









Little Jumbo

he Townsend's Big-eared Bat (Corynorhinus (Plecotus) townsendii), also referred to as a Lumpnosed bat, or as a Western Big-eared bat, is native to Canada, U.S.A. and Mexico. It is found south of Campbell River, along Vancouver Island's east coast, Vancouver to the Lower Fraser Valley, east to the Kootenays, northeast to the Okanagan, and north to Williams Lake. Habitats favoured, consist of coniferous and deciduous

forests, woodlands having riparian features, semi-deserts, or montane shrublands. It can be found in regions hosting generally dry, warm summers, and relatively mild winters, but during the year's warmer months, this bat prefers roosting in evergreen forests, limestone caves, lava tubes, or human-constructed buildings.

The Townsend's Big-eared bat is approximately 10cm long, weighs about 81/2 grams, and is a member of the only mammal species capable of flight. Its large, 30cm wingspan is capable of "maneuverable flight", low altitude

flying, hovering, and reported straight line flying speeds of 3-6m per second. Fur colours range from pale brown to dark grey, with lighter under-fur, similar in both males and females, with Coastal bats being darker coloured than their Interior counterparts. Its huge ears, half the size of its body length, are thought to have varied functions including directing sounds into the ears, and providing "lift during flight." The tragus, is described as an erect, pointed, fleshy earlet, at the ear's base, measuring approximately 1/3 of the ear's length. The proboscis, composed of 2 long, fleshy, lumped nose protrusions harbouring sexual scent glands, are also characteristic features of this species. The Townsend's bat, like all other bats, has a basic inability to stand upright, but hangs upside down the majority of the time without effecting its circulation. Described as a relatively sedentary bat species, and as an insectivorous, the Townsend's bat typically begins its foraging during day's diminishing light, returning to its roost just before daybreak. Common to all bats, it uses sonar during its nightly forays, consuming 1/2 its body weight in small moths found amongst plant leaves or in the air, and other prey including mosquitoes, flies, lacewings, and dung beetles. Unlike other bat species, this bat is also able to "emit echolocation pulses", using both its nose and mouth, allowing it to detect and avoid obstacles in this unique use of low intensity sounds. Townsend's Big-eared bats reside in BC year-round, forming small groups of males and females during winter, generally hibernating in humid, cool caves and mines. Known wintering sites have been found in caves/mines of the Gulf Islands, Okanagan Shuswap, Kamloops areas, and along the Fraser River by Williams Lake. Prior to hibernation, this bat has spent the warmer months increasing its body weight by 40% in order to maintain energy during the long hibernation. During this time, possibly 1/2 of its pre-hibernation weight is lost. Unlike many other bats, the big-eared bat doesn't occupy cave/mine crevices, so aside from temperature changes in its dwelling place, sudden sounds, or other disturbances can arouse it, causing colony members to change location within the cave, or move to another one. These changes can result in energy, and weight losses, further risking the winter survival of the affected bat. Mating between the males and females takes place in its hibernacula (winter quarters), with the males searching out the females, who remain in a state of topor during this time of much fanfare, involving ritualistic vocalizations and head nuzzling. A Townsend's female bat mates in her 1st autumn, while the males are sexually active when over 1 year old. Mating takes place between late September and May, when the adults are in

