Issue 20

FREE MAGAZINE

THE FOOTPRINT PRESS

Passages from Silverdale, Mission, and beyond.

Message from the Editorial Committee

All of life exists in complex relationships with other life forms. The spotted owl needs the Douglas fir tree for successful reproduction, just as she relies on the hare to raise her family. Here in the Fraser valley, numerous species of plants and animals depend heavily on healthy salmon returns. For thousands of years, local First Nations people thrived in their relationship with the salmon, who also thrived, in part, from the environmental stewardship the people provided to the fish.

In this, our 20th Issue of the Footprint Press, we wish to acknowledge and give thanks to all who have brought our publication to life. The Footprint Press would not exist without the generous submissions from local activists, artists, scientists, First Nations people and many others. We are thankful to the Fraser Valley bald eagle festival, Getifest, FRANAS National Aboriginal day, the Mission Farmers market, and others, who provide us with the opportunity to showcase our magazine, as well as the Fraser Valley Regional library, UFV Student Union, and many small businesses who have assisted us in magazine dissemination. We are honoured to have participated in an editorial typography project with the graphics and digital design department of UFV, and to have been the subject of a paper presented at the Literature of the Fraser Valley conference, as well as a winner of Mission's Arts and Culture Environmental Muse award.

We have learned that we are not alone in our quest for a more socially and environmentally just world. We have grown in our relationships with a community of people who care, throughout the Fraser valley and beyond- people who volunteer their talents and their time, to defend the air, water and the land for all of us.

We have come to know that wherever there are people who have reverence for nature, there is always hope.

Hummingbird photo courtesy
Rick Skerry, Mission
Cover photo: Barred Owl,
Bruce Klassen, Silverdale

Hummingbirds in the winter?

Winter in the Fraser Valley often dons bland, drab colours of browns and blacks, a stark contrast to the blooming flowers of spring. Many birds migrate to warmer places with abundant food supplies for the winter, but slowly over the last 80 years the Anna's Hummingbird has come to call this place a year-round home. The males boasting a beautiful gorget and crown of pink feathers bring some much needed colour to these dark months in the Pacific Northwest. Since the 1930's Anna's have increased their range dramatically. Previously their northern range only reached California. So how did the Anna's hummingbird make it all the way up here, and what does this mean for other birds in the Fraser Valley?

As human populations increased on the coast, more and more gardens began to flourish in people's yards. The planting of exotic flowers provided nectar and nesting sites for the Anna's, allowing them to prosper where they hadn't before. Some of their favourite flowers include currant, gooseberry, manzanita, and especially eucalyptus. These flowering plants also attract insects, an important source of protein in the Anna's diet.

In the winter, as mentioned before, there are not many flowers to sip nectar from and many insects are dormant, so why does the Anna's hummingbird stay here all winter? First of all, hummingbirds have the amazing ability to slow down their metabolism and enter a state of torpor when temperatures are very low. In this state, they can survive on sugars they began to store as winter approached. They cannot survive this way throughout an entire winter, and have taken advantage of people's delight in watching these amazing creatures sip sugar water we provide them. If you have an Anna's visiting your feeder in winter, it is critical that it is kept clean and well stocked as this is likely their only food source.

Feeders should be filled with plain table sugar and water at a 1:4 ratio. Honey is not recommended, as once diluted it can harbour mould and bacteria. Do not use food colouring which is harmful to hummingbirds. To help prevent your feeder from freezing, increase the ratio of sugar water to 1:3, bring your feeder in during the night, insulate it with a tea cozy, or rig up a shop light to keep it warm. You should clean your feeder at least every few days to get rid of any mould and bacteria. To do this, use a bottlebrush and a mild dish detergent, or mix of 1 part bleach to 9 parts hot water. It is unnecessary to use feeders during the spring and summer when there are plenty of flowers in bloom. You may just be putting up a bear feeder rather than a bird feeder! To attract birds in the summer, it is much better to put out a bird bath and to plant a garden with lots of wildflowers.

The Anna's isn't our only hummingbird in the area. The Rufous Hummingbird migrates from Mexico and up the coast as far as Alaska, following the salmonberry blooms and to breed. Some have asked if the extension of the Anna's territory is affecting the Rufous. Luckily nature has ways around this competition for food and breeding space! Anna's will nest earlier in the year since they do not have to migrate. Rufous hummingbirds have a preference for mountain meadows and conifers as nesting areas, whereas Anna's prefer Eucalyptus and suburban gardens. To reduce competition even further, Rufous hummingbirds have a diet preference different than that of the Anna's, feeding primarily on nectar from colourful, tubular flowers including columbine, paintbrush, mints, lilies, fireweeds, currants, and heaths. And if all else fails, the Rufous is one of the most territorial hummingbird species and will go as far as chasing away competing hummingbirds from feeders or flowers.

As winter approaches and things grow quiet, don't forget about the many species out there battling the winter blues! Unpack that feeder from the basement and revel in the delight of seeing that bright pink flash visiting your yard. You may just be lucky enough to see young ones in the spring!

Rebecca McMurray,
BSc Ecology, Mission.

Humming bird photos courtesy of **Rick Skerry, Mission**

Did you know?

Hummingbirds can beat their wings up to 200 times a second during courtship flights and average 70 times a second during normal flight.

They beat their wings in a figure 8 pattern allowing them to fly backwards and upside down.

If hummingbirds were the size of a person, they would need to eat 285 lbs of hamburger a day to appease their metabolism.

