



**Stoney Creek Trail Report
No. 61 - April 2024**

Index

Page 3: [Coho Salmon, etc.](#)
Page 10: [Flowering Currants](#)
Page 11: [Odds and Ends](#)
Page 12: [Charts](#)

On the Front Page is a photo of a large crayfish posing on the top rail of the fence near the Nursery Trees. It was sent to us by Mike Bidal (Hazel) in August, 2022. The crayfish (also called the crawdad) and several other aquatic fauna are featured in this month's Report.

In preparing material for the report, I owe thanks to **Tanya Bettles** and **Matthew Connolly** at the City, **Cameron Stooshnof** from the BC Ministry of Water Land and Resource Stewardship, and **Chris Lee** of AquaTerra Environmental. I've also used information from [BC Fish Facts](#), iNaturalist and good old Wikipedia.

AquaTerra Environmental is responsible for clearing fish from the work area in Stoney Creek prior to the removal of excess silt and gravel from the Pond. These "fish salvage" operations are usually carried out in late summer. As I described in a previous Report ([August 2022](#)), They first place barrier nets across the creek upstream and downstream of the work area in order to prevent any movement of creek critters into danger. They then do "e-fishing" whereby an electrified wand is held in the water to temporarily stun all the critters close by. This allows them to be collected with a sieve and moved to temporary containers for a few hours until the dredging operation is completed. AquaTerra reports show that in the last three years (2021-2023), Coho salmon and Cutthroat trout are by far the most numerous fish collected. This is not a surprise, as we can observe these species in many parts of the Creek most of the year.

Five other species are also described here. Like me, you may never have seen three of them: the Stickleback, Sculpin and Pumpkinseed. In past three years, the Pumpkinseed sunfish showed up only in 2022. Surprisingly, no crayfish were collected last year. Most of the creek-dwelling critters (other than the insects in the [June 2023 Report](#)) are described on the following pages. They are arranged in order of their numbers collected. Rainbow trout also turned up in the last two salvage operations, but because of their similarity to the Cutthroat, I have not written about them.

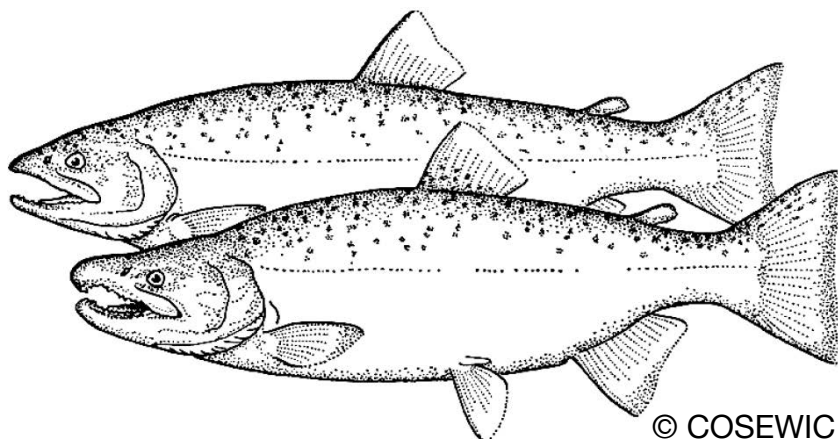


On the left, the luscious blossoms of a plum tree (*Prunus domestica*) on Hemlock Hill. *P. domestica* includes many subspecies of small fruit trees called plums, such as greengages and damsons. Plums belong to the *Rosaceae* (Rose) family and the blossoms are similar to those of this Nootka rose growing in the shade of the big cedar just south of Bridge 2.

