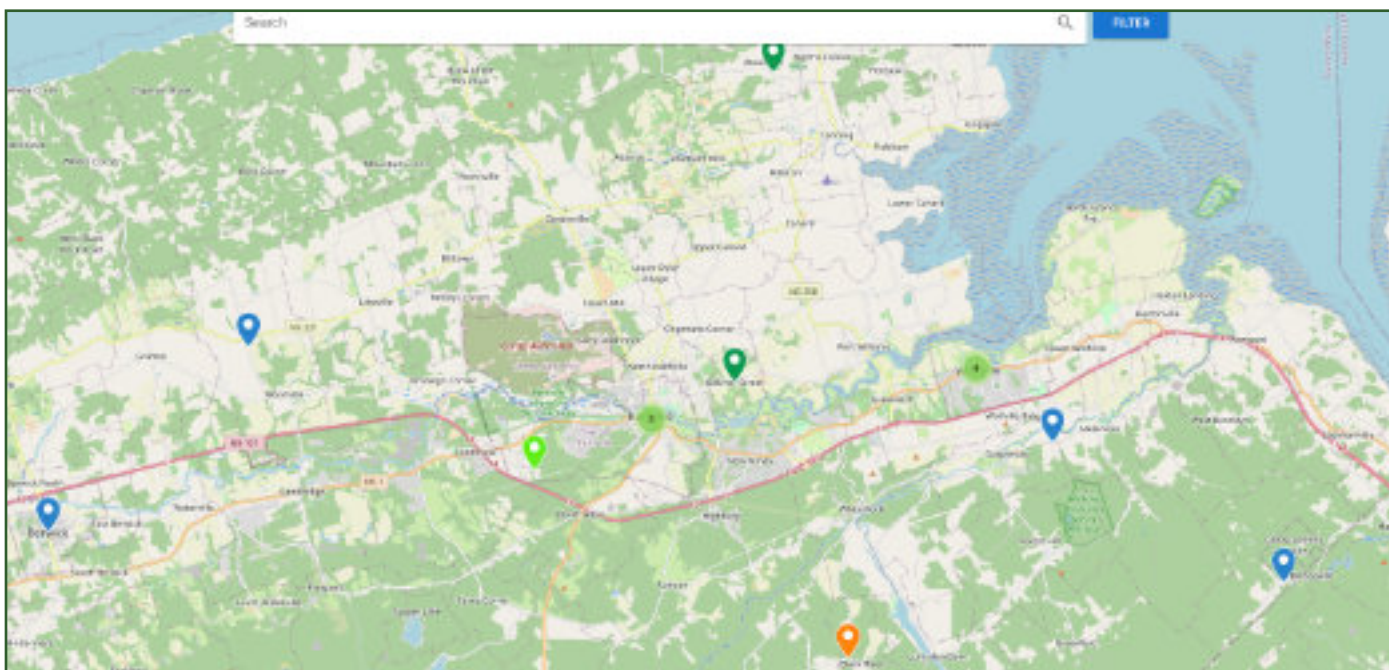
My journey with the Blomidon Naturalists Society (BNS) began in the late spring when I discovered a BNS summer student job posting that involved collecting information to populate a “Climate Change Map” (what on earth is that?). I had to learn more, despite having no experience working for a naturalist group nor understanding the first thing about populating a map. I raced to explore the website and discovered a friendly and inclusive approach to nature education and appreciation. Although I still had no idea of what to expect, I took a leap of faith and soon found myself seated across from Soren Bondrup-Nielsen at Chart’s Cafe, discussing the details of what we would soon refer to as the Climate Action Mapping Project.

The Climate Action Mapping Project is an interactive website designed to provide individuals with inspiration and hope regarding climate action in their communities. The storytelling map (see below) hosts a bounty of information about community groups,

businesses, and organizations in the Annapolis Valley that have made sustainability a central part of their values. From homes completely powered by solar energy, to farm-to-table meal kits, these initiatives serve as beacons of hope, demonstrating that small actions can indeed lead to significant change.

Discovering positive actions in your neighbourhood is as easy as visiting the project website (maps.climate-stories.ca), selecting a pinned location, and taking a moment to review the nearby stories. The map is in its infancy, and we encourage everyone to contribute positive stories to it. By focusing on positive actions and progress, the map contributes to a more balanced and optimistic conversation about climate change. It reminds us that we are not powerless spectators, but active participants capable of steering the world toward a more sustainable future.

The inspiration for this project emerged from discussions that took place during Climate Circles, a weekly program hosted by the Blomidon Naturalists Society



this past year in which community members gathered to discuss all things related to climate change: current knowledge, grief processing, activism, local mitigation and adaptation project planning, and more. In these conversations, it was evident that people were seeking a digital space that could capture and share the positive momentum in local actions. The importance of networking was reinforced when John Read (Colibri Software) offered his skills and services to help make this collective vision into a reality.

My purpose in this article is to share some inspirational examples from the climate map of how individual actions contribute to a more sustainable future, and how we can learn from and build on them, whatever our roles. In my early days in my role, I was questioning how suitable I was for this. Why did they pick me? Surely there must be others, more experienced and educated, who were better suited for this

I came to understand that climate activism is a movement that belongs to anyone that cares, regardless of their background or experience.

task. I wasn't sure where to begin. So, I gave myself permission to sit with these feelings and I reread the job posting like a mantra until finally a transformative moment arrived. I realized that I was chosen for this position because I was passionate and eager to learn about climate action, and the only thing standing in my way of joining the cause was myself. Over the summer I came to understand that climate activism is



Courtney Madore & Adam Webster. PHOTO: JENNA HAMPER

a movement that belongs to anyone that cares, regardless of their background or experience. The climate map provides an entry point into the movement for anyone and everyone. Here are three of my favourite stories that introduce the potential learning to be discovered through the map.

Olde Furrow Farm: The ABCs of Sustainable Agriculture

One of the first steps on my information-collecting journey should come as no surprise—a trip to the Wolfville Farmers' Market. I weaved my way through the sea of people, carefully examining each vendor and stopping for plenty of conversations along the way. Down one busy aisle, a small, shiny sign printed with the letters "ABC" caught my attention. I approached the shelf to take a closer look and was greeted by Adam Webster and Courtney Madore of Olde Furrow Farm. They explained the sign indicated that they had received an Agricultural Biodiversity



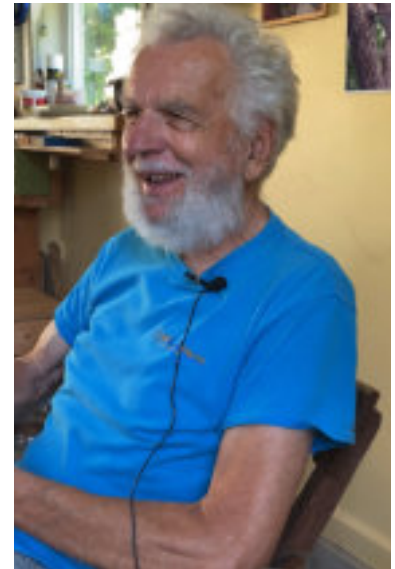
Olde Furrow Farm from the air. PHOTO: SOREN BONDRUP-NIELSEN

Conservation (ABC) plan through the Nova Scotia Department of Natural Resources. ABC plans supply farmers with specifically tailored land-use options that support biodiversity and habitat conservation, which mutually benefits the wildlife and day-to-day farm operations. Time was short, so I swiftly grabbed my purchases along with their business card, promising to visit soon. The following Thursday I headed out to Olde Furrow Farm, conveniently placed just minutes outside of Wolfville on Belcher Street. I found Courtney, Adam, and their sweet pup Ruby, at their Open Farm Day, which occurs every Thursday afternoon. For anyone new to farming, curious about ongoing projects, or simply wanting to say hello, this is a great place to visit and learn.

Focusing on positive actions and progress reminds us that we are active participants capable of steering the world towards a more sustainable future.

After an adventurous tour of the 100-acre property, we discussed their work and views of the future. Key practices at Olde Furrow Farm include non-GMO seeds, no chemicals, companion planting, crop rotation, hand weeding and harvesting, attracting beneficial insects, using compost and compost teas, and pasturing cows.

Practices like these are critical in reducing emissions and promoting environmental health because they help maintain biodiversity, prevent soil depletion, reduce energy requirements, encourage the presence of beneficial insects, and so much more. As Courtney pointed out, simply adopting these practices without knowing your land only partially addresses the issue. She explained how each piece of land has different qualities and flourishes under different conditions,



Ed Sulis. PHOTO: JENNA HAMPER

so developing a relationship and appreciation for your own backyard will ensure long-lasting, meaningful benefits. When asked how to best support Olde Furrow and similar endeavours, Courtney's answer was simple: "get involved, if you want to know something, send us an email! We always respond and that leads to so many opportunities to learn." Yet too often people do not feel comfortable asking these questions; that's where the climate map comes in handy. Olde Furrow Farm put itself "on the map" in a way that helps others reach out and learn with them.

Solar Powered Solutions

Just a few minutes down the road from Olde Furrow Farm, Ed Sulis (above) has turned his 150-year-old home in Kentville into a thriving eco-friendly haven. Ed, who relocated from Northern Ontario in 2000, faced a daunting task when he first laid eyes on the unkempt property. His professional background in engineering and a lot of determination led to a remarkable transformation that serves as an inspiration for others.

A first step involved tearing down the attached garage and constructing a workshop that enabled year-round electrical, mechanical, and woodworking activities run on solar power. Over the



Ed Sulis's solar house from the air. PHOTO: SOREN BONDRUP-NIELSEN

span of fifteen years, Ed's household projects included much work improving insulation and minimizing energy use. Switching from an electrical water tank to a heat pump saved an impressive 2000 kilowatt-hours per year! Ed gradually transitioned to renewable energy sources. Presently, his home boasts two arrays of solar panels on the roof, generating enough electricity to meet the yearly requirements of a spacious house.

Today, Ed is actively engaged in volunteer work, sharing his knowledge about harnessing solar energy with other households and organizations. He finds it incredibly rewarding to help in any way he can, and he has contributed to more than 30 projects in which households have successfully installed solar panels. Ed offers valuable insights into what can be achieved based on his dedication, commitment, and experience in reducing carbon emissions.

I am eager to share Ed's story because it demonstrates that with vision and hard work, a single individual can make a substantial impact for their own household and the environment. His small changes over time accumulated into a large difference that he never imagined fifteen years ago. Just as Ed's choices have rippled through the community, the efforts of each of us can contribute to a more sustainable future.

Connecting with Nature

Along my mapping journey I crossed paths with Wil Bruner, owner and operator of Soft Pine Wellness, who has another story worth sharing. Wil's contribution to climate action is crucial because it ties in a very important element that is often overlooked in the hustle of daily life—our personal well-being.

Balancing concern for the planet's future while avoiding an overwhelming sense of global responsibility can be quite a challenge. Our desire to contribute meaningfully while realizing that only so much can be accomplished in a single day can be taxing. In

moments like this, it is important to step back, take a breath, and reconnect. This is the essence of Soft Pine Wellness, a nature-based therapy and forest bathing experience.

Our desire to contribute meaningfully while realizing that only so much can be accomplished in a single day can be taxing. In moments like this, it is important to step back, take a breath, and reconnect.

