


FREDERICTON NATURE CLUB



Newsletter 

Summer 2023 



“Spring Fling” at the Diamonds’ ranch in Stanley

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<p>Editor's Corner</p> <p>Hello to the summer and to all our members! This issue represents the first step in turning our biannual club newsletter into a quarterly newsletter. If you would like the newsletter to include articles, book reviews, poetry, or stories pertaining to nature, please consider contributing such content yourself. Photos of birds, wildflowers, etc. are always welcome! Thank you for your understanding.</p> <p>As well, please welcome Doug Jackson as the new Treasurer of our club!</p>	<p>Le mot de la redaction</p> <p>Bonjour à l'été et à tous nos membres ! Ce numéro du bulletin du Club est un premier pas vers un bulletin trimestriel. Si vous désirez un bulletin qui comprend des articles, des critiques de livres, de la poésie, ou des anecdotes portant sur la nature, songez à en soumettre vous-même. Des photographies d'oiseaux, de fleurs sauvages, etc. sont toujours les bienvenues. Merci pour votre bienveillance.</p> <p>Souhaitons le bienvenu au nouveau trésorier du Club, Doug Jackson !</p>
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Meeting Reports

Fredericton Nature Club Meeting: 6 April 2023

Presenter: **Toon Pronk**

Title: "Geology of the Greater Fredericton Area: a Place Shaped by Rocks, Upheaval, Rivers, Ice and Tides"

Number of attendees: 32

Toon started off by recommending the book, The Last Billion Years. 2nd ed. for which he wrote a chapter. Toon is a Quaternary geologist. The Quaternary is: "the current and most recent of the three periods of the Cenozoic Era." ¹, Toon's specialty is the geology of the Ice Ages. Toon later mentioned Antoine O'Sullivan, one of the authors of this text. Antoine has applied our knowledge of the NB soils and surface geology deposits to his Ph.D. research at the Canadian River Institute in fish habitat and would claim "It's all about the geology." Toon suggested that the club invite him as a speaker.

Toon then projected a map of Fredericton's geologic breakdown. He showed mages of geologic structures in Odell Park, e.g., ledges. He presented LIDAR images. Fredericton, a triangle bordered by two highlands, the Miramichi and Caledonia highlands, mostly lies on top of sedimentary rock. There is a fault line that runs from Killarney Lake Park to Penniac. Right now, there is no volcanic activity in the Maritimes, but our geologic past stretches back 850 million years. Three hundred and fifty million years ago the Alleghanian orogeny ² occurred; "The Alleghanian orogeny or Appalachian orogeny is one of the geological mountain-forming events that formed the Appalachian Mountains and Alleghany Mountains." Oromocto Lake was the SW corner of the Carboniferous Basin that lay in the centre of the continent, Pangaea. One local

geographic feature is a drumlin. If you want to see carboniferous rock (and possibly discover fossils as well), travel down Highway 8. Milankovitch cycles triggered the Ice Ages. “Milankovitch cycles describe the collective effects of changes in the Earth's movements on its climate over thousands of years. The term was coined and named after Serbian geophysicist and astronomer Milutin Milanković. In the 1920s”³ Ice flows changed and drainage accelerated. The landscape was glacially sculpted; one of the resulting features is “whalebacks.” “Glacial striations or striae are scratches or gouges cut into bedrock by glacial abrasion. These scratches and gouges were first recognized as the result of a moving glacier in the late 18th century”⁴. Examples of striae are the grooves in the Botanic Garden and the eskers at Killarney Lake.

Toon recommended the Netflix documentary, Breaking Boundaries. Toon offered to take club members on a walking tour of Odell Park, to see some of the geological features he mentioned in his talk. * Attendees asked questions at the end of the presentation. Thank you, Toon, for your knowledgeable expose of mind-boggling geological concepts applied locally.

