



The Magazine of BC Nature

www.bcnature.ca • Winter 2023 • Vol. 61 No.4

BCnature

Volume 61 No. 4

In This Issue:

Regular Columns

President's Report	3
Conservation Committee Updates	5
Natural Justice	11
BC Naturalists Foundation	12
Back to Basics: Winter Botany	14
Conservation Corner - MPAP Update	22
Naturalist Mentor	29
North in the Spring #26 - Columbia Icefield	30

Features

Photo Contest 2023 Winners	2
Welcome to New Office Manager	3
Editorial	4
Goodbye from the Former Office Manager	4
Alert - Birds Passing Over - Turn off Your Lights!	10
The Impact of Climate Change	13
Finding Refuge in a Changing Landscape	15
Today's Google Search	16
Active Pass IBA- ebirding from the BC Ferry	17
The Little Things that Run the World	19
Nanaimo's Unique Harewood Plains	20
Fatal Attraction - Road Salt and Birds	21
Honouring Jude and Al Grass	23
Pink Mountain and I	25

Notices

AGM 2024 - Qualicum Beach Registration	27
AGM 2024 - Qualicum Beach Schedule	28

Objectives of BC Nature (Federation of BC Naturalists)

- To provide naturalists and natural history clubs of B.C. with a unified voice on conservation and environmental issues.
- To foster an awareness, appreciation, and understanding of our natural environment, that it may be wisely used and maintained for future generations.
- To encourage the formation and cooperation among natural history clubs throughout B.C.
- To provide a means of communication between naturalists in B.C.

BCnature is published quarterly, circulation 6,800

Editorial Team: Betty Davison
Rick Gee
Donald L. Kramer
Ron Read

We welcome your articles, photos, and letters. Please email them to communications@bcnature.ca

Advertising and article submission deadline for the Spring edition - February 15, 2024

Cover: Photographer - Barbara Klie - Lynx and Mallards.

We reserve the right to edit submissions for length, style, and clarity.

Congratulations Photo Contest Winners

Youth Age 12-18 years - D. Hamel - "Rocks" Neck Point Nanaimo

Weird and the Wonderful - I. Guthrie - Hump-backed Beewolf (*Philanthus gibbosus*)

Landscape and Botany - T. Goebertus - "Pitt Addington Marsh"

Wildlife - B. Klie - Lynx and Mallards

Look for these fabulous photographs on the cover of the *BCnature* magazine (starting with this edition). All entries can be found in the photo gallery.

<https://bcnature.org/2023-photo-contest-gallery/> ➔

BC Nature Executive

President	Nancy Flood
Vice President	Harold Sellers
Past President	Alan Burger
Treasurer	Barbara Towns
Secretary	Susan Thorne
Secretary Alternate	Alanna Mackenzie
Conservation Chair	Peter Ballin
Kootenay Coordinator	Stewart Wilson
Lower Mainland Coordinator	Viktorija Juciūtė
Northern B.C. Coordinator	Walter Thorne
Vancouver Island Coordinator	Brian Wilkes
Thompson/Okan./Shuswap Coordinator	Gary Hunt
Education Chair	Marg Cuthbert
Director-at-Large	Rick Gee
Director-at-Large	Ben van Drimmelen
Director-at-Large	Olga Lansdorp

"Contact Us" can be found on www.bcnature.org
Full Colour, .pdf or e-version of *BCnature* is available online at www.bcnature.org

All article references can be found in the digital edition of this magazine.

Articles and advertising in *BCnature* magazine do not necessarily reflect the views of all BC Nature members.

BC Nature 1620 Mount Seymour Road
North Vancouver, B.C. V7G 2R9 Tel: 604-985-3057



President's Report From the confluence: where rivers meet.

Author - Nancy Flood

Around BC

As I write, November has just begun - and fall has definitely arrived. The leaves of deciduous trees have changed colour and/or dropped, gardens have been laid to rest, and depending on where you are in the province, you may have seen frost or

snow already. October took us on a weather roller coaster. On Thanksgiving weekend heat records were broken in 12 communities from Bella Bella to Vancouver, including Pitt Meadows, where it was 27.7°C. Later in the month, temperatures were at the opposite extreme. On October 26, it was -8.6°C in Merritt, BC—colder than it had been for 104 years. And that was balmy compared to Burns Lake, where it was -15.4°C - much colder than the record of -10.6°C, set in 1971. The old days, when people often referred to “Global Warming” are long gone; we now know that the hallmark of Climate Change is increased variation and extremes of temperature, precipitation, storms, etc.

As if anyone needed it, the drought that most of BC experienced throughout the summer is further evidence of Climate Change. Many of our major rivers and streams were at an all-time low, and as late as October 26 (even after some September rain), 20 of the 34 regions on the provincial drought map were still at drought levels 3-5—facing “possible,” “extremely likely,” or “almost certain” adverse effects (<https://bit.ly/47CVmhB>). Think of the ramifications of this for salmon trying to return to spawn (<https://bit.ly/40IvNte>) as well as for so many other species.

And then there were the fires. It’s now official: 2023 was the worst fire season on record in terms of area burned: almost 25,000 square kilometres of trees, brush and grassland (including in municipal areas!). We know that fire is a natural process, required for the proper functioning of many ecosystems; some species rely on it for parts of their life cycles. But we also know that our actions—in general, and with respect to forest management in particular—have exacerbated the situation to the extreme. Too many animals have been lost to flames, and even for the many species that are good at fleeing or hiding, loss of habitat will make it difficult to find food and shelter this fall and winter—and in the years to come. What can we do? Among other things, proper habitat restoration can help mitigate fire-related impacts. We can build more resilient forests by planting a greater diversity of trees, especially hardwoods. This is happening, for example, in the Elephant Hill area, where one of BC’s worst wildfires burned in 2017. There, the Secwepemcú’ecw Restoration and Stewardship Society has planted more than 450,000 trees while taking climate adaptation principles into account—something

we can all learn from and get behind (<https://www.srssociety.com/lessonslearned.htm>). Here’s hoping for fewer fires in 2024.

Behind the scenes at BC Nature

I’m pleased to report that most of the board of directors, as well as a few other interested individuals, came together on October 22 in Victoria (or joined remotely) for a three-hour strategic planning session. We began examination of the direction BC Nature will take over the next few years. Several rounds of revision will be involved, overseen by the Governance Committee. You can look forward to seeing the final project at next May’s AGM. Following the meeting, we were able to attend various events associated with the 100th anniversary of the Victoria Harbour Migratory Bird Sanctuary—a truly remarkable birthday! If you haven’t toured Victoria as a naturalist, you should: it’s amazing! The celebration was also attended by Nature Canada staff and board members, and we were fortunate to be able to chat and compare notes.

Of course, the really big news is that after 13 years at BC Nature, the stalwart, talented, efficient, and resourceful Betty Davison is retiring! Her place will be taken by Lorna Stewart, who has many years of experience working in an office setting at the staff, manager, and coordinator levels. They will be working together in the BC Nature Office for the month of November. Welcome Lorna! But, oh, Betty, we will miss you!☺

Welcome Lorna Stewart!



Please join us in welcoming your new office manager, Lorna Stewart.

Indigenous, from the Musqueam First Nation, Lorna was raised with the foundation of cultural and spiritual teachings as relates to nature and has a profound respect for all things nature.

Lorna has many years of non-profit experience and brings a wealth of information to her new position as Office Manager. ☺.



Editorial

Why I Question the Wisdom of Invasive Plant Removal

Author - Olga Lansdorp

Have you ever been in a situation where everyone around you thinks they are doing good, and it feels like only you can see the harm being done? Perhaps you saw a parent reprimand their child in a way that you did not agree with? Well, I felt that way during a forest revegetation project.

That day I saw people pulling weeds in a way that leads to harmful soil erosion, people pulling the wrong plants, trampling feet damaging the existing understory and trees being planted in degraded soils in a way that made me wonder, is the intent of this work to help nature or to create a feel-good photo opportunity?

I have been disconcerted to see people creating giant piles of dead invasive plants and posing before them with big smiles. These photos make me think of photos of early settlers in North America posing before giant piles of bison skulls (<https://bit.ly/3sTH11v>). Most people today would agree that the bison photos are disturbing, and unfortunately, I feel the same way about today's invasive plant photo-ops.

To me, the bizarre thing is that some organizers and volunteers seem to think that by removing certain species we can press the "Rewind" button and force ecosystems to go back to a state they were in a different point in time—perhaps to 1,000 years ago. I will not deny that I too think the world 1,000 years ago was an ecologically abundant time worth striving to return to (ecologically speaking). And I will also concede that there may be situations, such as a newly-invasive species in a restricted area where its proliferation is known to impact endangered species, where human intervention may be a good idea. However, isn't it also a good idea to have checks and balances in one's decision-making process, to challenge one's assumptions and to assess the effects and impacts of one's work?

I am not alone in wondering whether our approach to understanding the role of invasive species is simplistic or misguided. A 2010 paper from A.E. Goodenough (<https://bit.ly/416dqil>) pointed out that our views on invasive species can cause us to overlook the potential positive impacts of invasive plants, and a 2015 paper by Lidström et al (<https://bit.ly/3sKh7xa>) goes further to posit that not only does a simplistic understanding obstruct us from a more nuanced understanding, but it also can prevent us from being able to make good decisions at a local scale. New configurations of species, called novel ecosystems, are a reality of our world and as Bonanno says in a 2016 paper, "novel ecosystems are now a fact worldwide that should prompt us to be realistic about the

extent of efforts required for invasive alien species removal."

Ecologically, our world is rife with issues: species are disappearing at a rate one thousand times greater than the usual extinction rate and Climate Change is running rampant, making it increasingly difficult for any organism to eke out an existence. Human biomass is six times greater than all aquatic and terrestrial wildlife combined. (Greenspoon, L. et al. (2023). The global biomass of wild mammals. *Proceedings of the National Academy of Science*, 120(10).)

Over three-quarters of the land on earth is used for food production, either as farmland or grazing land, and pound for pound, cows are by far the dominant vertebrate on the planet. Given the ecological state of the world, I wonder if our efforts might be better spent appreciating the life we have before us, rather than ripping it out of the earth, roots and all. ➔

Thank you for the nature knowledge!

In November 2010, I was hired at BC Nature to staff the office. I was the sole employee until 2021. Having spent 30+ years in the food service industry in sales and marketing, it was a gamble for Bev Ramey and John Neville to hire me. Thank goodness I was quite proficient at searching the Google search of the day - "Ask Jeeves" - on the meaning of such words as biodiversity or what a species at risk was, or even what an invasive species was! My time with BC Nature has been very rewarding and enlightening.

As my imminent retirement looms, I hope to join the ranks of so many of our members and volunteer my time with my local club (Malaspina Naturalists) and expand my nature knowledge even further. See you at early morning birding at the 2024 AGM (as a member)!

Your outgoing Office Manager,
Betty Davison, NRN (Newly Retired Naturalists)

Conservation Committee Updates

Authors - Peter Ballin and the Conservation Committee

When responses to conservation issues come before me, I know that I should explore those points of view that most raise my hackles. This last summer I spent a month in southern Africa and gained a perspective on using hunting as a conservation tool. I met a Zimbabwean, Ian Harmer, who champions rhinoceros conservation by running a white rhino reserve. Ian brought up the worldwide public outrage that occurred when an American recreational big-game trophy hunter shot Cecil the lion. Cecil was 13 years old (near the end of his lifespan) and had been displaced from his pride, thus no longer contributing to the lion population. The hunter paid \$US50,000 for his permit. That money went to conservation. Ian was all in favour. Back to rhinos: Ian marched our group, accompanied by two rifle-toting rangers, to within a few metres of four rhinos (we left when the adult male stood up). He knows all the rhinos in the reserve. They all had their precious aphrodisiacal-to-some horns sawed off to decrease the likelihood of succumbing to poachers. I should note that this does not hurt the animals, as the horns are keratin, essentially compressed hair, not bone. The strategy hasn't worked, because the stumps that remain are worth more than their weight in gold. The harvested sawed-off horns are incinerated. Ian suggests that rather than burn the horns, sell them, flood the market to discourage poachers and use the money to protect rhinos. As for Cecil: Wikipedia states that "due to the high level of media attention and the negative reporting about his killing, significantly fewer hunters came to Zimbabwe in the months that followed. This led to the country suffering financial losses and a lion overpopulation in the Bubby Valley Conservancy". It is a very complex issue; my perspective: I must subordinate my feel-

ings about stressing or killing wild animals if doing so increases the probability of maintaining healthy populations and intact ecosystems.

