

Season's Greetings!

the Dirt

FLNRORD INTERNAL NEWSLETTER



I very much want to take this opportunity to extend my best wishes to all current and former FLNRORD staff for a wonderful holiday season.

The work done across our ministry this year will have a positive and lasting impact for our province. There are many accomplishments to be proud of.

- We amended key legislation that received Royal Assent including the *Forest Range Practices Act*, the *Forest Act*, and the *Heritage Conservation Act*.
- We increased our efforts to address important issues for the Coastal and Interior forest industries and launched key supports for workers and communities impacted by mill closures and shift reductions.
- We demonstrated leadership and collaboration responding to the Big Bar Landslide with federal and First Nations governments.
- We successfully maintained the ministry's Safety Accord Forestry Enterprise (SAFE) certification following an audit that revealed significant overall improvement.

These are a few examples of some of the major achievements from 2019. I believe that the work we do, as the stewards of our natural resources, makes our ministry the best in government. I am proud of what we have achieved in the last year and look forward to seeing what the new year holds.

Thank you for all your hard work. Enjoy a safe and relaxing time with family and friends over the holidays.

John Allan



Advisory Group Vision:

"True to our proud histories, informing ministry staff through balanced and timely communication"

December 2019

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Issues of “*The Dirt*” will be posted online quarterly. The newsletter and facebook group are for all employees and former employees and is intended to provide up-to-date information on the organization. Add your story to *The Dirt* facebook account. “Participating in social media means contributing content or comment. When doing so, we trust you to be professional, personable, and relevant.” Social media guidelines.



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Not Your Average Start to the Work Day

Submitted by: Michelle Larstone, Community Engagement Specialist
Nick Thomas, Provincial FrontCounter BC Manager



Nick Thomas hadn't had his first cup of coffee yet when Elliott pointed through the November morning darkness and exclaimed, "Dad, look how much the ice grew last night!", followed by, "And there's a big black thing out there!"

Nick squinted at the lake. Sure enough, the ice was growing and there was a black blob in the near distance. Even without coffee he could tell it was a mule deer that had fallen through the ice, just about 30 metres from where their backyard becomes Seymour Lake.

As Nick sipped his coffee and waited for the Conservation Officer (CO) to arrive, he noticed his aluminum boat sitting right at the shore. The deer was swimming in place but not getting anywhere due to the ice blocking his way. The boat could break the ice and make a pathway...Nick sighed, put down his coffee, and put on his boots.

Nick slid the boat on the ice over to the deer, who watched him warily but kept swimming. Nick used an axe to break sections of ice in front of him. It was thick ice and hard work, but he kept at it and the deer moved with him closer to shore.

Nick says he was talking to the deer as he worked. "Not to reassure the deer, though, but to keep myself motivated! It was really hard work."

The CO arrived while Nick and the deer were still quite a few metres from shore. The CO got out a throw bag and tossed it to Nick, who looped it around the deer's antlers. Within minutes they had hauled it onto shore, and it managed to walk a few steps before sitting down near the lake's edge. Nick's kids brought out blankets that the CO placed on the accepting animal.

Nick headed off to work—he's the Provincial FrontCounter Manager—with good reasons for why he was late to a team meeting. Within an hour, the deer had walked away and seemed to be doing alright.

Although this story had a happy ending, the COS also expressed concern about people putting themselves in danger.



"The BC Conservation Officer Service would like to remind the public to not put themselves in danger by attempting to rescue animals in such situations, and instead call the RAPP line," they said in a Facebook post after the incident.

Call 1-877-952-7277 (RAPP) or #7277 on the TELUS Mobility Network. If the situation is not an emergency, report the incident [online](#) or contact the nearest [Conservation Officer Service district office](#).

Silvopasture Tour Highlights Opportunities and Innovation

Article permission provided by: Holly Jackson, BC Cattlemen's Association

Can we see the forage through the trees? A silvopasture field tour in the Okanagan this fall demonstrated that the answer can be yes, when collaboration and innovation lead the way for unique partnerships and integrated resource use.

Forest companies that need trees and ranchers that need forage converge on BC's Crown land throughout the province, not always with the best success. But a small group of tour attendees heard that when innovation is at the helm, collaboration is not only possible but there are potential benefits for both.

Mustering at a remote fire hall on the outskirts of Kelowna on a crisp fall day, a motley crew of ranchers, cattle industry and forestry company representatives, government ministry staff and researchers gathered for a tour highlighting an innovative integrated forage, cattle and timber management research project.

The research project is situated in Goudie, East Kelowna in the Okanagan Shuswap Natural Resource District where there are multiple values on the land, specifically timber and cattle with considerations for the watershed. Shortage of Timber: From the forestry side the site is located in Tolko's timber supply area, in a mid rotation, roughly 45-year old, conifer stand where the trees would not be harvested for typically another 20-30 years. Tolko, like many forestry operations following the pine beetle epidemic, has a shortage of timber to harvest in the Interior which is affecting the viability of their mills in the area.

Shortage of Forage: From the cattle side, the site has little forage left under the trees, and is part of a grazing tenure in forage shortfall. It is a good example of the forage shortfalls experienced in the Okanagan Shuswap Natural Resource District. The shortfalls have led to a forage strategy with the goal of ensuring that the right amount and type of forage is located in the right place and time.

What was done: In the face of shortages in both forest and cattle industry needs, an innovative silvopasture research project was born: Strip Commercial Thinning in Mid-Rotation Forested Stands. Masters Student, Steven Kega wrote of the project, "We explored an



Rancher Nick Bapty in 10 meter strip

Group learning about forage productivity research



Grant Glessing - Tolko

continued...

Silvopasture continued...



TRU graduate student Steven Kega



Kyle Gillich TRU graduate student with Reynold Bergen (Beef Cattle Research Council)



Drone coming in for a landing

opportunity to integrate the forest and ranching industries in order to enhance both forestry and grazing practices so that forest production and understory forage productivity can be fully realized.”

The forest was harvested at a 30% removal ratio, similar to a standard evenly-spaced commercial thinning approach. Ten, 15 and 20 m wide commercially-thinned strips with 20, 30 and 40-meter-wide timber strips in between (respectively) were established in each of three adjacent forest sites. Timber was processed at the Kelowna and Armstrong mills. Harvested strips were seeded with 30% orchard grass, 30% meadow brome, 30% intermediate wheatgrass and 10% white clover.

TRU graduate students are monitoring forage productivity and quality, timber growth, soil carbon sequestration and plant diversity comparing the three different strip widths. A second research project is examining snowpack and soil moisture retention in the strips as compared with a more standard clearcut approach.

What we have learned to date: For Tolko the big question was whether the quality of the wood harvested would be marketable. Surprisingly, the wood exceeded expectations and showed that the trees were harvestable. One question remains: is it economical? For the initial harvest the answer is no but going forward, Tolko would need the harvest system to be recognized under the stumpage system as a commercial thinning treatment which would allow the economics to be similar to harvesting under a clearcut system.

On the forage side: While there are two more years of research to go, preliminary results of the establishment year show most forage grew in the 15 m strip, and a comparison between forage in the tree understory and in the strips showed more forage overall in the strips.

On the hydrological side: Larger openings accumulated more snow; snow in larger openings melted more quickly than in narrower openings; and, snowmelt in strips was delayed relative to roads, clearcut and forested stands. Further work on soil moisture, water retention, and water volume will continue into 2019/2020.

This site is one of several silvopasture research sites that explore the integration of forage, cattle, and timber management. With the importance of forage supply to the sustainability of the cattle industry in BC, silvopasture projects like this one open a dialogue about doing things differently and show the value of collaboration.

FLNRORD Research Program – Brief Summary of Achievements – Coast Area

Submitted by: Francesco Cortini, PhD RPF, Research Management Lead

Sari C. Saunders, Section Head - Research Ecology, Coast Area Research

The Coast Area Research Program is represented by 8 research scientists that conducted 25 collaborative research projects during the past fiscal year (2018/19). These projects fell under the Research Program's portfolios as follows: Species and Habitat – 9 projects; Timber – 3 projects; Water – 7 projects; Ecosystem Stewardship – 6 projects; and Bioeconomy – 1 project. The research scientists from the Coast Area also worked on 3 additional research projects funded outside the program.

Research on the Coast is an area-based service; research staff work with the two Regional Management Teams and other research clients and collaborators across West and South Coast regions, to assess research needs and emerging priorities, and implement projects. Staff work on projects that span the Coast geographically and ecologically, including West Coast, South Coast and coastal portions of the Skeena Region, the latter associated with responsibilities for coastal Biogeoclimatic Ecosystem Classification (BEC) and Ecosystem-based Management in the Great Bear Rainforest (GBR). Additionally, staff within both the Terrestrial and Fish and Aquatic Wildlife Resources teams of the South Coast Regional office have been implementing FLNRORD-funded research projects within their region.

Research occurring within the South Coast region has been examining topics such as: Northern Goshawk foraging habitat requirements, Northern Spotted Owl habitat management and competition from Barred Owls, river hydropower effects on coastal tailed frogs, and acceleration of carbon sequestration and development of old forest attributes post wildfire, and ecosystem classification refinement.

Research being undertaken within the West Coast region has been advancing knowledge on topics such as: high elevation climate characterization and climate change implications; ecological outcomes under the Great Bear rainforest land-use objectives; sediment movement and watershed restoration, phosphorus and nitrogen constraints on forest productivity; relationships of riparian management to fish prey base; impacts of land-use practices and invasive species on pacific marten; wildlife response to drought-induced habitat changes; and new tools for measuring snow and ice (e.g. LiDAR) and their roles in hydrological function.

