Paths to Nature
Tumbler Ridge Global Geopark

The Magazine of BC Nature

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In This Issue:

Regular columns
Editorial.................................................................3
Letters to the Editor.................................................4
President's Perch.....................................................5
Natural Mistakes......................................................6
Conservation Report................................................8
Book Review........................................................15
Focus on IBA........................................................18
Club Tips.............................................................20
NatureKids BC Update...........................................24
Lookin' Out My Backdoor: Nature Photography in BC.....25
BC Naturalists' Foundation.......................................29
The Last Word.......................................................35
Spotlight on Distinguished Naturalist Mentor...............36

Feature
Habitat Conservation Trust Grants................................7
Birders Flock to Vancouver..........................................7
BC Wildlife Federation's Conservation App...................10
Tumbler Ridge Global Geopark....................................11
The Stoney Creek Salmon Study..................................14
Leaf Litter...........................................................16
North Coast LNG Proposal Will Impact Western Toad......17
Paths to Nature.....................................................19
Spotting Scopes.....................................................22
A Pilot Golden Eagle Population Study.......................23
Research Examines Newt Neurotoxin.............................26
Skaha Lake: Home for Species at Risk.........................27
WildResearch 2016 Club Grant Update.........................28
Nature Canada's Douglas H. Pimlott Award...................30
Remembering Rolf................................................31
From Cowichan Valley to Prince George.......................32

Notices
Letters to the Editor................................................4
BC Nature Camps 2017............................................12
FGM 2017 "Lakes, Grasslands, Forests" Vernon...............13
Dates to Remember................................................16
20th Annual Tofino Shorebird Festival........................17
AGM 2017 - Registration.........................................33
AGM 2017 - Lillooet Schedule of Events.....................34

Objectives of BC Nature (Federation of BC Naturalists)

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

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Editorial
Enforcing SARA is the first step to Killer Whale recovery

By Misty MacDuffee

In December, the Raincoast Conservation Foundation filed a lawsuit challenging the federal government’s approval of Kinder Morgan’s Trans Mountain Expansion. We did so because legal protections for marine species-at-risk were not applied. Specifically, the project will significantly and adversely affect endangered Southern Resident Killer Whales. These disturbances will occur regardless of oil spills or ship strikes and cannot be mitigated.

Notably, no one challenged Raincoast’s evidence that the project increases the whales’ risk of extinction. Kinder Morgan, the National Energy Board, and the federal government all agreed it will have significant and adverse effects on the whales and their critical habitat. Why?

In 2014, Raincoast teamed with international experts in Killer Whale behavior, ecology, acoustics, and population biology to undertake a Population Viability Analysis. Using the most recent science, we quantified and assessed widely recognized threats facing the Southern Resident Killer Whales, ranked those threats, and examined the capacity for population recovery under various scenarios.

Unsurprisingly, we found that Southern Resident Killer Whales face a highly uncertain future under existing conditions of food availability, pollutants, and vessel traffic. Our study also reinforced the importance of Chinook Salmon abundance as the most important influence on population health. We also found that any future conditions that increase noise, reduce food, or expose individuals to a random death, significantly increases the risk of extinction. If any of these scenarios are combined (e.g. increased noise and random deaths) their extinction within the next century is highly probable.

The Salish Sea is facing substantial increases in ships heading to the Port of Vancouver. Whether freighters, tankers, or other vessels, engine and propeller noise can occur in the same frequencies that Killer Whales echo-locate. The clicks of echolocation enable whales to identify the size and location of large salmon and communicate with pod members to catch them. Masking these vocalizations with engine and propeller noise can lower hunting success. Reduced feeding translates to lower birthrates and survival for this already food-stressed population. Consequently, more vessel traffic in Southern Resident Killer Whale critical habitat (i.e. Haro Strait) has population-level consequences.

Importantly, our study also found that by increasing Chinook Salmon abundance and reducing noise, we can almost eliminate the risk of Southern Resident Killer Whales going extinct within the next century.

Canadians from coast to coast value these iconic whales. The Species at Risk Act legally protects endangered wildlife and biodiversity. We all need to ensure this law is upheld. The very survival of the Southern Resident Killer Whales may depend on it.

Misty MacDuffee is a biologist and program director for the Raincoast Conservation Foundation’s Wild Salmon Program.
Letters to the Editor

Greg Ferguson reported in the winter 2016 edition of BC Nature that our federal government is, at last, making some progress in producing management and recovery plans for vulnerable species, as required under the Species at Risk Act. However, besides quantity, there is also the question of quality.

I recently had occasion to read the so-called “Action Plan for the Northern and Southern Resident Killer Whale (Orcinus Orca) in Canada [Proposed]” published by Fisheries and Oceans Canada in 2016. The Northern population, numbering about 280, is listed as threatened. The Southern population has been reduced to 78 after the death of a male orca in December 2016 as a result of a collision with a vessel and the recently reported disappearance of the oldest matriarch. It is listed as endangered – one step from extinction. The plan correctly identifies that the “threats to recovery are reductions in the availability or quality of prey, environmental contamination, and both physical and acoustic disturbance” and emphasizes “the commitment of the Government of Canada … to the principle that, if there are threats of serious or irreversible damage to the listed species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty”. However, when one reads the list of proposed measures to protect this species, one’s reaction quickly shifts from hope to disbelief and dismay. The specific measures are to “examine”, “investigate”, “analyse”, “assess”, “review”, etc. There is not one specific measure that involves forcing any human to alter their behaviour in any way in the interest of protecting these whales. Not one fishery closure, not one regulation of shipping, not one requirement for ships to reduce their noise, not one control of the whale-watching industry.

In other words, not one real action. It is all study and nice sounding words. This is not an “action plan” – at best it is a “we will investigate and discuss possible future actions on a long, undefined time scale and maybe at some time in the future suggest, timidly, some measures to help these poor animals, but maybe we will just document them as they die” plan.

If this is the best our federal government can do, while at the same time approving expansions of Vancouver’s ports, the Kinder-Morgan pipeline, etc., then it is only a matter of time before these populations go extinct.

Ashley F. Hilliard
Salt Spring Island

There are always two sides to a protest movement. As a member of BC Nature, I object to the Site C dam editorial and to the endangered BC Coast article, both onesided. Some of us may be for these projects and do not wish to promote negative press. Could we not restrict the magazine to stories about nature? Political articles dealing with the environment could be allowed, but on the editorial page in large bold letters there would be a statement that views expressed in this magazine may not represent the views of all the members. There are other avenues for protest if you wish to go there but don’t expect us to all agree and contribute to onesided environmental arguments. In the Site C dam project I am sure there are upside environmental arguments: greater wetlands, waterbird, and fish habitat, etc. Interestingly, environmentalists campaigned against the construction of the bridge between Sweden and Denmark. It has proved of great benefit to marine life, creating substrates for a multitude of marine life on the pilings.

Regards,
Tim Hall,
Princeton

In 1974 I got to travel on Williston Lake Reservoir and experienced a massive log jam in Omineca Reach. At that time the elevated temperatures in the region due to the vast area of the reservoir were not unwelcome, unlike the winds. The mountain pine beetle infestation and climate change prove that mega-project manipulations of landscapes have repercussions over many generations. Sandstorms now blow across the lake and surrounding lands from the eroding bluffs on Peace Reach. Nearly half a century after flooding, Williston Lake has not yet naturalized nor stabilised. Lakeshores slump and erode, surrounding forests are still falling into the reservoir, and erosion bluffs expose soft silts and sands to wind storms.

In investigating Peace Canyon Dam and Dinosaur Lake, (Peace Canyon Reservoir) in 2012, I discovered that more than 30 km of reservoir banks are so unstable as to be dangerous to approach. And these are among the most stable of the Peace River banks, dammed or not. From Ft. St. John to Hudson’s Hope, the Peace River banks are mainly soft benches of unstable clays on top of shale. This is for the entire distance of a proposed ‘Site C’ reservoir – a length greater than 70 km. Continual landslides, erosion, and slumping is guaranteed here.

The flooding of three river valleys has introduced methyl-mercury into the food chain of the Peace River from its headwaters in Williston Reservoir. For those who are sensitive to mercury poisoning, no amount of fish is safe to eat from the Peace River. For others willing to take a chance there is a limit to the safe amount of fish that can be ingested. Wildlife corridors, farm land, archeological sites, and fossil remains will all be lost by flooding this valley. The Peace River estuary into Athabasca Lake is already degraded from altered flow rates from the Site A and B dams.

New reservoirs are known to give off greenhouse gases for decades up to a century after flooding: so much for clean and green power production.

The Peace River Headwater power projects are a long way from the markets they serve. It has been estimated that 10 – 30 % of the power produced is wasted in transmission.

As a conservationist I understand the need for sustainable energy for the future of Canada. I also understand the need for a healthy environment to support Canadians through wild fisheries, hunting and wild-craft gathering. I am aware of the services to humanity that healthy ecosystems provide - at very least clean air and water. The Site C Dam proposal is not green and compromises these values.

I have been to Peace River at Hudson Hope and downriver for the past four years in support of Treaty 8 First Nations, Peace Valley Environment Association (PVEA), and a host of others. Subjecting the aboriginal residents and multigenerational resident farmers to loss of home and livelihood over the past half century is inhumane and the worst kind of institutional bullying.

It is a grave error to proceed with Site C Dam. End it now.

I recommend energy conservation through efficient LED lighting, reducing unnecessary consumption, small scale, individual solar voltaic and small, local hydro-generation. I also suggest that fossil fuel producers seek sustainable means to provide energy for Canadians.

Sincerely,
John Dafoe,
Halfmoon Bay

Thanks to Sarah Cox for a well-considered view in BC Nature of the travesty that is Site C Dam.
“Seventeen percent in 2017”

You probably haven’t heard this catchy slogan yet, but hopefully by the end of the year it will be a familiar call. What is it all about? Well, back in 2010 the government of Canada signed the Convention on Biological Diversity. This international agreement committed Canada to conserving at least 17% of the country’s terrestrial areas and inland waters and 10% of our marine and coastal areas by 2020 (these have become known as Aichi Biodiversity Targets, named after the convention location in Japan).

It took a few years, but the federal government has finally partnered with provincial and territorial governments to move on these commitments. These governments created a Steering Committee co-chaired by Parks Canada and Alberta Parks officials to develop a pathway to achieving the 17% terrestrial/freshwater target. A National Advisory Panel and various Expert Task Teams are also being established to give advice on how to achieve the targets.

How does BC Nature fit into this? We are part of a working group, led by Nature Canada, involving provincial and territorial nature groups across Canada and it will likely also include Canadian Parks and Wilderness Society and World Wildlife Fund Canada. I’ve been involved in one cross-Canada conference call and more are scheduled throughout the year. This Aichi Target process is very much in the hands of governments, who ultimately must decide on land use and proclaiming protected areas. We see the role of nature groups and other NGOs as advising on the process, generating public awareness of these targets, and putting friendly pressure on the relevant government officials to keep their noses to the biodiversity grindstone.

So where are we now with biodiversity protection? Across Canada about 10.6% of our land and freshwater area is currently under some form of protection. The goal is to raise this to 17% by 2020. The occasion of Canada’s 150th birthday is seen as an appropriate time to make the big push to achieve this target – hence the slogan “Seventeen percent in 2017”.

How does protection in BC compare with these goals? Based on data from the BC government, about 15.1% of the province’s land base (nearly 14.3 million hectares) is under some form of protection, although some “protected” conservancies still allow certain industrial disturbances, such as run-of-river power projects. We are in a much better position than most provinces and, with commitment from both the federal and provincial governments, we might actually achieve 17%. Establishing the South Okanagan and Similkameen National Park and the Southern Strait of Georgia Marine Conservation Area are obvious steps in that direction. But bear in mind that BC supports the highest levels of biodiversity in Canada and so our contribution to the country-wide target needs to be a lot higher than 17%.

On the marine side things look rather gloomy. The current level of protection (less than 1% of Canada’s marine area) is a long way from the 10% our government has committed to achieve by 2020. And the federal department responsible for the marine Aichi Target, the Department of Fisheries and Oceans, has not publicly discussed how they will work toward 10% marine protection.

Many naturalists and conservation biologists feel that we should focus on maintaining biodiversity across the landscape, including in densely populated areas, and not just in isolated protected patches. I strongly agree with this, and I see no reason why both approaches should not be pursued – establish a large connected network of strongly protected habitats but strive to maintain functioning and healthy ecosystems everywhere. In fact the full Aichi Biodiversity Convention covers many other targets aimed at these broader goals. Check online (the website also allows you to select the targets that Canada specifically agreed to): www.cbd.int/sp/targets/

BC Nature’s network of more than 50 nature clubs is ideally positioned to work for biodiversity at both local and provincial levels. Let us celebrate Canada’s 150th year with some solid steps toward sustainable and healthy ecosystems.

President’s Perch
From Your President
By Alan Burger

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Natural Mistakes
Cherchez la Femme
By Clive Keen

When I was learning French I discovered that if a hundred women walked down the street accompanied by one male, they’d have to be described using the masculine “ils” rather than “elles.” Ignoring huge numbers of females in favour of a solitary male offends against all notions of fair play. But imagine this. A hundred female Mallards are floating down the river and one male is among them. Who gets your attention and who gets summarily ignored? And when learning birds from the field guides, which gender receives nearly all the focus? Some people never even look at the illustrations of the female, on the grounds that the easier male is all that’s needed. Case proven. Sexism is still rampant in the naturalist world. But enough is enough. This article will be an opening shot against the disgraceful tendency to ignore the female.

There are two initial reasons why the female, rather than the male, should receive close attention.

First, it’s She Who, often enough, Must Be Obeyed. Unbeknownst to many, it’s the females among the raptors that are really wow-worthy. The female Cooper’s Hawk, for instance, is so much bigger than her mate that they don’t even attempt to catch the same prey. While she can bring home a Ring-necked Pheasant for lunch, he’s off struggling to subdue a sparrow. It’s even more embarrassing for male Sharp-shinned Hawks. He’s as likely as not reduced to catching grasshoppers.

Secondly, the female can have a lot more class. Consider the Cardinal. The show-off male dresses all in bright red, which certainly catches the attention. But connoisseurs savour instead the tasteful and varied shades of pink donned by the female. Similar comments can be made about Pine Grosbeaks, American Redstarts, and Wood Ducks. In each case, the female impresses with the elegance of her wardrobe.