Along the same vein of rethinking conservation approaches, consider the opinion of Scott D. Sampson, executive director of the California Academy of Sciences in San Francisco, in a recent article distributed by Scientific American <https://bit.ly/3MGLnji>

He points out that our perception of time is "one of humanity's greatest blind spots", and that our "short-sightedness around time creates major constraints on modern conservation". He echoes UBC's Daniel Pauly's Shifting Baseline Syndrome: we accept what we've seen in our recent pasts as the norm, rather than stretching our understanding deeper into an ecosystem's history. From this point of view, our conservation actions could fall far short of optimal functioning because we don't recognize the ecosystem as it was when it was truly thriving. We should adopt a "deep time" perspective, which we can access through mathematical modelling, the fossil record and Indigenous knowledge.

Two examples apply in BC. The first is forest management practice that suppresses fires. The buildup of flammable bio-density has provided fuel for devastating wildfires. Indigenous people knew what to do! They applied small-scale controlled burns. The second example is our disappearing kelp forests. Without urchin-eating sea otters and sunflower sea stars, these super-habitats and coastal erosion buffering ecosystems stand at a small fraction of their former expanse. The sea otters were hunted to near extinction by the late 19th century and the sea stars have recently lost 95%



Rhinoceros with chopped off horn

of their numbers likely due to an ocean warming event that began in 2013 and wasting disease. But wait! We overlooked a now extinct keystone species: the herbivorous four-ton Steller's Sea cows that pruned the kelp, allowing sunlight to penetrate and encourage benthic growth of all kinds. The presence of the sea cow likely promoted greater diversity and resiliency of the kelp forest ecosystem. Should humans substitute for these mega mammals and harvest more kelp, along with removing urchins and reintroducing sea otters?

Sampson suggests that we are looking at ecosystems that have suffered severe degradation over the last half century and that we must look further back in time for how to apply the most effective conservation measures.

In this issue we report to you about:

- Fish, Wildlife and Habitat Coalition
- Wolves and Bears
- Old Growth Forests
- Coastal Marine Strategy
- BC Nature's Climate Change Priorities
- Roberts Bank Terminal Two

Fish, Wildlife and Habitat Coalition - Ben van Drimmelen
Much of my fall volunteer time involved regular meetings with representatives of some 27 organizations of the Fish, Wildlife and Habitat Coalition of environmental non-government organizations (ENGOS), the single

Continued page 6

largest conservation coalition in BC's history. It includes hunting and angling guides, conservation organizations, wildlife viewing and ecotourism companies, naturalists, hunters, anglers and trappers. In line with the Coalition's mission to advocate for biodiversity, ecosystem health, and the restoration and long-term sustainability of fish, wildlife and habitat in BC, the Coalition continued to push government to actually set up long-promised Regional Wildlife Advisory Committees (RWACs). With representatives of local naturalist clubs, such RWACs should be able to influence provincial government agencies to better manage and conserve natural resources at a regional level.

The group spent much time planning an advocacy event in Victoria, providing lunch for Opposition members of the Legislature and a dinner for government members. That event, held on October 18, was very successful. Rather than bending MLA ears with a long list of complaints and demands, Coalition members agreed to lobby on just three main issues:

1. Improve management of fish, wildlife and habitat across BC:
 - a) Create a strong Biodiversity and Ecosystem Health Framework that is implemented and enshrined through legislation.
 - b) Legislate objectives for fish, wildlife and habitat to conserve and restore their populations.
 - c) Advance a whole-of-government approach to fish, wildlife and habitat management.
2. Strengthen nature in BC through landscape protection:
 - a) Immediate action to protect intact, threatened and important places utilizing Federal funding opportunities to double the amount of protected land in BC to 30% by

2030.

b) Work in partnership with First Nations to co-develop a provincial process or policy for Indigenous Protected and Conserved Areas that provides engagement opportunities and clarity for all land users and stakeholders.

3. Dedicate funding for fish, wildlife and habitat conservation:
 - a) Budget 2024: \$200M fund for fish & wildlife conservation
 - b) Allocate all funds from wildlife licenses, permits and fines, industry users to conservation

The formal "presentation" was equally concise – just six minutes on the above, with the rest of the time left for simple conversations and relationship building. BC Nature was represented by our executive director, Stewart Guy, and board member Ben van Drimmelen. Significantly, twenty-seven government MLAs attending the meeting with 10 Opposition MLAs from both parties attending the lunch. Feedback from both Coalition members and several MLAs was very positive. In particular, Water, Land and Resource Stewardship Minister Cullen (whose ministry now includes water, freshwater fish and wildlife management, transferred from the Ministry of Forests) mentioned that he felt very comfortable with us as a group.

In October, the provincial government announced a \$300 million Conservation and Stewardship Alliance Fund. Shortly after, the federal government announced over \$1 billion of funding from Canada's 2030 Biodiversity Strategy for British Columbia. BC Nature sent thank you letters to Minister Cullen and Minister Guilbeault.

Wolves and Bears - Jacqueline



Photo: Kris Cu

Mountain Goat

Sherk

Wolves: According to several surveys that have taken place this year, Canadians widely agree that wolves are important members of their ecosystem communities, but as we have become more and more aware, the opinions of citizens appear to matter little to our government as it continues using taxpayer dollars to fund an ongoing killing of wolves. Wolf pack extermination is part of the BC Government's Predator Reduction Program, an ongoing effort purported to save the remaining herds of mountain caribou that are being decimated by continued expansion of the oil, gas, logging and recreation industries. At the end of July this year, 217 wolves and an additional eight cougars had been killed as part of the program. Cougars (a less-recognized part of the program) fare better and experience less mortality than wolves because of their ability to climb and hide in trees to evade the marksmen.

Bears: 2023 was apparently the year of bears in neighbourhoods! Reports of black bear sightings in residential communities exceeded those of previous years in BC. This unusual season, likely due to drought conditions in the mountains, unfortunately resulted in it also being one of the deadliest on record for the bears. The Fur Bearers conservation group says that approximately 500 Black Bears are put down every year in BC, and reports that in just

Conservation report continued from page 6

the month of August 2023, 151 bears received a death sentence. Conservation officers (CO), whose job it is to euthanize bears, say that bears habituated to residential areas and people become a threat to public safety. We can't help but wonder why more of these so-called problem bears can't be rehabilitated. North Island Wildlife Recovery on Vancouver Island, who receive Black Bear cubs from the COs, say that cubs must be no older than yearlings to be eligible for rehab, and that they must be unhabituated to humans. Because of this, it's no wonder that conservation officers are killing so many bears.

There has been an overwhelming amount of press on Grizzly Bears in the wake of a new provincial government initiative called *The Grizzly Bear Stewardship Framework Draft*. Released online in a 75-page document on July 13 with a survey asking for input on how B.C. residents believe grizzlies should be managed, it was the first time in almost three decades that an update has been proposed for Grizzly Bear conservation. Another proposal, the *Commercial Bear Viewing Strategy for BC*, was released, a 45-page document with its own survey. The proposed new initiatives came as a surprise to many biologists, conservation groups, bear viewing companies, and the general public. The initial limited response period was extended several times because feedback from ENGOs suggested that the short timeframe would



Photo: T. Hisgett

Grizzly Bear

limit much needed participation from industry professionals, such as biologists who spend summers busy with fieldwork and bear viewing guides whose businesses depend on the tourist season. Others suggested it would have been helpful to the general public to have been offered a public engagement process so that residents could better understand the history of Grizzly Bear conservation and the current issues, therefore offering the process more educated responses and greater participation. A number of those with a background in conservation expressed concern that changing responsibility for Grizzly Bear management from the province to the regional level could result in a return to trophy hunting, which has been banned since 2017. Bear experts say that a debate about trophy hunting takes away time and energy away from what is important for Grizzly Bears in BC – i.e., the cumulative effects of Climate Change including lack of salmon and late summer food, and habitat loss and fragmentation resulting in local extirpation.

A recent poll conducted by Research Co. for Pacific Wild Alliance showed that the number of British Columbians who are opposed to trophy hunting of Grizzly Bears remains as strong now as it was in 2017. In the closing words of an open letter to government penned by Valhalla Wilderness Society, 'closing the hunt was one of the best wildlife decisions the B.C. government has ever made and reopening it to hunters would be one of its worst, and one that would also be hugely offensive to the general public'.

Addendum - Peter Ballin
On October 31 BC Nature submitted a letter to Forestry Minister Bruce Ralston and Water, Land and Resource Stewardship Minister Nathan Cullen regarding

the draft Grizzly Bear Stewardship Framework, complementing an open letter from other ENGOs and individuals. We did not sign on to the open letter that many ENGOs supported because our board disagreed with the language used and the assumption that management plans can be deployed province-wide.

BC Nature agreed that wildlife and wildland management's focus must shift from consumptive use to managing for the survival of healthy ecosystems, with a tone of stewardship with the interests of all life and all BC people in mind. We reiterated our call for a Species at Risk Act or equivalent legislation that protects our biodiversity at the levels of ecosystems, species, and populations.

"With the premise that species conservation means population conservation, BC Nature supports the Grizzly Bear Stewardship Framework plan to create local, regional and territorial wildlife advisory committees to create Grizzly Bear management plans, with the caveat that such committees be overseen in a way that their recommendations support the overall welfare of all grizzlies in BC: i.e., prohibit management decisions that adversely affect the species as a whole. We note that while some BC Nature members support limited trophy hunting because it does contribute funds for conservation, many of our members are steadfastly against this practice."

We agree that the management of all our endangered wildlife species requires an expert wildlife stewardship team that includes representatives from outside of government. Read the full letter at <https://bcnature.org/letters-briefs/>

Old-Growth Forests - Peter Ballin
On September 28 citizens gathered at 17 MLA offices around the province for the United for the Old Growth Day of Action. The message to government was simple: keep your promises. Three years after its release, none of the recommendations of the Old Growth Strategic Review have been implemented. Peter spoke about forest biodiversity to a group gathered at Premier Eby's office. We must continue to pressure government to move forward. Despite Environment Minister Steven Guilbeault's recommendation eight months' prior, the federal government rejected an emergency order protecting the Fraser Valley old-growth habitat critical for Canada's most endangered bird, the Spotted Owl. Perhaps one wild-born owl remains (if it does), and logging likely will proceed.

Coastal Marine Strategy - Peter Ballin

The marine strategy policy implementation team produced an Update for Stakeholders for meetings held on October 11 and 12, 2023. Under the auspices of the Ministry of Water, Land and Resource Stewardship, the marine strategy plans to have a 20-year outlook, with the goal of defined shared values and priorities that improve stewardship of coastal marine environments, advance reconciliation with First Nations, and foster community resilience. There's an incredibly idealistic and ambitious wish to intertwine governmental jurisdictions to link climate preparedness, agricultural watercourse stewardship, watershed and water security, old growth forests, flood strategy, coastal strategy, wetlands, wild salmon action and likely more. Now is the time for the development of the Coastal Marine Strategy draft and flying it by government staff and their executive. Next year, that draft

will be submitted to government. Meanwhile, there's been a high participation rate of First Nations, and consultations with provincial ministries and federal ministries with ocean involvement, local coastal governments, stakeholders and the public. The following is taken from the October Update.