Wil began his environmental career in biology and conservation, studying fish habitats. This provided him ample opportunity to run community education and stewardship events through which he discovered how much he enjoyed bringing people to nature. This newfound passion led him to a career in mental health. Wil began guiding wilderness trips where he could tie in his extensive knowledge of ecology to his personal

connections with his participants. He understood the power in bridging nature education and mindfulness, and completed his certification through the Association of Nature and Forest Therapy.

For Wil, the first step in addressing climate change comes from a place of care and respect for the health of our planet. The various

activities that Wil facilitates provide ample opportunities to have slow and reflective time in your body and in nature. He asks participants to reflect on how their relationships with nature can embody reciprocity.

Conclusion

Participating in the Climate Action Mapping Project has been a transformative experience for me, particularly because it demonstrates the importance of weaving community engagement into the fabric of climate action initiatives. From the very beginning, I have personally experienced the positive outcomes that can



PHOTO: SOFT PINE WELLNESS



Tea with Wil Bruner (left) of Soft Pine Wellness. PHOTO: SOFT PINE WELLNESS

emerge from genuine engagement, thoughtful participation, and open collaboration. I was welcomed into this new community with open arms. By integrating the collective wisdom, skills, and aspirations of individuals within the community, we amplify the impact of existing projects, allowing them to flourish in ways that might not have otherwise occurred.

Throughout the development of the Climate Action Map, I prioritized the main objective; for people to come away from it with the knowledge to enact change. The most powerful feature of the map is that it holds the ability to continue growing with each visit

and click of the mouse. A change may begin by putting a familiar face to a name, taking a few extra minutes to say hello at the farmers' market, or exploring the biodiversity in your backyard. The map is an open invitation to everyone to become a part of the solution through education and collaboration.

Each of us possesses the power to reshape our worldview and influence change, regardless of what others might say. For me, inspiration lies in compelling storytelling. Take a moment and recount your favourite fictional or nonfictional narrative (mine is 'A Bug's Life'). What would

become of our heroes if they simply gave up and succumbed to the negativity? We identify with these stories and their characters because we understand all too well how much easier it would be to choose fear over bravery, failure over success. We are inspired as heroes take initiative with the support of others. It is my hope that as this project continues to grow, we can identify and celebrate additional initiatives and people, and begin to examine the ways we can become the hero (or take a supporting role) in our own story.

Jenna Hamper is a third-year Community Development student at Acadia University with a strong interest in food security and education.



BLOMIDON NATURALISTS SOCIETY

2024 Membership Fees & Order Form

Members receive three issues of *Beyond the Tides* per year plus the monthly e-newsletter and the opportunity to participate in a range of nature programs and field trips. As a registered charity, BNS issues receipts for donations. Please note that BNS membership is not tax deductible. Annual membership fees are due January 1. Send payment by e-transfer if possible, or use this form and send a cheque or money order payable to Blomidon Naturalists Society at its address (see bottom right).

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_____	Natural History of Kings County	\$10.00	\$_____
_____	Within the View of Blomidon	\$10.00	\$_____
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Policies and Practices for Protecting Our Coastlines

The Maritimes are facing the highest rate of sea-level rise in Canada relative to our current levels. The time to address climate change on our coastlines is now.

BY WILL BALSER AND JANE HEENEY

Have you ever worried about whether downtown Wolfville will flood as the climate crisis brings rising sea levels and more intense storms? Are the dykes secure? How much more erosion will occur on the shores of the Minas Basin? Is Halls Harbour protected moving forward? There are no simple answers or solutions to these questions, but there are policies and practices that can be used to help us adapt to the situation. The time to address climate change is now. This article introduces you to a number of these tools and suggests ways to move forward.

The Coastal Protection Act

One powerful tool which can help is the Nova Scotia Coastal Protection Act (CPA), which is the first legislation of its kind in Canada. This is needed because Nova Scotia, along with the rest of the Maritimes, is set to face the highest rate of sea-level rise in Canada relative to our current levels—at least one metre by 2100. We are already seeing erosion rates of more than 30 cm per year in parts of Nova Scotia through increasingly frequent and intense storms and flooding events. Where a majority of Nova Scotia's coasts are largely unregulated by municipal land use bylaws, a holistic, province-wide approach to development control is the

most efficient and expedient method of preventing further reckless construction. The very first step in adapting to our changing climate and coast is to prevent new development from occurring in known flood and erosion risk areas.

The proposed regulations for the act, which have not as yet been implemented, give the province a coastal zone of control reaching 80-100m inland from the high water mark. This area of control will cover the

The Coastal Protection Act is valuable tool for coastal protection that is yet to be implemented.

coastline of the province, including developed downtown waterfronts (with relaxed regulations), tidal waters, estuaries, and barachois ponds. Within the coastal zone, new development will be subject to minimum elevation standards above sea-level, and require a site-specific assessment be performed by a designated professional under the act to determine the horizontal setback from the high water line. The designated professional's report will be submitted to the local municipality and evaluated as part of the existing building and development permitting process. As for existing development, the proposed regulations suggest a restriction on increasing the size or footprint of a structure that is in violation of the act—either too close to the water, or too low in elevation.

The Coastal Protection Act Legislation was passed in April 2019, and has since undergone a significant consultation process to develop the Regulations. Starting in 2018,



Announcement of public consultation report on the Coastal Protection Act, March 2022. From @NSGOV.

multiple rounds of engagement and feedback sessions have sought input from the public, municipalities, professional associations, and other identified stakeholders. Detailed reports on the proposed regulations were released in 2021, and engagement results were published in 2022. Immediately following Hurricane Fiona, Nova Scotia Environmental and Climate Change Minister Tim Halman pledged to roll out the Coastal Protection Act Regulations in “early 2023.” On August 1, Minister Halman announced that the Province would not commit to implementing the regulations before July 2025, citing a desire for more consultation, education, and “buy-in” from coastal property owners. The Province announced that their upcoming consultation and education program would begin this fall, and that Group ATN Consulting Inc. has been hired to carry out the engagement. In short, this valuable tool for coastal protection is yet to be implemented.



Plants protect shoreline. PHOTO: CBWES INC.

Tidal Wetlands and Dykelands

Healthy tidal wetlands act as the first line of defence for the coasts, and the remaining tidal wetlands in the Bay of Fundy are shrinking due to “coastal squeeze”—the limitation of their natural landward migration in response to changes in sea levels resulting from hard infrastructure such as dykes and seawalls. Deteriorating and disappearing coastal environments

leaves communities and infrastructure exposed and more vulnerable to the erosion, flooding, and storm surge that we are already seeing in the region.

The Coastal Protection Act offers no direct defence for wetlands, but does offer indirect protection through horizontal setbacks and minimum elevation requirements. Most coastal and tidal estuary wetlands and salt marshes will be protected by coincidence as they are located at or below the high water line, and therefore

well below building appropriate elevation. In addition, wetlands are protected under Nova Scotia’s Wetland Conservation Policy, with a goal of no net loss of wetlands of special significance, which includes all salt marshes.

One other important tool in preparing for the climate future is thoughtful upgrading and management of the dyke systems. The Coastal Protection Act will not place any

new regulations on maintenance, repair or modification work undertaken by or on behalf of a marsh body that manages specific dykelands, or the province. There are ongoing efforts to maintain and upgrade dyke infrastructure, but keeping up with sea-level rise and the heightened weather events associated with climate change is a challenging endeavour. This is where Nature-based Solutions (NbS) come in! Nature-based Solutions are actions that work with the natural environment to harness beneficial processes and ecosystem services to address societal issues.¹



Hybrid rootwad living shoreline. Left: 2019 with erosion & slumping, Right: 2021 with reduced erosion & post adaptive management. PHOTOS: CBWES INC.

Nature-based Solutions in Dykelands

Managed dyke realignment and tidal wetland restoration are examples of nature-based solutions that can help dykeland communities. In general, managed dyke realignment moves at-risk dyke infrastructure to a lower risk location. This is done by building a new dyke (either whole, or in part) further back from the water's edge, and strategically breaching, or altogether removing, the old dyke infrastructure to allow for the return of tidal waters to historic and naturally occurring tidal wetlands. The restoration of tidal wetlands and the services they provide help to better

Living shorelines can reduce the need to use hard infrastructure, such as seawalls, to address erosion, by stabilizing substrates and reducing wave energy.

protect agricultural lands and coastal communities, while also working to reduce the amount of dyke infrastructure requiring maintenance. Managed realignment sites are chosen carefully, with consideration of current land use and landowners, maintenance requirements, and issues in the surrounding areas.

Other nature-based solutions that work hand-in-hand with managed dyke realignment and tidal wetland restoration include improving drainage, implementing natural materials to facilitate a living shoreline, and constructed marshes with sills. Improving drainage in dyked areas can reduce flooding from significant rainfall events or the overtopping of dykes. Living

shoreline techniques incorporate natural elements, such as native plants, and strategically placed natural material, to mimic a natural shoreline. Living shorelines can reduce the need to use hard infrastructure, such as seawalls, to address erosion. They stabilize substrates and reduce wave energy. Nature-based techniques are monitored to see how a design is performing, and elements are added to address issues as they arise. An example would be planting appropriate vegetation and using natural materials such as fencing to secure the toe of a new dyke, where there may be unexpected erosion or a lack of natural plant regeneration.

Coastal Restoration in Action

The Belcher Street Marsh along the Jijuktu'kwejk (Cornwallis) River is one of four managed dyke realignment and tidal wetland restoration projects completed in Nova Scotia. The Belcher Street Marsh was restored as part of the first Making Room for Wetlands Project,² and is an example of how restoring ecosystems and enhancing habitat can also contribute to the climate resilience of tidal river systems. Pre-breach, the site was a mix of active and fallow agricultural land protected by a dyke that closely followed the sinuous river. The exposed, winding dyke was costly and labor-intensive to maintain, and was susceptible to erosion and flooding.

In 2018, a new section of dyke was built, straighter and further back from the river, and the old dyke was breached, ultimately restoring nearly ten hectares of tidal wetland. The site design also included a hybrid living shoreline of rocks and rootwads (interconnected tree materials) to address erosion adjacent to the new



Aerial photos of Belcher Street Marsh. Left: Year 1 post-restoration. Right: Year 3 post-restoration. PHOTO: CBWES INC.

dyke.³ Some erosion was identified in the first few years after the restoration, and adaptive management was implemented to support the living shoreline. The shoreline was stabilized using techniques such as wattle fencing (woven branches), and the transplanting of salt marsh vegetation.

Six years later, the Belcher Street Marsh is a thriving tidal wetland, with 100% vegetation cover. In addition to helping slow wave energy, trap sediment, and sequester carbon, a well vegetated tidal wetland provides habitat for wildlife. Decaying vegetation is consumed by decomposers and invertebrates, and acts as the base of coastal food webs. The wetland also supports a wide array of bird and fish species, pollinator species such as bees, and culturally significant plant species, such as sweetgrass.

Another example of coastal protection work is the Onslow-North River Managed Dyke Realignment project,⁴ which addresses major flooding issues in Truro and surrounding communities. After building two new sections of dyke to protect historical sites and infrastructure, the original dyke was breached, and three aboiteaux were removed. In October 2021, the return of unrestricted tidal flow began the wetland restoration process on nearly 100 hectares of land. The widened floodplain leaves room to accommodate high water levels, and the developing network of channels allows for better drainage to decrease water back-up on surrounding infrastructure. The floodplains also create a “parking lot” for ice, reducing jamming in the rivers. In addition to increasing resilience to storm surge and flooding, other benefits include carbon sequestration, and improved water quality, fish passage, wildlife habitat, biodiversity and pollination.