But it’s the third reason that is the really important one: naturalist-cred comes from knowing the females.

There was once a wonderful series of books called “Bluffers Guides,” which, in a few short pages, would give you all the material necessary to bluff your way on any subject at a dinner party. A Bluffer’s Guide For Naturalists would start by whispering “Just learn up some females.”

Knowing how to sex any bird at all will impress. Pete Dunne tells a great story of a time he took some newcomers out, and after a while announced that a bird in the distance was a female Harrier. A person behind him was truly impressed, saying “I can’t even see the bird, yet he can see its genitals!” Ignoring females too obviously demonstrates that one is a beginner, so to avoid being treated as such, a great tactic is to profess admiration for the females of various species. Even House Sparrows will do, but you’ll score extra points by waxing lyrical over the female Williamson’s Sapsucker.

To impress in a group of middle-ranking naturalists, you just need to dangle the expression “sexually dimorphic” – which is so much more impressive than “male and female look different” – and then throw in the following factoids, derived from looking at one of the better field guides and counting the illustrations that include “♀” and “♂”.

- 19% of North American birds are obviously dimorphic. There’s no need to look for details with these; sometimes they are so dimorphic that for years people thought they were different species. Most BC residents remain convinced of it with Red-winged Blackbirds.
- 60% of North American birds are not at all sexually dimorphic, at least as far as we can see, though presumably the birds themselves can tell the difference. Seabirds are pretty well all monomorphic, which is a good thing. Telling gulls apart is tough enough as it is. Having to sex them as well would make many of us give up birding.
- 21% of North American birds are mildly dimorphic. You can tell them apart, but only if you know what to look for.

It is with this latter 21% that you can really score naturalist-cred points. I’m not of course talking about the bit of red on male woodpeckers, which is far too easy. No, what you have to do is mug up the difference between, say, the male and female plovers, Barn Owls, and nuthatches. There are differences, I hear you ask? Go look at the field guides, do some memorizing, and prepare to amaze people with your erudition. It’s actually not that hard to tell male and female Black-bellied Plovers apart when you know what to look for, but showing that you can do so in the field will immediately get you labeled as an expert.

Dimorphism also allows you to flaunt your depth as a thinker. Why on earth, you might wonder at an après-trip potluck, are all ducks very clearly dimorphic, while swans and geese are not in the least? And what is it about going to sea that prevents sexual differentiation among the seabirds? And how come Vermillion Flycatchers are majorly dimorphic, while the closely related Black Phoebe gives no clue at all to its gender? You could even bluff your way at a convention of senior ornithologists with this gambit. The trick, of course, is to stop speaking once you’ve launched the topic. Holding forth too long on sex can get you into trouble.
From August 19 - 26, 2018, Vancouver will be host to the 27th International Ornithological Congress. The International Ornithological Congress is the premier bird conference, held every four years since 1884. The year 2018 will be the first time the Congress has met on the Pacific Coast of North America and only the second time for Canada. The Congress is a game-changer: by combining the prestige of hosting the Congress with the City of Vancouver’s annual Bird Week, the organizers are creating the first ever Vancouver International Bird Festival.

The Bird Festival will be a world celebration of BIRDS in all their dimensions – nature, art, music, performance, photography, and adventure. Two thousand scientists from 100 countries are expected to attend the Congress at the Vancouver Convention Centre. Many thousands more people are expected to attend the Festival in venues around Greater Vancouver to be engaged, educated, and entertained through exhibitions, a bird fair and trade show, tours, and workshops.

Many organizations will be helping with tours and logistics as well as showcasing their work in the Vancouver Convention Centre. Artists for Conservation will be exhibiting the world’s best wildlife artists during the week. There will be birding tours around Vancouver, throughout British Columbia, across Canada, and abroad. This once in a lifetime event will draw world attention to birds in our lives and to Vancouver and Canada as a birding destination.

Leading up to the 2018 festival is Bird Week from 6-13 May 2017, during which Vancouver will announce the results of the vote for the official City Bird. The theme for this year’s Bird Week is “Birds at the Shore” with trips by boat and along beaches to see shoreline birds in our Important Bird Areas and elsewhere. Walks, talks, workshops, and exhibits around the city are in the works now.

To learn more about the Congress, go to the web site www.iocongress2018.com and for Bird Week visit www.vancouverbirdweek.ca or contact Rob Butler at contact@robbutler.ca.
Conservation Report
By Peter Ballin, Chair Conservation Committee

Your Conservation Committee monitors environmental issues relevant to our member clubs’ pursuit of “knowing nature and keeping it worth knowing”. We discuss some of these issues, lend our support to other environmental organizations, and write letters that attempt to influence our political leaders to act positively for conservation of species and ecosystems. The BC Nature Executive must approve all letters generated by the Conservation Committee before mailing under our president’s signature. Read on for a summary of our activities during the past few months.

Columbia River Treaty: Committee member Virginia Rasch serves as the BC Nature representative on an advisory group representing environmental and naturalist groups lending input into the re-negotiation of the Columbia River Treaty. Her report follows:

A cross-sectoral transboundary association, the Collaborative Modeling Working Group, was established to support discussions and re-negotiation of the Columbia River Treaty between Canada and the United States. It involves a wide cross-section of stakeholders, including Greg Utzig, a conservation ecologist based in Nelson. BC Nature was invited to join the advisory group to liaise with Utzig.

On both sides of the border, there are many conflicting goals for the Columbia River and its surrounding lands: fisheries restoration (particularly salmon), flood control, water for agriculture and electricity generation, recreation, and many other ecosystem functions. An example of one of the benefits for Canadians from negotiations for reservoir management may be the declaration of some lost riparian habitat, such as along the shores of the Arrow Lakes (e.g., the creation of some wetlands that stay wet even during times of drawdown).

Alternative Energy-Wind: We discussed wind energy. Please be in touch if you would like the reference list that committee member Greg Ferguson compiled.

Alternative Energy-Solar: Kootenay resident Virginia Rasch reported on BC Nature’s response to applications for solar power generation on Crown land in the East Kootenay:

The East Kootenay has been quietly and quickly inundated with applications for Investigative Licenses to collect solar data for the feasibility of locating commercial-scale solar power generation facilities on Crown land. Seven of 10 recent applications have been approved.

BC Nature wrote a letter to the Ministry of Forests, Lands and Natural Resources Operation (and others), recommending that it reject all such applications and place a moratorium on solar power developments on Crown land until the Province of British Columbia adopts policies to effectively evaluate such projects. BC Nature views solar power as a viable option for transitioning from a carbon-based economy to one that is greener and reduces BC’s greenhouse gas emissions and recommends a science-based provincial policy for the management of the solar energy industry.

We are concerned about the East Kootenay solar applications because of their location and scale. The valley bottoms of the Rocky Mountain Trench are unique in North America because they include rare grassland ecosystems that support many endangered, threatened, and sensitive species. The Trench hosts diverse and abundant large mammal populations, including those that use the bottom lands for critical winter range. Thus, the lands in question have significant ecological, cultural, and economic values.

One of the applications is for a facility to be located on the Skookumchuck Important Bird/Biodiversity Area. This area bears specific designation as an important area for at least three SARA-listed species: American Badger (red-listed in BC), Long-billed Curlew (blue-listed in BC), and Lewis’s Woodpecker (blue-listed in BC).

Other species subject to impact by such solar power facilities include Bighorn Sheep, Grizzly Bear, Williamson’s Sapsucker, Barn Swallow, Bobolink, Common Nighthawk, Sandhill Crane, Great Blue Heron, Olive-sided Flycatcher, Painted Turtle, and Spurless Touch-Me-Not.

We maintain that there are many other locations better suited for such solar power facilities, with the prime example being the Sun Mine in Kimberley, located on a brown field that was contaminated by mining operations.

Many individuals, organizations, and branches of government, including the Columbia Basin Trust, have invested a great deal of time and money in ecosystem restoration in the grasslands of the East Kootenay. Why would the provincial government now award licenses for solar power generation on these same lands in contradiction to the principles for awarding compensation monies from the Columbia Basin Trust?

BC Nature received a detailed reply from the Regional Executive Director of the Ministry of Forests, Lands and Natural Resource Operations, outlining the rigours of its adjudication process and promising to take our arguments into consideration for the two outstanding unresolved applications. View our submission and the BC government’s response on our website www.bcnature.ca.


This report reads optimistically as a commitment to ensure that BC Parks will receive the investment and management they need in order to stay world class. Of course, good plans need to be followed by appropriate resources. Our committee, led by Parks and Protected Areas Coordinator Frances Vyse, stays informed about parks and responds to government where appropriate.

Climate Change: The Conservation Committee submitted its resolution (see Bcnature Winter issue) to the Resolutions Committee for consideration at our AGM in Lillooet in May.

Mount Polley: Fred McMechan drafted the letter sent to the Prime Minister and the Ministers of Justice, Fisheries and Oceans, and Environment in protest of the federal government motion to stay proceedings against the BC government
Effects - all activities that may have a positive or negative effect on the recovery of species-at-risk. The 2014 Mount Polley dam breach and ensuing downstream pollution has been called the largest tailings spill in Canadian history. MiningWatch has prepared evidence to prosecute under the Federal Fisheries Act, but will not be allowed to present it in court if the motion passes. Is the federal government acting to stop the federal government from enforcing its own law? Read the article from MiningWatch here: us4.campaignarchive1.com/3w tec89185/f430617e4dc1a02762e &id=d7ab10a06d&e=e2a3654122 and view the letter we sent on our website www.bcnature.ca

Pipelines: BC Nature opposes oil pipeline construction in BC. With the cancellation of the Northern Gateway Project, we are left with the federal and provincial approval of Trans Mountain’s Kinder Morgan Pipeline twinning. We find fault with the National Energy Board’s review process and we will continue to express our concerns and ally ourselves with NGOs that oppose pipeline construction.

World Wetlands Day: Celebrated on February 2 in commemoration of the Ramsar Convention on Wetlands: marshes, bogs, and other wetlands cover about 14% of Canada’s land area. The theme this year examined wetlands as buffers that mitigate natural disasters. Find out more at www.worldwetlandsday.org. BC Nature belongs to the provincial Wetland Stewardship Partnership. Do you have a wetland that requires a club project? Support is available from the Habitat Conservation Trust Foundation: www.hctf.ca.

Canada’s National Parks: How should Parks Canada respond to the environmental and social changes it is facing in managing national parks, national historic sites, and national marine conservation areas? An opportunity to contribute to the conversation was provided at www.letstalkparkscanada.ca/ideas. Species at Risk: We submitted a response to the Ministry of Environment’s request for feedback. Among our suggestions: that policy includes an ecosystem-based approach that employs the principles of conservation biology as the basis of recovery decisions and actions for species, communities, and ecosystems at risk. We believe that enacting a stand-alone provincial Species at Risk Act is paramount. The Ministry presented a number of principles of operation upon which we submitted our perspectives, including an emphasis on species recovery, species protection taking precedence over development, the responsibility of stewards for the well-being of their tenures, removing special interest groups and politics from making decisions about the fate of species at risk, and the adoption of volunteer actions, but secondarily to effective regulations and enforcement. BC Nature recommended additional principles:

- Ecosystem-based - an ecosystem-based approach that employs the principals of conservation biology will be the basis of recovery decisions and actions for species, communities, and ecosystems at risk.
- Effects - all activities that may have a positive or negative effect on the recovery of species-at-risk (i.e. direct, indirect, cumulative, short and long-term, and based on science) will be accounted for in decision-making.
- Resources - financial and human resources will be allocated and/or sought through shared partnerships at a level that results in effective conservation outcomes for species-at-risk.
- Cumulative effects will be continually addressed and rigorously monitored. Cumulative effects from multiple minor development projects can be much more damaging to species-at-risk than those from a single large project.
- Monitoring of impacts on species-at-risk will be undertaken by government biologists or qualified independent consultants reporting directly to the government and not by project proponents (e.g., mining or logging companies) or their consultants.

We also addressed other topics tabled by the Ministry: protection of species-at-risk on private land and funding for species- and ecosystems-at-risk.

View our submission on our website: www.bcnature.ca

Greg Ferguson, the primary author of BC Nature’s response, recommends looking at these links for more about the process and other responses: engage.gov.bc.ca/speciesatrisk/ and news.gov.bc.ca/releases/2016ENV0088-002867, engage.gov.bc.ca/speciesatrisk/summary-engagement-results/

So many issues: Others under discussion include: liquefied natural gas projects and their impact on species and ecosystems; marine protected areas, marsh and riparian habitat restoration in the Fraser River Estuary; the impact of off-road vehicles; open-pen salmon farming; and expansion of protected areas.

The Conservation Committee is aware that the issues we address and the positions we take may not reflect your point of view. Let us know! We wish to do our best to represent our membership.

ARE YOU A WILDERNESS LOVER?

The Wilderness Committee Needs You Become a supporter and join thousands in creating a wild Canada. Check us out at: WildernessCommittee.org/support

Canada’s people-powered, citizen-funded wilderness preservation group.

BCnature  Spring 2017 9
The BC Wildlife Federation has launched a new Conservation App and website to make it easy for outdoor enthusiasts to report issues related to illegal use, or abuse, of our natural resources.

Available to iPhone users, the app makes it simple for users to take georeferenced time-stamped photos or videos of illegal activities that harm our ecosystems. The documenting function of the app works both in and out of service using the phone’s GPS. Once the user is back in service, reports are sent to a secure server and then forwarded automatically to the appropriate enforcement agency.

Jim Glaicar, president of the BC Wildlife Federation said, “We created the Conservation App to give all British Columbians a tool to fulfill our individual responsibility as citizens in changing the way we see, use, conserve, protect, and value our natural landscape.”

There are millions of British Columbians recreating and working in the backcountry who are passionate about conserving and protecting our natural resources. This app gives them another tool to protect our natural resources for future generations. The app should increase the eyes and ears of enforcement agencies and create significant efficiencies within these agencies by giving them up-to-date reports, including applicable fields related to investigations.

The mobile app and website were created by the Spatial Information for Community Engagement (SpICE) Lab at the University of British Columbia’s Okanagan campus. The BC Wildlife Federation mapping website is a public website that displays environmental abuses submitted by users to help increase awareness about the threats facing natural resources around the province. The BC Wildlife Federation expects the Android version will be released in the summer of 2017.