Key public interests raised include:

- Prioritizing the environment and protecting biodiversity
- Addressing pollution, impacts of shipping/vessel traffic
- Prioritizing Climate Change mitigation and resilience
- Supporting the economy and industry
- Improving Indigenous people's access to coastal resources and the coastal economy
- Enacting and enforcing meaningful legislation
- Monitoring, information gathering, data sharing
- Taking a collaborative, equitable approach to Strategy implementation

Common themes brought forward from stakeholders across coastal BC include:

- Need for coordination/ collaboration: between strategies and across governments
- Support for Indigenous rights, co-governance with First Nations, First Nations Guardian programs
- Need for evidence-based decision-making, supported by better monitoring, mapping, data and research
- Improve Climate Change adaptation/ mitigation with innovation
- Clean up pollution (e.g., marine debris and derelict vessels)
- Restore, protect and recover vital species (e.g., wild salmon, shellfish)
- Improve engagement and consultation
- Find better balance between supporting coastal economy

and limiting environmental impacts (full spectrum of opinions)

You can write to the Coastal Marine Strategy people at *LWRS*.
CoastalMarine@gov.bc.ca

BC Nature's Climate Change Priorities - Brennan Strandberg-Salmon, Sub-Committee Chair and Conservation Committee Co-Chair, and the Climate Change Sub-Committee

In keeping with BC Nature's mission to 'Know Nature and Keep it Worth Knowing', BC Nature is well positioned to be a leading voice in education, research and action on Climate Change in B.C. We want to offer members and the wider community a way to understand Climate Change and take positive action to mitigate it. We also want to represent BC Nature members effectively at all levels of Government.

We recommend BC Nature focus on the following priorities for Climate Change action and engagement:

- Engage BC Nature members and the wider naturalist community in Climate Change action
- Provide effective climate crisis education programs and resources for BC Nature members and the wider public
- Provide club members and BC Nature with effective strategies for influencing community, government(s), federal, provincial, municipal and business on climate action
- Form meaningful partnerships with Indigenous groups and Indigenous-led Climate Change mitigation strategies and goals
- Build community among members and naturalists and share information about their Climate Change action programs and activities
- For BC Nature to be seen as

a leader in Climate Change knowledge and action in BC - working with like-minded organizations and Indigenous partners to amplify messaging

The committee is looking for new, engaged members, who would like to bring their voices and ideas to the committee. If you are interested in joining the committee, please contact BCN_climatecommittee@protonmail.com and we will be in touch with you!

Roberts Bank Terminal 2 - Roger Emsley, BC Nature Special Representative for Roberts Bank



Photo: A. Schmierer

Western Sandpiper

The photograph above is the migratory bird that defines the importance of Roberts Bank as a critical stopover on the Pacific Flyway. The BC Government's approval of the Roberts Bank Terminal 2 (RBT2) project, on September 28, 2023 (following the federal approval in April of this year), means that this bird species - the Western Sandpiper - will experience population declines and a potential path towards extinction. The battle to stop the destruction of the Roberts Bank ecosystem is effectively over. All that is now required for construction to start is an approval from the Department of Fisheries and Oceans, and that is a given.

With its approval the BC Government imposed another 16 conditions, adding to the 370 conditions attached to the federal approval. None of these

do anything to prevent the collapse of the current Roberts Bank ecosystem. Once built, the artificial island will destroy the intertidal biofilm and we will witness the decline of populations of migratory and other shorebirds, especially the Western Sandpiper, Southern Resident Killer Whales and salmon. Governments ignored concerns of their own scientists, independent scientists and major environmental groups. All have repeatedly warned about the impossibility of reversing or mitigating the project's significant adverse environmental effects. By the time the effects become measurable it will be too late.

One question has never been answered. Why did governments not delay the RBT2 approval until after the completion of the environmental assessment for the Deltaport Berth 4 project? Why the rush to approve when the Vancouver Fraser Port Authority (VFPA) says it will be up to four years before construction begins? It is not as though the BC West Coast is running out of container terminal capacity - far from it. Total container traffic fell by more than 3% from 2021 to 2022. Worse yet, 2022 full container loads were down by 9%. In fact, there were fewer loaded containers handled by the Port in 2022 than in every year all the way back to 2013.

That dismal picture continues. Total container volumes for the eight months to August 2023 are off by 18%, with full imports falling by 19.5% compared to the same period in 2022. The Port of Vancouver has always relied on handling significant volumes of US container traffic (as high as 25%), but more US containers are taking the cheaper and faster all water route directly to the US Gulf and East Coasts. Based on economic realities and market trends RBT2 makes no sense, especially when its current estimated cost at \$3.5 billion is

likely to balloon to anywhere between \$4 and \$6 billion.

Alternatives to provide more terminal capacity exist. Deltaport Berth 4 can deliver almost as much additional capacity (an additional 2 million Twenty-foot Equivalent Units (TEUs containers) as RBT2 and within the same timeframe. It will cost half as much and will be financed privately, unlike the publicly-funded RBT2. Prince Rupert will finish the expansion of the privately-funded Fairview terminal by 2024 delivering 1.8 million TEUs. In addition, Prince Rupert has commenced a study for a second terminal that can deliver 2 million TEUs by 2031. Both the Berth 4 and Prince Rupert expansions are environmentally sustainable and will cause much less environmental degradation.

The irony is that Governments are willing to sacrifice a world-class ecosystem for an unnecessary container terminal. Currently the BC West Coast terminals together have in excess of two million spare container terminal capacity. By 2050, if market conditions warrant it, BC West Coast container terminals will be capable of delivering as much as 15 million TEUs of capacity, more than enough to satisfy Canada's West coast trading needs for the foreseeable future. RBT2 will never be needed.

RBT2 faces two legal challenges. Ecojustice represents the David Suzuki Foundation, Georgia Strait Alliance, Raincoast Conservation Foundation and Wilderness Committee, citing concerns for the health of local salmon and the endangered Southern Resident Killer Whales. The Lummi Nation filed for a judicial review of Ottawa's approval of the project, claiming lack of consultation. On July 12 the Union of BC Indian Chiefs wrote to the federal and provincial governments calling

Conservation Report continued from page 9
for an immediate pause of RBT2 development.

Financial challenges also exist. VFPA needs to borrow billions of dollars to build RBT2. All major financial institutions have adopted the Equator Principles for determining, assessing and managing environmental and social risk in project finance. Given its significant adverse environmental effects and impacts on biodiversity, financial institutions would be expected to avoid financing RBT2.

The Fraser Estuary ecosystem, having lost more than 80% of its natural habitat, is at a tipping

point. Will governments finally recognize the environmental legacy of their approval of RBT2 and make the decision to terminate the project? We can only hope.

With this report I wish to announce my resignation as the BC Nature Special Representative for Roberts Bank. The work is effectively over. I have been fighting to save Roberts Bank and the Fraser Estuary since the early 2000s. I attended all the public meetings concerning this project as the Director of the Against Port Expansion Community Group (APE). I was asked to become the BC special representative for Roberts Bank some ten years ago

by then-president Kees Visser. I thank you for the opportunity to work with BC Nature. I continue to support what BC Nature stands for and is doing. I will keep you updated as APE continues its fight to stop RBT2 and hope that ultimately, we will see RBT2 discarded as a project, and what remains of the Fraser Estuary's natural habitat protected.

Addendum: BC Nature thanks Roger profusely for his dedicated, thorough, relentless work to protect Roberts Bank and the Fraser River Estuary. Few volunteers devote so much time and effort to an issue. ♡

Alert – Birds Passing Over – Turn off your lights!

Author - Janet McIntosh

In the Spring edition of *BCnature*, I wrote an article on the harmfulness of lights at night on our wildlife population, more specifically as related to birds.

Since the 1990s, the Cornell Bird Dashboard (a partnership of Cornell Lab of Ornithology, Oregon State University and the University of Massachusetts Amherst) has used radar technology to study and track nocturnal bird migration. This is the same radar technology used to detect meteorological phenomena such as thunderstorms, tornadoes and hurricanes. The Dashboard provides live and historical data on birds in flight over each U.S. state nightly between sunset and sunrise. Washington state data are particularly useful for us here in the Lower Mainland, because we can assume that birds migrating south over Washington state are coming from BC (and vice versa for birds migrating north in the spring). Like Washington state, B.C. is in the Pacific Flyway. This bird migratory route extends all along the west coast and is used heavily because of good access

to food and resting grounds, compared to the coastal and interior mountains to our east.

Anyone can go into the Dashboard to find historical data for any state in the US for the spring and fall migrations back to 2018. The Dashboard provided live data for the fall migration (available up to the evening of November 14) and will be available again during the spring migration (March 1 - June 1). You can access the data yourself by opening this link, which will take you directly to the last night's data available on birds flying over Washington state (November 14) <https://bit.ly/3sWq3Qb>

You can also look up the data for any previous date back to 2018 fall or spring migrations. For example, if you select 2022 September 17, which was the peak night of bird migration over Washington state last year, you will find data as shown below:

- More than 9 million birds completely crossed Washington state that night
- Almost 15 million birds were in flight over Washington state

at the peak for that night

- The birds were flying south, at approximately 35 kmh at an altitude of approximately 500 m

Other graphs related to September 17 include:

- How many birds were in flight each hour between sunset and sunrise (most birds were in the air as usual by 30-45 minutes after sunset, with the peak number in flight at about 1 am)
- A comparison of the number of birds in flight during the 2022 fall migration to previous years (similar to the historic pattern, with the usual peaks and valleys)

While the Dashboard shows September 17 as the peak migration night for fall 2022, it also shows wide variation in bird numbers over the next couple of weeks, likely due to wind and weather conditions.

- On September 22, the number of birds crossing Washington state overnight dropped back down to 1 million
- But just two days later, September 24 showed a second

- peak of 7 million
- September 27 was back down to under 1 million
- September 29 rose again to a final peak of 8 million
- After that, the number of birds in flight each night dropped dramatically.
- The largest numbers were migrating between September 5 and October 5.

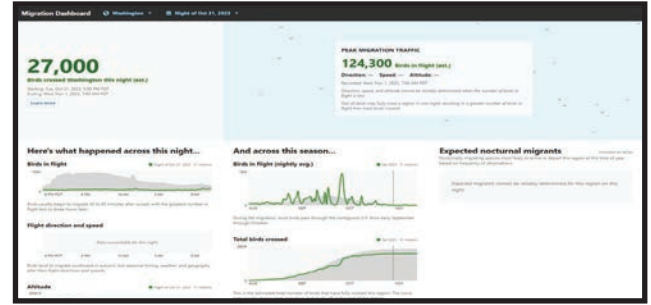
While radar technology cannot identify species, the Dashboard does include data on historic migration patterns for species based partially on data from *eBird*. The Dashboard is now also incorporating data from a new technology monitoring bird flight calls captured by acoustic monitoring stations. This new project, called BirdVox, uses “automatic bioacoustics analysis” to identify species overhead. Interestingly, they are working in conjunction with the Music and Auditory Research Laboratory at New York University. Data from all these sources indicate that over Washington state (therefore likely also over our Lower Mainland) early September typically includes night migrating Warbling Vireos, Western Wood-Pewees, Baird’s Sandpipers, Red-Necked Phalaropes, Hammond’s Flycatchers and Pacific Flycatchers. Later in September typically come

the Swainson’s Thrushes, Common Terns, Short-Billed Dowitchers and Pectoral Sandpipers.

The Dashboard also provides forecasts three nights in advance when high levels of migratory activity are expected.

This makes it possible for those of us on the ground to take action to reduce night-time lighting on those specific nights. The city of Portland, Oregon does this, sending out a public “Lights Out” alert when peak numbers of birds are expected overhead. The alert is accompanied by a plea to turn off any unnecessary lights that night to avoid luring the birds off course toward the lights and potentially fatal hazards. Several other American cities have implemented a similar program; Toronto is the only Canadian city that has done so. You can find out more about this by tapping on the “Science-to-action” tab at the top of any Dashboard page.

Seattle is the closest city to us for which the Dashboard provides three-night advance forecasts. You can sign up to receive an email when high bird traffic is expected in Seattle by tapping



Screen shot of the Dashboard from November 14, 2023

the Migration Tools tab at the top of any Dashboard page. Even without a forecast specific to our location, we already know from the Dashboard that our peak period for fall migration is between early September and early October. The Dashboard suggests actions any of us can take during this period to help the night-migrating birds on their way. If you follow these suggestions, you might discover by mid-October (when most of our fall bird migration is over) that you don’t really need as many lights as you thought you did, nor do they have to be as bright.

Maybe you will be able to reduce your own or your employer's contribution to light pollution in your community.

Once again: **ALERT**
Birds Passing Over.....Turn off your Lights! ➡

Natural Justice

Ignorance of the Law in the “Connected” Era

Author - Ben van Drimmelen

Not everyone is always online, even if government assumes that.