While most of our projects will inform management in both West and South Coast, many specifically incorporate study sites in both regions, including: spatial habitat requirements of nesting Marbled Murrelet, BEC refinement and BEC as an ecological framework for determining distributions of culturally important plants, genetic assessment of western toad populations, and comparative landslide risk, particularly in the context of climate change.

A good example of the research occurring within the South Coast region is a project assessing the feasibility of using experimental planting and climate change-informed species selection to:

- Accelerate successional development of old-growth structural and compositional characteristics;
- Enhance rates of carbon sequestration in regenerating stands; and,
- Develop a framework to assess resilience of stands to subsequent disturbances, on low-moderate severity vs. high severity wildfire sites.

Large fires (for the coast!) occurred within the drier, south coast Nahatlatch (Chilliwack NRD) and Elaho and Upper Lillooet (Sea to Sky NRD) watersheds in 2015. These wildfires damaged timber resources and areas of the non-timber harvesting land base, including a number of Old Growth Management Areas (OGMAs) (Fig. 1). Climate change projections for this landscape suggest that wildfires may increase in frequency and intensity over time. Capacity to restore wildfire damaged OGMAs is critical where there are few options for replacement.

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Research - Coast Area continued...



Figure 1. Post-fire structure after high (left) and low-moderate (right) severity burns in the CWHms1, South Coast

We are establishing operational trials for restoring function at five experimental replicates within four fires. Field crews have completed the post fire (pre-treatment) structure, site condition, and vegetation sampling. The treatments evaluate outcomes of standard species selection and stocking relative to experimental approaches designed using the Climate Change Informed Species Selection (CCISS) tool and TASS/TIPSY stand development modelling (Fig. 2). Planting will be done in Fall 2020 in coordination with Forest Carbon Initiative, Forest Enhancement Society, and Forest ForTomorrow initiatives. Although these are planned as long-term experiments with some outcomes not discernable for >50 years, we will begin post-treatment measurement of seedling survival, and dynamics of residual structure, site conditions, and carbon pools the first season post planting.

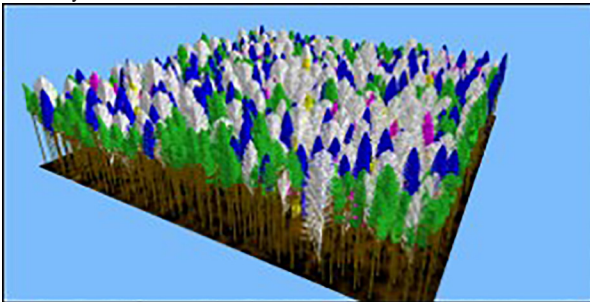


Figure 2. Projected stand structure and composition after 50 years for a proposed climate-change informed treatment.

Results will support operational decisions for pre- and post-fire management to reduce the risk to old forest and carbon values from wildfire. The experimental planting and species selection treatments are designed to provide guidance for

restoring old forest characteristics and for maintaining ecological resilience of OGMA's and landscapes under projected climatic conditions.

A good example of the research occurring within the West Coast region is a project examining sediment transport and channel morphology on the San Juan River, SW Vancouver Island. The Pacheedaht First Nation and the San Juan Watershed Stewardship Roundtable requested the involvement of the Coast Area Research and West Coast Region Water Management sections to help guide and evaluate restoration efforts in the mainstem of the San Juan River, an important fisheries channel heavily impacted by historical forestry-related landslides and riparian harvesting.

Radio-tagged tracer stones yield an in-depth understanding of how sediment is transported in the channel. While use of radio-tagged tracer stones is relatively common in small channels, their use in larger channels such as the San Juan has been limited due to low recovery rates. We overcame this limitation by developing a unique antenna system (Fig. 3) that allows for efficient searching over large areas; our recovery of tracer stones is substantially better than any results published in international journals. Tracer transport distances combined with lidar surface-differencing indicates the San Juan River transports about 4000 tonnes of sediment/year. A previous study of the San Juan Watershed (NHC, 1994) included a landslide inventory; comparing our results to this previous work suggests that the river is still responding to landslide sediment supply associated with historical logging. Riparian areas are frequently dominated by mature and decaying red alder stands that provide little bank strength; the result is bank erosion rates up to about 10 m per year.

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Research - Coast Area continued...

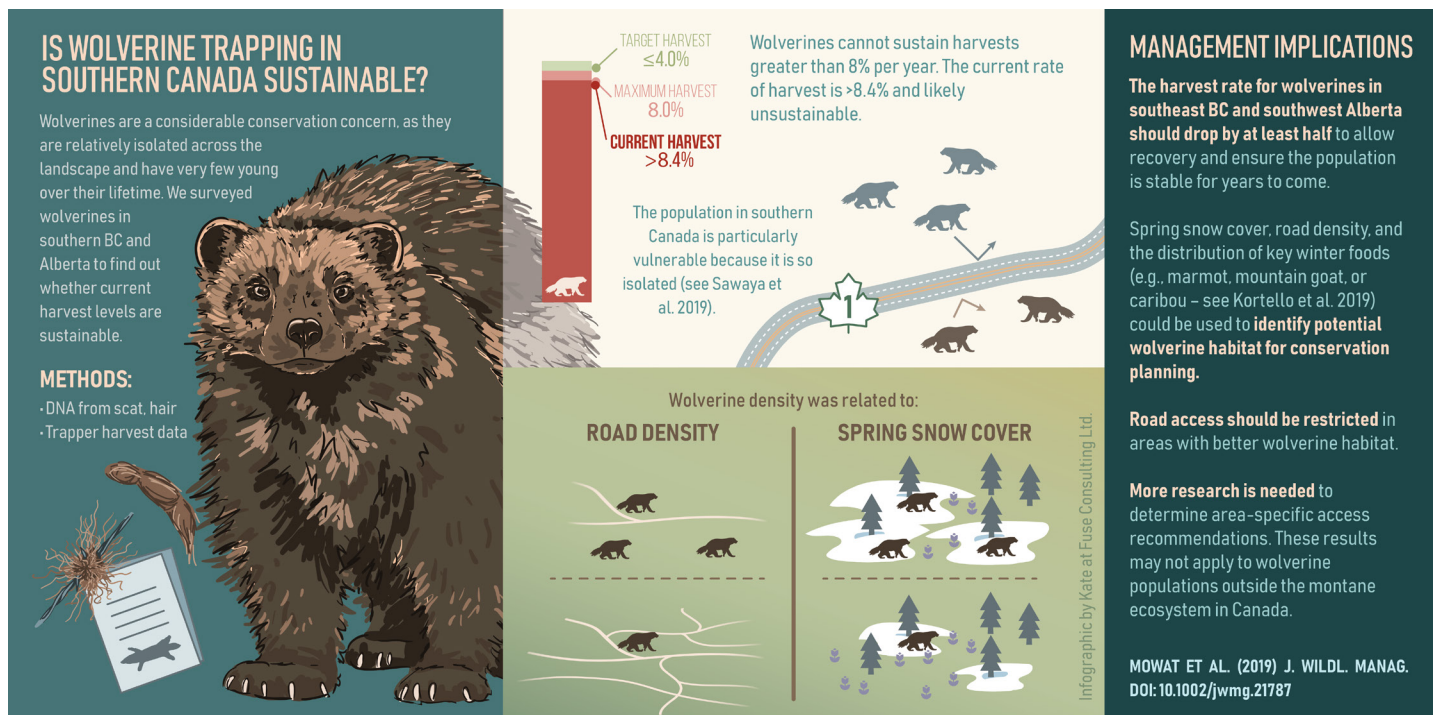


Figure 3. Searching for radio-tagged stones using our large antenna

Process-based restoration efforts have relied on revegetation. Bare gravel bar areas now have extensive staking of willow and cottonwood cuttings. Western redcedar and Sitka spruce seedlings were planted throughout the riparian areas. While some of these plantings may be lost due to riverbank erosion, it appears that the majority are stable and will permit a mature forest to regrow, thus speeding the recovery of the river.

New Research from the Wildlife Branch

Submitted by: Garth Mowat, PhD, PAg, Provincial Large Carnivore Specialist, Wildlife & Habitat Branch



If you are a former employee and want to keep up with the latest Dirt, please contact [Michelle Larstone](#), provide her with your email and she will add you to the retiree's email distribution list.

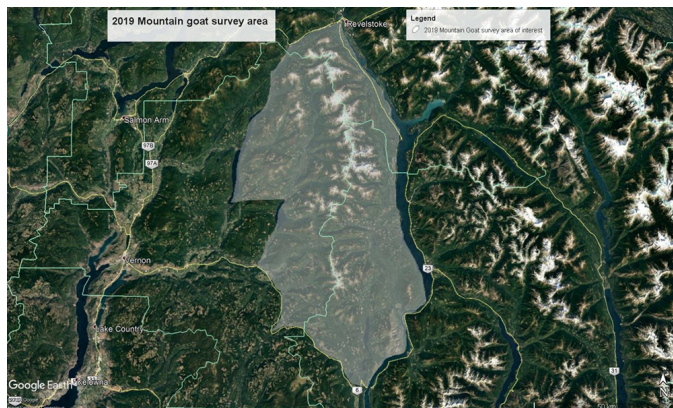
Thompson Okanagan Mountain Goat Flights

Submitted by: Craig McLean, Wildlife Biologist, Thompson Okanagan Natural Resource Region

In August 2019, FLNRORD Thompson Okanagan Wildlife branch staff began the new season of wildlife population inventory work. Annually the wildlife branch staff are involved in a variety of inventory work, this type of work is as varied as our species. Species inventory work can range from collecting hair for DNA analysis (such as <https://www.for.gov.bc.ca/hfd/pubs/Docs/En/En120.pdf>) to intensive aerial surveys attempting to count every individual in a population. The target species this time was Mountain Goats. Specifically, the Mountain goat populations located in the north Okanagan between Mabel lake and Arrow lakes From Revelstoke south to Cherryville and Fauquier. During the week of August 19-22, 2019, Thompson Okanagan Wildlife biologists supported by a variety of groups (BCTS, BC Wildfire Service, Conservation Officer service, Kootenay Wildlife branch staff) undertook the 27-hour aerial survey to document the current population status, demographics, geographical distribution and to compare the current status to previous inventory work.

