

We have been able to make major changes in our patterns of consumption, employment, and transportation, and have taken steps to ensure others, who need assistance, are taken care of. We have sacrificed much, and in doing so, have learned and affirmed that health, not wealth, is most important in our lives.

Little did we know that while we were flattening the Coivd19 curve, we were also succeeding in flattening the carbon curve. Scientists tell us that during the pandemic, a reduction in our use of gas-powered airplanes and vehicles led to an immediate improvement in air quality and a significant decline in carbon emissions. We learned parkland and natural spaces in our communities are essential to our emotional and physical health. We learned that we are all connected and what happens in distant places affects us all.

Our response proves that we have what it takes to address the climate crisis. We can use the power of collective action to follow the science and create a climate friendly economy and blue-sky future for everyone.

Bald eagle photo courtesy Rick Skerry, Mission Cover photo Black bear, Bruce Klassen, Silverdale

Connected Waters, Connected people: Flood control that works for people and fish

he floodplains of the lower Fraser have become physically disconnected from the mainstem of the river due to immense human development over the last 150 years. The region has been heavily ditched, drained and diked, creating a fragmented land-scape with severe impacts on wild salmon, sturgeon and many other species.

At Watershed Watch Salmon Society, we've been working to reconnect vital salmon habitats in the lower Fraser blocked by outdated flood control structures. Habitat loss is a key factor in the decline of struggling Fraser salmon populations. By upgrading to fish-friendly flood infrastructure, and undertaking restoration works like riparian plantings and removing invasive species, over 1500 kilometres of critical salmon habitat can be reconnected to the Fraser.

Although simple in theory, implementing solutions can be complex. All levels of government and a variety of stakeholders must work in collaboration to fix both the outdated physical structures and the outdated legal structures that govern flood management.

Since we started working on this campaign, some positive steps have been taken. In 2018, the Union of BC Municipalities passed a resolution in support of fish-friendly flood control. This led to the issue being identified as a priority in the provincial wild salmon strategy.

In June 2019, we hosted *Resilient Waters: Managing Floods for All*, a two-day workshop on Sumas territory in Abbotsford, involving federal, provincial, municipal and First Nation governments, Indigenous groups, academics, agricultural associations, and conservationists. This meeting

was a turning point in our efforts because, for the first time, it brought together a diverse range of experts who had not previously worked together in any cohesive way. Now, we are poised to build on these relationships and find opportunities for fish passage works across the region. In 2019, in partnership with Make Way (formerly Tides Canada), we were awarded government funding to identify the most viable sites for infrastructure upgrades and habitat restoration. This project will lead to the re-opening of several high-value Fraser salmon habitats.

As part of our efforts to reconnect floodplain habitats, Watershed Watch joined a coalition to protect an area known as the Heart of the Fraser. This important gravel stretch of the Fraser river, which provides prime spawning and nursery habitat for salmon and white sturgeon, was under threat of development.

If development plans had proceeded, we would have lost a large area of habitat critical to the salmon life cycle. The region provides rearing habitat for juvenile chinook salmon and other small fish who find refuge in its side channels and slow moving waterways during the seasonal freshets. Pink salmon spawn in the region, as do endangered white sturgeon.

We interfere with a highly complex environment every time we remove land from the floodplain. Destroying more habitat for endangered Fraser salmon populations will affect the many species that depend on them throughout the food chain.

We've lost too much to unchecked growth. Looking downstream, from the Heart of the Fraser towards Vancouver, you can see what could happen to this ecological-





ly-rich area if development proceeds. Though the Heart of the Fraser is a shadow of its pre-colonized self, it serves as a potent reminder of the lushness of the Fraser Valley.

Due to immense public pressure, the work of dedicated river advocates, and the wisdom and leadership of the region's First Peoples, the development permits were denied last year. Now our focus is on permanently protecting these islands. This means ongoing advocacy for designation of the area as an *Ecologically Sensitive Area* under the recently updated Fisheries Act.