In early July 2018, a recreational boater from Victoria had been cruising Georgia and Johnstone Straits along northeastern Vancouver Island for several weeks. By the time he reached the Broughton Islands, groceries were getting stale, so it was time to catch some fish. He had caught one Ling

Cod when a Fisheries patrol vessel came along side. The boater was illegally fishing inside a Rockfish Conservation Area and was issued a \$350 ticket.

The boater felt hard done by, because he had repeatedly asked for a copy of the sport fishing guide to determine the regulations but had been told that copies were simply not available anymore – they were only available online.

The boater had a computer in his home, but nothing mobile - no smartphone or tablet. As he did not know in advance of the lengthy cruise where he might be fishing, he was unaware where closed areas were located. He decided to plead not guilty and challenge the matter in court.

The case would be heard closest to where the offence occurred – Port McNeill, a 460 km, five-hour drive from Victoria. The trial date was January 2019. The boater drove up the day before

and stayed in a motel. However, the court time was completely filled with higher-priority matters – criminal and family law cases. Saddened, the boater returned to Victoria. The next court date was not until September, but then a Crown witness would be unavailable, so it was bumped again, to November. Winter weather made an Island drive risky, so the date was bumped again to late March, now to be heard in Campbell River.

A three-hour drive this time, another motel. In court, the boater did not dispute any of the government’s evidence about the law or circumstances he had indeed been fishing in a conservation area and the law

was pretty clear – don’t fish there. Instead, he argued that he had tried hard to determine the law, having sought the Sport Fishing Guide document at seven different marine stores, plus four Fisheries and Oceans offices. Eleven attempts, but he had not been able to get a copy until he finally called the head office in Vancouver which sent him one in late July after he had returned home from the cruise. He did not have a cellphone and did not want one, so could not access the Internet during the cruise to determine open and closed areas. (Indeed, even if he had possessed a smartphone or a tablet, the Fisheries officer admitted that there was no cell reception where the offence occurred.)

The judge concluded that due diligence had been proven. The boater was acquitted! But not really free of a penalty. His trips to Port McNeill and Campbell River, with gas, motels and meals, cost him \$1,000. Not good economics – spending \$1,000 to fight a \$350 ticket. But what price are principles?

As a postscript, the Fisheries Officer contacted the boater months later asking if it was acceptable to dispose of that freezer-burned ling cod that was cluttering up the evidence freezer. The boater agreed but asked that the cod be put back into the water from where it had been taken – sort of an ecological apology. 🐟

BC Naturalists’ Foundation

Author - Stephen Partington, President

How many times can you be assured that an investment is guaranteed? When can you really be sure that your money buys a product that is exactly what was advertised?

As an investor in the BC Naturalists’ Foundation, I am comfortably happy that every dollar I donate is guaranteed

to generate income that can be deployed by the Foundation to promote the preservation of the natural environment for future generations through conservation, education, and research projects.

A strong Foundation is good for nature.

From 1991 to 2023, the BC Naturalists’ Foundation

has helped fulfill the hopes, dreams, and aspirations of many hundreds of people in the naturalist community through 193 grants and scholarships amounting to about \$300,000.

All 193 grants were funded by earnings from invested donations.

Please donate to the BC Naturalists’ Foundation!

Guaranteed: nature and your naturalist community shall benefit.

Never underestimate the power of compounding. Multiple small donations by an individual or single donations by many individuals have the wonderful habit of adding up quickly.

Donating is so easy.

Go to the CanadaHelps website, enter the BC Naturalists’ Foundation as the recipient then donate whatever number of dollars, you’d like to invest in your naturalist community.

Better yet become a monthly donor. Those bucks, become quickly multiplied within the Foundation’s portfolio and go so far toward helping to keep the naturalists’ hopes, dreams, and aspirations flourishing. 🐟



Include the foundation in your legacy plan

What we LEAVE behind

A strong foundation is good for nature & for club support

You can help build the foundation through

- eTransfers
- Stocks
- Bequests
- Bonds
- Cheques
- Canada Helps

For more information contact
BC Natrualist's Foundation
foundation@bcnature.ca

BC NATURALISTS FOUNDATION

For information on donations and bequests to the BC Naturalist's Foundation, contact BC Nature at 604-985-3057
www.bcnature.org or e-mail foundation@bcnature.ca

BC Naturalists' Foundation is a registered Public Foundation
Charitable registration #889458840 RR 0001

The Impact of Climate Change and Conservation Strategies on Medicinal Plants

Author - Michelle Lynde

Medicinal plants are a diverse group of plant species found on tropical islands, in rainforests, mountainous regions, and in the Arctic. Today, they must adapt to the impacts of warming temperatures, changes in the timing of seasonal events known as plant phenology and extreme weather conditions to survive.

Some of the most compelling evidence that warming temperatures are affecting ecosystems is the earlier arrival of spring temperatures and weather. As the life cycles of plants respond to this type of seasonal cue, there have been notable changes in the first seed and flowering events of some medicinal plants. They flower days earlier than they did during naturalist David Thoreau's observations of these plants more than 160 years ago.

The onset of an earlier spring may also trigger an increase in the population and range of invasive species, damaging pests and fungal pathogens. In addition, warmer weather in late winter can create a "false spring" that causes bud burst and leaf out to begin early, leaving the plants vulnerable to any subsequent frosts and significantly impacting seed production.

The timing of when pollinator-dependent plants and pollinators are active may, in some cases, become mismatched due to Climate Change. Studies have shown that Pasqueflower (*Pulsatilla vulgaris*) has been flowering earlier each year in the absence of its major pollinator, a solitary bee species. This has a negative effect on seed production and endangers the bee population due to the

limited availability of nectar and pollen.

According to Alain Cuerrier, a University of Montreal professor and botanist at the Montreal Botanical Garden, wild populations of medicinal *Rhodiola* (*Rhodiola rosea*) that grow in the Canadian Arctic are facing significant threats from invasive species and rising sea levels.

Plants produce secondary metabolites in their roots, stems, leaves and flowers that allow plants to respond to environmental changes and act as a defense mechanism. Secondary metabolites are also responsible for the therapeutic actions of medicinal and aromatic plants. Rising temperatures and drought conditions may cause some plants to produce less secondary metabolites, such as flavonoids, resulting in a reduction in the anti-inflammatory and antioxidant properties of the plants.

In-situ (on-site) conservation allows for the protection of medicinal plants in their natural habitat by setting aside areas as natural reserves, wild nurseries, parks and other protected areas. Despite the benefits of in situ conservation, the plants may still be under threat from Climate Change.

Ex-situ (off-site) conservation, such as botanical gardens, play an important role in Climate Change research and the preservation of endangered plants. Botanical gardens maintain extensive historical records, photographs, and herbarium collections that are valuable tools for studying plant responses to Climate



Photo: A. Rosenwurz

Rhodiola rosea L.

Change. Many botanical gardens work collaboratively with others around the world by growing the same species so the plants can be observed in a wide range of climatic conditions. Botanical gardens allow researchers to not only evaluate the evolutionary history of plant responses to Climate Change but to accurately predict how various plants will respond to Climate Change in the future.

Seed Banks are a common and preferred method of ex-situ conservation. Most seeds can be kept viable for long periods of time when dried, sealed in containers and frozen at -20°C. However, storing the seeds of medicinal plants that produce recalcitrant seeds is more challenging. They do not survive desiccation resulting in a storage life of only a few days or weeks.

Field Gene Banks are established as working collections of living wild and cultivated plants for Climate Change research. They are used for perennials that produce recalcitrant seeds and plants that reproduce primarily from roots, crowns and rhizomes.

Cryopreservation is an alternative practice used for preserving recalcitrant seeds. Liquid nitrogen is used to freeze the embryo from a recalcitrant seed at a temperature of -196°C. The challenge of this method is to be able to successfully thaw and germinate the seeds.

Cold Temperature Storage involves storing plant material under low temperatures, usually between 1 and 9°C. The advantage is plant tissues and cells are not at risk from dehydration due to freezing.

Hydroponic systems allow for the cultivation of plants on a commercial scale using only water, a nutrient solution and a special growing medium such as coconut coir or perlite. This permits for precise control of nutrient levels and oxygenation of the roots. Recent studies show that growing some medicinal plants

hydroponically in a greenhouse resulted in higher concentrations of secondary metabolites than in traditional soil cultivation.

Aeroponic systems are used for growing plants where the medicinal properties are concentrated in the roots and rhizomes. The roots are suspended in the air in a controlled environment while a nutrient-rich solution is delivered in the form of a fine spray.

There is much we can do to help sustain therapeutic plants for continued use as botanical

medicine. They can be grown alongside vegetables and fruit in community garden plots. Many grow well in home gardens and are often used for landscaping and privacy. Gardeners are converting backyards into medicinal forest gardens, a natural or designed space that includes multi-layered medicinal plant species.

Our actions in the coming years will determine the fate of our medicinal plants as the effects of Climate Change continue around the world. ☘

Back to Basics

Winter Botany

Author – Terry Taylor

Naturalists often view the winter months as a botanically empty season. No flowers, the leaves are gone from the trees, and the mushroom season is over for another year. But this does not need to be the case. There are lots of interesting things you can find during the winter, although they are rather cryptic, and you need to look at nature more closely.

Can you identify your local trees and shrubs when there are no leaves? You can if you learn what their winter buds look like, and you can do that if you look at the buds just before the leaves fall. Red Osier Dogwood and Cascara, for example, have no scales over their buds. You can see the immature leaves that will develop next spring. The other trees and shrubs have buds with scales. But the buds look different for each species. Another feature to look at is the bark. Bigleaf Maple, for instance, has deep bark, and red alder has smooth bark, and shallow flat cracks.

Winter is the time to look for lichens that grow in the treetops. Winter storms bring down branches that are covered by lichens that grow in the canopy. In



Photo: R. Taylor

Hair Ice

other seasons, they are out of reach. You might also inspect the crust lichens that grow on tree trunks. Smooth-barked trees often have light-coloured patches. These are usually crust lichens, and there are many different species that grow like this.

If you live on the coast, visit a red alder forest in the morning right after the first freeze. At such times alder twigs on the forest floor often look like they have extruded white cotton candy through cracks. On several occasions I have been asked what fungus this is. Not a fungus, it is called hair ice, water in the wood that freezes overnight. Breathe on it or touch it and it disappears. But there is some mycology involved here. Research in Europe has shown that the fungus *Exidiopsis* causes it. This has not been demonstrated with our hair ice,

but we have this fungus in our forests.

Another mystery of our forests is the snowberry. These are strange berries. They are pure white, grow in dense clusters, are not sweet and are believed to be poisonous. They remain on the branches right through the winter. Birds and mammals seldom eat them. White shows up at night. Do they attract mice that are active after dark?

Fungal investigations are also possible in the winter. The perennial bracket fungi are on the tree trunks all year. You can also get down on your hands and knees and look at leaf litter. There is lots of natural history in leaf litter. This is where nutrients are being recycled for future leaves. Many bacteria and fungi are recycled. On the interface between the old leaves and the soil you can often find white mold threads. Some of these threads belong to fungi that are feeding nutrients back to tree roots. There are also insects and other invertebrates munching away on the old leaves. Birds such as towhees depend on such insects for food. This provides a good reason for not raking up the old leaves in your garden.

When leaves have fallen, it is easier to see galls on shrubs and trees. The swollen areas on thimbleberry branches are caused by a tiny wasp, *Diastrophus kincaidii*, whose

larvae live in these galls. Gall insects of other species make characteristic galls on different woody plants.

Winter may not be as showy as other seasons, but if you look closely there are lots of things to see. 🍂

Finding Refuge in a Changing Landscape

Author – Project Team, Wildlife Connectivity Project, Squamish Environment Conservation Society

Squamish Environmental Conservation Society’s (SES) project, *Connectivity is Key*, which supports connectivity for wildlife moving in and through Squamish has since become a collaborative initiative aimed at protecting vulnerable ecosystems and endangered species in a region facing unprecedented levels of environmental change. Success will mean that our project does not end in 2026 but rather promotes sustained change in the way landscape planning is done in our region.

Judith Holm’s article (*Connectivity is Key, BCnature Fall 2022*) described our project in the middle of a year of scoping work. Our consultants, Squamish-based CoastRange Environmental, helped us understand current approaches to wildlife and habitat connectivity. It was clear that improvements in connectivity have typically been tied to a biodiversity conservation strategy. Our consultants reviewed work from more than 15 BC municipalities and regions, as well as neighbouring jurisdictions. They looked at options for

mapping and modelling, as well as experience with implementation of biodiversity conservation strategies.