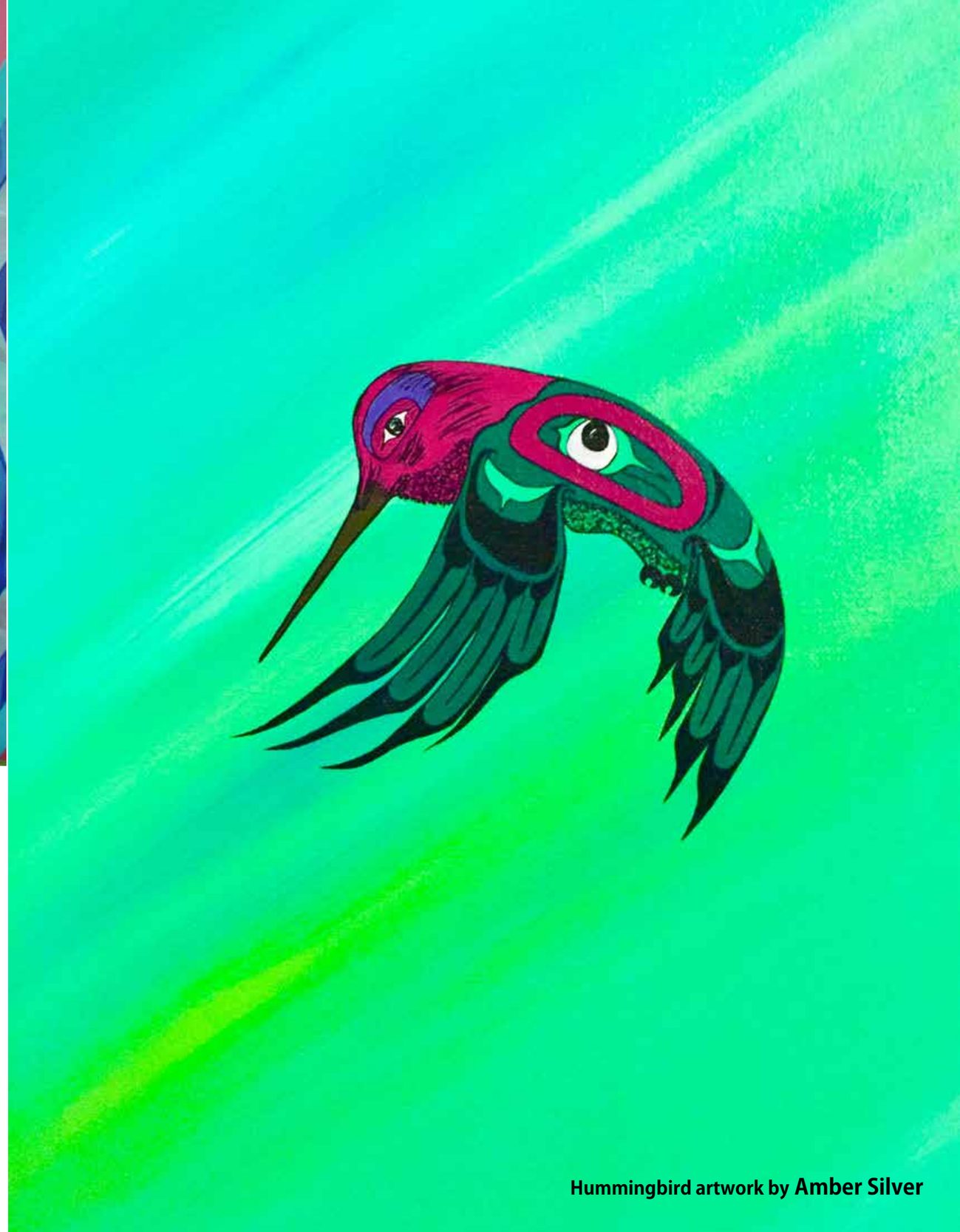
Many use spider silk to hold their nests together.

Nests are the size of a walnut and the eggs the size of jelly beans.

They weigh about the same as a nickel.

They cannot walk or hop but may shuffle on branches.

Hummingbirds have no sense of smell but have keen eyesight. R.M.



Hummingbird artwork by Amber Silver

Mission's unique, 10,000 year old archaeological heritage

Laurel leaf blade-photo courtesy of Mission Museum.

Mission is one of British Columbia's oldest settlements. This is reflected in the archaeological record of Mission and District, and the ancestry of the Coast Salish peoples.

Mission has 2 of British Columbia's oldest dated archaeological sites: The Hayward Connector site dated at 10,000 years old, located at the western approach to Mission, near the Stave river behind the 'Welcome to Mission' sign; and Xá:ytem, the Hatzic Rock site, dated between 6,000 and 9,000 years old, located at the eastern approach to Mission, behind the other 'Welcome to Mission' sign.

The Hayward Connector site has generated much interest at home and abroad. The site is characterized by large 'Pebble Tools'-large chopping tools made from river cobbles that were utilized by local Indigenous peoples over a 7,000-year period from about 10,000 to 3,500 years ago. These 'chopping' tools were heavily used and later replaced with adzes made from nephrite and jadeite, when 'grinding' technology was mastered. There are only two other sites in British Columbia that date earlier than the Hayward Connector site. At the time the site was occupied, it would have been situated on the ocean. Unfortunately, the Hayward Connector site is currently situated in an area proposed for development.

Xá:ytem, in turn, has yielded evidence of British Columbia's 'oldest house' remains-the earliest evidence of permanent structures found in British Columbia. Over 200 house posts were uncovered during excavations indicating the ancient house was refurbished and reoccupied over a 200 to 300-year period, between 5,300 and 5,600 years ago. Xá:ytem is also notable for its artifacts including a rare 'segmented stone' dating to about 6,000 years old-an example of the earliest artwork ever found in British Columbia.

Another notable archaeological site is the Wheatly site, on Hatzic Lake. It was first recorded in 1954 and was described as an 'Old Cordilleran' site (i.e., 9,000 years old). It is characterized by large laurel leaf-shaped projectile points, and is also known for a number of unique stone carvings, including human figure bowls.

Mission has a fascinating archaeological history. In 1894, prominent BC Anthropologist Charles Hill-Tout excavated several burial sites in Hatzic near Shook Road-one of the first archaeological excavations in BC. These mounds are reflective of Coast Salish burial traditions practiced 1,500 to 800 years ago. There are still a few of these sites in the District and the Fraser Valley, several of which were excavated by archaeologists from UBC in the 1990s. Rare finds included dentalia shell beads imported from Vancouver Island, abalone shell from California, and copper artifacts, indicating the ancestors of today's Stó:lō people had a metallurgical industry over 1,000 years ago.

Archaeologically, Mission is unique. Several sites of great age indicate the District was a favoured location, quickly settled by the ancestors of today's First Nations peoples, shortly after deglaciation of the region. The archaeological record confirms a continuous Coast Salish occupation of the region over a 10,000-year period!

Gordon Mohs, M.A.,

Sr. Advisor First Peoples' Community/Business Relations, Tetra Tech Canada

Sx̱wōx̱wiyam, El:óliye, Pop'qo'les

Ground slate fish knife with wood handle fastened with sturgeon glue. Ground slate fish knives appear in archaeological record 5,500 years ago and were used as late as 1950s.

Sprawl report: Who will protect the Stave River?

Great Blue herons and Bald eagles in the Lower Stave river

Mission is currently updating its Official Community Plan (OCP), a document which will direct development of the community over the next decade or more. Urban Systems, the consultants hired by the district to oversee the OCP renewal process, held a number of community meetings, workshops and district-wide surveys over the past year, which identified "managing new development to increase environmental protection and park/recreation amenities" as the top community priority expressed by Mission residents. The consultants then presented the draft OCP to Mission council, who held a series of special council workshops in which the plan was revised. The OCP was given First Reading at a special council meeting August 14, 2017. Unfortunately, while "95% of council's comments from the workshop were incorporated into the plan", according to Gina MacKay, Manager of Long Range Planning & Special Projects, the number one citizen priority seems disconnected from the maps presented.

