

2020 Brings a Renewed Push to Revitalize the ER System

The new year of 2020 provides an opportunity to clarify the vision for the Ecological Reserves system and the mission of the Friends of Ecological Reserves by both reflecting on the past and looking ahead to the future. Our newest Board member Bristol Foster served as the Director of the Ecological Reserves program from 1974 to 1984. The reprinted interview with him on pages 10 to 14 helps us appreciate the roots of the ER system. With Bristol's bolstering, the FER Board of Directors decided in December 2019 to make a concerted effort in 2020 to encourage the B.C. government to add to the ER system, maintain the ecological integrity of existing ERs, promote the role of ERs in scientific and monitoring studies, and support the stewardship efforts of the volunteer ER wardens.

In 1971, the British Columbia Legislature gave unanimous approval to the *Ecological Reserve Act*. Since then, B.C. established 154 Ecological Reserves. As of January 2020, B.C. has 148 ERs. Five ERs were transferred to Gulf Islands and Gwaii Haanas national park reserves, becoming part of the Canadian national parks system and one ER was reassigned to Metro Vancouver. The B.C. Government has not established any new ERs in over a decade. The last ER to be set aside was Det San ER near Smithers, which was designated in 2009 to protect rare old-growth juniper. FER proposed seven new candidate ERs to the B.C. provincial government (For the list, see FER Spring/Summer 2017 LOG at

<http://.ecoreserves.bc.ca/wpcontent/uploads/spring-summer-2017-colour-final.pdf>)

This current issue of the LOG features a story beginning on page 2 that shines light on the proposed Clack Creek ER, one of the seven candidate ERs that FER recommended to the B.C. Government.

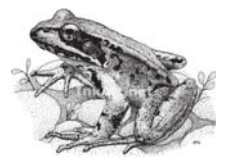
Some of the dedicated volunteer wardens in ERs have contacted FER to report neglect by BC Parks in maintaining the ecological integrity of existing ERs. Threats range from collapsed fences around the perimeter of Mount Maxwell ER on Salt Spring Island that allow feral sheep, goats and dogs to damage the Garry Oak ecosystems to individuals vandalizing various features in ERs and park rangers unable to issue tickets. ER warden Marilyn Lambert reveals another potential threat to marine ERs in her article about "the Blob" on page 9. More positive news appears on page 6 (a report on a collaborative survey of the Aleza Lake ER 84 using LiDAR technology) and on page 14 (a short article about new protection afforded to the Silverdaisy valley).

We would appreciate your support in encouraging the provincial government to add worthy new ERs like Clack Creek as well as to maintain the health of existing ERs, promote the use of ERs for science and monitoring, and support the volunteer ER wardens in their efforts to care for these gems of B.C.'s protected areas system. Express your support for a revitalized ER system in B.C. by contacting your local MLA (see

<https://www.leg.bc.ca/learn-about-us/members>) as well as George Heyman, the Minister of Environment & Climate Change Strategy at george.heyman.MLA@leg.bc.ca and Doug Donaldson, the Minister of Forests, Lands, Natural Resource Operations and Rural Development at doug.donaldson.MLA@leg.bc.ca.

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Autumn/Winter 2019/20

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The views expressed in this newsletter are not necessarily those of the Friends.

Articles for publication are invited. The deadline for submissions for the Spring/Summer 2020 issue of *The LOG* is May 26, 2020.

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A Community Fights to Protect Clack Creek Forest

By Garry Fletcher

In 2013 at the invitation of the Group, Elphinstone Logging Focus, I visited the area at the headwaters of Roberts Creek on the Sunshine Coast, and reported in a post included on the Friends of Ecological Reserves website. <http://ecoreserves.bc.ca/2013/07/13/the-roberts-creek-headwaters-forest/>.

In 2017, several members of the Board of FER discussed with Minister of Environment and Climate Change Strategy, George Heyman and his BC Parks staff, the need for a clear process to propose, consider and designate new Ecological Reserves, in such unique areas. At that time, we presented seven areas in the province including Clack Creek, that we felt would be worthy candidates for Ecological Reserve protection. We were told by BC Parks that it was up to the Ministry of Forests, Lands, Natural Resource Operations and Rural Development to make such decisions. Since forwarding our suggestions to that ministry, no response has been sent to FER on the process for creating a new Ecological Reserve.

The series of articles and excerpts that follow tell the story of the fate of the potential Clack Creek ER and Elphinstone Provincial Park extension, one that provides an example of what usually befalls unprotected areas in B.C.

Excerpted from Elphinstone Logging Focus (ELF) Facebook page March 28, 2019

'The Clack Creek Gallery Forest' remains on British Columbia Timber Sales (BCTS) schedule for logging. It has been deferred for over four years due to community opposition. It's a critical piece in the Mt. Elphinstone Provincial Park expansion zone. It creates connectivity between park island #2 and #3. The stand functions very much like an old growth

forest with diverse structural complexity. It provides habitat for black bear and Roosevelt Elk.

Excerpted from an ELF Press Release April 23, 2019

Elphinstone Logging Focus (ELF) received a West Coast Environmental Law grant to engage the services of a lawyer in an attempt to stop BC Timber Sales of Block A9334 (Clack Creek Forest) from proceeding to be sold in late April, 2019. The forest is within the area of the long-standing Mt. Elphinstone Park expansion proposal and provides critical connectivity between two of the three small protected islands of forest.

From ELF Facebook page April 26, 2019

On April 26, 2019, logging contractors were showing up, walking ELF's trail (that follows the proposed road centre line) to have a look at the standing trees they wanted to fall. One contractor left a note trying to suggest that they are the better stewards of the forest because they would pick up a small pile of junk wood nearby! Closing date for the contractors to enter their bids was April 30th.

And on May 2, 2019

This Elphinstone Logging Focus Facebook post read:

Taking you back into The Clack Creek Forest or what it really is: A Fortress. It's one of the most amazing low-elevation places left on the Sunshine Coast. It's a fortress because it's a self-regulating and governing entity. What right does any government or human entity have to make a claim over it? So little of this forest ecosystem left, yet BCTS and the NDP want to liquidate most of it while they can. Shameful and embarrassing to think that in 2019 chainsaws could be falling this

Continued on page 3

Clack Creek cont'd. from p. 2

fortress. No warning of it coming to the other sentient beings that we're suppose to be sharing this one planet with. The ghosts of these trees will haunt those responsible. Email Forest Minister Doug Donaldson (doug.donaldson@gov.bc.ca) and say: Hold Off Logging the Clack Creek Forest Until the Modern Land Use Plan is completed otherwise we're still living in the Dark Ages of planning.

And on May 28, 2019

In a May 28, 2019 press release it was announced that the Clack Creek forest was sold at a suspiciously low price.

From ELF Press Release July 29, 2019

Government Approves Logging in Proposed Ecological Reserve (Sunshine Coast)

The B.C. government, through its logging agency BC Timber Sales, has approved logging in a forest proposed as an Ecological Reserve (ER) by Victoria based 'Friends of Ecological Reserves' (FER). The Clack Creek Gallery Forest, on the Elphinstone slopes, was nominated by the group in 2016 to become an ER, however after repeated communications and meetings by FER with government (B.C. Parks and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development), their proposal was rejected for reasons unknown.

