

FREE
MAGAZINE

Issue 16

THE FOOTPRINT PRESS



Passages from
Silverdale, Mission,
Abbotsford
and beyond.

Message from the Editorial Committee

The only reality is the physical world. Natural elements - air, earth, water and fire support the living systems of which we are a part, and which sustain us. All else, including our political and economic systems, are merely constructions of our minds - something human beings made up. There is no denying this.

Yet we do just that, deny reality, when we turn a blind eye to destruction of rivers, farmland, and the natural world which we depend upon for our existence.

Awe of nature twisted into fear, fuels violent, futile attempts to force nature and her creatures to submit to our whims.

The mysterious Sasquatch is an ancient reminder that we must always respect the land. It is time to confront the dissonance between what we know and what we do. The meaning of all life, from a tiny snail, to a giant cottonwood tree is woven into life's rich tapestry. Let us remember the meaning of *our* lives within the living system, giving back what we have taken, to ensure the health of the whole.

Cover photo- Lancetooth snail, Bruce Klassen, Silverdale.

***The Couple,*
Ellen Sereda, Mission**



Endangered snails in your garden

When one thinks of “endangered species”, animals like the iconic Killer Whale and the critically endangered Northern Spotted Owl come to mind. What does not usually come to mind are snails. However, two species at risk, the Oregon Forestsnail (*Monadenia fidelis*) and the Pacific Sideband snail (*Allogona townsendiana*), live right here in the Fraser Valley and could even be sharing your backyard! Three more common species of snails that you might also find in the area are the Robust Lancetooth, the “hairy” Hesperian, and the ubiquitous non-native European Grovesnail.

So why are the Oregon Forestsnail and Pacific Sideband considered in trouble? Like many endangered species, habitat loss is to blame. The habitat that these snails

prefer – moist broadleaf and mixed forests of low elevation – is becoming scarcer and more fragmented in their native range due to residential and commercial development, agriculture, and resource extraction such as timber and gravel. In BC, the Oregon Forestsnail’s range is restricted to the Fraser Lowlands (Tsawwassen through Hope). A little wider spread, the Pacific Sideband can be found throughout the Lower Mainland, Vancouver Island, and the Sea-to-Sky region up to 1220m.

Literally moving at a snail’s pace, their dispersal ability is limited. Even roads can be barriers to dispersal, further

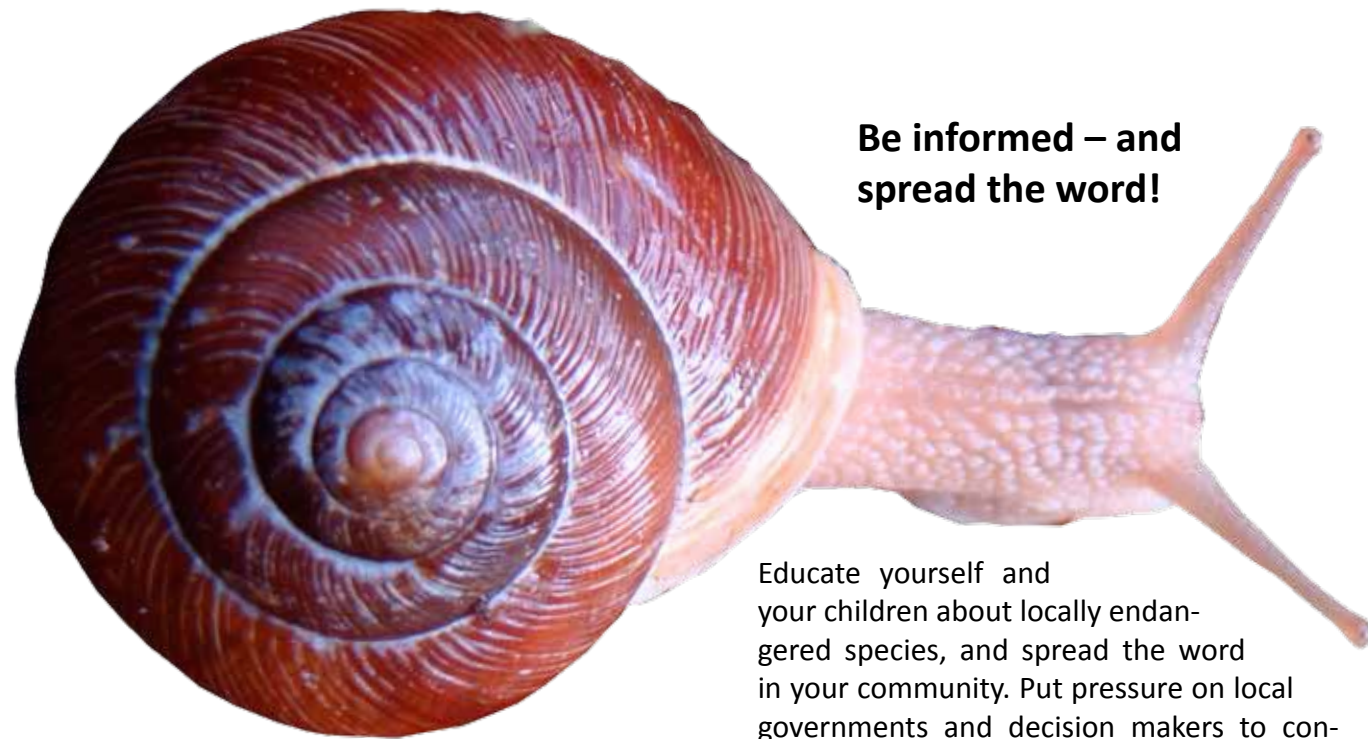
isolating populations and compounding the problem of habitat loss. Additional threats include recreational activities like mountain biking, and invasive species. In Canada, the Oregon Forestsnail is designated as Red-listed in BC, and Endangered under the federal Species at Risk Act (SARA). The draft Recovery Strategy for Oregon Forestsnail, released in 2014, designates specific critical habitat areas that must be conserved and offers them legal protection. Not listed under SARA, the Pacific Sideband is provincially Blue-listed (of Special Concern). BC and Alberta are the only provinces in Canada that do not have a stand-alone species at risk law. Provincial listing offers only general protection under the BC Wildlife Act.