In correspondence sent to CAUSS, Ms. MacKay indicated that the draft OCP has no new parks, and no new environmental protection policies other than directives from Mission's existing environmental charter. Despite an offer from the South Coast Conservation Program to provide advice on environmental hot spots in Mission which are important for at-risk species, there are also no new conservation areas in the mapping. Formal submissions by CAUSS for dedicated parkland, including a conservation area in the Lower Stave river, have not been incorporated into the plan despite the tremendous archeological importance, and enormous ecological values of this area which supports one of the largest salmon spawns in the Fraser. The proposed OCP designates a 173-acre section of Mission's Agricultural land reserve as a Special study area, paving the way for future exclusions of this land for Industrial development, which is completely at odds with community priorities to safeguard Mission's limited and dwindling agricultural lands. Development pressures on farmland in Ferndale further erode Mission's future agricultural sustainability.

The proposed OCP will be presented to Mission council for 2nd reading in October and is expected to go to public hearing in November.

Citizens who wish to express their views can write Mission's mayor and council at info@Mission.ca or Mark Kamelli of the Agricultural Land Commission at kamelli.mark@gov.bc.ca.

Tracy Lyster,
CAUSS

Eagle and Salmon panel,
Peter Gong

Operation Virus Hunter:

Fish Farm Violations Exposed!

In 2016, the Sea Shepherd Conservation Society sent its Martin Sheen research vessel to undertake Operation Virus Hunter, accompanied by Dr. Alexandra Morton and with the collaboration of Musgamagw Dzawada'enuxw and Namgis Nations. This operation revealed scientific evidence that wild salmon and herring populations of the Pacific coast are being harmed by diseases and parasites caught from farmed salmon that share the same waterways.For more information, go to: http://www.seashepherd.org/virus-hunterThat summer, Chief Willie Moon of Musgamagw Dzawada'enuxw served Marine Harvest fish farmers with a 72-hour eviction notice, and Melissa Willie gave this call to action: "We are calling upon Fraser River and any other First Nations who are against fish farms; we are not going to stop until we get fish farms out of our territory." Chief Robert Gladstone of Shxway First Nation in Chilliwack responded: "The people of Musgamagw Dzawada'enuxw and Namgis have been stewards of their unceded lands and resources for thousands of years, and they know what is best to protect their territories. We support their decision to cleanse their waters of open net pen fish farms, as they have enough evidence fish farms are doing harm to wild salmon and herring which they have cared for since time immemorial." Chief Judy Wilson of Neskonlith First Nation stated: "We now have irrefutable evidence – fish farms are doing great harm to wild salmon, they are fouling their marine habitat and they must be evicted." Chief Michelle Lee Edwards of Sek'wel'was expressed her astonishment that both levels of government are ignoring these alarming violations: "I cannot understand how DFO and the province can sit idle and let all this happen! Fish farms are placed right on the migration routes of our wild salmon, threatening to bring them to extinction. For what? Farmed salmon are unnatural, they are drugged, sick and contaminated. They need to be removed before they do irreversible harm!" Cheam, Chawathil, Bonaparte, Kwantlen, Matsqui, Skwah, the Nlakap'mux Tribal Council and other First Nations, have long opposed fish farms on the migration routes of Fraser River wild salmon, and are in full support of Musgamagw Dzawada'enuxw and Namgis to get fish farms out of their territory.

Given the shocking lack of government response to the Sea Shepherd's findings, they sent their research vessel for a second expedition to the fish farms this summer. The Wild Salmon Defenders Alliance (WSDA) attended a press conference on board the Martin Sheen in Vancouver, July 27, 2017 along with Dr. David Suzuki, Dr. Alexandra Morton, Chief Willie Moon, and the vessel's namesake.

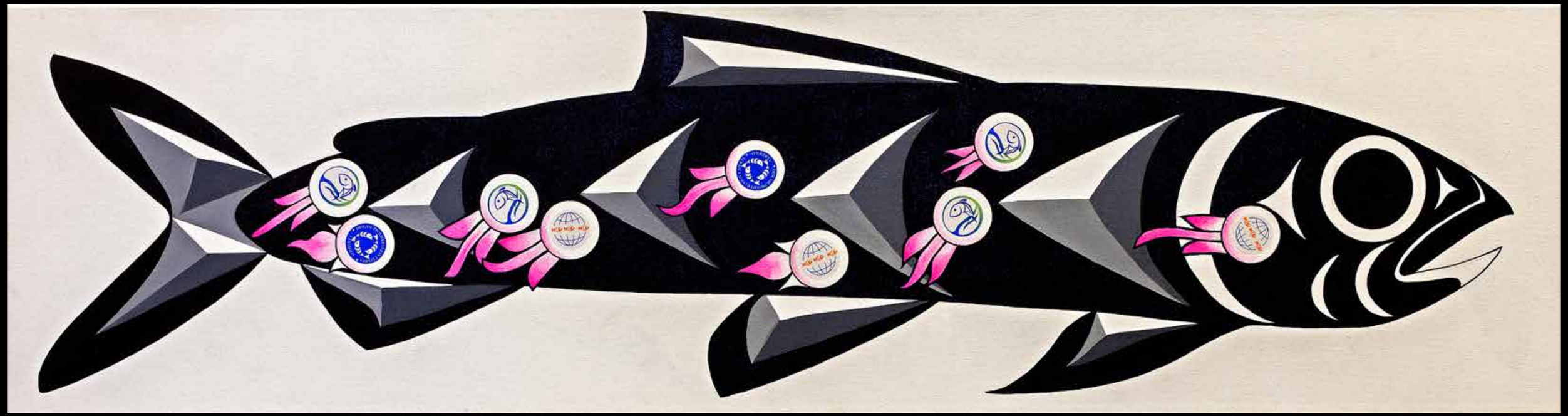
Dr. Suzuki spoke about the environmentally unsustainable manner in which open-net fish farms currently operate, and the absurdity of raising predator fish for mass human consumption which he likened to farming tigers and lions for food. So far, the findings on this year's campaign have reconfirmed last year's findings. (Watch the footage from inside the salmon farms of Musgamagw Dzawada'enuxw unceded territory: https://www.facebook.com/SeaShepherdMartinSheen.

Our gratitude goes to Chief George Quocksister Jr. and Ernest Alfred aboard the Martin Sheen research vessel for footage that shows shocking evidence:

- Salmon farms are violating Canadian regulations against by-catch, as large numbers of endangered herring and capelin are being trapped in the salmon farm cages.
- Salmon farms are thick with waste, and thousands of herring are swimming in this waste and are exposed to diseases and sea lice.
- Unhealthy looking Atlantic salmon mingle with wild fish.
- Many farmed fish are emaciated with missing skin, blind and deformed, some with open sores and tumours.