In 2015, Elphinstone Logging Focus (ELF) presented FER with information on the Clack Creek Forest that included two scientific reports indicating its high levels of biodiversity. One report concluded that the creeks and streams that flowed through the area contained excellent habitat for both the endangered Coastal Tailed and Red-Legged frogs and the second report documented the largest patches in the province of the rare *Rubus-nivalis* (snow bramble) native plant. The area is found in a low-elevation mature forest. These combined ecological



ROBERTS CREEK (Oct. 24, 2019) – Ross Muirhead and Elphinstone Logging Focus are trying to stop the emerging old growth inside a proposed provincial park expansion from being logged. (Randy Shore/Postmedia News PNG Merlin Archive]

features supported FER's request to government to classify and protect it as a new ER.

The Ecological Reserves program in BC was the vision of well-known forest ecologist Dr. Vladimir Krajina (UBC Professor) and in 1971, the *Ecological Reserve Act* was established.

"The Sunshine Coast has one Ecological Reserve around Ambrose Lake protecting a rare bog ecosystem. No new ERs have been established in the province since 2009 while our biodiversity deficit continues to grow," states Ross Muirhead, Forest Campaigner for ELF. "The Clack Creek Forest meets the test for an ER to be established, however BC Timber Sales is being willfully blind and instead awarded a cutting permit to Black Mount Logging of Squamish. Logging could begin in early fall which would not be welcomed by the community."

"The Clack Creek Forest would provide current and future researchers and educators with an outdoor classroom to study rare and endangered plants and animals in their natural habitat and at the same time allow the perpetuation of an important genetic database of two amphib-

ian species and a rare native plant," adds Hans Penner of ELF.

At this time, a BC Supreme Court hearing that challenged the issue of the timber sale over the Clack Creek Forest has concluded. The Judge's decision is expected in early fall. In the meantime, ELF and the Living Forest Institute are holding weekly (Sundays) events and workshops in the forest to bring attention to the issue. The forest is also the critical centre of the proposed Mt. Elphinstone Prov. Park expansion area, an initiative supported by the Sunshine Coast Regional District and the Sierra Club of BC.

From *The Narwhal* November 22, 2019

From *The Narwhal*, (<https://thenarwhal.ca/weve-been-cheated-sunshine-coast-community-braces-for-logging-of-forest-at-heart-of-park-proposal/>) in their article titled: 'Logging to cut through community plan to expand park', it was stated that:

"In May, BC Timber Sales, the provincial government agency responsible for auctioning off 20 per cent of the province's annual allowable

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Clack Creek cont'd. from p. 3

cut of timber to the highest bidder, awarded a logging contract to Black Mount Logging of Squamish to cut 29,500 cubic metres of timber around Clack Creek.

The contract shocked the local community. Supported by information in an ELF-commissioned report by conservation biologist Wayne McCrory, community members hoped to work with the province and Sechelt (shíshálh) and Squamish First Nations to link the three tiny disconnected islands that make up Mount Elphinstone Provincial Park.

**From the *Vancouver Sun*
October 24, 2019**

In a *Vancouver Sun* article of October 24 2019, entitled “Sunshine Coast group rallies to save Forest with 1,000 Hearts from loggers”.

(<https://vancouversun.com/news/local-news/sunshine-coast-group-rallies-to-save-forest-with-1000-hearts-from-loggers>) The province has sold cutting rights in a block of forest expected to be added to Mount Elphinstone Provincial Park.

**From the *Coast Reporter*
October 24, 2019**

From the *Coast Reporter*, (<https://www.coastreporter.net/news/local-news/elf-creates-forest-with-a-thousand-hearts-1.23986815>).

The Elphinstone Logging Focus (ELF) campaign to stop the harvesting of the Clack Creek Forest, BCTS cutblock A93884, continued Oct. 19 when supporters placed more than 1,000 felt hearts on the trees in the cutblock.

**From *Coast Reporter*
November 26, 2019**

Court rejects ELF petition against Clack Creek logging, Sean Eckford/*Coast Reporter*.

(<https://www.coastreporter.net/news/local-news/court-rejects-elf-petition-against-clack-creek-logging-1.24019721>)

A BC Supreme Court judge has rejected Elphinstone Logging Focus's (ELF) petition against the



Elphinstone Logging Focus supporters on Oct. 19 placed more than 1,000 felt hearts on the trees in the Clack Creek cutblock.

sale of cutting rights in an area known as the Clack Creek Forest.

ELF filed the petition in April, with a West Coast Environmental Law grant to cover legal fees.

The reasons it cited that logging shouldn't go forward include: the cutblock falls within the area designated in the Roberts Creek Official Community Plan as the preferred area to expand Elphinstone Provincial Park; it lies within territory subject to the new land use agreement being negotiated between the province and shíshálh Nation; studies recommend setting the area aside to protect rare plant communities.

“There is ample information available to BC Timber Sales regarding the value of this forest and the availability of other timber outside the proposed park expansion area,” said Matthew Nefstead, the Victoria-based environmental lawyer retained by ELF when the petition was filed.

Despite the court challenge, BC Timber Sales (BCTS) continued with the auction and awarded cutting rights for the cutblock known as A93884 to a Squamish-based company, Black Mount Logging, giving it the right to remove roughly 29,500 cubic metres of timber. ELF has been calling on Forest Minister Doug Donaldson to offer the com-

pany a different area to log.

The group has also staged “Living Forest Institute” classes in the cutblock and, on October 19, ELF supporters placed more than 1,000 felt hearts on the trees in the cutblock.

In a decision handed down November 22, Supreme Court Justice Robert Punnnett said the local BCTS manager overseeing the cutblock auction “was alive to the issues and matters to be considered” and acted properly.

Punnnett said of the argument that the decision to auction cutblocks in the area is inconsistent with the ongoing Modernized Land Use Planning (MLUP) process with the shíshálh Nation, “The petitioner’s position that an MLUP had to be undertaken before timber could be harvested in the Clack Creek TSL is not supported in law or principle... Significantly the Chief and Council of the shíshálh Nation have confirmed their support for the harvesting.”

ELF also argued that other blocks, outside the proposed park expansion area, would be more appropriate to offer up for harvesting.

“While this is the opinion of the petitioner, it is contrary to the

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decision of the Timber Sales Manager,” said Punnett. “In addition, on May 7, 2018, the province completed an assessment of ELF’s Elphinstone Park Expansion Proposal and concluded the proposal would add limited benefits in terms of the key values identified by the province.”

Punnett also ruled that BCTS has adequately addressed the issue of species at risk, in part by engineering the cutblock in two sections, one of which will have only 15 per cent of the trees removed and be co-managed by the Roberts Creek Research Forest. Another will have “retention levels that exceed legal requirements ... and contains identified recruitment areas for at-risk plant communities in areas of high ecological biodiversity.”

Another ELF argument was that BCTS’s decisions about the Clack Creek Forest have been inconsistent compared to the decision to delay auctioning the area known as the Reed Road Forest, which community members have also been pushing to convert to a park. Punnett said there was “insufficient evidence” to make a ruling on that question.