Conclusion

Climate change and its effects are already being seen across the province, and the time to act is now. There is no “one-size-fits-all” solution in a nature-based approach to climate change adaptation. Policy, research and on-the-ground action must come together to support healthy coastal development and resilient



PHOTO: CBWES INC.

coastal communities. A strong coastal protection policy, combined with proactive implementation of nature-based strategies, are the first steps in strengthening the resiliency of Nova Scotia’s coastal landscapes. If you or someone you know owns coastal property, or if you want to push towards better coastal regulations, please reach out to Nova Scotia Environment & Climate Change Minister Halman, Premier Houston, and your local MLA to let them know we need a Coastal Protection Act implemented now. To adapt to the changing climate and growing challenges faced by coastal communities, we must re-imagine our approach to coastal protection, and our relationships with coastal landscapes.

Will Balser is the Coastal Adaptation Coordinator with the Ecology Action Centre in Halifax, NS.
Jane Heeney is the Communications and Engagement Officer with TransCoastal Adaptations: Centre for Nature-Based Solutions, at Saint Mary’s University.

Notes

¹ <https://www.iucn.org/our-work/nature-based-solutions>

² <https://www.transcoastaladaptations.com/making-room-for-wetlands>

³ <https://www.cbwes.com/work/project-belcher>

⁴ <https://www.transcoastaladaptations.com/onslow-north-river>

Active Transportation in the Region—Failures, Challenges, and Potential

Governments claim to be enthusiastic supporters of active transportation. I need to be persuaded they are prepared to do more than sing its praises.

BY SANDY MCKINNON

You don't have to be a genius to ride a bicycle or see the benefits of riding one, or in keeping moving, whatever your choice of human powered locomotion. Active transportation is defined as "using your own power to get from one place to another," or as the Government of Canada website defines it, "walking, skateboarding, inline skating/roller blading, jogging and running, non-mechanized wheel chairing, snowshoeing, and cross-country skiing." It also touts active transportation as a benefit to our "health, society, transportation system, environment and economy."

Indeed, Canada's Active Transportation Strategy states it is the country's first coast-to-coast-to-coast strategic approach for promoting active transportation and its benefits. In addition to getting us from point A to point B, active transportation also improves our health and well-being en-route. It is vital to our economy and tourism sectors, and plays an essential role in connected and consistent multi-modal transportation

systems that support more equitable, vibrant, livable communities. It reduces healthcare costs, noise pollution, and improves air quality. Increasing active transportation also reduces greenhouse gas emissions and contributes to Canada's response to climate change.²

Given all of these benefits, I wonder why it has been such a difficult job to convince some local town and county councils in this region, and the provincial government, to support active transportation with more than rhetoric. Successive provincial governments in Nova Scotia of all

"Life is like riding a bicycle – in order to keep your balance, you must keep moving."
– Albert Einstein

political stripes have claimed that we are a poor province and cannot afford to invest in active transportation greenways. They argue that we must accept "shared trails," defined as trails shared with ATVs (motorized vehicles). It is my contention that the poverty is in their thinking.

Valley towns have been reluctant to establish protected bike lanes or extend sidewalks to areas of newer development. It took ten years to develop a "greenway" (a non-motorized trail) as part of the Harvest Moon Trail from Kentville to Grand Pré, and despite the popularity of the trail, the government still refuses to put a cross walk for the trail across busy Highway 358 in Greenwich. Trail users have to contend with a dangerous blind corner, which is an accident waiting to happen. As a comparison, the Rue Verte in Québec has been acclaimed by local and



Albert Einstein riding a bicycle in Santa Barbara, California circa 1933. From the collection of the Leo Baeck Institute, New York. <https://www.lbi.org/griffinger/record/243891>

international media, including the prestigious *National Geographic*, as one of the best cycling routes in the world. Its backbone was developed in ten years, and it has grown over the last twenty-five years. It now generates millions of dollars annually and is celebrated as a national treasure. It started with a provincial designation of a greenway (non-motorized) trail system, and included input and investment from individual communities along the route.

Our province could have had a comparable multi-million-dollar rural economic development trail system throughout the Valley and rural Nova Scotia. The President of Rue Verte gave a presentation at Acadia University a number of years ago and said that Nova Scotia was ideally suited geographically to establish a similar network. Imagine the possibilities if we only had the courage.

Nova Scotia passed on building a comparable national treasure here though the potential was there. Indeed, the abandoned rail lines that are a part of the Harvest Moon Trail were initially a gift to the province although a second-hand gift of sorts. For tax considerations, the railway companies across the country gave their abandoned lines to the Trans Canada Trail Foundation, which in turn handed them over to the individual provinces with the trust that they would implement their dream of a national active transportation corridor trail across the country. The decision of the Nova Scotia government to motorize the rail to trail system (share the trail with ATVs) was a misappropriation of the gift to the citizens of this province and a repudiation of the Trans Canada Trails Greenways vision and core principles, but this is now a historical footnote lost in the mists of time.

The abandoned rail lines, unfortunately, were not seen as a precious gift at the time by many rural communities. Individual communities were offered them, and only Kentville and Annapolis Royal in the



Annapolis Valley had the foresight to obtain ownership for their communities. In surveys over the years since, individual trail-side communities have demonstrated a preference for active transportation rail trail corridors, and challenged the provincial government to establish greenways in their areas, but they have often been thwarted by the province. Ruling in a famous court case, the Nova Scotia Court of Appeal stated that abandoned rail lines were crown lands, and even if the government established policies that favoured greenways, they were only policies, and they could follow them or ignore them with impunity. In 2021, the Uniacke Trail Society used the Nova Scotia Railway Act and established law to try to convert the

abandoned Windsor Hantsport Railway line into recreational rail trails. This attempt again failed.

The old adage “build it and they will come” has born fruit to some extent with the development of the Kentville to Grand Pré greenway and the seasonal Jijuktu'kwejk (Cornwallis) River greenway. An abandoned, weed

filled railway line, now repurposed, entices thousands of people daily to go for a walk, run, or cycle, and helps to sustain vibrant bicycle and outdoor outfitting businesses. The efforts to extend or connect the trail to the west have been compromised by provincial government insistence that ATVs be able to share the trail. Numerous studies have demonstrated that ATVs and active transportation are not compatible activities. Motorized use inhibits active transportation, but remains the preferred model by the provincial government, and the province owns the abandoned rail line through most of the western part of the Valley.

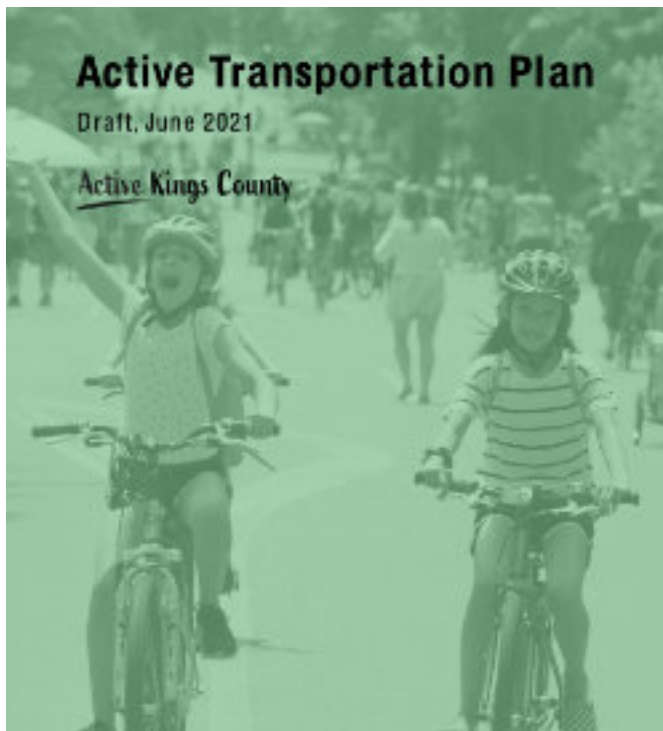
Eastward, the rail line has been a dormant line for many years. It is owned by the Windsor Hantsport Railway, which has had its legitimacy challenged by trail groups interested in developing a rail trail. However, advocates have been thwarted by the Nova Scotia Utility and Review Board which, despite being a

presumptive independent body charged with interpreting the Nova Scotia Railway Act, deferred the decision to the provincial government. The government made its decision when it opted to spend \$7.4 million building a tunnel for the non-operational rail line.³

Kings County now has a draft active transportation plan,⁴ but will it bring meaningful actions resulting in tangible infrastructure improvements?

If I sound pessimistic or dubious when governments claim to be enthusiastic supporters of active transportation, it's because I need to be persuaded they are prepared to do more than sing its praises. Government policy that favours greenways has to be enshrined in statutes, not dependent on policies that cannot be legally enforced. There needs to be actual support and development of active transportation infrastructure. There are positive signs.

The development of the e-bike has spawned a revolution, a rebirth of enthusiasm for cycling, and after years of various studies proposing to develop active transportation policies, towns have hired staff to coordinate active transportation strategies. The Nova Scotia government instituted the e-bike rebate a couple of years ago. Recently, the Nova Scotia govern-



ment has hired WSP Canada Inc, an engineering firm, to consult with interest groups to help develop an overall Nova Scotia Active Transportation Strategy.

Kings County now has a draft active transportation plan,⁵ but are these just more words, or will there be meaningful actions resulting in tangible infrastructure improvements? Given the history, there is reason to be skeptical. Wolfville, Canning and Kentville are planning to double the size of their communities within the next couple of decades. Is meaningful active transportation going to be built into the developments? Our political representatives and planners will determine the results, and as citizens at large, it is important to stay on top of these issues and get our voices heard wherever possible.

The combined effects of a Covid epidemic and the growing realization of the local effects of climate change have made more of us realize that we are not divorced from the travails of the world. Mother Nature can reach out and remind us that we are not in control, and are just along for the ride. It helps if your ride is a bicycle.

Sandy Mackinnon has been a cycle enthusiast for decades and is the self-described "scribe" for the Centennial Cycling Club, providing a weekly route for Saturday rides. He has not owned a car for more than a decade.

Notes

¹ <https://www.canada.ca/en/public-health/services/being-active/active-transportation.html#a2>

² <https://www.infrastructure.gc.ca/trans/active-strat-actif-eng.html>

³ <https://www.cbc.ca/news/canada/nova-scotia/n-s-spends-7-4m-on-tunnel-and-overpass-for-rail-line-that-has-no-trains-1.5769258>

⁴ https://www.countyofkings.ca/upload/All_Uploads/COUNCIL/Meeting_Documents/COTW/2021/2021-06-15%20COTW/reports/ATPlan.pdf

⁵ https://www.countyofkings.ca/upload/All_Uploads/COUNCIL/Meeting_Documents/COTW/2021/2021-06-15%20COTW/reports/ATPlan.pdf

Turning Climate and Eco-Anxiety into Positive Action

It is of paramount importance that we act locally in a way to give us hope and excitement for envisioning a positive future.