At the end of August, 2017, Washington Governor Jay Inslee directed the Department of Ecology to put a hold on any new permits for net pens after thousands of At**lantic**

Gary Haggquist, Chilliwack,
T'it'elem Spath Offering Songs
to the Sacred Waters and Wild Salmon



Fry Lice, Carrielynn Victor, Cheam Village*

Fry Lice is a pacific wild salmon fry covered in sea lice. I often portray salmon in pristine conditions in my art, while the reality is, there are continuing aquaculture practices that are detrimentally affecting the wild salmon population. This piece highlights the reality of juvenile salmon on the BC Coast and the conditions they are living in.

salmon escaped into Puget Sound from a damaged salmon farm. He said the company must stop additional escapes, recover escaped fish, and compensate those working to capture the escaped fish. In Canada, the federal government should show similar leadership by compensating the Musgamagw Dzawada'enuxw people for the loss of salmon, herring, and clams destroyed by fish farms, and work to move the farm onto land containment. The Namgis First Nation has taken the lead in the area of land-based aquaculture, and Marine Harvest and Cermaq would be wise to follow suit. This is a sustainable and reasonable way forward.

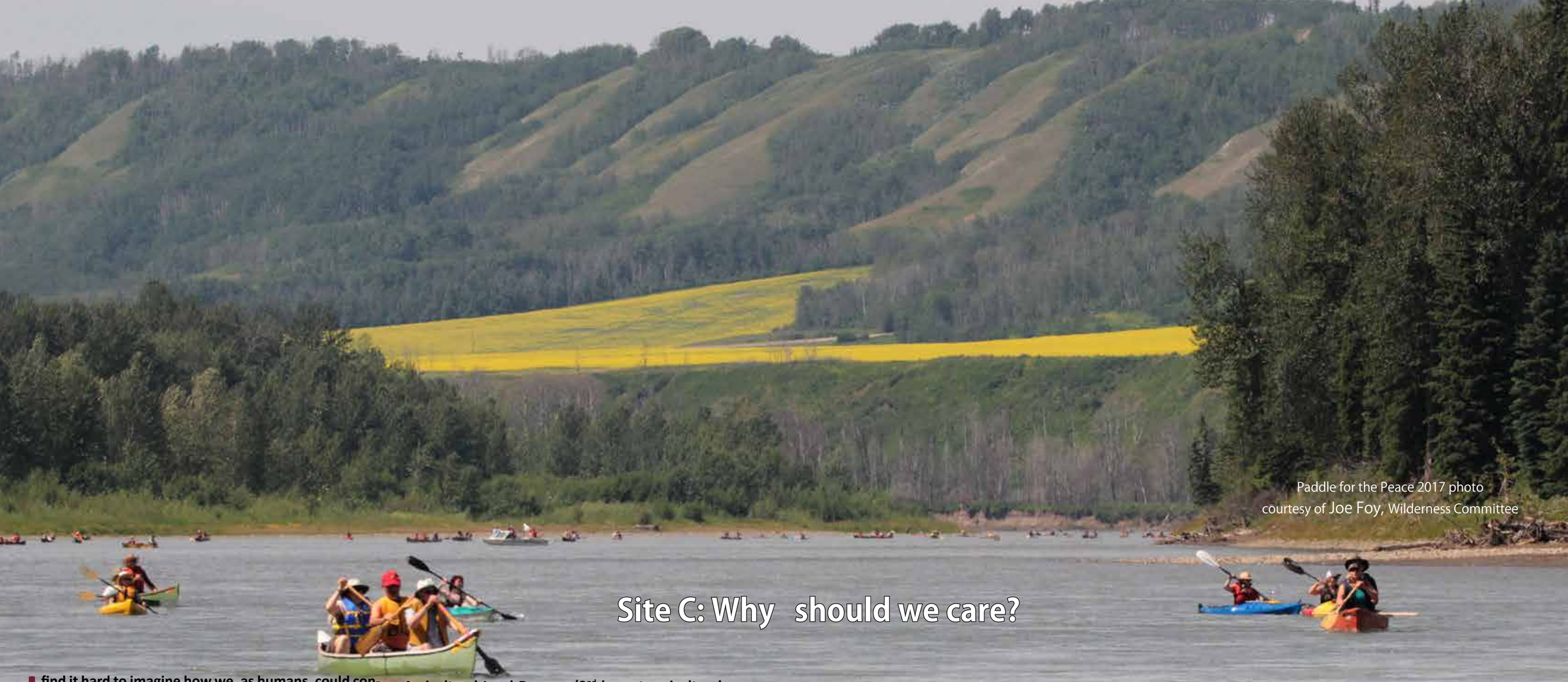
In a letter to WSDA, Federal fisheries Minister Dominic LeBlanc said he responded to Willie Moon, but we have learned that Minister LeBlanc has not yet met with him to learn about how fish farms are destroying the way of life of the Musgamagw Dzawada'enuxw people. Minister Leblanc should take a hard look at the persuasive evidence that would help him reverse his anchored position that "open net pen fish farms are here to stay." He needs to openly explain why he is fighting Dr. Alexandra Morton (Gwayumd'zi) in court to allow fish farms to put diseased Atlantic fish in Pacific waters, and why he is so willing to violate Indigenous rights of Musgamagw Dzwada'enuxw people. Musgamagw Dzawada'enuxw and Namgis First Nations never gave their permission to place fish farms in their unceded territory. This violation of their Indigenous rights and title to their waters and resources must end!

The Wild Salmon Defenders Alliance is asking BC Premier John Horgan to work with BC Green Party Leader Andrew Weaver to revoke licenses of occupation in the Broughton Archipelago. Indigenous people on the coast are escalating their efforts by occupying fish farms until they are finally evicted and out of their territory. Our Alliance will continue to collaborate with others to mobilize financial, public and political support until open net pen fish farms are out of the ocean!

Eddie Gardner, Skwah First Nation
President, Wild Salmon Defenders Alliance

Launch of Martin Sheen research vessel, photo courtesy Garry Haggquist

***Photo taken courtesy ACT art gallery, Maple Ridge during the Modern Legends exhibition, Sept.9-Oct.28/17**



Paddle for the Peace 2017 photo
courtesy of Joe Foy, Wilderness Committee

Site C: Why should we care?