ELF has not commented on the court ruling specifically, but the group issued an invitation this week to Donaldson and Environment Minister George Heyman to tour the area, which they’re now calling “The Forest with a Thousand Hearts.”

“We suggest that before a final decision is made it’s imperative to walk the trails underneath the towering Douglas firs and discuss the issues with local stakeholders,” said ELF’s Ross Muirhead in an email to the ministers and copied to *Coast Reporter*. “I trust you agree it’s time for leadership to show up on the ground.”

Conclusion

It is evident that the people of Roberts Creek have worked very hard to protect this area. The recent pinning of 1,000 felt hearts on the trees of the forest with a determination to protect the area, and the attempt at a legal petition against the



Every picture tells a story, don't it! (photo supplied by Elphinstone Logging Focus)

sale of cutting rights in an area known as the Clack Creek Forest, reflects on the continued lack of determination on the part of BC Parks and the BC Ministry of Forests to listen to the research and the concerns of local communities and establish a logical process for protection of valuable ecologically sensitive areas.

Canada’s national magazine *Mcleans* double-page feature on

“The Forest with a 1,000 Hearts” (Clack Creek) will be out at the end of this month. That’s a double-page spread for all of Canada to read and to wonder why the NDP can’t resolve these forest conservation issues with their regional district counterparts.

It’s time for BCTS, FLNRORD and Black Mount Logging to finally have a serious discussion on how to repair this broken situation and bring forward an immediate solution.



Coastal tailed frog (*Ascaphus truei*)



Red-legged frog (*Rana aurora*)



Snow bramble (*Rubus nivalis*)

Hidden Complexity Revealed:

How LiDAR technology is helping to re-map and re-interpret the Aleza Lake Ecological Reserve

By Mike Jull, RPF and Colin Chisholm, RPF (Aleza Lake Research Forest Society)

The plateau landscapes and ecosystems of the B.C. Central Interior often seem unassuming in their ecological character and apparent uniformity, and, some would suggest, can be and are easily described, generalized, and understood. After all, they lack the obvious dramatic character, rugged slopes, and great elevational range and slope variation of adjacent well-known BC mountain regions. The semantics of the word plateau reinforce this perception – i.e., a plateau (noun) is “a large flat area of land that is high above sea level” (Cambridge English Dictionary); and similarly, “to plateau” as a verb is defined from the same source as “to reach a particular level and then stay the same”.

The Aleza Lake Ecological Reserve (ER 84, established in 1978) has similarly been described as a plateau landscape of quite uniform character, in a wet, cool climate. Located 50 km northeast of Prince George, this 264 hectare area is described in its 2003 Purpose Statement (BC Parks, accessed 2019) as “an ecological reserve (that) lies on a gently dissected plain of low relief between the Fraser and Bowron Rivers, in the McGregor Plateau Eco-section. The area is underlain by glacial lake clays, and includes a small shallow lake”. The corresponding vegetation description indicates that “a variety of tree species is present, but stands tend to be dominated by white spruce. The few small bog forests consist of black spruce...” Historically, this ecological reserve went largely undescribed beyond these broad parameters, and the dense vegetation and gullies tended to hinder systematic ground surveys.

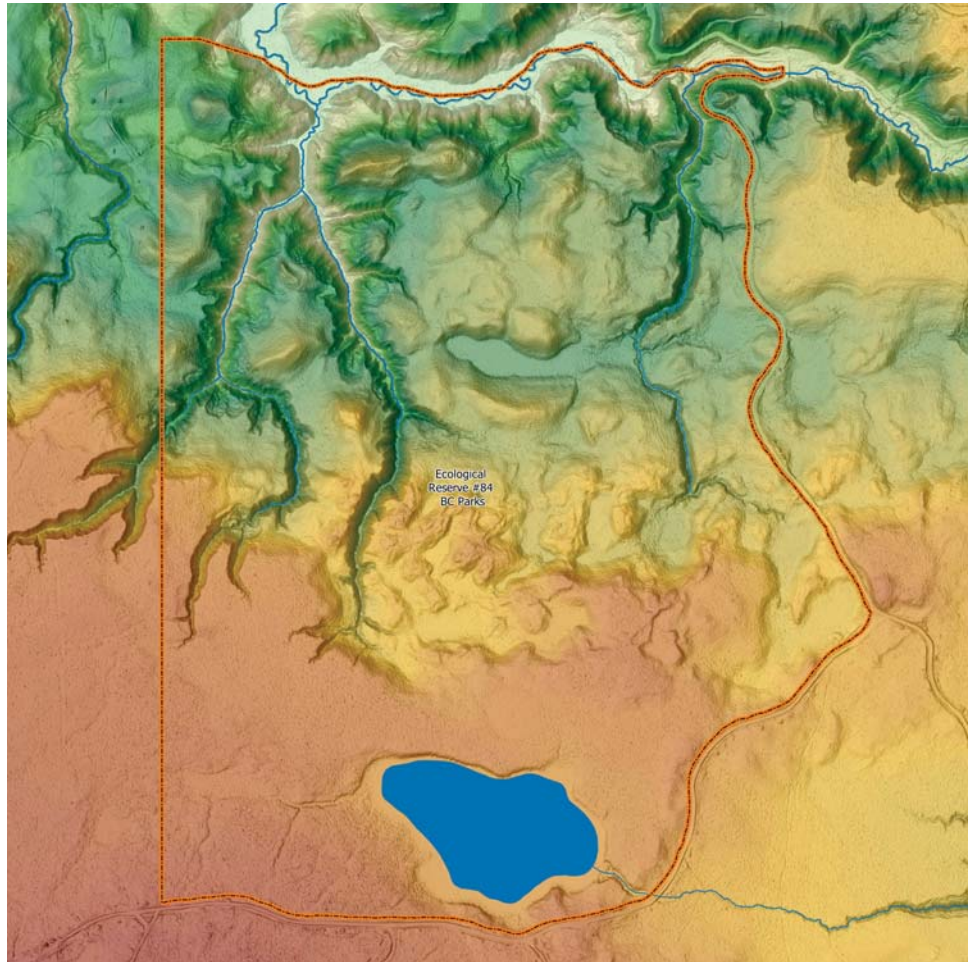


Figure 1: Map of topographic relief and stream drainage patterns within Ecological Reserve 84, based on LiDAR mapping to 1m resolution. (Map image: Dr. Neil Thompson)

However, in May 2015, the Aleza Lake Research Forest Society (ALRF) and the University of Northern British Columbia (UNBC) collaborated to fund and undertake a laser-aided aerial survey of the surrounding 9,000 hectare research forest, as well as Ecological Reserve 84, with airborne GPS-calibrated “LiDAR” technology. LiDAR, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. After requisite data processing, the 3-dimensional

“point cloud” provided by this LiDAR survey method provided very high resolution spatial imagery to < 0.3 m resolution, and allowed detailed 3D mapping of both the ground surface (“digital elevation model” or DEM), the forest canopy above it, and in many cases, individual trees. The resulting LiDAR imagery provided a transformative leap in our understanding, inventory, and mapping of the Aleza Lake Ecological Reserve.