peak health. Bats are the only mammal capable of delayed fertilization. The impregnated female stores the sperm throughout the winter in her reproductive organs until spring, when ovulation and fertilization takes place. At this time, when foraging conditions are ideal for the impregnated female, and without further Townsend's male bat involvement, she joins the summer maternity colony along with up to 25 to 100 other pregnant Bigeared bats. A single pup is born in late June or early July following a 56 to 100-day gestation period. This time period is dependent upon the temperature in the preferred maternity roost. Cold temperatures can cause torpor in the expectant mother, slowing fetal development. Born pink, naked, and weighing 25% of its future adult weight, the baby bat grows very quickly, and is capable of flying within 2 1/2 to 3 weeks. At 1 month old, it has reached its adult size, and at about 6 weeks old, is weaned. Before the weaning period, during her nightly forays, the mother bat leaves her pup behind, squawking for her return! Around August, the maternity colony members part ways, with the male young departing the roost before the female pups, and both sexes learning foraging skills. Sadly, the mortality rate for the young bat remains high at this time, and also during their 1st winter hibernation, when only an estimated 40% to 50% of those young bats survive. However, amongst bats reaching adulthood, natural death rates are generally low, with some of these bats reaching 16 years of age. Recently placed on B. C.'s Blue list as vulnerable will assist this bat with much needed attention and programs. Showing a decline in various areas, it is reported that B. C. has few maternity colonies, with approximately 350 bats in the largest one. Additionally, there are only 48 reported hibernacula, totaling less than 100 bats. Therefore, given the rarity and vulnerability of these mammals, their total population size is considerably small. Various human activities including vandalism of its roost, intruders, habitat loss due to land development, and toxic sprayings in agricultural and forest areas affecting its prey, coupled with this bat's very low production rate, have profound effects on this bat's survival rates. Additionally, a fungal disease called the White Nose syndrome, (WNS), is now responsible for the deaths of millions of bats in Europe, and North America, and in 2016, was confirmed in Washington state. This devastating disease, resulting in almost a 100% mortality rate in effected bats, does not affect humans. If encountering any dead or dying bat, it is highly recommended that it is not touched with bare hands, and that children and pets do not have access to it. Please report such a finding immediately to the groups listed below. The Ministry of Environment,



Lands and Parks, also encourages local naturalists, and cavers to report hibernacula and summer maternity sites. Given the obstacles facing the unique-looking, distinguishable Townsend's Big-eared bat, the Ministry of Environment, Lands and Parks holds little hope for this vulnerable species, stating that its future is "uncertain." However, through government will and assistance, industry cooperation, proper land use planning, environmental awareness, conservation groups' and the public's help, this highly vulnerable bat, and all bats, may enjoy a continued, healthy survival. For further information on this bat, and bats in general, please contact: The South Coast Bat Conservation Group;

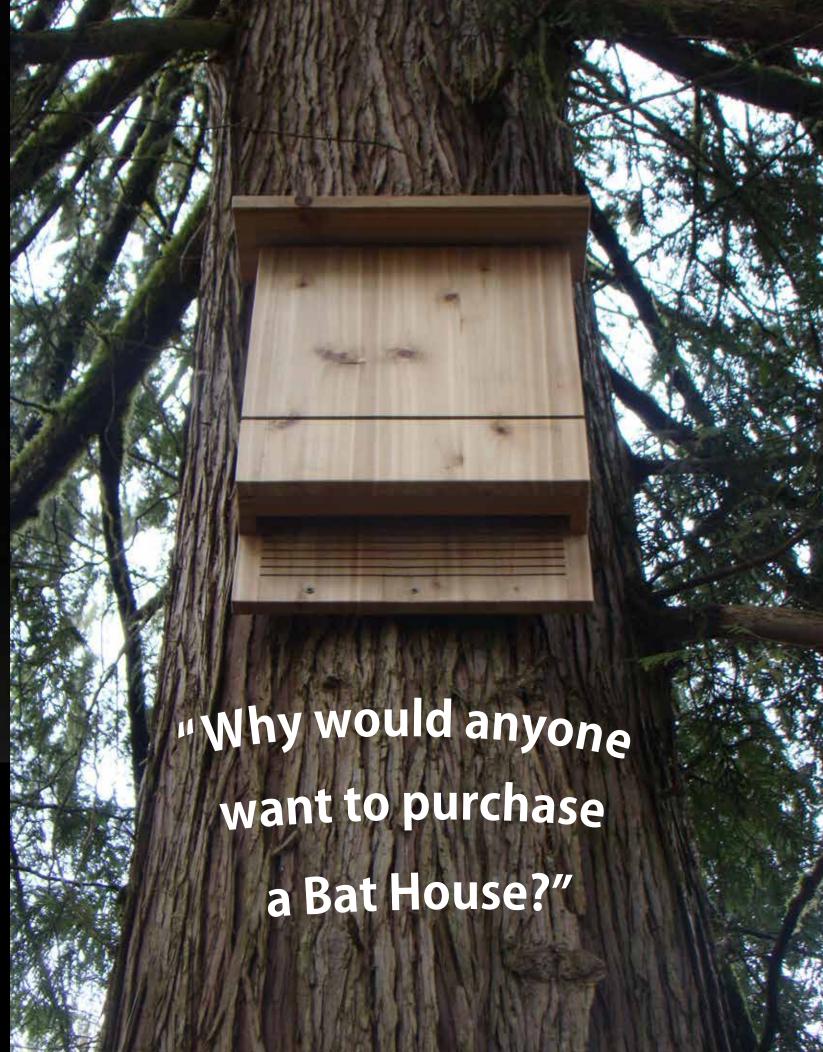
Aimee Mitchell, Fraser Valley, BC Community Bat Program, info@bats.ca or 1-855-922-2287. ext 23, or the Ministry of Environment, Lands and Parks 1-800-663-7867.