I find it hard to imagine how we, as humans, could contemplate, let alone approve, of a more damaging and absolutely devastating project than the Site C dam. Located near Fort St John, Site C is a proposed 60-meter-high earth-filled dam that is expected to produce 1110 megawatts of power. With a public price tag of over 9 billion dollars and rising, it is currently the largest infrastructure project in Canada, and these costs will be borne by all BC citizens. Site C will create a vast reservoir laced with methyl mercury (from decaying vegetation) over 100 kilometers long. The result will be the elimination of the heritage designated Peace River and a perfectly functioning and healthy ecosystem known as the Peace River Valley. The reservoir will also flood tributaries, 14 kilometers of the Halfway River, and 10 kilometers of the West Moberly River. The project will remove over 31,000 acres of prime farmland from the Agricultural Land Reserve (2nd largest agricultural area in all of BC), and will have extensive wildlife and heritage impacts. The reservoir will cut the Yellowstone to Yukon Wildlife Corridor in half at its narrowest and most vulnerable point, and the habitat of many red and blue listed species-at-risk will be destroyed. Finally, the Site C project will result in serious impacts to our collective efforts to address climate change.

It has been heart wrenching to be witness to the devastation and destruction of the unique and highly treasured Peace River Valley, brought on by BC Hydro and its so-called "Site C Clean Energy Project". Despite it having been turned down twice before in the 80's by the BC Utilities Commission (BCUC) after a thorough evaluation (siting a lack of the need for power), in 2010 Gordon Campbell reintroduced the project. In July, 2015, Christy Clark approved this highly controversial project, turning a blind eye to the many recommendations and concerns raised by the Provincial /Federal Joint Review Panel (JRP) in May, 2014. The JRP concluded that BC Hydro failed to demonstrate the need for this power, and had also failed to explore and evaluate alternative sources of energy, such as solar, wind and geothermal, which are less costly and less damaging to the environment.

This giant hydro-electric project has been the subject of several First Nation's legal challenges and frequent protests by environmentalists, scientists, politicians, and organizations such as Amnesty International and Unesco. In October, 2015, the Rocky Mountain Fort Protest Camp was established to protest the construction of Site C. This construction negatively impacts the traditional territories of Treaty 8 First Nations, who had not given their consent. The protest camp ended in March, 2016, after BC Hydro won an injunction to remove the land defenders.

There are too many reasons to count why Site C should be halted once and for all. At the top of my list is the issue of our need to acknowledge Indigenous sovereignty and to respect existing treaties. Treaty 8, a peace sharing agreement between the Beaver, Cree, Slavey, Saulteau, Tse'Khene First Nations and Canada, had promised that the First Nations people could continue hunting, fishing and trapping on their traditional territories "for as long as the sun shines, the river flows and the grass grows". Both the Provincial and Federal governments have ignored the fact that construction of Site C will have significant adverse effects on the traditional land uses of First Nations, and these effects cannot be miti-

gated. Both governments are now complicit in essentially wiping out the sacred hunting and gathering grounds, burial sites, ceremonial sites, and a way of life for First Nations that has been in existence for thousands of years. All this destruction for power that is not needed. It is unbelievable that this kind of atrocity of eliminating a river, a history, and a way of life could take place in 2017. This at a time when our governments have signed off on all the recommendations of the Truth and Reconciliation Commission, and more recently on the United Nations Declaration on the Rights of Indigenous Peoples, which specifies the requirement of obtaining free, prior and informed consent from affected First Nations.

Last summer, BC Hydro formally apologized to Tsay Keh Dene First Nations for the colossal impacts they suffered from the WAC Bennett dam (known as Site A). In their apology, BC Hydro expressed that "BC Hydro deeply regrets the impacts of the WAC Bennett dam on First Nations and would not repeat the mistakes of the past." Incredibly, while BC Hydro was making their apology in Hudson Hope, behind them, the destruction and devastation from Site C was in full swing and the actual elimination of what remains of the free-flowing Peace River was in process.

When Chief Roland Willson of the West Moberly First Nation heard about the Liberal government's decision to proceed with Site C, he said "It felt like a spit in the face. We said no to the destruction of that valley that we have and it is vitally important to us."

In a video entitled Free the Valley, Former Chief of Saulteau First Nation, Art Napoleon, expressed that "if Site C goes ahead and the Peace River Valley is destroyed, First Nation people, especially youth, will lose a part of who they are, and a part of who they have been for thousands of years. Our land is our blood and our future". Former Treaty 8 Tribal Chief, Liz Logan, expressed that "We are bush people, the land is our grocery store, our pharmacy, our school and our Church. It still sustains us."

Most recently, the Canadian Government has been sharply criticized by the United Nations Committee on Racial Discrimination, which urged that Site C be halted.

Canadians must not be complicit in the violation of the constitutionally enshrined rights of Treaty 8 First Nations. If we, the Canadian people, are serious about the need for actions relating to reconciliation with First Nations, and developing more respectful relationships, the only right conclusion would be to bring Site C to a halt once and for all!

The resistance to the construction of Site C has been fierce and intense and continues to grow. It has been incredible to witness so many individuals, groups, organizations, and First Nations, working together for a common cause. Our new NDP/Green government has made an important and long overdue decision to send this project for review by the BCUC.

Our focus now, needs to be on actively engaging and communicating with our MLA's and MP's and all members of the NDP Cabinet, as the final decision, following the review, will be made by the NDP Cabinet.

Site C is out of touch with our world's new reality, when actions of reconciliation with Indigenous peoples are needed, along with our responsibility for protection and enhancement of ecosystems, and agricultural lands essential for establishing a sustainable future and ensuring our very survival. Keep the Peace!