To ensure the story of this region is celebrated and not lost, a documentary and photo book were released in 2019 by BCIT's River's Institute and partners. We've been hosting and attending numerous film screenings across the province, with more to come. Every screening we attend reminds me why this work is important because, at every screening, I hear people's concern and frustration with the ongoing, persistent destruction.

I would be remiss not to acknowledge the role Covid-19 has played in tackling this issue. We have an opportunity now, more

than ever, to ensure government investments in Covid19-related economic stimulus are directed towards green infrastructure solutions such as large capital investments like flood works. Our governments are talking about building BC back better and there is no better way to do so than improving and restoring waterways for all.

Looking back, I'm encouraged to see what we can achieve when passionate people come together. It gives me energy and confidence that we can achieve strong protections for Fraser River salmon and their habitats.

Lina Azeez, campaigner for

https://watershedwatch.ca

With a background in community-based resource management, Lina works to reconnect and restore salmon habitat in the Lower Fraser watershed impacted by flood infrastructure.

Pinks Moving Upstream painting by Leanne Hodges

Kayak photo courtesy Lisa Reid



The heavy economic and environmental footprint of Silverdale sprawl

t has long been known that residential development does not pay for itself due to the high costs of building and maintaining infrastructure (e.g., water, sewer), services (e.g., garbage collection, fire, police), and amenities (e.g., parks, schools). The most expensive places to develop are green spaces with no existing infrastructure. Because commercial and industrial developments pay a higher property tax rate, sprawling residential subdivisions increase pressure to rezone agricultural land. For these reasons, sprawling subdivisions in greenspaces have a heavy economic as well as environmental footprint.

A case in point is the plan for massive residential development of the forested rural community known as Silverdale, Mission. The 3,440-acre Silverdale Comprehensive Planning Area (SCPA) is bordered by Silverdale Creek to the east, rural, agricultural and Kwantlen First

Nations lands to the north, Silvermere Lake to the west and the Fraser River and Agricultural Land Reserve (ALR) lands to the south. Silverdale's forests, streams and wetlands support wild salmon and are important habitat for numerous local wildlife species, including many classified as at-risk (e.g., endangered Oregon forestsnail, Western screech owl, Red legged frog). Over 40%, (approximately 1,400 acres) of the hillside has been designated as having high or medium conservation value due to sensitive ecosystems, streams, and archeological potential.

Mission residents have long expressed concerns regarding the environmental impacts, damage to the natural springs and streams that provide locals with water, and the costs of developing in this area. According to a financial analysis presented at Mission's Special Council meeting June 29/20, the infrastructure needed to make development in Silverdale possible would cost \$442 million. Another \$165 million would be needed to fund basic amenities such as a new firehall, community policing station, and 65 acres of parkland/amenity sites. These estimates do not include money for new schools, or the \$22 million needed for a new sanitary sewer crossing of the Fraser river. To put these costs in perspective, the sewer line alone could cost Mission residents a 3-4% property tax increase if federal and provincial funding is not received.

In response to their concerns, Mission residents may recall assurances that Silverdale developers would pay for all public infrastructure as well as many amenities, a promise documented in the LAN.48 Silverdale urban residential neighbourhood plans terms of reference policy which stated:

"All public infrastructure services of water, sanitary sewer, storm water, roads, parks, public recreation and natural open space for urban density development within the Silverdale 'urban residential' area shall be paid by the developer, and located on public land or on property provided by the developer." (LAN.48 pg 3).

However, LAN.48 has now been replaced by LAN.64 and council is considering other funding options such as phased development and a Development Cost Charge (DCC) program. To recover the extraordinary costs to develop Silverdale would require development cost charges of over \$49,000/unit (about double what is paid in Maple Ridge) and another \$6,000-13,000/unit in community amenity contribution (CAC) charges.