1. “Cenozoic” in Wikipedia at [Cenozoic - Wikipedia](#)
2. “Alleghanian orogeny” in Wikipedia at [Alleghanian orogeny - Wikipedia](#)
3. “Milankovitch cycles” in Wikipedia at [Milankovitch cycles - Wikipedia](#)
4. “Glacial striations” in Wikipedia at [Glacial striation - Wikipedia](#)

* *Toon’s field trip notes can be seen in the Outing Reports.*

Fredericton Nature Club Meeting: 11 May 2023

Presenter: **Samantha Brewster, Outreach Specialist, Ducks Unlimited Canada**

Title: Wetlands of the Wolastoq

Number of attendees: 16

Samantha earned a forestry degree with a wildlife interest at UNB. She found her calling when she landed a job as a nature interpreter at a park. She now works as an Outreach Specialist with Duck Unlimited Canada (DUC). Samantha talks to over ten thousand students each year. This year during Science Week alone, she spoke to eight thousand, five hundred children. Home base for Samantha is the Ducks Unlimited Conservation Centre on Union Street in Fredericton. DUC is currently involved in a tenyear restoration program on the lower Saint John River/Wolastoq flood plain; Frank Merrill and his conservation team are leading this project. This DUC project is in partnership with First Nations communities, Robertson Pitman Foundation and many other partners.

The Saint John River is six hundred and seventy-three kilometres in length. “Wolastoq” means “The Beautiful Bountiful River” and is important to the Wolastoqey and Mi’kmaq First Nations. The Wolastoq has one of the most extensive and diverse wetland systems in North America. DUC involvement with the Wolastoq goes back over fifty years to Williamstown Lake and to the 1970’s focus on developing areas to reverse wetland loss and to support biodiversity. DUC manages over sixty legacy projects on the Wolastoq covering over two thousand, six hundred hectares in the floodplain.

In all Atlantic Canada, DUC projects cover almost forty-eight thousand, six hundred hectares. DUC maintains wetlands using dykes and other water control structures. The organization also employs fish ladders. DUC has sunk \$60 million in wetland conservation. Sixty thousand acres have been conserved in over five hundred projects. DUC started in 1938 in Manitoba to try to save ducks by restoring wetlands. The original DU is American and is an older organization than DUC. A “project” occurs when DUC goes in to maintain a wetland using berms and other water control structures: marshes, which are good for carbon sequestration, must be monitored for water depth. The following are some examples of projects: Nutter Creek, Long Island, McAllister’s Marsh (on Gagetown Island), and Passakeag Marsh. Beavers can be a problem; DUC uses beaver levelers to stymie beaver work. DUC’s waterfowl nesting program, essentially a nest box project, began in 1985. Volunteers may help with this: if interested, contact S. Beaton-MacEachern at S_beaton@ducks.ca

Thanks for a very professional and enjoyable presentation, Samantha

Outing Reports

Event: **“Spring Fling”** organized for our club by **Nature NB & FNC Outing Committee**

Date: **30 April 2023**

Outing Leaders: **Dorothy Diamond** and **Dr. Jeff Martin** and **Francie Morgan**, both staff members of the **Nashwaak Watershed Association**

Location: (1) NB Trail northeast of Taymouth (2) the property of Dr. Tony Diamond and Dorothy Diamond on the English Settlement Road, Stanley, NB

Number of participants: **17**

As promised, Jeff and Francie did “tell us about some of the current research on bank swallows within the watershed” but it was too early for these birds. However, our group walked a couple kilometres on the NB Trail and revelled in the panorama of the Nashwaak River valley. We met again at the homestead of Dr. Tony and Dorothy Diamond where we were treated to close hand views of many birds at the Diamonds’ bird feeders. We also walked through parts of the Diamonds’ property, visited Dorothy’s rustic constructions, and listened and watched for more birds. At noon time, participants unpacked lunch and sat outside. Thank you, Dorothy, Tony, Jeff, Francie, Alysha, Claire, and members of the Planning Committee for a highly successful and enjoyable morning! The following is a tally of the birds:

American Crow, American Goldfinch, American Robin, Black-capped Chickadee, Blue Jay, Blue-headed Vireo, Canada Goose, Chipping Sparrow, Common Merganser, Dark-eyed Junco, Downy Woodpecker, Eastern Phoebe, Evening Grosbeak, Golden-crowned Kinglet, Hairy Woodpecker, Mallard, Mourning Dove, Northern Flicker, Osprey, Pine Siskin, Purple Finch, Red-bellied Woodpecker, Red-breasted Nuthatch, Ring-necked Pheasant (seen by Maxwell during the drive), Ruby-crowned Kinglet, Ruffed Grouse, Song Sparrow, Tree Swallow, Turkey Vulture, White-throated Sparrow, Yellow-bellied Sapsucker