Two themes emerged as necessary for success: collaboration and adaptation.

Collaboration is the heart and soul of our project. We seek perspectives from as many groups and individuals as possible, working to avoid duplication and to develop commitment to new approaches.

Adaptation is necessary in the face of increasingly rapid change. We have designed our project to be flexible and to allow us to adjust plans to reflect changing conditions and opportunities. Our decision to partner with Washington-based NGO TerrAdapt for landscape modelling was based on its capability to regularly update its platform using satellite-based technology in order to support adaptive processes.

SES is a very small group. Budget limitations as well as the novelty of our approach have shaped

our project team. Rather than creating weakness, these factors have helped nudge us in the direction needed for success. We do not have a primary contractor to manage the project, lead the science, and work with project partners and representatives of other levels of government. Instead, we have a project team led by volunteer Murray Journey, a retired research scientist and SES Director who brings his vision of collaboration to the work. Our team includes other SES volunteers as well as subject area experts as needed. Our four core project partners have land management roles in the region: District of Squamish, Squamish-Lillooet Regional District, Squamish Community Forest, and Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation). Our work is supported by our Technical Working Group and is guided by our Steering Committee.

New innovative methods of landscape modelling developed by TerrAdapt and enhanced by our work will provide insights into reasons for biodiversity loss

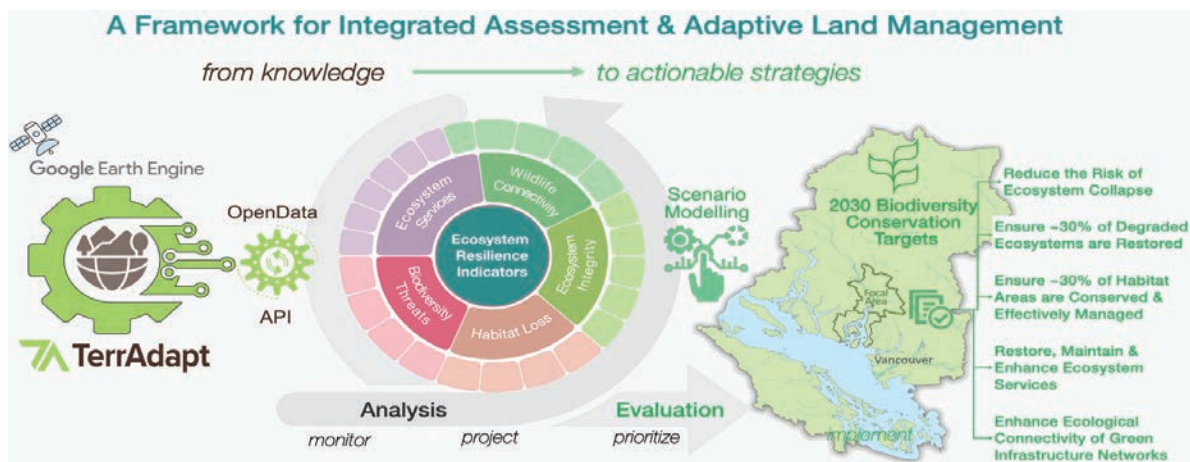


Figure 1: Analytic and deliberative components of an integrated assessment framework to support adaptive land management.

Continued from page 15

and help identify conservation measures to improve the resilience of wildlife habitats and vulnerable species. By incorporating these assessment methods (see Figure 1) into broader frameworks of adaptive land management, we will have an opportunity to establish a shared foundation of knowledge that can inform planning and policy development and enhance the prospects of biodiversity conservation across local and regional levels of land governance.

From the beginning, our project

has involved collaboration with the Howe Sound Biosphere Region Initiative Society (HSBRIS), the group responsible for managing the Atl'ka7sem/Howe Sound UNESCO Biosphere Region. Through HSBRIS we are receiving ongoing federal funding, made available through Environment and Climate Change Canada. We have also been fortunate to receive consistent support from the Squamish-Lillooet Regional District and private donors. The District of Squamish has included funding requests in budgets for the next two years. Next year's

work will require almost 50% of the funding for the whole project, so we are investigating potential sources of funds as we hear about them.

We're grateful for the support and inspiration we've received from BC Nature and the BC Naturalists' Foundation in 2022 and 2023 as we work together to contribute to the long-term conservation of biodiversity in southwestern BC.

If you'd like more information about our project, please contact wildlife@squamishenvironment.ca .✉

Today's Google Search - Amazing Facts about Wolverines

- Wolverines have a keen sense of smell that can detect a dead animal 6 metres under the snow.
- Wolverines will refrigerate their kills in the snow.
- The Wolverine has a specially adapted thick, dense and oily fur coat which is highly hydrophobic.
- A male Wolverine will range over an area of between 600-1000 sq km.
- Wolverines walk on the soles of their feet, called semiplantigrade-posture.
- The Wolverine's sharp teeth and powerful jaws crush frozen carcasses, bones and all! In winter, and regions where there is snow, wolverines depend on eating frozen carcasses of deer, moose, and elk. They don't just nibble the meat off the bones, they devour all of it.

Eagle-Eye Tours



Join us on a birding tour this winter

Thailand, Puerto Rico, Costa Rica, Panama, Guyana, Cuba, Hawaii, Texas, Arizona and more

Rated Excellent ★ Trustpilot

BC Licence #34413



Birding & Nature Tours | www.eagle-eye.com | 1-800-373-5678

Active Pass IBA - Ebirding from the BC Ferry

Authors - Michael Dunn and Michael Hoebel, Active Pass IBA co-caretakers, Liam Ragan, BC Provincial Coordinator, Important Bird and Biodiversity Areas

One of BC's 83 designated Important Bird Areas is Active Pass, the waterbody separating Galiano and Mayne Islands in the Southern Gulf Islands. As described on the IBA Canada website (<https://www.ibacanada.ca/>), Active Pass IBA "is a tidally active body of water approximately 4.5 km long. The tidal mixing during the floods and ebbs creates a biologically rich feeding area for fish-eating birds, throughout the spring, fall, and winter." Active Pass is also an eBird "hotspot" (Active Pass, Capital, CA-BC).

Thanks to the multiple daily ferry sailings between Tsawwassen on the mainland and Swartz Bay on Vancouver Island, every day thousands of people travel through Active Pass. Some of these ferry passengers are birders who record observations of birds in the Pass and upload their data to eBird. To date over 100 species have been reported and over 1,250 individual checklists have been submitted! To give you an idea of what to look for and when, a bar chart showing species observed and relative abundance by month for Active Pass can be accessed by going to <https://ebird.org/canada/hotspots>, and entering Active Pass in the hotspot search window.



Photo: M. Hoebel

Bonaparte's Gulls

We would like to invite more ferry-traveling birders to record observations of species and numbers of birds seen during the 15 minutes it takes for a ferry to sail through the Pass, and to upload their data to eBird. It's easy to do and fun, and you will be contributing to our growing knowledge about the diversity, population dynamics, and seasonal patterns of both resident and migratory birds in the Active Pass IBA. 🐦

Embrace the spirit of donating by protecting the breathtaking nature of British Columbia. We invite you to be a force for positive change by becoming a monthly donor to BC Nature. Your donation will make an impact year-round!

Yes, I want to give the gift of nature

Please mail cheques to:

BC Nature

1620 Mt. Seymour Rd., North Vancouver, B.C. V7G 2R9

OR e-transfer - manager@bcnature.ca, or visit: <https://bcnature.org/donate/>

Here is my gift:

I enclose a cheque for \$ _____ made payable to BC Nature. To make an online donation or monthly gift, <https://bcnature.org/donate/>

For further information on how to leave a legacy gift in your will for BC Nature, please call 604-985-3057 or send us your contact details to info@bcnature.ca and a member of staff will connect with you.

Name: _____

Address: _____

Telephone: _____ Email: _____

BC Nature #11891-3912RR0001 works to know nature and keep it worth knowing. We represent 57 regional nature clubs and organizations throughout B.C. and lead vital programs to protect nature such as Ecological sensitive sites, IBAs and other Key Biological Areas.



EXPERIENCE LOVE AT FIRST LIGHT



VIPER HD
10X42 BINOCULARS

VARIED THRUSH
(Ixoreus naevius)
Photo: Michael Ashbee

Learn more at VortexCanada.net
1-866-343-0054



UNLIMITED.
UNCONDITIONAL.
LIFETIME WARRANTY.

BINOCULARS | MONOCULARS | SPOTTING SCOPES | TRIPODS | APPAREL

The Little Things That Run the World

Author - Ann Tiplady

Recently while visiting my local library in Oak Bay, I saw a new book on display, *Gardening for Wildlife*, by Adrian Thomas (2017). Wildlife and gardening: my favourites! After a quick flip through its pages – text in easy-to-read boxes and overflowing with lovely photos – I checked it out.

I was feeling cautious about this book though. At one time, I would have unhesitatingly hung on every word, but I've been re-inventing my gardening recently and I've become sensitive, to where I get my advice. This book claims to be "a complete guide to nature-friendly gardening" and prominently displays an RSPB "giving nature a home" logo, suggesting the Royal Society for the Protection of Birds approves. It's a thoroughly British book.

It's very pretty, and enthusiasm and love for the topic emanate from every page. It overflows with good ideas for British gardeners. But that's my hesitation. Lovely as it is, it's out of place here. We cannot continue gardening as though we live in Britain. If we wish to have a living world around us, with functioning ecosystems that support life, we must change what we're doing.

For many years I gardened for butterflies following the advice in books like *Create a Butterfly Garden*, by L. Hugh Newman (1967) and the "A Butterfly Garden" chapter in *Theme Gardens*, by Barbara Damrosch (1982). I thought I was helping the world by growing these lovely, flower-filled gardens. Numbers of butterflies were never impressive though.

My gardens weren't sustaining butterfly populations. Only when we moved to Vermont and were living in the middle of pastures and woods, did I finally find lots

of butterflies in my garden. But I was simply drawing butterflies from pre-existing populations into the garden where we could see them.

We always had bees though, far more bees than butterflies, and interesting varieties of wasps too. I marveled, transfixed by the beauty of the iridescent deep-blue wasps with long thread-like waists, using the flowers of the over-my-head lovage growing in our herb garden.

When I heard a radio interview in July of 2014 with Laurence Packer, author of *Keeping the Bees* (2010), it dawned on me that my gardens were bee gardens first, and butterfly gardens second. Now I claimed to be pollinator-gardening. The plants were the same, but I no longer worried so much about butterflies, which were too few, and embraced the joy of wild bees.

Then came the *coup de grace*. I learned of the work of Douglas Tallamy, a professor of entomology and wildlife ecology at the University of Delaware. In his YouTube video, Professor Tallamy described how many species of caterpillars are supported by native plants compared with non-native plants. He put the numbers into perspective by discussing the ability of songbirds to rear young, a task which requires caterpillars, lots of caterpillars. Tallamy explained that over eons native plants and native insects have developed in tandem, in the arms race of plants developing defensive chemicals and insects developing ways to overcome those defenses. Non-native plants, however, have different chemical defenses, developed in their own native



Photo: A. Tiplady

Our native woolly sunflowers are show-stoppers every spring, providing weeks of brilliant yellow flowers attracting pollinators. They also support several caterpillar species, two of which are specialists, living only on woolly sunflowers.

settings, in tandem with their own insect predators. I had always ignored the idea of gardening with native plants because I thought what I was doing already was beneficial. But when I heard about Tallamy's work I was struck dumb. Insects here can't eat the plants from over there. I was filled with horror.

I am familiar with plants having secondary compounds, chemicals that deter those who eat them. I have a wildlife degree. I have worked as an ecologist. I thought I was ecologically aware. But still I was blind to the obvious.

The gardens I had been cultivating for more than three decades were not beneficial. When I learned that our native oak trees, poplars, willows and birches, support hundreds of species of caterpillars, whereas most of the non-native, horticultural varieties of trees support many fewer, I was aghast.