Val Pack, Mission

Townsend's Big-eared bat photos courtesy

Jenn Barrett

South Coast Bat Conservation Society (SCBat)



have been making bat houses for a few years now and the one comment I hear a lot is "why would anyone want to purchase a bat house?" I'm a wood crafter and at one of my market days, someone asked if I made bat houses. I said no, but I would look into it. Now, after almost three years, I have made over a hundred, and the feedback has been positive. I have become very aware of the importance a bat house can have in conserving our local bat population.

Many people still see bats as scary pests. We need to pay attention to what our local bat population means to our environment. A bat is nature's way of controlling our insect populations. Some bats can eat one half of their body weight in mosquitos every night. A nursing female may eat more than her body weight every night to sustain herself and her pup. Just think what would happen if we lost our bat population because we did not pay proper attention to our bat's needs! In effect as of 2014, "All bat species in British Columbia (BC) are protected under the BC Wildlife Act". Bats are neither rodents nor pests under BC Law.

Unlike rodents, bats do not build nests and basically depend on existing habitats. This could be natural or human made habitats such as caves or similar spaces, or attic spaces in human buildings. Did you know Canada has 19 species of bats and of these 19, 16 can be found in BC? Of these 16 species in BC, 8 are unique to BC and are not found anywhere else in the world. Two listed bat species which live locally in the Lower Mainland and Fraser Valley area are the Blue-listed Townsend's big-eared bat and the Endangered Little Brown Myotis bat. Bats are active from dusk to dawn. They feed and are active throughout the night, and can work themselves into temporary resting spaces as small as 1/2 inch. Male bats are solitary and female bats like to gather. If you see a single bat, it is likely a male. Female bats gather in maternity colonies in the spring and summer. Bats mate in the Fall before entering hibernation. However, fertilization does not occur until after the female has left hibernation in the Spring. Baby bats (pups) are typically born in June and July. Gestation period is roughly 2

months. Pups nurse for about 4 weeks or until they begin to fly. Young bats wean themselves mid to late-summer. Bats hibernate in the winter, and may migrate short distances to find appropriate roosting locations if it is too cold. Bats roost and hibernate in caves, abandoned mines, deep rock crevices and bat houses. Bats will then return to these habitats. Another important fact is bats have few natural enemies or predators except humans, owls and domestic cats. Eastern North America has seen the devastating fungus causing "White Nose Syndrome" and it is starting to be reported on the West Coast. If you see a dead bat, or a bat flying in the winter, it may have the White Nose syndrome (see the previous Townsend's big-eared bat article, for more information). Bats can carry diseases such as the Rabies virus. This can be serious for humans, but contracting the Rabies virus from bats is a rare occurrence. The life span of a bat can be 30 years. A female produces only one pup per year making it difficult for bats to recover from this fungus or other causes that threatens them. Anything we can do to help the bat to survive is extremely important. Bat houses are only one positive thing to do.