Coho Salmon

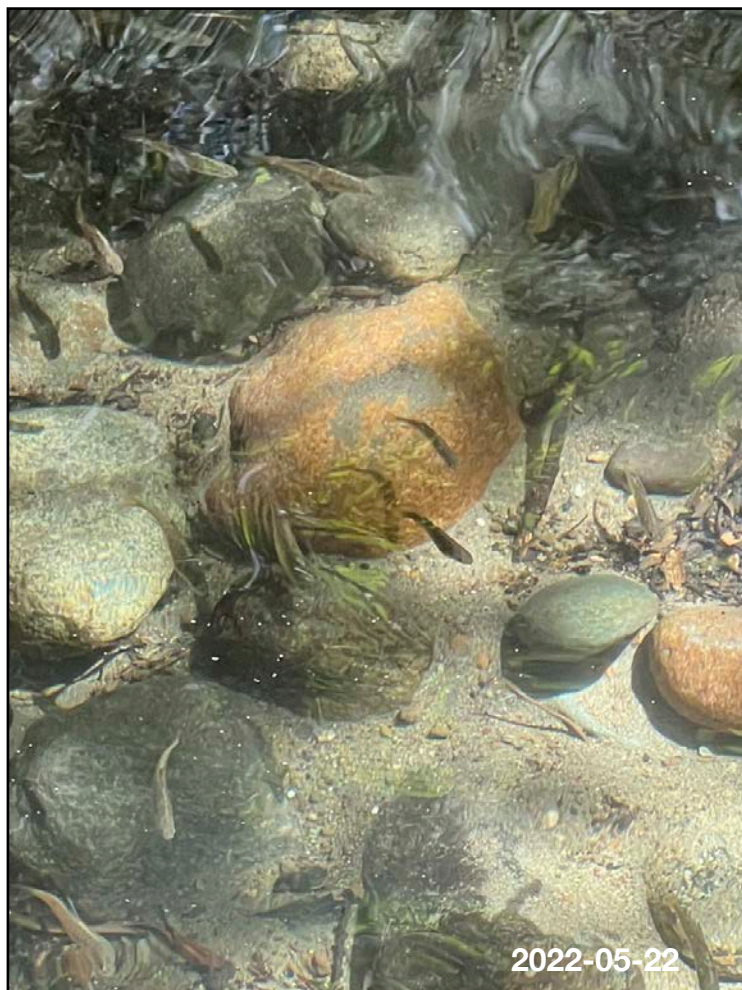
Coho salmon (*Oncorhynchus kisutch*) fry emerge from the gravel in the spring and usually live in freshwater for a year before migrating down to the ocean as smolts. Almost all Coho will spend 18 months there before returning to freshwater to spawn and die, giving them a three year life cycle.

Juvenile Coho tend to gather mainly in slower moving streams where there is a shallow slope. After they migrate downstream via the Fraser River, they spend most of the time in the river estuary and along the south coast.



Adult Coho usually weigh from 2 to 5 kg. They tend to be smaller and weigh less than Sockeye. They are called [silver salmon](#) due to their radiant, silvery skin. Lower Fraser Coho are genetically unique and can be distinguished from those of the Interior Fraser River watershed.

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In recent years, climate-related changes have reduced the ability of the marine environment to support these fish. Survival rates have become 3% or less, much lower than during the 1970s and 1980s. Numbers continue to decline and their outlook is highly uncertain. Overfishing, changing marine conditions and habitat disturbance all contributed to declines throughout much of their range.

The responsibility for managing salmon and salmon habitat in BC is shared between the federal and provincial governments. The federal Fisheries Act is a powerful piece of legislation providing the authority to regulate fishing activities, habitat protection, pollution prevention and conservation measures to hopefully ensure sustainable fisheries and aquatic ecosystems.

Cutthroat Trout

Cutthroat trout (*Oncorhynchus clarkii*) are closely related to Rainbow trout. They can generally be distinguished from Rainbows by the presence of tiny teeth at the base of the tongue and a jaw that extends beyond the back edge of the eye. Both prefer cold, clear water, but the Cutthroat will tolerate a wider range of habitats. Cutthroats vary widely in size and colour from golden to gray to green on the back. The name “cutthroat” comes from the distinctive red slash along the lower jaw. The specific name *clarkii* is from the explorer William Clark of the Lewis and Clark Expedition.