Michael Gildersleeve, Mission

Eagle and Salmon drum- Peter Gong, Mission

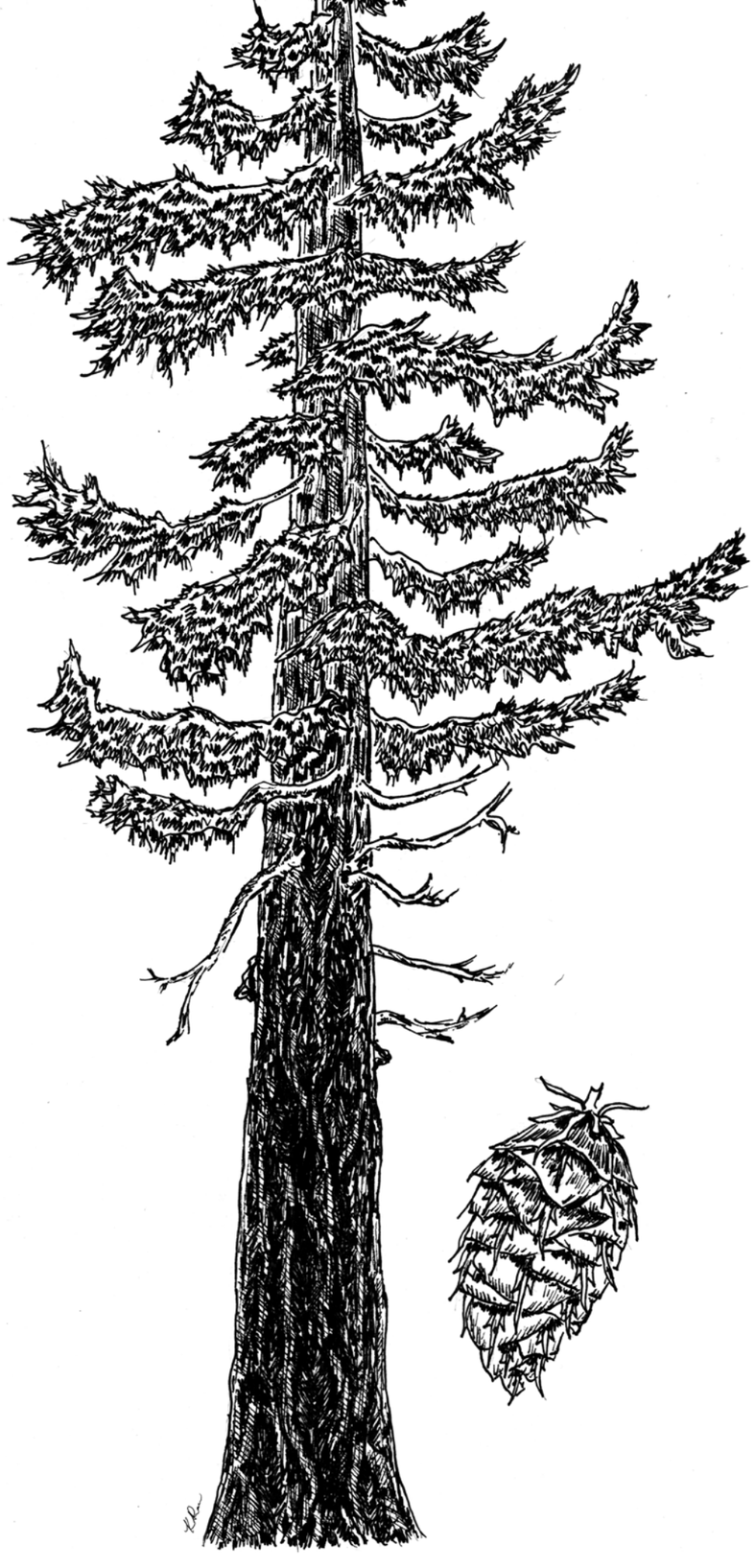
The owl and the fir tree

The Northern Spotted Owl (Strix occidentalis caurina) is perhaps one of the most well-known endangered owl species in the world. The species has been rapidly declining since the first European settlers arrived in the western region of the continent. Its native range includes a thin sliver of the western coast of North America, from northern California up into the southwest corner of British Columbia. Its current range extends west to Howe Sound, east to E.C. Manning Park (into the Cascade Mountains) and north to Lillooet; although it is very possible that the species may be found outside of the assumed geographical extent.

The Spotted Owl is named for the distinct patterns found on its head and back. It is considered a medium sized owl, with a large wing span (up to 90cm). It has unmistakable dark, haunting eyes contained in a light brown facial disk. The owl displays reversed sexual dimorphism (the females are larger than the males), and the two pair up for life! Females lay two to three eggs, and the male will provide all of the food during the sensitive nesting period. Even though the mortality rate in young juveniles is very high during nest dispersal, they are considered to be a very long-lived subspecies of Spotted Owl (up to 17 years).

The Northern Spotted Owls do not migrate, and do not build their own nests. They will often reuse platform nests constructed by other bird species, but more commonly will take advantage of a broken top of a large diameter tree, or deformed limbs for nesting. These birds prefer uneven-aged coniferous forest as suitable habitat, predominately old growth Douglas-fir (Pseudotsuga menziesii) stands. These forests contain multiple canopy layers that contribute to a complex forest structure, encompassing a high degree of biodiversity. Old growth Douglas-fir trees are masters of irregular branch patterns and functional cavities, a perfect nesting site for the Northern Spotted Owl.

According to recent studies, there are assumed to be less than twenty Spotted Owls remaining in British Columbia. The individuals that have been located are mature, and at the end of their breeding age. Due to its extremely low population size and density, it has been predicted that the Northern Spotted Owl would have been extirpated (i.e., locally extinct) from British Columbia over ten years ago. Due to intensive management strategies, this population has somehow continued to survive against all odds, although the state of its vulnerability at the current time cannot be overstated.