If you have been lucky enough to see these snails, you will know they are quite beautiful. At 3 and 3.5cm in diameter, Oregon Forestsnails and Pacific Sidebands respectively, are the largest land snails in BC. Look for the honey-to-molasses coloured shell of the Oregon forestsnail, often bleached white with wear, and the thickened lip of the shell opening. The shell of the Pacific Sideband is also brown with a distinctive dark and yellow band around the shell’s side. The snail’s flesh is billowing and reddish-brown to burgundy colour with a network of black lines giving it a “pebbly” look.

Although small, these critters play an important role in the ecosystem. They are food for a variety of animals including birds, shrews, frogs, salamanders, lizards and even other snails such as the carnivorous Lancetooth, so named because of its shell-penetrating radula (toothed tongue). While the loss of the Oregon Forestsnail alone may not be enough to drive any of these predators to extinction, when multiple species become extinct, the results can be catastrophic. Imagine an ecosystem as a tower of Jenga blocks, with each species a single block. How many can you pull out before it topples? With current extinction rates estimated at 1,000 to 10,000 times the natural background rate, the unknown nature of this tipping point is one of the reasons ecologists are so cautious about species extinction.



But there are things you can do to help:



**Be informed – and
spread the word!**

At home

Oregon Forestsnails and Pacific Sidebands love wet forests with lots of herbaceous undergrowth. Consider designating a corner of your property as natural and expand it over time. Avoid clearing brush, sticks, and fallen leaves in this area – a thick layer of organic matter provides a nice moist haven for snails and protection from predators. Enhance your yard's habitat by gardening with native plants and removing or managing the spread of common, yet invasive plants like lamium, English ivy, and periwinkle. Sword ferns, salal, stinging nettle, salmonberry, vine and bigleaf maple are some native favourites of the Oregon Forestsnail. Rocks and large woody pieces like stumps and logs are also important habitat features as they retain moisture, provide cover from predation, and the lichen and fungi often growing on them provide food. Finally, always avoid the use of herbicides and pesticides. Not only can they harm wildlife but they also kill beneficial native plants.

Responsible recreation

Trampling also poses a threat to snails. Sticking to existing trails and avoiding creating new ones when hiking, biking, nettle-gathering, or ATving can help to reduce mortality and leave habitat intact. Oregon Forestsnails in particular are often associated with stinging nettle. The mineral-rich plant is thought to be important in providing calcium for shell growth. If you spot Pacific Sidebands or Oregon Forestsnails, consider nettling elsewhere or better yet, plant your own patch!

Educate yourself and your children about locally endangered species, and spread the word in your community. Put pressure on local governments and decision makers to consider species at risk in community planning, and consider designating critical habitat areas as parks. When protecting areas in perpetuity is not possible, dynamic conservation may still help. Dynamic conservation is avoiding adverse activities at certain times of the year when a species is most susceptible to harm. For example, delaying roadside mowing in the wet spring, when snails are most active, until summertime when they go into aestivation (burying under fallen leaves to retain moisture), may help to reduce mortality.