Figure 1 Lunch outside at the Diamonds'

Outing: **Fredericton**

Global Big Day bird walk

Date: **Saturday, 13 May 2023' 8 a.m. - noon**

Location: **Odell Park, Fredericton, NB**

Number of participants: **7**

Nature Club

The morning was sunny with temperatures ranging from 12^o C. to about 16^o C.; it was calm at the start, becoming breezy mid-morning. The participants were: Dan Coleman, Judith Dewar, Maxwell Francioni, Milda Markauskas, Barry Monson, Clara Thyssen, André Vietinghoff. We identified 40 species. Maxwell submitted a species and numbers list to eBird. Access the list at the following link: <https://ebird.org/tripreport/129392> There were fewer participants than last year but this year we did an entire circuit of the park rather than returning by the same route. Milda chose several "shortcuts" that crossed streams, led us over and under fallen trees and up and down some rocky terrain! In addition to birds, we saw lots of Trout Lilies, Red, and Painted Trilliums.



Figure 2 Clara Thyssen, Maxwell Francioni, Barry Monson, Milda Markauskas, Judith Dewar, Dan Coleman; photographer, André Vietinghoff

Fredericton Nature Club outing: **Killarney Lake**

Date: **Saturday, 20 May 2023**; Time: **8:30 – 12:00** noon

Number of participants: **3**

Weather: Slightly overcast, warm, ranging from 11 ° C. – 19 ° C.

Most birds were identified by song with and without the use of Merlin. If we didn't hear the bird, even though Merlin reported it, we didn't count it. We enjoyed a good view of a Spotted Sandpiper on the beach. We heard the first Hermit Thrush. Thirty-six species were identified but only the thirteen warbler species ID'd follow: American Redstart, Bay-breasted Warbler, Black and white Warbler, Black-throated Green Warbler, Blackburnian Warbler, Cape May Warbler, Chestnut-sided Warbler, Common Yellowthroat, Magnolia Warbler, Northern Parula Warbler, Pine Warbler, Yellow Warbler, Yellow-rumped Warbler. Blue-headed Vireo and Ovenbird were also ID'd.

Unlike last year, there was no one in the parking lot to warn us about a mother bear with cubs ... and we were free to choose our trails. Moreover, no bears were seen!



Figure 4 Dan Coleman and André Vietinghoff



Figure 3 André, Dan Coleman, & Gabriela Tymowski-Gionet

Fredericton Nature Club Outing: **Carman Creek**

Date: **May 28, 2023**; Time: **9:00 to noon**

Attendees: **7**

The weather was warm and sunny. For various reasons the group split up. Nonetheless, **50** species were identified as follow:

Alder Flycatcher, American Crow, American Goldfinch, American Redstart, American Robin, Bald Eagle, Baltimore Oriole, Barn Swallow, Belted Kingfisher, Black-and-white Warbler, Black-capped Chickadee, Blackpoll Warbler, Blue Jay, Brown-headed Cowbird, Canada Goose, Chestnut-sided Warbler, Chipping Sparrow, Common Grackle, Common Yellowthroat, Eastern Phoebe, Eastern Wood-Pewee, Evening Grosbeak, Gray Catbird, Great Black-backed Gull, Great Crested Flycatcher, Hairy Woodpecker, Killdeer, Least Flycatcher, Mallard, Mourning Dove, Northern Harrier, Northern Parula, Northern Waterthrush, Osprey, Ovenbird, Purple Finch, Red-breasted

Nuthatch, Red-eyed Vireo, Red-winged Blackbird, Ruby-throated Hummingbird, Song Sparrow, Sora, Swamp Sparrow, Tennessee Warbler, Tree Swallow, Veery, Warbling Vireo, Wood Duck, Yellow Warbler, Yellow-bellied Sapsucker



Figure 1 Maxwell Francioni and John McLoughlin



Figure 2 Judith Dewar and John McLoughlin

Present on outing; missing from: photos: Bonnie Flynn, Graham Forbes, Angélique Gloss, Doug Jackson



Figure 5 Eastern Wood Peewee

Judi, John, and Maxwell drove to Marysville afterwards and tallied the following additional species: Bank Swallow, Broad-winged Hawk, Common Merganser, Eastern Kingbird, Rock Pigeon, Savannah Sparrow, Spotted Sandpiper. While waiting in the Odell Park parking lot, Graham also noted Merlin and Pine Warbler, both species that were not seen on the Carman Creek outing. The day's total was **59** species!