Years ago, I planted both a ginkgo tree and a zelkova tree, and between them they might support one, possibly two, species of caterpillar. That yard, where we lived 25 years ago, is now burdened with trees that are ecologically useless. From the perspective of birds looking for juicy caterpillars to feed growing babies, those shelves are bare. ♡

Nanaimo's Unique Harewood Plains Under Threat by Development

Author - Staffan Lindgren, Nature Nanaimo

If you travel past Nanaimo on the Nanaimo Parkway, you will drive past a unique area located southwest of the parkway between Harewood Mines Road and Extension Road. If you pay attention, you may get glimpses of meadows, but for the most part there is little to indicate anything special can be found in this area. However, this is Harewood Plains, an area which due to its unique physical features is the home of about ten red- or blue-listed plant species. Much of the area is characterized by a conglomerate bedrock topped by a thin organic layer. This creates ideal conditions for spring seeps and vernal (spring) pools, which is perfect for restricting tree growth, creating unique meadows. Interspersed with these meadows are stands of Douglas-fir (*Pseudotsuga menziesii*) and some Garry Oak (*Quercus garryana*).

For most of the year, the area is superficially unremarkable, but at the end of April through May the meadows explode in colour as flowers emerge in a kaleidoscope of colours. Common Camas (*Camassia quamash*), Yellow Monkeyflower (*Erythranthe guttata*), Shortspur Seablush (*Plectritis congesta*), and Spring Gold (*Lomatium utriculatum*) dominate with blue, pink and yellow, creating an easily accessed flowering jewel located within a stone's throw of the city.

At the northwest end of the area, the City of Nanaimo has designated a small portion of the mostly privately-owned Harewood Plains as Lotus Pinnatus Park. The city has also adopted one of its rare plants, Bog Bird's-foot Trefoil (*Hosackia pinnata* – formerly, *Lotus pinnatus*), as the official flower of Nanaimo, and Nature Nanaimo has adopted the same flower as its



Photo: S. Lindgren

Bog Bird's-foot Trefoil (*Hosackia pinnata*)

logo. This species is red-listed in BC, and categorized as endangered in Canada, with almost its entire Canadian population growing right in Harewood Plains. Other red-listed plant species found in the area include Dense Spike-primrose (*Epilobium densiflorum*), Hermann's Dwarf Rush (*Juncus hemiendytus*), Muhlenberg's Centaury (*Zeltnera muehlenbergii*) and Howell's Violet (*Viola howellii*). In addition, Harewood Plains is home to several blue-listed (threatened) species, including Slimleaf Onion (*Allium amplectens*), Long-bristled Frillwort (*Fossombronina longiseta*) and Purple Crystalwort (*Riccia beyrichiana*), as well as a red-listed species of butterfly, Propertius Duskywing (*Erynnis propertius*) and a blue-listed frog, Northern Red-legged Frog (*Rana aurora*). Wetland habitat loss has been identified as a significant threat to this frog.

The park is largely unknown by most residents, however, and the absence of signs means that even when you are in the park, there is nothing to indicate that it is special. In addition to the park, there is a small area under a covenant, which provides some level of protection as long as its

status is not changed. Mosaic Forest Management, owners of the majority of the Harewood Plains area, has erected a sign indicating up to \$50,000 in penalties for damaging their property. Yet, ATV and off-road dirt motorcycles have torn up significant areas of the sensitive habitat. Wheel tracks and other damage to the thin soils affect the hydrology which in turn negatively affects the flora that depends on the seeps. Furthermore, BC Hydro has impacted some areas to create access to power lines traversing the area.

Yet, these are not the most significant threats to this unique habitat. Earlier this year, a development proposal was submitted to the City of Nanaimo for a housing development adjacent to Lotus Pinnatus Park. The plan is to convert 24 hectares of Harewood Plains into a 480-unit residential neighbourhood in an uphill area that will disrupt critical hydrological processes and threaten the rare species and endangered ecological communities in the rest of the Plains. Coordinated by Nanaimo & Area Land Trust (NALT), a Harewood Plains Working Group comprising members representing NALT, Nature Nanaimo and other interested parties was formed in the spring of 2023 to seek ways to ensure protection of this unique area in perpetuity. In May, a panel discussion (<https://bit.ly/3SYgZVy>) on the issue hosted by Nature Nanaimo was held. In July, an excellent article providing more detail was published in The Discourse (<https://bit.ly/3SWKEP3>).

In early May 2024, the BC Nature AGM will be hosted by the Arrowsmith Naturalists, including a guided walk of Lotus

Pinnatus Park and affected areas. Early May is the perfect time for BC Nature members to see the splendour of Harewood Plains for themselves. You can help support our efforts to prevent the proposed development from happening and to increase protection for Harewood Plains by writing to mayor.council@nanaimo.ca and expressing your opposition to the development that has the potential to cause the loss of one of the rarest ecosystems in Canada.



Photo: W. Thomas

Muhlenberg's Centaury
Zeltnera muehlenbergii

Fatal Attraction - Road Salt and Birds

Author - Margo Hearne



Photo: M. Hearne

Red Crossbills on a Spruce

Large flocks of small birds swing over the islands then dip down to feed upside-down on seeds or alder catkins. They are members of the finch family down from the north to spend the winter here. Pine Siskins make up most of the flocks. They are small, cheery birds that fly overhead in a weaving wave, then swing away, bright balls of energy in the dead of winter. Pine Siskins are nomadic; they move around in response to the availability of food - partly why one year there are none and the next year the sky is full of them.

According to experts, it is hard to assess finch numbers because they are so nomadic, but Breeding Bird Survey and Christmas Bird Count data suggest that they are in a long-term decline. Part of the reason for the decline is because siskins and other small finches have an unfortunate fondness for salt on winter highways. When both salt and sand are sprayed on the road to prevent ice buildup the birds come down to feed. The salt and gravel can supplement their mineral intake and help to aid in digestion. Tragically, it also leads to collisions with cars and trucks and could cause sodium poisoning (Brown 2013, Erlich et al. 1988).

One year we estimated that tens of thousands of Pine Siskins died on the highway between Smithers and Prince Rupert. It was a particularly cold, icy winter and the highway was heavily salted. The birds fed in the middle of the road and only flew up when we passed. Although we tried to slow down to let them fly off, others did not and, sadly, the roadside was littered with small, dead birds. When we arrived in Prince Rupert later that day, we picked ten dead siskins from the grill of a parked car that had passed us earlier. It was only one of many vehicles that had overtaken us.

Finches, however, are not only killed from vehicle strikes but are also poisoned by the salt. According to Mineau and Brownlee (2005) 'birds do not have the physiological defenses against salt that some other animal groups have. While the kidneys of mammals have the ability for precise regulation of sodium and chloride retention or excretion, avian kidneys are not as well equipped for this task. And while marine birds have nasal glands that excrete excess salt, non-marine birds do not have this mechanism.' All finches are affected, including Red Crossbills and Pine Grosbeaks.

Some parts of the world have stopped using salt on the highway completely and have found other methods to melt ice on the road. In Canada the Federal Government has developed a *code of practice* which "sets national targets, offers transparency in the expected performance level from road organizations and provides a basis for conducting a review of the effectiveness of the Code".

The Code is pretty much voluntary although Environment and Climate Change Canada continues to promote the implementation of it with stakeholders, including provincial and municipal road authorities, federal and provincial governments, related associations, industry, environmental non-governmental organizations and academics, in order to help reach national targets. Perhaps we need to pressure governments to make the Code mandatory before we lose all those lovely winter birds. More information on this can be found at <https://bit.ly/3MJHfip>.

Conservation Corner

Municipal Protected Areas Project (MPAP) Update

Author – Kephra Beckett, BC Nature Conservation Coordinator

The Municipal Protected Areas Project has been making significant strides in its outreach in recent months. In the early Fall we held two highly successful webinars for club members and local government staff. Our local government-focused webinar had over 55 staff and council members from various municipalities in attendance. The webinar served as a platform for knowledge sharing about Canada's 30x30 commitment (to protect 30% of land and water by 2030), and how local governments can contribute. These events garnered serious interest from municipalities across the province, leading to an instant 10-fold increase in participation of the program.

Following our webinars, the team has held over 15 follow-up meetings with local governments to discuss specific strategies for the identification and protection of municipal natural areas. Furthermore, the project had the privilege of presenting similar material at the Victoria Harbour Migratory Bird Event, extending its reach and impact within the community. All the groups to whom we have made presentations have told us continuously how timely this project is, as it aligns with many municipalities' current conservation and climate action strategies being developed. These recent achievements underscore the appetite and need for this project to better understand and bring together the efforts of local governments in a strong, collective way. ➔

Featured Key Biodiversity Area (KBA): Yat'aayi Héen BC288

Featured species: Lake Chub, Atlin Warm Springs Population (*Couesius plumbeus* pop. 3) - Unceded Taku River Tlingit Nation territory

Author - Ian Adams, Wildlife Conservation Society Canada

Deep in the winter, far northwestern British Columbia isn't the first place that comes to mind for most of us. But winter is perhaps the most remarkable time for Yat'aayi Héen (pronounced yut-AYE-yi heen), a warm-springs complex in the homelands of the Taku River Tlingit, near the eastern shore of Atlin Lake.

Thermal springs are not unique in British Columbia; our mountainous landscape, colliding terranes and generally active geology provide lots of opportunities for warm water to bubble to the surface. The pools of Yat'aayi Héen, however, hold a surprise: a globally unique and isolated population of Lake Chub, *Couesius plumbeus* pop.3.

Lake Chub are one of the more common fishes across the northern half of North America. Typically 10 cm long, they are found in lakes across virtually all of Canada, occurring in every province except PEI and the island of Newfoundland. For the most part, they are cold-adapted and require low temperatures for proper physiological function. Being so widespread, Lake Chub are naturally diverse with several distinct lineages. However, the populations adapted to hot or warm thermal springs represent an especially unique ecological niche for this opportunistic minnow.

At some point in the geological past, the water of Atlin Lake was connected with the thermal springs. As fish



Photo: M. Leung

Yat'aayi Héen shoreline

are wont to do, they move into these areas and exploit new resources. Over time, that connection between the springs and the lake has been lost, at least in terms of allowing fish to pass between them. Despite the species' preference for cold waters, the chub in Yat'aayi Héen have persisted and adapted to their warm water environment. For a fish that is otherwise considered a cold-water species, living in a pond that is consistently 25-27°C year-round is a significant change.

Research by fisheries biologists at University of British Columbia showed that the chub of Yat'aayi Héen are indeed genetically distinct from their cold-water cousins. In recognition of this unique, isolated and

Continued page 23

Continued from page 22

irreplaceable genetic lineage, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessed the Atlin Warm Springs population of Lake Chub as Threatened in 2018.

These unique attributes are also why Yat'aayi Héen was recognized as a Key Biodiversity Area in 2023. With the support of Taku River Tlingit First Nation, the KBA is now part of the growing number of sites across Canada around the world that are recognized for their importance to the persistence of biodiversity.

The chub are the only native fish in these thermal springs that are reasonably numerous. Estimates reported to COSEWIC suggested that 1500 to 2200 fish were conservative estimates. For the small area in which this genetically distinct population is found, those are pretty good numbers. However, the threats to the fish are substantial and, as the only place on Earth where they are found, the risk of losing this special population is significant.

Honouring Jude and Al Grass

Author – Phil Henderson

On a hot and sunny Friday in September 2023, forty-two members of our naturalist and field ornithologist communities attended a dedication for Jude and Al Grass. A dedication in their name was made with the placing of a large stone along the trail in the Fergus Watershed Biodiversity Preserve. The stone is engraved with 'Jude and Al Grass – Together in Nature'. Phil Henderson of the Langley Field Naturalists, coordinated this effort, arranging letters of support from many naturalist groups written to the City of Surrey Parks who supported this endeavour.

Is there a member in our BC Nature clubs around the province who has not been touched by the tremendous contributions given by Jude and Al? Decades of work sharing their knowledge, organizational skills and passion, have inspired numerous nature lovers to form clubs, often with Jude and Al at the helm. The BC Field Ornithologists, Nature Vancouver, Burke Mountain Naturalists, Langley Field Naturalists, the Wild Bird Trust, and BC Nature are but a few of the organizations that have benefitted from their volunteer time. Al dedicated years of sharing nature knowledge to all who asked and leading thousands of walks, writing informative articles and participating with NatureKids BC along with numerous other organizations.