Through green home and garden care, responsible recreation, sustainable community planning, together with awareness, we can help these endangered animals thrive in our community.

Lovena Morton, BSc.

South Coast Conservation Program

For more information check out:

Enhancing Backyard Habitat:

www.sccp.ca/projects/south-coast-landowner-stewardship-program

Snail ID Key:

<http://sccp.ca/resources/snail-key-south-coast>

Opposite page: Oregon Forestsnail,
Carrielynn Victor, Cheam Village
Photo courtesy SCCP



Did you know?

Land snails, semi-slugs and slugs are important players in the forest decomposition process and contribute to the nutrification of soils through their decaying bodies, shells and feces. Their dietary preference for fungi may also be a factor in fungal spore dispersal.

Snail shells are an important source of calcium for animals in calcium-poor habitats. Many birds rely on snail shells for extra calcium and other nutrients vital to the formation of eggshells and embryos.

If you enjoy fireflies, birds, lizards, and other animals, remember to thank the snails, who support their place on the food web!

Endangered Oregon Forestsnails found in Mission!

A previously unknown population of Critically Endangered Oregonforest snails, has just been discovered on Keystone and Hall avenue in Mission, near the Stave River. Many thanks to the South Coast Conservation Program for helping to document this important find!

Mystic Snail

*her space: whorl upon whorl,
her shell expanding from her*

*sluggish body, crystal orbits
of beauty, the snailish simile*

*to eternity – her time: muscle
upon muscle, the patient crawl,*

*bulging ever slowly, across a
hardness greater than imagination –*

*she knows a place beyond number,
knows the theory of relativity –*

*and we enter at our peril, we
quick and clumsy humans, that*

*alien world, her ecstatic widening
space, her flat and prayerful time –*

*when space is time
and time is done
then shall we know
my snailish one
to creep below
the shell of earth
and death and birth
when space is time
and time has run*

Robert Martens,
Abbotsford

Bear Cub Red Alert

Here, in British Columbia's South Coastal region, we are experiencing very serious bear cub issues.

The first disturbing new phenomenon was the appearance of unprecedented numbers of orphaned Black bear cubs near the end of the 2015 bear season. Disturbing as this is, equally concerning is the lack of knowledge about the reasons for the situation.

Research shows unexplained numbers of orphaned bear cubs in Ontario, Montana, Idaho, Arizona, Nevada, California, New Jersey, and Florida. Clearly, this is not a situation confined solely to our local bears.

The speculations for so many orphaned cubs are varied, including road accidents, poaching for the sale of bile and body parts, poor berry crops due to climate change, and indiscriminate shooting by hunters or angry residents. However, short of the climate-change/berry crop theory, all of the situations have been present for decades, and given that the abundance of orphan cubs is so recent (since October in the South Coast region), such reasoning is questionable.

The second concern is the BC Conservation Officer Service (COS) embarking upon a program of killing cubs of mothers considered a threat to human safety. Due to their habitual foraging for food in human neighbourhoods, such bears are considered "conflict mothers." Essentially, the COS feels that a cub with a "conflict mother" will have also learned such behaviour, and automati-

cally will become a problem bear itself, and as such qualifies for destruction. This assumption is not supported by science.

For several years prior to this current approach, the policy for orphaned cubs in the South Coast region was:

In those instances where a sow with a COY (cub of the year) has come into conflict with humans and the sow's aggression level is high and the likelihood for aversion is considered low, and the appropriate response is to destroy the sow, the COY(s) are to be captured and transferred to a rehab facility.

Within the rehab process recommended was an examination by a qualified veterinarian to assess the cub's health, food conditioning, and suitability for rehabilitation.

This is a reasonable protocol, as some bears are a perceived threat to human safety, yet the benefit of the doubt is extended to an innocent cub whose only sin – at less than a year old – is following its mother around.

However, inexplicably, this policy has been revoked to be replaced by one that decrees that cubs seen accompanying these "conflict mothers" are no longer automatically transported to rehab facilities and assessed by a veterinarian. Instead,

under the current policy, a Conservation Officer now does this assessment on the spot, invariably resulting in a cub's death.

Four cubs of conflict mothers were killed in early October 2015 in West Vancouver. The deaths



of these two family groups occurred before the discovery of large numbers of orphaned cubs in many South Coastal communities, and the decision to kill them was based on the present policy. People were outraged. They knew the mother bear might be killed, but they never expected the cubs to suffer the same fate.