BY SOREN BONDRUP-NIELSEN

We live in the Anthropocene, the epoch dominated by human-caused environmental impacts. The UN and other environmental organizations are valiantly trying to organize movements to reduce climate change and species loss and extinctions. Still, the efforts pale in terms of what needs to be done. Fossil fuel and other resource extractive companies seem to hold sway with governments, preventing real meaningful policies from being implemented.

Outrage is potentially a constructive emotion as it charges you with energy, but that can be positive or negative. It is positive if one acts to effect change to better a situation.

Climate change is the impact that we feel the most here. Last fall brought Hurricane Fiona to Nova Scotia, followed by an extreme, killing, cold snap in January, devastating forest fires in the spring, then unprecedented rain storms and flooding, and most recently Hurricane Lee.

The news media loves to focus on the negative, the doom and gloom news, which is real. No wonder many people feel anxiety which manifests in different ways, such as depression, outrage and denial. But we seldom hear positive stories of people's actions to curb their carbon footprint, which can bring people together within communities, be empowering, and give a sense of real hope.

Depression brought on by human-caused environmental impacts is a genuine concern. I recently read *Generation Dread*, by Britt Wray. Many young people

are terrified, sad, and impacted psychologically by the projections of the global conditions in which they will age. There is now a CBC documentary with Britt Wray with interviews where several young women articulate their concern over climate change, and explain why they have chosen not to have children. Britt, happily married, struggles with whether to start a family or not. Of course, there are divergent perspectives, and an interview with an Indigenous woman is revealing. She argues that if she chooses not to have children, the colonial settlers will have won.

Many older people I have spoken to have said they are happy that they will not be alive to witness the impacts of climate change. Well, we are already living with



Examples of Local Climate Action: Brenda Gilmour, is an owner of Gaspereau Valley Fibres, a family-owned farm and wool shop in the Gaspereau Valley. They specialize in providing natural, locally grown fibre yarns. Their work includes nurturing a flock of over sixty Cotswold sheep and processing approximately 200 kgs of fleece. They foster a sense of community by hosting an array of classes that bring like-minded wool enthusiasts together. Their work demonstrates how businesses and individuals can contribute to climate action by making conscious choices that prioritize sustainability, local sourcing, and environmental stewardship. PHOTO: GINNY POINT.

them. Arguing that you will be dead when the impacts strike is a defeatist attitude, and also disheartening. The older generation should be the ones to do something, and at least help fund initiatives to mitigate climate change.

Outrage is potentially a constructive emotion as it charges you with energy, but that can be positive or negative. It is positive if one acts to effect change to better a situation. This can be difficult, and too often it is easy to blame others, especially politicians and CEOs who may benefit from the status quo. One can write letters to elected officials, sign petitions, and go on protest marches, but in my opinion, this is only effective if done on a massive scale. Then there is denial—this seems to be perpetrated by either people vested in the status quo or the conspiracy advocates who argue that climate change and other environmental impacts are hoaxes. This is a difficult group to influence. They believe in their positions, and arguing with them encourages them to cling tenaciously to their perspectives.

The steps individuals can take vary depending on social and financial factors, but they all add up. It is not a competition, and we should not compare what one person does with others.

I once took part in a lifeboat debate at Acadia University. We were scientists from different departments—chemistry, biology and others. We each argued how our expertise would be essential for saving everyone if we got the last seat in the lifeboat. We argued passionately from a scientific perspective. In the end, the moderator said that he had been a heavy smoker. He knew all the reasons why he should quit, but it had no impact. It was not until his family experienced the harm of smoking that he stopped. This made me think—if knowing the facts about a situation is not enough to sway a person, how do we reach the apathetic or the deniers to motivate them to change?

I recently read a book titled *How Minds Change*, by David McRaney, which was quite an eye-opener. It documented that arguing from a science and fact-based position tends to fall on deaf ears. Even well-educated people often hold to their conclusions when



Examples of Local Climate Action: As The River Bends Retreat (astheriverbendsretreat.com) is a harmonious eco-conscious haven, nestled beside the serene Halfway River in Eastern Kings County. This tranquil sanctuary provides nature-inspired experiences through out the property that change with the seasons and reflect the offerings of the natural world. Embracing a host of eco-friendly elements, their one-of-a-kind domes offer guests a chance to immerse themselves in the beauty of nature. The Pine Treehouse (above) offers a unique off-grid experience. Drift off to sleep under a blanket of stars and awaken to the soothing melodies of birdsong. At the retreat, guests can truly disconnect from the outside world to reconnect with themselves and the wonders of the natural environment. PHOTO: AS THE RIVER BENDS.

presented with logical, fact-based arguments. McRaney argues that the best way to speak to such people is not to challenge their position, but to gently talk to them about the assumptions they have made to arrive at their points of view. The goal is to get them to question their logic, and they may eventually see another perspective. However, people seem to require an emotional experience in their life for them to change their behaviour, such as stopping smoking, or to change their minds about an issue like global warming.

It is of paramount importance that we act in a way to give us hope and excitement for envisioning a positive future. I think it is essential to consistently practice the saying, "Think global." If people only think about themselves, particularly those in the older generations, there may be little impetus for acting. However, we must consider our children, grandchildren, and communities. Humans typically are reactive. When something breaks, we fix it. Seldom are we proactive in minimizing the chance of a breakdown. However, with climate change, declining populations of many species, and species loss, we must be proactive.

The environmental impacts we face are monumental and global, making it seem impossible for any

individual to do anything positive. In his book and associated website, *Drawdown*,¹ Paul Hawken proposes many excellent solutions for reducing carbon emissions, but they are primarily solutions requiring action from various levels of governments and large industries. There are government incentives to help people buy electric cars, put solar cells on their roofs, or exchange their oil furnaces for heat pumps. These are important initiatives, but extra cash is needed to foot the bill, and the impacts are significant only when the actions are adopted on a large scale.

Waiting for governments to act in top-down ways to bring forth meaningful solutions can be infuriating. There is enormous pressure from many special interest groups and lobbyists to maintain the economic status quo; thus, change requires a bottom-up approach. There is no shortage of local actions that individuals or communities can take to provide a sense of empowerment and potentially alleviate anxiety. Remember, many small activities can amplify to create a massive impact.

It may not seem like a big deal in the grand scheme but actions can be most effective at a local, community level.

The steps individuals can take vary depending on social and financial factors, but they all add up. It is not a competition, and we should not compare what one person does with others. We should all try to minimize our dependence on fossil fuels, consume less, and promote and establish natural habitats where possible. We can walk more, drive gasoline cars less, ride a bike, get an e-bike or EV, heat water and our house with heat pumps, and much more, depending on where we live and our financial status.

Natural habitats are rapidly disappearing, causing various species' populations to decline. Thus, if you have property, leave some of it in a wild state rather than manicuring it to "look pretty," which requires fossil fuel for lawnmowers. Pollinator gardens are hugely influential in promoting valuable habitats for hundreds of insects and birds.

These actions can be most effective at a local, community level. It may not seem like a big deal in the



Examples of Local Climate Action: PieceMeal (piecemealfood.biz) emerged in 2020 from Kara Friesen's (above) unwavering passion for promoting simple, delicious, convenient options for local eating. As a customer, you receive the ingredients for three meals a week of locally sourced food, including spray-free and organic items wherever possible. PieceMeal provides the veggies, the sauces, and the recipes created by Chef Fiona Lewis, and you provide the protein. Kara set out to create a culinary venture that would not only taste delicious, but support local farmers and producers, and positive climate action. You can subscribe to a meal kit through the Wolfville Farmers' Market to Go (WFM2Go). PHOTO: JENNA HAMPER.

grand scheme, but these actions can be empowering and set positive examples. As more individuals participate, a movement may become infectious. Listening to the news about the state of the world is disheartening. But turning the information off does not make the environmental problems go away. Thinking globally but acting locally is still the best advice to alleviate environmental anxiety.

Soren Bondrup-Nielsen is President of the Blomidon Naturalists Society and Professor Emeritus in Biology at Acadia University where he taught for many years. The examples of local climate action in this article are excerpted from the Blomidon Naturalist's Climate Map (maps.climate-stories.ca), which is a project spearheaded by Soren Bondrup-Nielsen.

Notes

¹ <https://drawdown.org>

Moses Mountain— A Colourful Autumn Hike

BY PETER WALLACE

There are very few look-offs from promontories along the edge of the South Mountain as good as the two at Moses Mountain, just south of Windsor, off Highway 14. The highest point is 210 m in elevation, and the views are greatly appreciated after a final short and relatively steep climb to get there. It is beautiful in the autumn when the hardwoods in the vistas provide an impressive collage of colour.

At the first look-off to the southwest (see photo below), one can see Falls Lake, the source of the water for the hydroelectric works at Mill Section on the Avon River. Running north from Mill Section is a ridge line with windmills, a testament to green energy production in Nova Scotia. The second and highest look-off is to the northeast on the other side of the hill, and if it is a clear day, you can see out over the Windsor Valley to the Avon and Kennetcook River estuaries. The walk between these two views passes through infant pioneer forest. The trail is fine in all four seasons, but be aware that in the winter there may be a lot more snow up here than in the Valley. Rainy days are a bit of a slog and you'll likely miss the view.

Directions: South of Martock, just off Highway 14, is a small parking area controlled by NS Power. It is a bit tricky to find the turn off from Highway 14. Approximately 7 km past Ski Martock on Highway 14, look for the blue municipal address sign number 2055, and turn right here onto a small dirt road. 2055 is the number of the house on the left once you turn into the dirt road. Across from the house, turn right into the small parking area. Straight ahead a short distance are gates across the dirt road, which is managed by NS Power. Park in the small lot even if the gates are open, because they might get closed and locked while you are hiking. As always, respect others, keep dogs leashed, and carry all your garbage out.

Description: The trail is a 3.8 km in-and-out hike that starts as a NS Power forestry road and ATV trail, and is quite wide, rocky and rough (see map on page 19). From the parking lot, take the immediate right fork and go through what appears to be an equipment storage area. This is followed by a bridge over the Avon River. The road branches again. Take the left branch and go up the hill alongside the river for about



800 m. Take the foot trail that goes off to the right here. The trail is quite evident and is the only foot trail in that area, but watch for it. Follow this trail up to the first look off, which is a rounded knob-like promontory or bald hill to the right with a great unobscured view to the southwest. From here, continue up to the second look-off with a view to the northeast that is somewhat obscured by trees. Down off the summit there are some small areas with grasses, bushes and small windblown trees (including beech and oak).

The trail leading up goes over and around a multitude of granite boulders of varying sizes. Some are large monsters that are lichen, moss, and fern covered (see photo). The promontory is rounded granite and lichen-covered. The most common lichens here are crustose



The gradient and the boulders give the trail a moderate rating, but children will love it because it is short, interesting and fun.

lichens, which form a thin crust over surfaces. If you must walk on a lichen, tread carefully on the crusty ones. Foliose lichens (leafy and anchored at the centre, such as target lichens) should be avoided because they take years, if not decades, to regrow when they are damaged. In the grassy areas, try not to disturb the fruticose (upright) lichens such as reindeer moss, which are equally fragile.