Fredericton Nature Club Outing: **Odell Park**

Date/Time: **10 June 2023, 9:00 a.m.** to a bit after 11:00 a.m.

Leader: **Toon Pronk**

Title: **“Geology of Odell Park”**

Number of attendees: **9** (including our leader, Toon Pronk)

The purpose of this field trip was to discover some of the geological features Toon mentioned in his talk on April 6th. Toon first led to us a spot in the trees near the Prospect ballpark parking lot where Toon had used his soil auger to dig down into the soil, exposing the organic layer on top and then the loam. Toon pointed out that the soil at that spot was rich because of the diverse surrounding forest. He went on to say that

our New Brunswick soil was glacially deposited about 30,000 years ago and is therefore quite new. Toon led us over some tricky trails and across streams to various sites that are geologically interesting. Most of the stone is sandstone, some of it striated. A much more detailed document provided by Toon is appended to the newsletter. [App. 1](#) Many thanks, Toon!



Figure 6 Dan Coleman, Toon Pronk, Vicki Gustafson, Michelle Coleman, Barry Monson, Judith Dewar, Maxwell Francioni, Sophie Shen; (photographer: A Vietinghoff)

Fredericton Nature Club Outing: Burpee Flats (formerly Wilkins Field)

Date: 25 June, 2023; Time: 8:30

Weather: humid, a bit damp:

Attendees: Judith Dewar, Dr. Graham Forbes (outing leader), Doug Jackson

Alder Flycatcher, American Crow, American Goldfinch, American Redstart, American Robin, Bald Eagle, Black-capped Chickadee, Bobolink, Common Goldeneye, Cedar Waxwing, Chestnut-sided Warbler, Common Grackle, Common Yellowthroat, Eastern Kingbird Great Horned Owl, Green Heron, House Sparrow, Mallard, Marsh Wren, Mourning Dove, Northern Flicker, Northern Waterthrush, Purple Finch, Red-eyed Vireo, Red-winged Blackbird, Savannah Sparrow, Song Sparrow, Sora, Swamp Sparrow, Tree Swallow, Veery, Willow Flycatcher, Yellow bellied Sapsucker, Yellow Warbler



Figure 7 Judith Dewar and Doug Jackson not quite bogged down on Burpee Flats trail



Figure 8 Pond on Burpee Flats ; photographer of both photos, Dr., Graham Forbes

Membership Issues

Fredericton Nature Club Annual membership:

\$20.00 PER INDIVIDUAL

\$25.00 PER COUPLE/FAMILY

Send a cheque payable to:

The Fredericton Nature Club
c/o Doug Jackson, Treasurer
Unit 115, 149 Station Rd.
Fredericton, NB E3A 7Z7

Or

Effectuate an **e-transfer** ^y to the email, frederictonnatureclub@gmail.com

Or

Bring your payment in cash or as a cheque to a club meeting.

MEMBERSHIP FORM FOUND ON OUR WEBSITE AT:

<http://www.frederictonnatureclub.com/membership.html>

^y E-transfer

(From message from Progressive Credit Union: Effective immediately, any new transfers sent to **frederictonnatureclub@gmail.com** will be automatically deposited to the account of **FREDERICTON NATURE CLUB** at Progressive Credit Union Limited (if it is sent from a Financial Institution that supports this feature).

Financial Picture

Membership dues, as per the previous section, have been our chief source of revenue. The financial picture that follows will show this. To date for the 2022/23 club year, expenses exceed revenues. Membership dues pay for our Stepping Stone meeting room rental, for our website fee that increased this past year, and for club insurance with Nature NB. If any of you are willing and able to propose ideas for increasing revenues and put together money-making projects for which there might be club commitment and effort, that would be grand. In the meantime, if you did not pay your membership dues for 2022-2023, please pay them soon! Commencing September, we will be collecting dues for the 2023/24 club year.

