



*Knowing nature and keeping it worth knowing*



**The Magazine of BC Nature**

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# BCnature

Volume 63 No. 4

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## Calendar of Events

**December 2, 2025** - Giving Tuesday  
**December 31, 2025** - Last day for donations for 2025 tax receipts and Grant Match Program  
**January 31, 2026** - Club Support Grants due  
**February 15, 2026** - Resolution submission due  
**February 15, 2026** - Spring Magazine deadline  
**March 15, 2026** - BC Nature Awards submissions due



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### Objectives of BC Nature (Federation of BC Naturalists)

- To provide naturalists and nature clubs of BC with a collective 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 of nature clubs throughout BC.
- To provide a means of communication among naturalists in BC.

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

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

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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](mailto:communications@bcnature.ca)

Advertising and article submission deadline for the Spring edition: February 15, 2026

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

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Photographer: R. Liu



# Editorial The Ethics Beneath Our Feet

## Why mindful foraging matters more than the mushrooms themselves

Submitted by Betty Davison

Every fall, there's a new kind of gold rush unfolding in our forests — a quiet, earthy one. Across the Pacific Northwest and beyond, mushroom foraging has grown from a niche pastime into a popular pursuit. Social media gleams

with baskets of Chanterelles, Pine, and Porcini Mushrooms, and weekend trails echo with talk of “secret spots.” It's easy to see the appeal: foraging connects us to food, place, and season in a way grocery stores never can.

New to my area, I tagged along last year with some friends on the hunt for Pine Mushrooms, after I swore that I would tell no one where the sites were. But as a novice naturalist, I found myself asking a harder question: Is foraging for mushrooms ethical in the naturalist's world? The visible mushroom is only a fleeting part of a much older, hidden life. Beneath every step we take lies a living network of mycelia—the true body of the fungus — connecting tree roots, exchanging nutrients, and sustaining the forest's quiet metabolism. When we pick a mushroom, we're interacting with one of nature's oldest recycling systems, one that decomposes fallen wood, feeds wildlife, and helps trees communicate.

Foraging, when done without understanding, can tip that balance. A trampled patch of ferns or an overharvested slope might seem minor, but for fungi, soil structure and moisture are everything. Removing too many fruiting bodies can affect spore dispersal, and compacted soil can damage the very networks that keep the forest alive.

That's why responsible foragers — true naturalists — approach the act as both science and stewardship. They learn species by habitat, not just by recipe. They record conditions, take only what's needed, and leave plenty to reproduce. They see themselves as participants in an ecosystem, not consumers of it.

There is, of course, deep joy in the search. Finding the first Golden



Photo B. Davison

One of the many Lobster Mushrooms that I saw, but did not take.

Chanterelle of autumn, the pumpkin-orange of a Lobster Mushroom or a glimpse the head of a Pine Mushroom, is a thrill that borders on reverence. But perhaps the greatest lesson foragers can offer is restraint — the ability to stop, observe, and leave beauty untouched.

If we wish to keep our forests abundant, we must forage with humility, not hunger. Each mushroom we pick should remind us of the unseen complexity it represents. This year, on my own in these “secret” locations in the forest I only took what I could use for short-term, and the rest of the time just enjoyed the solitude.

The forest gives freely, but it also remembers how it's treated. In the end, foraging is not about what we take home — it's about what we choose to leave behind. Ω

## 2026 Science Fairs

Every year, BC Nature sponsors awards to students in every region of the Science Fairs in B.C. and the Yukon. Next year there will be 13 regional Science Fairs beginning March 1 and ending April 30. When the dates for each fair are determined, we will send a notice to all members via *Nature's Voice* eNews.

The 13 regions are: Cariboo Mainline, Central Interior, Central Okanagan, East Kootenay, Fraser Valley, Greater Vancouver, Northern BC, Northern Vancouver Island, Pacific Northwest, South Fraser, Vancouver Island, West Kootenay, and Yukon-Stikine. <https://sciencefairs.ca/regional-science-fairs/>

BC Nature is presenting a \$100 award in each of the three categories: Kindergarten to Grade 6, Grades 7 - 9, Grades 10 - 12.

We encourage you to participate in a local Science Fair with the assistance of your club/organization by offering to be a mentor, help if a student needs assistance, or signing up to be a judge on fair day and presenting the BC Nature awards to the winning students. Contact Gary Hunt if you have questions, [garyalan.hunt@gmail.com](mailto:garyalan.hunt@gmail.com). Ω





# President's Report

*Submitted by Nancy Flood*

**D**id you know that 9 out of 10 Canadians consider “Nature” to be vital to their sense of national identity? That was the result of an EKOS poll conducted in April 2025. In fact, Nature topped the list, ranking above the Canadian Flag, Medicare, and even hockey (<https://bit.ly/47VXALS>)! The poll also showed that most Canadians support funding nature protection programs and described government subsidies for corporations whose activities harmed nature as “unfair.”

These findings were among the messages we tried to convey to MPs (including Parliamentary Secretaries), Senators, Cabinet Ministers and Secretaries of State during this year’s Nature on the Hill (NOTH) event, held October 27-29 in Ottawa (<https://bit.ly/3XavnLe>) This was the seventh NOTH organized by Nature Canada (NC), and the biggest one yet. Seventy representatives of NC’s partner groups, from all corners of the country, met with over 40 Parliamentarians; although most were Liberal, all parties were represented. Dressed in our best “business attire” (a challenge for those of us who identify more as field biologists), we navigated airport-type security to meet in offices spread over nine buildings around Parliament Hill—sometimes running from one to the next, to get to an appointment on time.

NOTH is a massive undertaking for NC, from securing meetings with Parliamentarians, to inviting participants, to preparing guides for those participants, as well as arranging other events (such as a “fireside chat” with Stephen Guilbeault). The guide information we received included the main messages to convey, how to convey them, a map of downtown Ottawa, a biography of each Parliamentarian who agreed to meet, and a schedule for each participant: who they were meeting with, who else would be there (we met in groups of two and six), when and for how long (30-60 minutes). And that’s before the event! During it, NC staff ran a debrief room: a hive of activity where participants discussed how things went and dropped off meeting notes, planned for upcoming meetings and networked with partner organizations. And of course, there was a constant stream of info coming in and out - meeting times being changed, participants being updated, etc. The event ended with a reception where Guilbeault and Nathalie Provost, Canada’s new Minister of State for Nature, were among other speakers. Clearly, NC has a loud voice in Ottawa!

Last year, NOTH was held in the spring and the main ask was for a Nature Strategy—one that was funded, enforceable and equitable, and that ensured that Canada would meet its commitments, including those in the Kunming-Montreal Biodiversity Framework, signed in Montreal in 2022 (<https://bit.ly/3Lelee1>). In June 2024, Canada’s 2030 Nature Strategy (<https://bit.ly/4nB1WN4>) was announced by Steven Guilbeault, then Minister of Environment and Climate Change. It felt like NOTH had achieved its goals: along with the Nature Strategy, a new tool for assessing impacts on biodiversity and climate change of decisions made in all government departments was created. The Climate, Nature and Economy Lens - <https://bit.ly/4qZFbWl> and the Nature Accountability Act (Bill C-73)

were introduced to Parliament. Then, the government fell—as did the bill. Although preserving and protecting nature figured prominently in the platforms of most parties e.g., <https://bit.ly/3LeluK1>, it did not receive any mention in the Prime Minister’s mandate letter to the MPs that formed the new government <https://bit.ly/3Lr3hJ0>.

This year, NOTH was scheduled for the weeks before the new budget dropped, and funding for the Nature Strategy was the main ask. We reminded MPs of Canada’s promises and noted that nature restoration has one of the best job creation ratios per dollar invested. We urged them to establish new protected areas, and fund Indigenous-led conservation and Guardian programs, among other things. In these times of economic uncertainty, success this year may be less likely—but as some of the MPs reminded us, that doesn’t mean we shouldn’t keep fighting!

BC Nature has attended other NOTH events, represented by our fluently-bilingual, now-retired Executive Director, Stewart Guy (thanks again, Stewart!), among others. I am extremely grateful to have had the opportunity to attend on behalf of BC Nature this year, along with Andrew Banks, our Municipal Protected Areas Program manager. I was enormously inspired by the knowledgeable, articulate, and passionate champions of nature that I met (many of them young!) from all across the country, especially those from BC, including representatives from the Coastal Restoration Society, Raincoast Conservation Foundation, Georgia Strait Alliance, and Saturna Island Marine Research and Education Society, to name just a few—I hope we can cross paths again!

I now appreciate even more the vital and wide-ranging work that NC does on behalf of nature. This year, similar regional events were held in Ontario and New Brunswick. Might B.C. be next? Ω

# Conservation Committee Updates

Submitted by Peter Ballin, Jennifer Dowd and the Conservation Committee



## Conservation Committee Chair Retirement Announcement by Peter Ballin

The time has come to step down from my position as chair of the Conservation Committee. Organizations such as ours require periodic refreshment for new views and renewed energy. In this case, I could not be

happier than I am in endorsing such in our incoming chair, Jennifer Dowd. She asked me to write a retrospective, which I will keep brief.

My Conservation Committee service began in 2009 when past-president (and neighbour) Bev Ramey recruited me to be the BC Nature representative on the Wetland Stewardship Partnership, which had representatives of government and ENGOs drafting government policies. The steep learning curve prepped me for taking over the chair position from Rosemary Fox just over nine years ago. When I assumed the role, no one told me that I would also be serving on the board of directors! The end of each of the first couple of years had me wondering, "What more can we do?" One thing was to seek committee members with particular conservation interests, a move away from the previous policy of regional representation only.

- **What was the most work?** Pulling together quarterly reports for the magazine.
- **What were my favourite tackles?** Giving input to developing policy by meeting politicians and penning letters of advocacy. We provided input to the Old Growth Strategic Review in 2020, the federal Kunming-Montreal Global Biodiversity Framework adopted in December 2022, BC's Biodiversity and Ecosystem Health Framework in 2023, and BC's Coastal Marine Strategy, adopted last year. All of these documents are revolutionary as their premise for policies encompasses the values that I hold most dearly: we must deeply understand that we are part of nature to enact measures for us to live in harmony within it.
- **What am I most grateful for?** The cooperation and support from the conservation committee, our board of directors, and our membership, and the platform to help BC Nature be a "voice for nature".
- **What am I looking forward to?** Continuing work with the conservation committee and also the education committee.

- **What frustrated me the most?** The slow pace of government action to buck the negative paths that destroy species and ecosystems. And having to be so damn repetitious trying to get the message across.
- **What challenged me most?** Recruiting working members onto the committee. So, I'll ask again, as my departing gesture. That's because we need you to address my frustration in just not getting enough meaningful environmental action happening in keeping nature worth knowing.



## A New Chapter for the Conservation Committee - Jennifer Dowd

It is an honour to step into the role of Chair for BC Nature's Conservation Committee, following in the footsteps of Peter, whose thoughtful leadership and dedication have guided the committee's important work. I want to

take this opportunity to thank Peter for his commitment, insight, and the steady foundation he has built for our conservation efforts across the province.

As a wildlife conservation photographer, writer, and budding documentary filmmaker, I bring a deep passion for storytelling and for connecting people with the natural world. My work is rooted in the belief that when people build meaningful connections with nature, they are inspired to protect it. I'm excited to bring this perspective to the Conservation Committee and to collaborate with members who share this passion.

Looking forward, all the work of the Conservation Committee will be closely aligned with BC Nature's 2024–2027 Strategic Plan. This means our priorities will reflect the organization's four strategic goals: speaking up and acting on urgent conservation issues; telling the story of nature through education; strengthening our federation through engagement; and ensuring sound governance. By grounding our work in these goals, we can focus our collective energy where it will have the greatest impact for nature across B.C.

I also look forward to getting to know each of the committee members more closely. This committee is powered by your collective knowledge, expertise, and dedication. Together, we will continue to build on our strengths, identify emerging conservation issues, and

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Conservation report continued from page 5

make meaningful contributions to protecting B.C.'s extraordinary ecosystems and species.