Here are some samples of the insights provided by LiDAR for ER 84:

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LiDAR imagery of the DEM ground surface (Figure 1) in ER 84 now provides clear images and high-resolution spatial mapping of the network of deep glacio-fluvial ravines and gullies within the reserve area. These ravines were incised into underlying sediments by catastrophic floodwaters long ago, as post-glacial meltwater lakes that previously inundated this area breached the ice dams that impounded them, and suddenly drained into the Fraser River and Pacific Ocean between about 10,500 to 10,250 years B.P.

Further detailed analyses of LiDAR ground elevation models allowed for the precise geo-location of streams, including numerous previously unknown creeks and drainage channels, changing our maps of watersheds and hydrological patterns in this area. The outlet creek from Loup Lake in the southern portion of ER 84, previously noted on provincial maps as draining north from the lake, was verified by LiDAR to actually drain south into a separate stream tributary (see also the lower portion of Figure 1).

LiDAR imaging also provides unparalleled documentation and inventory of the wide range of forest conditions, forest types, and tree heights found across the range of terrains within the ecological reserve, as illustrated from the following example transect (Figure 2). This LiDAR “point cloud” image shows a 3-D cross section of old-growth forest structure across two distinct ravine tributaries based on LiDAR data; blue tones indicate the lowest relative elevations of both terrain and tree height, green to yellow for upper height strata, and orange to red for the upper canopy heights..

Currently, research collaboration between the B.C. Government (the Provincial Ecology / BEC program), and several universities (UNBC, UBC, TRU, and Dalhousie) is examining the ability to predictively map ecosystems to the biogeoclimatic (BEC) classification system at a very fine scale using LiDAR mapping. Figure 3 shows a preliminary interpretation of a Predictive Ecosystem Map (PEM) from the early data analysis from this project.

Demonstrated capabilities and

products from these LiDAR-enabled methods show its clear potential for the correct and spatially-explicit mapping of wetlands, forested wetlands, ecosystems associated with riparian areas, and those associated with dry ridgetops! These methods may in future have wider application in the inventory, detailed mapping, and description of ecological reserves, protected areas, and other important habitat areas, for the conservation of stand- and landscape-level biodiversity.

Use of LiDAR technology and its data for the Aleza Lake Ecological Reserve is allowing us to penetrate through the apparent ecological uniformity of plateau landscapes to the detailed complexity embedded within them. We look forward to reporting on further interpretations of this data for Ecological Reserve 84, in future issues of this newsletter.

For further information please contact us at jullm@unbc.ca and colin.chisholm@unbc.ca respectively. More information on the Aleza Lake Research Forest and Society is available at <http://alrf.unbc.ca/>

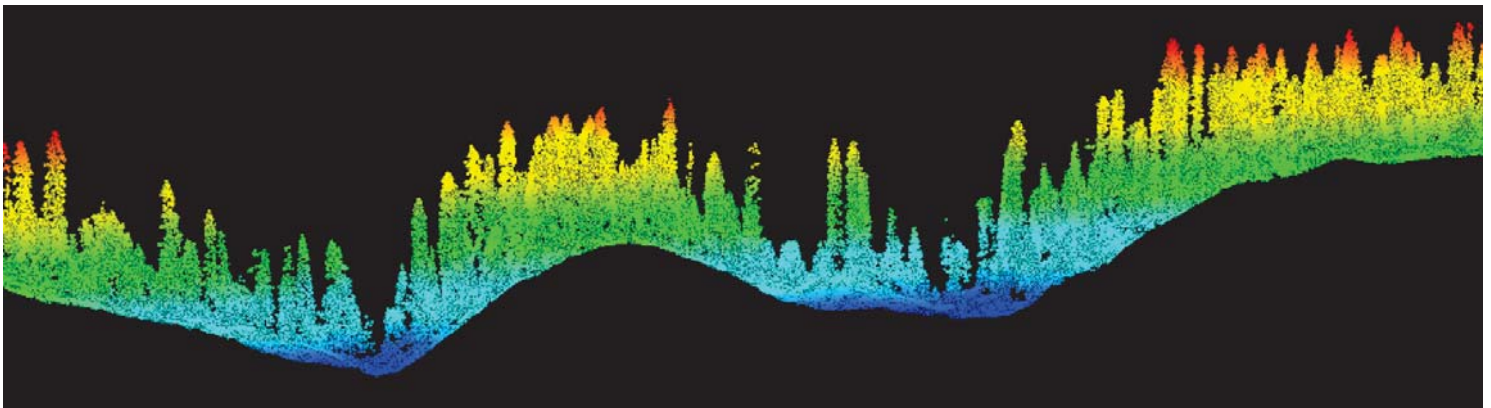


Figure 2: LiDAR “point cloud” image showing a 3-D cross section of old-growth forest structure across two distinct ravine tributaries within Ecological Reserve 84; blue tones indicate the lowest relative elevations of both terrain and tree height, green to yellow for upper height strata, and orange to red for the upper canopy heights. (Image: Colin Chisholm)

Continued on page 8

Recommended References and Links

ER 84 and the Aleza Lake Research Forest:

BC Parks, 2003. Aleza Lake Ecological Reserve 84: Purpose Statement.

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Jull, M. and C. Chisholm, 2019. *Aleza Lake Research Forest Management Plan # 3, 2019-2028*. Aleza Lake Research Forest Society, 3333 University Way, Prince George, BC. 199 pp.

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BEC guides:

DeLong, C., 2003. "A Field Guide to Site Identification and Interpretation for the Southeast Portion of the Prince George Forest Region". *Land Management Handbook 51*. BC Ministry of Forests.

<https://www.for.gov.bc.ca/hfd/pubs/Lmh.htm>

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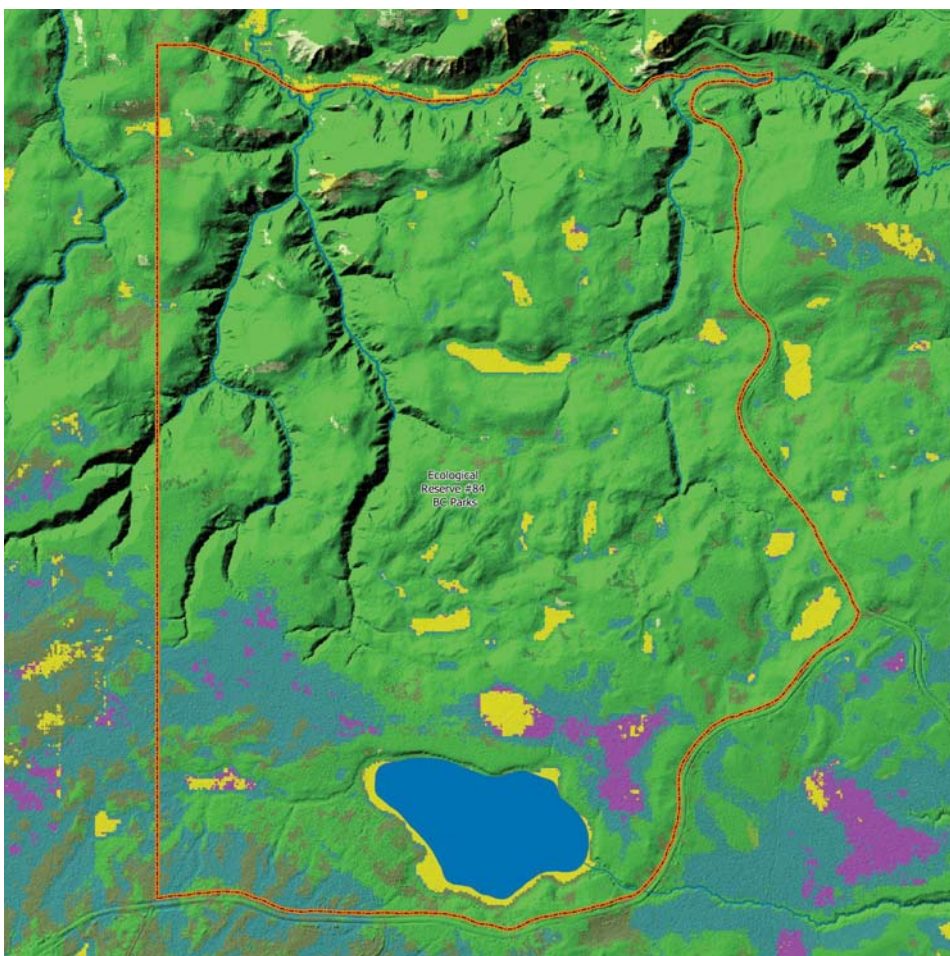
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SBSwk1 BEC Site Series