FREDERICTON NATURE CLUB

Financial Picture 30 June 2023

Previous Balance 30 September 2022 \$ 1,311.23

Revenues

Memberships to 30 June 2023	\$ 550.00	
Total Revenues to 30 June 2023		\$ 550.00
Balance		\$ 1,861.23

Expenses for 2022/2023 Year

Stepping Stone monthly rental <i>Including Christmas rental</i>		\$ 250.00
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Webmaster's Fee *	\$ 232.00		
	(Minus \$ 25.00) * =		\$ 207.50

Club Membership Insurance in Nature NB for 2022/23		= \$ 105.00
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Total Expenses as of 30 June 2023		\$ 562.50
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Calculated balance as of 30 June 2023		\$ 1,298.73
<i>Bank Account balance as of 30 June 2023</i>		\$ 1,298.73

*Webmaster's fee is \$232.50 and does include \$25.00 family membership. This membership is not revenue for us but our expense is \$207.50 after an increase in the cost of webhosting.

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Other News

2 Billion Trees

On 18 January 2022, **Nature NB**, with **Jenna Knorr** as convenor, hosted a Zoom meeting, "**2 Billion trees**." The guest speaker from **Nature Canada**, the organization that was spearheading this initiative, was **Erin Whittingham, Reforestation Organizer**. Erin shared a PowerPoint presentation on this funded federal initiative. Seven people including club members, Guhan Elumalai, Jane Loughborough, and I were present.

Over the course of the discussion, it was decided that the approach to tackling the problem, promoting this venture, and securing funding should start at a higher level than the local club level. **Graham Forbes**, our President, advised us that any initiative to secure funding for trees and tree planting locally under this project would have to go through the City of Fredericton. In fact, I eventually contacted Fredericton Councillor, **Jocelyn Pike** who informed me that the deadline had passed for the 2B trees program, but that the City had submitted two grant proposals, “for a City-owned greenhouse that will allow us to grow our own stock and the other was a joint proposal led by WWF Canada for tree planting on City owned land adjacent to the river. Planting will happen in Wilken’s Field (aka the Burpee Interval), public right of ways, as well as underplanting to replace ash infested with Emerald Ash Borer. We hope to hear back about the grants by the end of the month. I would also like to highlight the planting work being done by the Nashwaak Watershed Association who have been planting thousands of native species per year and are upping their planting numbers to around 40,000 trees this year. Many of these trees are being planted on City-owned properties along the Nashwaak River.”

This year I was surprised to receive an email from **Rakshan Balachandran, Reforestation Organizer** with **Nature Canada** to the effect that “Nature Canada will be sending a national sign-on letter about the federal government’s 2 Billion Tree (2BT) program to Minister Wilkinson and Natural Resources Canada. The sign-on letter highlights the shortcomings of the 2BT program including accessibility issues, and proposes a set of recommendations that, if implemented, would make the program more accessible to all prospective applicants and more supportive of biodiversity measures. Our letter advocates for a stronger, more effective 2BT program that can help establish healthy, biodiverse forests which will in turn support biodiverse populations of birds and many other species. We want your voice to be heard and we need you to show your support for a stronger 2BT program.”. I asked our club **President, Dr. Graham Forbes** if he would approve my signing this letter on behalf of the club, and he did approve. You can see the official letter appended to this newsletter. [App. 2](#)

St. John Naturalists’ Club AGM 21 June 2023

Julie Bauer, the **Program Coordinator** of the **Saint John Naturalists’ Club**, established contact with a view towards exchanging newsletters between our clubs. I agreed. Later, Julie invited me to attend the Annual General Meeting of the St John Naturalists’ Club and sent an agenda. This AGM was a Zoom meeting that occurred on 21 June 2023. A glance at the agenda made me understand that this is a very ambitious and well-organized club, and being present at the meeting confirmed this understanding. They are club worthy of emulation. You can visit the SJNC website at [Saint John Naturalists Club – Study – Conserve – Educate – Enjoy](#) ; I have also attached the agenda as an appendix. [App. 3.](#)

Nature NB

Nature NB is the umbrella organization for all nature clubs in New Brunswick, but they are much more than that. Visit their website at: <http://www.naturenb.ca/home/>

Nature NB has been very supportive of our club by organizing several events for us including the “Spring Fling” reported in the current newsletter.

If club members attended Nature NB’s 2023 Festival of Nature, a brief report for the autumn 2023 issue of the FNC newsletter about outings on which you participated at the festival would be welcome.