Thank you for welcoming me into this role. I look forward to the conservation journey ahead. I'd love to hear from you — whether it's ideas, questions, or conservation issues you're passionate about. You can reach me at [dal3@bcnature.ca](mailto:dal3@bcnature.ca).

The last few months have been quiet for our advocacy. Both provincial and federal governments have tabled legislation to fast-track projects that may have negative environmental consequences. Both governments have promised to uphold the rules upholding environmental protection. We hope so!

In this issue:

**Tsitika Valley Logging Proposal  
Fish, Wildlife and Habitat Coalition  
Infrastructure Projects Act  
Roberts Bank Terminal 2  
Cougars, Wolves and Bears**

**Tsitika Valley Logging Proposal: Proposed auction of cut blocks in the Tsitika Valley:** summarized by Peter Ballin from a letter drafted by Alan Burger

On 29 September, BC Nature sent a letter (<https://bit.ly/43RISUT>) to the BC Timber Sales Office and the Minister of Forests, expressing concerns about proposed cut blocks in the Tsitika Valley, whose watershed culminates in the Tsitika estuary, an ecological reserve that borders the famed Robson Bight Orca rubbing beaches.

- The clearcut logging will impact the Oldgrowth Specklebelly Lichen, a species of Special Concern in Canada
- The logging will remove known nesting habitat of the Marbled Murrelet, listed as Threatened in Canada.
- Increased sediment runoff from clearcut logging will likely affect the rubbing beaches used by Orcas (*Orcinus orca*) at the Robson Bight (Michael Bigg) Ecological Reserve at the mouth of the Tsitika River.
- The cut blocks will remove important buffer habitat for the protected forests in the Tsitika Mountain Ecological Reserve

BC Nature asked these questions:

1. How do the proposed cut blocks meet the B.C. Government's stated acceptance of the Old Growth Strategic Review by Al Gorley and Garry Merkel? The proposed logging practices are contrary to the BC government's agreement to follow the recommendations of the recent *Old Growth Strategic Review* in retaining tall-tree old-growth forest.
2. What surveys and studies have been done to determine the impacts of these cut blocks on the Old-growth Specklebelly Lichen and what steps have



An example of a cut block near Coleman Alberta

## Cut block Key Characteristics in B.C.

**Administrative and Spatial Unit:** Cut blocks are the primary operational units used by forest licensees and the government to track, manage, and regulate harvesting activities. They have precisely mapped boundaries and are recorded in government databases like the Forest Tenure Cut block Polygons dataset.

**Detailed Planning:** Before a cutblock can be harvested, it must be part of an approved forest development plan or a cutting permit application. These plans detail:

- The location of roads to be constructed.
- The specific harvesting methods to be used.
- How the area will be reforested or rehabilitated.

**Regulatory Compliance:** The design and harvesting of cutblocks in BC are heavily regulated to balance timber production with environmental protection. Regulations cover aspects such as:

- **Maximum Size:** There are limitations on the maximum size of cutblocks, which can vary by forest region or management plan objectives (e.g., generally limited to 40 hectares in the Kootenay Boundary Forest Region, unless consistent with natural disturbance patterns)
- **Retention Areas:** Forest managers are required to ensure the retention of wildlife trees and coarse woody debris within or adjacent to cutblocks to maintain stand-level biodiversity. These are often referred to as Wildlife Tree Retention Areas (WTRAs).
- **Protection of Sensitive Areas:** Specific restrictions apply to harvesting near sensitive features like streams, wetlands, lakes, and community water supply intakes.

**Silvicultural Systems:** The term "cut block" encompasses areas managed under various silvicultural systems, including clearcutting, clearcutting with reserves, and various partial cutting methods, each with specific rules and regeneration obligations. Ω

been taken to meet the recommendations of the Management Plan for this species?

3. What surveys and studies have been done to determine the impacts of these cut blocks on the Marbled Murrelet and what steps have been taken to meet the recommendations of the federal Recovery Strategy and the provincial Implementation Plan for this species?
4. What steps have been taken to avoid sediment runoff from the clearcuts to the Robson Bight Ecological Reserve?
5. Do the proposed cut blocks provide effective buffers to avoid blowdowns and other impacts from the logging on the adjacent Tsitika Mountain Ecological Reserve?

Overall, these proposed cut blocks are in direct conflict with BC Timber Sales stated mission on ecological sustainability: “Sustainability is understanding the risks and changes brought about by climate change and adapting forest management plans and activities to enhance resilience to wildfire and other natural disturbances.” (from the BC Timber Sales website).

We asked that these Tsitika Valley cut block auctions be postponed until all of these issues have been satisfactorily addressed.

#### **Fish, Wildlife and Habitat Coalition** - Ben van Drimmelen

A very quiet fall. The work was all representing BC Nature at the 30-member Fish, Wildlife and Habitat Coalition. The Coalition developed a document to go to the provincial government on essential attributes of engagement between government and environmental non-government organizations such as BC Nature, particularly in the context of recent land use planning in northwestern B.C. The interests of mining, oil and gas, and forestry are routinely considered and prioritized early in land use deliberations, but that leaves the interests of stakeholders such as BC Nature compromised, raising significant concerns on whether the “cake is already baked” and whether any meaningful engagement remains. Meaningful engagement requires:

- **EQUITY:** Engagement with all stakeholders needs to be done in an equitable manner so the frequency and timing of engagement, and access to government staff and decision makers, is equal for all stakeholders.
- **RECEPTIVITY:** Land use planning processes need to be open to stakeholder inputs and those inputs need to be legitimately considered and reflected in the development of draft land use plans. Additionally, seeing the results of our engagement clearly reflected in the draft and final plans is important.
- **OPEN DIALOGUE:** Opportunities for stakeholder engagement must begin early in the land

use planning process. This includes both direct engagement within stakeholder groupings, and in forums that involve a diversity of stakeholders. The intent is to enhance understanding of the perspectives of other stakeholders’ sectors. Virtual meetings should be complemented with limited but timely face-to-face meeting(s) with the full slate of stakeholders present.

- **STRUCTURE:** Provincial government staff in each land use plan or process should, after having solicited stakeholder feedback, identify timelines and mechanisms for stakeholder submissions and recommendations, engagement and dialogue sessions, and updates and feedback to stakeholders.

**Infrastructure Projects Act** - In September, BC Nature received a letter (<https://bit.ly/491qBXN>) from Bowinn Ma, Minister of Infrastructure in response to a letter (<https://bit.ly/3JKJow2>) that we sent to the premier in May over potential overlooking of stringent environmental assessment in the wake of Bill 15. In her letter, she acknowledged our concern for “continued rigorous environmental assessment, meaningful consultation with Indigenous Peoples and other members of the public, and projects that respect and protect environmental integrity. For greater assurance, the Infrastructure Projects Act is not intended to reduce health, safety, or environmental standards, nor affect consultation and engagement requirements with First Nations.” An engagement website is available to capture feedback: <https://bit.ly/4hL3z9Z>. She assured us of a collaborative approach.

#### **Roberts Bank Terminal 2 (RBT2)** - Anita den Dikken

RBT2 was approved by members of cabinet in April 2023 despite numerous anticipated environmental concerns this project. Some of these concerns had been enumerated by Environment and Climate Change Canada scientists. Chief among these was the likely destruction of the omega-3 rich biofilm that Western Sandpipers depend upon for their lengthy migrations. Of added concern is the plight of the Southern Resident Killer Whales (orcas) who would be adversely impacted by the additional noise and marine pollution generated by increased marine traffic. These marine mammals use echolocation to pinpoint their prey (chiefly Chinook Salmon), and marine noise impedes this ability. The number of these orcas has declined in recent years. They are listed as a species at risk.

EcoJustice, on behalf of four environmental groups, sued the federal government to have them apply recovery measures to enhance the survival of the orcas. The federal court judge hearing the case ruled in favour of the federal government, i.e., that no special recovery measures would need to be taken. This decision was disappointing.

Georgia Strait Alliance, one of the four suing groups, in conjunction with members of the other groups and American and world scientists has recently published a comprehensive plan of action to enhance the orca's survival. This plan is multifaceted and will require the cooperation of various agencies including DFO. See below for the comprehensive report.

As further legal action currently is untenable, we need to look at other means to halt RBT2. It is apparent that the current federal government is in dire financial straits, with a huge deficit unveiled in the 2025-26 budget announced November 4. The cost originally projected for RBT2 was \$3.6 billion. There are means of increasing west coast trade other than an environmentally and financially disastrous RBT2, including:

- Global Container Terminals, which operates the current Roberts Bank Terminal, has applied for an environmental assessment to add a fourth berth to Roberts Bank.
- Prince Rupert, whose port operator is Dubai Ports World, has expanded its terminal (Fairview) and is in an excellent location for trade with S.E Asia.
- Duke Point (Nanaimo), also operated by Dubai Ports World, has broken ground on a new port intended to serve short sea-shipping requirements.

**Cougars, Wolves and Bears** - Jacqueline Sherk **Cougars** - An emaciated young cougar, limping and suffering from a gunshot wound was sighted wandering in the neighbourhoods of Port Alberni in October. It was weeks before the BC Conservation Officer Service (BCCOS) was able to locate it. COS made the decision to euthanize the injured animal on the spot. Although it is legal to hunt cougar in BC, it is illegal to injure an animal and not report it. Hunting cougar also requires a specific license in addition to a regular hunting license. The Fur-Bearers conservation group posted a \$2,000 reward for information leading to an arrest in the case.

The update on the two Canmore cougar cubs that were rescued in July after their mother was treed and shot by hunters, are now to be permanently housed at the Parc Safari zoo in Quebec. Wildlife photographer John E. Marriott, who first discovered the kill site and the two young cougars, said that the zoo was really the only option because the Calgary Zoo didn't have an enclosure for them, and they would otherwise be euthanized. In a Fur-Bearers podcast interview, he said the two will be ambassadors for their species and their story will be told. It is legal to hunt female cougars, which spent most of their lives either pregnant or with their young, of which often results in the death and starvation of orphaned cougars too young to hunt on their own.

**Wolves** - Mark your 2026 calendar for August 13<sup>th</sup> and remember to celebrate wolves on that day because

it is International Wolf Awareness Day, a global event that reminds us of the ecological significance of the species. Wolves have been portrayed throughout history as villains; however, they should be acknowledged for their importance in supporting biodiversity through their role in regulating prey populations.

The reintroduction of wolves to Yellowstone National Park, after having been systematically exterminated for nearly 70 years, reduced over-grazing by ungulates (elk and deer) that had resulted in a negative trophic cascade. With no predators to control their populations, the browsing resulted in the decline of willow, aspen and cottonwood that shaded and held the banks of rivers and streams. The loss of shaded areas was harmful to fish and aquatic life, as well as birds and beavers. It was only when the damage was recognized, and wolves were reintroduced that a dramatic ecological recovery occurred, and an unforgettable lesson in nature was learned. All thanks to wolves!

**Bears** - Facts have emerged in the killing of Tex, the young Grizzly Bear, so-named because he had created quite a sensation during the summer when he relocated himself from Powell River to Texada Island by swimming four kilometres through Malaspina Strait. He was only doing what male bears do – trying to establish himself in a place he could call his own, away from older, larger bears, and likely looking for a mate. Little did Tex know that there were no other bears on Texada Island, male or female, black or brown. While the local community and indeed the entire region became embroiled in the young bear's activities, hoping that he could be successfully relocated to a remote area by First Nations who were working on his behalf, some in the Texada community felt very threatened by the bear's presence there. And in mid-July, we learned that he had been shot and badly wounded, leading to his euthanization by authorities. At the time of this writing in late October, what we know is that charges have been laid against two Texada Island residents, apparently a man and a woman. The B.C. Conservation Office Service states that as the matter is now before the courts, no further information will be released.