It is unlikely the townhouses or condos that make up the majority of the Silverdale development will be affordable given these \$55,000-\$62,000/unit charges. One option council will consider may lessen the DCC and CAC burden on developers but puts Mission taxpayers on the hook for periodic amenity funding and, presumably, if there are unforeseen costs or overruns during the projected 80-year build-out time frame of the development. Mission has already spent \$700,000 for planning studies and that money cannot be recovered. On July 20/20, they also approved hiring an engineer-planner to coordinate the infrastructure planning and then become a permanent \$137,500/year staff member in 2022, a budget increase also not included in the DCC budget analysis.

Despite the enormous impacts this development will have on the future of our community, public consultation appears to be limited to a few open houses which may end up being virtual due to the Covid19 pandemic. Many important questions remain unanswered.

What are the short- and long-term risks of financing such an enormous undertaking estimated to take 80 years to reach completion? What about Mission's climate commitment responsibilities and how this kind of sprawling development will reduce Mission's tree canopy, increase the urban heat island effect, and increase traffic? When asked if the proponent could sue the District if council does not approve or asks for changes to the plan, staff argue that council could stop the process at any time. However, council is also considering a legal binding Phased Development Agreement, which would prevent future councils from canceling or altering the plan, regardless of how economic conditions may change!

The bottom line is, while developers and real estate agents may see this proposal as a windfall, and staff and council may see it as a trigger for yet more development, there is very little in the proposal for the current residents of Silverdale or Mission to justify the enormous

cost, risk to taxpayers, and drain on municipal resources. Given the enormity of the infrastructure costs, the proposal exposes taxpayers to unacceptable levels of risk should costs go up, or if things do not go according to plan. Residential development of Silverdale will not result in a decrease in property taxes and will make Mission's residential: industrial/commercial ratio worse than it is now which will surely add pressure to exclude more agricultural lands for industrial or commercial development. Significantly more economic benefits of growth can be realized with the densification of already developed and serviced areas, and in Mission there are many places which can be developed with a much smaller environmental footprint.

Development of Silverdale is touted as an 80-year plan. For a balanced sustainable development approach, Mission needs an 80-year conservation plan which includes protection of farmland to enhance sustainability, re-

silience, and food security of our community. At the very least, there should be compensation for the loss of wildlife habitat, which will be very significant. A web of stream setbacks with a trail will not support much of the current local wildlife, particularly if the setbacks are reduced in size during neighbourhood planning as is often the case unless adequate tree canopy targets are established throughout the development. Protecting the salmon spawning and eagle habitat of the lower Stave river estuary, including Silvermere lake and Island, with a District park/conservation area, would help to compensate for Silverdale's heavy environmental footprint.

CAUSS asks council to address the parkland and tree canopy issue, ensure Mission residents are not put on the hook for Silverdale's enormous costs, and no district debt or long-standing agreements are made without meaningful public consultation and a referendum.

Tracy Lyster,
Citizens Against Urban Sprawl Society







up about 80% of their diet and the remainder including things like small rodents, fish, insects, carrion (dead animals), and sometimes young deer, elk, and moose. As they seek out lush and protein-rich new grasses and other vegetation to get their digestive system started, they may be seen along roadways or travelling through communities. This is when first encounters with unnatural attractants can occur and collisions with vehicles can increase. In the fall they will also congregate in numbers when the salmon return. These salmon-bearing streams may also criss-cross urban landscapes. While bears travel from one natural food source to another, it is important that we don't give access to unnatural attractants or a reason to linger. Bears are often active at night in urban areas when humans are less active. Garbage or compost carts on the curb are a strong temptation for bears and their keen sense of smell can detect these from over a kilometer away. Keeping garbage securely stored until the morning of collection is one of the most effective ways to reduce food-conditioning and conflict. When bears prepare for hibernation they enter a phase of extreme eating ("hyperphagia"). During this time, they require 20,000 calories per day to build necessary fat reserves and offset the 30% loss in body weight they experience during winter. Over-reliance on wildlife attractants can impact the health and survival of bears and other animals. Furthermore, some bears may not hibernate at all if the weather is good and food is still abundant; in places like southwest B.C., mild winter weather plus bears not hibernating equals many more possibilities for human-bear conflict!