Website & Facebook

FNC website:

<http://www.frederictonnatureclub.com/>

Email **Webmaster, David Lilly**, at dillynb@gmail.com

FNC Facebook:

Log into your Facebook page and search for groups, Fredericton Nature Club. There are two webpages, one private and one public. David Lilly set up the private website and you need to get the password from him. You might have to repeat your search step to see the public Facebook page that was kindly created for our club by Nature NB staff.

Email **Club President, Dr. Graham Forbes** at: forbes@unb.ca

Publishing Information

The Fredericton Nature Club newsletter has been published twice a year for the past three years. This is the first issue in the new quarterly publication schedule. Contributions are welcome! Please contact the editor at: andre.vietinghoff@yahoo.com

Photographs/images in this issue are largely ones contributed by members. Those not identified are public domain images derived from Google Images.



Appendices

Appendix 1.

Fredericton Nature Club - Revision, June 10, 2023

THE LANDSCAPE STORY OF ODELL PARK

(History, pre-history, and geology – natural and manmade boundaries)

Observations – Earth Science is about the landscape and our interactions with that landscape.

The hike starts at the parking lot of the Prospect Street baseball fields with a look at soils. The boundary between the parking lot (the ‘youngest deposit’ and the old growth forest is a man-made boundary and recorded farming on the west and some of the oldest trees to the east and is defined in the landscape by the rock wall that can be traced all the way down the hill to Foley Ct/Hanwell Rd. Later on, during the hike we will cross this boundary again, but we will also see natural boundaries.

- 1) Soil formation – what influences the soil profile? Material and organics, time, rainfall, and temperature (climate) (the 4 spheres, geo-, hydro, atmo-, and biosphere).
- 2) How old is the soil? The end of the last ice age was about 10,000 years ago and soil started forming in the glacial deposits.
- 3) Conglomerate boulder – how to recognize a conglomerate (rock-clock – see link).

What is the difference between the soil layers (horizons), and what are the processes that create these differences?

2) Both in the Memorial Garden and the Rhododendron sculpture we see an example of a coarse grained granite. Larger crystals in igneous rocks indicate slower cooling and probably deeper emplacement in the crust. Extrusive (at the earth surface) igneous rocks like basalt and rhyolite (granitic composition but deposited on the surface) are fine-grained, basalts sometimes need a magnifying glass to see individual crystals. Lego © blocks example. Igneous rocks have interlocking crystals whereas sedimentary rocks have inter-grain spaces (porosity), more as the sedimentary rock is coarse. (conglomerate, sandstone, siltstone, shale). Sedimentary basin dynamics.

3) Glacial markings on the rocks? The striations on the rock all trend in a 140-degree direction (southeast). Sandpaper glaciers and bedding on the outcrop and on the LiDAR image. Light and Radar – the “naked” landscape. Glaciers disappeared from the landscape around 13,000 years ago but made a brief reappearance (which is registered in Killarney Lake sediments).

Discuss isostatic depression and postglacial rebound. Erratic [boulders](#), [U-shaped valleys](#), [drumlins](#), [eskers](#) (;like the one at Killarney Lake that forms the dam at the end of the lake), [bedrock striations](#) are among the common signatures of the [Ice Age](#). In addition, post-glacial rebound has caused numerous significant changes to coastlines

and landscapes over the last several thousand years, and the effects continue to be significant today and rising sea level will affect the Wolastoq and the city of Fredericton.

4) Used to stop between the ball field and Hanwell Rd, but these same rocks are exposed at “The Ledges” along Phyllis Creek in the upper part of the park and at the bottom of the park close to Smythe Street.

Sedimentary rocks, cross bedding (braided streams) and fossils

The (Rainsford) quarries off Hanwell Rd and on Golf Club Road – some buildings from this rock: Government House, Christ Church Parish Church and Cathedral, Brunswick St Baptist Church, Officers Quarters (Museum) and Soldiers Barracks.

These Carboniferous sandstones are 300-320 million years old, were deposited in a sedimentary basin just south of the equator, which was surrounded by ancient mountain chains (Appalachian and Gondwanan). New Brunswick was largely situated at the “belly button” of Pangea, the most recent ‘super’ continent. This basin stretches from south of Fredericton (Oromocto Lake) to beyond the Magdalen Islands in the Gulf of St Lawrence, Cape Breton (Sydney coal) and southern NL. Rocks in this basin contain; Minto (and NS) coal, Sussex potash, Moncton oil and gas, and the rich iron-red silty agricultural soils of Prince Edward Island.

