



Stoney Creek Trail Report
No. 83 - February 2026

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The front photo, taken by **Dale Taylor**, shows the outfall of the storm sewer line that carries rainwater runoff from the storm drains on Hearthstone Court, under the Dog Corral, to the pool near Bridge 1. Any biologically harmful substances flushed from nearby streets will enter Stoney Creek here. This outfall plays a part in the main feature of this report: the search for the dangerous pollutant, **6PPD-quinone**.

The photo below shows another outfall, located near Bridge 4. The [City map viewer](#) shows it's connected to the storm drain in the Creekstone on the Park neighbourhood on the west side of the creek. If it were carrying runoff from streets, this would be a logical place to collect water samples. The City engineering department said it would convey water during sufficiently large rainfall events—but we've never noticed water coming out of it.



An Invitation: Michael Seear from the [Hancock Wildlife Foundation](#) will speak about **Bald Eagles** and their tagging program at the Abbotsford Mission Nature Club meeting on **March 11th at 7:30 p.m.** at the Ravine Park Hatchery, 2395 Crescent Way.

Searching for 6PPD-quinone: The Tire-Wear Toxin



Several pre-spawn coho that died of unknown causes were found below Bridge 6 during the Stoney Creek fall spawning run.

6PPD-quinone is found in the tire-wear particles that wash off roadways when it rains. Now widespread in urban environments, it is one of the vast number — tens of thousands — of synthetic chemicals produced by industry which remain largely untested for human toxicity.

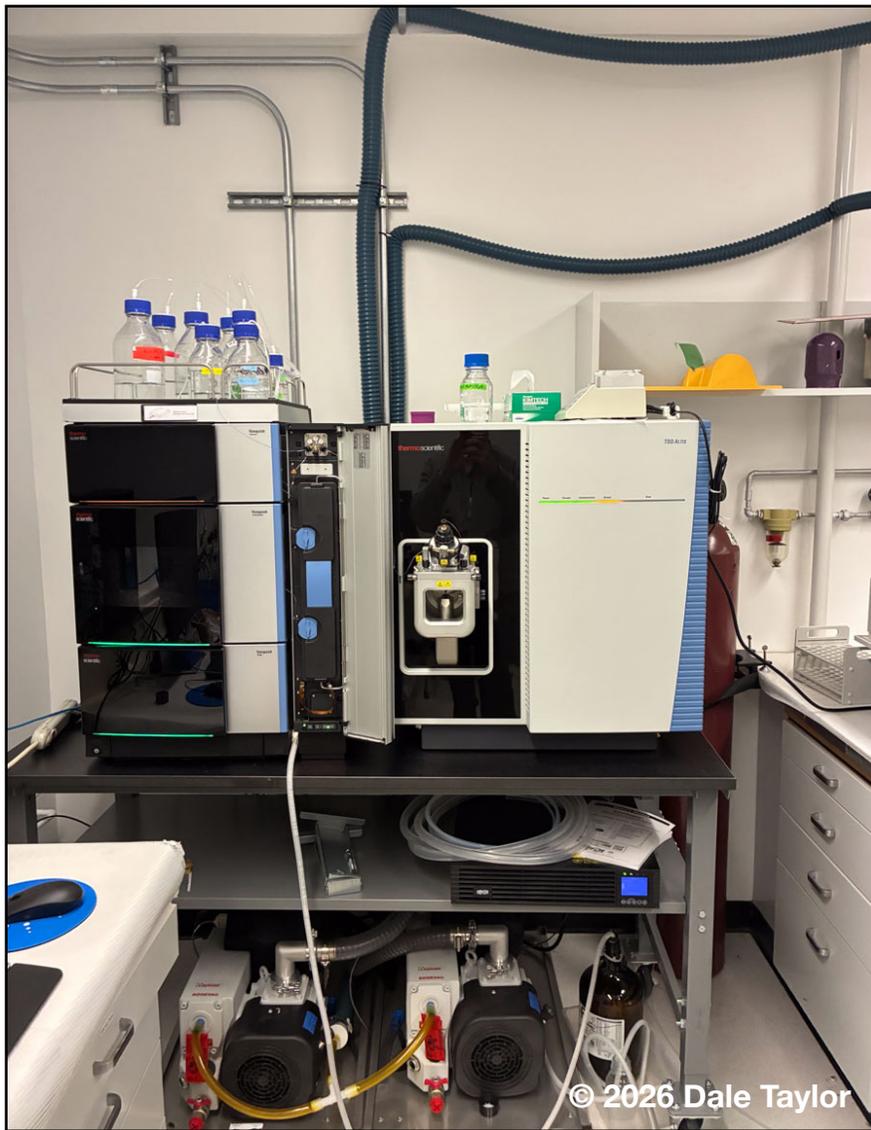
Coho salmon are of primary interest to our local fish hatchery. The unusually high number of coho mortalities during this past spawning season prompted volunteers to find out if 6PPD-quinone could be partly responsible. Because the lethal concentration for coho salmon is less than one part per billion, sophisticated scientific methods are required to find it.