	SBSwk1_01
	SBSwk1_04
	SBSwk1_05
	SBSwk1_06
	SBSwk1_07
	SBSwk1_07/08
	SBSwk1_08
	SBSwk1_09
	SBSwk1_11
	SBSwk1_Wb

Figure 3: A preliminary map of predicted BEC ecosystem occurrence in Ecological Reserve 84 based on LiDAR data analyses. (Image: Colin Chisholm)

The 'Blob'

By Marilyn Lambert

My husband Phil and I were out in the Oak Bay Islands Ecological Reserve to put up signs on some of the islands in the reserve. It was a beautiful, sunny, July day and we were enjoying this beautiful area.

We had put up a couple of signs on Griffin Island and Phil was looking for suitable pieces of driftwood so we could put up some more. Phil is a Marine Biologist and whenever he is on a beach, he invariably checks out the tideline, looking for marine invertebrates, shells, or any other interesting item that may have washed up with the high tide.

He was surprised to find a rather large blob of oil sitting amongst the seaweed at the high tide mark. Phil gave it a nudge with his boot and when I poked it with a stick, it had a definite smell of a petroleum product. We have seen blobs of oil on beaches in Greece that were the size of a walnut, but this one was a bit bigger than a large grapefruit!

We have spent many hours exploring beaches all around the Salish Sea and this was the first time we have encountered an oil blob. I found the discovery of this oil deposit quite alarming. With the proposed expansion of the Trans Mountain Pipeline and the resulting seven-fold increase in tanker traffic past our shores, one wonders if such blobs will become commonplace.

I notified Western Canada Marine Response Corp. and the Canadian Coast Guard. They both informed me that they did not know of any recent spills that could have been responsible for such a blob. Also, there had not been any other blobs reported. I did receive this response from the Coast Guard as



Tar 'blob' found on Griffin Island with a crab on top for size reference.

to how such a blob formed:

"Tar balls are weathered petroleum that has clustered and formed a sort of crust that holds it all together. They can originate in natural oil seeps in the ocean floor, or in leakage from vessels using or transporting crude oil. If you saw a large number of them on a beach, it would likely be indicative of a potential oil spill and should be

reported immediately to the Coast Guard Marine Pollution Reporting Line. A single one, however, could have originated far away and drifted onto the beach where you found it."

I will be on the lookout for more of these blobs next summer and will carry a receptacle to remove it and transport it to the nearest "world class" spill response team.



Western Canada Marine Response Corp. spill response vessel "Island Sentinel".

An Interview with Bristol Foster

Bristol Foster is a naturalist, conservation biologist and documentary filmmaker with a PhD in Ecology. He has over forty years of experience as an ecologist and educator. Bristol's career has included serving as Head of Wildlife Ecology Graduate Studies program at the University of Nairobi (Kenya) 1963-68, Director of the Royal British Columbia Museum, 1968-74 and Director of the Provincial Ecological Reserves program, 1974-84.

This is a rough transcription of an interview which took place on Mount Douglas in Victoria, on Nov. 28, 2011.

Mike Fenger (MF): "I am here with Bristol Foster on the Coastal Douglas fir zone up on Mount Douglas here in Victoria and it is late in November but we decided to do things outside. Bristol is a real outdoors person and has for a long time been associated with conservation and the natural environment and Ecological Reserves (ERs). We are very pleased to get some Bristol's insights into the early days and his insights into the early days of Ecological Reserves. So thank you very much for this interview."

Bristol Foster (BF): "A pleasure."

MF: "I want to start with your early recollections and what drew you to the natural environment."

BF: "Well guess I can blame my parents who sent me off to camp when I was about five years old, and I was by far the youngest in the camp at first. Other kids didn't relate to me and so I did relate to the naturalist who was there who had a table with some fascinating things on it, a wasps nest that was opened up, a birds nest and tadpoles, things such as that and it turned out that it was Earnest Thompson Seaton's grandson Stewart Thompson who was a naturalist.¹ It was this camp that had a lot of Ernest Thompson Seaton's natural history and I was there for five years and that got me in love with natural history. Once back in Toronto I discovered other naturalists and we



got a bird watching group together. We would meet one another bird watching and this developed into lifelong relationships with me and Bob Bateman for example. And in those days people weren't watching television; they were out there hiking around in the Don Valley of Toronto and seeing if you could see more species of birds in day than anyone else or in that year and so it was a competition going on as well and that is really what got me going."

MF: "So did that lead to formal university pursuit in something like biology and botany or how did that happen?"

BF: "We were all dedicated bird watchers and there was some prejudice against being bird watchers and that is when I concentrated on mammals and did a Masters on mammals at the University of Toronto on phenacomys, a rare subarctic vole. That is how I ended up with work for the rest of my life on mammals really. Up to the Queen Charlotte Islands, Haida Gwaii, to do a PhD on the evolution of native mammals of Haida Gwaii. And if you Google Bristol Foster you will see the so called island effect, the Foster rule of small mammals² getting larger on islands and large mammals like deer getting smaller on islands. I finished my PhD and heading home one evening, I picked up a hitch hiker and

to make a long story short that is how I ended up in Kenya for five years directing graduate school in the School in Mammalogy and Wildlife ecology and I did the study on giraffes myself and other guys and gals did other species."

MF: "Well that does sound interesting and after Africa you came back to British Columbia."

BF: "Yes the contract ran out with the Canadian government and I came back to B.C. to the museum in Victoria as the assistant director to the brand new museum; that was in July 1968."

MF: "And then from there you must have morphed into something to do with ecological reserves (ERs) because you were director of the program in its early days I believe."