**New Marine Protected Areas** - A quick announcement: Three new marine protected areas were established on October 17 as joint ventures between the Department of Fisheries and Oceans, the Haida Nation, and the Gitxaala Nation, two in Haida Gwaii and one near Prince Rupert. <https://bit.ly/4oVNYGY> Ω

*B.C. has 200 designated marine protected areas located in all six of the provincial marine eco-regions.*  
<https://bit.ly/485CIRu>

# A Reminder on the Impact That Nature Clubs Can Have

Submitted by Brian Wilkes

The other day I was tidying a bookshelf and came across my copy of John Livingston's 1981 book *The Fallacy of Wildlife Conservation*. I sat down to refresh my memory of his thoughts on this matter, and in doing so it occurred to me that his central message needs to be heard again by naturalists everywhere. John was a well-known naturalist and former producer of the TV show *The Nature of Things*. It was my pleasure to know John, and to work with him as one of his graduate students at York University in the early 1970s.

John's basic conclusion was that wildlife conservation had, up to that point, been a failure, and the proof of that was that wildlife virtually everywhere had largely disappeared. His assessment considered both the practices of wildlife conservation but also the arguments that supported the effort. His assessment that wildlife was disappearing was supported back then by books such as Norman Myer's *The Sinking Ark*, published in 1979. In the 44 years since Livingston presented his views, there has been a continued steady decline in wildlife populations, to threatened or extinct status, around the world.

Other books that support this conclusion include Elizabeth Kolbert's Pulitzer prize-winning *The Sixth Extinction* in 2015, or, to a more limited degree, *Gone*, by Michael Blencowe in 2021. The loss has been so monumental, that Canadian author J.B. Mackinnon calls what's left our 'ten percent world'. Today in B.C. there are almost 2,000 species and ecosystems at risk listed by the Conservation Data Centre. Of these about 200 plants and animals are listed under federal Species at Risk legislation. About 330 are considered endangered, threatened or of concern.

Back in 1981, John's book landed with a thud within the wildlife conservation community. His were not a set of ideas that was enthusiastically embraced. The community was working hard to protect species and ecosystems, and, according to John, were kidding themselves that progress was being made (even though he admitted there were a few success stories). His was an unwelcome message.

Livingston's argument was that the reasons for the conservation of wildlife had never hit home with the broader public, or with decision and law makers. He examines the standard rationales, the arguments: the wise use argument, the 'harvestable surplus' argu-

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In 2025-2026, our boards approved \$9.2 million for 72 projects to help conserve and enhance fish and wildlife in watersheds impacted by BC Hydro dams.



Photo: R. Marchin

The FWCP is a partnership between BC Hydro, First Nations, the Province of B.C., Fisheries and Oceans Canada, and public interest holders to conserve and enhance fish and wildlife in watersheds impacted by BC Hydro dams.

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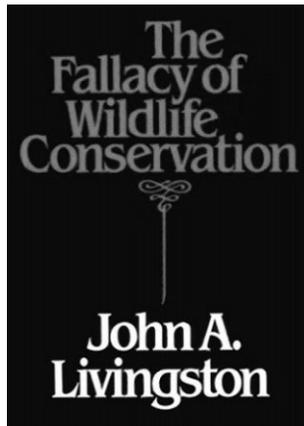
ment, the impending disaster argument, and the ethical arguments – that conserving wildlife is a moral duty to future generations (see *The Future Generations Trap*, *BCnature Magazine*, spring 2024, p.11). All these arguments, and some others, are assessed as inadequate, even when taken together.

We still see these arguments used today as the justification for wildlife conservation, even though they have been largely ineffective, except in very few cases.

John's assessment was that humans can not relate to other species except to see them as resources, items for use in commerce, trade, profit, subjugation, or exploitation. If they are useful, they have value and need 'management'. If they are not useful, then they have low or no value and don't matter.

In addition, he repeats his contention that humanity sees itself as superior to and separate from wild nature, that we see ourselves as the only ones that share spirit with God, putting us in a special category to have 'dominion' over the rest of nature. At page 62: "The human right of total access to wildlife for entirely human purposes is assumed throughout. Wildlife remains a human commodity whether man is principal or agent, emperor or steward."

Wildlife conservation is incompatible with the underlying social values of modern industrial growth society. So, what's the solution to this problem? Livingston's answer cuts to the heart of the naturalist movement. Committed individuals will achieve much more than 'society' at large ever will. Naturalist clubs contain members who know this in their guts. It's



the tireless effort of individuals and small groups of like-minded folks that serve wildlife conservation, and generate the success stories, practicing a principle that rarely gets expressed: conserve wildlife for its own sake.

In the 1970's, John described to me his concern that the world was losing its various species of spotted cats, and some are now more critically endangered than ever. But I'm certain he would be more heartened today to learn of the efforts, for example, to re-establish Vancouver Island Marmots and protect their habitat – although their future is still not certain. This effort was spear

headed by volunteer naturalist groups in the mid 1980s, supporting the point that it's dedicated individuals and small groups, working together, usually associated with a nature club, that results in wildlife conservation. One could put it this way: wildlife conservation is much too important to leave it to government or experts to achieve.

In his 1981 book, John Livingston handed the wildlife conservation torch to the naturalist community. I believe that over the decades we have largely stepped up, and tried to carry that torch quite well, despite setbacks and obstructions. But there this an awful lot more to do. And in today's world, it's more of a struggle than ever to find younger members of nature clubs and generate the commitment needed to accomplish significant results. But let's not stop! When nature clubs lobby for wetland protection, to protect old growth, to expand the bluebird nesting box network; when they conduct the Christmas Bird Counts or help with bird banding; when they undertake bioblitzes or take the public on nature walks, they are helping meet the challenge laid out 1981 by John Livingston. Ω



## AGM and Conference 2026

**I**n the absence of a club or clubs ready to host the Annual General Meeting (AGM) and conference for 2026, the Kamloops Naturalist Club (KNC) will host a small, mostly virtual meeting on Saturday, May 23, on the tails of the Outdoor Recreation Council of BC (ORCBC) 50<sup>th</sup> Anniversary Conference, which will be held in Kamloops on May 20 - 22, 2026 (<https://bit.ly/4nXDZjt>).

Since some BC Nature members may be in town for that, KNC will hold in-person, hybrid meetings (Council of Club Representatives and AGM) on the May 23<sup>rd</sup>, as well as offering some field trips—after and as part of the ORCBC meeting. We will also offer light meals and a small banquet (where BC Nature Awards will be presented). Details will be coming soon!

To express interest in attending (we're trying to assess possible numbers), please email [garyalan.hunt@gmail.com](mailto:garyalan.hunt@gmail.com).

We are looking for a club or clubs (the job can be shared!) to commit to hosting the 2027 AGM. This generates publicity and income for your club—and is a chance to show off what you do and where you work. We can provide lots of help - a guide book, as well as the experience of past hosts, and assistance with registration, etc. Please let us know if you are interested (planning and advertising takes time!) by contacting Mish Stone at [info@bcnature.ca](mailto:info@bcnature.ca) Ω

# Go Bigg's or Go Home – a Killer Day in the Salish Sea

Submitted by Max Hellicar, Rocky Point Bird Observatory



Photo: Liam Ragan

*A full-breach by an Orca*

2025 marked the second year of partnership between Rocky Point Bird Observatory (RPBO)'s and Eagle Wing Tours. We first chose Eagle Wing as a partner due to their track record of conservation and education on the Salish Sea, including 1% for the Planet, their Floating Classroom youth initiative, numerous research partnerships, and commitment to meaningful reconciliation. Our twofold alliance includes our Salish Sea Monitoring project, where Eagle Wing provide us with one ticket per week to undertake volunteer surveys. On these, we record every bird encountered across the Sea's islands and banks during whale-watching tours, and we have now documented 119 avian species across more than 300 eBird checklists. We also provide volunteer guides for bird tours of the Salish Sea. This year, we ran eight tours which were very well received and raised thousands for our conservation work. On these trips, we have a platform to educate the public on threats to seabirds in the Salish Sea and to highlight how critical this area is for seabirds which travel here from across the Pacific.

The latest in this series of tours was a pelagic trip on 4<sup>th</sup> October in the Juan de Fuca Strait, from Victoria to Jordan River and back, with one thing in mind – seabirds. Meeting at Fisherman's Wharf at 7.30am, I joined Liam Ragan and Joachim Bertrands as RPBO's volunteer bird guides for the day, and the anticipation was evident across the faces of all 55 guests boarding the 4 Ever Wild catamaran. Steaming out of the harbour, we hadn't travelled far before encountering our first groups of Red-necked Phalarope, totalling 150 birds, spinning themselves into a frenzy among kelp rafts. Before long, Short-tailed Shearwaters began appearing – a species of which there was no shortage, totalling 1,472 individuals logged throughout the day. As recently as last decade, this species was a

major rarity in the Salish Sea but it has now become an expected migrant. While our aim was to see birds, it's impossible to ignore cetaceans when they appear before you, and we were fortunate enough to encounter a bull Bigg's Killer Whale. Known as T049C, he was born in 1998 and travels the sea in solitude. He put on quite the show for us, fully breaching multiple times, a behaviour that likely demonstrates a celebration after a successful hunt.

Back in motion on the ocean, a Fork-tailed Storm-petrel appeared ahead of us, just a whisker over the US border. A chase ensued and great views were enjoyed by all on board over the course of the next few minutes. It would not be long before our next bout of excitement, with more cetaceans appearing in the distance. Initial views showed a group of Orca and, as we approached, a Humpback Whale revealed itself. Repeated blows showed this was no coincidence – these animals were associating with one another. But why? They appeared to be circling something and, getting closer, we could see a raft of kelp in the epicentre of the action. But was that movement on the kelp? As we reached a comfortable distance to avoid disturbing the animals, a Harbour Seal became visible, hauled out atop the kelp. With the Orcas circling, this was clearly a hunt. It was the kind of scene most of us have only seen in David Attenborough documentaries and have dreamed of witnessing our entire lives! Encircled by Orcas, splashing and nudging the kelp, the seal remained hunkered down, occasionally clambering when the Orcas attempted to displace it. The Humpback continued to surface between the Orcas and the kelp, defending the seal! This fascinating altruistic behaviour results from a hatred of Orca by Humpbacks. While around 60% of the diet of a Bigg's Orca is comprised of Harbour Seals, they are also a notorious predator of Humpback calves. As such, many Humpbacks will make a concerted effort to disturb Orca whenever they are on the hunt. While this trip was for birds, it was the cetaceans that stole the show!

Offshore of Jordan River, it was time to make a U-turn, heading back on a different course. This proved fruitful, with an assortment of ducks, grebes, loons and gulls tallied, including five Black-legged Kittiwakes and 500 or more Turkey Vultures kettling off East Sooke Park (we usually see this migratory phenomenon from shore). A Northern Fur Seal floating offshore of Race Rocks caused some excitement, constituting a major rarity in these waters! Landing back ashore, it was smiling faces all round, marking a memorable day for all. We thank Eagle Wing Tours for their continued collaboration with RPBO and look forward to more epic tours ahead! Ω

# Natural Justice

## Protection of Glass Sponge Reefs

Submitted by Ben van Drimmelen

In 2023, a commercial fishing vessel was caught illegally dropping prawn traps in a glass sponge reef area near Sechelt on two occasions. In sentencing, the court considered evidence about the existence, potential, duration, and degree of harm done to such a reef by prawn traps. Reef-building glass sponges were common 200 million years ago but were thought to be extinct until discovered in British Columbia and Washington state in the late 1980s. Glass sponges are slow-growing and long-lived; some species live for more than 200 years. Glass sponge reefs are exceptionally fragile, growing less than 10 centimetres per year. Because of these factors, the reefs have a low recovery rates from disturbances.

Glass sponges have rigid skeletons that remain after the individual sponge has died. New sponges settle on these skeletons, creating mounds or reefs. Those reefs can be up to 20 metres high and over a kilometre wide, forming ancient and unique ecosystems that provide important habitat for a diverse and abundant communities of invertebrates and fish including prawn and rockfish as well as herring, halibut and sharks. They are regionally important for biological silicon cycling and filter large amounts of seawater – some twenty reefs in the Strait of Georgia and Howe Sound filter an estimated 100 billion litres of water daily and, in doing so, remove up to 1 gram of carbon per square metre per day, a rate comparable to kelp forests and old-growth terrestrial forests.