A bat house is a human made enclosure that looks like a tall flat box. Its intended purpose is to create a habitat for our local bats. It is usually made of wood. Horizontal grooves throughout the bat house allow for the Bat to fly in and perch on the lower portion and then climb "up" into the enclosure through a small slot. They then perch up-side-down within the bat house. Depending on the size of the bat house, a small bat house can house around 20+ Bats (for a single cell) and up to hundreds (for a large 4 cell). A bat house for our local part of the world needs to be facing "SOUTH" and vertically mounted on a pole or tree at a height somewhere between 10 to 15 feet (or higher) above the ground. The bats need the warmth of the sun during the daytime when they are in the house. If it is mounted onto a tree, remember to allow for the bat's "flight path" and its need for the sun's warmth. Trim any branches necessary. Mounting a bat house on your home, may not be a good idea. It may entice the bat to find a better spot in your attic space. If that happens there are ways to encourage the bats to leave without causing any harm to the bats or to you. Stay tuned for more in a future article.

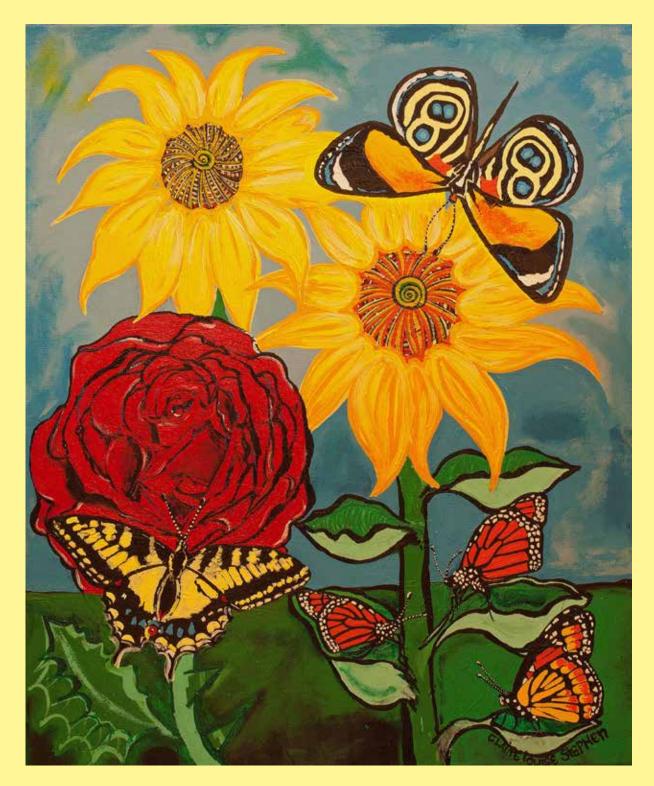
Carl R. Koehler,
Mission



Little Brown Myotis photo courtesy Jenn Barrett, South Coast Bat Conservation Society (SCBat)

Light escapes the long death of stars; the burning past, shining in my eyes.

Paul Falardeau



Soft as Silk and Smooth as Lace

Soft as Silk and smooth as Lace she flies in brightest sun!
Colors are so 'Vivid' as she glides.
Summartime is when you'll see her resting on the larges

Summertime is when you'll see her resting on the leaves. Often hidden in her wise disguise!

Silent as a 'Breath of Air', she moves along her way. Looking for a place to sit in peace.

Quiet breeze among the trees and gardens all around. Blending in with colors that don't cease.

Butterfly Garden II, Claire Louise Stephen, Hatzic

English Butterflies, a really colorful surprise. Straight from the cocoon, they find their way. Swallowtails and Spicebrush see the Zebra close at hand. Sulphurs, Whites and Skippers every day.

Color me a Butterfly and watch her move around.
English Gardens, Swallowtails are found.
"Come into my Garden." "Well of course, I beg your pardon!"
Soft as Lace and Smooth as Silk Abound.

Stephen B. Henshall, Deroche



Milbert's Tortoise Shell Butterfly

Artist statement Claire Louise Stephen, Hatzic

In the 20th century, with people over-populating, and butterfly habitat constantly threatened, butterflies are now in decline. Butterflies may be the "canary in the

coalmines" of modern times. Because of their close relationship with plants and sensitivity to disturbance, they are important indicators of habitat health.