Most Cutthroat populations are nonmigratory, staying in fresh water throughout their lives. They prefer, shallow streams and rivers with clear water and gravelly bottoms with plenty of vegetation along the stream banks which helps to minimize silt accumulation.

Nonmigratory Cutthroat trout can range from 15 to 50 cm in length and weigh .2 to 1.8 kg. The length and weight of mature trout vary widely depending on their particular environment and availability of food.

Stream-resident Cutthroat trout are opportunistic feeders, mainly on the larval, pupal and adult forms of aquatic insects such as caddisflies, stoneflies, mayflies, mosquitoes and midges. They will also eat fish eggs and small fish, crayfish and other crustaceans, as well as insects like ants, beetles, grasshoppers and crickets that fall into the water.

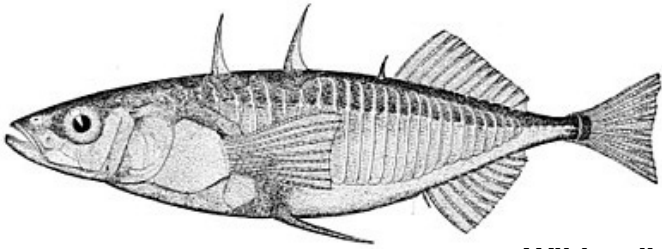


Cutthroats spawn in the spring, as early as February, when water temperatures reach 6 to 8°C. The female selects a suitable site and excavates the gravel to make a redd (nest). Depending on her size, the female may lay up to 4,000 eggs which are fertilized with milt (sperm) by an attending male. In about a month, the eggs hatch into alevins which spend two weeks in the gravel while they absorb their yolk sack. After emerging, fry begin feeding on zooplankton (tiny aquatic animals). They typically mature in three to five years.

The photo shows a trout lurking in a favoured spot with a hiding place and a gravelly bottom. This location, near Sadie's bench, is much changed now due to a rush of water during a big rainstorm last winter. The gravel is gone, replaced by sand.

Threespine Stickleback

The three-spined Stickleback (*Gasterosteus aculeatus*) can be found in ditches, ponds, lakes, quiet rivers, sheltered bays, marshes, and harbours. They prefer shallow, well-vegetated habitats with mud or silt bottoms.



Wikipedia

The Stickleback is normally a bottom feeder, usually on midge larvae and small crustaceans, but it will also consume edibles that have fallen onto the water surface.

The adult is usually around 3 to 4 cm long and has a very narrow body. Instead of scales, its body is protected by bony plates. In front of the dorsal fin are three spines that give the fish its name. They make the fish extremely hard for a predator to swallow. The back tends towards a drab olive or a silvery green, the sides and belly silvery, but in late April, the breeding season, both the males and females become more colourful. They move to shallower water where the male chooses a territory to defend. He digs a small pit and fills it with a plant material and other debris glued together with body secretions, making a nest. He swims through the nest, creating a tunnel, and begins to court passing females with a zigzag dance. If attracted, a female swims into the tunnel and deposits up to 300 eggs. The male fertilizes them, then chases her away.

For the duration of the eggs' development, the male defends his territory. Stationing himself in the tunnel entrance and swimming on the spot day and night, he creates a current of fresh water for the eggs. Once the young hatch, in a week or so, the male attempts to keep them together for a few more days, sucking up any wanderers into his mouth and spitting them back into the nest. Later, when the young disperse, the male will either abandon the nest or repair it in preparation for another breeding cycle.



Sticklebacks are popular in genetics because of their complex social behavior, especially during territorial disputes and mating. They exhibit the **tit for tat strategy** which works like this: if a stickleback encounters aggression from another stickleback, it responds with aggression in return. Conversely, if it encounters non-aggressive behavior, it responds likewise. This strategy is essentially a form of reciprocity, where individuals treat others as they themselves have been treated. In this way, Sticklebacks maintain a social balance that minimizes conflict and optimizes their survival.