Preserving reef structure, both live and dead, is therefore crucial for reef recovery and growth which in turn preserves the reef's ecological function. Prawn fishing seriously damages or destroys the rare,

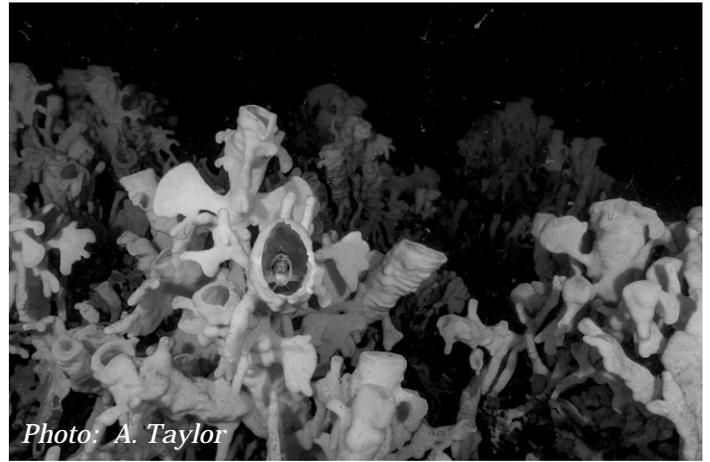


Photo: A. Taylor

Glass Sponge Reef - Howe Sound

sensitive, and slow-growing glass sponges and reefs that they form. Prawn traps break off pieces of sponge and disrupt sediment which negatively impacts the sponges' ability to filter, feed, and grow. While glass sponges do recover from small-scale damage such as bites by fish and nudibranchs, they have shown little to no recovery from crushing by fishing activities even three years later.

Although the prawn fisherman had pled guilty to seven of the 13 charges and expressed some remorse, he was significantly penalized due to the damage done – he was fined \$250,000, lost his prawn traps and was prohibited from fishing for a year.

The fisherman appealed the fine as being much too high. He conceded that he had caused harm to the delicate marine environment but stressed that the illegal fishing was not intentional and was a first infraction. However, the higher court recognized the importance and sensitivity of the glass sponge reefs and dismissed that appeal. Ω

## Visit the Polar Bears of Churchill, Manitoba

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# Back to Basics

## Have moths been “mothballed”?

Submitted by Rosemary Taylor



Photo: R. Taylor

Dingy Cutworm Moth  
*Feltia jaculifera*

Many of them haven't shown up for quite some time. Where are they?

When we first moved to Vancouver Island 12 years ago, we enjoyed seeing many different moths resting on our windows at night, and for a few years I gathered a collection of photographs that enabled me to identify them and learn more about them. However, when something becomes rare, it is often not noticed for some time, until suddenly one realizes that there are far fewer of them showing up.

My photos tell me that moths have appeared any time from May to December, but for the last few years there have been fewer, both in number and species. They, like other insects, are quietly declining before our very eyes.

While much media attention has been paid recently to the need to increase biodiversity and habitat in urban settings for native bees, moths, as the less visible night shift, have been somewhat overlooked. There are, however, many night-blooming flowers with strong scents that are pollinated by moths. However, like the moths themselves, these are per-

haps not as common in gardens as those we can see and enjoy in broad daylight.

Not only do moths work under cover of darkness, but studies show that they work faster than bees at pollinating the same plants and are also valuable pollinators of agricultural crops.

However, it is the very diminishing of that cover of darkness that is partially responsible for their downward trend. Where can we look up and see the Milky Way? Now, we have to designate 'Dark Sky' areas as lighting of all kinds dominates greater and greater areas. Brighter, better streetlights spread with urban sprawl. Security lighting around houses is almost a necessity, and tall towers in city centres leave their lights on all night. Even ornamental solar lights along the garden path, while perhaps increasing safety, all help to confuse moths that are drawn to light and, if not actually killed by it, spend less time feeding, which has been shown to be at least one cause of their decline.

Moths are not only valuable pollinators, but birds also rely on them and their caterpillars as food for themselves and for their chicks. One clutch of chickadees will need anywhere from 6,000-9,000 caterpillars brought back to the nest by the parents. The decline of moths and other insects can have an adverse effect on those that depend on them for food source.

But all is not lost. Research shows that certain wavelengths of light are more environmentally friendly, and much can be done to replace overly bright lights with these alternatives where possible as well as by planting pale-coloured flowers with a strong fragrance. While enjoying the colour and beauty of your garden by day, there's the bonus of the wonderful scents that waft your way on the evening breeze!

Moths are varied and beautiful and range from very small to the lovely large and somewhat dramatic creatures that fly by day. They come in all colours, shapes and sizes; some have feathered antennae while others don't. We can't afford to lose them, or any of the other insects that play such a large role in pollinating our food and flowers - they are the basis of an ecosystem house of cards, and we must do what we can to reverse their decline. Ω

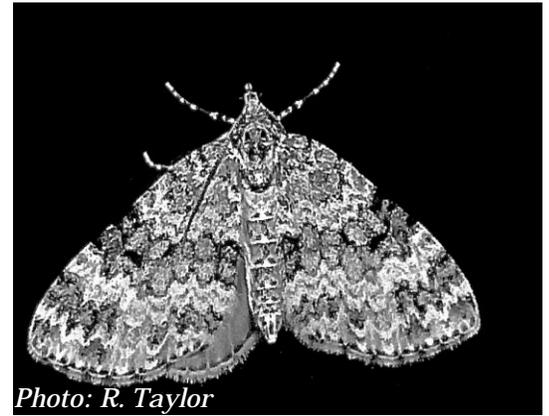


Photo: R. Taylor

Carpet Moth - *Spargania magnoliata*.

### How many types of moths are there?

In B.C., it is estimated that about 2,101 moth species have been recorded. A more updated figure from various citizen science surveys suggests that the total number of lepidopteran species (butterflies + moths) known in B.C. is approximately 2,901, which implies the number of moths could be somewhat higher than the 2,101 figure.



Courtesy of *inaturalist.ca*

# Why do I donate to the BC Naturalists' Foundation?

Submitted by Stephen Partington, Past President, BC Naturalists' Foundation

## “Gimme the money!”

Sometimes the Foundation gets applications like this but mostly the Club Support Grant applicants meticulously comply with the guidance provided in the application form. Furthermore, most applicants provide a pretty clear picture of who they are, what their project is, who is going to do it, what their budgetary needs are, where all the funding is coming from, where exactly the grant funds would be applied, how much club cash and in-kind effort will be deployed, and in what time frame the project will occur.

Most applicants comply with the required follow-up reporting, often with amazing, fully illustrated stories. {Ed. See below}

Things don't always run smoothly, but questions that arise during the application process generally get answered easily by phone or text/email. Problems with project execution usually get fixed with a little hand-holding reassurance and/or some gentle exercising within the degrees of flexibility that can hone the Foundation's expectations.

Truly, the working relationships I've encountered with applicants and grantees over the near decade I've been with the BC Naturalists' Foundation have been fantastic.

So too have been my relationships with donors near and far, young and old, incidental and regular. The young woman in Chilliwack who is a generous monthly donor, the retired woman in the 70 Mile area who has quietly doubled her monthly donation over the past three years, and Boudi in Delta who has been a monthly donor for so long he doesn't even think about it anymore.

Let me tell you about a recent first-time pair of donors, the Squires, Gordon and Daphne. I have known Gordon Squire for more than three decades. He has fond memories of my son Felix, the two-year-old, at the Nature Vancouver camp in Kootenay National Park just before the turn of the century. I used to see Gordon around my neighbourhood when I lived in Edgemont Village, North Vancouver. Gordon is a very active member of the United Church that was close by our family home on MacKay Creek.

I first encountered the Squires' philanthropic largesse a few years ago when Daphne and Gordon donated \$50,000 for a Nature Vancouver scholarship in honour of Hugh Hamilton, a renowned conservationist and long-time member of Nature Vancouver.

Gordon and I talk a lot about the joys of 'giving with a warm hand' – the spiritual benefits of seeing our community investments grow and deliver benefits during our own lifetimes. There is a huge pleasure, also, in

watching the magic of compounding miraculously playing out over and over right before our eyes!

This fall, Daphne and Gordon have announced their intention to donate \$100,000 to the BC Naturalists' Foundation in honour of Bill Merilees. Bill served life-long with the naturalist community in leadership roles in governance, education, conservation and field trips, both in Western North America and abroad. Thank you, Daphne and Gordon!

Donors are so pleasantly precious.

Here is a letter I received lately from a monthly donor: “I had no idea of the many worthy endeavors we have been able to help with! This is amazing!

“About 20 years ago, I was privileged to be able to attend a day course at the university in Kamloops on our native bees and was able to implement many helpful gardening practices as well as preaching about saving our bees to all at my work!!! It has warmed my heart to know that we have helped this cause with funds. {Ed. 2025 grant: Native Bee Society of BC – Mini Bee Schools in Williams Lake}

“I also had the privilege to witness a flock of Sandhill Cranes arrive for some respite on the Nicola Valley Grasslands off Hwy 5 to Merritt .... very near to Douglas Lake Plateau. My hubby and I were out for a lovely drive and had pulled over for a lunch and snack .... we heard these amazing calls and replies and all of a sudden, a hundred (it seemed) Sandhill Cranes landed on the grasslands in front of us! It truly was breath-taking! What a thrill, to be able to help with this funding as well! {Ed. 2025 grant: Nicola Naturalist Society – Sandhill Crane monitoring Douglas Lake Plateau}

“Hope this wee note finds you well and in terrific spirits as your correspondence brings us such joy. Thank you for all your hard work with the BC Naturalists' Foundation.... (past & present President) .... Stephen!!!” Sincerely Mel”

So why include this letter as an update? To showcase that your legacy gifts and donations to the BC Naturalists' Foundation have real meaning with the naturalists community. The following articles are some of the projects that we funded in 2025

Please consider leaving a legacy gift or giving with a warm hand by sending us a donation to further these worthy, legacy-style projects.

**The BC Naturalists' Foundation has provided \$377,482 in funding over the past 34 years. The Foundation is on track to surpass that amount in less than a decade. Ω**

# Club Projects that came to fruition with the help of BC Naturalists' Foundation and BC Nature Club Support Grants

A full list of reports will be on the Foundation page on the BC Nature website

## Kitimat's BIG TREE QUEST

Submitted by Patricia Lange



Photo: C. Smart

Members of the Tsimotsa Girl Guides measuring a Sitka Spruce they named GG Bruce the Spruce.

throughout the Stewart-Cassiar Highway and local trails within Kitimat's municipality and nearby provincial park lands. Visitors are often amazed by how the region's heavy rainfall—more than 3,000 millimetres annually—shapes and sustains the local environment.

The Kitimat Valley Naturalists have a three-year plan called the BIG TREE QUEST to locate and measure 30 big trees per year, have them verified by professional foresters and then submit our nominations to the UBC Big Tree Registry.

This year we have taken more than 100 people out into our local parks to learn about and experience ancient old-growth forests and to try out scientific measurement techniques. We have learned some new terminology that we learned, when you measure the canopy and height of a tree you usually, “bob and weave” to see through the thick canopy of evergreen branches, and “schwacking” is code for bringing your long sleeves, wearing gloves and tying your hats on tight.

Thanks to BC Nature and the BC Naturalists' Foundation club support grant, a sub-group of the Kitimat Valley Naturalists called the Watershed Stewardship Working Group were able to pay professional foresters to verify our tree measurements. Further funding was also received from the District of Kitimat to get training from UBC Big Tree Registry advocates, Jonathan Degner and Christine Chourmouzis, to involve community members in our BIG TREE QUEST. Some of the District of Kitimat funds were used to purchase equipment, like hypsometers and DBH tape measures, which were required to measure our big trees. We hope to create a sense of wonder and awe at the marvelous ancient ecosystem surrounding our community as we believe people need to connect with nature before understanding its value and need for protection.