Support for this project was provided in part through the Okanagan Basin Water Board’s Water Conservation and Quality Improvement Grant Program and its public outreach and education program, Okanagan WaterWise. “We are very pleased to support this initiative,” said Corinne Jackson, Okanagan Basin Water Board’s Communications Director. “We have seen an increasing number of issues in our backcountry, but also in the valley bottom, from ATVs and dirt-bikes being driven on dams and through wetlands, to dumping of household garbage in and near creeks, damage to riparian and fish habitat, and more. These types of activities are hurting aquatic habitat and sensitive ecosystems. They are also happening in what are often sources of drinking water to local residents. We see this app and website as important tools in raising awareness and helping protect these areas.”

Violation Types: For ease of reporting and ensuring the reports go to the appropriate enforcement agency, a number of standard violation types have been identified as follows:

- Water
- Wildlife
- Environmental Damage
- Environmental Pollution
- Fish
- Grazing
- Forestry
- Salmon - Saltwater
- All-Terrain Vehicle (ATV)
- Blocking public access

Keep an eye out for updates at: www.bcwf.bc.ca under the Conservation App menu. Download the BC Wildlife Federation Conservation App on our website or at the iTunes store, where we encourage you to leave a review about how the app works for you.
Tumbler Ridge Global Geopark  
By John Neville

The world we know and love has left us many clues to its 4.6 billion year history. For example the huge land mass called Pangaea eventually divided into Gondwana and Laurasia. Laurasia contained what today we know as North America, Europe, and Asia. The earth’s crust continues to adjust itself to this day. The crust is divided into plates and these tectonic plates are continuously rubbing against each other. Earthquakes, and volcanoes are constant reminders of the slowly changing world we live in.

In 2014, UNESCO recognized Tumbler Ridge as a Global Geopark, only the second in North America. A geopark is a concentrated area where a large number of clues to the earth’s past are found. Our awareness of this region began to increase during the 1980’s when a coal mine, roads, and a railway were established. The Tumbler Ridge UNESCO Global Geopark is located on the eastern slopes of the Northern Rockies, about three or four hours drive northeast of Prince George. In the year 2000, two boys found the first fossil dinosaur tracks. Since then a real trove of fossils have come to light! Northeastern British Columbia is linked with the rest of the Western Interior Seaway in the Cretaceous, a variety of fossils are present. These include ichthyosaurs, myxosaurs, and thalattosaurs. About 20 years ago a huge, 23-metre long ichthyosaur was removed from Pink Mountain to the Royal Tyrrell Museum of Paleontology in Alberta. These rocks also harbour ammonites and crustaceans.

As more land forms were joined to the BC coastline by the subduction of the Juan de Fuca Plate beneath British Columbia, Washington, and Oregon, the Rockies were forced upwards from the ancient inland sea. Today some of the fossils are found on top of mountains because of these huge geological changes. To the east of the new mountains swampy land was created. This eventually led to the creation of metallurgical coal, which is present in several places along the Canadian Rockies.

Because the area that is now the Tumbler Ridge UNESCO Global Geopark was sometimes a tropical coral reef, sometimes underwater as part of the Triassic marine environment, and sometimes terrestrial as part of the shoreline of the Western Interior Seaway in the Cretaceous, a variety of fossils are present. These include the trackways of ankylosaurs, theropods, large ornithopods, possibly the most northern occurrence of sauropod tracks, bird, crocodillian, turtle, and invertebrate tracks from starfish.

The first dinosaur bone find in British Columbia was found in Tumbler Ridge in 2001. In 2007 Peace River Palaeontology Research Center (PRPRC) palaeontologists discovered the first site of Late Cretaceous (74-million-year-old) dinosaur bones. In 2013 excavations revealed the presence of multiple dinosaur bones. A Typhanosaurus Rex tooth and Cretaceous Angiosperm (flowering plants) leaves were special discoveries. Other interesting critters from the Cretaceous period are Oysters, Inoceramids, and Starfish impressions.

The rocks in the park are marked by ice age action. There were two great ice age sheets: the Laurentide, which spread from the polar region and the Cordilleran, which spread eastwards from the Rockies. Much of the present topography of this region is due to the sculpting of glaciers and their subsequent melting. There are moraines, terraces, remnants of old lake shores, and glacial till, which makes digging in the Tumbler Ridge gardens difficult!

In the PRPRC is a 22000 year old Mammoth tusk, found in nearby Taylor. In 1986 a huge Bison skull was found in a quarry dating back 12000 years, immediately after the ice age.

Since the end of the coal mining boom Tumbler Ridge has been struggling to survive as a community. After the discovery of dinosaur tracks in 2000, it is emerging as a very special place in British Columbia for fossils. Just like Drumheller’s Royal Tyrrell Museum.
Thumler Ridge Global Geopark Con’t
and the new museum at Wembley, Alberta, Tumbler Ridge, BC is becoming a destination for knowledge-hungry tourists.

The world began about 4.6 billion years ago. Here are the main chapters in the Earth’s long geological story, with samples from Tumbler Ridge.

Precambrian Era: 4.5 billion years ago:
Paleozoic Era:
545 million years ago, Cambrian Period. Invertebrate burrow fossils.
490 million years ago: Ordovician Period. Nautiloids.
440 million years ago: Silurian Period. Stromatoporoids forming limestone and trilobites.
355 million years ago: Carboniferous Period.
359 to 323 million years ago: Mississippian Period. Laurasia was forming, Clams, worms, crinoids, ammonoids, brachiopods, trilobit blastoids were found.
300 million years: Permian Period. This included the massive Permian extinction.

Mesozoic Era:
252 to 201 million years ago: Triassic Period. Fish and marine reptile fossils: 20 genera of fish and more than a dozen reptiles. These include: shark, coelacanths Ray-finned fish, the reptiles include ichthyosaurs, and thalattosaurs. The rocks also harbour: ammonites belemnites and crustaceans.
201 to 145 million years ago: Jurassic Period.
145 to 66 million years ago: Cretaceous Period. Dinosaur trackways (including ankylosaurs, theropods, including the first trackways of tyrannosaurs), dinosaur bones, tracks of crocodilian, turtle, and birds. Fossils of invertebrates such as oysters, giant clams (inoceramids) and starfish impressions. In the beginning of the Late Cretaceous Period abundant gymnosperms (including cycads and ginkos), ferns were replaced as the dominant flora of British Columbia by flowering plants (angiosperms).

Tertiary Period.
65 million years ago: Paleocene Epoch.
55 million years ago: Eocene Epoch.
34 million years ago: Oligocene Epoch.
24 million years ago: Miocene Epoch.
5 million years ago: Pliocene epoch.

Quaternary Period.
1.6 million years ago: Pleistocene Epoch. Discovery of a Mammoth tusk and the skull of a Bison.

10 thousand years ago to the present. Holocene Epoch. I hope these times and dates give you a sense of the importance of Tumbler Ridge’s fossil record. To see some of this historic information, a visit to the Peace River Palaeontology Research Center is worthwhile.

For further information go to www.prprc.com

My thanks to Dr. Lisa Buckley of the Peace River Palaeontology Research Centre at Tumbler Ridge for all her technical support.

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manager@bcnature.ca

From BC Nature Office

A volunteer is needed to help out with BC Nature social media and website maintenance. No experience necessary, however a knowledge of Facebook and Twitter would be a great help! This volunteer position would be initially around 2-3 hours a week for training. Help out from the comfort of your own home!

After training is complete, we believe that the social media and website updating will take approximately an hour of your time per week. For further information, please email manager@bcnature.ca or telephone 604-985-3057.

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BC Nature 2017 Camp Update

After three separate “phone-in” registration dates for the three scheduled camps for 2017, we are pleased to announce that both Mitlenatch Camp and Telegraph Harbour camps are sold out, both with wait lists.

There are still nine (9) spots available for the Kelowna camp. Information on the Kelowna camp can be found on www.bcnature.ca/education/field-camps-2/
The North Okanagan Naturalists’ Club (NONC) welcomes BC Nature and its affiliated club members to our beautiful region for the 2017 Fall General Meeting at the Village Green Hotel in Vernon.

The three-part theme of the Conference has attracted speakers and presenters who will highlight threats, challenges, and successes in each of the subject areas. A well-known local published historian will talk on the impact of commercial ranching on natural grasslands and a climate change adaptation scientist will speak on assisted seed migration in certain forest species. His work has recently drawn the attention of National Geographic magazine. Our Saturday evening banquet speaker will be a professional geoscientist speaking on the impact of climate change on water supply and demand in the Okanagan basin.

Early morning birding and field trips will include visits to our local provincial parks, the Swan Lake Reserve, as well as new trails adjacent to the Predator Ridge and Sparkling Hills resorts. The Okanagan Valley’s newest “rail trail” will also be featured. If that is not enough, then come earlier and stay longer to enjoy the apple harvest, winery/cidery tours, and the many attractions for which the Okanagan Valley is renowned. For the latest and more detailed information please go to our website at www.nonc.ca. The registration form and full conference schedule will be available in the summer and fall 2017 BC Nature Magazine.

Rene Savenye Scholarship for 2017

In September 2017, BC Nature will award a $1,500 scholarship.

To qualify, a candidate must be:

- a direct member of BC Nature or the spouse, son or daughter of a member
- registered at an accredited institution of higher learning in BC in an undergraduate degree program in a discipline that contributes to an awareness, appreciation and understanding of our natural environment.

Information and Applications for Scholarship may be obtained by visiting BC Nature website (www.bcnature.ca), refer to the education tab - download and fill in the form and submit with all require documents to: manager@bcnature.ca

Completed applications should reach the BC Nature office by Friday June 2, 2017. The successful candidate will be notified prior to the new school year.

BC Nature wishes to acknowledge the many generous donations made in memory of the late Rene Savenye, which made this scholarship possible. Future scholarships depend on future donations.
The Stoney Creek Salmon Story
By Kevin Lin and Brennan Strandberg-Salmon, Grade 11 students from Moscrop Secondary School, Burnaby.

With so many parks, a view of a vast range of mountains, and lush green forests, it’s often hard to remember what lies right below our feet in the beautiful city of Burnaby. Crisscrossing Burnaby are streams ranging from Guichon Creek right by our school, to little Crab Creek in the upper reaches of Burnaby Mountain. These creeks are natural homes to a large variety of animals and plants. As climate change continues to lead us into unknown territory, it becomes increasingly important to keep an eye on them. The City of Burnaby has more than 90 creeks, many of which have the active support of citizen organizations: people who are committed to keeping these streams clean and viable for native salmon, keystones in these ecosystems. Through their efforts, many Burnaby streams, once drainage canals and dumping grounds overrun with invasive plants, are thriving biological communities.

Just a short hike away in the shadow of Burnaby Mountain, Stoney Creek is home to thousands of returning salmon. Walking along the creek, Chum Salmon are visible as they attempt to make their way upstream to spawn on the gravel beds. These spawning salmon signify a healthy ecosystem and this year has been the best salmon return for Burnaby creeks in 10 years. This is especially significant for Stoney Creek. Last fall, silt from nearby construction washed into the creek and killed many salmon, unsettled spawning grounds, and threatened the habitat that Stoney Creek Streamkeepers had worked so hard to restore. This year, after a great deal of rehabilitation work, locals are excited to see hundreds of salmon returning to Stoney Creek and its tributaries. However, Coho Salmon, the more endangered of the two types of native salmon, are more indicative of a healthy stream and have yet to make a meaningful return as of November. Fortunately, additional work is being done to improve the stream habitat of these species and to bolster chances of survival for the next batch of fish coming in.

The Stoney Creek Environment Committee hosts the Great Salmon Send-Off each year in May: a community event where families help release young Coho Salmon into the creek. Many of these salmon return years later when they’ve matured into adults, exactly what Streamkeepers want. Another event, World Rivers Day, created by BCIT professor Mark Angelo, has reached out to over 60 countries since its start in 1980, spreading awareness and educating people on the importance of water. The fact is, Burnaby creeks have become more than just bodies of water in the past century. With the help of enthusiastic community members, the creeks have united volunteers, Streamkeepers, university researchers, and fish. The protection of these streams relies on dedicated volunteers who contribute their time cleaning up the stream, removing invasive plants, replanting native plants, and checking on the health of the creek. Hopefully, with the help of generations to come, streams will continue to thrive in the developing City of Burnaby.

*The Stoney Creek Salmon Story*

By Kevin Lin and Brennan Strandberg-Salmon, Grade 11 students from Moscrop Secondary School, Burnaby.

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**Photo courtesy of Stoney Creek Environmental Society**

Carcass of a returning spawned-out Coho Salmon
This book discusses the dichotomy and tension between the concepts of Sustained Yield and Integrated Resource Management as applied across BC. Chief Justice Gordon Sloan, the Chair of the first two Royal Commissions on Forestry in BC defined ‘Sustained Yield’ as: “...a perpetual yield of wood of commercially usable quality from regional areas in yearly or periodic quantities of equal or increasing volume.” The first two Commissions were implemented in response to widespread public concerns that BC’s forests were being overcut and exploited in a loosely regulated manner. Justice Sloan strongly recommended that the forests be managed on a sustained yield basis and the book describes the somewhat painful transition from the era of exploitation of BC’s forests to one of Sustained Yield.

The first three chapters (117 pages) cover the development and application of this relatively new ‘Sustained Yield Policy’ commencing with the 1940s and extending to 1970. The book describes the establishment of Public Working Circles (PWC), the Forest Service’s administratively managed units, or defined areas of land, each of which would have a dedicated level of sustainable timber harvest.

The major challenges to implement the Sustained Yield policy and locating the boundaries of the PWCs were the inadequate forest inventory data (species, volume, accessibility etc. of the timber in the areas potentially to become PWCs) and the lack of money, people, and access to conduct the requisite timber inventories. Once a reasonable timber inventory was in hand, the subsequent challenges were when, where, how, and to whom should the timber cutting rights be awarded and subsequent harvesting operations monitored.

The first three chapters cover this history and explain how these challenges were met and the changes of the PWCs to PSYUs (Public Sustained Yield Units) and the development of Tree Farms and PHAs (Pulpwood Harvesting Areas). However, the coverage is, at times, extremely pedantic. For example, when describing one company’s efforts to acquire timber the following is provided: The company was “…logging on timber sales X54014, X50707, E 50799 and X50801, and were proposing to start logging on X59197 and X57537”.