In addition to the policy, Conservation officers are guided by a matrix that determines appropriate responses to the many bear situations they encounter. At no point within that matrix are cubs acknowledged as a separate entity. Due to the innocence of their youth and the supporting science, many people feel strongly that cubs should automatically qualify for rehabilitation rather than death.

Peer-reviewed scientific evidence attests to the success of rehabilitating

bear cubs and releasing them back into the wild, **including cubs of so-called “conflict mothers.”** [John J. Beecham, et al (2015, July). Management Implications for Releasing Orphaned, Captive-Reared Bears Back to the Wild. *Journal of Wildlife Management*.]

Locally, Critter Care in Langley, a privately funded facility that cares for orphaned cubs over the winter, extended its maximum capacity to 32 orphaned cubs this bear season to accept an abundance of orphaned cubs from many communities, including Gibsons, Pemberton, Whistler, Squamish, North and West Vancouver and Coquitlam. Sadly, Critter Care could take no more and additional orphaned cubs were left out in the cold with nowhere to be taken.

Critter Care has had to struggle under this unprecedented influx of orphaned bear cubs, and it needs to build another bear enclosure early this year. Estimated to cost \$100,000, fundraising for this project has started. Donations can be mailed to Critter Care (481 – 216th Street Langley BC, Canada, V2Z 1R6) or paid by PayPal on their website (crittercarewildlife.org). A note must identify that the contribution is for the NEW bear enclosure.

Mick Webb, long-time volunteer with the North Shore Black Bear Society.

Black bear photos, **Bruce Klassen**, Silverdale.



Rodenticides creates a first class crisis for wildlife and pets



Rodenticide, otherwise known as Rodent [Rat/Mouse] Poison is one of the most common forms of dealing with Rodent problems. This poison bait is commonly used throughout the world to deal with Rodents. This poison contains anticoagulants which are nonselective, leading to hemorrhaging of many organs, causing a slow, painful death. Second Generation Rodenticides have become even more powerful in their toxic formulations, while requiring smaller amounts. These “new improved” poisons are very toxic, not just to rodents, but to anything that consumes the poisoned rodent. If anyone ever tells you that there is no secondary harm done to others by using rat bait, it is not true!

Rodenticides come in pellet or cube form, and plastic packages for placement without thought to how easy wildlife could access a poisoned dinner. This type of poison does not kill instantly. The poison takes many hours, allowing the poisoned rodents to wander where they may be preyed upon by many other animals.

Owls, Hawks and Eagles are natural controllers of rodents, which make up a large portion of their diet. Many Owl species feed almost exclusively on rodents, thus they are at greater risk of eating a poisoned rodent. One Barn Owl hunts more rodents every night than a dozen barn cats. Poisoning rodents where these Owls live has dire effects, not just on