BF: "Yes, ten years 1974 to 1984. The Act came through in 1971 but before the *Ecological Reserve Act* there was an awful lot of politicking going on especially by Vladimir J. Krajina. He was quite a guy actually. He was from Czechoslovakia and he was a power in the political parties before the Second World War. The Nazis came in, took over and gave him a hard time and then the war ended and the Communists from the Soviet Union came in and gave him a hard time. So first he was too far left for the Nazis and too far right for the

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Communists. He left Czechoslovakia and he and his wife Mary they left by skis according to legend over the mountain passes and down into Austria. They made their way to Vancouver to University of British Columbia where he became professor of botany and plant ecology. It was early 1960s and there was an International Biological Program. Do you remember that Mike?"

MF: "Yes."³

BF: "Part of that program was to set aside natural areas for research and teaching. So he said BC has to set aside these sorts of areas which became known as Ecological Reserves. Vladimir Krajina brought his experience in politics – he was like a bulldog. He started chewing on the back sides of the Social Credit government and in particular Minister Ray Williston, Minister of Lands, Parks and Housing, the area in which the ER Act would go through. So he doggedly went after the government and finally got to the government of Williston and Premier Bennett, Wacky Bennett in those days, and they gave in and passed the ER Act through legislature in May 1971. At the time one of the other Ministers Pat McGeer, said 'oh this looks like window dressing to me to make the government look good but what were these Ecological Reserves actually going to do that are substantial and useful'. And I thought of that now and then over the many years since because it does seem at times that ERs have been window dressing to make the government look good."

MF: "The number that sticks with me is 0.8 of a percent less than one percent of the 14% that is the protected areas. So they are very small portion an exceedingly small portion even of the protected area system."

BF: "That's right and Krajina, I think he had 5% in mind and we are obviously a long way from it. It was 1971 and in those years, every year there was a gathering in Victoria, botanists largely but some zoologists too would gather and they would make presentations that they would

want this area protected. Over the years there were hundreds of areas proposed for protection. And every summer there would be people from Universities and government would travel around the province looking for valuable areas that should be protected. And by 1971 they had the way to do it because the Act was established. And then they started to be established. Then in 1974 government decided to have one person on staff. And that almost certainly was Krajina getting pushy to government again. They opened up this position of in charge of the ER program for the province. And I was at that time a bureaucrat at the museum which was interesting, fun and challenging. But I am a field biologist not a paper pusher so I left this rather plum job at the museum as director and went to the head of ER program. I said head but there were no arms or legs, there was nothing there but me. And in those days as I suggested, we had lots of proposals so I started to try and move those with the most logical and easier ones through the government. This meant that I had to go around to the ministries in Victoria and try and convince the Forest Service, or the Lands or BC Hydro and all other resource ministries of the need to protect these tiny areas as any ministry could ast a veto, and often did. They had to be convinced to be on side because any one government agency could cast a veto. And this was obviously far more that I could do and I hired two others Trudy (Carson/Chatwin) and Jim Pojar and so it was the three of us for a few years that were the staff for ER. Jim was the botanists, I was more of the zoologists and Trudy was the everthingest. So we had great fun and we could go anywhere in the province virtually anytime and propose almost anywhere that was Crown land and try and get it through the system. We were fortunate that over 90% of BC is Crown land. And as I say we had all these other proposals that others had proposed. So we were the ones to try and push these proposals through by getting to know these other public servants who could blockade the

proposal. So I spent a lot of time going around twisting arms and Trudy certainly did as well. And later Lynne Milnes came along when Jim left, so we, all of us, took turns badgering other bureaucrats. A few were really helpful and I think of the Forest Service Chief Forester Bill Young."⁴

MF: "Yes I do."

BF: "He was the most helpful. Most of them were fairly obstinate and objectionable like the people that ran the cattle out on the range. It was really hard to get grasslands. It seemed strange that it was easier to get forests than grasslands because the forests were under a Timber License or a Tree Farm License and we could deal with the company. Range lands, you are dealing with an individual rancher which is much harder for that rancher than it is for the company. So we had a lot of trouble from ranchers trying to get grasslands. But we did get forest land but what is it 2% of the Douglas-fir forest here on the coast is left in the natural state and we got a tiny bit of that protected. So it was one of the hardest."

"Krajina would lead us on field trips in the summer time. He would end up in Haida Gwaii and all over the place along with a few others. And one of our best ERs is the Vladimir Krajina ER up in Haida Gwaii a beautiful forest of big Sitka spruce."

MF: "And there was a film produced about that time about Vladimir in which you and he are out in his reserve in Haida Gwaii."

BF: "Yes it's the *"Forests and Vladimir Krajina"* of the National Film Board."⁵ There are two other NFB films on Ecological Reserves, *"Keeping the Options Open"* and *"Triangle Island"* 40-year-old 16 mm films and will try to have them transferred to a memory stick so they can be put on our website."

MF: "That would be great if we could put them on our Friends of Ecological Reserves website."

MF: "So I wanted to ask you if there are any memories, good fond memories, of those field trips or the early days in ERs or was it all a good memory or some that stand out more

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than others?"

BF: "We had lots of good field trips that's for sure that is what kept us going because sticking in the office all the time is rather discouraging, especially when we got so many negative reports for the agencies that we would have to go back to try and convince. Oh wow I guess one great memory is going with Jim Pojar right up to Whitehorse and down into the Tatshenshini by road, making proposals all along the way. I took along my son and he fished in the ponds. Good fun and hard work and worth it."

MF: "You did mention some of the challenges that you faced trying to convince other resource agencies and individuals. Are some of those challenges still there today for proponents of ERs? What are some of those challenges and how might we deal with those better?"

BF: "In the old days, the good old days, we could identify certain people in Victoria in each of the Ministries and we took them out for lunch and make them as friends and they were all generally helpful. And so we had them as friends and then as you know the Ecoreserves unit was more or less disbanded. There were seven regions in the province in those days. Now the regions look after badgering the local resource person who is objecting to the ecological reserve proposal. And it was transferred to Parks and Parks before they had their own work already. Parks staff often didn't quite know what they were, or quite what they were for. Another huge educational process was to get the enthusiasm and drive of a few of us in Victoria scattered among a handful of new people scattered around the province. And I suppose that slowed things significantly. I think now it's much better, I hope so, and it was Lynne Milne's idea to get the Friends of Ecological Reserves (FER) going and they have been incredibly helpful. But these Friends (regional ER Wardens) when you need them are very helpful and we needed them badly. They have been treated badly especially when the centralized system of everything going on in

Victoria was spread out in the province and the Friends where out all over the province. They also had particular reserves which they would propose and ones they were looking after and they could go to the local bureaucrats and twist their arm and make sure that they are well looked after. This was actually crucial."

MF: "I wonder if you have ideas on management of ERs. You can put a circle around a place on a map but there is natural succession and things change and species are shifting their populations. So how do you deal with management or don't you manage Ecological Reserves?"