5) The hedgerow/rock wall that separates the botanical garden from the old forest of Odell Park. Hedgerows are great habitats for many animals. Rerouting and rebuilding of trail because of erosion and the rock-lined drainage ditch along the trail to prevent erosion.

Why did it happen? Discuss the water buffering capacity of the landscape and how human activity (deforestation, agriculture, and urbanization) changes this. Note the apple and white spruce trees (past land use?).

6) Glacial Striations. The outcrop with glacial scratches and grooves just above the small pond in the botanical garden is a beautiful example of glacial striae on a very smooth “glacial pavement” on one of the Carboniferous bedding planes. The glacier moved from N to S in a 160–170-degree direction. Yes, ice can flow up-hill. There are a couple of other locations in the park, one behind the ball field on the Hanwell Rd side.

7) Old farmer’s field just above the Cameron Ct entry to the botanical garden, with plough-horizon (bring soil auger) – the absence of soil stratification. Why? Answer: ploughing and cultivation. Note the white spruce trees and the “squirrel highway” 😊.

As we cross back into the old-growth forest we can spot the “hedgerow” with boulders on both sides of the path, notice the great change in the vegetation as we walk to the little ‘bridge’. One of the larger boulders on the south side of the trail is a metamorphic rock likely from the Trousers Lake complex located east of Plaster Rock.

8) Bridge/causeway by the Link Trail - erosion and sedimentation (energy level and sediment grain size) – sedimentation and difference in vegetation.

Also moss mats. Take a “Soil” sample in the stream. Sample up or down stream? What will you measure? Discuss the increase in urban flash floods (bridges vs causeways). Pavement vs soil and vegetation.

The water level in the valley at the end of the ice age (when the crust was still depressed from the weight of the ice and sea level was rising very fast) was close to this point. Discuss future Wolastoq water level! Refer to the “Granite Forest” sculpture between the Playhouse and Conference Center.

On our hike to the ledges, CAUTION, watch your step, the beautiful liver mosses, the fern fossil in the brook, the mushrooms when we get there.

9) The Ledges - perfect lunch site (make sure not to leave anything behind) – difference in vegetation valley and plateau, a natural boundary.

Look at ‘Pride Rock’, how has it moved? Imagine this landscape around 11,000 years ago and who would be here, and what would they eat?

10) Back to (P) erosion along brook. Stratigraphy 101; mountain bike trail ramp, fallen logs, on path and in the stream. This stop would change from year to year (and season to season). Use observation and common sense to ‘create’ the story.

Many different rock types (exfoliating granite, coarse sand stones, glacial boulders) can be found in the fence row and fossils in the “erosion-protected” ditch.

tpronk@nbnet.nb.ca

Appendix 2.

Dear Minister Wilkinson,

We welcome the federal government's 2 Billion Tree (2BT) program as a unique opportunity for cities and environmental organizations to strengthen their communities' climate resilience and biodiversity through tree-planting.

We are writing, however, to raise concerns about inherent barriers that hamper participation in the 2BT program and limit its effectiveness, and to provide recommendations and solutions that address how those barriers can be mitigated and overcome.

The recent report from the Commissioner of the Environment and Sustainable Development (CESD) highlighted that due to the relative absence of long-term agreements and other factors, NRCan's tree-planting targets for 2022 and beyond are unlikely to be met. There are currently a number of barriers that are restricting the ability of prospective applicants to access the program and contribute to meeting the target of 2 billion trees. Improving the accessibility of the 2BT program can not only help achieve those goals, but also increase uptake from smaller organizations with less capacity, which would include racialized and First Nations groups.

The minimum tree-planting requirements have a high threshold, which exceeds the capacity of many local environmental organizations and cities with smaller populations. Potential applicants may not have access to enough planting spaces or sufficient tree supply from local nurseries and may not be able to obtain geolocations for sites in advance of planting. Currently, the program's rigid minimum tree-planting requirements that need to be met in the first year disqualifies many organizations from participating in the program.