Yet, the most important policy change, that of transitioning from Rough Utilization to Close Utilization (changing from utilizing only big logs to utilizing not only small logs but the chips derived therefrom) as implemented by the then Minister of Forests, Ray Williston, is very lightly covered with no clear explanation or of the ensuing ramifications i.e. large increases in the timber harvests and the construction of new mills to handle the smaller timber.

The last three chapters (300 pages) describe the implementation of the new management paradigm that of Integrated Resource Management focusing on water-based log drives and harvesting on steep slopes (Riley Creek, Rennel Sound, and several other politically and environmentally sensitive valleys).

These chapters describe, in excruciating detail, how the various government agencies (federal, provincial and regional) gradually succumbed to ever-growing public pressure from the then fledging Non-Government Organizations and more affected First Nations to more fully adopt and implement the true intent of the Sustained Yield Policy - a struggle that continues today.

If you are very interested in the historical development of the Sustained Yield and IRM policies in BC, this book may be of interest to you. Otherwise, don’t bother.

Fred Marshall RPF P.Ag. Cert. Arb. has taught resource policy in BC for more than 30 years and continues to be an advocate for improved resource policies in BC. He has long taught an accredited course in IRM and the application of these principles.

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Book Review

The Sustainability Dilemma: Essays on British Columbia Forest & Environmental History
Authors: Robert Griffin and Richard A. Rajala
2016
Royal BC Museum; Victoria, B.C.
426 pages
Paperback
Price: $34.95

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Leaf Litter - The Unappreciated Ecosystem

By Terry Taylor

All of us see fallen leaves, but how many of us consider how important they are? These are the raw materials of forest regeneration. They are the interface between living and non-living things.

When leaves or needles fall from trees, they rapidly become food for decomposers such as bacteria and fungi. Those organisms return substances that were previously parts of trees back into the soil to become components of trees once again. You can see this process for yourself by looking closely at the forest floor. Remove the top layer of leaves, as these are usually too dry to show biological activity. The ones you want are the buried ones that are right against the soil. You will see among the disintegrating old leaves long white mould threads. These are fungal hyphae. They are digesting old leaves to build their own tissues. However, this is different from animal digestion. Animals digest food inside themselves. Fungi excrete enzymes to digest their food outside themselves and then absorb the digestion products into their hyphae.

Fungi are the recyclers of the forest. They deliver minerals and other compounds back into the soil. But some fungi are also the construction crews of the forest. These are the mycorrhizal ones, which are attached to tree roots. They send elements such as nitrogen and phosphorus, dissolved in water, back into tree roots, in exchange for sugars produced by the trees leaves.

You will also see many small animals in this leaf litter, especially if you magnify it with your camera or a hand lens. Some of them jump; these are the springtails with their unique spring mechanism on their abdomens. There are also many species of mites, tiny nematode worms, and a multitude of protozoa and bacteria too small to see, even with magnification. Many of these organisms are also helping to recycle the leaf litter.

Litter from deciduous leaves and from conifer needles are quite different from each other and they often have very different groups of inhabitants. Deciduous leaves rot much more rapidly, and are more nutrient-rich. This is especially true for alder leaves, which are rich in nitrogen. Conifer needles are nutrient-poor and more acidic. The types of soil produced by these different leaf groups are also different. If you probe the soil in a conifer forest you often find a pale ash-like layer. This is not ash, it is a result of leaching due to the acidity of the soil. If there is a thick moss layer, look underneath it. There is often a conspicuous concentration of white fungi, extracting food from decaying needles and old moss stems. Some of this food is sent back to the surrounding trees. Be sure to put the moss covering back to prevent desiccation of whatever is underneath it.

Another important service of dead leaves involves those that fall into streams. They supply nutrients to small invertebrates, which are important for freshwater fish. The fungi involved with their decomposition tend to be aquatic specialists. Some of them produce strange tripod-shaped spores. These three legs increase stability when the spore lands on a surface, giving it enough time to get its germinating hypha into the leaf surface. Have you ever noticed the foam that forms on fast flowing streams? It is often full of aquatic spores.

Leaf litter is the origin of most of our soils and its inhabitants offer naturalists a new frontier to study.

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Dates to Remember - 2017

<table>
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<th>Date</th>
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<td>May 4 - 7</td>
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<td>May 7 - 12</td>
<td>Kelowna Camp</td>
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<td>Mitlenatch Camp</td>
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<td>June 2</td>
<td>Rene Savenye Scholarship</td>
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<td>September 21-24</td>
<td>FGM - Vernon (NONC)</td>
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<td>September 4 - 7</td>
<td>Telegraph Cove Camp</td>
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<td>September 24</td>
<td>World Rivers Day</td>
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BCnature Spring 2017
The North Coast LNG Proposal will impact Western Toad habitat

By Norma Kerby, President, Northern Amphibians Naturalist Society

The proposal by Nexen Energy, a subsidiary of the Chinese National Offshore Oil Corporation, to build the Aurora Liquefied Natural Gas project next to Prince Rupert harbour, has received limited media attention. With the initiation of the environmental assessment process, more details of this large industrial facility proposed for Digby Island, a low-lying island dominated by sphagnum bogs and wetlands, are starting to emerge.

Digby Island, site of the Prince Rupert airport (accessed by ferry), is also an important staging area for migrating waterfowl along the coast, as well as significant habitat for the blue-listed Western Toad. If the project is approved, portions of the huge facility will be within 0.5 km of the small community of Dodge Cove. In addition to the siting of the project and proposed marine facilities impacting eel-grass beds, waterfowl, and marine fish habitat, a network of roads and power lines will disturb the large wetlands of the island and pose a hazard to the wildlife there, including migrating Western Toads.

The Northern Amphibians Naturalist Society has amphibian monitoring sites on the island and supports the concerns by local residents regarding the potential significant impacts of this major project on the ecology of the island. For the public opportunity to comment on this project, see: www.eao.gov.bc.ca/rss/energy/Aurora_Digby_Island_Project.xml

20th Annual Tofino Shorebird Festival: May 5-7, 2017

By Mark Maftei

Each spring, the mudflats and beaches around Tofino host one of the most spectacular wildlife spectacles anywhere in Canada. Tens of thousands of shorebirds travelling between wintering grounds in South America and breeding grounds in the Arctic stop here to rest and refuel. Up to 40 species can be encountered during the spring migration period.

The extensive Tofino Wah-nah-jus Hilth-hoo-is Mudflats around the Esowista Peninsula provide some of the richest and most productive foraging opportunities for shorebirds and this remarkable but restricted pocket of high quality habitat was recognized by the Western Hemisphere Shorebird Reserve Network as a site of regional importance in 2013. Lying within the heart of Clayoquot Sound - a UNESCO Biosphere Reserve - the Tofino Mudflats are certainly one of the most magnificent settings in which birders and naturalists can experience the spring shorebird migration. Come and see for yourself what all the excitement is about: 30,000 shorebirds can't be wrong!

The Raincoast Education Society is proud to host the 20th annual Tofino Shorebird Festival May 5-7. There will be evening speakers, tons of fun outdoor activities for birders of all ages and interests, and both nearshore and offshore boat trips.

For more information about this amazing event, please visit us at: tofinoshorebirdfestival.com
Focus on IBAs: New Bird Blind at Vaseux Lake

By Eva Durance and Krista Kaptein

After several years of hard work, an ambitious Important Bird and Biodiversity Area (IBBA) initiative will be completed in the South Okanagan by this spring: replacement of the bird blind and access boardwalk. This is the only public access into the heart of the Vaseux Lake Wildlife Refuge, located about 30 km south of Penticton off Highway 97.

In 2013, Vaseux Lake Important Bird Area (IBA) Caretaker Eva Durance initiated a project through this BC Nature program to replace the aging, unsafe blind with a new, larger structure—providing better access and interpretive materials. In 2015, the Canadian Wildlife Service committed to rebuilding the equally aged boardwalk with Environment Canada funding to improve public access in ten Wildlife Refuges. With a supporting team of representatives responsible for the complex federal, provincial, and non-governmental organization land jurisdictions at Vaseux Lake, Eva took on the role of project manager.

The role involved coordinating the various agencies; writing grant applications, making presentations to possible community supporters; arranging for the design, approval, and construction of the blind; obtaining volunteers for hands-on help; and organizing meetings of the parties involved. Ongoing naturalist support came from a South Okanagan Naturalist Club (SONC) representative and the IBA Coordinators over the past five years: Krista Englund, James Bradley, and Krista Kaptein. Without this assistance and support, involving considerable ‘off the corner of the desk’ time and expertise from team members, the project would have died.

For example, when the project started, the status of the land where the blind sits was unclear. A BC Ministry of Environment planning staffer sorted it out and, unexpectedly, found that it is provincial Crown Land. He also negotiated a revived and expanded Development Use Permit for the area that allowed us to proceed without additional regulatory hurdles. Another big step was having part of an Environment Canada grant to the IBA program provided to pay a local architect (at a much-reduced fee) to design a new blind.

The following may be of use to others wishing to mount such a project:

The most challenging aspect was obtaining funding for something that seemed difficult to ‘sell’ to most funding agencies. It became apparent that the focus should be on the importance of bird blinds for public education, especially young people. Their role in reducing disturbance to birds and other wildlife was less of a selling point.

The Habitat Conservation Trust Foundation clearly understood the value of the project and at the outset granted a significant amount of money. This was followed by grants from Fortis BC’s Community Investment Fund and BC Nature’s own BC Naturalists’ Foundation. These three grants were instrumental in the project proceeding. Other significant donations came from a local winery through the South Okanagan Similkameen Conservation Partnership and the Penticton Rotary Club. These informal local contacts are critical to success. Rather surprisingly, a couple of promising larger funding agencies, one local, did not come through. On the other hand, Rona Corporation’s store in Penticton donated a considerable sum in the form of gift cards, paying for some of the hardware for the blind. One supplier even accepted a card as part payment.

Cash is essential of course, but the other heartwarming aspect of the fund-raising was the great generosity of companies and individuals through in-kind donations. These covered about half the cost of the whole project, from demolition of the old blind by The Nature Trust, to the custom-milled lumber from P&E Lumber, to other donations of time and expertise too numerous to detail here.

Our experience over these four years has been that knowing your community and individuals in a variety of agencies, organizations, and businesses is just as valuable as formal applications to the outcome of such projects. The formal process is necessary, but extremely time-consuming and at times frustrating, especially if your project doesn’t quite fit the criteria. Having the support of your core organization and, in this case, the government agencies and non-governmental organizations involved, is essential. Their support was not only heartening, but went beyond what we expected and at times, kept us from giving up.

By April, 2016, funds were deemed sufficient to go ahead. To avoid disturbing the birds, commencement of work was delayed to mid-August. The Nature Trust of BC’s summer crew demolished the old blind with naturalist volunteers helping to remove materials. It was a hot, messy job: the old double walls and ceilings were rodent condos and the only access to the site is the approximately 300 metre-long boardwalk.

Meanwhile, we have worked with designer Anne O’Grady (Magpye Productions, Summerland) to complete interpretive panels for the blind: common birds seen in the area, Vaseux IBA information, and a donor/supporter plaque. SONC graciously permitted us to use their earlier bird identification panel template, images were lent for free, and the Canadian Wildlife Service provided last-minute funding for production.

The project has been very challenging but rewarding, and the new blind will serve the naturalist community and general public well for many years to come. Additional educational and ‘habitat’ features in future include a couple of bat roosts, pollinator ‘houses’, and swallow nesting sites. Come visit it!
Paths to Nature
By Alanah Nasadyk, Community and Development Coordinator, Habitat Acquisition Trust

A little girl of about five years old, hops along the stepping stones of her grandmother’s garden. Stopping under a coniferous tree she spies the lovely blue of a cracked egg shell. “Look! A robin’s egg!” says Grandma. It is around this time that the little girl decides blue is her favourite colour - robin’s egg blue.

Later on Grandma laments the small, dark and speckled birds, “Starlings, those awful things. They’ll kick other bird’s young out of their nests.” Somewhere in the mind of that little girl the concept of an invasive species takes a very rough form, waiting to be molded and put to good use.

The next day while watering the garden, Grandma finds a fuzzy bee buzzing helplessly in a pool of water. Little bright eyes watch with wonder as Grandma gently lifts the bedraggled bee onto a stone to dry. “Let’s call her Isabelle the Bee.” Every time a particularly plump and fuzzy bee is spotted in the garden, it’s considered a visit from Isabelle the rescued bee. What the child remembers most from this is that bees are good, bees are not scary.

A single father who loves to hunt and fish, takes his growing little girl out to forests and lakes in search of game. She loves to reach into the water, sometimes leaning in a bit too far. “There’s not a lake in the region you haven’t fallen into,” says Dad.

This outdoorsy Dad takes his growing little girl fishing on the ocean, but she is more interested in what she can see and less in what she can catch. Sea stars, Dungeness Crabs, Spot Prawns, Rock Cod, salmon, seals, wow! “Can we stop along this beach, Daddy?” Among the beach rocks the little girl stands holding a sun-bleached jaw bone. “Look at those flat teeth for grinding - it’s a deer’s jaw,” says Dad.

Ranging across hill, bluff, and meadow the not-so-little girl follows deer trails in the Sooke Hills, collecting wildflowers. One of every type, until she can’t hold anymore, to make a bouquet for someone special. She creates her own names for plants along the way. Squid Flower is her common name for Miner’s Lettuce, with its pink to green radiating tentacles of foliage. Proudly presenting her collection to Daddy, he remarks, “Those flowers are beautiful, but you shouldn’t pick them.” After that, she learns to take photos instead of plucking flowers, and then later to learn their proper names.

It turns out, this little girl was me. Today, I am glancing back at the tracery of paths that brought me to nature. Everyone has their own paths to and through the land. Whether you are an outdoors person, a gardener, a biologist, or a parent, there are so many wonderful ways to connect with nature that we can all share. There are many ways of appreciating and finding the common ground to protect these natural places that bring enjoyment and health to us all.