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For decades, scientists in the Pacific Northwest were puzzled about the strange, disoriented behaviour and premature deaths of spawning coho salmon in urban creeks. By 2011, they had linked the deaths to roadway runoff but could not identify the toxic agent. Then, in December 2020, a team of scientists at the University of Washington published a [report](#) identifying a complex compound, 6-p-phenylenediamine-quinone ($C_{18}H_{22}N_2O_2$), as the coho killer. It is a chemical formed by the oxidation of tire rubber and now recognized as among the most toxic environmental contaminants for certain aquatic species, especially coho salmon.



DFO rep Paul Neufeld holds a sample jar of water taken from below the outfall at Bridge 1.



The first stage of the LC-MS/MS process is carried out in the unit on the left, while the second stage is performed by the mass spectrometer on the right.

The following description is a simplification of the *EPA Draft Method 1634*, which I believe is the standard procedure for determining whether 6PPD-quinone is present in a water sample. I have presented it in six steps and necessarily used a number of technical terms in order to be accurate.

1. Collection: Because 6PPD-quinone is light-sensitive and chemically unstable, water samples are placed in dark, amber-coloured glass bottles that block out sunlight. Samples should normally be kept at $\leq 6^{\circ}\text{C}$ and processed within 72 hours. This was impossible in the Stoney Creek case, so they were kept frozen until they could be delivered to UBC.

The [Scholes Lab](#) at UBC (the University of British Columbia) focuses primarily on finding trace contaminants in water systems. They have been analyzing water samples from salmon streams and other environmental sources across Metro Vancouver. Thanks to **John McDonald** of Sumas First Nation, we connected with Scholes Lab which agreed to test water samples taken from Stoney Creek.

Because 6PPD-quinone is usually found in extremely small amounts and is highly sensitive to degradation, isolating it is a complex process. For part of the analysis, Scholes uses a TSQ Altis Plus mass spectrometer, shown in the photo on the left.



Engineering student, **Jessica Sun**, is a member of the Scholes team.

2. Preparation: A small amount of a special tracking chemical (deuterated 6PPD-quinone) is added to each sample before testing. It is a “twin” version of 6PPD-quinone with a slightly different mass. It behaves the same way but can be tracked separately. This helps the laboratory check that the testing process is working properly and that no significant amount of the chemical is lost along the way.



The filtering cartridges are held in the SPE vacuum manifold. The amber glass vials underneath hold the purified samples after rinsing.

3. Extraction: This part of the operation is called **SPE** (Solid Phase Extraction). In this step, each water sample is drawn by a vacuum pump through a specialized filter cartridge that acts like a sorbent or chemical “magnet.” The water passes straight through into waste tubes, but the 6PPD-quinone and other chemicals stick to the material inside the cartridge. Once the compounds are trapped, they are washed out of the cartridge with a small amount of organic solvent such as methanol. This leaves a tiny vial of liquid that contains all the 6PPD-quinone originally in the sample.

4. Analysis: After SPE cleans up and concentrates the sample, the lab uses a process called **LC-MS/MS** (Liquid Chromatography-Tandem Mass Spectrometry). The LC step separates the complex mixture of contaminants by timing how fast they move down through a narrow tube. In the second step, the MS/MS process, the concentrated extract is analysed by injecting it into the spectrometer, a computerized, highly sensitive instrument that works like a high-speed sorting machine. It identifies molecules based on unique characteristics, allowing the lab to ultimately detect even extremely small amounts of 6PPD-quinone.



5. Data Processing: To check its accuracy and quality, the data is compared to known reference samples to calculate how much 6PPD-quinone was in the water originally. The lab also runs quality checks to make sure the equipment is clean, the method is consistent, and the measurements are reliable.

6. Reporting the results: The laboratory reports the amount of 6PPD-quinone found in the water, usually in very small units (parts per trillion). 1 ppt is roughly equivalent to one drop of water in 20 Olympic-sized swimming pools. This emphasizes just how toxic 6PPD-quinone is, as it can kill coho salmon at these incredibly low levels.

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Turkey Tail, the "Fungus of the Month"



Turkey tail (*Trametes versicolor*) is a thin, leathery polypore mushroom. The one featured here is growing on a dead hazelnut bush just above the Forks.

Turkey tails grow in overlapping shelves (brackets) up to 10 cm across. Their tops are fuzzy, with concentric rings of colour, usually brown. Their undersides are beige, and if you look closely you will see tiny holes or pores rather than gills, hence the name polypore.

Turkey tails are found almost everywhere in the world. They are common in coastal BC forests as well as urban green areas. As shown here, they grow year-round.

There is another fungus called false turkey tail (*Stereum ostrea*), distinguishable by its smooth pore-less underside.

Turkey tail and its extracts are marketed as dietary supplements. They contain a range of beneficial compounds with antioxidant properties that support immune functions, and prebiotics that nourish gut bacteria.