Kitimat, B.C. is situated at the end of Douglas Channel on the north coast. While many think of it as an industrial community, we are also surrounded by beautiful coast mountains, located on the relatively pristine Douglas Channel, minutes from hiking trails and salmon fishing in the abundant glacier-fed waters of the Kitimat River watershed. This is also home to some rich pockets of ancient old growth which are truly magnificent and diverse.

Apart from the Bella Cooola Valley (central coast), the largest trees in the province grow in milder southern climates but are not always easily accessible.

Fortunately for us, northern specimens are easily accessible

At the time of this report, we have measured 27 trees with the help of school groups, Girl Guides, Sparks and Embers, and a trained team of Kitimat Valley Naturalists. Our giants include nine Sitka Spruce, nine Western Redcedar, four Black Cottonwood, four Western Hemlock, and even a one-year-old alder. We are especially delighted to have found an ancient Western Redcedar, likely among the 50 biggest in the province, having a diameter of 3.89 metres and which could be the largest redcedar recorded on the UBC Big Tree Registry in the northern half of the province.

Finding the biggest of anything seems to be a delightful preoccupation of human beings and certainly walking amongst our northern giant rainforests is profoundly gratifying. Part of our Kitimat Valley heritage also includes some of the largest rain and snow falls in the world, as well as exponential growth in whale populations in the Douglas Channel fjord area. As a northern group, the Kitimat Valley Naturalists are passionate about protecting our unique ecosystems and hope our efforts to find big trees will lead to a deeper conservation mindset in our community with the ultimate understanding of why protecting old growth is so important. Ω



Photo: C. Chourmouzis

Jon Degner and Patricia Lange celebrating finding the largest Western Redcedar (so far) in the Kitimat Valley and possibly in Northern B.C.

# Reptiles and Amphibians of the Prince George Area

Submitted by Dave Leman, Prince George Naturalists Club (PGNC)



Photo: D. Leman

Western Toad

We moved forward this year with the production of a *Reptiles and Amphibians of the Prince George Area*, with the anticipation of completing and printing the brochure by year's end. Several club members have participated in gathering photos that are being used in the brochure, while content is largely being provided by a local herptile specialist. As with the recent PGNC brochures, all the design and production work for the herptile brochure is being completed in-house by PGNC volunteers. Once completed, the herptile brochure will be distributed to local organizations such as BC Parks, Tourism Prince George, the Prince George Public Library, and



Photo: D. Leman

Western Terrestrial Garter Snake

The Exploration Place Museum and Science Centre.

As a footnote to the above, the previously printed brochures supported by the BC Naturalists' Foundation – *Checklist of Birds: Prince George and Area* and *Bird Watching around Prince George* – have nearly all been distributed (1000 copies of each) and will need reprinting in the very near future. This is a success story in terms of our Club's outreach to the local community, with the attendant natural history and conservation education. We are very grateful for the support we have received from the BC Naturalists' Foundation and BC Nature! Ω

## Mini Bee School Prince George

Submitted by Bonnie Zand, Native Bee Society of BC

If you were in Prince George on the weekend of August 2-3, you might have been surprised to see a group of naturalists wandering about, staring at flowers, or waving white nets in the air. What were they doing? Learning about Native Bees, of course! Thanks to the generous support of BC Nature and the BC Naturalists' Foundation, through a Club Support Grant, the Native Bee Society of BC (NBSBC) was able to host two days of "Mini Bee School" in Prince George – our most northern workshop to date! The workshop also received logistical support from the Prince George Naturalists Club, and the classroom was provided through partnership with UNBC Sustainability – Thank you!

With a sold-out class of twelve students, the workshop started off in the classroom. Using digital microscopes and prepared specimens, and guided by instructor Bonnie Zand, the participants spent the morning learning bee terminology and how to tell the difference between a bee, a fly and a wasp. With those important distinctions in mind, the class moved on to learning how to distinguish some of the common species of bumble bees – not an easy task, with lots of bumble bee mimicry and variability at play. The afternoon was spent learning about common bee genera found in the area. Hair bands, facial fovea, wing veins, and big jaws were all important features to recognize sweat bees (*Halictus* or *Lasioglossum*), mining bees (*Andrena*), Polyester Bees (*Colletes inaequalis*) or leafcutter bees (*Megachile rotundata*). Day one wrapped up with some tips for recognizing and creating native bee habitat (tip – 70% of our native bees nest in the ground and need access to soil!).

Day two convened at the home of Prince George Naturalists Club members Dave and Cheryl Leman. With five acres of unmanaged open meadow, participants had lots of flowers to inspect for bees. With seven different bumble bee species present, including our favorite mimic *Bombus rufocinctus* and many hard-to-identify males, participants got to practice what they had learned in class. The data collected during the day also supports our efforts to document bee species throughout BC via our *iNaturalist Bee Tracker* and the *BC Bee Atlas*. Class wrapped up by creating a pollinator network for the property, but the hope of the NBSBC is that learning and creating native bee data is just beginning for our participants! Ω



Photo: R. Hodnett

Mining Bee (*Andrena* sp.)

# Know Which Way the Wind Blows

*Submitted by Margo Hearne*

**S**eething October winds rip through Haida Gwaii, knocking down trees, ripping off roofs, and can destroy that old shed you've been meaning to take down for a while.

The storms that form in the deep Pacific pick up strength as they come this way and we get the sharp end as we are almost part of the ocean itself. The winds trip over the land and create friction that can change the wind's direction and strength. The sudden swings from southeast to southwest are especially dangerous as trees, braced for the former, get smacked by the latter. Those are the winds that destroy the patio railings and snap the branches.

Because of the earth's rotation (Coriolis effect) the wind never blows in a straight line. The ground moves at a different speed than objects in the air. Birds, who are almost of the air, are some of these objects and can drop down anywhere, but in general, if you want to find rare birds on Haida Gwaii, it's helpful to know which way the wind blows. Birds from Asia arrive on west/southwesters, birds from the Canadian mainland on the east/northeasters.

Wind directions are always given from where it comes, and not to where it's going. If it's blowing from Langara or Forester Islands, it's westerly, and you might get a dry spell; from Hawaii it's southerly which often brings the rain; from Alaska it's northerly, usually dry but not always; from Hecate Strait it's easterly and just downright chilly. We can also watch the many weather channels and see, in real time, the massive storm cloud circles that form over the ocean.

Swift wind changes can occur around the equinoxes when day and night are roughly equal. The land and sea are cooling down, and the hot and cold airs must move. The air pressure changes. You can sense this shift if you sit on a log on one of the island beaches

## Sea Gardening – The Bounty of Intertidal Indigenous Food Systems

*Submitted by Erich Kelch, Manager, Sea Gardens Restoration Project, Gulf Islands National Park Reserve, Parks Canada*

**H**ave you ever been beachcombing at low tide and stumbled across a curious arrangement of rocks? Welcome to the ranks of archaeologists and oceanographers, who as recently as the 1990s were noticing hundreds of them after viewing aerial low tide photographs taken along the B.C. coast. After some debate about their origin, members of the research team asked local Indigenous communities if they knew anything about them. They knew exactly what they



*Photo: M. Hearne*

*Clouds gather over Tow Hill*

and turn your nose to the wind during a pressure change. The north wind brings salt sea air; the south brings the smell of damp grass and autumn leaves.

“Sniffing the wind” as animals do, is in our blood and bones. We just have to give it a chance to surface – if you suddenly notice the scent of grass and earth in your home garden after a hot, dry spell it means the pressure has dropped and rain is probably on the way. Perhaps such change is not so evident in the city, but it can still be felt in the sudden stillness of the wind and the rich smell rising from the ground.

Meteorology is a fascinating study. A mariner who worked on the BC Ferries route to the mainland loved living here because he could see weather systems change before his eyes as the clouds changed shape and colour. As an Irish lighthouse child, I saw dad check the marine forecasts constantly because the rocky shores around us were death-traps to passing boats; knowing the possible direction and strength of the wind was an integral part of his work. It was more than a job; it was a lifesaver. Ω

were—many had helped construct them when they were young.

For millennia, Indigenous Peoples have cared for coastal beaches in myriad ways to support their food and cultural needs. By learning and listening to what beaches needed to thrive, knowledge was passed down through stories so that future generations could continue tending these ancestral places.

Many Coast Salish creation stories relate to clams.



Photo: Parks Canada/R. Enright

*A Coast Salish Elder surveys a Sea Garden and the bountiful life it contains*

The WSÁNEĆ People have shared with us that in their territory, XÁL,S, the creator, turned humans into clams, bestowing on them a duty to feed their people. The word KEXÁL,S—which means to dig clams—reflects this sacred relationship to the creator. The clams are considered relatives, and there is a duty to take care of them so that they, in turn, can take care of people.

Indigenous Peoples took care of clams by stewarding sea gardens, named for the diversity of life they sustain. Using tools such as rakes, they turned over beaches, added shells, moved species, removed seaweed, and modified sediment to create bountiful ecosystems that produced abundant food. Sometimes, rock walls were built at low tide, which changed the beach slope and created new habitats that trapped clam seed.

These sea gardens were not only rich with clams, but also crabs, chitons, oysters, octopuses, fish, shrimp, whelks, sea cucumbers, kelp, and urchins. They also created bountiful food for other animal relatives.

When Europeans arrived, they brought their own worldviews and food systems that displaced Indigenous Peoples and disrupted their relationships with the land and sea. This made life difficult for Indigenous Peoples—and continues to impact them—erasing much of the rich knowledge garnered from listening to the sea and oral traditions.

Just as gardens need consistent care, sea gardens need ongoing tending to thrive. When that no longer happens, clams can overpopulate and die off, creating suffocating anoxic conditions (lack of oxygen), limiting the ability of baby clams to settle and grow. Similarly, unharvested urchins can overgraze, reducing kelp populations, which are an integral backbone of the entire food system.

In 2003, Parks Canada established the Gulf Islands

National Park Reserve—where the word “reserve” recognizes Indigenous title to these lands and waters. With colonial conservation practices historically having limited or outlawed Indigenous stewardship on protected lands and waters, the rebuilding of relationships and trust between colonial governments and First Nations was a necessary first step toward a more just future for the Park Reserve. After a decade of engagement and relationship building between Parks Canada and the WSÁNEĆ and Quw’utsun Nations, the Sea Gardens Restoration Project was established in 2014 at sites around Gulf Islands National Park Reserve to restore these ancient places.

After over ten years, we have learned that the key to restoring ecological systems is rebuilding the relationship between people and those systems. Parks Canada employees and Indigenous community members have been working together to build trust and bring people from many communities back to the beaches. Elders, students, scientists, youth, managers, and harvesters all pitch in to restore the sea gardens and monitor the results. Clam populations are improving and harvesting has returned, restoring the sacred relationship between people and their food. More than 4000 kg of clams have been harvested by and distributed amongst First Nations community members since the start of the project, coinciding with increased biotoxin monitoring and shellfish harvest openings throughout the southern Gulf Islands region.

While much has been accomplished, important work and challenges remain: securing funding, addressing contaminants, adapting to changing ocean conditions, and working within complex regulatory environments. By bringing people together to care for these beautiful places once again, the relationship between people and place can be renewed, restoring vibrant ecosystems and the healthy foods they provide.

For more information, please visit <https://bit.ly/3Lrp6bn> or contact Erich directly at 250-986-1128 if you would like to discuss the project further. Ω



Photo: Parks Canada/R. Enright

*The lowering tide reveals the wall at a Sea Garden and a purposely placed “canoe run” for boats to enter and crabs to leave during receding tides*

# BEAUTY IS IN THE DETAILS



## CANADA LYNX

*(Lynx canadensis)*

Photo: Mike Ashbee



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# Featured Key Biodiversity Areas

## Sakinaw - Ruby - Garden Bay

Submitted by Ian Adams, BC KBA Coordinator

**Featured species: Sockeye Salmon, Sakinaw population (*Oncorhynchus nerka* pop. 8); Western Painted Turtle, Pacific Coast Population (*Chrysemys picta bellii* pop. 1); Oregon Branded Skipper (*Hesperia colorado* ssp. *oregonia*)**

This site is within the traditional territory of the shísháhlh Nation, part of the Coast Salish peoples.