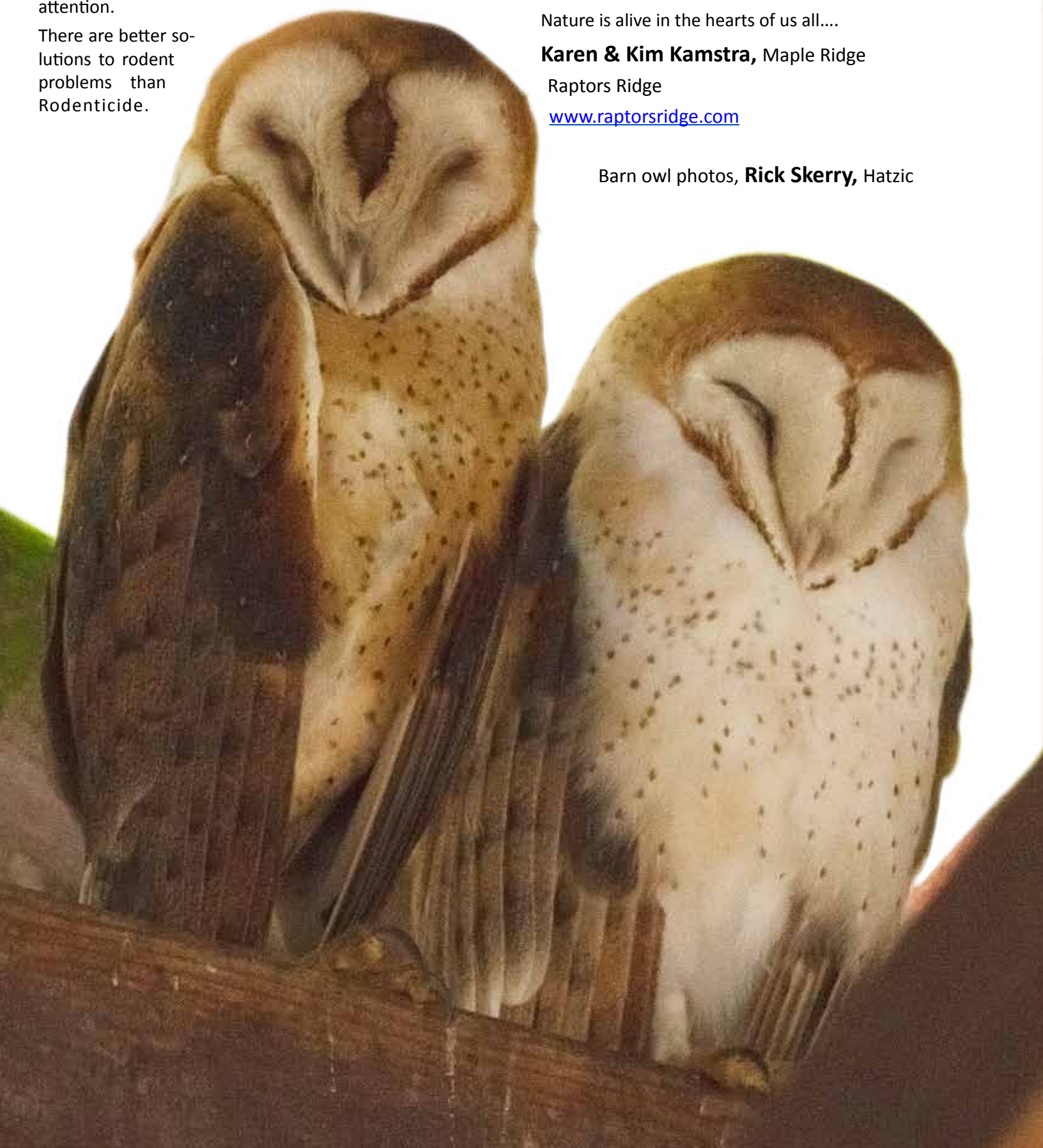
the parent Barn Owls who consume them, but also the Owlets they are rearing. Within 18 days of birth 68 percent of the Owlets will die of secondary poisoning. Studies indicate that of 100 Barn owls born this year, only one will be alive ten years from now. By the time 80 days pass, when these Owlets are ready to leave the nest, only 5 to 8 will survive to establish a life of their own. Alarming rates of secondary rodenticide poisoning is impeding the fertility of these animals. Rodenticide is now showing up at the egg stage!

Owls, Hawks, and Eagles throughout the world are increasingly being brought to rescue centers for poisoning from consuming rodents. Over 65 percent of rescue cases where

blood samples are taken show positive results of rodenticide poisoning. Blood samples are not needed in many cases, as it is obvious that poisoning is the concern when there is a large hematoma running the length of the wing, body cavities with non-clotted blood, or hematomas ballooning the eye to over 10 times its normal size. Every time a Raptor dies from rodenticides, there are several 1,000's of rodents that will not be consumed that are left to re-populate. It takes 364 days to reproduce one owl, but only 21 days to reproduce a littler of rodents! If we continue to use rodenticides, this could wipe out our owl populations, and ultimately lead to an explosion of rodents, the opposite planned outcome.

Most often when a poisoned animal is rushed for immediate medical attention, it is a domestic pet. Each day in North America, an average of 97 domestic pets receive medical attention from Veterinarians for Rodenticide Poisoning. These animals quickly catch the attention of their owners due to the animal's behaviour. Hopefully if one notices poisoned wildlife, they too can be brought in to receive medical attention.

There are better solutions to rodent problems than Rodenticide.



Barn owl photos, **Rick Skerry**, Hatzic

Rodents need food, water and some form of shelter. Remove outside pet food and bring in bird feeders at night, rodent proof compost containers, and patch any entry points for rodents. Snap traps are quick and effective. DO NOT USE STICKY TAPE TRAPS as these can trap untargeted animals and songbirds.

Let's be animal smart to save Wildlife and Family pets.

Nature is alive in the hearts of us all....