Together, we can avoid negatively impacting wildlife and help keep our friends, family, and neighbours safe by following these best practices:

- Never intentionally feed wildlife
- Secure garbage, compost, and other attractants
- Keep pets on a leash, especially when wildlife are likely to be encountered
- Keep bird feeders out of reach of bears; avoid using them when bears are active
- Use electric fencing to protect crops, livestock, and bee hives
- Learn how to react when encountering wildlife
- Learn more by visiting our website <u>www.wildsafebc.com</u>

Vanessa Isnardy, BSc., WildSafeBC Provincial Coordinator Kamloops, BC

Erin Patrick, BSc., Dipl. T., British Columbia Conservation Foundation
Maple Ridge, BC

Black bear photos, courtesy Rick Skerry, Mission, BC

*WildSafeBC is here to support British Columbians by helping communities adopt evidence-based best management practices for reducing human-wildlife conflicts.



ot all animals get to hide away from the cold of winter in the ways we humans get to enjoy. Unable to hibernate or migrate, one creature in particular had to devise a way to survive the harsh winter months - the Pacific water shrew (Sorex bendirii). Found nowhere else in Canada, this small mouse-like creature is red-listed federally, and at risk of disappearing from our backyards.

Pacific water shrews average 15cm in length, including the tail, and weigh no more than two to four loonies. They are covered in a dark brown to grey fur which is lighter coloured on their bellies. You can distinguish them from mice by their tiny, almost invisible, ears and long upturned snout. With their small body size they have an extremely high metabolism and need to eat constantly to survive. They eat more than their own weight each day and 3 hours without food can be fatal! These voracious carnivores hunt down insects and small invertebrates like slugs, snails, and earthworms.

Most shrews are land-based creatures but due to the lack of available food in the winter, these shrews had to turn to another environment - the underwater world. The water shrew is the world's smallest diving mammal and this opened up a whole new buffet. Many of the insects that we see flying around in the summer actually spend the majority of their life cycle - including winter - as nymphs underwater in our rivers and streams.

To catch these tasty bugs the water shrew needed to develop some special adaptations. Their fur has similar properties to that of the beaver, it both repels water and traps tiny air bubbles to help retain heat. They have a fringe of hair on their hind feet that also traps air bubbles and helps to propel them as they swim. These hairs also give them the unique ability to run across the surface of water! Their whiskers are used to detect movements and waves underwater to help track down prey.

Pacific water shrews make their homes in riparian areas - the transition zone between streams and the forest. Though these creatures are rarely spotted, they are almost always found within 50 meters of a water body. They prefer mature coniferous forests with a dense understory and an abundance of large woody debris. These large downed logs are perfect nesting sites, made more comfortable by adding shredded bark, mosses, and grass. They are found at elevations below 500m from the Northern tip of California to Southwest British Columbia, where they are only found in the Lower Mainland region.

Unfortunately the Pacific water shrew has the same home range preferences as humans - low lying valleys near water sources. One of the main threats to this species is habitat loss due to developments in these areas as well as past effects of logging which has removed much of the large woody debris in streamside locations. With the additions of housing and industrial areas in this habitat



comes water pollution, which reduces the number of available aquatic invertebrates as they are sensitive to changes in water quality. Road mortality and predation by domestic animals such as cats are also looming threats. Many shrews also fall victim to scientific research methods such as minnow traps that are used to identify presence of salmonids in water bodies.

Further research is needed to understand the mysterious life histories of these rare and amazing creatures. Although they are listed as endangered in British Columbia, our population of Pacific water shrew is at the northern tip of its range and has shown remarkable adaptation to a possibly harsher climate than its southern relatives. We cannot always control how our rapidly changing communities will handle developments but there are a few things we can do to help protect species such as the water shrew. Practice eco-friendly landscaping by planting native plants and leaving streamside vegetation in place. Reduce or eliminate the use of herbicides and pesticides. Keep pet predators indoors, on a leash, or in an outdoor enclosure. Most importantly, always stay curious, observe nature, and continue to learn about the amazing ecology that calls British Columbia home!