The Sunshine Coast is well known for its biodiversity values. Lying at the junction of multiple ecosystems, there are influences from all directions. The Salish Sea is never far away. Neither are the wet Coast Mountains, and the dry coastal Douglas-fir ecosystem can be found in some areas as well. This diversity is reflected in a Key Biodiversity Area (KBA) recently established at the north end of the Sechelt Peninsula: Sakinaw - Ruby - Garden Bay.

Three species meet the criteria and thresholds for KBAs: the unique sockeye salmon population that spawns and rears in Sakinaw Lake, the painted turtles found in several water bodies in the area, and Oregon Branded Skipper, a Garry Oak Ecosystem specialist recently reported from Pender Hill

Sakinaw is the largest lake in the area and supports a genetically unique stock of Sockeye Salmon. The anadromous sockeye return to the lake from June through September but will hold in the lake for up to four months before spawning along shoreline areas with groundwater upwellings from November to December. Fry emerge by early May and move to well-lit limnetic areas. They have developed into smolts by March of the following year and migrate out to the Pacific. The population has been recognized as Endangered by the Committee on the Status of Endangered Wildlife in Canada since 2002 but, like all listed salmon populations, has never been afforded protection under the federal Species at Risk Act for economic reasons. The salmon hold a special place for the shísháhlh Nation and the KBA designation will help increase awareness for this important, unique salmon population.



Photo: L. Ragan

Western Painted Turtle, Ruby Lake



Photo: L. Ragan

*Sakinaw Lake looking west*

Sakinaw is a rare meromictic lake: one with layers of water that do not mix. It is remarkably deep, over 140 metres at its maximum. The upper layer is about 30 metres of freshwater that overlays warm, anoxic salt water resulting in strong thermal stratification. Below 30 metres, salinity, methane and temperature increase with methane reaching saturation at approximately 45 metres depth. University of British Columbia microbiology professor Steven Hallam and his students have studied the lake and its unique biota. They note, "This anoxic, saline zone of the lake produces massive amounts of biogenic methane analogous to Lake Kivu in Africa". As depth increases below the 30 metres transition line, the microbial community becomes increasingly "uncharacterized". Bacteria and Archaea thrive here in conditions lethal to most life forms as we know them.

Western Painted Turtles also thrive in Sakinaw's surface waters, as well as in several other lakes in the area. Sunshine Coast turtles are part of the threatened Pacific Coast population of Painted Turtles. A study by Emily Jensen and others have found that not only are Pacific Coast Painted Turtles genetically unique, but Sunshine Coast turtles in particular differ genetically even from other painted turtle populations in the Lower Mainland and Vancouver Island. This Sunshine Coast population is one of the largest in the Pacific Coast population, providing opportunities to supplement struggling populations elsewhere with young turtles. However, recent drought and increasing road traffic and recreational activity on lakes pose threats to this important population.

Oregon Branded Skipper was a recent find on Pender Hill. This is an open hillside more closely associated

Continued from page 20

with Garry Oak Ecosystems found across the Salish Sea than the coastal forests of the Sunshine Coast. The butterfly is found on the scrub oak hillsides where larval caterpillars feed on fescue grasses. This is the only known population on the mainland, though they also occur on Cortes Island. This was an exciting find for this Endangered and Red-listed butterfly.

More information on Canada's Key Biodiversity Area program is available at <https://kbacanada.org/> For more information on Sakinaw - Ruby - Garden Bay KBA in particular, see: <https://bit.ly/47STYcC>. You are encouraged to add any bird sightings at this KBA to *eBird* or records of all species via *iNaturalist*. Ω

## Dr. Jane Goodall – April 3, 1934 – October 1, 2025

Submitted by Dave Leman, Prince George Naturalists

Some of us are old enough to remember the arrival of the August 1963 National Geographic magazine, which featured an article called *My Life Among Wild Chimpanzees* about the young Jane Goodall, who was pictured on the magazine's cover. Or perhaps one's memory goes back to Jane's first television documentary, *Miss Goodall and the Wild Chimpanzees*, a National Geographic Special aired on December 22, 1965. While Tarzan was nowhere to be seen, here was Jane – the young, compelling, charismatic woman boldly researching chimpanzees in the 'jungles' of Tanzania in East Africa. Her adventures and her research captivated her audiences and soon garnered international attention and adulation.

Dr. Louis Leakey chose Jane Goodall to study chimpanzees for several insightful reasons – many of which reveal his unconventional thinking about science and human origins:

**Fresh Perspective:** Leakey deliberately wanted someone without formal scientific training. He believed professional scientists often carried biases that could limit how they observed animal behaviour. Goodall's lack of academic background meant she was open, curious, and observant – qualities Leakey valued over technical credentials.

**Natural Empathy with Animals:** Leakey had known Goodall since she first came to Kenya in 1957 and was impressed by her deep, intuitive rapport with animals. As a child, she had spent hours quietly watching birds and animals – a patience and empathy that would later make her uniquely capable of earning wild chimpanzees' trust.

**Meticulous Observation Skills:** Even before any training, Goodall showed remarkable attention to detail. Leakey saw in her the rare ability to notice and accurately describe subtle behaviour – essential for fieldwork in animal behaviour.

**Shared Goal:** Leakey's lifelong goal was to better understand early human evolution. He believed that studying our closest living relatives – chimpanzees – could illuminate the behaviour of early hominins. He saw Goodall as someone who could help bridge the gap between archaeology and primatology.

**Personal Impression and Determination:** Leakey was struck by Goodall's determination, enthusiasm, and courage. She had travelled to Africa on her own savings and showed no fear of hardship or isolation. Leakey famously said that these qualities mattered more than a degree.

Jane proceeded to make ground-breaking discoveries about the chimpanzees – with all the discipline, fortitude, and patience of a superb naturalist. In time, Jane's focus shifted from her field research to her role as a tireless educator and advocate for wildlife and wild places. She earned the respect of nearly all



Photo: H. von Lawick

who met her. She was kind-hearted without being overly sentimental, firm in her convictions without a hint of arrogance, assertive but never overbearing, and always hopeful while grounded in realism. She was equally at home dealing with wild chimpanzees, the world's most famous and powerful individuals, and the legions of children whom she met and adored in every corner of the world. She never varied or swayed from her mission to champion care for the Earth and its creatures – including human beings. She was always inspirational, and a hero to many. Her work will live on through the legacy of all she brought to us – her research, her education initiatives (such as Roots and Shoots chapters in many countries including, Canada), her writings (including her collaborative 2021 publication *The Book of Hope*), and films about her (such as 2023's IMAX film *Jane Goodall: Reasons for Hope*). The world has not 'lost' Jane Goodall – her life's work as one of the great naturalists of our time will live on. Ω

Editor's note: If you have a Netflix subscription watch *Famous Last Words – Dr. Jane Goodall*.

# Taking Care: Highlighting KBA Stewards of B.C.

Submitted by Liam Ragan, KBA Program Manager

For our second installment of Highlighting B.C.'s Stewards, I'm honored to recognize Walter and Susan Thorne, the KBA Caretakers for Moore and Byers Island. They were two of the first Caretakers I met when I started working with BC Nature five years ago. In the years since, they have proven an invaluable fount of wisdom to whom I find myself returning constantly, looking for input on everything from untangling diverse stakeholders on the North Coast of B.C., to determining local contacts, to simply grabbing a coffee and predicting what pending migration trends may hold. In addition to facilitating regular visits to Moore and Byers Island (a herculean task in and of itself given the rough seas and remote nature of the islands), they've also been invaluable in helping us form a multi-year monitoring partnership with KITASOO/XAI'XAIS, as well as exploring KBA recognition for the Nass and Skeena rivers and their irreplaceable Oolichan spawns.

**Caretakers: Walter and Susan Thorne**

**KBA: Moore and Byers Islands**

**Trigger Species: Lewis's Woodpecker**

Note from Liam Ragan: The following is an interview with Walter and Susan about their involvement with KBA.

**What made you decide to become Caretakers?** "Krista Kaptein, a former IBA Coordinator talked us into this remote site, Moore and Byers Islands, which we visited to get eBird data for. Before us, there was no caretaker for this area."

**What's one thing you wish everybody knew about your KBA?**

"There had been no research since the original [nesting] burrow research of the 1980's. One of those burrow researchers was Marilyn Lambert, co-caretaker with Jaques Sirois (for the Chain Islands). Others should know that Moore and Byers Islands, that to me is like the Serengeti of the sea. Such an extreme abundance of kelp and Sea Lance. The magic of so many Cassin's Auklets in one place is inspiring. Thousands of Rhinoceros Auklets and Pigeon Guillemots and even the odd Tufted Puffin shooting past on food sorties. All magic. The majesty and remoteness are both alluring, leaving lasting impressions. It's a real sense of accomplishment just getting there. The islands are about as remote as you can get, hundreds of kilometres from almost everywhere, but with nearly unparalleled abundance of nature. Truly an ocean version of the Serengeti."

**What is your favourite bird?** "Tufted Puffin"

**Do you have any advice for other birders looking to become involved in conservation?** "About the question of naturalists volunteering in conservation initiatives, we think opportunities abound. Potential volunteers could consider taking on abandoned Breeding bird survey routes. I'm told there are still routes available on Central Vancouver Island and the Interior."

Along with Walter and Susan, we currently have more than 50 Caretakers in B.C. responsible for monitoring, stewardship, and outreach/education. Each brings a unique perspective and set of tools to the task, and each knows their respective KBA site better than just about anyone. In the coming months, we'll be making a full-scale appeal to you, the BC Nature membership, to grow our team of Caretakers. This will include IBA



Photo: L. Ragan

Walter and Susan Thorne

sites which never had a Caretaker before and are now becoming KBAs, as well as new KBA sites which were never IBAs to begin with. While we secure the funding for that push, I wanted to highlight some of the Caretakers that make this program what it is. To do that, I asked a few simple questions to some of our most prominent Caretakers, and over the next few months will be sharing those with you. As you read them, I hope you consider whether you might be interested in becoming a Caretaker yourself; we could certainly use your help.Ω



Photo: L. Ragan

Male Tufted Puffin in mid-flight

# The Fish Eater

Submitted by Dave Manning

One of the most widely distributed of all birds on the planet, the Osprey is common across our province during the breeding season. They arrive in early April on the coast. For 18 years, I knew that spring was here when I heard the shrill cries of a nesting pair at their nest behind my house on Pender Island. They demonstrated such excitement and exuberance for life, circling together and chasing one another in apparent joy! I often saw other Ospreys join in the fun, sometimes five or six at a time, wheeling about, all crying their repeated cheep cheep calls.

Ospreys mate for life and “my” pair always used the same nest area after returning in the spring. But at least six times over 18 years they needed to reconstruct their nest after their return to find their old nest had collapsed. This was the case in 2023; they once again discovered the previous year’s nest completely down. I waited to see where they would build a new nest. I kept watching, but alas, it did not happen! What a disappointment. Apparently, there was no suitable tree left in the area in which to construct a nest. And for these last three breeding seasons, no nest has been built near my house. A birder friend believes he saw my pair oust another pair from a nest constructed near the top a nearby communications tower. We’ll never know for sure, but it is a good possibility.

There are at least six other known Osprey nests on Pender Island, so although my neighbours and I miss them nesting nearby, we can see and hear them elsewhere with a little effort.

Before laying eggs, Ospreys renovate their old nests or build a new one if necessary. One flies around breaking off dead branches from trees with its talons, dropping the sticks at the nest where the other arranges them. For the finishing touches, grasses and other soft materials are put in the base, giving a nice place for eggs to rest. A couple of my birder friends have seen Ospreys collecting strips of cedar bark for nest items. Approximately one month after arriving back from the south—southern California, Mexico, Central and South America—the female usually lays three eggs, said to be the handsomest of all hawk eggs, pinkish white in colour, spotted with various shades of brown. She does most of the incubating, up to 43 days, while her mate brings food.