If a nature group had a good idea, Jude and Al were there to support it and offer their help. They also attended park planning and public meetings concerning park use, always speaking for nature.

Cherry Shrimp (*Neocaridina davidi*) were introduced to the ponds in 2015. Although the chub are now eating the shrimp, invasive species frequently disrupt natural ecosystem processes and lead to loss of biodiversity with native species suffering declines or extirpation. More troublesome is the release of goldfish (*Carassius auratus*) into the ponds. These fish are potential competitors and known to increase turbidity which would impact the chub who rely on vision in the clear springs to find their food.

For the Taku River Tlingit, Yat'aayi Héen is a place of special importance and healing. As an oasis of warmth in a cold winter, it's easy to see why. Much of the land surrounding the springs are now owned by the First Nation and their mindful stewardship, as they have done for millennia, will help ensure the springs and their unique lake chub will continue to persist. For more information on KBA, see: <https://kbacanada.org/site/?SiteCode=BC288> ➔



Phil Henderson (L), Al and Jude Grass

Thank you, Jude and Al, for your tremendous dedication to nature; we were very glad to see you at the event. ➔



Help protect the Nighthawk Hill Grasslands.



The Nature Trust of British Columbia needs your help to purchase & conserve 11 hectares of native, wild grasslands. Home to at least eight at-risk bird species, including the Common Nighthawk (pictured), the Nighthawk Hill Grasslands provides wildlife with a critical corridor to the flowing river below.



Please donate today!
naturetrust.bc.ca/giving

NATURE TRUST
BRITISH COLUMBIA 

Pink Mountain and I

Author - Ron Long

I have been interested in native plants and their biology for many decades. To me, tundra plants are by far the most biologically intriguing so, in 1983, when I heard that Pink Mountain provided road access to an alpine tundra environment I went there immediately and was not disappointed.

Pink Mountain is located 180 km north of Fort St John. It is not a high mountain, but being so far north, the summit is classic tundra, one of the harshest environments on Earth.

Since 1983, I returned regularly to photograph and study the plants until, in 2010, I learned of plans to put 40 wind turbines on the mountain. By then I knew that Pink Mountain was special, and the wind farm threatened to destroy the entire summit. Something had to be done.

In 2011, I founded the Pink Mountain Biodiversity Research Initiative, with the objective of quantifying the biodiversity on the mountain. I campaigned for and raised donated funds to make the study possible. I recruited biological specialists from UBC, SFU, the Provincial Museum, and the private sector and arranged for them to donate their time to make studies of plants, mosses, insects, spiders, bees, birds, and other wildlife. In many species categories, we discovered rare or species at risk.

Every year since 2010, I have spent three or four weeks at Pink Mountain, driving up and down to the summit every day, and every day I learned something new. I drew on the donated funds only when necessary and added thousands of dollars from my own pocket. To save money, I used my own vehicle on most trips and covered the cost of repairs to tires,

wheels, paint, and myself. In other words, I stretched the donated funds until they squeaked.

The result of our combined studies is astonishing. We have tentatively identified no fewer than 44 significantly rare species on the summit. The following list remains to be confirmed by further studies but gives a good idea of the special nature of Pink Mountain.

- Grass – one red-listed species
- Rushes – one red-listed species
- Mosses – three red-listed species, one blue-listed species
- Flowering plants – one red-listed species, 11 blue-listed species
- Butterflies – one blue-listed species
- Caribou – blue-listed
- Stone's Sheep – blue-listed
- Barn Swallow – blue-listed

First records:

- Moths – five species
- Other insects – one for BC, one for Canada
- Mason bee

Second Records:

- Two spiders

Third Records:

- Butterflies – seven species endemic to Pink Mountain
- One spider
- Ants – two species new to science
- Northern Jacob's Ladder (*Polemonium boreale*) is found in BC (only on Pink Mountain)

The rare species are only the beginning:

- Pink Mountain also supports a plant diversity that is unequalled by any other known location of its size in the province.
- The mountain hosts almost every flowering plant that occurs across the entire Canadian Arctic.
- It is a butterfly hotspot for



Photo: Ron Long

Northern Jacob's Ladder

all of Canada. There may not be another site in the entire country with as many species of butterflies.

- Supports all known species of alpine bumblebees. These are notoriously difficult to study because of their normally remote habitat.
- Supports an unusually high number of raptors for its small size.
- Supports at least five of the eight species of grouse and ptarmigan that occur in B.C.
- Offers opportunities for research on virtually any tundra-related subject and needs to be protected for this purpose.

Some good news: the approval of Site C has removed the need for wind developments in B.C.

Another concern was the two capped gas wells on the summit of Pink Mountain that could have been reactivated at any time. However, in 2022 these wells were declared abandoned so there is currently no commercial interest in Pink Mountain.

The time for protection is now. Threats remain and surprisingly the worst of these is Pink Mountain

Continued page 26

Provincial Park. BC Parks website has stated that the park was created to protect the site of a significant fossil discovery. That discovery was totally misnamed as Pink Mountain Ichthyosaur, which, in fact, was found 60 km north of Pink Mountain on the Sikanni Chief River. The fossil has since been removed and is now at the Tyrrell Museum in Alberta. There never was a reason for a park on Pink Mountain. As a result of my writings, BC Parks has removed most of the incorrect information from their website. Nevertheless the website continues to attract visitors. I have no problem with visiting naturalists but visiting tourists, who have no knowledge of the delicate habitat or rare plants, threaten to love the place to death. Tundra cannot tolerate trampling and especially the use of off-road vehicles.

The Pink Mountain population of Hoary Marmots numbered in the dozens in 1983. On my

last count only three remained. These animals are naive about people and will readily approach vehicles out of curiosity. People are shooting these tame animals. Without protection this population will disappear very soon.

In the current political climate, no protection of B.C. Crown Land is likely without the involvement of First Nations, and I welcome that. In 2022 I had a meeting with Chief Judy Desjarlais of the Blueberry River First Nation. She was impressed with what we had learned about Pink Mountain and this crucial contact provides a way forward towards the protection I have been working for since 2010.

For the last twelve years Pink Mountain has been the focus of my life. I have become intimately familiar with the mountain and can instantly spot any new plant or wildlife. Stick a pin in a map of the summit and I can tell you what is special about that spot. The quiet,

the views, the ever-fascinating plants and the huge sky that seems close enough to touch have all contributed to the pleasure that Pink Mountain has given me. I love the place.

Unfortunately, this story has no happy ending. Twelve years of dedication, the painstaking work of many experts, extraordinary success and the urgent need of protection for a unique-in-BC-location cannot compete with a single obstructing bureaucrat. In 2022 bureaucratic interference became intolerable. The resulting stress has forced me to abandon the project.

See pinkmountain.ca for the full report of the Pink Mountain Biodiversity Research Initiative. If your club is interested in learning more about Pink Mountain, I have a slide presentation that can be delivered either live or via Zoom. Contact Ron Long at rlphoto@shaw.ca

Why should I switch to the e-version of the BCnature magazine?

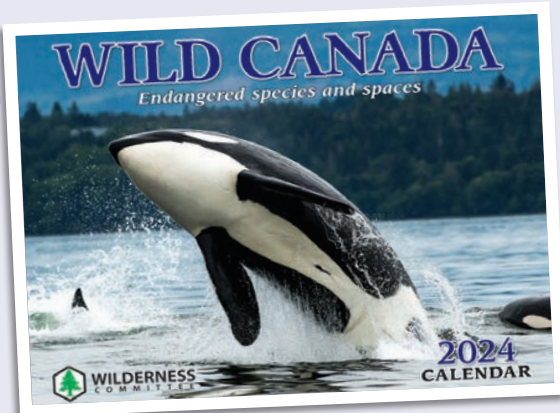
1. Because the e-version is jam-packed with extras such as videos, bird or wildlife sounds, and live links.
2. Saves dollars for both BC Nature and you, the member. BC Nature saves on; postage/print costs;

the member doesn't have to pay the extra \$5.00/year.

3. If Canada Post loses your magazine, and we have to mail another one, it costs us \$5.00 in postage, envelope and the cost of the new magazine.
4. Your e-version is available at any time, and can be read on all devices.

Make the switch today, email info@bcnature.ca to switch to e-version

wilderness & wildlife matter



WILD CANADA 2024 CALENDAR

Purchase a Wilderness Committee calendar and be a part of our campaigns to protect threatened wilderness and wildlife.

Check out our unique wilderness merchandise online:

WildernessCommittee.org


Call 604-683-8220 or 1-800-661-9453 today!



Be remembered for keeping Canada wild – include the Wilderness Committee in your will or estate plans today. To learn more: plan@wildernesscommittee.org

 / WildernessCommittee

 @Wilderness

 @Wilderness



BC NATURE CONFERENCE & ANNUAL GENERAL MEETING REGISTRATION FORM

May 9 - 12, 2024 – “Taking Action for Nature”

Hosted by Arrowsmith Naturalists

Qualicum Beach Civic Centre – 747 Jones St., Qualicum Beach, V9K 1S7

All Registration open Tuesday, January 2, 2024 (Online and mail in)



Name:		Club:		
Address:		City:		
Postal code:	Telephone:	Email:		
Non-members must join BC Nature (\$35 annual membership) or a Member Club to attend Club Representative/Director () Executive () Please Tick one if applicable Options (GST & Gratuities included where applicable)		Jan 2 – Mar 15	After March 15	Amount
Full registration – all presentations, field trips, birding. Does not include Saturday banquet and the three outings (Butterfly World, North Island Wildlife Recovery Centre - NIWRA and Forest Bathing). These are being charged separately.		\$150.00	\$160.00	
OR Thursday evening only – speaker and refreshments		\$20.00	\$25.00	
OR Friday only – early birding, speakers, light lunch, field trips		\$60.00	\$75.00	
OR Saturday – early birding, field trips, light lunch		\$40.00	\$45.00	
Saturday Banquet – Guest speaker, silent auction, awards		\$50.00	\$55.00	
North Island Wildlife Recovery (NIWRA)		\$12.50		
Butterfly World		\$10.00		
Forest Bathing with Tara		\$10.00		
Amount due				

Board/Council of Club Representatives meeting (Thursday Afternoon)	Yes ()	No ()
BC Naturalists Foundation and BC Nature Committees meeting (Friday afternoon)	Yes ()	No ()
NatureKids BC Meeting (Saturday Morning)	Yes ()	No ()
Early Morning Birding Friday am () Saturday am ()		
Vegetarian/Vegan Yes () No ()		

Field Trips: Please rank trip choices each day (1, 2 or 3) – will be assigned by order of registration.

Waitlists will be maintained to accommodate participants, but spots cannot be guaranteed once trips are full.