Rebecca McMurray, BSc Ecology





Lessons about Climate Change amongst the COVID-19 Pandemic

Nuhan, Hubei province, China. Since the discovery of this novel corona virus, it has impacted more than 200 countries around the world and become the most crucial health crisis of the century. COVID-19 has infected millions of people and killed hundreds of thousands. Impacted countries around the world have taken extensive measures to desperately try and limit further spread of the virus by restricting travel, forcing non-essential businesses to temporarily close, and strongly encouraging social distancing.

While COVID-19 has severely affected human health and the world economy, reduced social and economic activities have also resulted in significantly less pollution. According to researchers Sulaman Muhammad, Xingle Long, and Muhammad Salman, air pollution in some COVID-19 epicenters, such as Wuhan, Italy, Spain and the USA, has even decreased by up to 30%, allowing some big city inhabitants to experience clear blue skies for the first time. In addition, decreased demand for power has led to significantly less industrial waste emissions, and fewer vehicles on the road has led to a decrease in the emissions of greenhouse gases and toxic particles. In an article for Climate Brief, Dr. Simon Evans stated that "the coronavirus crisis could trigger the largest ever annual fall in CO2 emissions in 2020". Now the question remains if COVID-19 will have a long-standing impact on pollution levels and ultimately the sustainability of human activity.

The next crisis we must all face is undoubtedly climate change. In British Columbia we are already feeling the effects. In 2006, researchers Andreas Hamann and Tongli Wang stated that the mean annual temperature of British Columbia had increased by ~0.78°C. Despite a seemingly small increase in temperature, our ecosystem has been drastically impacted. For example, the increased frequency of warm weather has led to native species that normally wouldn't disrupt their ecosystem, such as mountain pine beetle and *Dothistroma* needle blight, to cause severe damage to the forests of British Columbia, drought and record high temperatures have led to an increased rate of forest fires and failed attempts of reforestation. This seemingly small increase in mean annual temperature has triggered serious changes in our environment and will continue to do so unless action is taken.

COVID-19 has not only exposed how unprepared we are for large-scale crises but has demonstrated the amount of change needed to reduce our greenhouse gas emissions and ultimately, lessen the effects of climate change. A goal was set to limit global warm-



ing by 1.5 degrees Celsius in the Paris agreement in 2015, but to achieve this goal, global net human-caused emissions of carbon dioxide must be halved from 2010 levels by 2030 and reach net zero by 2050. According to Roger Pielke, a mathematician and political science professor at the University of Colorado, there is overwhelming evidence that the world will not meet its emission target by 2030. He adds that while it is true that there is a growing supply of carbon-free energy, it's not growing fast enough to replace the fossil fuel industry. Clearly the current rate of development of carbon-free energy sources isn't enough to release us from our dependency on gas and oil.