Their diet is almost exclusively fish—another name given them is fish hawk—which they capture in their talons by diving feet first into the water, catching fish swimming near the surface. I have often watched them dive, rise from the water, pause in midair to shake water from their plumage, turn the fish



Photo: D. Manning

*On watch duty*

head-forward to reduce air resistance, and grasping it with both feet, fly it to a favorite perch—then eat it. The outer toe of an Osprey is reversible, much like the owl, enabling it to grasp prey with two toes in front, two in back, with spike-like growths on the pads of their feet that helps them hold on to their slippery prey. They are known to have consumed more than 80 fish species.

Having the opportunity to observe the entire breeding cycle in the nests behind my house was a delight. I spent hours on a bluff that was even with the nests, giving me a perfect viewpoint. It was a form of meditation—watching the female incubating hour after hour, day after day, in wet, dry, hot, or cold, just being there. Sometimes she would get off her eggs to make a short circular flight about the immediate area. He faithfully brought fish.

There was always a bit of excitement when a chick hatched; the male would circle about the nest area squealing, sometimes landing on the nest to check things out. After the chicks hatched, I watched in wonder as dad brought in fish and mum delicately distributed each morsel to the awaiting nestlings. Unlike Bald Eagle chicks, I rarely saw quarreling amongst the Osprey siblings. They were usually quite peaceful and well behaved towards one another, even during feeding episodes. But I once found a dead chick at the base of the nest tree, perhaps jostled out of the nest during the scramble for delivered food.

On hot summer days, I could see the young chicks panting with open mouths. At such times, mum would often open her wings to shield them from the sun.

Bald Eagles steal from Ospreys. An eagle will watch an Osprey fish. When the Osprey catches one, the eagle chases after, forcing it to drop its prey which the eagle then retrieves in midair or on the ground. Ravens have also been known to steal from Ospreys. One early spring day, before my Ospreys returned from their migration, I watched a Raven stealing sticks from an Osprey nest, taking them in several

*Continued page 24*

Continued from page 23

trips to a nearby nest it was constructing. When the Ospreys did arrive, the raven pair hassled them so much that they delayed laying their eggs by approximately 2-3 weeks.

Before fledging, the young Ospreys practice wing exercises, beating them vigorously, sometimes lifting themselves a half a metre above the nest. About two months after hatching, the chicks can fly.

Even after the chicks fledge, they stay in the nest area, flying back to the nest where food continues to be delivered, the dining room. Eventually, the youngsters

disappear from the nest site area, joining mum and dad at a nearby lake or the ocean for fishing and bathing lessons, which includes dragging their feet in the water, a foot-washing exercise. By mid-October here on the coast, most Ospreys have left on their migration.

Although DDT and other pesticides affected Osprey populations several decades ago, the ban on DDT in the U.S. and Canada has seen bird numbers rebounding. They have also been helped by human-made artificial nest platforms. Ospreys are now considered a species of low conservation concern. Ω

## Indigenous Wetland Restoration Success in the Eye of a Climate Emergency Storm

Submitted by Rachel Bevington, Stqee' Wetland Restoration Coordinator

This is my fourth year as Wetland Restoration Coordinator for Stqee' Learning Society, an Indigenous-led non-profit based on Salt Spring Island. Our society has undertaken to restore 20 hectares of wetlands in Xwaaqw'um, the traditional territory of the Quw'utsun peoples of the Salish Sea. Xwaaqw'um is part of three contiguous protected areas colonially known as Burgoyne Bay and Mount Maxwell Provincial Parks and Mount Maxwell Ecological Reserve.

Xwaaqw'um has a long history of human use, including 10,000 or more years of harvesting and tending to the food-producing ecosystems that make up this dry Gulf Island climate. Complex island marine systems have allowed for incredible abundance over the millennia, where massive amounts of herring, salmon, game, clean water, and amazing Western Redcedar allowed for large numbers of Indigenous Peoples to live and prosper on this protected coast. Xwaaqw'um's prior splendor is recalled in Indigenous oral history. Early surveyors' notes of the area have recorded incredible abundance of food and people living on the land. Towering old growth redcedar trees are imagined having sunk their roots deep into the glacial till.

In 2025, the creeks are dry, and the climate has changed for all residents, human and otherwise. Western Redcedar trees are not thriving. The long drought – May to October – tests the limits for all tree species, even Garry Oak and Arbutus. All native species are suffering from drought as our area experiences climate whiplash. There are pockets of cool shady moist environs in Xwaaqw'um. To take advantage of this, our society has worked hard to fund the wetland restoration project. As of this year, we have converted six hectares of old agricultural fields into interconnected wetland pools. This work is taking



Wetland creation at Xwaaqw'um in the dry weather of Sept 2025 with Hwmet'utsum in the background

place uphill from a quiet estuary, and between two fish-bearing streams, Xwaaqw'um and Lee Creeks. The hope is to increase water storage capacity on the landscape above the creeks, keeping water on the land all year round for wildlife. Native plants have been re-introduced to these restored areas, in the hope that drought-tolerant species like Black Cottonwood and Pacific Willow will help to restore the landscape.

As a restoration biologist, I have experienced what an uphill battle landscape restoration can feel like. Some ecosystem functions were lost forever because of industrial logging, mining, and agriculture. Keystone species, like wolf and beaver, are missing, making recovery very slow and expensive for humans to do alone. There is a mountain of rules to follow for work in sensitive riparian habitat. Sometimes it feels overwhelming. It is hard to raise the funds, and once you have the money, it is hard to get the work completed due to permits, tight budgets, lack of human resources, and partners on a much slower timeline.

Three things that have helped us succeed in our four-year project: adaptive management, being nimble

Continued from page 24

in decision making, and determination. Adaptive management can be applied in any situation, especially when we listen to the constant feedback from our environment. However, amid a climate emergency, we are experiencing the effects of continual, rapid change. Many of the paradigms I was taught at university no longer hold true. The slow, methodical pace of traditional planning no longer matches the speed at which conditions are shifting, so I now examine my project closely each season and adjust as needed.

I was once taught that a good survival rate for planted wetland species was around 15%. When plants cost hundreds of thousands of dollars, that is a hard figure to accept. Early in this project, I hadn't realized that the abandoned farm fields we were restoring had unsuitable conditions—imbalanced bacteria, improper pH, and a missing mycorrhizal network essential for wetland plants.

Through collaboration with volunteers and colleagues, I learned several practical techniques to help the new plantings survive their first year—and they're working. By dipping the young plants in a mycorrhizal inoculant and planting them on the north-facing side of woody debris in November and December, our first-year survival rate has risen to nearly 85%.

The other trick I have learned for restoration success is to be able to be a nimble decision-maker. We were faced with all kinds of curveballs through this four-year project. The first and greatest problem has been the fire-risk in British Columbia during the work windows. That has changed our project more than once. Being able to reach out to other agencies, to work hard for clarification, to have contingency plans in place, and to be able to make informed decisions based on real-time cost/benefit analysis have all helped us learn and adapt.

Being an Indigenous-led organization, we have a very different outlook than other governmental or non-profit groups that we work with. Being committed to this place, having a long-term vision, and being dedicated to resiliency have helped to shape this project into one we are all proud of. A huge part of why I think we are succeeding is that we have worked hard to hold true to our values. Where roadblocks, emergencies, and challenges have arisen, we have worked together, brainstorming and workshopping the options. When working in a climate emergency, habitat restoration is essential, critical work. Nothing should stop the forward momentum. If it must come from grassroots advocacy, then it must. If you can only succeed with volunteers, then go find them. If there are too many rules stopping you from using machines, use shovels instead. Even if you only clean one stream or grow one type of plant, you are helping. Never stop thriving - that is the message we want to pass on to our Indigenous youth, and that is a message that resonates with all B.C. nature lovers.

We have another year and a half in this project, and another few hectares to go. I am excited to see the plants we have nurtured for three years take root. I am grateful for all the specialists, experts and conservation allies that have helped us every step of the way, and I feel confident that this new habitat will “work”. We might not be able to repair all the scars that industry inflicted on this landscape, but I know that I have been a part of something dynamic that is bringing freshwater back to the landscape for the benefit of all. With commitment, determination, and collaboration, we are facing the climate emergency storm – together.

Ω

Learn more about the Stqeeye' Learning Society - <https://www.stqeeye.ca/>

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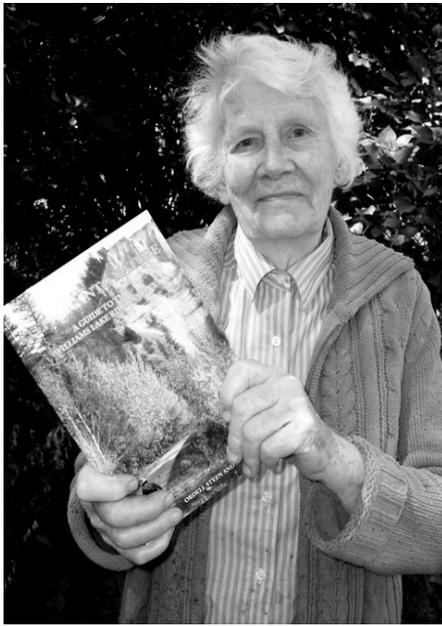
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# A Tribute to Anna Roberts

Submitted by Sage Birchwater with input from friends and family.



*Anna with River Valley booklet which she co-authored with Ordell Steen*

Anna moved to Williams Lake from Ottawa with her veterinarian husband John in 1958. A naturalist friend told Anna to check out the migratory birds of the Cariboo, so Anna encouraged John to head to Williams Lake. While he spoke to the government agent about the need for veterinary services in the region, Anna visited Scout Island at the outflow of the lake.

**W**e take a moment to remember Anna Roberts, one of the founding members of Scout Island Nature Centre and the Williams Lake Field Naturalists (WLFN).

Both struck gold.

Over her 67 years in the region, Anna made her mark. Few people in our area have contributed more to natural history, community service, and advocacy for nature and conservation.

She has also been a leader and an inspiration as a potter and ceramic artist. She found local sources of clay and minerals for glazes at various locations around the Cariboo, and fired her hand-built creations in her own kiln at her studio next to her home.

Anna never tired of telling the story of how she put a stop to the city's plans to fill in the Scout Island marsh and use it for commercial purposes. She enlisted the help of R.D. Harris, a biologist for the Canadian Wildlife Service, to assess its potential. His study concluded that Scout Island and the marsh had significant wildlife values and a unique potential for interpreting nature and the wetland ecology within an urban setting. In 1973 the 2<sup>nd</sup> Century Fund, now known as the Nature Trust of British Columbia, purchased Scout Island from the city for \$99,000 then leased it back to the city for \$1 per year. In 1976 the WLFN, a group of which Anna was a founding member, took over managing Scout Island for the city and the Nature Trust.

Anna's work as a citizen scientist extends far beyond Williams Lake. Her work documenting the natural history of the Cariboo Chilcotin can be found in books, reports, and publications, and she generously shared her knowledge, photographs, and information with others.

Ecologist Ordell Steen, who co-authored several publications with Anna, says "Anna's legacy resides in a lot of people."

Anna continued to live on her own in her Grebe Drive home until suffering a stroke last March in her 96<sup>th</sup> year. She remains an inspiration to those who knew her best.

Thank you Anna! Ω

## AVOCET TOURS



UPCOMING TRIPS in 2026 & 2027

- Brazil
- Alberta Winter Owls
- BC Coast in Fall
- Saskatchewan
- Borneo



Whitehead's Broadbill © Avery Bartels.

**Brazil** ~ Oct 21 to Nov 7, 2026. **\$9999 CAD**, from Rio de Janeiro, Brazil. Leader: Avery Bartels & local guides. Visit the rainforests of southeastern Brazil, home to a host of enticing birds and other wildlife. We will see a variety of hummingbirds, owls, tanagers and rare endemics like Gray-winged Cotinga, & Brazilian Laniisoma.

**Alberta Winter Owls**. Mar 3 to 5, 2026. **\$1800 CAD**, from Calgary, AB. Leader: Gavin McKinnon. Search for sought-after owls like Great Gray, Snowy, Northern Hawk-Owl and more with our resident Alberta based guide. Other winter specialty birds also on target list.