I first became involved with Habitat Acquisition Trust (HAT) two years ago, at the end of my degree through the University of Victoria; when I went out listening for the Western Screech-Owl with biologist Christian Engelstoft. After two nights of listening and waiting, we were not rewarded with a single call in return. This was a testament to the rarity of this once relatively common species in our region. I heard Professor Starzomski’s words echo in my mind, “No data is still data.” I came away from the experience glad to have learned the calls of our local owls and to have contributed to important local research.

That same summer, I jumped at the chance to count bats as a HAT volunteer team-leader. With eyes skyward and clicker in hand, my volunteering partner and I took in the pleasant fragrance of Mock Orange and delighted as each bat headed off against the dusky sky. Sometimes two at a time! How kind of the family that lived on that property to welcome us to their backyard to help them count the bats and care so much for their bat neighbours.

By the end of 2015, I was a full-fledged HATter and member of the team. Was this a dream? The best kind, a dream come true. Now, after one full year as a staff member of Habitat Acquisition Trust, I have had the pleasure of helping people find ways to connect with their own paths to nature. It is a source of great pride to be able to say my mission is to conserve natural habitat on the land where I grew up, on South Vancouver Island, and to do something tangible to protect the place that we all call home.

One of my greatest memories so far with HAT was in January 2016. I was at a Ruby Creek restoration party. I reached down to pull up a small Laurel-leaved Daphne Plant and saw something incredible: a little blue-grey slug. The slug was no bigger than the tip of my pinky finger. Dr. Kristiina Ovaska confirmed it was one of only 15 sites in Canada documented to have the rare Blue-grey Taildropper Slug that HAT has been working so hard to protect and study. I was overjoyed!

By another restoration party, I met the incredible woman protecting Camas Hill in perpetuity. One of the most inspiring places in the Sooke Hills that I’ve visited is this HAT-protected covenant. I spent all day removing broom - enjoying a sweeping view all the way out to the Sooke Basin and loving every minute of it. As it turns out, several of the amazing places I marveled at and explored growing up are also protected by HAT covenants on public lands in the Sooke Hills: Mt. Quimper, Shields Lake, and Grassie Lake.
Path to Nature Con't

On a rainy night in early spring, I went out with Dr. Ovaska to survey amphibian road mortality. In all my forest wanderings, I had only ever seen Rough-skinned Newts, Red-legged Frogs, Western Toads, and Pacific Chorus Frogs, and then only as a rare treat. That night I saw dozens of squashed amphibians, and learned the sad truth about driving country roads on rainy nights. Amazingly, for the first time I saw a live Ensatina Salamander and a Long-toed Salamander too. Although it was difficult to see so many injured and dead amphibians, it was really gratifying knowing that we were working to better understand local threats to these important creatures.

These are a few of my special nature moments from 2016. There are so many more to tell, and I encourage you to reminisce on some of your own. I also welcome you to create some of your own. As we spend time outdoors, we come to better understand nature’s wonders, and appreciate what it means to care for these special places, plants, and animals. I have many people in my life to thank for nurturing an interest in the great outdoors. You never know when you might become someone else’s role model for appreciating nature. From hopping along stepping stones in my grandmother’s garden to the work I do with HAT today, I continue to pursue my passion for wild things in nature.

Looking back, what were your paths to nature? Where have they led you, and where would you like to go with them? HAT is the non-profit regional land trust and registered charity established through and by the members of the Victoria Natural History Society. HAT conserves nature on southern Vancouver Island through habitat stewardship, land protection, and community education.

Bogbean (cover photograph)

Bogbean is an aquatic or bog plant, hence the common name. The “bean” part of the name refers to the smooth-edged shiny leaves, which are roughly similar in appearance to those of young broad beans. Each leaf is divided into three leaflets, hence the specific part of the Latin name, trifoliata, meaning “three leaves”. The leaves and flowers are typically raised above the surface of the water, arising from creeping root-like storage organs known as rhizomes.

There are many therapeutic uses and benefits of the Bogbean. Bogbean contains the bitter glucosides menyanthin (found in the leaves) and loganin (found in the roots). It also contains a small amount of volatile oil and the flavonglycosides hyperoside and rutin. This strongly bitter herb has been utilised for a long time as a folk medicine

1. www.archive.org/bogbean/menyanthes-trifoliata/
2. www.herbal-supplement-resource.com/bogbean.html

Club Tips
Quick tips on how to make your naturalist club effective and fun

Club Tip #1
Ditch the minutes, show your members’ wildlife photos.
Cut out the boring parts of your monthly meetings. There is no need to record or read minutes at every meeting – leave that to your AGM and Club Directors’ meetings. Keep reports from your activity leaders short and sweet – put the details on your website or in e-mails.
Instead, show photos of wildlife or club outings submitted by your members. Sharing photos on a big screen and stories of local wildlife encounters is fun, interactive and makes people aware of the interesting critters all around. Even cell-phones can take remarkable photos.
Allow 15-20 minutes for this at every meeting before your feature speaker of the evening. Your attendance at meetings will soar.
Submitted by Alan Burger – BC Nature President

Club Tip #2
Monthly Meeting Raffles
Nothing raises funds more easily than a raffle! Keep the items nature-related and high quality. Books, birdfeeders, birdhouses, photos, art… people like donating as much as winning! Offer a choice of 5 items with individual paper bags to draw tickets for each item. Make the tickets cheap: 12 for $5 and lesser amounts too. Get raffle tickets at a dollar store.
It’s easy to raise $1-$2 for every person attending the meeting. Selling the tickets before the start of the meeting encourages people to come early, with more sales at the start of the break, just before the draw. Raffle funds can be specifically earmarked for hall rental, outings, scholarships or anything to inspire the group. Just one more good reason to come to the meeting in eager anticipation!
Submitted by Andrea Lawrence – Nicola Naturalist Society
PREMIUM optics
INCREDBILE value
TOP TIER service
and VIP warranty

Setting a new standard in high-end optical technologies, precision
craftsmanship, and ultra-sleek functionality, the newly engineered
Razor HD is one of the finest spotting scopes on the market.
Premium HD glass lens elements, painstakingly hand-selected and
precision-ground to exacting standards, deliver brilliant, razor-
sharp, true-to-life views.

photo by Jeremy Bensette
jeremybirdie.com

vortexcanada.net

1 866 343-0054
When viewing birds and wildlife becomes your passion, sometimes you want to see further than your trusty binoculars can take you. That’s when it’s time to break out a spotting scope! As with other optics, spotting scopes have specific features you’ll want to be familiar with. Zoom in on the facts to ensure all your spotting needs are met.

**DESIGN**

Manufacturers generally make a spotting scope design available with both an angled and a straight body style. Though one design is not better than the other, each offers distinct advantages.

The **angled body** features an eyepiece that is set at a 45-degree angle. This style lets people of different heights share without adjusting the tripod. Because angled scopes can sit lower on a tripod, users will benefit from the added stability. Birders and naturalists tend to prefer this design.

The **straight body** features an eyepiece in line with the objective lens. This natural line of sight works well with a car window mount.

**THE NUMBERS**

**CONFIGURATION**

The name of a spotting scope includes a group of numbers such as 27–60x85. This range of numbers is called the configuration and indicates the magnification and the size of the objective lens. The first set of numbers (27–60x) indicates the magnification range. Since spotting scopes feature high magnifications for long-distance viewing and large objective lenses, these optics must be mounted on a tripod.

The last number (85) indicates the size of the objective lens in millimeters. This size directly affects the overall size of the spotting scope.

**SPOTTING SCOPES A SHORT PRIMER ON THEIR USE COURTESY OF VORTEX CANADA**

**THE NUMBERS**

**CONFIGURATION**

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The last number (85) indicates the size of the objective lens in millimeters. This size directly affects the overall size of the spotting scope.

**EYEPIECES**

Some eyepieces vary in magnification and allow you to “zoom” from low to high power; other eyepieces are fixed at a single power. In some cases, the same eyepiece may be used with models of varying objective lens sizes with the result that the magnification will be 18x in a 65 mm model and 22x in an 85 mm model.

**TIP** More magnification is not always better! At higher magnification levels, any instability in the tripod or heat shimmer is also magnified.

To learn more about spotting scopes and other optics and to find a local Vortex dealer, please visit our website at vortexcanada.net

**BASIC ADJUSTMENTS**

**ADJUST THE EYECUP**

Spotting scopes typically feature an adjustable eyecup in one of two styles: twist or fold. Adjusting the eyecup up or down allows you to see a full field of view whether or not you wear glasses. Even if you wear sunglasses, making this adjustment will enhance your viewing experience.

**ADJUST MAGNIFICATION**

Change the magnification of your spotting scope by simply turning the magnification adjustment ring in a clockwise or counter-clockwise direction.

**ADJUST FOCUS**

After setting the magnification, some refocusing is usually required. The Vortex Razor HD featured here, features a single helical focus dial on the body of the scope.

**ADJUST VIEWING ANGLE**

Some spotting scopes provide a rotating tripod collar that allows you to rotate the spotting scope body for greater viewing flexibility.

**TRIPODS**

With a good spotting scope you also need a great tripod for stability and flexible positioning.

**TIP** Using a spotting scope takes practice and your skills will improve over time. Remember, your field of view is wider at lower magnification; find your target first and then zoom in to see fine detail.
A Pilot Golden Eagle (*Aquila chrysaetos*) Population Study along the Chilcotin and Fraser Rivers in Central BC

By Jon Gaztelumendi

Golden Eagles are among the most powerful raptors in the world. The female can reach up to six kilograms in weight and it is able to dive at speeds of up to 200 km/h. This is an important bird of prey in the British Columbian ecosystems, from remote alpine areas to the wide open grasslands. Despite this, it remains little studied in this province, providing the main impetus to carry out this work.

The project started in January 2014 with the purpose of compiling information on the Golden Eagle’s home ranges and their occupancy in the Cariboo Forest District, British Columbia (Tšilhqot’in and Secwepemc traditional territories), focusing on the areas adjacent to the Fraser and Chilcotin Rivers. Other objectives were to monitor occupied breeding sites, record migratory behavior, and simultaneously collect data on other bird species found in the area.

For that, a ground survey observing strategic areas for Golden Eagle, such as cliffs and open and mountainous areas, was carried out by volunteers from the Williams Lake Field Naturalists (WLFN). The project was sponsored by the WLFN and a grant from the BC Naturalists Foundation in 2015.

The main factors that limited the scope of this project were the material and human resources available, and the access permits for surveys on private lands. Ranchers and private landowners played a very important role in giving their permission to reach various observation points. We drove 11,000 km and spent countless hours in the field. The majority of the field work was done between January and August 2014 and 2015, when Golden Eagles breed, and 2016 was used for processing the gathered data.

This project is the first known Golden Eagle inventory in this area and is meant to be the start of a Cariboo Golden Eagle database to be used as a reference for ongoing Golden Eagle and other wildlife conservation and environmental projects. Golden Eagles tend to re-use their nesting site or an adjacent one located in the same breeding area so the identification and mapping of these breeding areas may allow for monitoring eagles in the future. This project also encompassed an Important Bird Area (IBA) – Chilcotin Junction BC266, so it made an important contribution in this regard as well.

Below are some of the conclusions that were drawn from these data:

- The study area is located within a Mule Deer (*Odocoileus hemionus*) winter range, which provides eagles with road kill, especially in winter. Golden Eagles are known to be very opportunistic predators.
- 46 Golden Eagle nests were found.
- Most of the nests are located close to the bottom of the valley, presumably allowing Golden Eagles to spend less energy when bringing food to their nest.
- The average of number of nests per breeding area was 2.25 and the average of number of nests per occupied breeding area was three. Up to six nests were found in some breeding areas.
- Golden Eagles used the same territory annually but could use alternate nests in different years. From eight breeding areas where eggs were laid in 2014 and 2015, 37.5 % of the pairs used the same nest in both years, while 62.5% used a different nest.
- Clutch date ranged from 14 March to 5 April based on records of 11 active nests. See Table 1 for productivity results in 2014 and 2015.
- There were 10 “occupied” home ranges in 2014. In 2015, 14 were cataloged as “occupied” and three as “probably occupied”.
- The nearest neighbour distance between occupied nests was four km. If further research were done, home ranges would probably be found every 4-6 km along the Fraser River.
- The average number of nests per breeding area was 2.25 and the average of number of nests per occupied breeding area was three. In some breeding areas up to five nests were found.
- The study area contains appropriate habitat for Golden Eagle.

Table 1. Productivity results in 2014 and 2015. A successful nest is defined as an active nest in which at least one young survived to an advanced stage of development (> 51 day old eaglet).

<table>
<thead>
<tr>
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<th>2014</th>
<th>2015</th>
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<tbody>
<tr>
<td>Successful nest</td>
<td>5.00</td>
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<tr>
<td>Nest success (%)</td>
<td>50.00</td>
<td>14.29</td>
</tr>
<tr>
<td>Mean brood size†</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>Productivity</td>
<td>0.50</td>
<td>0.21</td>
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‡ Nest success: Number of successful nests/ Number of occupied breeding areas.
‡ Mean brood size: Number of young produced (fledged)/Number of successful nests.

A Golden Eaglet sits perched in its nest. Photograph taken from over a mile away.
NatureKids BC Update

Family nature clubs: An intergenerational opportunity to nurture love of the natural world

By Louise Pedersen, Executive Director NatureKids BC

If I were to ask you to share your three fondest memories from your childhood, what would you tell me? Maybe it was the softness of your grandmother’s cheek, the fun adventures you had with your first dog, or maybe it was the memory of digging holes to “China” or mucking around in the woods. If your childhood was anything like mine, you too will probably recall the freedom you had to roam around in the neighbourhood, engaging in what we now call “unstructured outdoor play”. Perhaps you remember your parents commanding “Go out and play” and the only rule was being back before it got dark? My own children’s childhood is nothing like that unfortunately. According to a study by the David Suzuki Foundation, most Canadian children spend less than an hour outside each day for a variety of reasons. If you are a parent or grandparent to younger children, you might have noticed that most children are spending a significant amount of time indoor on iPads; children live a life with hectic after-school schedules, sport practices, music lessons, homework and play dates, and parents are generally anxious about letting the children outdoors without supervision. While we don’t own an iPad, I’m certainly guilty of overscheduling my six-year old and I don’t let her roam around the Lynn Headwaters area, which is our local woodland.