Mountain goat aerial surveys often occur in the summer months when goats have moved up in to their summer range in the open alpine. We begin flying near day break allowing us to survey during the cool mornings when goats are exposed in the open alpine. Ideal conditions are light cloud cover, cool mornings with minimal winds. We begin flying along the bottom of the Mountain goat habitat, in consecutive passes we move up in 100m-200m elevational contours, we work uphill to the top of the peaks with mountain goats on this survey being found up to and over 2600m.

During the surveys whenever we encounter a Mountain goat, we circle the animals, observe, classify and record the locations, behaviour, vegetation cover and whenever possible take high resolution photos for further review once back at the office. Once we've returned to the office the data is compiled, GPS points overlaid to previous surveys and we compare historic distribution, densities, fecundity and other measures of health and status. This information can feed into management plans, management actions, tenure permitting reviews and regulated hunt changes.



continued...

Mountain Goat Flights continued...

During the survey this summer we counted a total of 86 mountain goats, this included 72 adults and 14 kids. Outside of mountain goats a variety of species were observed from moose, mule deer, black bears and coyotes. Special thanks go out to all the staff that supported this project and were involved in the implementation of these surveys. Specifically, we would like to thank Ascent Helicopters and Pilot Greg Goodison for the safe flying in mountain terrain.

For more information about Wildlife Branch research and inventory work please visit:

<https://www.youtube.com/watch?v=tMOIK2jwzN0>

https://www.youtube.com/watch?v=xH_epWSjMEo

50 in 50 done!

Submitted by: Brittany Wilson, Correspondence Coordinator, CSS



After 46 long weeks, I completed my New Years goal of completing 50 new trails in (under) 50 weeks. I was able to see numerous beautiful trails throughout our great province and even beyond.

So, what was my favorite? Which was the toughest? And which one was furthest away?

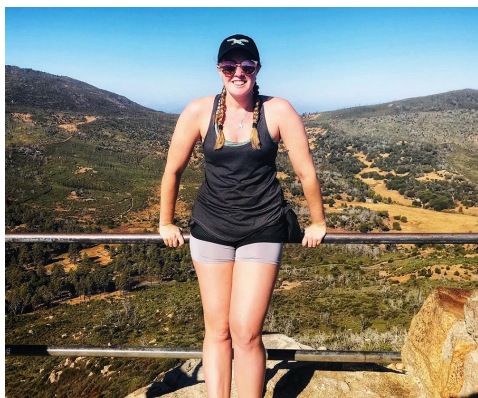
I ended my challenge at Avatar Grove, a magical old-growth forest past Port Renfrew. This was one of my favorites through the year, not just because it was my last one but because as soon as I stepped into the forest, I felt so small and was in awe with how big and amazing the forest was.

I had quite a few really tough hikes this year, but nothing compared to Heart Lake. Off a suburban cul de sac leads a trail straight up a mountain. As I climbed higher and higher, I thought is this ever going to end? When I finally reached the top, I was amazed with a glistening lake. I sat on the edge and looked out at this beautiful site, as I caught my breathe, I felt so grateful to have pushed through the pain and found this hidden gem.

As for furthest away, we go to the desert land of San Diego. About an hour drive from downtown San Diego is Cuyamaca Rancho State Park, as I drove in I stopped to talk to the park ranger who told me about the best hikes in the park. Equipped with lots of water I started up Stonewell peak, it took me about an hour to get to the top, but I was absolutely stunned when I reached the top. The view of this desert land was something Vancouver Island doesn't offer.

Now that the challenge is done, I feel great and accomplished, and will be coming up with a new hiking challenge for 2020.

For a full list of all the 50 hikes I did this year please visit <https://www.instagram.com/britzadventures/>



2019 PJJ Hemphill Award for Excellence in Engineering

Submitted by: Brian Chow, M.Eng., P.Eng., Chief Engineer, Engineering Branch



PJJ Hemphill Award presented to 2019 recipient Phil MacDonald (3rd from right), Provincial Engineering Meeting, November 26, 2019
Pictured with previous awardees and other nominees (Mike Ferguson, Knut Herzog, Les Higgs, BJ Moore, Larry Duke, Phil MacDonald, Wayne Hagel, Brian Chow (Chief Engineer))

The PJJ Hemphill Award for Excellence in Engineering is presented to a ministry employee who has achieved a level of excellence in delivering engineering program (roads and bridges) initiatives and activities. This award is named in honour of Pete Hemphill, who as a former Director of the “original” Ministry of Forests Engineering Branch was a leader and innovator that exemplified excellence in engineering. The achievements of the recipient of this distinguished award must demonstrate tangible contributions to ministry engineering initiatives and activities.

This year, the selection committee consisted of previous recipients of the award. Four worthy individuals were nominated: Knut Herzog, Engineering Officer, Mackenzie Natural Resource District; Phil MacDonald, BCTS Engineering Officer, Kootenay Business Area; Mike Ferguson, Engineering Officer, Selkirk Natural Resource District; and BJ Moore, Engineering Officer, Cascades Natural Resource District.

- Knut Herzog was nominated for 34 years of contribution at the local and provincial engineering program level, for his success in delivering various complex projects, leadership and mentorship for others.
- Phil MacDonald was nominated for “bringing his wits, applying smarts and a rarity of strengths” to improving local and provincial business practices, in meeting goals, providing leadership and mentorship to others.
- Mike Ferguson was nominated for his success, in the relatively brief time he has been in his role, on addressing complex challenges, and his leadership by example.
- BJ Moore was nominated for his contribution, above and beyond the call of duty in his work including establishing good relations and involvement with First Nations, setting a high standard for himself and others.

Due to the calibre of the nominees and submissions, and common

attributes demonstrating excellence in engineering, the committee was challenged in their deliberations to select a recipient. All of the submissions spoke to the quality of the nominees and their exemplary contributions to the engineering program. Being nominated for this prestigious award is significant in itself. All nominees should be proud of their achievements and being recognized for their contributions to the engineering program by your peers.

All nominees reflected various qualities of leadership, innovation and excellence in their work. The committee ultimately selected the recipient based on their contribution, through leadership and innovation, not only at the local level, but their influence on provincial program delivery as well.

The committee is extremely pleased to announce Phil MacDonald as the 2019 recipient of the PJJ Hemphill Award for Excellence in Engineering.

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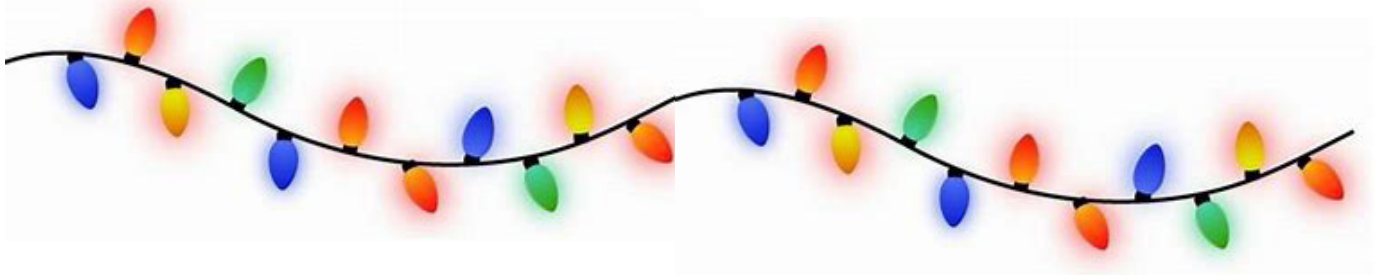
PJJ Hemphill Award continued...

Drawing from the nomination submission (paraphrased), Phil MacDonald:

- Has been key to the achievement of large engineering program goals for the BCTS Kootenay Business Area.
- Has been a contract champion, helping engineering techs & managers deal effectively with contracts.
- Has drawn from his past consulting practice experience to foster business improvement and be a Lean Champion for the Kootenay Business Area.
- Has led the embracing new drone technology to apply to achieve engineering program goals.
- Facilitated multi-disciplinary collaboration in development of the BCTS Kootenay “Terrain Stability Management Model” (TSM).
- Has pursued and been involved in provincial scope issues and initiatives:
 - Chair of the BCTS Access Working Group (AWG); and
 - Fish Passage Project delivery champion and agent for governments fish passage program.
- Is a natural leader who nurtures and mentors other engineering technologists.
- Carries himself in a calm even keeled manner, rising to the engineering challenges, using his wits, applying smarts and a rarity of strengths.

Clear demonstration of excellence in engineering!

Congratulations Phil MacDonald, RFT, as the recipient of the 2019 PJJ Hemphill Award for excellence in engineering!!