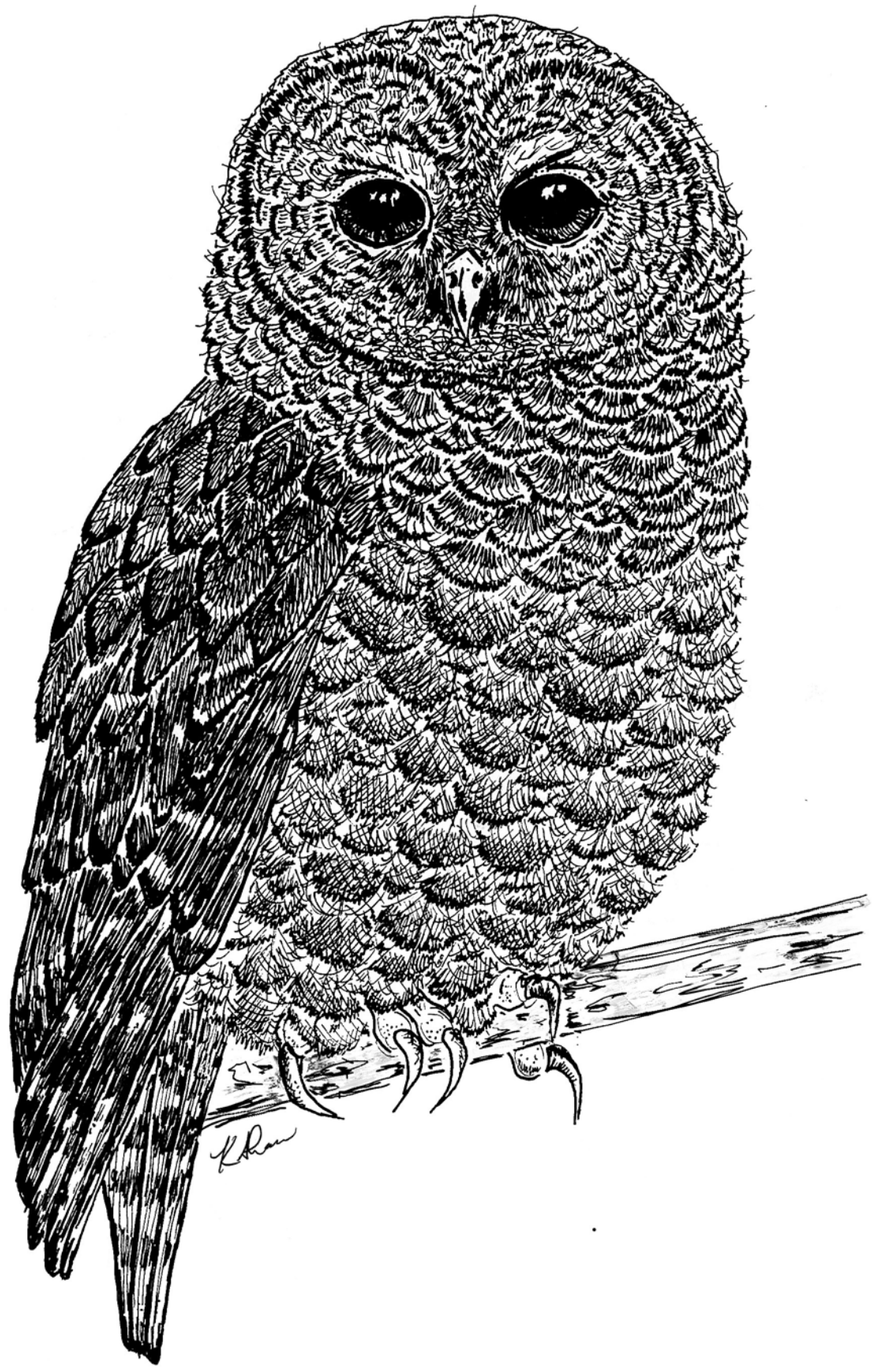


The most direct threat to the Northern Spotted Owl is loss of habitat through urban development, forestry and other natural resource extraction. Factors that also should not be overlooked are global warming and increased fire and insect outbreaks- all of which can extremely alter old growth forests. While protected under numerous Provincial and Federal acts of legislature, the recovery strategies fall short in preserving all vital habitat to the Northern Spotted Owl. Of the previously surveyed and therefore known areas to contain the endangered bird species, all are located within some sort of protected area. This does not ensure however, that potential nesting sites are protected into the future in areas outside of these designated zones. Fragmentation is a serious concern for most recovery strategies, where portions of old growth forest have been harvested outside of these protected areas, in an attempt to retain an appropriate amount of Spotted Owl Habitat. While the intention perhaps comes from the right place, it provides predator species with the opportunity to prey on the endangered owls while they travel between suitable habitat corridors.

I have had the opportunity to play a small part in protecting these integral habitat areas, and to contribute to the long-term management strategies that so many people have tirelessly devoted their time and careers to. With public knowledge and ethical land use decisions, the Northern Spotted Owl does not have to disappear from British Columbia's backdrop.

Kathryn Shaw,
Forest Technician,
Mission/Prince George

White owl mask,
Peter Gong, Mission.



Douglas fir and Spotted owl artwork by Kathryn Shaw
http://www.kathrynshawgallery.com

By Leaps and Bounds!

The Snowshoe hare, also known as the “trickster” and “varying” hare, is related to the Jackrabbit, and is 1 of 15 subspecies of hares in Canada and the USA, and 1 of 6 subspecies in BC. It is located throughout Canada and parts of the USA.

Known as a “keystone herbivore”, the Snowshoe hare favours the Pacific Northwest’s boreal, and upper montane, cool, moist forests, where the area’s heavy shrub coverage may overlap with habitat of the similar-appearing White-tailed Jackrabbit. Unlike rabbits, which live in burrows, this shy, secretive animal spends most of its day living in a “form” (a shallow hollow scratched out from under ferns, brush, thickets, and fallen timber piles), or occasionally choosing a Mountain Beaver’s burrow as its dwelling. These hares are usually active at twilight until just before sunrise, and don’t hibernate.

The name, “Snowshoe”, is due to the hare’s wide, 11 cm long from heel to toe, hind feet, which prevents it from sinking in the snow. Furred soles, protect the feet from freezing and feature “stiff hairs” forming a snowshoe effect.

This hare has dark reddish-brown fur, sometimes flecked with black, covering its head and body, with a black line featured mid-back, and buff-coloured sides. Face and legs are cinnamon-brown, while the ears, shorter than most hares, but longer than some rabbits, feature black fur tufts on the ear’s edges. The flanks, belly, and hind feet, remain white, year-round. These combined colours provide good camouflage. In areas experiencing heavy, snow-laden winters, these hares undergo 2 molts yearly, from their brown summer camouflage, to that of winter’s white. In the Pacific Northwest coastal area, due to fairly minimal snow coverage, Snowshoe hares retain their summer colouring, year-round. The Snowshoe male hare is slightly larger than the female. The head and body are approximately 20 inches long, with a small, rounded tail. Known to be good swimmers, the Snowshoe hare has an amazing ability to hear predators approaching from miles away. This hare does not often vocalize. Most communication with other hares is confined to thumping its long hind feet on the ground, hissing when battling its counterparts, or squealing when captured by a predator.

During warmer months, the Snowshoe hare consumes grasses, ferns, leaves, greens, conifer needles, sedges, flowers, mosses, and lichens. Colder months result in more nutritious thin twigs being sought, when available.

Snowshoe and Arctic hares have been known to steal meat from baited traps and dead rodents, to provide protein to its vegan diet. Due to difficulty in digesting the cellular-rich diet, they use a system called coprophagy, (ingesting fecal pellets), whereby additional plant-based nutrients are extracted and used. Adequate nutrition is critical to this hare’s well-being and survival, helping to provide breeding strength, energy to escape predation, and protection from starvation.

Breeding season for the Snowshoe hare is heralded by new vegetation growth, but varies depending on the location, yearly events, weather conditions, the subspecies’ phase of their population cycle, the age of the male and female hares involved, and the start of the female’s estrous, (regular reproduction) cycle. Breeding involves a male to male competition for the female, which may be subject to breeding by several males.

After a successful mating, gestation takes place, from 35 to 40 days. Following this event, a female Snowshoe hare, having twin uteri, can become pregnant again, and therefore is capable of her producing up to 4 litters each year, by allowing the conception of a 2nd litter before the 1st is even born! First litters of the year, are usually born during mid-April to May. Though the 1st 2 pregnancy rates are very successful, the 3rd and 4th outcomes vary. During peak times, the litter size can number 8 to 10 young, (leverets), while in more challenging periods, an average of 4 leverets are born. However, in the Pacific Northwest, due to reduced snow coverage, and less population cycling, litters are usually smaller. These precocial, (born fully-furred, eyes open) infants are also born active, with the ability to crawl during their 1st day, and nibble grass by 10 days old. Often within 24 hours of birth, each leveret leaves its birthplace, hiding separately, but near its siblings, gathering together for their few moments of evening nursing. After 25 to 28 days, regular nursing wanes, and weaning begins. Leverethood lasts 1 year.