One of the simple antidotes to the general busyness of today’s world is for children and their parents (or grandparents) to participate in joint activities that help us connect to each other and have experiences together that will build memories. Since we started out 16 years ago, we have very deliberately sought to involve the family as a unit through our nature club program. Unplugging and getting outdoors is good for the entire family, it strengthens family ties and it creates a sense of community when families come together. The David Suzuki Foundation found that if youth spend time outside when they’re young, they’re much more likely to take part in outdoor programs or to explore nature on their own when they’re older.

If you have any special children in your life, give them the great gift of spending time with them outdoors where they can meet and savour the world we humans haven’t made: tadpoles in a pond, a tree for climbing in, a bright orange sunset sky, or a kiss of the wind. And consider giving them a NatureKids BC membership; in fact, a lot of first time memberships are gifts from grandparents! For only $25 per year, they and their families come together. The David Suzuki Foundation found that if youth spend time outside when they’re young, they’re much more likely to take part in outdoor programs or to explore nature on their own when they’re older.

NatureKids BC is a registered charity that helps children get outdoors to explore, play, learn about and take action for nature. We are looking for friendly people to help us out at our North Vancouver office doing fun, hands-on tasks such as:

- Assembling kids’ welcome packages
- Mailing of packages and letters to families
- Creating buttons for kids
- Various other fun tactile tasks!

Five to ten hours a month is all it takes to really make a difference. Volunteering takes place at the office in North Vancouver at the base of Seymour Mountain. Email us at info@naturekidsbc.ca and let us know why you are interested in helping out. Also check out the volunteer section of our website (naturekidsbc.ca) for other fun and challenging positions. Thank You!

Volunteer with us!
I've been watching the Gulls around the Saanich Peninsula, as they effortlessly sideslip across the winter winds that we've been experiencing for the past couple of months. They tack like sailboats, heading into the wind, sliding almost sideways across the upwelling off-shore winds. Over and over, flights of gulls perform an aerial ballet that seems to have nothing to do with feeding and everything to do with a sheer joy of flying. There is a surprising and pleasing elegance to their aerial efforts and they seem to be flying because they want to and because they're very good at it.

At least one definition suggests that elegance is related to 'refinement, grace, and beauty in movement, appearance, or manners'. Elegance then seems to be grace and beauty in movement. That seems to express it pretty well for me, but then, the word elegance is also used in relation to systems design and mathematics. Azad M. Madni subtitled his 2012 paper on elegant systems design as “the creative fusion of simplicity and power”. Well, I like that description as well. Then I found Matthew May's book, The Pursuit of Elegance.

He suggests that something is elegant if it is two things at once: unusually simple and surprisingly powerful. One without the other leaves you short of elegant (May, 2009). That's a powerful statement. He goes on to say that sometimes the "unusual simplicity" isn't about what's there, it's about what isn't. Simplicity is about an ability to strip something down to its core, conceptually and visually, seducing the viewer to engage their own thoughts to complete the mystery of what's not there.

These are good explanations of the elements of elegance, but when it comes to nature photography, I think that flow plays a part as well. Flow is about the soft, graceful, seemingly effortless and fluid movements we see in Ballet, Tai Chi, and Aikido. In photography, we can evoke a sense of flowing movement by using a slow shutter speed. Keeping our camera's shutter open for a fractionally longer time will allow for more movement to be recorded in the image. My photograph of a waterfall at Sandcut Beach, west of Sooke, BC, can serve as an example. By using a one-second exposure the falling water becomes a soft and flowing veil of mist. Well, what would it look like if I could slow down the Gulls I've been watching?

Over three or four days, I took nearly a thousand images of Gulls flying around Saanichton Bay. I learned as I deleted. Bad, bad, bad, no good, bad!

Fortunately, with digital photography, there is no cost for experimentation, so, I kept trying. Bad, bad, not bad, okay, good, pretty good! Then finally... “Hey! This one works. There’s something quite elegant to this image!”

My first successful elegance photograph was a very simple expression of a bird in flight, with a blend of blurred yet beautifully flowing wing movements. Grey on white, the image reflects the simple style of an ink wash painting. Unusually simple and yet, it is surprisingly powerful because... it’s a photograph, not a painting!

While it was a good start, the image felt kind of flat to me, two-dimensional, sort of greeting cardish. So I kept trying and then one afternoon, shooting into the afternoon light, I got to know the drama of visual elegance. Out of the roaring winds, in a little protected cove, the Gulls again, were putting on an aerobatics display and they were amazing. Exposures of a quarter of a second returned some very nice chiaroscuro like results, bright wings and soft flowing lines against a dark background. The images are intriguing, alluring even, and I return to Matthew May to explain the attraction.

The unusual simplicity of elegance, of what isn’t there, drives us to resolve our curiosity. Leaving something out, something for the viewer to imagine and engage with, creates an irresistibly attractive aura of mystery.

One of the most common recommendations that professional photographers make to those just entering the field, is to ensure that your images are tack sharp. And that’s usually good advice. Exploring the elements of elegance however, allows us to slow things down. We are allowed to blur the lines of reality and in doing so, experience a lingering fascination. Seduced by elegance, we silently remark with an exhalation of awe. Wow, what am I seeing here, why do I feel such an attraction to this image?

Understanding the component parts of visual elegance is a bit like author and evolutionary biologist, Richard Dawkins’ comments on unweaving the rainbow. By understanding the aesthetics of elegance we are better able to appreciate the beauty of the natural world around us. In doing so, we add a little elegance to our lives.

References:


The Rough-skinned newt, found along the coastline of British Columbia, is identified by its pebbly skin and bright orange belly.

The Rough-skinned Newt (Taricha granulosa) is a member of the True Salamanders and Newts (Family Salamandridae). Characterized by a bright orange belly and a dry, brown, granular dorsal surface with no stripes, this semi-aquatic newt is found along the Pacific coast from California to southeast Alaska. In British Columbia, it occurs throughout the southern mainland, Vancouver Island, Gulf Islands, up the Central Coast, and, on the North Coast, extends into the inland coastal river valleys of the Kitimat, Skeena, and Nass Rivers. It has not been recorded on Haida Gwaii, and has only a few records in the lower Stikine drainage.

Rough-skinned Newts are a secretive species, living around the edges of wetlands in areas with ample woody debris. The adults can range far back into damp forests. During breeding season, hundreds of newts will converge on breeding ponds, including shallow pools, ditches, and bog complexes. If these breeding aggregations must cross roads to reach their traditional egg-laying sites, mortality from road kill can be high. Newts are also sensitive to destruction of these breeding and rearing water bodies, as they appear to be very faithful to the same locations year after year.

Rough-skinned Newts as adults are carnivorous and consume a wide range of invertebrates, including worms and slugs, and they will feed on tadpoles of other amphibian species. In northwestern BC, they appear to be a major mortality factor for Western Toads, Columbia Spotted Frogs, and the large Northwestern Salamander through consumption of their egg masses.

Rough-skinned Newts are also important for an unusual reason. This medium-sized newt, ranging up to 18 cm long in the southern portions of its range, is notable for the presence of a deadly toxin in its skin and eggs. Tetrodotoxin is the same neurotoxin found in Pufferfish and it is one of the most powerful neurotoxins known. Rough-skinned Newts have the ability to produce this toxin in response to attacks by predators, especially their most common predator, garter snakes. In populations of newts where the toxin is commonly secreted, one newt is estimated to contain enough toxin to kill 25,000 mice.

Tetrodotoxin has significant interest in the scientific and forensic worlds, not only for its extreme toxicity, but also for its potential in medical research. The Northern Amphibian Naturalists Society, based in the northwest corner of the province, has been helping Dr. Dietrich Mebs, from the University of Frankfurt to study Rough-skinned Newts at the northern edge of their range. In previous studies, the research team associated with Dr. Mebs has found that the presence of tetrodotoxin in these newts appears to vary widely between populations of newts. Southern populations, such as those in Oregon, are more toxic than newts in southern BC and southeast Alaska.

Suggestions are that the toxicity levels in newts results from evolutionary combat with their predators, garter snakes, which can show a remarkable immunity to the powerful poison in co-evolving populations. Last summer Dr. Mebs came to northwest BC - Prince Rupert, Terrace, and the Stikine - to further test this theory. In southeast Alaska, where garter snakes do not occur, newts show no presence of tetrodotoxin. In the Terrace area, where two species of garter snakes occur, the Western Terrestrial Garter Snake and the Common Garter Snake, one would expect the newts to show detectable levels of the neurotoxin.

Data collected from last summer shows some fascinating results. Firstly, the Rough-skinned Newts, in British Columbia are all genetically similar, most likely a result of the last Ice Age and the recolonization of the BC coast from a population south of the ice margins. Secondly, despite the presence of predatory snakes in the Terrace area, the newts are similar to those in Alaska and do not produce detectable levels of tetrodotoxin. As it is unknown whether the newts will produce tetrodotoxin in response to environmental conditions, it is still recommended to not try eating or handling the newts. The eggs of newts were not tested, and, because they show little mortality from predation, it is also not known if females can produce the toxin specifically for egglaying.

Dr. Mebs will be returning in 2017 to do further sampling of northern Rough-skinned Newt populations to try to sort out this puzzle. In the meantime, when Rough-skinned Newt adults emerge from the northern coastal forests just as the ice starts to melt off around the edges of their breeding ponds, one can only hope that the majority of these ponds are well away from roads with high levels of traffic. Rough-skinned Newts are another example of amphibians which are very vulnerable to the impacts of urban and industrial development.

References:
Skaha Lake: Home for Species at Risk
By Robin Rivers, The Nature Trust of British Columbia

For many years, the majestic Bighorn Sheep, with their massive curling horns, were widely seen on the rugged grassland and rocky slopes of the South Okanagan. Sadly this is no longer the case.

Bighorns are considered vulnerable and “at risk” in British Columbia, meaning that without further protection they are likely to become threatened or endangered. Today, a major concern is fragmentation of habitat. Dealing with this concern and ensuring the long-term viability of Bighorn Sheep will require expanding protected areas, particularly Wildlife Management Areas, and preserving corridors between habitats.

This is why The Nature Trust is focused on conserving land for Bighorn Sheep in the South Okanagan. Over the past 45 years, we have acquired more than 1,795 hectares (4,435 acres) for Bighorn Sheep and other species. Properties include Peachcliff Conservation Area, Vaseux Lake, and Okanagan Falls Grassland. We are dedicated to making this a top priority in the area.

We are currently working to conserve 35.4 hectares (87.5 acres) on the east side of Skaha Lake. This property is adjacent to our existing Skaha Lake complex, which is included in the McTaggart-Cowan/Nse'kniwt' Wildlife Management Area (WMA). This WMA spans 6,491 hectares (16,033 acres) and was primarily secured for the protection of Bighorn Sheep habitat. The topography throughout the parcel is ideal for Bighorn Sheep: generally steep with some flat benchlands interspersed throughout. The lower portions are grasslands, transitioning through mixed forest at the middle level to rocky terrain at higher elevations.

The Skaha Lake parcel is located in two of the most endangered biogeoclimatic zones in British Columbia: Bunchgrass and Ponderosa Pine. It is also important for supporting other at-risk species besides Bighorn Sheep, including White-throated Swift and the Western Rattlesnake. It has the potential to support the endangered American Badger. This parcel is an infill piece, surrounded by our conservation lands to the north and east; with the Eastside Road to the west and the south adjacent to a housing development.

Management objectives will focus on increasing the quality of Bighorn Sheep habitat, improving connectivity and sheep movement within the adjacent WMA, and decreasing human-caused disturbance. Purchasing the property will also reduce the risk of disease transmission by excluding domestic sheep and goats.

Help us save this important property for Bighorn Sheep and other wildlife. We are working to raise the final $175,000 to complete this project and every dollar helps. You can donate by calling our office (604-924-9771 in the Vancouver area or 1-866-288-7878 toll free), online at www.naturetrust.bc.ca, or by mailing a cheque payable to The Nature Trust of BC to #260-1000 Roosevelt Crescent, North Vancouver, BC V7P 3R4.
WildResearch 2016 Club Grant Update  
By Natasha Pirani

WildResearch’s citizen science program, Iona Island Bird Observatory (IIBO), was fortunate to receive a generous club grant from BC Nature’s own BC Naturalists’ Foundation in the spring of 2016. The grant was requested for the purchase of high quality photography equipment that would increase the value and quality of the media images being produced from IIBO programs, and a photography tutorial to increase our internal capacity to perform this work.

Since the camera equipment was purchased in the spring of 2016, and the photography tutorial was provided by local photographer, Jess Findlay, IIBO personnel have thoroughly enjoyed using the new camera equipment during the 2016 Spring and Fall Migration Monitoring Programs. The equipment and expertise have been extremely useful for capturing images of birds in hand, taking professional photos for educational purposes, and photographing our dedicated IIBO volunteers, staff, and occasional groups or visitors.

The majority of the photography work completed in the 2016 Fall Migration Monitoring Program was initiated by engaging with Past President Christine Rock, about my interest in working with WildResearch as part of my Master of Science in Environmental Practice practicum at Royal Roads University. The purpose of the practicum was to work with a sponsoring organization for a minimum of 75 hours on an issue in the environmental field. Since I have a strong background in administration, marketing, and communications, WildResearch was interested in having me assist in producing high quality photos to educate the volunteers and public about IIBO. During my practicum time with WildResearch on the IIBO Fall Migration Monitoring Program, I learned from the WildResearch personnel and advanced volunteer banders how to set up and take down mist nets, safely extract birds from the nets, and band, measure, and identify different songbird species. This educational experience was the most impactful, as I was able to have hands-on experience with the birds, while learning how to identify the songbird species by plumage coloration, size, beak shape, etc. I hope to be able to use my experiences and knowledge gained in the duration of my Masters program, as well as return to WildResearch to advance my knowledge of the different species.

Thus far, the photos taken with the new camera equipment have been instrumental in raising the profile of the IIBO program. More than 2,000 photos of birds, volunteers, and group visits to IIBO were generated this year. The photos have provided a great edition to the written IIBO summaries published in the weekly WildResearch membership newsletter. In the coming seasons, WildResearch will continue to use the camera equipment at IIBO to produce high quality photos of birds in the hand, capture images of volunteer contributors to IIBO, and to produce a short promotional video of the IIBO program. The images and videos will continue to be used for a variety of purposes to foster the understanding of BC bird ecology and conservation to the public via WildResearch’s weekly membership newsletters, posts on Facebook, and Twitter. In addition, close-up macro images of birds will be used to train WildResearch volunteers on the fundamental techniques of bird banding and bird identification. A selection of photos were also showcased during an outreach presentation to the Abbotsford-Mission Nature Club, this past November, and during the WildResearch Annual General Meeting and Volunteer Appreciation Party on November 19, 2016.