Resource Investment on the Coast

Submitted by: Aaron Smeeth and Katherine Lawrence, Regional Integrated Investment Specialists, Coast Area

Investment in our land base has received a shot in the arm in the recent past. Funding through existing programs and funders has in some cases been augmented with new funding through provincial and federal sources. We have also seen new funding directed toward First Nations that contributes to building forestry capacity and supporting forest-dependent communities. These types of investments have lasting positive impacts that strengthen the resource economies and support resource stewardship.

FLNRORD is committed to getting the most from the dollars invested as evidenced by its move toward Integrated Investment Planning. Each of the provinces eight regions have Integrated Investment staff who, among other things, develop annual plans to help express regional priorities and guide land-based investments. These plans can be found at <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/land-based-investment/integrated-investment> and are uploaded from time to time for each region. We are available to assist in proposal development and encourage interested staff to contact their local representative, listed at the above link.

Due to the relatively similar ecology and geography of the South and West Coast Natural Regions, the two regions have collaborated to develop one plan for the Coast Area. With the increase in available funding resources, the number of land-based investment projects on the coast has increased and some examples are as follows:

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Resource Investment Coast continued...

•**Aerial fertilization** - With the added Forest Carbon Initiative (FCI) funding, the program has nearly tripled from the 6000-hectare Coast Area baseline, funded by Forests for Tomorrow (FFT). Finding suitable/treatable stands and coordinating implementation has been a massive workload but is paying off where the high productivity coastal forests typically respond with double the growth-rate compared to the interior, and accordingly return a very high cost/benefit ratio per unit of CO₂ equivalent sequestration. Hand fertilization is also being piloted in the West Coast region.

•**Reforestation of wildfire areas** - After catastrophic wildfires in 2015 in the Sea to Sky and Chilliwack Natural Resource Districts, and those in 2018 on Vancouver Island, there has been great collaboration with stakeholders to see these areas reforested under FFT and FCI. So far, approximately 3.1 million trees have been planted in the 2015 fires on the South Coast and planting has begun this fall on the Island.

•**OGMA Research** - A research study funded by FESBC is underway to better understand how best to treat wildfire impacted Old Growth Management Areas. The experimental planting and species selection treatments on the OGMAs will guide future investments to support old forest characteristics and reinforce ecological resilience for a changing climate.

•**Wildfire Fuel Reduction** - Several fuel management projects funded by FESBC have been completed on the Cheakamus Community Forest (near Whistler). A plan is currently being developed to address the highest risks on the Coast Area through the ministry led Wildfire Resiliency Initiative.

•**Riparian Forests Restoration** - projects have been implemented with the Khowutzun (Cowichan) Tribes and with Taan (Council of Haida Nations) on South Vancouver Island and Haida Gwaii, respectively, under FESBC.

•**Spacing** – FFT has expanded its funding criteria to allow spacing to increase stand value, including spacing hemlock out of young cedar stands and spacing high density red alder plantations. Projects that meet the required return on investment criteria are under way.

•**Fibre Utilization** – FESBC's recent call for proposals elicited 5 approved projects for the Coast Area to harvest lower value waste fibre that would otherwise have been burned.



Ordinary People, Extra-Ordinary Circumstances

Submitted by: Moufida Holubeshen, MA Econ, PMP, Business Planning and Strategic Projects Manager,
West Coast Natural Resource Region

The Hornet Sightings

On a sunny August Friday, a Nanaimo beekeeper notices a very large insect land at one of his hives. The insect is secured in his daughter's bug viewer and after some googling and measuring, the intruder is suspected to be an Asian Giant Hornet (AGH). The average AGH worker is 3.5 cm in length with a wingspan of 7 cm. A queen AGH is up to 5cm in length.



Saturday August 17th Paul Van Westendorp, the chief apiarist for the Ministry of Agriculture (AGRI), is contacted. On Monday the 19th a sample is dispatched to UBC for verification. Later in the day another hornet arrives at the same beekeeper's hives. The second intruder is duly whacked, reported and sent off the second BC AGH.

Tuesday August 27, another Harewood resident finds another specimen. The hornet is again reported and sent off for confirmation.

With the three confirmed sightings in close geographic proximity within 10 days, the likelihood of a nest is considered high. Under the federal [Plant Protection Act](#), invading insect species that form a “significant risk” to plants are assessed by the Canadian Food Inspection Agency (CFIA). The preliminary risk of the AGH was assessed to have an “indirect” impact on agricultural crops through harm to pollinators (specifically honeybees), with the interim response falling on AGRI. The following releases resulted:

September 10th, the Island Health Authority releases [medical guidance to staff for stings associated with the Asian Giant Hornet](#).

September 11th, AGRI issues [AGH in Nanaimo news release](#)—an information balancing act limiting public panic by claiming the hornets were dormant, with guidance on reporting to the BC Invasive Species Council, and sting treatment with 10 stings (or less) requiring immediate medical attention.



September 12th, the Nanaimo Beekeeping Club Executive (NBCE) receives an email from AGRI regarding discussions on how to tackle the problem.

The Nest Search and Eradication – September 18, 2019

The week of September 16th it rained heavily in Nanaimo for three days. The NBCE was still grappling with its role in addressing the issue and plans were being developed.

Wednesday morning, September 18th, it is informally known through Paul that there was now a total of 7 reported sightings in Nanaimo. I send out an email from work to all staff in the Nanaimo natural resource ministries soliciting volunteers for a Nanaimo Beekeepers' Club hornet nest search in the upcoming weekend. Conrad Berube and others volunteered their personal time to assist.

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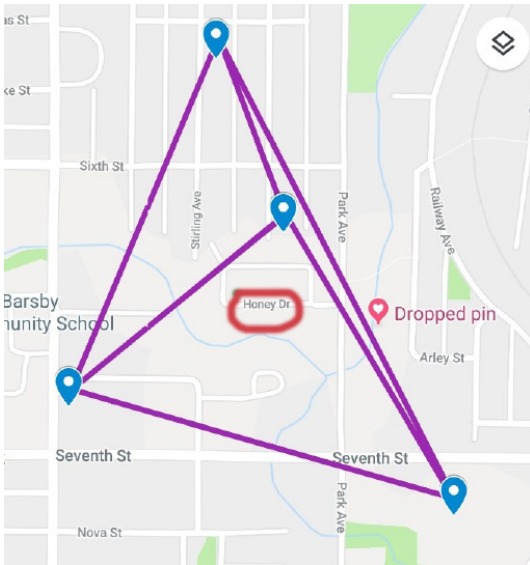
Hornet Sightings continued...

At 3PM, Finally 4 coordinates are secured and plotted on Google maps by John (my husband). All confirmed sightings were in a 500 m radius adjacent to Robins Park. The following assumptions are discussed:

- A nest in a backyard was not likely without a health authority report.
- The AGH habitat is ground nests in low lying forested areas.
- Hornets need a source of water near their nest.
- The average hornet foraging radius is 1-2 km.

The weather cleared. John and I cancel our personal plans and go for a walk at the park to assess weekend logistics.

5:30PM, we are at the central entrance and start walking (with no protective equipment). Less than 5 minutes into the trail, John spots the hornets flying from 3 m away from the trail. I am ahead of John by 5 m, when John calls



out to me and lets me know that he's spotted them. Less than 60 seconds after, he gets stung. I stop and watch him re-coil from the sting and stand stunned. I yell out to him "MOVE, NOW!" and remind him that he is marked by alarm pheromones that will attract other hornets to sting him. In a state of shock, he moves away. I wait a few minutes, then I bend down and move steadily until I am right under the hornets' flight path. Knowing that "someone" must come back here, I stop and record the exact GPS coordinates. Then I join John and examine the sting. I note blistering in the area. He tells me that he feels like he'd been hit by a 2 by 4 and that his eyelids were swelling.

5:45PM, we retreat home. Within 5 minutes, the feeling of John's eyelids swelling subsides. Once home, I administer treatment and monitor his condition. We now had to plan for a nest removal which was outside of our backyard beekeepers' experience.

6:00PM, I call Conrad at home to share what happened and to get insight. He explains that there is a limited window to remove the nest at night when all the hornets are inside before the weather clears. The end of September is when several newly hatched hornet queens normally go out and mate—only on a clear day, disperse, then hibernate individually. He shares his work experience removing wasp nests for pharmaceutical companies. We now had a nest removal plan. We confirmed supplies and meeting specifics. John also called the bee club president Peter Lange who joined us.

7:44 PM-9:45 PM, Conrad skilfully completes the extraction with the support of the team. After being stunned by CO₂, approximately 150-200 hornets were manually retrieved, drowned and preserved in alcohol (including the queen). The nest, the size of a watermelon, has 560 larvae/eggs which would hatch in two weeks. Conrad is stung 4 times.



The day after, Thursday September 19, 2019, and beyond

Eight days after the previous news release, AGRI issues the release: Asian giant hornet nest eradicated in Nanaimo.

The future

CFIA is conducting an AGH species risk assessment and the province is mobilizing with the inter-agency Early Detection and Rapid Response strategy, which I will be operationally coordinating.

From August 17th to September 18th, one month from the initial sighting, the potential for significant public health, environmental, and agricultural industry costs is effectively eliminated overnight by four local beekeepers, for now.



Trees of green, red cedars too...

The CSS Red Cedar Cone Picking Field Trip

Submitted by: Tyler Engert, Correspondence Coordinator and Angela Bello, Senior Correspondence Analyst



In the misty morn' of autumn, nestled by the sea and a big ol' pumpkin patch, the Correspondence Services Section (CSS) ventured into a little-known ministry treasure: a large coniferous seed orchard where foresters and geneticists thrive. Seeking seeds that are more resilient to droughts and pests, these scientists take great care and attention in cultivating, picking and propagating the best seeds to grow across the province.