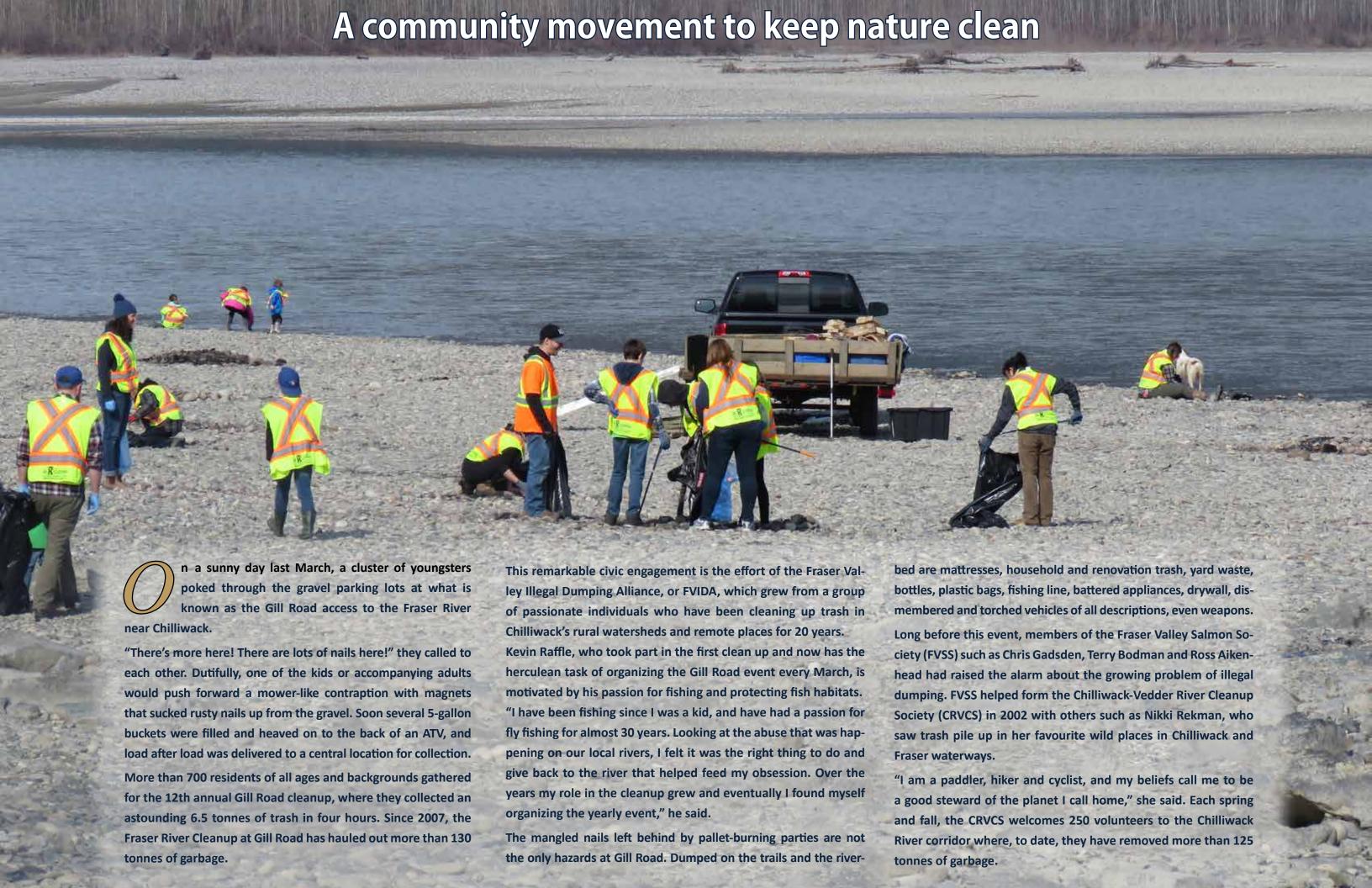
Countries around the world are failing to implement the rapid and far-reaching change needed to combat climate change and Canada is by no means an exception. Justin Trudeau promised Canada would be carbon neutral by 2050, yet he approved the expansion of the Trans mountain oil

pipeline one day after declaring a climate emergency. Canada also agreed to lower its emissions by 30% by 2030, but according to Canada's Environment Commissioner, Julie Gelfand, the country is disturbingly slow in meeting these targets. Unless our leaders are pressured to stop giving handouts to oil and gas companies and instead invest more in renewable energy, we cannot meet our emission agreements on time. Like the COVID-19 pandemic, climate change cannot be managed if our response is delayed or inadequate. We have the technology and the means to cut back our greenhouse gas emissions and reduce the effects of climate change. All that is left is for us to act.