Field Trip Location (Offered both Friday and Saturday unless otherwise specified)	Rated	Rank your choices - 1, 2 and 3	
		Friday 10 th	Saturday 11 th
1. Seahaven Beach Birding	Moderate		NA
2. Enos Lake	Moderate	NA	
3. Englishman River Estuary	Easy	NA	
4. Rathtrevor	Easy	NA	
5. Hamilton Marsh	Easy		
6. Heritage Forest	Easy		NA
7. Seaside Nature Park - Community engagement, First Nations art & beach walk	Easy		NA
8. Big Qualicum Riverside - Indigenous-led native plant walk	E-M		
9. Lot 10 Birding	Easy	NA	
10. Thames Creek	Moderate		
11. Little Qualicum Falls	Ch	NA	
12. Little Mt. Boulder City	Moderate		
13. Top Bridge	E-M		NA
14. North Island Wildlife Recovery Centre \$12.50	Easy		
15. Butterfly World \$10.00	Easy		
16. Forest Bathing with Tara - Heritage Forest \$10 .00	Easy	NA	
17. Workshop - Ways to Engage the Public (& gain members)	Easy	NA	

Sunday, May 12th Farewell Outings (Preregistration is required)

Rank your choices - 1, 2 and 3

18. Forest Bathing with Tara – Heritage Forest \$10 .00	Easy	
19. Jack Point	Moderate	
20. Neck Point	Easy	
21. Buttertubs Marsh	Easy	
22. Harewood Plains	Easy	
23. Mt. Tzuhalem	Moderate	

PLEASE NOTE: NA – Not available on this day, Ch – Challenging, E-M – Easy to Moderate

Signed Waiver required for all participants. Online Registration - <https://arrowsmithnats.org/bc-nature-agm-2024/>

e-transfer to anatsmembers@gmail.com or cheque to Arrowsmith Naturalists, PO Box 1542, Parksville, BC V9P 2H4



BC NATURE CONFERENCE & ANNUAL GENERAL MEETING REGISTRATION FORM

May 9 - 12, 2024 – “Taking Action for Nature”

Hosted by Arrowsmith Naturalists

Qualicum Beach Civic Centre – 747 Jones St., Qualicum Beach, V9K 1S7

Registration open Tuesday, January 2, 2024 (Online and mail in)



Date	Event
Thursday, May 9	
1:00 – 7:30 pm	Registration Desk Open
1:30 – 3:30 pm	BC Nature Executive Meeting
4:00 – 6:00 pm	Council of Club Representatives Meeting (light dinner provided) Dinner is on your own
6:00 pm	RECEPTION and PRESENTATIONS
7:00 – 9:00 pm	Mount Arrowsmith Biosphere Region (MABR) - “Connecting People with Nature” Denise Foster - "Saving an Estuary"
Friday, May 10	
6:30 – 8:00 am	Early morning birding (Pre-registration required)
8:00 – 9:00 am	Registration desk open (tea, coffee and light snack)
9:00 – 9:15 am	Official welcome by Qualicum First Nation and Mayor Westbroek (Qualicum Beach)
	Scott Black and Paul Chapman – “Harewood Plains: A Unique Ecological Wonderland at Risk”
9:15 – 10:00 am	Panel Discussions with Government Representatives – “How to Effect Positive Change for Nature”
9:15 – 10:45 am	Coffee, Tea and Snacks
10:45 – 11:00 am	Sylvia Campbell – “A Wild Journey”
11:00 – 11:45 am	Field Trip Instructions
11:45 - Noon	Light Lunch is Provided
Noon – 1:00 pm	
1:00 – 4:00 pm	Field Trips (Pre-registration required)
4:15 – 6:00 pm	Meetings: BC Naturalists’ Foundation and BC Nature Committees
6:00	Dinner is on your own
Saturday, May 11	
6:30 – 8:00 am	Early morning birding (Pre-registration required)
8:00 – 9:00 am	Registration Desk Open (coffee, tea and light snack)
9:00 – noon	Field Trips (Pre-registration required)
Noon	Lunch is on your own
1:30 – 4:00 pm	BC Nature Annual General Meeting
5:00 – 6:30 pm	Social Hour – beer and wine tickets obtained from registration desk
6:00 – 9:00 pm	Banquet (extra cost, pre-registration required, silent auction, awards) KEYNOTE – DR. LOYS MAINGON – “Biodiversity Rhythms: Preserving Old -growth Algae and Fungi for Future Generations and Cultures
Sunday, May 12	
9:00 – noon	Farewell Field Trips (pre-registration required)

Naturalist Mentor

Jim Duncan - Water Education Mentor

Author - Stewart Wilson

Laura and Jim Duncan raised their two daughters in Kimberley in the East Kootenays and shared their love and knowledge of nature with them, while forming friendships with other like-minded families. What began as a group of concerned friends dreaming about the kind of world they wanted for their children to grow up in, eventually evolved into Wildsight, a nationally-recognized organization for its work in protecting wildlife, water, and wild spaces.

When Jim retired in 2003, he and Laura were looking for a way to contribute meaningfully to environmental education. Back then, there were few field-based environmental education programs available to schools, so they started Mainstreams Environmental Society (*mainstreams.ca*), a non-profit organization with its focus on teaching children and their local community about water through science-based programs and activities. Jim developed curricula for educational programs and wrote proposals, secured and allocated funding to support Mainstreams' different water-based programs, tasks which became more challenging over years.

At first, Mainstreams offered programs to schools in the Cranbrook and Kimberley area. As programs grew in popularity, there were requests from places further afield, from Golden to Fernie to Trail to Revelstoke and beyond. Jim was a visionary with innovative ideas, as well as a skilled juggler, who was able to schedule visits to schools to accommodate teachers and instructors, always looking for ways for more than one class to



benefit from the visit.

The most popular of the 10 water-based programs was the stream trailer, which came loaded with aquarium sand and a self-contained reservoir to model how humans impact watersheds. Laura and Jim were Mainstreams' first instructors, and their enthusiasm and passion were obvious as they engaged children in hands-on activities with the stream trailer. Students learned about the negative effects of water on the land, like erosion and flooding, and developed their understanding of the importance of riparian vegetation in retaining the soil, and providing shelter and shade for fish, wildlife and people. Between 2014 and 2018 almost 11,000 students and 2,500 community members participated and benefitted from Mainstreams programs.

Thanks to Jim, Mainstreams also coordinated the Columbia Basin Water Quality Monitoring project from 2006 to 2018 and rescued the Columbia Basin Watershed Network from oblivion from 2013

to 2017. Mainstreams conducted many workshops for government agencies and the public in Montana, Idaho, and BC, as well as coordinating a major stream restoration project on Joseph Creek in Cranbrook and habitat restoration along a stretch of Mark Creek in Kimberley.

Sadly, Jim Duncan passed away in July 2023. Those of us who worked with Jim and Laura over the years are indebted to Jim for giving his time so generously over the years, sharing his knowledge and passion for water with people of all ages, and giving us a greater appreciation and understanding of the importance of water in our lives. 🍀

Submit your nomination for a worthy Naturalist Mentor today.

Details on BC Nature website

<https://bcnature.org/education/>

North in the Spring #26 - Columbia Icefield

Author - John Neville

There is always a certain amount of excitement when we visit the Rockies. This September, we travelled up the Athabasca River valley from the Alberta side. The river was low and very brown carrying away glacial mud and fine silt. The word "Athabasca" comes from the Cree language and means "place where the reeds grow" referring to the area of Lake

Athabasca in northeast Alberta. Many Aspen leaves were bright yellow, and some were golden brown before falling. The deciduous leaves were in marked contrast to the dark green Lodgepole pines. As we approached closer to Jasper, cars were pulled over to view and photograph the herds of elk. The cows and bulls were in separate groups, the bulls with full racks of antlers, and all appearing quite docile. Park staff were trying to keep tourists away from the bulls as this is the rutting season and the bulls are in an agitated state. They will be fighting tonight, with head butting charges and loud bellowing, so that the strongest may mate with the cows. The Bighorn Sheep were crossing the road to reach salt licks to obtain minerals needed in their diet. We have also encountered Mountain Goats using salt licks. We quickly turned south on Highway 93, the Columbia Icefields Parkway! It was opened in 1942, after being used as a "make work project" through the Dirty Thirties. A beautiful avenue has been created between the Central Range, where most of the icefields are located and the Front Range, to the east. We passed the Whistlers and Wapiti campgrounds, the Five Lakes hiking trail and more of



Photo - H. Neville

Athabasca Glacier

the Athabasca River. The last two features reminded us of recording birds and river rafting.

We did stop briefly at a noticeboard describing David Thompson's journey up the Athabasca and Whirlpool Rivers; he went over a low pass on the Continental Divide and descended into the Columbia River system in 1811. Thompson went on to make the first complete traverse of the Columbia River! In 1827, George Simpson, the Hudson's Bay Company BC Governor, named a pond on the route for his bosses in London, the Committee's Punchbowl. As the road began to climb steadily through the Subalpine Zone, the Stutfield Glacier became briefly visible on the skyline. Just to our right the Sunwapta River flows, with braiding and then turning loud and wild through the canyon, with lots of waterfalls feeding into it. We then stopped at the Columbia Icefield Discovery Centre, opposite the Athabasca Glacier, to seek information and check our tickets for the following day.

The Columbia Icefield is approximately 165 km², similar in size to Metro Vancouver. With a high-altitude basin in which

snowfall collects and from which a number of glaciers flow, it is considered a single geological feature. This icefield is considered the largest of the numerous icefields that straddle the Central Range or the continental divide in North America. However, this is a misconception, as the Andrei Icefield, north of Stewart, BC is larger, as is the

Seward-Bering icefield system in coastal Alaska. Everything starts at the apex, which in the Canadian Rockies means Snow Dome in the Columbia Icefield. The downward pressure of gravity eventually turns the snow crystals to ice. At depth, ice turns plastic and starts to move laterally, creating glaciers. The icefield varies from 150 to 600 m in depth. Snow Dome is a triple continental divide at 3510 m elevation; snow falling on Snow Dome may be directed to one of three different oceans. Several glaciers flow westward from Snow Dome into BC's Hamber Provincial Park (a very special park) and feed the Bush and Wood Rivers that flow into Kinbasket Lake and then to the Pacific via the Columbia River. The Athabasca River is fed directly by the Columbia Glacier on the eastern side and eventually reaches the Arctic Ocean via the Mackenzie River system. The Athabasca Glacier feeds the Sunwapta River, a tributary of the Athabasca River - Confusing eh! The huge Saskatchewan Glacier feeds the North Saskatchewan River which flows east to Hudson Bay and the Atlantic Ocean.

Only the Athabasca Glacier is

easily accessible by road.

The Stoney People used this area as an important meeting place “*chaha tonga*” the big ice meeting place. The park is within the treaty boundaries of Treaties 6 and 8. The dark side of this story is that when Jasper National Park was created in 1907, all First Nations were evicted. On October 19, 2023, it was announced that the National Park would allow a short hunting season for the Stoney for the first time since their eviction.

We camped across the valley from the Athabasca Glacier. I was startled by a loud, roaring, blustery sound at about 3 am. The air passing over icefields and glaciers is cooled quickly at night and with the aid of gravity roars downhill. This is known as the “Katabatic Effect” and certainly woke me up!

A few hours later, we were climbing onto a bus with large tractor tires along with other passengers from around the world. The bus was soon ascending a hill and then plunging down a 32° slope of the lateral moraine onto the Athabasca Glacier. The cheerful driver told us that 32°

was the steepest road in the world. Moraine is an old French word meaning “rocks deposited by ice”. We passed NASA scientists doing research before reaching an area marked off by red cones. We were given a safety talk, meaning that we should stay within the cones, as there were crevasses beyond those markers. The snow had all melted away by September and the surface was quite rugged with loose pieces of ice. It was slippery on sloping areas and easiest to side-step (as with skis) to stay upright. There was approximately 60 m of ice below our feet! The temperature was cool, and I felt as though I had landed in the Ice Age and could have been in Greenland or the Antarctic! There have been five Ice Ages, as far as we know. Before leaving I tried drinking a little ice water and it tasted quite pure, almost like distilled water.

We were subject to one more thrilling experience on this bus-ride adventure: The Skywalk. We were taken to the edge of the Sunwapta Canyon. A good, paved trail took us to a glass-bottomed walkway or u-shaped bridge returning to the same cliff edge. There was only fresh air for 280

m down to the raging Sunwapta River. Many people became dizzy and were calmed by a tour guide. I was very conscious of the slight shuddering of the glass in time to my footsteps. It was a relief to step back onto terra firma.

Before leaving the area, Heather took some pictures of the glacier across the valley from the campsite. Nearby were small clumps of Englemann Spruce which began growing when the glacier started to retreat in 1844. We also noted one Canada Jay and three pairs of Raven. Several years ago, driving the Parkway, we were stopped by dense clouds reducing visibility to zero. We pulled off at the Athabasca parking lot and found a Raven grounded, like us, waiting for the mist to clear. The car park is at the bottom of the glacier’s track. A fifteen-minute walk takes you up through the rubble to the snout of the glacier and the creek emerging from the ice. Markers indicate where the snout reached in past years. At the present variable rate of retreat, it will only take between 30 and 60 years to completely disappear. 🐾

Discover the coasts of the *North Atlantic* in Summer 2024



Newfoundland & Labrador
JUNE 20 – JULY 3, 2024



Natural Iceland
JUNE 21 – 30, 2024



The Bay of Fundy & Grand Manan
AUGUST 10 – 16, 2024



View the itineraries at www.QuestNatureTours.com
1-800-387-1483 | travel@worldwidequest.com



Canada's Leader in
Nature Travel Since 1970



Donate today

Know Nature and Keep it Worth Knowing
<https://bcnature.org/donate/>

Publications Mail No. 41804027