Chris Halldorson, Seed Orchard Manager, gave us a tour and our buckets.



We learned that many trees at this facility are grafted onto stumps and that happy trees are actually the less productive ones. Sometimes, the foresters purposely stress out the tree in order to encourage it to produce more cones in order to meet the needs for reforestation. However, with drier conditions frequenting the coast, there has already been a higher yield of red cedar cones this year as cedars need wet conditions to grow. Adding to this necessity for intensified cone picking, is the nuisance of midges that must be removed prior to the arrival of next year's crop. Over our 3-hour visit, some of us managed to pick 1 litre and others 4 litres of the little red cedar cones. Chris could pick a litre in just 20 minutes! There were many more trees to go, and so volunteers are always welcome—a highly recommended experience.



The Forest Improvement and Research Management Branch (FIRM) Breeding Program selects species and traits for the province's diverse ecosystems, and it discovers the best way to adapt to the changing



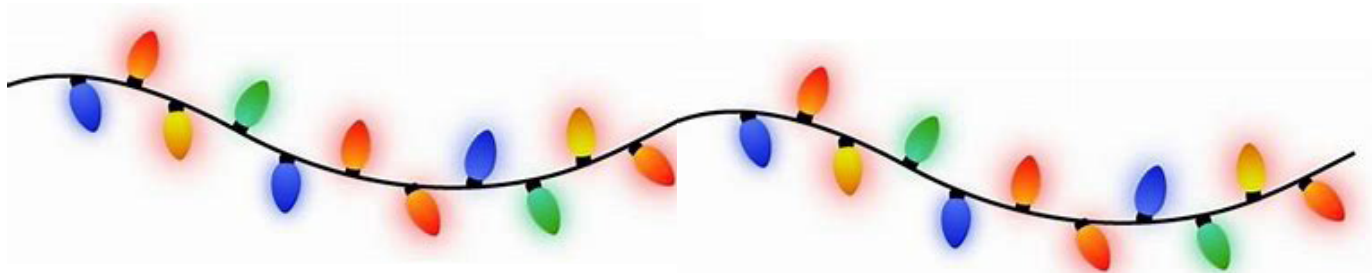
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Cone Picking continued...

climate and even how to migrate some species north. We learned that the Seed Orchard facility does not modify genes the same way as Monsanto, e.g. Seminis® Performance Series® sweet corn. These trees are selectively bred—more like a cat or dog—to exhibit one trait over another, and so there is no risk for cross-contamination as these are really the same trees that would be found within a natural forest.

In CSS, we review the people's enquiry into provincial forestry practices firsthand, and we are thus confident in our response that BC is a world leader in sustainable forest management with evolving environmental practices because of the relationship with our very passionate and knowledgeable colleagues who are hard at work!

Thank you to the Office of the Chief Forester for making our field trip to the Saanich Seed Orchard possible. For more information on the FIRM Branch and their activities, please visit <https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed>.



Welcome Kate Wills – New Dirt Advisory Group Member



Kate works on community engagement and is based in Smithers at the regional office. Kate studied Geography at the University of British Columbia.

She grew up river running, skiing, and stargazing in the Southwest. Like a true New Mexican, Kate loves green chili. After spending several years traveling, she decided to make beautiful British Columbia home.

Kate loves the outdoors and small-town life. On the weekends, you can find Kate exploring local trails and spending time outside. In her down time, she plays the ukulele and bakes with her sourdough starter named Bulkley.

What is the Water Information Services Project (WISP)?

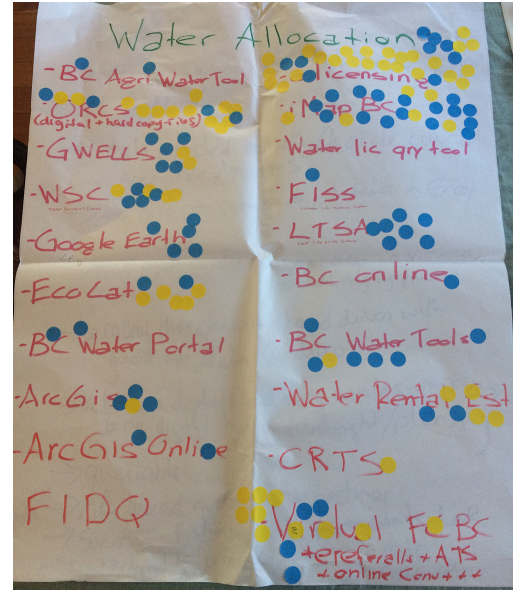
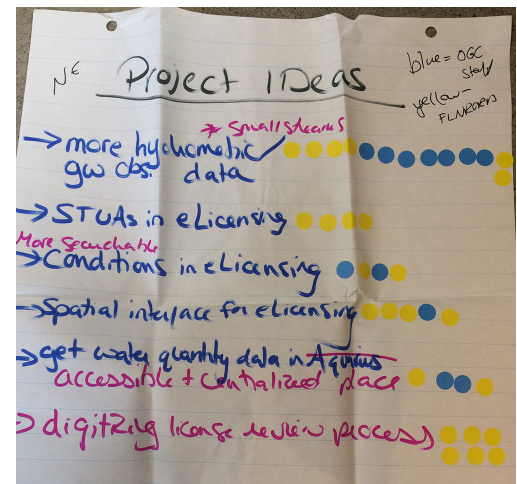
Submitted by: **Rebecca Mersereau** of our WISP project team

Noel Carawan-Hubin, PMP, CMC, Strategic Initiatives and Business Innovation Branch

WISP is a multi-year initiative by FLNRORD & ENV to achieve more accessible, integrated, and user-friendly data and information systems that support the management of British Columbia's water resources. WISP priorities are driven by input from water management staff to ensure results are strategic, coordinated, and respond to the highest priority business needs. In the spring of 2018, we conducted eight regional engagement workshops to identify data and information system related challenges experienced by staff. Through to the end of the WISP funding envelop in 2021/22, the Project Team will continue to work with provincial staff to refine understanding of business needs, and to evaluate and advance technical solutions to address them. To date, eight projects have been advanced through WISP. The five that are ongoing are highlighted below.

WISP technical projects underway to improve data & systems for water

- 1. Prototype for a corporate tool to support water allocation decisions:** advised by a team of provincial subject-matter experts (water authorizations staff, hydrologists and hydrogeologists), an internal software development team is working on a prototype tool to serve the needs of the water allocation staff in the three regions without BC Water Tools: Thompson Okanagan, the South Coast, and the West Coast. For more information, contact the Product Owner: [Lindsay MacFarlane](#).
- 2. Flood Safety project:** the WISP Steering Committee recently approved funding for a project to build a database for dike-related data in eLicensing. This will significantly improve the security, accessibility, and reliability of data that is critical to flood safety and emergency response, while also supporting more efficient approvals for dike-related maintenance. For more information, contact [Rudy Sung](#).
- 3. Dam database enhancements:** a much more efficient and automated system hosted in eLicensing for maintaining dam-related data and managing dam compliance activities is being implemented to support Dam Safety Officers. For more information contact [Jennifer Turner](#).
- 4. Environmental Water Quality System:** In response to what we heard from regional engagement workshops, the WISP Project Team launched an initiative this fall to consider creating a new information system for environmental water quality data. Outreach to stakeholders began with an initial kick off on October 10 in Victoria and online. If you'd like to be involved or provide input, contact [Tarik Dessouki](#).
- 5. Section 10/11 enhancements within eLicensing:** To address inefficiencies with processing WSA Section 10 & 11 applications that we heard about during our regional workshops, WISP funding is being used to create standardized workflows for applications in eLicensing with form fields and assessment templates that populate automatically. Contact [Iesha Adams](#) for more information.



How to Contact Us: Contact the WISP project manager, [Noel Carawan-Hubin](#), to learn more about WISP or to share your ideas and challenges.

Revelstoke – A Dynamic and Evolving Rural Community

Submitted by: Recreation Sites and Trails Branch

Revelstoke is a vibrant mountain town located in a spectacular setting near the confluence of the Columbia and Illecillewaet Rivers in southeastern BC. Surrounded by the Monashee, Selkirk and North Columbia Mountains, and sitting on the doorstep of Mount Revelstoke and Glacier National Parks, this thriving community reigns over what many consider to be a recreation paradise. Once you've been there, it's easy to see why.

Famous for its average annual snowfall of 12-18 metres, and an unlimited supply of mountainous terrain, the Revelstoke area offers some of the world's best winter recreation. Mountain snowmobiling has been a dominating presence for more than 50 years, providing locals and visitors alike with unparalleled opportunities to enjoy BC's rugged backcountry.

In the early 1990s, Recreation Sites and Trails BC (RSTBC) began partnering with the Revelstoke Snowmobile Club (RSC), one of the oldest and largest snowmobiling clubs in western Canada, to develop safe and sustainable snowmobile trails. Today, the club manages and grooms an interconnected network of over 150 kilometres of trails used to access two highly coveted mountain sledding hotspot—Boulder Mountain and Frisby Ridge. Both areas offer vast stretches of prime snowmobile terrain that includes beginner rides, scenic ridges, deep powder bowls, steep climbs, and expert tree-runs. The parking lots and trailheads are all within a 20-minute drive from town.

With over 750 members, the Revelstoke Snowmobile Club has the capacity and experience to manage the huge numbers of snowmobilers that descend on Revelstoke's trail system each winter. In addition to maintaining the snowmobile trails, the club plays an important role in encouraging responsible snowmobile use, promoting avalanche safety awareness, and educating riders on seasonal closures to protect critical mountain caribou habitat.