BF: "We wrote a management plan for each ecoreserve: should we put out a fire in a reserve or maintain it by an occasional fire; should we remove successional plants like Douglas fir that are overwhelming the species we are trying to protect. We try to keep things natural that is the idea – it is like a living museum well of course it doesn't work out that way in nature succession and invasive species. We try and keep out invasive species. This has been going in North America for 65 million years ever since the meteor hit the Yucatan and wiped out most things in North America. North America is deemed the kind of continent where things are coming over from Panama, from Alaska over the land bridge and through Greenland, it has been going on for millions of years. North America getting these alien species from elsewhere and humans are often carrying them here now accidentally or on purpose. And all you can do with something as invasive species such as broom is try and remove it, which can be done with a lot of work over a few decades. Don't just plan to do it for a year because these invasive species will drown local species in some cases. That is what we do see what's there, try and keep it that way but I know that you have examples."

MF: "Yes there are some for example the Garry oak ecosystem may find an increase in Douglas fir which will eventually over top it and push it out of the system."

BF: "Push the Garry oak out of

the system?"

MF: "Yes the ER may have been set up for Garry oak meadow, it's growing toward Douglas fir forest and that is the situation. We have a native species with a longer life span or a bigger foot print that is pushing the Garry oak out. Any thoughts on that?"

BF: "In a reserve part of it you manage and part of it you let it go. Maybe half let it go and the other half keep the Douglas fir out. We have let cattle into some ERs because a thousand years ago it was bison in the area and they were helping to keep it the way it was. Now cattle are the ecological equivalent and they will help keep the reserve the way it was as long as there aren't too many of them."

MF: "So is it fair to say a management decision almost has to be made on a reserve by reserve basis?"

BF: "Oh definitely, we could let fire go or even light a fire every few years but other reserves we would never want a fire. And there was a fire management policy that I know we set up for each reserve."

MF: "Now thinking of the ER system which at its height was 154 and then a few have been subsumed into National Parks so they are no longer called ERs. And Friends is keeping track of where they are and will remind National Parks that they actually have these things. But I wonder if you have any thoughts on where the system was going and whether it really got there? What I mean is whether the vision of having representative and rare ecosystems was really fully realized? You left at one point."

BF: "I was there for ten years. I left in Orwellian year of 1984. It was time to leave with Bill Bennett as Premier who had no interest in ERs or natural history generally so I bailed and come back to Pat McGeer's comment that ERs are window dressing. And you look at what we have and less than 1/10th of one percent with very little research going on in them and almost no funding for research from government if any. So in fact sure not we haven't achieved anything like what Vladimir Krajina

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wanted. We have made a start, a start a good start, but a long way to go but in the meantime we have all these other forces coming at us especially global warming."

MF: "So any thoughts perhaps on how to get ER a little more central to the government and maybe too, back to the academic community which really sounds like it started it?"

BF: "The academic community certainly did start it. And I have been out of the loop for quite a while, 1984 that is quite a long time ago that I actually left and yes I get your excellent journal that you publish. Well, it's difficult all we can do is our best and it is hard all we can do is to try and convince the politicians and others in government and especially to work at it and this is something valuable. Once a place is destroyed by whatever means we can never get it back quite the same again so these are incredibly valuable spots that we have saved. I didn't answer your question very well did I?"

MF: "As a non-government volunteer organization we have set some strategic goals for ourselves. Ours goals certainly are supporting the ER wardens program, attracting science into ERs, looking at the completeness of the ER systems and whether the vast diversity of B.C. is systematically represented, making known and making people aware of ERs and finally keeping Friends, a volunteer organization, together. Those are basically our key strategic goals. So if you have advice for FER on where a bunch of volunteers could happily put their time to most effect that would be appreciated."

BF: "I think the main things is to guard the reserves. We have volunteers look at them at least once a year and write a report if necessary back to the government and a copy to you, the Friends, so the Friends can watch over. It would be really good getting all the volunteers together every couple of years. I know it used to happen and it hasn't happened in the last year or two has it?"

MF: "We haven't had a major provincial gathering since 2003 and we have had regional gatherings I

think in 2008 when there were seven or eight regional meetings."

BF: "The regional meeting should be every couple of years and it shouldn't be a big cost as they don't travel to Victoria they just travel to the regional office."

MF: "Do you have any thoughts on this emerging citizen science concept, more people with an interest in the environment doing things possibly to document changes or monitoring in ecological reserves. Is that a difficult thing to do for non-university trained people but people who are interested?"

BF: "It is easy to do if you know the different species of plants and this can be easily learned. There are also retired people who could help out like Marc Bell for example, who did help out in the past and he lives near Victoria. He might be willing to help with some students looking at the local Ecological Reserves and put in quadrats, he used to do that. Retired foresters – there are lots of people retired throughout the province and to try and find them and get them involved and some of them may be quite delighted to get back into it again in an academic way. So that is what I would do – try and find the local people who have retired and who were in government in a position of research and of course the university people as well who have retired and get them involved."

MF: "So since you have left the ecological reserves program, have you been keeping yourself busy with work in the environment? What have you been doing?"

BF: "Well lots of travel around the world and leading natural history trips hither and yon and working now on a project out at Royal Roads. I don't know if you want any of that. Robert Bateman has painted over a 1,000 paintings and I am working with him to get each one photographed and digitized and he will be talking to each painting and this will be all on the internet as part of the Robert Bateman Art and Conservation Centre at Royal Roads University."

MF: "It sounds as if you are still active as a conservationists."

BF: "Oh ya. Sure that is how I started."

MF: "Those early days and your role have had along and lasting influence on BC and ERs. I have asked and quizzed you about the early days of ER. Thank you very much for sharing your insights."

BF: "You are welcome Mike."

MF: "It is almost December and it is cold and windy."

BF: "It is chilly but look at that licorice fern it is beautiful."

MF: "Do you have any other words you would like to leave us with?"

BF: "Oh dear and other words. Remember Krajina! Keep pushing like Krajina. If we do not no one else is likely to do it. It is great to get new ecoreserves but research in them is equally important. Reserves are time capsules. Without study now, transects etc, we really shall not know the impact of climate change."

MF: "Thank you very much."

BF: "You are welcome Mike."

¹ **Ernest Thompson Seton** (August 14, 1860 – October 23, 1946) was a Scots-Canadian (and naturalized U.S. citizen) who became a noted author, wildlife artist, founder of the Woodcraft Indians, and one of the founding pioneers of the Boy Scouts of America (BSA). Seton also influenced Lord Baden-Powell, the founder of Scouting. His notable books related to Scouting include *The Birch Bark Roll* and *The Boy Scout Handbook*. He is responsible for the strong influence of American Indian culture in the BSA. And from (From Wikipedia). Deeply concerned for the future of the North American prairie, he fought to establish reservations for American Indians and parks for endangered animals. In 1902 he founded the Woodcraft Indians to give children opportunities for nature study. He chaired the committee that established the Boy Scouts of America.

² **Foster's rule** (also known as the **island rule**) is a principle in evolutionary biology stating that members of a species get smaller or bigger depending on the resources available in the environment. This is the core of the study of island

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biogeography. For example, it is known that pygmy mammoths evolved from normal mammoths on small islands. Similar evolutionary paths have been observed in elephants, hippopotamuses, boas, deer, and humans. Also check <http://www.pbs.org/wgbh/nova/evolution/gigantism-and-dwarfism-islands.html>

It was first stated by J. Bristol Foster in 1964 in the journal *Nature*, in an article titled "The evolution of mammals on islands". In it, he studied 116 island species and compared them to their mainland varieties. He proposed that certain island creatures evolved into larger versions of themselves while others became smaller versions of themselves. For this, he proposed the simple

explanation that smaller creatures get larger in the absence of the predators they had attracted on the mainland and larger creatures become smaller with the absence of food sources.