We therefore recommend that the 2BT program's minimum tree-planting requirement operate on a multi-year basis, rather than a yearly one. For example, instead of requiring 10,000 trees to be planted every year, the program could present an option of entering into a six-year agreement, by the end of which they will need to have planted 70,000 trees. Applicants would be more inclined to enter into multi-year agreements of this type because it would give them time to secure seed and sapling stock and flexibility with regard to how many trees are planted each year.

An alternative recommendation would be to allocate more funds towards the capacity-building streams for the specific purposes of helping both Indigenous and non-Indigenous groups develop local tree and shrub supply.

We also appreciate that the 2BT program supports the involvement of aggregators, but we would suggest expanding the program's model to include and develop more local and regional organizations as aggregators. Using their familiarity with both the region and other groups operating in the area, these types of organizations would be able to

establish a regional network of stakeholders and coordinate tree-planting projects amongst local organizations. Having such locally and regionally based aggregators would facilitate the participation of and be a useful resource for organizations who are unable to meet the tree-planting requirements on their own but could contribute to meeting them with partners.

Additionally, we want to convey that organizations and cities across Canada share the same concerns outlined in the CESD report with regard to the program's lack of emphasis on biodiversity or permanent protection of planted trees. Firstly, the program restricts the acquisition of shrub species to only 15% of project costs, which will limit the biodiversity and ecological integrity of newly planted forests. Since shrubs act as nurse plants for young trees, planting them in riparian restoration and reforestation projects can help save resources by reducing mortality and follow-up planting of later successional species. Secondly, the requirement that planting sites be completely located in either urban or rural areas limits the program's potential to establish ecological corridors and increase connectivity between rural and urban environments. We therefore recommend that the program allow a greater percentage of funds to be used to plant shrubs, allow for greater flexibility between the urban and rural planting streams, and implement more specific and transparent measures to ensure that trees are permanently protected.

Finally, as noted by the CESD, the department did not clearly state its expectations for long-term monitoring of tree health and survival for the 2021 planting season. We are pleased that the department has since required that applicants provide a monitoring plan, but would suggest that expenses related to long term maintenance be included in eligible expenses and that more funding be allocated for such monitoring.

Our concerns and recommendations build on a growing body of evidence that demonstrates the value of supporting all scales of tree-planting projects in bolstering climate resilience, enhancing biodiversity, and improving our communities. There are thousands of "shovel-ready" and "shovel-worthy" projects of various scales across Canada and within Indigenous communities by organizations that are eager to ensure that trees are planted and cared for in a manner that guarantees long-term protection and strengthens the surrounding ecosystems and biodiversity.

This potential is waiting to be unlocked, and with minor changes to minimum tree planting requirements, biodiversity and monitoring requirements, and permanent protection, can be put to use in meeting our climate targets and reversing our growing biodiversity crisis.

Thank you for taking our recommendations into account.

Sincerely,

Appendix 3.

Saint John Naturalists' Club AGM – 21 June, 2023 at 7 pm

AGENDA

1. Welcome
2. Approval of Minutes from the 2022 AGM
3. Presentation of all reports:
 - 3.1. Treasurer's Report - 2023-24 Budget
 - 3.2. Point Lepreau Bird Observatory Annual Report and 2023-24 Budget
 - 3.3. Greenlaw Mountain Hawk Watch Annual Report and 2023-24 Budget
 - 3.4. Shorebird Conservation and Education Project Annual Report
 - 3.5. Program Committee Report
 - 3.6. Program Coordinator Report
 - 3.7. President's Report
4. Approval of all reports
5. SJNC Policy Revisions to be Approved
 - 5.1 Accounting Policy
 - 5.2 Confidentiality Agreement
 - 5.3 Constitution
 - 5.4 Media Relations Policy
 - 5.5 Personal Information Protection Policy
6. Nominating Committee Report and Elections
7. Other Business
 - 7.1. By-law #1 Vote*
 - 7.2. SJNC Monthly Meeting Times (Poll)
8. Adjournment

*By-law #1 Vote

A by-law will be presented at the AGM and will require a vote of 2/3 of the members present to approve it.

Our application for charitable status depends on the by-law being passed and approved by Service NB.

The CRA has advised that our letters patent were too broad and have provided us with the exact wording they require in order to process our application. That wording is contained in the by-law attached above.