On some weekends, up to 800 riders pack the slopes at Boulder Mountain and Frisby Ridge. The economic activity generated by snowmobile tourism is a tremendous boon to the community, with hotels, restaurants and other services often running at full capacity.

The RSC collects user fees to help pay for the costs of grooming the trails and maintaining the parking lots and other facilities (cabins, warming huts, ticket booths, etc.). The fees are set by RSTBC, and all proceeds from the sale of trail passes are fed back into the trail system. The RSC has purchased their own groomers with grants from the Columbia Basin Trust and through corporate sponsorship from local businesses. On average, the club sells 25,000 day passes per year to help fund their large-scale operations.



A study by the city of Revelstoke estimates that snowmobiling contributes over \$10 million annually to the local economy based on a winter season of November to Easter.

"The Revelstoke Snowmobile Club has a very good relationship with RSTBC," says club director Ron Laroy. "Together we've built a tremendous snowmobiling destination that offers some of the best terrain, amenities and services found anywhere in the world. Community

support is strong—local citizens and businesses embrace our many educational and youth programs and helped us celebrate our 50th anniversary last season. Snowmobiling has been part of the community fabric for a long time and the benefits to the local economy are obvious and appreciated."

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Revelstoke – A Dynamic and Evolving Rural Community continued...

Revelstoke's vast alpine areas are also in high demand for commercial winter activities like heli-skiing, cat skiing, and downhill skiing, as well as Nordic skiing, backcountry touring, and snowshoeing. The Nordic trail system at Mount Macpherson, located only seven kilometres south of Revelstoke, offers 26 kilometers of groomed trails, six of which are lit for night skiing. The Revelstoke Nordic Ski Club (RNSC) maintains and grooms the trails under a partnership agreement with RSTBC and charges a user fee to help recover service costs. The RNSC received an \$8000 BC Rural Dividend grant to help develop a strategic plan for the trail network, and in 2018, RSTBC contributed \$60,000 in capital funding for parking lot and trail expansions.

When the snow melts, many of Revelstoke's winter recreation areas are used for mountain biking. The demand for mountain biking opportunities has risen dramatically over the last 10 years and applications to develop new mountain bike trail systems are increasing every year. Over a short period of time, Revelstoke has evolved into a major mountain biking centre and a bonafide four-season tourism destination.

"The demographics of Revelstoke are changing rapidly," says Danielle Dornik, acting District Recreation Officer. "The mountain biking community has grown so much that the summers are now as busy as the winters. We have so many incredible riding areas and the choices are limitless. If you love the outdoors, this is the place to be."

Most of the popular mountain biking networks in the area are managed by the Revelstoke Cycling Association (RCA) under a single partnership agreement with RSTBC. The riding terrain covers all skill levels and provides a broad range of mountain biking opportunities across different geographic locations. Mount Macpherson offers mostly cross-country trails, Boulder Mountain is primarily downhill tracks, and the popular Frisby Ridge provides an alpine trail experience, with some difficult and challenging sections, along with an extended downhill trail that connects with Boulder Mountain.

Some of Revelstoke's mountain bike trails see more than 9000 riders per season and these numbers are expected to continue to grow.

Much of the access to Revelstoke's backcountry, for both winter and summer recreation, can be linked to the extensive resource road network in the area. The snowmobile trails used to access alpine sledding areas were all at one time industrial forestry roads. Some of these are periodically re-activated as logging roads during snowmobile season, in which case alternative trails are utilized until the harvesting is completed. The same can be said for the access routes to most of the mountain bike trail networks. Local off-road vehicle (ORV) enthusiasts use the area's abundant forestry roads as riding trails and are currently working with RSTBC to develop a motorized trail network on deactivated logging roads.



The exponential growth in year-round recreation in the Revelstoke area has resulted in a shift in public expectations when it comes to sharing provincial forests with the forest industry. Kevin Eskelin, RSTBC Regional Manager, South Interior East, is quick to point out the important role the forest industry has played in developing Revelstoke's extensive opportunities for backcountry recreation. "As is common in many parts of BC, the forest industry provides access to many popular recreation areas that would otherwise remain largely inaccessible to the general public."

continued...

Revelstoke – A Dynamic and Evolving Rural Community continued...

Eskelin is keen to remind recreationists that public recreation sites and trails are developed on Crown land that is usually part of the 'working forest' where tenured forest companies hold timber harvesting rights and the occurrence of some logging is to be expected. At the same time, forest licensees need to consider local public values when exercising their social licence to harvest timber in an area so popular for recreation. The task ahead for Revelstoke, says Eskelin, is to find a workable balance for managing recreation values and timber resources on the same land base in an area that is increasingly being defined by its tourism potential.

Developing recreation and tourism opportunities in the Revelstoke area has been so successful that local recreation groups are now looking for opportunities to expand the recreation infrastructure to meet ever-increasing public demand. In 2016, the Revelstoke Snowmobile Club constructed a Welcome Centre at the base of Boulder Mountain to provide a source of local knowledge and safety awareness information for the growing numbers of snowmobilers attracted to the area. The club has also applied to expand their grooming operations to an additional four snowmobile riding areas. Mountain biking groups in turn are applying to develop new trails, expand existing trail systems, and improve the connections between established trails to create longer and more varied rides.

From a management perspective, RSTBC will need to monitor the capacity of its partners to ensure that proposed new and expanded developments remain safe for public use, environmentally sustainable, and operationally sound. The key, as always, being to maintain recreation amenities and preserve the quality of experience for both local users and tourists.

As more people continue to be attracted to the outdoor lifestyle in Revelstoke, the area is quickly becoming a hub for adventure recreation. Besides the typical winter and summer recreational pursuits, Revelstoke also offers newer and evolving sports like heli-hiking, snow biking, and heli-biking.

No matter the time of year, or your recreation activity of choice, chances are Revelstoke can provide you with an exciting and unforgettable outdoor experience. One that may tempt you to relocate here ... or at least keep you coming back for years to come.

Since opening in 2007, the Revelstoke Mountain Ski Resort has been a major recreation and tourism draw for the area. Boasting the longest vertical lift access in North America (1713 metres), skiers are attracted from as far away as Europe. The resort has also expanded operations to include summer recreation activities such as hiking, mountain biking, paragliding, white water rafting, and kayaking.



Interested in reading past newsletters?

You can find archived ministry newsletters dating all the way back to 1922 at:

https://www.for.gov.bc.ca/ftp/HEX/external/!publish/Web/News_Letters/

We hope you enjoy reading about the past!

Rising from the Ashes: 2018 Wildfires in British Columbia create a modern-day 'gold-rush'

Submitted by: Kate Wills, Community Engagement Project Assistant, Skeena Natural Resource Region



In 2018, there were 2,117 wildfires in British Columbia which burned a total of 1.35 million hectares or about half the size of Vancouver Island. It was the largest wildfire season on record and affected all regions in the [province](#).

The charred landscapes and scars left in the wake of the 2018 wildfire season will continue to impact the communities, forest economy, and ecology for decades to come. For employees of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development, there is still a lot of work ahead of us. However, there is a silver lining to the wildfires.

In the Spring and early Summer an abundance of honeycomb-like mushrooms, known as morels, emerged from the ashes of the wildfires.

Foraging for wild morels is part of an estimated multimillion-dollar industry. Morel mushrooms are a prized delicacy dished up by celebrated chefs and foodies around the world. The lucrative fungi are loved for their nutty, earthy flavor.

On the open market, fresh morels

sell for \$25 dollars/lb. and dried morels sell for [\\$140/lb](#). Pickers can make several hundred dollars in a [day](#).

The wild morel picking industry is known for its “wild west” character. Each year an influx of pickers and buyers hunt for the mushrooms with a “modern-day gold rush” enthusiasm. Many commercial mushroom pickers are free-spirited nomads that follow the growth of the mushrooms from the Yukon across the 49th parallel.

The industry is largely unregulated, and the number of morels harvested each year is unknown since many companies are unwilling to share data and the provincial government does not track it. Furthermore, pickers are paid almost exclusively in cash.

In the race to harvest mushrooms, pickers might leave behind garbage, human waste, and new trails. This has been a point of frustration with many First Nations communities.

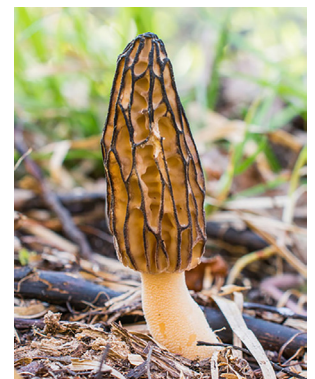
Some First Nation communities have created education programs to encourage responsible, safe, and low-impact mushroom harvesting. Mushroom pickers were asked to respect no-picking zones, private lands, and use designated campsites that in many cases provided portable toilets and garbage pickup. The Tahltan Nation, for example, had their Guardians patrol wildfire areas and educated pickers about responsible harvesting and reducing their ecological impact.

“The presence of the Guardians seemed to make them [mushroom pickers] more respectful of the land and aware of the ecological impact they had in the area,” said Hans Erasmus.

Hans is a Project Manager for Regional Operations in the Skeena. He was visiting Telegraph Creek to discuss rehabilitation prescriptions with the Tahltan Lands Director near a mushroom picking campsite. While discussing the rehabilitation for a fireguard crossing a creek, they stumbled across a field of morels.

They picked a few morels and connected over the mutual appreciation of the mushroom. It created the opportunity to connect and helped further the conversation around fireguard rehabilitation.