Sasha Tuttle,

President of UFV's Wildlife Protection Club

Flying Barn and Barred owl photos courtesy **Rick Skerry**, Mission





support other groups in the region. FVSS president and Great River Fishing Adventures owner, Dean Werk, is heartened to see Indigenous youth getting involved in the cleanups.

"Having the Indigenous involvement at our meetings and at the March 2019 cleanup has given me hope that our entire community really cares. FVIDA has captured an audience of depth that can make progress to possibly change the behaviour of those using the areas near the rivers. Our rivers are life!" Werk said.

For Rekman, FVIDS's biggest imact has been educating the public through its events. Sometimes it doesn't seem like it, but FVIDA is seeing some change in behaviour and awareness, she said.

"The concern of illegal dumping is becoming a bigger

issue for communities around the province, not just the Fraser Valley. Members have been contacted by a variety of media sources to speak and educate others on the issues at hand. We all want to leave it better for future generations to enjoy."

Christina Toth,Fraser Valley Illegal Dumping Alliance

For more about FVIDA, please see www.fraserriverkeeper.ca/fvida or find us on Facebook.

*If you witness an act of polluting, call the 24-hour Report All Poachers and Polluters hotline at 1-877-952-RAPP (7277) or report online at forms.gov.bc.ca/environment/rapp/ Photos are very helpful in identifying polluters, but stay safe and do not confront people.

Over the years these 'boots on the ground' teams decided to pool their experience, volunteers, and best practices, and the Fraser Valley Illegal Dumping Alliance was born.

Further supported by the Fraser Riverkeepers since 2015, FVIDA's members include several grassroots groups, the City of Chilliwack, FVRD, Conservation Officers, businesses, and First Nations. They advise the Conservation Officers where to patrol and set up cameras where illegal camps exist, while the city and FVRD run ad campaigns about proper waste disposal and provide other support.

"What makes FVIDA work is, despite many different backgrounds at the table, everyone there has the same agenda and goal, and that is to educate the public about this growing problem, and to clean up the garbage," said Raffle.

Along with scheduled events, FVIDA members alert each other and authorities about dumping 'hot spots,' which they often clean up themselves. Their vigilance led to the removal of precariously located squatters' camps at the confluence of Sweltzer Creek and Chilliwack River last fall, just days before a heavy rainfall flooded the area.

Stalwart FVIDA members alerted authorities about ongoing illegal camping, salmon habitat destruction and dubious activities at Gill Road – and now the City of Chilliwack has applied to manage the area as a park that everyone can enjoy.

FVIDA continues to educate the public about the impacts of illegal dumping, where to take waste legally, and to



The Footprint Press

Ten years ago, in the spring of 2010, Citizens Against Urban Sprawl Society (CAUSS) published our first issue of the Footprint Press magazine hoping to help educate the public about local at-risk wildlife, the importance of habitat conservation, and to showcase the good work being done by Indigenous land defenders and others who steward the environment. Since then, we have published 25 issues and disseminated thousands of copies free to the public, financed entirely by donations and support from the local community. The publication has evolved from a black and white newsletter to a full colour magazine, featuring work from some of the Fraser Valley's most informed and talented activists, scientists, writers, artists and wildlife photographers. We have learned that there are many people, like ourselves, who care deeply about the environment and wild creatures, and do tremendous work to protect them.

Thank you to our contributors

Issue 25: Lina Azeez, Watershed Watch Salmon Society, Rebecca McMurray, Erin Patrick, WildSafeBC, Christina Toth, Fraser Valley Illegal Dumping Alliance, Sasha Tuttle, President of UFV's Wildlife Protection Club, photographers Chris Gadsden, Niki Karakatsoulis, Bruce Klassen, Lisa Reid, Rick Skerry & Mike Stefiuk, and artists Peter Gong, Leanne Hodges, Don Mair & Carrielynn Victor.

Special thanks to columnists Dr. Claudette Bethune, Eddie Gardner, Dr. Marvin Rosenau, David Hancock, Ann Murdoch, writers from the South Coast Conservation Program- and many more activists, students, scientists, artists, farmers, and photographers too numerous to mention here!