There are a few wet spots on the trail, but there is little need to worry about getting your feet wet. The summit is quite open with smaller trees (lots of oak and beech), while the trail up is more densely treed and boulder strewn. The gradient and the boulders give the trail a moderate rating, but regardless, children will love the trail because it is short, interesting, and fun. There are interesting dead trees with lots of woodpecker holes, and the usual understory of flowering herbaceous plants, ferns, and fungi. Keep your eye out for interesting plants, birds, and if you are lucky, a mammal or two (deer, hare, etc.).

To return, just walk downhill all the way! If you have children with you, stop and play poohsticks at the bridge (drop sticks in the water on the upstream side of the bridge and watch to see which stick comes out from under the bridge first). This is a hike where one feels a sense of accomplishment when finished!



Peter Wallace is a retired geologist who lives on the South Mountain and leads a weekly hiking group of retirees to areas of natural beauty and interest in the region. Peter contributed the photos and map specifications.

Bird-Window Collisions

How to understand the problem and do something about it.

BY MELISSA MCDONALD

Thud! Another bird hit your window. It lies dead or dying on the ground—likely succumbing to a head injury resulting from colliding with hard glass at full speed. Or, maybe it's not immediately mortally wounded, but it cannot continue its journey. It may have a slow, painful death, or perhaps a predator will eat it. Young birds that may have been relying on the dead parent for food are now in jeopardy.

The Problem

Ninety-five percent of all avian mortality in Canada is caused by cat predation and collisions with windows, vehicles, and transmission lines. Buildings are considered to be the second largest anthropogenic cause of direct avian mortality. The numbers are stupefying. An estimated 25 million birds are killed by colliding with windows across Canada annually (see map on opposite page).¹ Based on data and modelling, houses likely cause ninety percent of building-related mortalities, low-rise buildings slightly less than ten percent, and tall buildings approximately one percent. Why are houses responsible for such a large proportion of bird mortality? The number of houses in Canada far outnumbers low-rises and tall buildings, and they pose significantly more lethal obstacles for birds.²

The problem is not the house itself, but the glass in the house—whether the glass is in windows, deck rails, or fencing. Observational data and peer-reviewed studies show that birds behave as if sheet glass is invisible to them. Birds cannot recognize glass as a solid surface. They see reflections of vegetation,

or see through the glass to potted plants or vegetation on the other side.³

The Solution

FLAP (Fatal Light Awareness Program) Canada, a Canadian charity widely recognized as the pre-eminent authority on this issue, suggests that preventive measures start with a building assessment to decide

which windows need treatment. The building assessment asks the following questions to identify threats:

1. Have you ever heard or found a bird that collided with the window?
2. Can you see the surrounding landscape being reflected in the window?
3. Is there interior greenery visible through the window from the exterior?
4. Can you see through the window to an adjacent side?

5. Is there a bird feeder or birdbath greater than a half metre from the window?⁴

If the answer is yes to the first question, then answering yes to any of the additional questions helps identify possible causes of the collision. If you answered yes to number 5, then an easy solution might be removing your bird feeder or birdbath all together. This would reduce the visits of birds to or near your house, significantly reducing the risk of window collisions. There are other good reasons not to feed birds, including that feeders can be a hub for the spread of avian flu and other diseases.⁵

If the windows still pose a collision risk, then there are several window treatments that can help reduce bird mortality caused by your house.



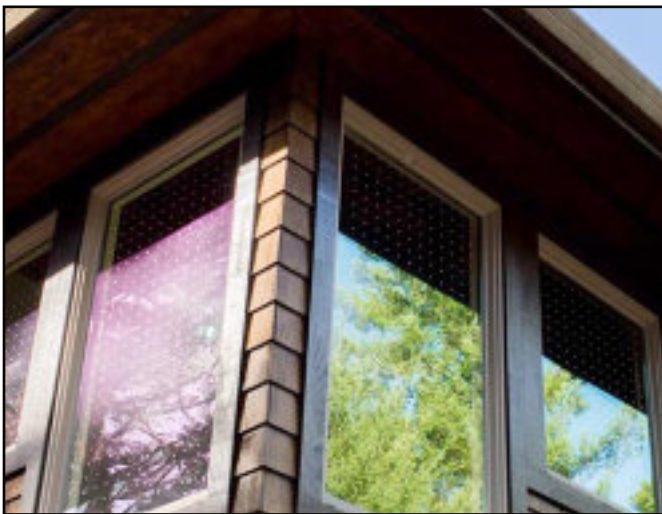
Yellow warbler after colliding with a window. PHOTO: FLAP CANADA

Visual Markers

FLAP Canada provides the following guidelines for applying visual markers to your windows to tell the birds—“glass here!”

- *Spacing*: Space markers by no more than 5 x 5 cm.
- *Contrast*: Markers must stand out in contrast to the transparent or reflective glass surface under various daylight conditions.
- *Size*: Markers should be no less than 6 mm (1/4 inch) in diameter. Cover the entire glass surface.
- *Surface*: Apply markers to the exterior of the glass.

Some commentators suggest that vertical lines spaced no further than 10 cm apart can be effective markers,

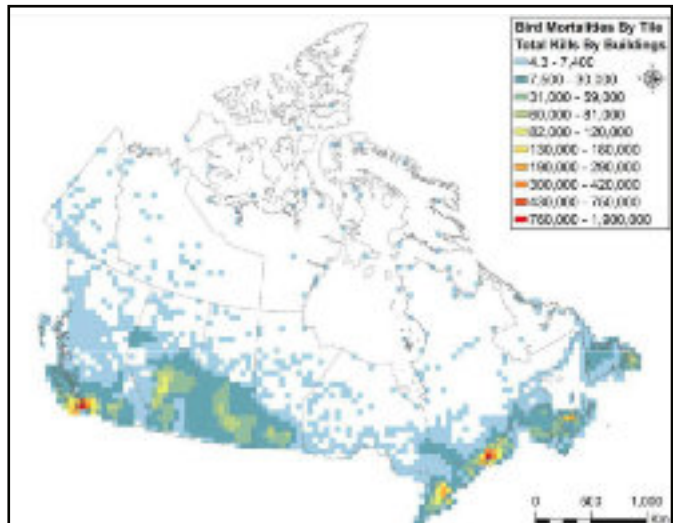


Visual markers on exterior glass. PHOTO: LEE VALLEY

because birds will not fly through areas where the distance between markers is smaller than their wingspan.⁶

Visual markers on the exterior of glass are key. The aim is for markers to tell a bird in flight that there is an obstacle ahead. They must cover the surface and be dense enough so that a bird does not think it can go between the markers. For example, a silhouette of a raptor on a window is not visible to a bird if it is on the interior of the glass. It is likely seen as just a black blot if it is on the exterior of the glass, and the message to the bird is that it can safely go under the black blot.

There are several options available for visual markers. They range from temporary and inexpensive to permanent and expensive. Flap.org provides an extensive list of possible solutions. Also, a broader



Approximate distribution of birds killed by collisions with windows in buildings in Canada.¹

internet search can provide other ways to mark your windows. Here are just a few possibilities:

- Use soap or tempura paints to make a design meeting the visual marker guidelines.
- Use masking or painter's tape to make a design meeting the visual marker guidelines
- Dotted tape can be applied to windows. This is more permanent, but can still be removed with a retractable razor scraper.
- Vertical ropes no more than 10 cm apart are a more permanent option, and can still be removed seasonally if desired.
- If you're building a dream home in the woods with large windows, consider the possible impact to birds that your new home will have in their environment, and provide permanent visual markers at the building stage through something like etched glass. In short,



Paints on exterior glass. PHOTO: MELISSA MCDONALD

bird-window collisions at houses and other buildings are a significant cause of bird mortality in Canada. They are second only to cat predation. Each bird killed through a collision with one window adds up to millions of bird deaths due to window collisions at houses and other buildings across the country. Each bird death prevented through window treatments helps reduce bird mortality and population declines. This is one environmental problem that can be easily tackled at the individual level—if there is a will to do so.

Melissa McDonald is a recently retired environmental lawyer. As a volunteer with FLAP Canada, she patrolled the streets in the financial district of Toronto in the early morning hours during migrations, collecting injured and dead migratory birds.

Notes

¹ Calvert, A. M., Bishop, C. A., Elliot, R. D., Krebs, E. A., Kydd, T. M., Machtans, C. S., & Robertson, G. J. (2013). A synthesis of human-related avian mortality in Canada. *Avian Conservation and Ecology*, 8(2): 11. <http://dx.doi.org/10.5751/ACE-00581-080211>

² Machtans, C. S., Wedeles, C. H. R., & Bayne, E. M. (2013). A first estimate for Canada of the number of birds killed by colliding with building windows. *Avian Conservation and Ecology*, 8(2): 6.

³ See Klem (<https://www.danielklemjr.org>), and Swaddle J. P., Brewster B., Schuyler M., Su A. (2023). Window films increase avoidance of collisions by birds but only when applied to external compared with internal surfaces of windows. *PeerJ* 11:e1467.4 .

⁴ BirdSafe® self-assessment, Dr. Daniel Klem, Jr., Professor of Ornithology and Conservation Biology, Muhlenberg College, Pennsylvania, U.S.A. <https://birdsafe.ca/homeowner-self-assessment/>

⁵ Burka, J. (2023). To feed or not to feed the birds: The threat of avian diseases. In the Winter 2023 issue of *Beyond the Tides*, vol. 50, no 1. Available at <https://blomidonnaturalists.ca>.

⁶ Sheppard, C.D. Evaluating the relative effectiveness of patterns on glass as deterrents of bird collisions with glass. 2019. *Global Ecology and Conservation*. 20:e00795.

Easy Steps to Create a More Sustainable, Pollinator-Friendly Garden

BY CAROLYN GREEN

A garden with a greater variety of perennials means more flowers in bloom with more shapes and colours to satisfy different pollinators.

You want to create a pollinator garden as you have been convinced to take action by the great articles in the last issue of *Beyond the Tides*, as well as by the “buzz” about these gardens in the community. You look out at a mostly lawn-covered yard and wonder where to start. This article offers some easy steps in three phases for a gradual transition, and also explains how these steps lower your carbon footprint and create a more sustainable garden.

Working with What You Have

If you want to keep your lawns, you can at least change to more sustainable lawn care practices. The most

important step is to abandon the idea of the “perfect” manicured lawn and mow 7-10 cm higher. This allows for clover and other broad-leaved plants to flower for the pollinators. The taller grass creates a healthier lawn, especially if you are using a mulching mower. With these changes, there are fewer inputs of watering, fertilizers, herbicides, or pesticides. The reduced mowing lowers your carbon footprint.

A second action is to add native plants¹ to your existing foundation planting or flower beds. Switching from planting annual bedding plants to native perennials means less soil disturbance, and native plants require less fertilizer. The result is healthier soil that sequesters more carbon.²



Add Pollinator Beds

If you are ready to reduce the size of your lawn, there's no need to dig up sod. Create a new bed using smothering techniques, and fall is the best time for this. Put cardboard or newspaper layers right on to the lawn and cover them with mulch. Next spring, plant right through the layers.³ This method is less expensive than buying raised bed kits and allows you to more easily add a new section each year. With any smothering method, you are not disturbing the soil, and the turf is naturally incorporated as compost (so less need for inputs).

When deciding where to put the new bed, remember that native plants are hardy and will form plant communities in a variety of conditions. Take advantage of this and remove lawn first from difficult areas such as a slope or a wet area. The site's climate, such as sunny and dry, or damp and shady, determines your plant choices.⁴ Putting plants in their preferred environments ensures a more sustainable garden that requires lower inputs of fertilizer and water, and less maintenance.