For many pickers, harvesting morels is lucrative work. But for other people, the search for morels is about the simple pleasure of being outdoors, discovering the honeycomb-like treasures, and enjoying their nutty, earthy flavors. And, in some cases, harvesting morels can be a way to further conversations and strengthen relationships between the provincial government and First Nation groups.



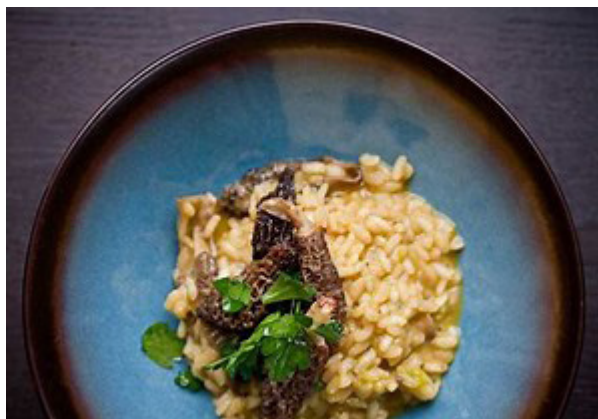
Foraged Morel Risotto

While celebrated chefs and foodies around the world pay top-price for morels, British Columbia residents are fortunate to have them growing in their backyard. Perhaps you or someone you know discovered the honeycomb-like treasures earlier this year. If so, this is a must-try recipe. If you don't have any dried morels, they can be substituted for the dried wild mushrooms sold in most grocery stores.

This dish is best enjoyed in the company of friends and family when the nights are shorter and the air is crisp with the promise of snow.

Ingredients

- 1 handful of dried morel mushrooms
- ½ pound fresh cremini mushrooms
- 6 cups mushroom or vegetable stock
- 6 tablespoons of unsalted butter
- ½ cup chopped shallots
- 2 sticks of celery, chopped
- 1 ½ cups Arborio rice
- ½ cup dry white wine
- Salt
- Fresh cracked black pepper
- 2/3 cup freshly grated Parmesan cheese, plus extra for serving
- Flat leaf parsley for garnish



Method

1. Place the dried morels in a bowl and pour 2 cups of boiling water over them. Set aside for 30 minutes. Scoop the morels from the water. If some of the morels are large, cut into bite-size pieces.
2. Meanwhile, rub any dirt from the cremini mushrooms with a paper towel. Slice thickly and place aside.
3. In a heavy-bottomed pot or Dutch oven melt the butter and sauté the shallots and celery over medium heat. When the shallots begin to turn golden, add the cremini and morel mushrooms. Add the rice. Give it a good stir and cover the grains of rice with butter. Add the wine and cook for 2-minutes. Add two ladles of stock. Stir and simmer over low heat until the stock is absorbed, 5 to 10 minutes. Continue to add the stock, one ladle at a time, stirring every few minutes. Allow each ladleful to be absorbed before adding the next. Continue adding stock until the rice is soft, but still al dente, about 30 minutes. When the risotto is done it should be thick and creamy. Turn off the heat, stir in the Parmesan cheese. Season with salt and cracked pepper to taste.
4. Serve hot. Garnish with freshly grated Parmesan cheese and parsley. Enjoy.

Have a Story idea?

Send *The Dirt* Advisory Group your ideas!

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Science Policy Forum - FLNRORD-NRCAN

Submitted by: Luisa Ramirez (Mitacs Canadian Science Policy Fellow)

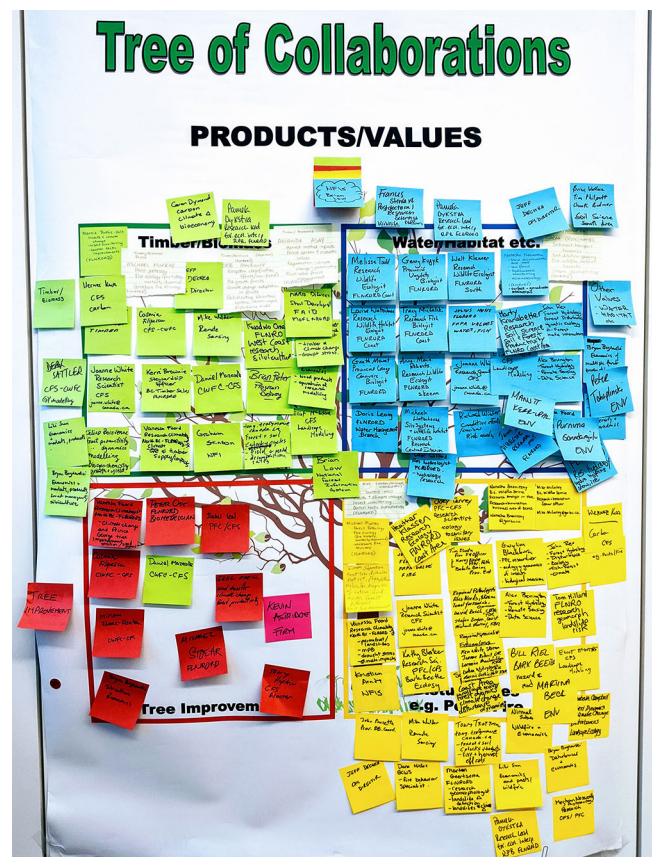


As the 2019/20 Mitacs Science Policy Fellow, I was delighted to see the interest and active participation of scientists and policy staff in the Science Policy Forum that took place on Nov 19 and 20th. The Forum was organized by FLNRORD and Natural Resources Canada (NRCAN) and hosted by the Pacific Forestry Centre in Victoria. The meeting was a great opportunity to promote communication and enhance collaboration between and among scientists and decision makers from the Federal and Provincial governments.

More than 65 researchers, policy makers, and managers participated. The meeting was spearheaded by the Chief Forester Diane Nicholls and the Director of NRCAN Judi Beck who opened the meeting by emphasizing the value of ongoing collaborations among federal and provincial governments and invited the audience to increase partnerships to advance knowledge and to find innovative solutions to address natural resources environmental changes.

The Forum started with an update on the *Forest and Range Practices Act* (FRPA) renewal given by Norah White followed by a keynote presentation from Werner Kurz on Climate Change Challenges. Plenary presentations by Lorraine Maclauchlan, Cosmin Filipescu, and Ben Morton set the stage for panel discussions on four topics: Natural Resources Values and Products, Tree Improvement, Forest Health, and Landscape Level Planning.

The Forum included two breakout sessions for four topics: 1- Forest Values such as Timber and biomass, 2 - other Forest Values such as water and habitat, 3 - Tree improvement, and 4 - Forest disturbances such as pests and fire. For each, the first breakout session identified the current top research opportunities with a focus on policy and federal-provincial research collaborations. The second session developed more detailed plans to investigate these opportunities. An innovative activity introduced at the Forum was 'The Tree of Collaborations' where the attendees placed their names and areas of expertise together with the names of their colleagues. The Tree of Collaborations is now a comprehensive directory where both organizations can find scientists and decision makers by topic. Research priorities and collaboration opportunities identified in the Forum as well as the directory will be available at the end of December in the following link <https://gww.nrs.gov.bc.ca/flnrord/forest-improvement-and-research-management/research-program>.



continued...

Science Policy Forum continued...

Takeaways from the plenaries:

FRPA and Opportunities to Science-Policy

integration (Based on the presentation given by Norah White, Manager, Sustainable Forest Management, FLNRORD) Nora gave an overview of the FRPA renewal process and identified opportunities for science and policy integration. FRPA changes are guided by three main goals: **1-** Reposition government as the land manager, **2-** Equip land managers to work towards resilient ecosystems in the face of uncertainties such as climate change, and **3-** Create new opportunities for collaboration with First Nations in alignment with the UN Declaration on the Rights of Indigenous Peoples and Bill 41 the *Declaration on the Rights of Indigenous Peoples Act*.

The role of scientific research to inform these changes is fundamental. Concrete opportunities for researchers to inform the FRPA renewal process include providing recommendations to the pilot projects to test how landscape level plans can be developed. Another opportunity for science integration into the FRPA policy development process is informing the regulations and practice requirements. There is an opportunity to influence the next significant provincial policy changes. Some of the key forest management issues that need to be addressed in upcoming amendments and guidelines include ecosystem resilience, forest carbon management, and water management.

Climate Change Challenges (Based on the presentation given by Werner Kurz, Senior Research Scientist, NRCAN)

Dr. Kurtz presented findings of the Forest Carbon Management Project focused on the potential contribution of the BC forest sector to greenhouse gas (GHG) emission reductions. He emphasised the opportunity of climate change mitigation portfolios in the forest sector to account for a net reduction in GHGs. A key message is the need to understand the GHG balance and find management practices that help sustain and enhance forests capacity as carbon sinks. A systems approach is necessary to undertake the pressing policy challenge of forest management to increase carbon storage, reduce emissions from disturbances, and provide timber, fiber and energy to support decarbonization pathways for a sustainable bioeconomy.

BC's Forest Health (Based on presentation given by Lorraine Maclauchlan, Forest Entomologist-FLNRORD)

Successful collaborations have helped addressing forest health problems in BC and have informed management and policy. Examples include: the interior spruce hazard rating based on climate warming, development of policy for harvesting and regenerating spruce in high hazard zones, and strategies for managing mountain pine beetle. Current evidence indicates that BC needs to be ready for unprecedented outbreaks (numerous and concurrent) of native and invasive insects and disease. Priorities include: adaptive and proactive approaches for planning, predicting, and managing insects; faster responses to episodic events; and proactive strategies based on species resilience. Also, there is a need to focus on developing new and innovative tools like single-tree treatments, predictive tools (risk models), evaluation of control measures, and conducting studies on dispersal mechanisms of pests.