In addition to our Footprint Press publication, Causs has been active lobbying governments for Wildlife and Habitat Protection

Speaking up for the trees

Speaking up for the trees

CAUSS joined forces with Dr. Lolehawk Laura Buker and lobbied the District of Mission to draft a comprehensive tree protection bylaw to prohibit land clearing prior to development approval, and to help safeguard and enhance Mission's tree canopy. We will continue to press staff and council until an effective tree protection bylaw is adopted.

Safer mowing for endangered Oregon forestsnails

Coast Conservation Program, part

CAUSS, with assistance from the South Coast Conservation Program, partnered with District of Mission staff to develop mowing restrictions in endangered Oregon forestsnail habitat on Keystone avenue in Silverdale. We will continue to work with staff to ensure the protections are effective.

Helping communities live lightly on the land

CAUSS submitted formal recommendations to the District of Mission which were included in its Environmental charter. We participated in the most recent Mission Official Community Plan review process where we lobbied for strong language to promote sustainability and climate change resilience, including protection of farmland.

We need your help!

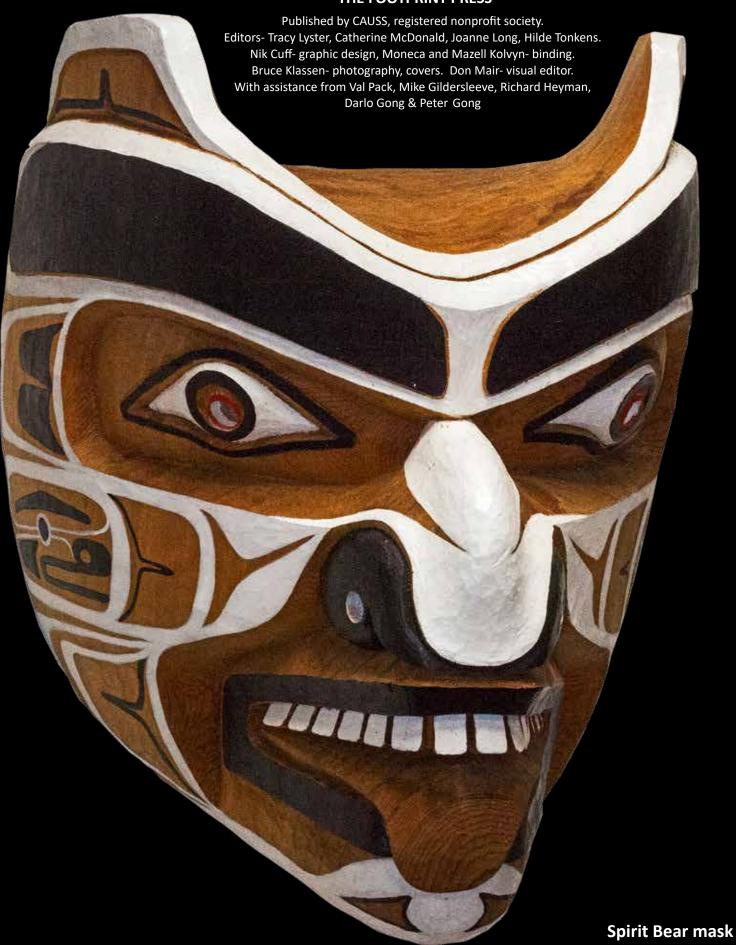
The Footprint Press remains an ad free publication. All work is done by volunteers. We rely on donations and fundraising activities to finance our printing costs. Our May 2020 fundraiser was cancelled due to the Covid19 pandemic. We are therefore calling on all of our supporters to consider donating what they can to help us continue with this work.

Thank you for your support!

http://www.footprintpress.ca/donations/

Contact us at b.causs@gmail.com or 604 820-7592

THE FOOTPRINT PRESS



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Spirit Bear mask Peter Gong Mission