WildResearch sincerely thanks the BC Naturalists’ Foundation and BC Nature for their financial support towards WildResearch’s IIBO and we look forward to providing more details about our new media. Thanks also to the following people that were instrumental in this project: photographers (Leslie Bol, and Jess Findlay); hand models (Christine Rock, Cadi Schiffer, Merle Crombie, and Kirsti Owen); grant writer (Andrew Huang), and others who helped with photo taking (Angela Bond, Andrew Huang, Azim Shariff, Courtney Lahue, Dan Froehlich, Paul Levesque, Sarah Nathan, and Sara Tremblay-Boyer).

If you’d like to learn more about WildResearch or the Iona Island Bird Observatory programs, visit us at www.wildresearch.ca. For more details on the successes and outcomes of the 2016 season, our Annual Report is available at www.wildresearch.ca/resources/iona-island-bird-observatory/.
BC Naturalists’ Foundation Update

By Robert Handfield

By the time this appears in print, the Club support grant applications will have been reviewed and the Clubs notified of the results of their applications. It is an interesting task each year to see the wide range of projects that are seeking funding – some of the projects over the past years have included such things as bird banding stations, trail restoration, educational projects with local schools, interpretive signage, public education programs, and estuary restoration. The committee that reviews the projects is made up of two members from BC Nature and two members from the Naturalists’ Foundation. Because of the high calibre of the projects submitted and the increasing amount of funding available from the Foundation, it has not been a particularly onerous task to decide which projects get the funding. This is a relatively easy way for Clubs to obtain at least partial funding for their favorite local projects, and we at the Foundation would like to see a larger number of applications submitted each year.

Thank you to the many members of BC Nature who have made contributions to the Foundation over the past few years. This has enabled our investment base to grow to more than $600,000, enabling the Foundation to increase the amount available for Club grants this year to $13,000.

The Foundation will hold its AGM, open for all to attend, as part of BC Nature’s AGM and Conference in Lillooet in May.

Whiskeyjack Nature Tours
Tours for Naturalists

***SOUTHERN UTAH & DEATH VALLEY***
20 April - 1 May 2017 (12 days)  Cost $3150 CAD (dbl occup) from Las Vegas
Planet Earth contains an infinite variety of landscapes, but in southern Utah random geologic events have conspired to create rare, unexpected and beautiful consequences. The mighty Colorado River, aided by the arid erosion cycle, has waged battle across the eons with the sandstone strata and fashioned landscapes so unique and bizarre that they are more redolent of an extra-terrestrial origin. We visit Bryce Canyon, Arches NP, Canyonlands NP, Monument Valley, Zion Canyon and more + Death Valley.

***THE PRAIRIES IN SPRINGTIME***
South-west Saskatchewan and Southern Alberta
18 - 28 May 2017 (11 days)  Cost $2590 (dbl occup) + GST from Calgary
The prairie ecosystem of south-west Saskatchewan and southern Alberta is wondrously green in the springtime as the natural grasslands ripple in the wind. The land is punctuated with wetlands from huge lakes to prairie potholes that teem with pelicans, ibis, avocets, and the endangered piping plover. Other birds include raptors, longspurs & the threatened burrowing owl. Mammals include pronghorn, bison, badger and black-tailed prairie dog. We visit iconic Canadian landscapes such as Grasslands National Park, the Cypress Hills, & cultural and historic sites such as Head-Smashed-in-Buffalo Jump & the Royal Tyrrell Museum in Drumheller.

***THE SUNSHINE COAST FOR NATURALISTS***
24-28 July 2017 (5 days)  Cost $1650 (dbl occup) + GST from Vancouver
The Sunshine Coast exemplifies the best of coastal British Columbia as the temperate rainforest meets the blue of the Salish Sea in a confusion of magnificent fjords and green islands. We visit the Sunshine Coast’s scenic highlights, including a full day cruise to world famous Princess Louisa Inlet, We also visit Jedediah Island and take a sunset cruise to Hotham Sound. The Sunshine Coast’s culinary offerings are an important part of this tour and we will sample the best available. All meals (except for 4 dinners) are included.
Dr. George Scotter

A long-time Central Okanagan Naturalist Club (CONC), BC Nature member, and supporter has been awarded Nature Canada’s highest award. Dr. George Scotter of Kelowna joins a handful of other BC Nature members who were previously recognized with this award.

Quoted from Nature Canada’s official notice; “Dr. George Scotter …. A dedicated conservationist, fervent researcher and scientist, an engaging writer and speaker. George’s extensive and dutiful advocacy for nature is limitless.”

Born and raised near the Rocky Mountains, George owes his passion for nature to the numerous trips to the mountains of Waterton-Glacier National Park with his family as a child. Not knowing where his vocation and avocation for nature truly began and ended, swimming, hiking, and horseback riding in the countryside quickly turned into a successful career in research and academia in adoration for exploring native mammals, birds, and wildflowers and a life-long commitment to protecting nature.

George’s early work focused on northern Canada. He worked closely with residents and indigenous people of northern Canada on the forage and range requirements of Barren-ground Caribou and studied (with reindeer industry) in the Mackenzie Delta. As his commitment to nature evolved, George shifted focus to national park lands, pioneering many studies on trail use and visitor impacts to sensitive landscapes like Lake O’Hara in Yoho National Park, Revelstoke National Park, and Waterton National Park.

As an academic, George has served as a professor, researcher, and lecturer at multiple universities, in both Canada and the United States. He served as a professor and lecturer at the University of Alberta in the Department of Recreation Administration, the Department of Geography and the Faculty of Science. He served as an adjunct professor in the Forest Science at the University of Alberta and at the University of Manitoba Natural Resources Institute and directed research at Utah State University for the Utah Division of Wildlife.

After leaving academic research, George served at the Canadian Wildlife Services representative on the Beverly-Kaminuriak Caribou Management Board for many years. As the team leader in preparing documents for establishing national parks reserves in northern Canada like the South Nahanni area, George realized that public knowledge and awareness is one of the greatest assets to protecting and preserving areas like the South Nahanni.

George continues to be an active member of the nature conservation community, having served as a member or chairman of many boards and committees, including the Canadian Committee for the International Biological Programme, Conservation of Terrestrial Communities. Northwest Section of the Wildlife Society and the United Nation’s Educational, Scientific and Cultural organizations. George served as the national director and Vice-President of Nature Canada (formerly Canadian Nature Federation) from 1972 to 1975 and as President from 1975-1976. Since his retirement in 1991, George has served as a member, as chairman of the TD Friends of the Environment Foundation for southeastern British Columbia, and director of the Central Okanagan Land Trust.

In 1998 he undertook a study of the interior Dry Plateau for Parks Canada. As a result of that study, George recommended that part of southern Okanagan with its host of endangered species and habitats be considered for national park status.

The author of four books and more that 180 articles published in major scientific journals and popular magazines, he is a sought-after speaker, leader, teacher, and mentor. George dedicates much of his time as an advocate for youth and public awareness education and appreciation of nature, and continues to fight for the interests of establishing and protecting national parklands in Canada.

While George is the recipient of many prestigious awards, including the J.B. Harken Award and the Queens Silver Jubilee medal, this award earns a special place in the heart. Long-time friend and colleague Douglas H. Pimlott, was the first to encourage George to work with Nature Canada. George is acquainted with many of the Pimlott graduate students and has read all of his published work closely.

On a more personal note, CONC members join in congratulating George for being recognized in this special way. He continues to this day to be a mentor to CONC membership; quickly volunteering for any requests to give talks and educating anyone with a question about nature.

Douglas Humphreys Pimlott, conservationist, wildlife biologist, ecologist, environmentalist (born 4 January 1920 in Quyon, QC; died 31 July 1978 in Richmond Hill, ON), A founder of the modern environmental movement in Canada, Pimlott advocated the conservation of wolves as predators with a rightful place in nature. He eliminated the wolf bounty in Ontario and launched conservation programs in Europe where only a few wolves remained.

He was also one of the first spokesmen in the 1970s for protecting the northern Canadian environment. Pimlott directed a number of Canadian environmental organizations, founded the Canada-US Environmental Council and chaired an international wolf specialist group.

He taught at the University of Toronto and published many professional articles and books, including The Ecology of the Timber Wolf in Algonquin Park (reprinted 1978), and coauthored Arctic Alternatives (1973) and Oil Under the Ice (1976). Reference: www.thecanadianencyclopedia.ca/en/article/douglas-humphreys-pimlott/
Remembering Rolf


Rolf was born in Bern, Switzerland and graduated from the Swiss Federal Institute of Technology (ETH, Zurich), with a degree in Civil Engineering. His first experience with Canada came during the International Geophysical Year (July 1, 1957, to December 31, 1958), when he joined a group working on the Salmon Glacier near Stewart, BC. As he once said with a wry smile, “I was mainly there to see that people and machines didn’t fall into crevasses”. Instead however, he fell in love with the Canadian wilderness and stayed on that winter to work under the well-known geophysicist John Tuzo Wilson.

Rolf’s connection with the Federation of BC Naturalists (BC Nature) began almost immediately with his return to Canada (specifically Vancouver) in 1960. More and more his work was focusing on the environmental effects of large dam and river projects, notably in the Peace area. It was he who first drew attention to the negative downstream effects on the Peace Athabasca Delta, where changing water levels were having a huge impact on First Nations’ lands. The Site C dam is once again threatening this whole area.

After completing his PhD in hydrology, Rolf taught at University of Alberta and then founded his own company. He published many scientific papers and served on several federal environmental review panels, notably that of the Mackenzie Valley Pipeline and the Oldman River. Rolf and his family moved to Quadra Island in 1977. There the family joined the newly formed Mitlenatch Field Naturalists Society under the hard working and well-known local naturalists Ruth Barnett and Howard Telosky. Roderick Haig-Brown was made an honorary member of this fledgling society.

On Quadra, Rolf became involved in sustainable forestry and strived to make their quarter section farm a wildlife-friendly area. His many swallow boxes have attracted Violet-green and Tree Swallows every year. He also organized many Mitlenatch club trips both to Quadra and further afield, including a weeklong birding trip to Spring Island on the west coast of Vancouver Island. Through his affiliation with BC Nature, Rolf became the volunteer warden for the Nimpkish River Ecological Reserve. For many years he loved going there, often with Club members and family in tow.

When membership was declining in Campbell River, Rolf as chair and other members (notably Stan and Lyn Patterson), moved the group to Quadra. It flourished there for many years, holding monthly meetings, taking part in the Vancouver Island planning process, identifying and protecting an old-growth forest area and adjacent trails, and organizing the first BC Nature Camp on Quadra Island.

In spite of farm and environmental consulting work, Rolf regularly attended AGMs and summer camps. He was presented with the club service award at one of these meetings. Even when ill, he attended the 2015 Tatlayoko camp where he climbed onto the magnificent Potato Range Plateau overlooking some of the mountains he loved and had climbed with family. The Comox Valley Naturalists 2016 AGM was his last meeting. BC Nature was indeed his lifelong passion.
From Cowichan Valley to the Fall General Meeting in Prince George

By Genevieve Singleton

As your office manager, I see most of the reports that swirl around our clubs and, after I read this accounting, I had to share it with you. These two ladies packed so much into their visit to the Prince George Annual General Meeting! After reading this, I wanted to go again, as it appears I missed a lot! Thank you Genevieve for a great overview of your trip. Betty Davison

My sister Clare Singleton and I had a great road trip up to Prince George. After a most productive stop at Baker’s Books in Hope (a fantastic used bookstore with a young owner), we visited Stein Valley Provincial Park. Despite being active in the efforts to save this area, I had never visited this important First Nations site. It was very moving to walk in this sacred area.

We also made a most interesting stop at the Yale Museum, where they had one of the best re-enactments of their visit to the Prince George Annual General Meeting! I was thinking how relatively easy this would be for us to do from the Cowichan Lake Education Centre. No conclusion was reached - a lot of folks like the way it is currently.

The sessions were all very interesting, ranging from excellent shows giving us a naturalist’s overview of what to see in the north to scientists Doug Heard and Dale Seip sharing their research on the Central Mountain Caribou herds. There is definitely research showing that killing wolves is saving endangered caribou: a complicated issue with no easy answer. Keynote speaker Charles Helm of Tumbler Ridge presented an amazing talk on how this tiny community has protected dinosaur’s remains, continues to find more fossils, and has created a UNESCO geopark in very quick order. Definitively on my list for a future visit.

Field trip to Ancient Forest Provincial Park, a brand new (2016) park east of Prince George, was awe-inspiring and most interesting to me in light of our local Cowichan Valley Naturalists Society’s efforts to save the Central Walbran, Eagle Heights, Wildwood, and the Koksilah Ancient Forest. Another field trip to the Nechako White Sturgeon Conservation Centre in Vanderhoof provided a fascinating look at these ancient creatures.

From the BC Nature conference I then drove west to visit my sister’s place in Endako. We proceeded to take a train to Prince Rupert to view her fabulous art show at the Museum of the North. I cannot recommend the train trip highly enough. It follows the beautiful Skeena River, the price was very reasonable, and great interpretation was given by the conductor.