**British Columbia Coast ~ Fall Migration**. Sep 1 to 5, 2026. **\$3150 CAD**, from Vancouver, BC. Leader: Chris Charlesworth. Expect to see a number of migrant shorebirds & seabirds, as well as West Coast species like Hutton's Vireo, Anna's Hummingbird, Red-breasted Sapsucker & Pacific Wren to name a few.

**Saskatchewan** ~ Whooping Cranes & more. Sep 30 to Oct 5, 2026. **\$3000 CAD** from Saskatoon, SK. Leader: Chris Charlesworth. Look for endangered Whooping Cranes, and massive numbers of other migrants such as Sandhill Cranes, 5 species of geese, other waterfowl and shorebirds. With luck, we'll find a Smith's Longspur!

**Borneo**. Mar 15 to 30, 2027. **\$10,899 CAD** from Kota Kinabalu, Borneo. Leader: Avery Bartels. Join us as we explore Sabah, in Borneo's northeast. Up to 60 species of endemic birds can be found here, such as Bulwer's Pheasant, Whitehead's Trogon, Bornean Bristlehead and Storm's Stork, to name a few.

Prices based on double occupancy. Subject to 5% GST.



Saffron Toucanet © Caio Brito.

[WWW.AVOCETTOURS.CA](http://WWW.AVOCETTOURS.CA)

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## 2026 Annual Appeal

In recognition of our work on implementing Key Biodiversity Areas (KBAs) in B.C., the BC Conservation Fund, through the BC Parks Foundation, has awarded BC Nature a two-year grant (2026-2028). These funds will go towards supporting BC Nature clubs and caretakers as we identify and steward the most critical places for wildlife in this province.

Here is the best news: with your help, you can make even more of an impact. Until **December 31st, 2025**, all donations received by BC Nature are matched by the BC Conservation Fund, up to **\$70,000!** Having this match will make a considerable difference to the funds we receive for our KBA project.

Wildlife needs us now more than ever. By helping to establish KBAs, we help to support local communities, naturalist clubs, and Indigenous partners have their voices heard. Our Caretakers, clubs, and volunteers work tirelessly to identify and steward these places, putting in thousands of hours of volunteer time a year to make this work possible.Ω

# BC Nature Volunteer Merit Awards



*Alan Garland (L) accepting his award from Alex Bodden (R)*

almost daily collecting trash along the roadway and has worked with the Okanagan Nation Alliance and others to reclaim the lower Ellis Creek, putting in countless hours caring for the vegetation planted there. He was recently awarded a Conservation Officer Service award for his dedication to this project.

Allan has a lifelong interest in science and nature, an innate curiosity, and a selfless willingness to help. There are few in the local conservation community who do not know and appreciate his contributions. Ω

## **Ann Scarfe, Rocky Point Bird Observatory BC Nature Club Service**

In 1980 Ann Scarfe became Program Manager at Swan Lake and Christmas Hill Nature Sanctuary and is recognized as one of its founders. Until her retirement in 2008, she engaged children in the wonders of nature. Her interest in native plants inspired the creation of Swan Lake's native plant garden and generated enthusiasm for their annual native plant sale. In retirement, Ann joined Rocky Point Bird Observatory. There, she has put in more than 4000 hours, day and night, volunteering on various projects and in 2013 became the volunteer coordinator, organizing more than 100 others. She has represented Rocky Point at public events, helped with public education programs, organized net-mending sessions, hosted out-of-town volunteers and provided rides for many people who would otherwise not be able to participate in this important monitoring work.

In addition, Ann is a zone leader for the Victoria Christmas Bird Count and ran the monthly book raffles at the Victoria Natural History Society's Birders' Nights. She also has a gift for introducing young people to nature. During 40 years with Guides, she took many groups camping, and encouraged other leaders to do the same. For six years, Ann worked with the Guides BC Provincial Council on the Water for Tomorrow program, which helped leaders to teach girls the value of conservation. Ω 1.



*Dr. Ian Walker receiving his award at the annual CONC picnic*

## **Allan Garland, South Okanagan Naturalists BC Nature Club Service**

Allan Garland has been a member of the South Okanagan Naturalists' Club since 2008 after retiring from the Canadian Food Inspection Agency. There are few club activities that he doesn't participate in! He's a regular at the weekly outings, sharing his expertise in botany and entomology. He volunteers doing riparian reclamation with the South Okanagan Stewardship Society and the Southern Interior Land Trust. Annually, he helps set up the Vaseux Lake Bird Observatory for banding season and conducts monthly bird surveys for the Friends of the Penticton Oxbows as they work towards protection of this valuable natural asset.

Allan is a board member for the Meadowlark Nature Festival, and both organizes and leads tours for that event. He also leads tours at the Penticton Oxbows and one at Vaseux Lake for young people. Allan can be seen

## **Dr. Ian Walker, Central Okanagan Naturalists BC Nature Club Service Award**

Ian Walker taught biology at UBC's Okanagan campus for many years, during which time he was also Program Director of the Central Okanagan Naturalists' Club (CONC), finding speakers for monthly general meetings. In 2023 he initiated and often led a series of Weekend Explorer events, aimed specifically for non-members and CONC members who worked during the week. He produces a fiendishly difficult quiz that entertains members at CONC's annual banquet and is a coordinator of CONC's annual photo contest, which he transitioned from in-person judging to an online contest during and after COVID.

Ian assists in the Okanagan Mountain Park Critter Count, and is a valuable participant on birding trips, identifying many non-avian species. We recognize Ian for many years of service to CONC. Ω



Wim Vesseur (L) and Tom Wildeboar (R)

### Gareth Pugh, Ryan Usenik, Wim Vesseur, and Tom Wildeboar, Friends of Semiahmoo Bay BC Nature Club Service Award

This group of four is thanked for their dedicated service and commitment to the Serpentine Wildlife Management Area Tree Swallow and Wood Duck Nest Box program: Gareth Pugh, who took on project coordination in 2010, Ryan Usenik who has participated since 2020, Wim Vesseur who began participating in 2011, and Tom Wildeboar who began in 2018.

They have unfailingly and reliably cleaned out and maintained more than 43 Tree Swallow and 10 Wood Duck nest boxes for many years, in bitter cold, snow and torrential rain, walking through sometimes flooded areas and over huge tufts of Reed Canary Grass hauling ladders and tools to get the job done before the birds return in late February or early March.

Others have volunteered over the years, but Gareth, Ryan, Wim & Tom have been committed, supportive and fabulous! The site became a concern in the early 2000's when the BC Ministry of Environment found that nest boxes, originally part of a toxicology study, were not being cleaned out or maintained by the students or their advisors. Officials contacted FoSBS in 2002 and asked us to commit to an annual cleanup and repair of the boxes in collaboration with Ducks Unlimited Canada. These four gentlemen—members of the Langley Field Naturalists stepped up—for which we are grateful! Ω



Marg Cuthbert (L) presenting the award to Gareth Pugh (C) and Ryan Usenik (R)

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# North in the Spring # 34

## Burgess Shale Formation Part 2

Submitted by Steven Earle

**W**hy should you? After all, it's far away - an all-day drive from Vancouver to Yoho National Park near Field, for instance and then a long and challenging hike: 12 km each way on rough, rocky and root-ridden trails, with a lot of climbing. You'll be on your feet from first light to late afternoon, and mountain weather is capricious. It



Photo: J. Pearson

The author on the trail to the Burgess Shale

could be cold, it could be wet, it could snow on any day of the year. Those are some good reasons to remain comfy, dry and warm. But wait, that's not you, so here are some of the good reasons to get out there and do it:

- There are few places more spectacular than the Canadian Rockies. No, they're not the highest mountains, not even in B.C., but the folding and faulting of ancient sedimentary layers have created some of the most beautiful mountain scenery anywhere.
- The hike to the Burgess Shale, Walcott Quarry rewards you with vistas of breathtaking glaciers, impossibly sharp peaks, thundering waterfalls, and emerald-green lakes.
- You'll pass from temperate rain forest, through sub-alpine forest, to the unforested upper slopes, with all the corresponding variations in flora and fauna. So much to see!

The Burgess Shale is arguably the most important fossil bed in the world, the key reasons being amazing preservation, spectacular diversity, and relevance to evolution. The 506-million-year-old organisms are exquisitely preserved; even their soft parts, including internal organs, are visible in detail. The diversity is unmatched, especially considering that these rocks are more than half a billion years old. There have been more than 200 different species described, so far.

The Cambrian Explosion really matters. The Cambrian Period- starting 542 million years ago - was originally recognized as the inception of macroscopic animal life, or metazoans. In the many decades since that line in time was drawn, metazoans have also been discovered in Precambrian rocks as well, but the Precambrian ones are unfamiliar, difficult to classify, and not very abundant. They have been tentatively grouped into three phyla (where phyla are defined based on body plans). By the time of the Burgess Shale, there were 30 different phyla, including almost all that exist today. In other words, the body plans for virtually all extant metazoans evolved over less than 30 million years during the Cambrian, and most of those are represented in the Burgess Shale.

The Cambrian was the dawn of vision. None of the Precambrian animals had eyes. They lived in darkness. To avoid danger and find food, they likely relied on smell, hearing, and physical sensing. The first organism with clear vision was a Cambrian trilobite from about 530 million years ago. Imagine what a difference vision would make in finding food and avoiding predators.

Evolutionary zoologist Andrew Parker has proposed that evolution of sight early in the Cambrian played a major role in the explosion of life that can be seen in the Burgess Shale. According to Parker: "Once the lights were 'turned on' there was enormous pressure to evolve hard external parts as defenses and claspable limbs to grab prey. The animal kingdom exploded into life, and the country of the blind became a teeming mass of hunters and hunted, all scrambling for their place on the evolutionary tree."

It's just a hypothesis, of course, and difficult to verify or refute. In fact, several hypotheses have been advanced for the Cambrian Explosion, including a documented increase in the oxygen content of the atmosphere and oceans allowing animals to become larger and more energetic, an increase in ocean water calcium concentration making it easier to build exoskeletons, and a rise in predation—although that one too might also be dependent on vision, since it's challenging to be a predator if you can't find your prey.

We'll have to accept that we don't yet understand the 'why' or the 'how' of the Cambrian Explosion, but thanks to the amazing fossils of the Burgess Shale, we do have eyes on the 'what'. The Parks Canada website is your trailhead if you're up for an awe-inspiring hike and a first-hand view of the wonderful Burgess fossils. Ω

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# Naturalist Mentor

**Lynne Brookes**

*Submitted by Sally Soanes*

The Arrowsmith Naturalists would like to honour Dr. Lynne Brookes as a Naturalist Mentor.

Lynne received her degrees in Biology and International Agricultural Development and then received her PhD in Environmental Education.

Prior to moving to Vancouver Island, Lynne was president of the Iowa Audubon Society and co-founder of the Iowa Wildlife Society. When she moved to Vancouver Island, she joined the Arrowsmith Naturalists and weren't we lucky!

We wish to honour her many contributions: In 2015 she started a wildlife garden at the North Island Wildlife Recovery Centre showcasing what we all can do to attract bees, butterflies, hummingbirds, dragonflies, newts, and Chorus Frogs. It's a very popular spot for locals and tourists alike. It is here where she also mentors the young, struggling student volunteers, training them, and helping them find scholarships. Then in 2021 she was awarded the BC Nature Elton Anderson Award for regional leadership.

Lynne teaches nature-themed courses through Vancouver Island University and Mid Island Elder College. The courses are always full and very popular.

Lynne also leads outreach tours throughout the area, including Qualicum Beach Heritage Forest, Hamilton Marsh, North Island Recovery Centre, French Creek Nature Preserve, and many others. She took a leading role in designing a management plan for the French Creek Nature Preserve, when there wasn't a nature preserve model to follow within B.C.

She is instrumental in the success of our yearly Brant Wildlife Festival and a cofounder of our Mushroom Festival. We can always count on seeing Lynne as a volunteer for the local shorebird, Christmas, and the Brant bird counts.

Congratulations, and thank you, Lynne Brookes! Ω



*Lynne (2<sup>nd</sup> from left) demonstrating planting protocols for a pond restoration project.*



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