Pacific Lamprey

The Pacific lamprey (*Entosphenus tridentatus*) is a primitive, jawless, parasitic fish of the Pacific Rim. It has a slender, elongated body with two dorsal fins set far back on the body. Although it looks like one, it is not a true eel and not the same fish that has invaded the Great Lakes. Pacific lamprey adults are distinguished by having three sharp teeth above the mouth. They attach themselves to the side or undersurface of their prey. They are andromadous, spending part of their life in freshwater and part in the ocean.



While living in the sea, adults are a bluish-black or greenish colour above and pale below and grow to about 80 cm in length. They are found often far offshore, from the water surface to a depth of 1,500 m. Adults live one to two years or more in the ocean and then migrate to freshwater to spawn. At this time, they become reddish brown. Like salmon, they stop feeding entirely, relying on stored energy reserves to sustain themselves through the spawning process. They spawn in a similar habitat to that of the

Pacific salmon, constructing a redd in small gravel. Females can lay over 100,000 eggs which are fertilized externally by the male. After spawning, having completed their life cycle, the adults usually die within a few days.

After hatching, Pacific Lampreys spend most of their lives as larvae living in fresh water. They are filter feeders, straining food particles suspended in the water above burrows they dig in streams which have a slow current and a soft bottom. After the larval period, in late summer through early autumn, as juveniles they move into faster water flowing over a gravel bottom, undergo metamorphosis, and develop a jawless, sucker-like mouth that enables them to become parasitic.

Because Pacific lampreys are fatty and high in calories, they are important in a river ecosystem both as predators and as prey. Many Indigenous people of the Pacific Northwest have traditionally relied on them for ceremonial purposes and as a staple in their diet. Pacific lamprey numbers have greatly decreased due to the damming and channelling of rivers. However, tribal communities are working to restore lamprey habitat to the waterways of the Pacific Northwest. There are concerns over the conditions which the Pacific Lamprey larvae will have to endure when water temperatures rise due to climate change. Their preferred temperature is about 18°C. Anything more than that could potentially be deadly.

Signal Crayfish

The Signal crayfish (*Pacifastacus leniusculus*) is native to North America west of the Rocky Mountains. It is bluish-brown to reddish-brown in colour, with large, smooth claws. Its name comes from the pale patch or “signal” near the hinge of the claw. It was introduced to Northern Europe about 60 years ago. Unfortunately, it carried a disease fatal to the native crayfish. It is now considered to be an invasive alien in Europe and a nuisance to anglers.

Signal Crayfish are hardy, having a tolerance for broad ranges in temperature and salinity, so they are able to occupy many kinds of habitats. They thrive in freshwater bodies such as rivers, streams and lakes. They prefer clean, well-oxygenated waters with plenty of hiding places like rocks, logs,



and vegetation. They are omnivorous scavengers, feeding on a wide variety of plant matter, insects, small fish, and even carrion.

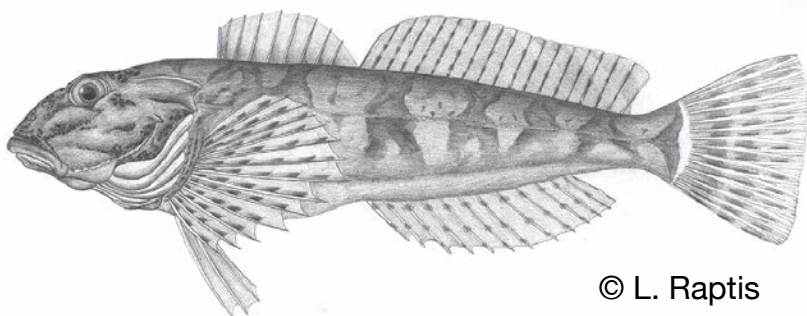
Signal crayfish are typically 6 to 9 cm long, but adult males can be massive, reaching a length of 15 cm or more.