Later, that idea was expanded upon by the publication of *The Theory of Island Biogeography*, by Robert MacArthur and Edward O. Wilson. And in 1978, Ted J. Case published a much longer and more complex paper on the topic in the journal *Ecology*. Case also demonstrated that Foster's original conjecture for the reason all this happened was oversimplified and not completely true.

³ The **International Biological Program (IBP)** was an effort between 1964 and 1974 to coordinate large-scale ecological and environmental studies. The IBP was organized under the leadership of C. H. Waddington

beginning in 1962 and officially started in 1964, with the goal of exploring "The Biological Basis of Productivity and Human Welfare". In its early years, Canadian and European ecologists were the main participants; The main results of the IBP were five biome studies.

⁴ Bill Young was the Chief Forester from 1978 – 84.

⁵ This film can be purchased from the National Film Board <http://onf-nfb.gc.ca/eng/collection/film/?id=12647>

Bristol Foster rejoined the FER Board on May 24, 2019 so that he could give a historical perspective on how to deal with the government to get new ecological reserves and to try to get research going again in them.

Celebrating New Protections for Silverdaisy Valley

The Silverdaisy valley is part of an unprotected swath of land nicknamed the "Skagit Donut Hole". This area is roughly the size of Manhattan and is surrounded on all sides by two of B.C.'s most beloved protected areas; E.C. Manning and Skagit Valley provincial parks. The entire area is well-known for year-round recreation and it also provides important habitat for threatened spotted owls and grizzly bears, among other species. Conservationists were shocked when licences for commercial forestry operations were issued here in 2015.

On December 4, 2019 it was announced by Minister of Environment and Climate Change Strategy, George Heyman and Minister of Forest, Lands and Natural Resource Operations and Rural Development, Doug Donaldson that the Silverdaisy valley in southwest B.C. is now off-limits to commercial forestry. Concerted efforts by more than 100 environment groups on both sides of the US/BC border including the Wilderness Committee, the Elders Council for Parks in B.C., and the



Silverdaisy Peak in Skagit River Valley. (Photo by Wilderness Committee)

Canadian Parks and Wilderness Society, along with Indigenous rights holders and outdoor businesses fought to end industrial logging in the valley.

Colin Campbell of the Elders Council for Parks in B.C., provided FER with a summary that Nancy Wilkin presented at their AGM held Dec. 12, 2019 in Sidney, B.C., that stated the Environmental Endowment Committee of the Skagit Commission is actively trying to buy out the mineral tenures owned by Imperial Metals, which are in the "Donut Hole". These historical tenures need to be extinguished, with the Crown Land being converted to protected status. Thanks go to Nancy Wilkin, Joe Foy



of the Wilderness Committee and many others for raising the profile of this issue in the press and the legislature.

The Province of B.C. has provided 2.4 million dollars towards negotiating and extinguishing the claims. One of the purposes of the Skagit Environmental Endowment Commission is to buy out resource claims in the Skagit treaty area.

FER To Host Guided Field Trip To Mt. Tzuhalem ER - May 2, 2020

As more information becomes available, it will be posted on FER website

www.ecoreserve.bc.ca
or email LOG editor at
lbeinhau@telus.net

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In Nature's Realm by Michael Layland

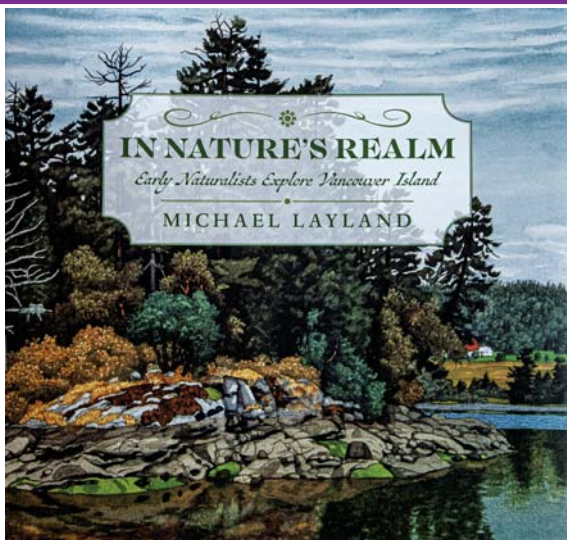
A Book Review by Stephen Ruttan

Michael Layland has done it again. In the past few years he has written award-winning books on the early map-makers and explorers of Vancouver Island. Now he has turned his attention to the naturalists. In his new book he has prepared a major study of the early naturalists who explored Vancouver Island. To say this fills a gap in our knowledge is an understatement. To my knowledge we have had nothing like it. Now, though, we have a large, comprehensive work, that covers many people and topics. For some of us it opens up a whole new area of study.

In his introduction, Layland tells us that the book is divided into four parts. First comes indigenous knowledge and use of the region. In the next section, he covers the earliest European records. This was a golden age of European discovery, and included people such as Cook from Britain, and Malaspina from Spain. The third part is the settlement area, with the settlers writing about the nature of their new surroundings. The fourth section of the book is especially wide-ranging. He writes about organized expeditions, such as those of the federal government. But he also has chapters on special topics, such as women and botany, and the history of importing songbirds to this region.

The chapter on Indigenous use shows the book's diversity. He describes the different Indigenous groups, and their use of the land and sea. But he also covers some special topics. He has a section on the clam gardens constructed by local groups. He writes on Nancy Turner, and her important studies on local ethnobotany. And, on a topic new to me, he writes about the bird-net poles, up to thirty metres high, that were constructed by Indigenous people to catch migrating waterfowl.

From pre-contact times till the First World War, Layland covers the work of many naturalists. Some, such as David Douglas and John Macoun, are well known. Others, such as many on the Spanish ships, are almost unknown.



Sometimes the famous and the obscure complement each other. Archibald Menzies, for example, was one of the most important collectors on the coast, and has a whole chapter devoted to his career. But important to understanding Menzies work is the research of a twentieth century scientist, Eric Groves. Groves has researched and written several papers on Menzies' work. These papers are central to our understanding of Menzies, and Layland includes an article on him in the Menzies chapter.

As well as text, the book includes dozens of illustrations which complement the writing. Layland has obviously searched far and wide for the appropriate pictures; I see, for example, that some come from institutions in Madrid. But some of the best comes from right here at home. Botanical and landscape paintings by Emily Carr, Emily Sartain, E. J. Hughes, and others show how our natural world has inspired some of our best artists.

Finally, I would like to mention something that might get overlooked: the notes and bibliography. Not only has Layland created the basic text for this subject, but in his twelve pages of notes and eight pages of bibliography he takes us much beyond the bounds of this book. The bibliography is very wide-ranging, and some items might be hard to discover on your own. This will be a standard reference text on Vancouver Island for years to come.

The Log



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