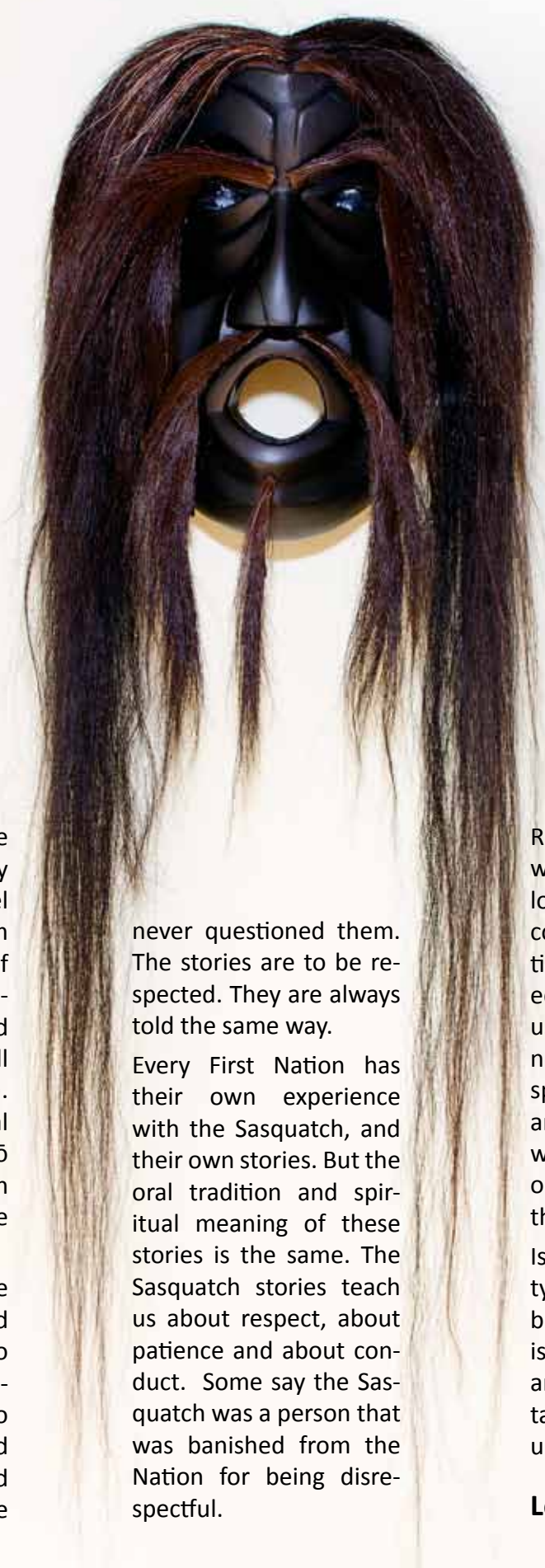
Karen & Kim Kamstra, Maple Ridge

Raptors Ridge

www.raptorsridge.com

Sásq'ets

Screaming Sásq'ets, **Lek' hoosh Leon**, Sts'ailes



Ey'Swayel Lek'hoosh Te Skwi (Good day, my name is Lek'hoosh). Tel Li Tsel Kwa Sts'ailes (I am from Sts'ailes). I am the grandson of Ed Leon and Mary Leon. Stories about the Sasquatch, and other stories, are what we call snowoyelh (laws of the land). The snowoyelh are an oral tradition, told by our Stó:lō elders, and were handed down through the generations since time immemorial.

As a young boy, spending time with my grandparents who told me the stories, made me who I am today, and the shared stories make the Stó:lō people who they are. The stories were told to us with love and care, and provided us with guidance. We

never questioned them. The stories are to be respected. They are always told the same way.

Every First Nation has their own experience with the Sasquatch, and their own stories. But the oral tradition and spiritual meaning of these stories is the same. The Sasquatch stories teach us about respect, about patience and about conduct. Some say the Sasquatch was a person that was banished from the Nation for being disrespectful.

Recently, the stories were put in written form so they would not be lost or forgotten, and also so they could be shared with the generations to come. In my work as an educator today, these stories are used to teach our aboriginal and nonaboriginal children about respect for the earth. The Hunter and the Sasquatch, as told below with permission by Dolly Felix, is one of many stories available at the Stó:lō Education Center.

Is the Sasquatch a physical entity? Is it a spiritual entity? Or is it both? That is where the mystery is. The stories keep us guessing and remind us that there are certain times in our life we will never understand.