Highlights driving home from Endako on my own included stops at several places I have never visited (all amazing!): Chasm Provincial Park (like a mini Grand Canyon), Lac La Hache (where there is a Yellow Iris removal project under way), Green Lake Provincial Park, and then staying overnight in the Fountain Lake area at our family fishing cabin. Next came the long sweet run home over the Duffy Lake Road. Ooh my, what a spectacular province we live in. I came home with new contacts, new ideas to share, and a million memories. I cannot recommend enough attending our BC Nature meetings! I look forward to sharing some of my pictures at a future Cowichan Valley Naturalists Society Coffeehouse.
BC NATURE CONFERENCE AND SPRING GENERAL MEETING REGISTRATION FORM
May 4-6, 2017
“CANYON TO ALPINE”
HOSTED BY THE LILLOOET NATURALIST SOCIETY
For changes/updates visit www.lillooetnaturalistsociety.org/agm

Name: ___________________________ Club: ___________________________ □ Director □ Executive
Address: __________________________________________________________
Postal Code: ______________________ Tel: __________________________ Email: _______________________________________

Options (GST & gratuities included where applicable) | By March 15 | After March 15 | Amount
---|---|---|---
Full registration: includes presentations, field trips, birding and socials but not Saturday dinner. | 125.00 | 150.00 |
Thursday evening Bat field trip—FULL | 20.00 | 20.00 |
Friday only: Early morning birding, field trip, and grassland presentation | 70.00 | 80.00 |
Saturday only: Early morning birding, presentations, lunch and AGM | 70.00 | 80.00 |
Saturday dinner | 30.00 | 30.00 |
Friday wine reception (extra fee for those attending a second night, no extra fee for executive) | 20.00 | 20.00 |
#8 Field Trip: Xwisten Fraser River Fishing Rocks and Archeology Tour | 55.00 | 55.00 |
#11 Field Trip: Spray Creek Ranch Organic Tour and lunch | 20.00 | 20.00 |
#12 Field Trip: Koaham Train Shuttle to Seton Portage—FULL | 50.00 | 50.00 |
TOTAL: Please enter the total here | | | |

Will you attend the Directors’/Executive meeting? ___ Yes ___ No

Thursday Evening Bat Field Trip | Limit of 25 participants | $20.00 | ___ Yes ___ No

Please number your choices for Field Trip on Friday May 5, 2017. Participants assigned by order of Registration and preference. We will try to accommodate all Participants. We will maintain waitlists for fully booked trips, but spots not guaranteed once the trip has reached maximum participation. Check website for details of Field Trips and Bird Watching Trips.

Field Trips on Friday May 5, 2017 | Extra Cost | Choice Number
---|---|---
#1 Xwisten Fraser River Fishing Rocks and Archeology Tour | None (provide own lunch) |
#2 Hike Camelsfoot Fire Lookout | None (provide own lunch) | #
#3 Blackrock Archeology and Organic Tours | None (provide own lunch) |
#4 Summer Field Trip: Xwisten Fraser River Fishing Rocks and Archeology Tour | None (provide own lunch) |
#5 Backcountry Birding with Ian Routley | None (provide own lunch) |
#6 Field Trip: Xwisten Fraser River Fishing Rocks and Archeology Tour | None (provide own lunch) |
#7 Wildflowers, Butterflies, Grassland, and Hiking | None (provide own lunch) |
#8 Xwisten Fraser River Fishing Rocks and Archeology Tour | $55.00 and lunch provided |
#9 Lillooet Invasive Species and Ethnobotany | Lunch Provided |
#10 Field Trip: Koaham Train Shuttle to Seton Portage and Ts'alahl | None (provide own lunch) |
#11 Field Trip: Koaham Train Shuttle to Seton Portage and Ts'alahl | $20.00 and organic lunch |
#12 Field Trip: Koaham Train Shuttle to Seton Portage and Ts'alahl | $50.00 & bag lunch provided |
#13 Field Trip: Koaham Train Shuttle to Seton Portage and Ts'alahl | None (provide own lunch) |

Are you able to share rides in your vehicle? ___ Yes ___ No Do you have a four wheel drive? ___ Yes ___ No

Plan to carpool. Bring your own water bottle to all events and wear good walking shoes/boots on field trips.

Dietary Necessities:

- [ ] Vegan
- [ ] Vegetarian
- [ ] Lactose-Free
- [ ] Gluten-Free

Other (please specify): __________________________________________________________

Early Morning Birding

Do you wish to attend one of the early morning birding sessions? We have room for 75 participants each day (5 groups of 15 people). Friday Saturday Both please check one. If space is available, you may be able to attend both mornings.

We will attempt to accommodate all dietary requirements if possible.

How to Register:
1. Complete the above Registration Form (one form per person). Registration opens on December 1, 2016.
2. A signed Waiver Form is required for each Registrant. Read carefully and sign.
   Registration forms and waiver forms are available at www.lillooetnaturalistsociety.org/agm
3. Make cheques payable to Lillooet Naturalist Society. Mail waiver, registration, and payment to LNS, Box 522, Lillooet, B.C., V0K 1V0. Registration will become effective on the date the payment and all completed forms are received.
4. Payment option is also available through e-transfer. To enquire contact Judy Bodaly at may2017agm@gmail.com

No refunds after April 1, 2017. We will send most registration confirmations and receipts by email. Cut off date for registration is April 17, 2017 or when maximum capacity has been reached.
Further details on the Program, Accommodations and Field Trips are available at http://www.lillooetnaturalistsociety.org/agm
Thursday, May 4th

2:00 – 4:00 PM BC Nature Executive meeting, REC Centre, Room 201, 930 Main Street
5:00 – 7:00 PM Directors’ meeting at REC Centre, Room 201, 930 Main Street – light dinner provided
4:00 – 6:00 PM Reception / registration at winery, 1881 Highway 99 north – all BC Nature arrivals
5:00 – 5:30 PM Free winery tour. Raffle starts at reception and runs throughout events – draw 8 PM Saturday evening

Dinner on your own

7:15 – 8:15 PM Presentation on Butterflies by Bob Scafe, Nicola Naturalists Society REC Centre gym, 930 Main Street
8:30 – 9:30 PM Bats with local naturalists - leave from REC Centre for Lower Spawning Channel (pre-registration required – funds from this outing will go towards bat acoustic equipment for Lillooet)

Friday, May 5

6:00 – 8:00 AM Early Morning Birding (pre-registration required)
5:30 – 8:30 AM Registration at Reynolds Hotel lobby, 1237 Main Street

Breakfast on your own and please note that many field trips require you bring your own lunch

Farmers’ Market (across from Post Office downtown) Friday AM, 8:30 AM to 1 PM

7:30 – 8:30 AM Yoga with Kathryn Young - $6.50 drop in, bring own mat / Mezzanine at REC Centre, 639 Main Street

Friday, May 5

9:15 – 9:30 AM Convene for various field trips, hikes and outings (details will be in participants' packages)

3:30 - 5:00 PM Return to town from various field trips
4:00 – 6:00 PM Reception/registration at winery, 1881 Highway 99 north
5:00 – 5:30 PM Free winery tour

Dinner on your own


REC Centre gym, 930 Main Street

Saturday, May 6

6:00 – 8:00 AM Early Morning Birding (pre-registration required)

Breakfast on your own

9:00 AM - noon Welcome and presentations, Xwisten, Bridge River Indian Band, Highway 40, 15 minutes north of town.

Presentations: Gerald Michel, Lands and Resources Coordinator Xwisten,

12 noon Lunch catered by Debbie Jack at Xwisten

1:00 – 4:30 PM BC Nature AGM @ Bridge River Indian Band

5:00 – 9:00 PM Dinner catered by Delicious Dishes at Curling Rink Lillooet, 178 Mountainview, Lillooet

Happy hour 5 – 6 PM (Curling Club providing bar), dinner 6 – 7:30 PM, Raffle draws at 8 PM.

7:30 PM BC Nature awards and presentations – all welcome to join after dinner! 178 Mountainview, Lillooet

8:00 – 9:00 PM Lillooet Flora and Fauna – presented by Lillooet naturalists Ken Wright and Ian Routley

Sunday – travel home – “bon voyage” (~Kelowna Camp (May 7) & Mitlenatch Camp (May 8) ~)
Curious Facts about BC’s Toad

By Greg Ferguson

The Western Toad (Anaxyrus boreas) is a true toad (Family Bufonidae) and one of four toad species in Canada. It ranges from Alaska south to Baja California and from the Pacific Coast to Alberta and Colorado. One of the subspecies is recognized in Canada, Anaxyrus boreas boreas found primarily throughout BC and into western and central Alberta, and is the only amphibian native to the Queen Charlotte Islands. The Western Toad has a large elevational range, sea level to 3,355 metres, making it one of the few amphibians that live in alpine areas.

Interestingly, the species is further divided into a calling population and non-calling population, with a boundary that currently occurs mainly east and west of the Rocky Mountains, respectively. The specifics behind this difference is the presence of a vocal sac in males and the production of a true advertisement call characterized by long, high-amplitude trills for individuals in the calling population.

The true toads are distinct from other amphibians based on the following common features: generally warty (actually these are raised poison glands); a pair of parotoid glands on the back of their heads that also contain poison which is excreted when they’re stressed; are toothless; and the male toad possess a Bidder’s organ, which under the right conditions, becomes an active ovary and the toad, in effect, becomes female. Toads have relatively terrestrial habits as adults and dry bumpy skin compared to the smoother skin and more aquatic habits of many frogs.

Distinct and interesting characteristics of the Western Toad include a white-cream dorsal stripe (usually faint or absent in toadlets/juveniles) and horizontal pupils. The hind feet have two tubercles (small, knob-like projections) that help with digging, which in young toads are yellow. Males have smoother skin and nuptial pads (thickened skin) on their forefeet during the breeding season.

Western toads are active from January to October, depending on latitude and elevation, and hibernate over winter, burying themselves under objects or in burrows or crevices. Toads can be diurnal or nocturnal, which is often related to temperature due to changes in latitude, elevation, or season. For example, most Western Toads are diurnal during the spring and fall, but are nocturnal during the warmer summer months. Being nocturnal may also help reduce predation. Individuals have home ranges and use retreats repeatedly, with displaced individuals shown to home to their original location over distances up to one kilometre (i.e. high site fidelity).

In the spring, Western Toad adults head to water bodies to breed and lay strings of eggs that are often concentrated in a small area along a shallow, warm, vegetated shoreline. Large aggregations of tadpoles follow, which disperse into surrounding habitats. Congregation at breeding sites and mass migrations of toadlets may give an appearance of abundance, however, tadpole abundance is often a poor indicator of adult population size because breeding success can fluctuate dramatically and juvenile mortality is high.

Toads and other amphibians can often be seen crossing roads near water bodies on rainy evenings during spring breeding and juvenile dispersal. Hotspots for road mortality adjacent to breeding sites need to be addressed, so documentation of these locations is important. Driving carefully at this time can be an effective way to define the species in an area and where they’re concentrated. This in turn can help identify potential hotspots for road mortality amelioration efforts and breeding sites that should be conserved.

Western Toads, like other species, are threatened by the loss and alteration of their habitat. Of more recent concern is the impact of disease, especially chytridiomycosis, and chemical contamination of their environment. One of the chief chemical threats is the overuse of the fertilizer urea, which can be applied in high dosages to forested environments to increase biomass productivity and economic return. A. boreas is harmed by the dermal absorption of this chemical, which can lead to increased mortality. Rapid declines have occurred in many populations across the range for unknown reasons, even in relatively pristine environments.

To help toads and other amphibians, please record the date and time, specific location (GPS, directions, landmarks), species, activity, and number of individuals you see. These data would happily be accepted by the BC government through their Frog Watch program: www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-conservation/amphibians-reptiles/frogwatching.

It always amazes me how much there is to know and likely how little we know about species that live amongst us, including the Western Toad. It just goes to show that there’s always something to learn and experience when one is a naturalist.

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Why am I receiving this magazine?

You are receiving this magazine as one of the benefits of being a member of BC Nature. You are part of a network of 52 nature clubs throughout BC that are also a part of the Federation of British Columbia Naturalists (BC Nature). A portion of the club fees you pay to your local nature club is remitted to BC Nature. This fee covers the expenses of this magazine and club liability insurance. They also cover the cost of one employee (office manager), and other expenses related to running a small shared office. BC Nature shares an office with NatureKids BC and Elders Council for Parks BC.

Why is there a need for this network? Your voice combined with the voice of the other 6,300 members of BC Nature is much louder together. Your volunteer efforts on conservation projects are far reaching and are very much needed. Through our knowledgable membership, we are able to continue to publish all of the great articles in this fine nature education magazine.

That is why you are receiving this magazine! Enjoy, you’ve earned it!
**Spotlight On Distinguished Naturalist Mentors**

A mentor is a nature enthusiast who helps to make our motto “Know Nature and Keep It Worth Knowing” with emphasis on youth. A mentor devotes time to educate our budding naturalists and scientists by providing services such as tours, lessons, slide shows, camps, Science Fair Guidance, Scouting, Guiding, and nature appreciation.

Victoria Natural History Society’s Connecting Children with Nature co-coordinators: Bill Dancer and John Henigman

Since 2005, members of the Victoria Natural History Society have been volunteering their time to provide free, outdoor, nature-focused activities to youth in our region. Knowledgeable and committed naturalists serve as mentors to children in our region, transferring their knowledge and passion as a way of showing how they can support the protection of nature. The two nature mentors being highlighted here are also the team captains for this Connecting Children with Nature project: Bill Dancer and John Henigman. They organize the volunteer naturalists each time a request is made, and one or the other of them is directly involved every time a group partakes in an activity. This coordination and participation is no small feat – in 2016 there were 51 outings involving 1100 students! All free, all nature-themed.

The outings occur in protected areas throughout our region and try to target those closest to the school. Utilizing a natural area within walking distance or public transit for these field trips reduces transportation costs and vehicle emissions but also has another benefit: children learn to appreciate and value a natural area in their neighbourhood. From the outset it has been the Victoria Natural History Society’s hope that, through outdoor experiences, students will become stewards of our region and effective spokespeople for the value of protecting species and their habitats. These experiences will be retained into adulthood, and their interest and respect for the natural world will be passed on through careers and family.

The program has been very successful, receiving enthusiastic reviews from everyone involved. This success is due to the energy and enthusiasm John and Bill have brought to the trips and the project as a whole – right from its inception more than a decade ago. Groups that book these volunteer naturalists to provide nature education vary: schools, of course, but also Haliburton Community Organic Farm, the Bateman Centre sketch club, Scouts, Guides, daycares, and summer camps. There is information about the program on our website but the promotion seems to be all via word of mouth, which speaks to the quality of the experiences.

Both Bill and John have been recognized with a “Distinguished Service Award” from the Victoria Natural History Society, but their impacts in the community are far greater than that. Teaching the next generation about the natural world is critical if they are to value it, and these two gentlemen have been doing exactly that for more than a decade, and all as volunteers for their local naturalist club.©

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