Collaborative Research Update: Drought Impacts

(Based on the presentation given by Cosmin Filipescu, Research Scientist, NRCAN)

Tools developed through ongoing collaborative research designed to anticipate and address drought impacts on forests include: climate and microclimate adaption, site preparation and modification, regeneration practices, and selection of species and genotype. Key research priorities to manage drought impacts include multi-trait tree selection to identify species with good performance under current and future growing conditions, as well as the identification of species with good productivity and tolerance to stressors.

Great Bear Rainforest (GBR): Ecosystem-Based Management (EBM) (Based on the presentation given by Ben Morton, Manager Regional Operations, Coast Area, FLNRORD)

An EBM approach provides a framework to integrate environmental values and social needs to incorporate new and challenging considerations for landscape planning such as climate change and indigenous reconciliation. The GBR management plan based on EBM integrates science, traditional and local knowledge. Science and policy partnerships across governments, indigenous communities, environmental non-governmental organizations, forestry companies, and independent scientists were the foundation for GBR planning success. Three decisive elements: using independent science to legitimize the process, flexibility and adaptation to address complexity, and a shared vision to overcome conflict.

Traditional Team Building Activity

Submitted by: Frank L. Kohlberger, RPF, BSF, Dipl For Tech, Planning Forester, BCTS, Kamloops TSO

Each year BC Timber Sales – Kamloops Business Area (TKA) holds a meeting in the fall, and each year team building is a part of the agenda. In 2019, the TKA Planning team organized the meeting, and I volunteered to organize the team building activity.

FLNRORD is aware of Government's commitment to implementing the UN Declaration on the Rights of Indigenous peoples, and of the 10 draft principles that guide the province's relationship with indigenous peoples. Given TKA's location in the province, we engage with close to 60 indigenous communities, with whom we have been proactive in building collaborative relationships and partnering for mutual benefit. When I volunteered to organize the team building, I recalled talking with Joe Jules from Simpcw First Nation many years ago, and him telling me about teaching traditional games to youth in his community, because he did not want the traditions to be lost. This memory contributed to my thinking that there must be traditional indigenous team building activities, and that it would be great to experience and learn from something like that at our fall meeting. In talking about this, both my teammates and TKA leadership agreed that it was worth investigating.



So, investigate I did. I reached out to members of several indigenous communities, asking if they were aware of any traditional team building activities, if they felt it would be OK to share something like that with us at our meeting, and if they were able to attend and guide us through the activity. Each community member I spoke with was glad that we were interested in doing this, and I was happily presented with a wonderful variety of suggestions. Darrell Eustache, Instructor in Natural Resources at Nicola Valley Institute of Technology told me about something called “the stick game”, and suggested I research it on the web. I found out that this game (also known as “the hand game”) predates recorded history, and that according to legend, people originally learned it from the animals. It is played by north American indigenous groups in Canada, and in the USA as far south as California. Over the ages the game has had significant importance in trade, gatherings and celebration. Game pieces of bone and wood have been found in ancient

anthropological digs. The game involves singing, drumming, rattles, non verbal communication, and it can be played for money, prizes or just for fun. I also realized that this was a game that Joe Jules was teaching in his community.

The game was intriguing from both a cultural learning perspective, and from a team building perspective, so we moved forward with that as our team building activity.

In doing my research I had also contacted Ted Gottfriedsen, Language and Culture Manager with Tk'emlups Te Secwepemc. He too was supportive of the stick game idea and indicated that he knew someone who could probably help guide us through the activity. Ted connected me with Gabriel Archie, Language Planning Coordinator at Tk'emlups. ‘Gabe’ and I met one Sunday afternoon for coffee. I found out that he is a member of the Canim Lake Band and is currently working with Tk'emlups. We discovered that we have many interests in common and spent a couple hours chatting. Gabe said that he would be happy to join our meeting and guide us through the stick game, which he taught me is called “Lehal” in the Secwepemc language.

continued...

Traditional Team Building Activity continued...

Ok, fast forward to the day of the meeting. When it was time for the team building activity, Gabe first provided an introduction and brief history of the game. He then had us divide the 60 or so attendees into 4 teams. First, we ran two Lehal games simultaneously, then the winners of those two games played a final game to determine the champion team. Gabe brought with him Gerry and Irene Charlie from Tk'emlups to help teach and guide us through the games. They brought all the necessary game pieces, as well as rattles, drums and songs which BCTS staff joined in on.

Before the meeting, staff knew that there would be a team building activity but had no clues as to what it would be. As is normally the case with an unknown activity, we were a bit uncertain, and when the games began, a bit tentative. It wasn't long before the warmth and humour from Gabe, Irene and Gerry had everyone feeling comfortable. Then when the games got rolling, energy just kept building. Once everyone caught on to the rules, the games really became exciting. The final was particularly energetic, with much singing, cheering and laughter. When the final game was over, the teams shook hands, and Gabe presented the trophy to the winning team. We of course thanked Gabe, Irene and Gerry who were also able to join us for lunch and were gracious in answering lots of questions.

All in all the meeting was a success, thanks to the TKA planning team's organizing skills, and based on comments from attendees, one of the highlights was learning more about indigenous culture, and enjoying a positive and fun team building activity called Lehal: "super fun"; "Really good, a learning experience"; "Good bonding for the teams, and with the indigenous community members." And here are a few words from Gabriel Archie: "I thoroughly enjoyed the experience. The way everyone was glad to be there and take part was great. I hope to keep doing things like this."

At TKA we very much look forward to more cultural experiences, and of course to better knowing our local indigenous communities. If you have any questions or would like to find out more, please feel free to contact me at 250-371-6557.



The Dirt Photographers!

Time to get out and snap some photos! *The Dirt* Advisory Group increasingly requires good quality digital photos for the quarterly newsletter. We acknowledge that there are skilled photographers among ministry staff and would like to showcase your photos in each quarterly edition.

Categories

Photos can consist of:

- Workplace images – individuals or groups/teams in office and field settings; health, wellness and social activities;
- Community involvement;
- Wildlife; or
- Scenic.

Submission Details

- Deadline for submissions is changed with each edition and will be noted on the previous edition.
- Images can be submitted to: FLNRNews@gov.bc.ca
- The contest is open to all ministry employees and retirees.
- Interested staff can make submissions to as many editions (season/category) as they want, but there is a limit of 5 images per category.
- We are looking for recent photos; please limit your entries to shots taken within the past 2 years.

Prizes and Judging

- There will be an overall “Best” image in each category;
- Judging will be done by the Advisory Group;
- Images will be judged on composition, clarity, exposure, creativity, relevance to the ministry and category fit;
- The winner of the “Best” image in each category will be sent a prize for their photo (see Prizes available);
- Individuals can win only one prize; and
- All winners will be announced with their photo in the edition of the newsletter.

Technical Specifications/Requirements

The following specifications and requirements have been established to ensure that images can be used in a variety of applications.

1. All images must have relevance to the ministry and be submitted in digital format.
2. All images must be in full colour or black and white.
3. Photo dimensions (image size) should be at 300 dpi and preferably in a JPG format and sent to FLNRNews@gov.bc.ca.
4. Images can be digitally enhanced (i.e., colour/exposure adjusted composite photos are okay), but not digitally altered (i.e. NO “Photo-Shop” images must portray subjects and/ or material in photo as they were captured).
5. When submitting images, some descriptive information is to be included – category or image and location.
6. All images submitted, whether or not selected as a winning image, may be published in future issues of the newsletter or potential other sources (The [Dirt Facebook](#) account)

The DIRT Prize Inventory



Fruit infusers/water bottles
Blue or Green



Men's small hoodie, navy



Drybag for phone or tablet



Portable power bank



Golf Towel – dark blue



Pocket magnetic flashlight –
colours as shown

For further information, contact:

FLNRNews@gov.bc.ca

DEADLINE IS MARCH 13, 2020

Photo Contest Winners

Wildlife Category - taken from its prey's perspective, is of a Great Blue Heron (Ardea Herodias) from Powell River, BC, within the Sunshine Coast Natural Resource District.
Photo taken by: Thomas Rost, RFT | Senior Engineering Technologist
Sunshine Coast Natural Resource District



Taken by a stationary field camera

Carl Morrison District Ecosystem Biologist, Regional Operations Division Coast Area



Workplace Category - Prescribe burning in the Kootenay Lake Fire Zone, spring 2019

Photos taken by: Billy Stevens, SEFC Operations-Wildfire Assistant, BC Wildfire Service



Pine mushrooms near Kitwanga, BC, Sept 2019

Photos taken by: Johnson Ginger, RFT, Engineering Officer-BCTS



Photographers, please contact the [Advisory Group](#) to claim your prize or contact [Kimm Magill-Hofmann](#) directly.

BERG'S EYE VIEW

by Shane Berg



The Dirt is a quarterly newsletter for all employees and former employees.

Sonia Donison is providing management, coordination and production for the newsletter. Questions or comments about the newsletter should be directed to Sonia at 778 974-5834 or via [email](#).

Call for Stories/Ideas

The success of the newsletter depends upon the active engagement of staff throughout the organization. One way for people to support the newsletter is to share your ideas, news, stories, successes, experiences with revitalization and learning, celebrations and photos for use in future editions of the newsletter. People are asked to check with Sonia at 778 974-5834 or via [email](#) about their idea or ideas for an article prior to writing the story. Stories are to be submitted no later than 2 weeks prior to each quarterly edition (March, June, September, December). Article deadlines for the next edition is March 13, 2020.



[SUBMISSION GUIDELINES](#)