The life cycle of the Signal crayfish is typical for the crayfish family. After mating in the autumn, 200 to 400 eggs are incubated under the female's tail over winter. When they hatch in the spring, the juveniles look like miniature adult crayfish. They go through three moults before leaving the protection of their mother. Juveniles typically feed on aquatic insects, shifting towards a more herbivorous diet as adults. They reach sexual maturity after two to three years, and can live up to 20 years.

Coastrange Sculpin

The Coastrange Sculpin (*Cottus aleuticus*) is normally 5 to 10 cm long and weighs 1.3 to 10 g. Its mottled brown to light blue-grey colour pattern makes it very difficult to see against the bottom of streams and lakes. Its head is large and the body tapers from the head to the tail fin. It usually has two or three dark saddle patches on its back. Breeding females are generally larger than males. Breeding males are almost entirely black with a tiny bit of orange trim on the first dorsal fin.

Coastrange sculpins are normally solitary, nocturnal carnivores often found in streams where shallow water ripples over gravel bottoms. They feed mainly on bottom dwelling creatures and are known to eat larvae and nymphs of insects such as mayflies, stoneflies, midges and other aquatic invertebrates. They will also eat salmonid eggs when they are available.



Coastrange sculpins normally spawn annually from February to June after the water warms up. To spawn, both males and females migrate downstream, stopping just short of estuaries. Males will then excavate and defend a nesting site. During

courtship, when a female approaches the nesting site, the male begins a series of head nods and shakes, and flares his gill covers, This entices the female to come nearer the nesting site. The male will then bite her, which causes her to enter the nest and release eggs which he then fertilizes. A larger female will lay usually less than 1000 orange-yellow eggs in a sticky mass which is deposited on the underside of a flat rock at the top of the nest. They will subsequently be guarded by the male. The adults move back upstream after spawning.

Coastrange sculpins are one of the few freshwater fish species that have a true larval stage. The larvae, active immediately after hatching, are free-floating, feeding mostly on plankton. They begin a nocturnal migration, drifting further downstream before settling to the bottom in quiet water or an estuary where they metamorphose into fry and become bottom dwellers. Unless they are eaten by trout or salmon, they will grow for about a year, living in estuaries on a diet similar to that of adults, before returning to fresh water.



Coastrange sculpins can live up to seven years. They are widely distributed in B.C. and, except for an isolated population in Cultus Lake, are not considered to be at risk.

Pumpkinseed

The Pumpkinseed (*Lepomis gibbosus*) is a colourful type of sunfish originally from eastern North America. It was introduced to BC and now commonly seen in south-central and south-western regions. It is primarily a shallow water fish found in warm lakes, ponds and pools in creeks where there is plenty of vegetation.



Pumpkinseeds prefer clear, quietly moving water where there are places to hide, usually near the shore. They travel together in schools and are active throughout the day. At night they rest near the bottom, in sheltered areas among rocks or near submerged logs.

The Pumpkinseed's small body—typically about 10 cm long and weighing less than 450 g—is shaped much like a pumpkin

seed, hence their name. Males are usually more brightly coloured than females, with colours ranging from orange, green, yellow, or blue speckles resembling the sunlight patterns that reflect on the shallow water of riverbeds. The Pumpkinseed has sharp spines in its fins to aid in defense. When it feels threatened by a predator, or is showing male dominance during spawning, it flares its brightly coloured gills. The dark patch behind the gill plate gives the illusion that the eye of the fish is large, making the fish seem bigger than it actually is.

In late spring or early summer, the males will begin sweeping out nesting holes in the sand or gravel bottom of shallow waters. Females arrive after the nests are completed and spawning takes place. Once released, the fertilized eggs stick to gravel or other debris in the nest. They hatch in as few as three days. Females leave immediately after spawning, but males stay and guard their offspring by keeping them in the nest for the first 11 days or so. The young fish stay near the breeding area and grow to about 5 cm long in their first year. Sexual maturity is usually achieved by the age of two.

Pumpkinseeds are carnivorous, feeding both at the water surface and at the bottom. Among their favorite prey are insects (especially mosquito larvae), small molluscs and crustaceans such as small crayfish, as well as worms, minnow fry, tadpoles, and even smaller Pumpkinseeds.