Lek' hoosh Leon, Sts'ailes



Qelqelitl (Male Sasquatch), **Rocky LaRock**, Sts'ailes
Coast Salish Contemporary Artist www.rockylarock.com

The Hunter and the Sasquatch - as told by Dolly Felix

There was once a young Stó:lō man who lived with his grandparents near Morris Valley. In the old days it was common for young people to live with their elders. The young man got up early every morning, along with his grandparents, at the break of daylight. Since there were no roads yet, he would take a path up a little mountain to go hunting. Up he would go, until he came to an open space, which was like a little prairie on the side of the mountain. One day, as he was returning home without any game, he came upon the little prairie. Right in the middle of the open space was a large boulder, and on this particular day, the young man stopped short. He looked at the rock, too frightened to move, for sitting on the boulder with one hand under his chin, was a Sasquatch. The young man felt he was too close to run away, for the Sasquatch would surely have chased him. He looked at his gun, but shook his head, remembering the many warnings he had against shooting Sasquatch. There was only one thing he could do – walk straight ahead and pass the rock where the Sasquatch was sitting. As he did this, he nodded his head politely at the Sasquatch as if he were saying hello. He meant to show the Sasquatch that he did not intend to harm it. Only when the young man reached the bushes, did he feel

it was safe to turn around and look back at the Sasquatch. Sure enough, it was still sitting there in the same position. Although he wanted to run, the young man was still afraid the Sasquatch would chase him, so he walked at a normal pace along the path. He hadn't gone very far, when he saw a deer right in front of him on the path. The young man shot it and began dragging it home. He had gone only a short distance with this heavy load, when another deer appeared in front of his path. This he also shot, but knowing that he was not able to drag both deer, he left them on the trail, and went home for help. When he arrived home, he told his grandparents what had happened to him. "The Sasquatch had pity on you", said his grandfather. "This is the Stó:lō belief. Because you saw the Sasquatch, but did not harm it, you were given your first deer." Young men from the village went with the hunter to help him bring his deer home. The young man knew that because this was the first deer he had killed, he could not keep any part of it for himself. According to the custom of the Stó:lō people, the deer must be passed around to the Elders. This was a time for celebration. The people gathered together in the longhouse to feast and to honour the hunter. Only the Elders ate of the deer, but as always, a collection was made for the hunter so that he could buy more shell or bullets for hunting. After that, every time the young man hunted, it is said he never came home empty handed.

"We do burning for the Sasquatch. It's our belief that his primary role is to ensure that the land is being taken care of. Because every one of us, as Sts'ailes people, we carry an ancestral name, a rich name from the land."

James Leon



Shaman Sasquatch, **Rocky LaRock**, Sts'ailes
Coast Salish Contemporary Artist www.rockylarock.com

A Tale of Misfit Blackbirds



They are bold, black and in our face: celebrated by some, hated by others, crows are anything but invisible. With their ear-piercing caws, croaks and screeches, traveling in large groups called murders, they strut through our garbage and disrupt our morning snoozes. Clearly crows are not the wallflowers of the avian world. With recent implementation of a trap and kill program for non-native starlings in Abbotsford, the dialogue has turned to culls (mass euthanasia) for a variety of species, including our native crows. Crows are often disliked due to misunderstandings regarding their noisy banter, disruption of garbage and alleged contribution to the decrease in songbirds.

Crows belong to the Corvid family along with ravens, magpies and jays. Most of us are familiar with the loud caws that crows use to communicate, so it might be sur-

prising to learn that crows themselves are songbirds. Unfortunately for them, many of us want to change the station. Though their calls may sound harsh and repetitive to humans, crows have a rich and diverse language and are even known to have regional dialects. Like humans, crows have to practice their vocalizations by listening to their elders. Without this exposure, the noise they make is just that – noise. Once exposed to the “language,” young crows will practice, even on their own, until they can communicate proficiently. Most of us have not had the pleasure of hearing one of the “subsongs” crows work so hard on. Each one of these improvised arias is unique to the crow singing it and consists of gentle coos, clicks, caws and rattles. Families of crows can be found taking turns singing or vocalizing in unison. These songs have a calming effect and are often used to dissolve disputes between family members.



In addition to the language crows learn, use, and teach, they have highly complex social and emotional lives. Until recently, what separated man from animal was our ability to make and use tools. We now know that crows also make and use tools, solve complex puzzles, and have uncanny facial recognition and recollection. Years later, they will still react to a face they recognize and pass this knowledge onto their offspring, and those offspring pass it on to their young. It is not surprising that based on body vs brain size, crows outclass most other birds and mammals!