To fill your beds, potted plants assure success and can offer flowers the following year. There are a few simple guidelines for planting design. First, buy five or more of any one plant to create a large grouping, about a square metre in size. This mimics nature and makes it easier for pollinators to find the plant.

Second, try to plant three flowering plants for each of the three seasons, or make that a goal as you enlarge the garden. You should arrange your groupings in irregular patterns, mimicking the "drifts" that one sees in nature.

Create a Biodiverse Habitat Garden

As you enlarge your beds, you can create a more complex, diverse garden that not only provides nectar and pollen to pollinators, but also provides them with a home where they can find shelter and reproduce.

A larger garden with a greater variety of perennials means more flowers in bloom with more shapes and colours to satisfy different pollinators. Try to plant keystone plants, those which support the most pollinators, as host plants.⁵ You can take your garden to the next level by adding shrubs and trees. Start to create a layered garden, with ground-hugging plants, medium height, herbaceous plants, and taller shrubs and trees, all in the same bed, or in different combinations. Adding old logs, rocks, or other natural materials to provide shelter for small creatures can complete a natural scenario.

You can add value to an existing tree by surrounding it with a groundcover bed. Shrubs and trees support many insects, especially hosts in a caterpillar stage. The later pupal stage sometimes drops from the tree to overwinter on the ground. A ground cover bed will



This border pollinator garden is full of native plants, including hairy beardtongue, goldenrod, yarrow, pearly everlasting, blue vervain, black-eyed susans, wild bergamot, and more.

provide the needed shelter, especially with the addition of autumn leaves. Keep existing fallen leaves in place and rake leaves from your remaining lawn onto the new beds. These leaves serve as a natural mulch yearly, and later decompose to add compost. Recycling your leaves lowers your inputs, and trees and shrubs sequester ever more carbon as they grow.

Another significant way to support overwintering insects is to leave your perennial stalks standing through the winter. Some native bees find shelter in plant stalks, and birds, such as finches, eat the seeds of the dried flower heads.

As your plants grow, you will be rewarded with some that self-seed, or with new volunteer plants. This natural change over time should be welcomed, along with the increasing diversity of wildlife. However, it is important to learn about invasive plants and to remove them immediately.⁶

Besides food and shelter, most wildlife needs water. If you cannot add a small pond, put out a shallow bowl of water with marbles or stones in the bottom, suitable for perching. Taking care of this may seem like more work, but a trade-off is to forget the hummingbird feeders! You won't need them in your new biodiverse garden. I see hummingbirds feeding on my

flowers throughout the day, along with many native bees.

A fun way to reward your efforts is to apply to the Canadian Wildlife Federation for certification. There is an on-line questionnaire to see if your garden qualifies as a wildlife habitat garden.⁷ If this is successful, you can order a sign to place in your garden. Happy Habitat Gardening!

Carolyn Green is an avid native plant gardener, the coordinator of the BNS Butterflyway project, and a BNS board member. She contributed the photos.

Notes

¹ <https://blomidonnaturalists.ca/native-plants-for-biodiversity/>

² <https://www.audubon.org/news/the-hidden-carbon-trap-your-garden-its-all-about-so>

³ <https://xerces.org/pollinator-conservation/habitat-restoration/site-prep>

⁴ <https://blomidonnaturalists.ca/sample-garden-for-native-plants/>

⁵ <https://blomidonnaturalists.ca/native-plants-for-biodiversity/>

⁶ <https://nsinvasives.ca/plant-wise/>

⁷ <https://cwf-fcf.org/en/explore/gardening-for-wildlife/action/get-certified/>



The author's backyard is lawn-free and features a wildlife pond. Her garden is certified by the Canadian Wildlife Federation as a wildlife-friendly habitat.

What's in the Night Sky?

BY PATRICK KELLY

The Moon, Venus and Spica, November 9, 2023 at 5 AM.

GRAPHIC: PATRICK KELLY

Highlights for October to February

- Oct. 14: New Moon (Annular Solar Eclipse)
- Oct. 23: Venus—Greatest Elongation West (AM)
- Oct. 28: Full Moon (Partial Lunar Eclipse)
- Nov. 3: Jupiter at opposition
- Nov. 5: Daylight Silly Time ends
- Nov. 9: Venus 1° from the Moon (5 AM)
- Nov. 13: New Moon
- Nov. 26-27: Full Moon (almost full both nights: 5 AM)
- Dec. 12: New Moon
- Dec. 17: Saturn 2° from Moon (6 PM)
- Dec. 22: Solstice
- Dec. 24: Moon 1° from the Pleiades (4 AM)
- Dec. 26: Full Moon
- Jan. 11: New Moon
- Jan. 12: Mercury—Greatest Elongation West (7 AM)
- Jan. 18: Jupiter 3° from Moon (PM)
- Jan. 25: Full Moon
- Feb. 9: New Moon

Moon: In an annular eclipse, the Moon is near the far point in its orbit about the Earth, so it does not appear quite large enough to completely cover the Sun. Those standing along the path of “annularity” will see a “ring” of sunlight surrounding the dark side of the Moon. The track of the October 14 eclipse moves through Oregon and the Four Corners area of the Southwest United States, before crossing the Texas gulf coast. From there, it goes along Central America and into Columbia before ending just off the Atlantic coast of Brazil. All of Canada will get to see a partial solar eclipse, which will not be noticeable unless you use the proper safety equipment. For Halifax, the

maximum eclipse occurs at 2:37 PM, when 8% of the Sun’s area will be hidden. Don’t feel badly about missing this one. There will be a total solar eclipse visible from New Brunswick in just six months, and there will be lots of detail on that in the winter issue!

Unlike a solar eclipse, a lunar eclipse is visible to everyone on the half of the Earth that faces the Moon, as long as the sky is clear! Unfortunately, for this eclipse, that area of visibility is Europe, Africa, and Asia. For us, the eclipse ends just as the Moon rises.

On December 24, in the early morning, the Moon will be very close to the Pleiades, a cluster of young stars in the constellation of Taurus. They are also known as the Seven Sisters, or by the Japanese name of Subaru. The view will not be the best because the Moon is almost full, so it will greatly outshine the star cluster. It is still worth a look, especially as the cluster resolves nicely, even with small binoculars.

Mercury: Mercury reaches its greatest angular distance from the Sun in the morning sky on January 12. Make sure you have a low southeast horizon. At 7:00 AM, look for a really bright “star,” above and right of the glowing area on the horizon that marks where the Sun is going to rise. That is neither a star, nor Mercury—it is Venus! From Venus, look about halfway from Venus to the horizon along an imaginary line at the 8 o’clock position. The much fainter “star” will be Mercury.

Venus: Venus will spend the time covered by this note in the morning sky. On October 23, it will reach its

greatest angle from the Sun, and it will be impossible to miss, its blazing white light in the east. On the morning of November 9, Venus will appear very close to a thin crescent Moon, but you will need to be up at 5 AM to see it.

Mars: Mars is not visible over this time period because it is on the far side of its orbit “behind” the Sun, or appearing so close to the Sun that it is lost in twilight. Its greater distance also makes it much dimmer than when it is closer to Earth.

Jupiter: Jupiter is at opposition in early November—opposite the Sun as seen from Earth. That means that it is closest to the Earth, so it is brighter than normal, and it is in the sky all night, rising around sunset, crossing the southern sky near midnight, and setting near sunrise. On the evening of January 18, the Moon and Jupiter will be only about 3° apart. This happens when the sky still has some daylight. Look for the

Moon, high in the southeast sky. Jupiter will be the bright object just below it.

Saturn: Saturn was at opposition back in August. Since then, the Sun’s apparent motion has caused our star to gradually creep closer to Saturn. Saturn now appears halfway up the southern sky around sunset. Look for a brightish star with a soft yellow cast to its light. It is easy to find on the night of December 17 at 6 PM, when the Moon and Saturn will be about 2° apart.

Patrick Kelly has had a life-long interest in astronomy and has taught first-year astronomy for over 20 years, as well as presenting many shows at the Halifax Planetarium.

Spring/Summer Weather 2023— A Wild Ride

We saw it all during these seasons: dry, wet, hot, cool, and normal weather.

BY LARRY BOGAN

This report includes the period April through August, 2023, using weather information for Kentville. The Eastern Valley saw it all during these seasons: dry, wet, hot, cool, and normal weather. The late spring was cool and dry whereas the summer was hot and wet. Interestingly, the shift in moisture occurred in early June and the transition to warmer temperatures around the summer solstice. We received 39% of the normal rainfall in April and May, and 221% from June through August. The rains were a saviour for the forests and communities of Nova Scotia that experienced the wild fires in May.

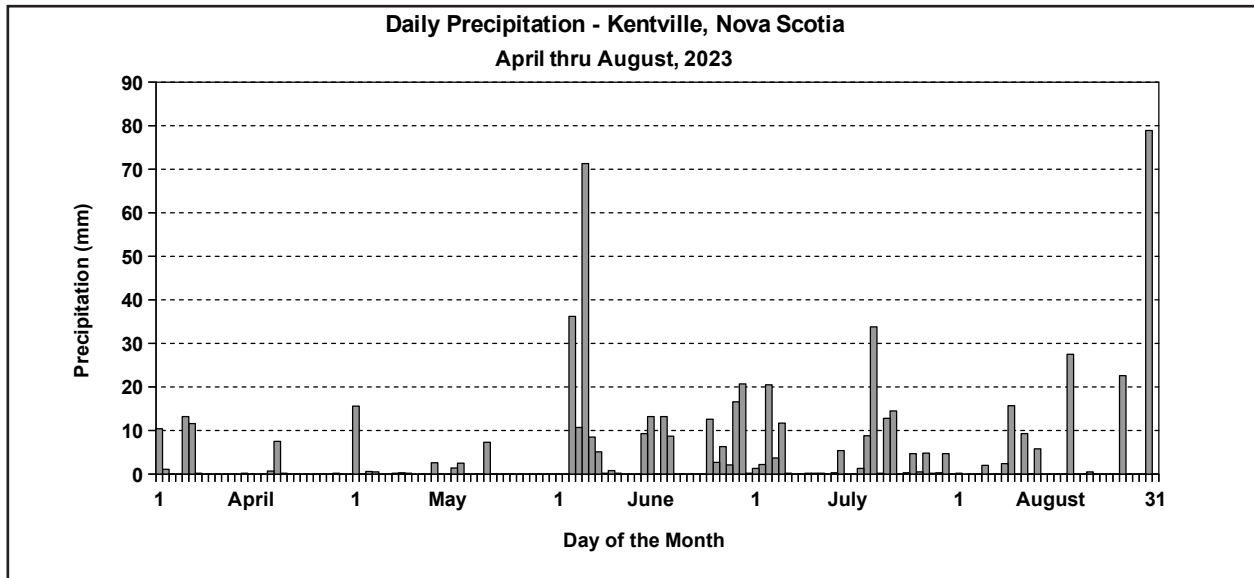
The transition from dry to rainy was interesting. At the end of May, there was a 12-day period of no rain, both cool and very hot days. On May 23rd, Kentville had its last frost overnight and five days later on May

28th it was 29.8 C. The hottest day came on June 1st at 31.9 C. The rains started on June 3rd, and in eight days, Kentville received 133 mm of rain! The weather pattern shifted from systems moving in from the west and north, to a flow up the Atlantic coast with moist tropical air.