Pumpkinseeds are very popular with novice anglers due to their abundance, willingness to bite and location close to the shore. They are very likely to go for worm bait, which makes them easy to catch. They do put up an aggressive fight, but many consider them to be a nuisance, as they bite frequently when the angler is attempting to catch something else.

Flowering currants

Below are two varieties of Flowering currants (*Ribes sanguineum*) that can be seen along the Trail. The red one is up on Hemlock Hill, while the white one, with its pendulous blooms, can be seen opposite the south entrance to the Dog Corral. They are notable for being among the earliest shrubs to bloom in the spring. The flowers appear at the same time as the leaves in late March. By the time this report reaches you, the flowers will be pretty well gone.

The Red-flowering currant is native to North America and found widely west of the Cascades. The White-flowering currant (*Ribes sanguineum* 'Ubric') is actually a cultivar. It was wild-collected on Vancouver Island near Victoria and given to the curator of UBC's Botanical Garden. It was cultivated for a few years then released in 1988 through their Plant Introduction Scheme (PISBG). It was the first of their cultivars to receive trademark protection and is marketed under the name White Icicle™.



Odds and Ends



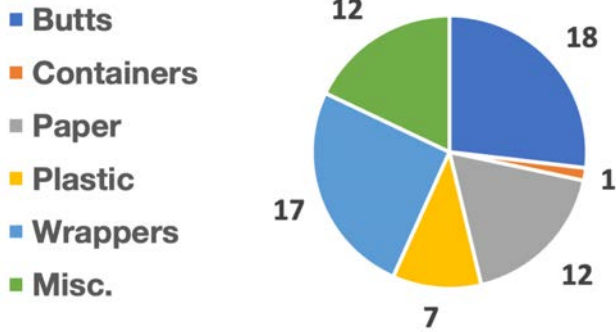
Top: a lost glove, sunglasses and a tub of plastic plates for the purpose of....

Middle: once again, the rampant blackberries on the Hill have been suitably thrashed—something that needs to be done every year.

Bottom: a male mallard duck in the Pond, a surprising reappearance of Mica cap mushrooms near Sadie's Bench, and a Western Thatching ant on a Vine maple flower.



Litter Tally April 2024



Total litter items = 67

Containers: bottles, bottle tops, cans, coffee cups, lids, juice boxes.

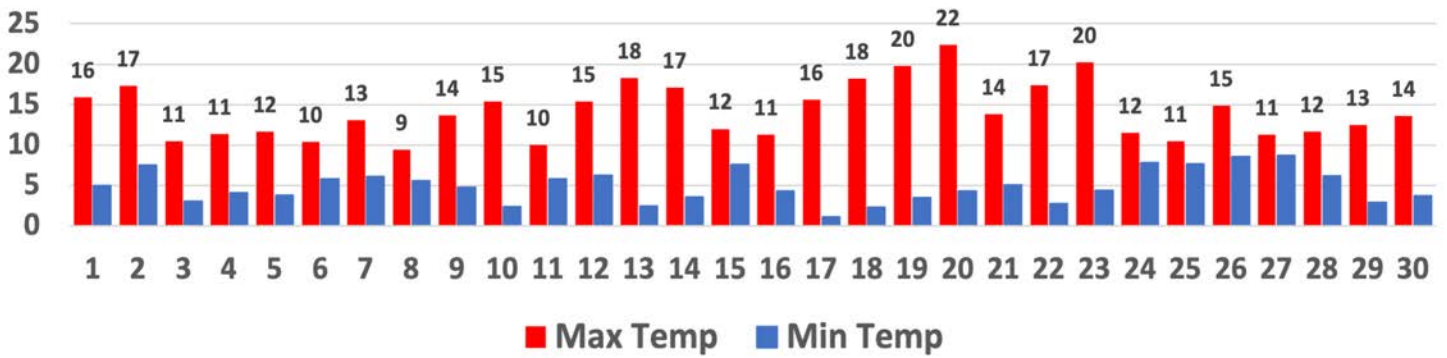
Paper: tissues, napkins, posters, newspaper, receipts, cardboard, etc.