Did you know these terms for groups of animals?

swarm of butterflies
sedge of cranes
convocation of eagles
cast of falcons, and hawks
charm of finches
leash of foxes

company of moles scourge of mosquitos parliament of owls murder of crows gaze of raccoons rout of snails scurry of squirrels
murmuration of starlings
descent of woodpeckers
colony of beavers, bats and rabbits.
Submitted by Ann Murdoch,
Mission



Sprawl report: Mission's Proposed New Official Community Plan

he District of Mission is in process of updating its Official Community Plan (OCP). According to the District's website, found at http://www.makeityourmission.ca "the OCP is designed to provide a long term vision in shaping the future of Mission by identifying social, economic, environmental and land use principles, and articulating the goals and policies of the community....the OCP spells out what living in Mission will be like in the future, and will establish the goals and objectives for future growth and development over the next decade or more."

Led by consultants Urban Systems, through community meetings and surveys, the OCP planning process identified the top community priority expressed by Mission residents as "managing new development to increase environmental protection and parks/ recreation amenities". The main strengths of Mission identified by respondents were "natural areas, trails and the small town feel of Mission". Other items for which strengths outweighed challenges included "great place for families; arts, culture and heritage; housing affordability; and agricultural land".

Citizens Against Urban Sprawl Society (CAUSS) has made a formal submission to the OCP planning team, after reviewing the draft OCP document and maps, as they were proposed at various Public information meetings in January 2017.

CAUSS proposes significant parkland and conservation areas be set aside now in the planning, or insufficient appropriate lands will be available in the future. We recommend an environmental base map across the district which includes endangered species habitat, rivers and streams. We further recommend a flood plain designation which prohibits development in hazardous areas. CAUSS proposes designation of Parkland/Conservation area, for the Lower Stave river estuary, including Silvermere Island, due to its exceptional, rare and biodiverse habitat. The Lower Stave river is one of the largest and most important spawning concentrations of wild Pacific

ceptional, rare and biodiverse habitat. The Lower Stave river is one of the largest and most important spawning concentrations of wild Pacific salmon along the Pacific coast of North America with 5 species of Pacific salmon –Char, Chum, Coho, Spring, and Steelhead, utilizing this habitat. Despite historic disturbance to the Silvermere area, 113 wildlife species take refuge here including several Species at Risk: Painted turtles, Red legged frogs, Barn owls, Western Screech owls, Double crested cormorants, Trumpeter swans, and Great Blue herons. The Lower Stave estuary is clearly a priceless environmental jewel of our community, and is completely inappropriate for residential development, but perfect for salmon, due to flooding of the area each year during the spring freshet. Parkland designation around Hayward lake to complete a full lake loop, would create another, highly economical park opportunity, as well as provide wildlife connectivity with the Lower and Upper Stave river areas.



street, Steelhead, Lake Eroch, and elsewhere, have raised serious concerns about the impact of local mines on their drinking water, air quality, safety, and quality of life. Due to these, and other concerns, we feel the Fraser floodplain should be reserved for land uses which will not face catastrophe in the event of a major flood event, such as protecting and promoting the use of our excellent but limited farmland, and perhaps creating a low impact pedestrian/bicycle trail along the river. Highly sensitive White Sturgeon habitat along Mission's waterfront also needs to be protected with a Conservation area designation. Mission's proposed OCP will have a major impact on the

local environment and quality of life of all Mission residents, now and into the future. We would like to see a plan which creates economic opportunities for Mission citizens without destroying our valuable environmental assets. Residents wishing to share their views about parks, conservation areas, loss of farmland, industrial expansion near the Fraser river, or other concerns, can write:

Mission's Mayor and Council at info@Mission.ca, and South Coast ALC manager of Land use planning Liz Sarioglu at Liz.Sarioglu@gov.bc.ca.

Tracy Lyster, CAUSS

CAUSS is very concerned about the draft OCP's proposal, to remove about 70 hectares (173 acres) of prime farmland west of Nelson street, for "employment land" designation, adjacent to the present Industrial area. The consultants note that Mission already has very limited farmland, yet there appears to be no compensation for this loss of prime agricultural lands. These lands are also in the Fraser river flood plain making it risky for intensive development. Industrial expansion, coupled with port development along the river, may stimulate further expansion of gravel mines in local residential areas. Residents of Shaw



The Race for Empowering Alternatives to Kinder Morgan

have spent most of my adult life as a community organizer and environmental activist. In the last decade, I have largely focused on trying to stop the Enbridge and Kinder Morgan pipelines. After a while, it seemed my body had become a device to carry my brain from one meeting to another. I've put myself through cycles of endless work, burnout, and recovery. My strategy for self-care included bad posture, a couch, Netflix (and before that DVD's), and munchies. At some point, I realized if I got off the couch and got some exercise I could burn off some steam (oil companies make me mad) and would have more energy!