Crows are incredibly tolerant and adaptive. Because of their opportunistic nature, they have thrived despite human interference, which is why we may run into them more often than other birds. Crows are omnivores and eat whatever is available—insects, spiders, snails, fish,

snakes, eggs, nestling birds, cultivated fruits, nuts, and vegetables. They will also scavenge dead animals and garbage. Instead of embracing nature's “built-in janitors,” we blame crows for messes that are often created by other creatures such as raccoons, cats and dogs. A simple solution for this is to ensure garbage is kept in a secure, tightly-lidded container or storage shed. If crows are disturbing your crops, visual scare devices, such as pie tins hung in trees, Mylar scare tape, Mylar balloons, scarecrows, or flags can be used to repel crows without disturbing neighbors with loud air cannons.

Conservation of our songbirds is an admirable goal, although it is vital to keep in mind that crows are just one of many animals that eat the babies and adults of other bird species. Raccoons, squirrels, foxes, hawks, owls, bullfrogs, rats, mice, and cats will all happily eat birds,



The Sweet Falling, **Ellen Sereda**, Mission

eggs, and nestlings. Fortunately for crow advocates, data is on their side; most studies show that crow culls provide little to no impact on the songbird population. Essentially, removing one species allows other predators to eat the prey which crows otherwise would have eaten.

Predation is a part of the ecological balancing of species and it doesn't make sense to impose our morals on creatures who are simply surviving. Using extreme measures such as mass euthanasia on successful wildlife like crows is not a sound long-term goal. We might look at the fact

that we are encroaching on their habitat. So what are the real issues? Is the crow doing what comes naturally to them, or is the problem how we manage our own garbage? Could we learn to enjoy the jangly early morning serenade? Maybe we can make changes to our outdoor

spaces to support songbird populations. Can we at least agree to work harder on co-existing with our wild, black-feathered counterparts and avoid an unnecessary "murder of crows?"

Carrie Besko, Deroche.

The Grand Stands of Cottonwood Trees

Black cottonwood *Populus balsamifera ssp. Trichocarpa*, is the largest of the American poplars and the largest hardwood tree in western North America. While the wet climate of the lower mainland allows Black cottonwood trees to thrive, in the Southern Interior, cottonwood riparian areas are considered an ecosystem at risk. Many have been completely cleared or significantly altered by human development. In both regions, cottonwoods are ecologically significant for many important reasons.

Since cottonwoods are fast growing and drop their tops, some consider this tree a weedy species. This is not the case. Cottonwood trees have soft wood and large diameter trunks, providing excellent wildlife habitat for species such as wood ducks, owls, and woodpeckers. The cottonwood canopy supports deer, roosting eagles, nesting crows and many songbird species. Great blue herons rely on cottonwood ecosystems and build their nests within the trees. The Great Blue Heron Nature Reserve in Chilliwack BC, is an excellent example of thriving heron colonies in an established cottonwood ecosystem. Like other trees living in riparian (bank or shore) areas, cottonwoods provide shade over rivers and streams. This is an important ecosystem service because many fish species require cold-water temperatures to survive. Dropped and decaying leaves provide nutrients for insects, the food staple of young salmon and trout. Twigs and buds provide food for deer, moose, and elk. Beavers eat the inner bark and use the stems to build dams and lodges. Additionally, cottonwood trees protect riverbanks, which may otherwise be unstable, and are pioneer species that can act as nurse crops for other species.

At Splitrock Environmental, in Lillooet, BC, we specialize in ecological restoration and native plant propagation. When working in riparian areas, we plant cottonwood cuttings with a variety of bio-engineering techniques such as 'live stakes' and Wattle fences, which are used to stabilize eroding banks along the Seton River.

British Columbia First Nations have many ethnobotanical uses for cottonwoods. The Secwepemc and

Nlaka'pamux use the cottonwood seed fluff to make pillows, the inner bark to make soap and medicinal tea, and large tree trunks to make canoes. The St'at'imc use cottonwood buds to make medicinal salves which treat skin ailments including cuts, scrapes, burns, and bruises.

Heather Richardson, MSc.,

Environmental Scientist with Splitrock Environmental, Sekw'el'was.

<http://splitrockenvironmental.ca/>

For more information on the endangered cottonwood riparian area and Black cottonwood trees, check out: Cottonwood Riparian Ecosystems of the Southern Interior.

<http://www.env.gov.bc.ca/wld/documents/cottonwood.pdf>

Cottonwood-Balsam Poplar Biology
(BC Ministry of Forests, 1996)

<https://www.for.gov.bc.ca/hfd/pubs/Docs/Frr/Frr250.pdf>

E Flora BC

<http://linnet.geog.ubc.ca/>



THE FOOTPRINT PRESS

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