Plastic: dog waste bags & shreds, other items made of plastic.

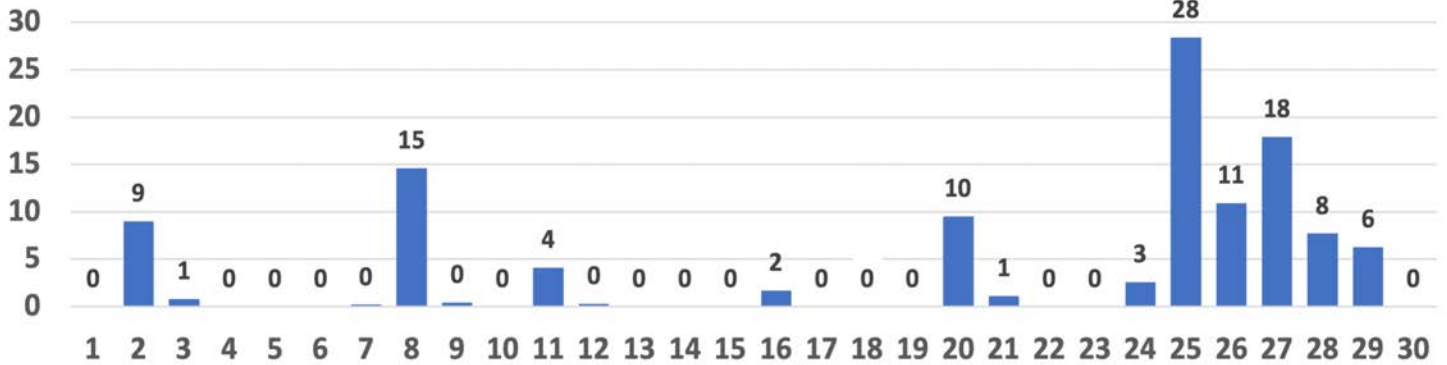
Wrappers: candy wrappers, foil, cellophane.

Miscellaneous: clothing, glass, chewing gum, dog balls & fragments, etc.

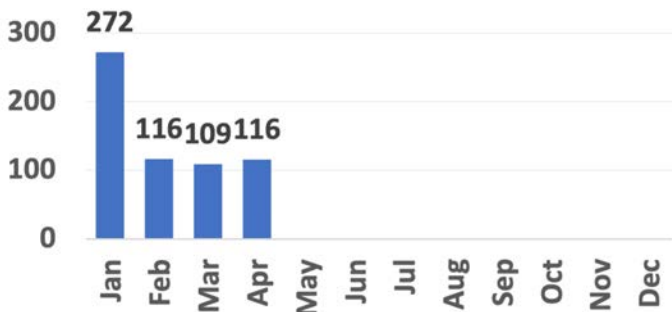
Air temperature YXX April 2024 (°C)



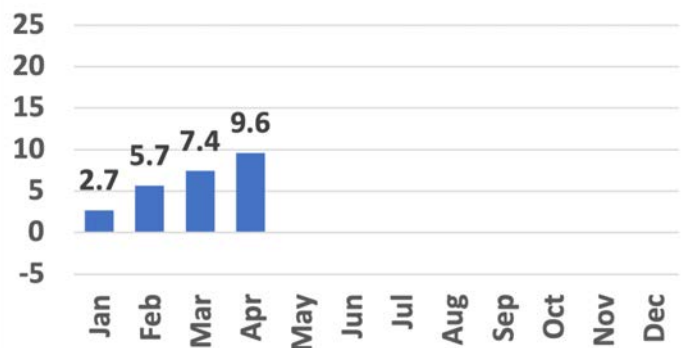
Precipitation YXX April 2024 (mm)