Estimates of a Snowshoe hare’s lifespan varies from as short as 1 to 5 years, depending on environmental conditions, and predators, including humans. Reportedly, juvenile hares are more active, and less cautious than adults. Estimations are that 85% of these animals do not survive more than 1 year.

Though population varies from low numbers up to 10,000 Snowshoes per square mile seasonally, it is difficult for correct estimates to be ascertained at any given time, due to population cycles and disease outbreaks. However, through investigating various Snowshoe hare signs in a research area, rough calculations can be made. Fecal pellet plots, tacks, runways, trail sites, skeletal remains, and this hare’s unique “clean chisel cuts” on browsed tree or shrub stems, help in their population estimates.

In B. C., the status of the Snowshoe hare is listed as Red. This places the Snowshoe hare as a candidate for Extirpated, Endangered, or Threatened. Though its main predator is the lynx, owls, hawks, coyotes, wolves, foxes, martens, cougars, bobcats, and weasels also prey on hares. The Snowshoe hare also faces many other threats. Natural and human caused habitat fragmentation, logging, and logging road development in valley bottoms, and old growth forests, combined, account for over 50% of forest reduction in this Pacific Northwest Coastal corner. Urbanization, recreation area usage, and hunting impact all hares, while population decline phases affect B. C.’s Northern latitude hares more often. During peak times, their populations can multiply by 3 times, while during declines, over 90% can be lost! In fact, these effects on their population levels, has resulted in their habitating an average of no more than

10 animals per hectare. All combined, they take their toll on this beleaguered animal.

Snowshoe hares are protected in 11 B. C. parks and wilderness areas. Locally, they include Garibaldi, Golden Ears, and Pinecover Lake/Burke Mountain Provincial Parks. Recent sightings of Snowshoe hares have been reported in Silverdale, Mission near the Stave river, along with several other at-risk species such as Painted turtles in Silvermere Lake.

Being such a prolific animal in terms of breeding ability, has had positive benefits in this specie's survival, but it remains subject to natural-occurring population decline phases, and much predation. Healthy hare populations benefit many species including hawks, owls and many more. Historical records show lynx and hare numbers rising and falling in a cycle. Biology students worldwide use the hare to demonstrate the relationship between predator numbers and their prey.

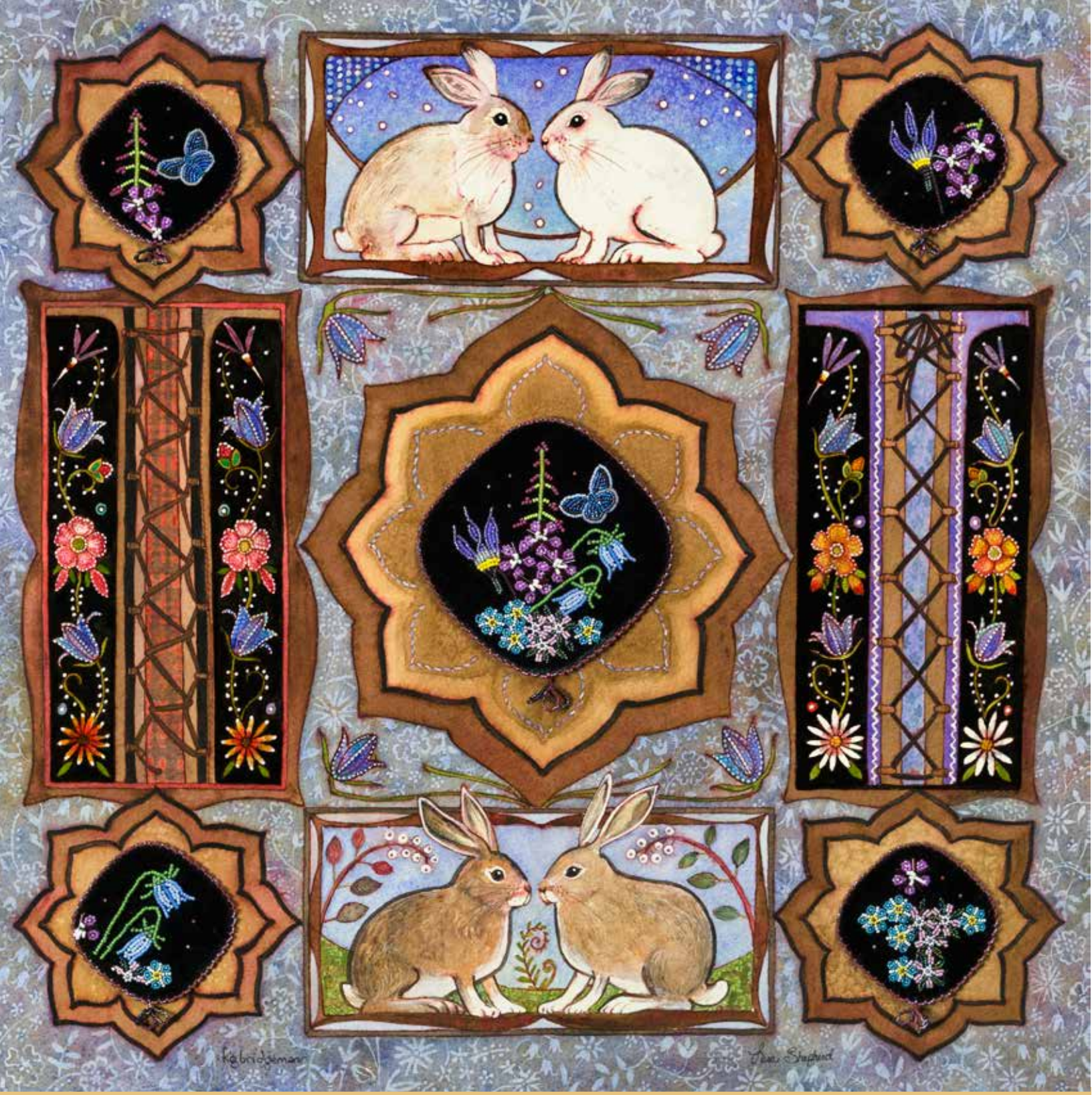
We can all help the Snowshoe hare by petitioning the federal government to establish a nationwide wildlife protection act, and local governments to set aside more protected wildlife areas. Also required is proper enforcement of the B. C. Forest Practices Code, and restoration of riparian habitats. Thankfully, there are many conservation partners involved!

For further information on the Snowshoe hare, and other species at risk, please go online, or visit your local library.

Val Pack, Mission

Snowshoe hare photo courtesy of
Mike Stefiuk, Maple Ridge
http://mikestefiuk.photoshelter.com

Barred owl family eating a hare
Bruce Klassen,
Silverdale



Mossbag, Snowshoe hare & Spring Wildflowers
Kristi Bridgeman & Lisa Shepherd

THE FOOTPRINT PRESS

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