I never imagined that someday I would be organizing races to crowdfund for community-scale solar power projects. It started with my new running coach, a hyper puppy named Rosie (the Riveting) that adopted me and would take me out for runs. Together we went a little further every week until eventually we could do a 10k loop of the Vancouver seawall, without stopping. After about a year of being pulled around by Rosie, I entered the Eastside 10k. I had never been in a race, but the start line was blocks away from the tiny apartment we lived in, and it benefited groups that did important work in the Downtown Eastside of Vancouver. So I figured—why not? Something funny happened in the first few blocks of the race. I saw a group of people in the distance holding placards. They were standing in the rain yelling at people as

they ran by. I had a sense of guilt as I wondered why they

were protesting the event. Were they pissed off about the road closure? Did I accidentally enter a race spon-

sored by Exxon? Of course, anyone that has been around

a running event may have already guessed that it wasn't

a group of protestors at the side of the road-but a cheer

squad. I had spent so many years of my life around people

holding signs that said "No, No, No" I was actually con-

fused to see people holding signs that said "Go, Go, Go!". I laughed at myself and smiled as I approached the friendly group of East Van locals. I collected a couple of high fives and felt energized. I smiled all the way to the finish line, collected more high fives along the way and finished my first ever 10k in under an hour!

This experience was an "a-ha" moment for me. Here were these thousands of people supporting each other, pushing themselves and raising money for good causes. I barely recognized a single person at the run from years of rallies and town hall meetings and

other events we had organized to oppose dangerous fossil fuel projects. I'm always looking for ways to expand the movement and reach more people.

Regardless of what permits politicians issue, ultimately it's people, who decide if dangerous fossil fuel projects like the Kinder Morgan pipeline and tanker terminal are actually built. The biggest problems we have when it comes to addressing climate change are not the misguided politicians, but the widespread misconceptions that lead well-intentioned people to give their consent. As long as people think we have no choice but to double down on fossil fuel dependence, the fight against pipelines will continue to be like a game of whack-a-mole.

I believe that we need more personal connection to climate solutions, so people understand that we have everything we need to be well on our way to 100% renewable energy. After my first race experience, I decided to organize the Great Climate Race with my partner, (Rosie's mom) Mari, as a way to use running and walking (and soon cycling) to give people a way to do something meaningful about climate change at the local level. It's been fantastic to see thousands of people getting involved in collective action for the climate for the first time in their lives.

One of the projects we are raising money for is a solar power project in the Tsleil-Waututh Nation community, across the Inlet from Kinder Morgan's proposed tar sands tanker terminal. Mari and I are launching an app that will give you the chance to raise money for projects like the Tsleil-Waututh Nation solar project for every kilometre you run, walk or cycle. I have had the privilege of working close-

ly with Coast Salish First Nations communities. It feels like beautiful synchronicity that we are finding positive new ways to involve people in a partnership with the indigenous people of this place we all love. I think this solar project will be an important signal highlighting a turning point where we say "no" to allowing the Salish Sea to be used as a gateway to global warming, and say "yes" to speeding up the transition to better alternatives.

The fight against Kinder Morgan will continue to be waged in the courts, at the ballot box and elsewhere. At the same time, we will also be involving people from around the region and around the world in sending a strong message that we can, and must do better. We aren't waiting for politicians to lead. They are going to have to try to catch up to us!





Nature



The more we allow for changing circumstances in life, the more stable and easy we become. There is no greater teacher than Nature: one moment a storm, the next, stillness.

If we allow ourselves to listen and receive when in Her Presence, we will eventually give birth to balance, patience, endurance and surrender. By embracing Her teachings, we mature into wisdom.

Ann Mortifee