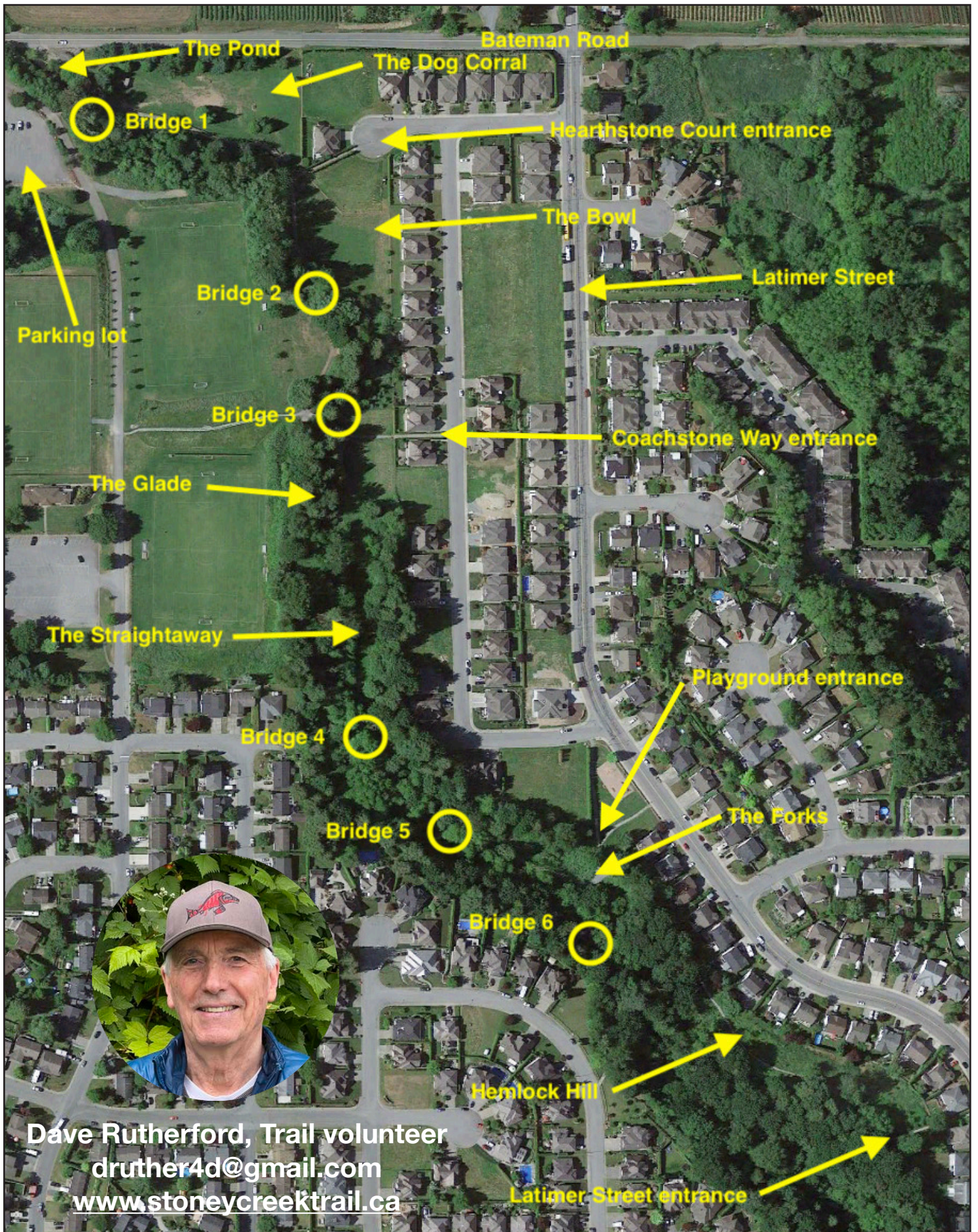
2024 Total Monthly Precipitation (mm)



2024 Mean Temperatures (°C)



For convenience, I use these custom place-names



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