How did the spring-summer period come out overall?

- The average temperature was 1/2 C above normal.
- The precipitation was 40% above normal.
- The number of days above 30 C was four, which is normal.

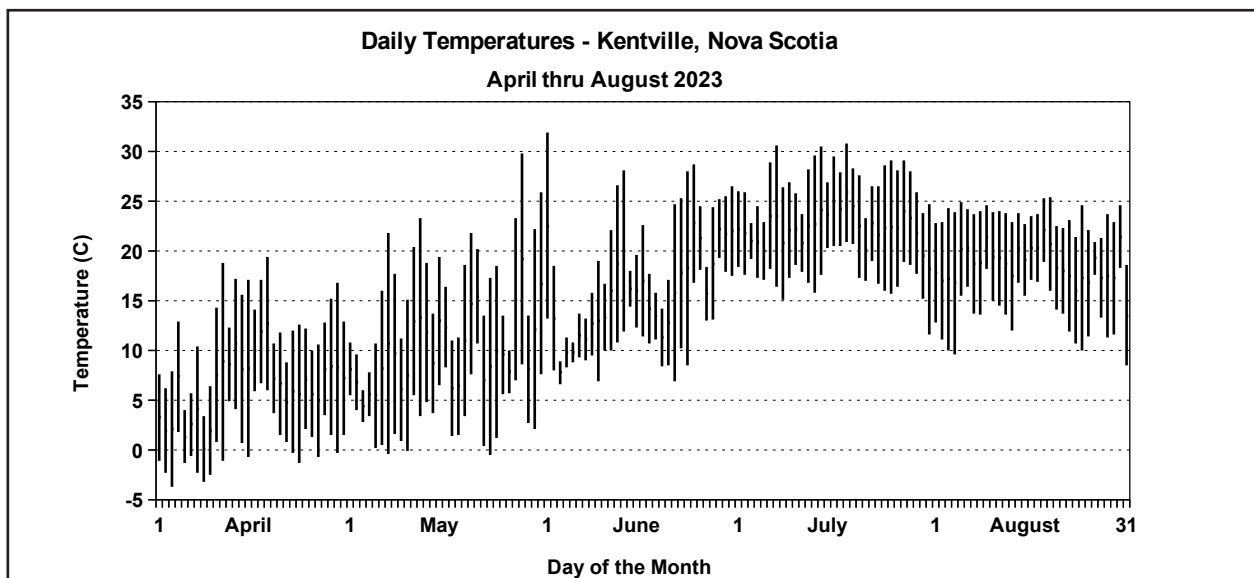
The details of the monthly variations are given in the monthly summary table to the right. Note that July was the hot month with a mean temperature 2.8 C above normal, whereas June was the wettest month,



bringing nearly three times the precipitation expected for that month. At the end of June, there was a twelve-day period when there was rain every day, and July saw another sixteen-day period in which there were only two days without rain. Because of cloud cover, there was less sunshine. Other areas of Nova Scotia had high rainfall at other times and there was flooding due to extensive thunder showers this summer. Some areas were badly hit when the weather front lined up the storms that repeatedly hit the same place. At the other extreme, May was the dry, cool month (0.9 C cooler than normal), with less than a third of the normal rainfall for the month. Once again, our weather lined up with climate change predictions.

	Max Temp	Min Temp	Mean Temp	Precip mm
April	11.9	0.8	6.4	45.3
<i>30 yr avg.</i>	9.9	0.6	5.3	92.7
May	16.4	3.7	10.1	31.2
<i>30 yr avg.</i>	16.4	5.6	11	102.1
June	20.4	11.3	15.9	238.6
<i>30 yr avg.</i>	21.5	10.4	16	81.6
July	27	17.6	22.3	132.8
<i>30 yr avg.</i>	24.9	14	19.5	84
August	23.3	13.9	18.6	164.6
<i>30 yr avg.</i>	24.3	13.6	19	76.7
April-August	19.8	9.5	14.7	612.5
<i>30 yr avg.</i>	19.4	8.9	14.2	437.1

Larry Bogan is a long term member and contributor to the Blomidon Naturalists.



What Was Up with the Monarchs this Summer?

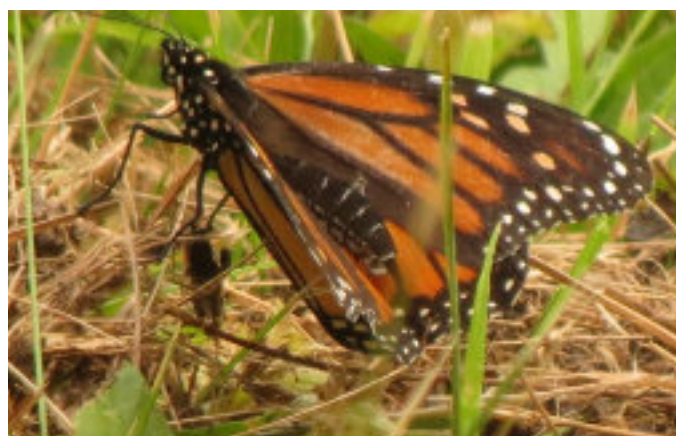
There were few monarchs in our region this summer, and weather seems to have had something to do with it.

BY LARRY BOGAN

The previous few summers have been good for monarch butterflies in our field of common milkweed.¹ The table below indicates the populations of monarchs this year and in recent years.

Year	Arrival Date	No. In Mid-July	Peak No. in Field	Date of Peak Count	No. Released
2020	June 16	6	64	Sept. 4	201
2021	June 4	42	62	Sept. 10	214
2022	May 21	22	128	Aug. 28	283
2023	July 14	2	28	Aug. 25	71

This year the first monarch arrived on July 14, much later than previous years. She must have been fertile, because we found five eggs on milkweed the next day. Monarchs require about a month to evolve from egg to butterfly, so the first eclosure (emergence of the butterfly from the chrysalis) was August 15. Monarchs that eclose later than mid-August are in diapause (not sexually active) and migrate south, so this year there was no second generation. There are many more



The first monarch arrival this year. Note the worn wings with missing scales. PHOTO: LARRY BOGAN.

monarchs in a second generation, so the peak number of wild monarchs seen in the field this year has been lower, and they have all migrated south.

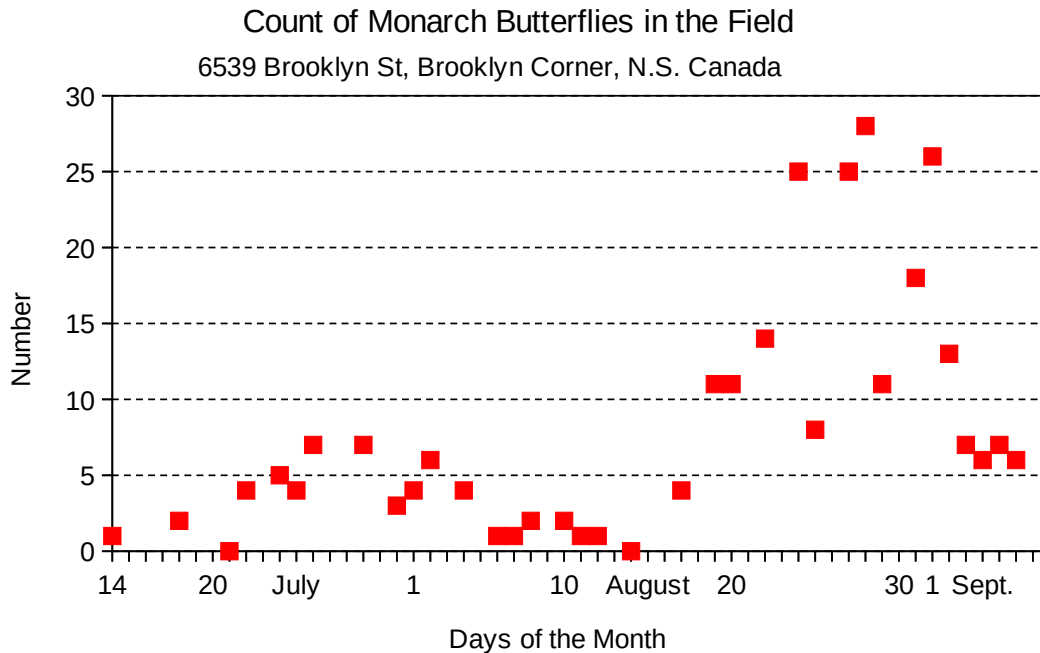
In previous years, the earlier arrival time allowed for a sexually active generation to emerge by mid-July and use the field for procreating a second generation. In those years, we saw many couplings of males and females, and an increase of eggs in the field. By late August, the field was a beautiful sight with as many as fifty to one hundred monarch butterflies flying about and sipping nectar from red clover, vetch, goldenrod, milkweed, and other wildflowers.

The graph to the right shows the number counted in our field during repeated routine walks. Additional monarchs arrived later in July, but those either died or left by mid-August. The late August increase in numbers is from the emergence of monarch butterflies who were bred in the field. Note that this peak is thirty days after the peak in numbers in July, when most of the egg laying occurred.

We did protect and raise a few eggs and young caterpillars, and tagged most of them. It is interesting that we never saw more than one or two tagged monarchs during the field counts. It appears that the new butterflies do not stay in the area very long. We tagged fifty monarchs this year.

Nova Scotia Monarch Population

I surveyed many common milkweed patches in the Cambridge and Coldbrook area and found less evidence of monarch presence than previous years. By August 1, I had found only two that had eggs, and a few caterpillars in the plots I surveyed. I only saw one



monarch adult flying outside of our field. Plots that normally had monarchs present in past years, had none this year.

There have also been fewer sightings of monarchs this year from other naturalists around the province that I have contacted. A search in iNaturalist showed that there were less than sixty reported sightings in Nova Scotia (including eggs and caterpillars) by September 1st. Most were not observed until August, which would be the generation reared in Nova Scotia.

Period	Date of Peak Count	Number Released
May 1 - July 15	5	5
July 15 - Aug. 1	15	20
Aug. 1 - Aug. 15	17	39
Aug. 15 - Sept. 1	19	57

Total observations from iNaturalist

The smaller numbers in the province seems to be unique this year since reports from Monarch Watch (monarchwatch.org) and Journey North (journeynorth.org), indicate a reasonable summer for monarchs in the US mid-west, where monarchs are most frequent.

Journey North website maps the reports of monarch sightings and codes them according to date. The monarchs moved north uniformly through eastern North America until they reached the northeast US, when they suddenly stopped in late May. In contrast, the migration continued north in the mid-west.² In short, the delay of the monarchs into northeast North America may have been due to the cool late May and early June. Hopefully, the seasonal weather will be better for the monarchs next spring and summer.

Larry Bogan is a long term member and contributor to the Blomidon Naturalists.

Notes

¹Our field of common milkweed on Brooklyn Street in Brooklyn Corner, N.S., has been dedicated and maintained for monarch breeding since 2008. The field is two hectares in size and was left to go wild in 2006. It is mowed with paths for access, as well as to encourage re-sprouting of young milkweed plants that the monarchs prefer for laying their eggs. It is surrounded by trees on three sides, which is where the monarchs roost. Most of the chrysalises end up hanging on older milkweed plants and nearby trees. Monarchs have been breeding in this location since 2005, with only two years (2009 and 2013) when no monarchs arrived from the south.

²The link to see the animation is at <https://maps.journeynorth.org/map/?map=monarch-adult-first&year=2023>

Gearing up to Camp: Fall Skill-Building Program for Youth

The Duke of Edinburgh Award recognizes the amazing things young people can do and learn outside of formal education.

BY JUDY LIPP

In keeping with the back-to-school season, Flying Squirrel Adventures (FSA) is offering youth a back-to-the-woods learning opportunity: a back-country camping trip to Kejimikujik National Park. As part of our youth leadership program, we are supporting youth interested in learning essential skills needed to stay safe and have fun in the wilderness. There is nothing like a group camping trip to grow confidence, build skills, meet new people, and enjoy the great outdoors. Through the summer, youth enrolled in our Duke of Edinburgh Award program and participated in a series of learn-to-camp modules covering a range of topics from route planning and navigation, to food handling and camp cooking, water purification and camp set-up.

Through the fall, we've been meeting in-person to practice these skills and prepare for our trip in late October. The program is open to youth ages 14-18 years, and the camping trip counts towards the Duke

of Edinburgh Bronze Award, an internationally recognised youth program hosted by Flying Squirrel Adventures. We became a licensed award centre one year ago, and this is our first camping expedition with youth.

The Duke of Edinburgh Award recognizes the amazing things young people can do to learn outside the boundaries of formal education. It empowers youth to discover their hidden talents, develop untapped leadership potential, and make a difference in their community. The Duke of Edinburgh Award supplements programming we already offer, inspiring young people to invest in their personal growth, and continually overcome new challenges.

Youth not only complete a 2-day expedition to achieve their Bronze Award, they must also commit to building a new skill, participating in a physical activity, and serving their community for at least

thirteen weeks in each category. The Award emphasizes youth leadership, and thus requires youth to set goals for each of the above categories, find mentors to help them achieve those goals, and commit to weekly participation in their chosen activities.

Our youth program is open to all young people in the Valley, and we are particularly keen to have newcomer and other underserved youth enrolled. For many newcomers to the Annapolis Valley, it can be difficult to access and stay committed to a leadership program. They might have



Roasting marshmallows at our Learn-to-Camp session at Blomidon in July.



Camp cooking practice session at the Kentville Gorge in the spring.

barriers to transportation if they live in a rural community, or their family might not be able to afford the registration fees. Many don't yet have the community connections to community services and recreation. The FSA team supports youth in these situations.

We also know that many newcomer youth may not have any camping experience. To help build familiarity and comfort around camping, we hosted a learn-to-camp session as part of our Nature for Newcomers series this summer, as a way to introduce families to camping in Canada. We spent an evening at Blomidon Provincial Park putting up tents, touring the grounds, receiving an orientation from camp staff, as well as building a campfire and enjoying smores together. This past spring, we practiced camp set-up and camp cooking with a small cohort of youth to get participants familiar with some of the basics of camping.

We have been working with our friends at Y-Reach to reach newcomer youth, hosted an information session translated into Ukrainian, and have program information available in Ukrainian.

Thanks to our funding partners, we are able to provide full bursaries for this program.¹ We also have all necessary camping gear available and transportation to and from Keji is arranged.

The Youth Leadership Program operates on a rolling basis. You can register at any time. Learn more about it on our new website at www.flyingsquirreladventures.ca, and/or join us on-line for an information session—hosted the 2nd Wednesday of every month. We hope you'll help spread the word to youth in our community—all are welcome.

Judy Lipp is Program Director of Flying Squirrel Adventures, a program of the Blomidon Naturalists Society. All photos are contributed by Flying Squirrel Adventures.

Notes

¹ We greatly appreciate the support of the Levenhurst Foundation, the Western and Central Kings Community Health Boards, Nature Canada, the Nova Scotia Department of Communities, Culture, Tourism and Heritage, as well as the Canadian Parks and Recreation Association. Flying Squirrel Adventures was recipient of a Canadian Parks and Recreation Association "Reaching Each and Every One Grant: A Community Sport Intervention program." This program, which was funded by Sport Canada's Community Sport for All Initiative, seeks to remove barriers and increase sport participation rates for equity deserving groups across Canada.



Youth learning to tie a bear hang to keep food safe in the back-country. .

An Immense World:

How Animal Senses Reveal the Hidden Realms Around Us

REVIEW BY RICHARD STERN

I recommend this book by Ed Yong for the fascinating insights it provides into the different and often amazing ways that other creatures sense the world around them.

It starts with the premise of imagining an elephant, a mouse, a robin, a bat, a rattlesnake, a spider, a mosquito, a bee, and a flower in the same room. A person then walks in and can see them all. The rattlesnake and the mosquito can only smell the person. The mouse squeaks, and only the bat can hear it. The elephant roars at a pitch too low for the bat or the mouse to hear, but the roar is felt by the rattlesnake. The rattlesnake can hear the robin, but not the complexities within the robin's song. The elephant can't see the red on the robin. The bee can see the ultraviolet on the flower, which the person only sees as yellow. If the lights go out, the bat, the snake, and the spider can detect the person when she walks around.

Each chapter is devoted to a detailed description of some of the remarkable senses that some creatures use to catch prey, escape from predators, or meet a mate. Some of the descriptions are quite detailed, and include descriptions of the remarkable experiments that people have used to discover these abilities, and to understand the senses themselves. For example, birds and bees can see in UV light, including colours beyond human perception, because they have more retinal cones than humans.

Imagine, octopuses have a type of brain in each tentacle, so each tentacle can work independently.

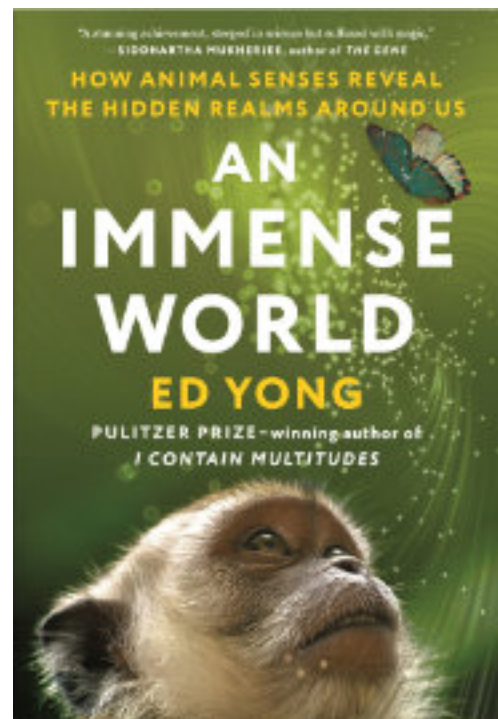
Spiders' webs are essentially an extension of the vibration receptors in their brains. If we could hear a bat's echolocation sounds at a human pitch, they would sound as loud as a jet engine, and some

animals, and presumably migratory birds, have a magneto-receptor of some kind in their brains.

The penultimate chapter discusses how creatures can put together several different senses, while the final one discusses how human activity is affecting biodiversity by ignoring the sensory methods described in the rest of the book. This chapter, entitled "Save the Quiet, Preserve the Dark," makes for rather gloomy reading as one realizes the vast impacts that humans have on animal senses.

Despite the technical aspects of much of the descriptions, I found the book easy and joyful read.

Richard is a retired physician, who is passionate about birding and photography, and who has lived in Kings County and been a member of the BNS for many years.



Weeds:

In Defense of Nature's Most Unloved Plants

REVIEW BY GILLIAN THOMAS

Richard Mabey, best known for his award-winning book entitled *Nature Cure* (2005), fuses autobiography and botanical observation in *Weeds* (2010), a highly readable work appealing to both specialists and the general reader. Mabey focusses on our cultural response to plants. “Weed” is not a botanical category, but a cultural one. It might be considered “a plant in the wrong place,” or more generously, Emerson called it “a plant whose virtues have not yet been discovered.”

Nor is “weed” a fixed category. Both Japanese knotweed and giant hogweed began their UK existence as “ornamental curiosities” imported by the Victorians. Similarly, a plant that’s highly valued in one location can be a noxious weed in another. The rhododendrons, so carefully nurtured in Nova Scotia gardens, are towering suppressors of other vegetation in many British woodlands, where they’re often subject to extirpation orders.

Weeds are intrepid travellers, but their movement has been predominantly in an east-west direction, embodying “ecological imperialism.” Plantain acquired the name “Englishman’s foot” after arriving in North America. Their travels are facilitated by their ability to hitchhike. Canada fleabane (a rare case of a west-east migrant) arrived in Britain in the 1600s in the feathers of a stuffed bird. Pineapple weed pops up in gravel driveways because the seeds fit neatly into the treads of car tires.

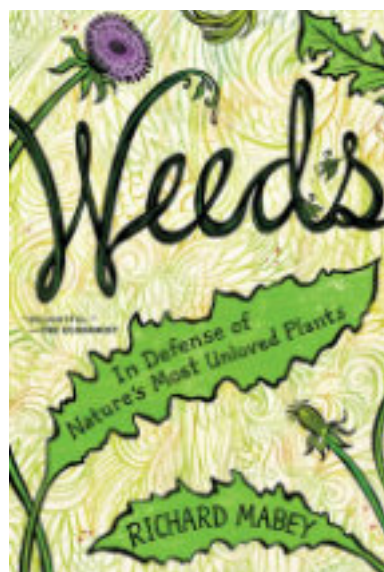
The vigour of weeds has long inspired awe. London rocket appeared so profusely after the Great Fire of 1666 that some speculated it had been generated by the ashes. The fireweed that covered bomb sites after World War II was named “bomb weed” by Blitz survivors. The kudzu vine that’s so prevalent in the US Southeast, and now in Ontario, can grow a foot in twelve hours. Propagation rates are equally impressive, with a single fleabane capable of producing as many as 400,000 seeds. Unlike the briefly viable

seeds bought by gardeners, some weed seeds are capable of germination for decades, or even centuries.

No wonder that official responses are often irrational or contradictory. Houston, Texas, bans all “uncultivated vegetable growth taller than nine inches.” The “noxious weeds” listing for some provinces makes for puzzling reading. Alberta maintains a speculative list of weeds, not yet widespread, but under suspicion of becoming noxious. Nova Scotia includes milkweed, despite its role in sustaining the monarch butterfly. Yellow nutsedge, which is quite rare despite its invasive potential, receives a “noxious” designation, even though current research is investigating its potential as a superfood.

Mabey concludes that weeds function like an immune system repairing the damaged tissue of earth stripped of previous vegetation. Weeds convey the message: “We were here before you, are your constant and ubiquitous companions, and will be here when you are gone.”

Gillian Thomas is a retired English professor, with a life-long interest in wild plants.



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We welcome everyone who is curious and wants to learn and share about nature.

- Join in field trips
- Attend our monthly talks
- Volunteer for nature protection and climate action
- Support kids and youth programs at *Flying Squirrel Adventures*
- Receive monthly e-newsletters and *Beyond the Tides*
- Become a member and donate to our work!

For more information and/or to become a member visit: blomidonnaturalists.ca
or contact us at coordinator@blomidonnaturalists.ca.



PHOTO: CAROLYN GREEN

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