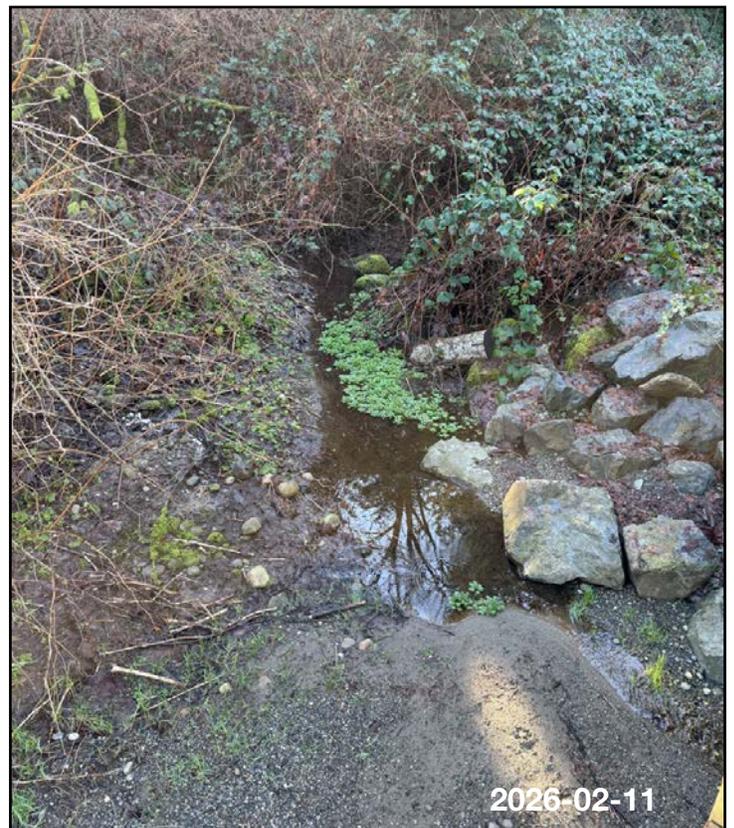


Trametes versicolor is one of the most researched medicinal mushrooms. It is approved in Japan as a supplement for cancer treatment. In Canada, turkey tail extracts are allowed as natural health supplements but not approved for cancer treatment.

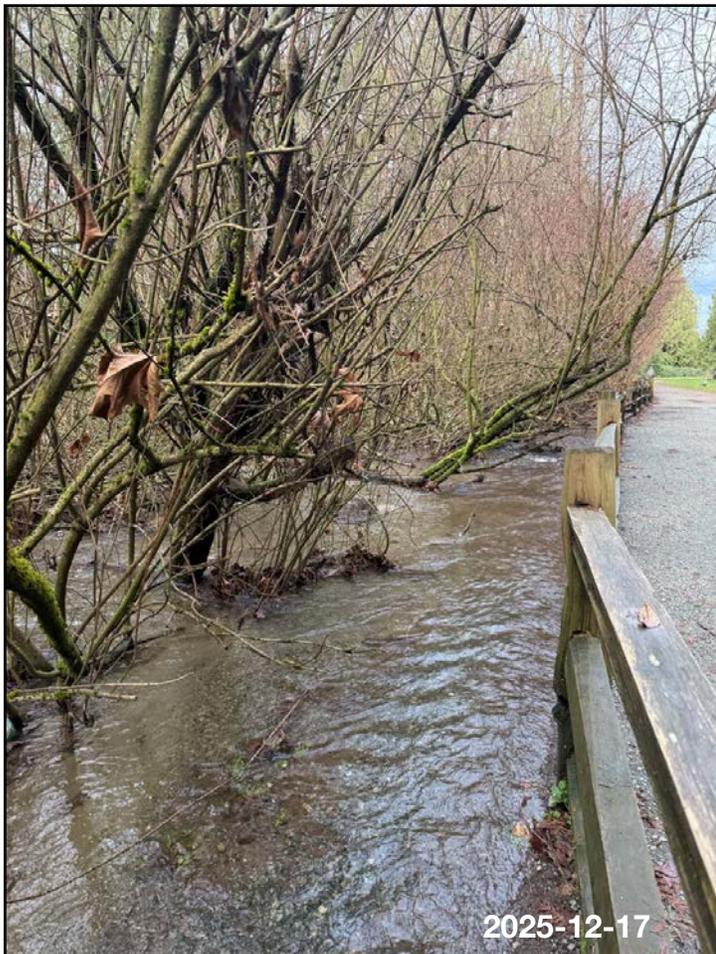
Changes at Bridge 5 — Same Views, Different Times



Above: that small channel expanded during the deluge of November 2021, toppled two big redcedars and took out Bridge 5. The creek now runs in a new channel just out of sight on the right. **Below:** the creek once swept in a big curve before going under the bridge. Now, there's just a trickle of water at the north end.



Along the Straightaway – More Changes

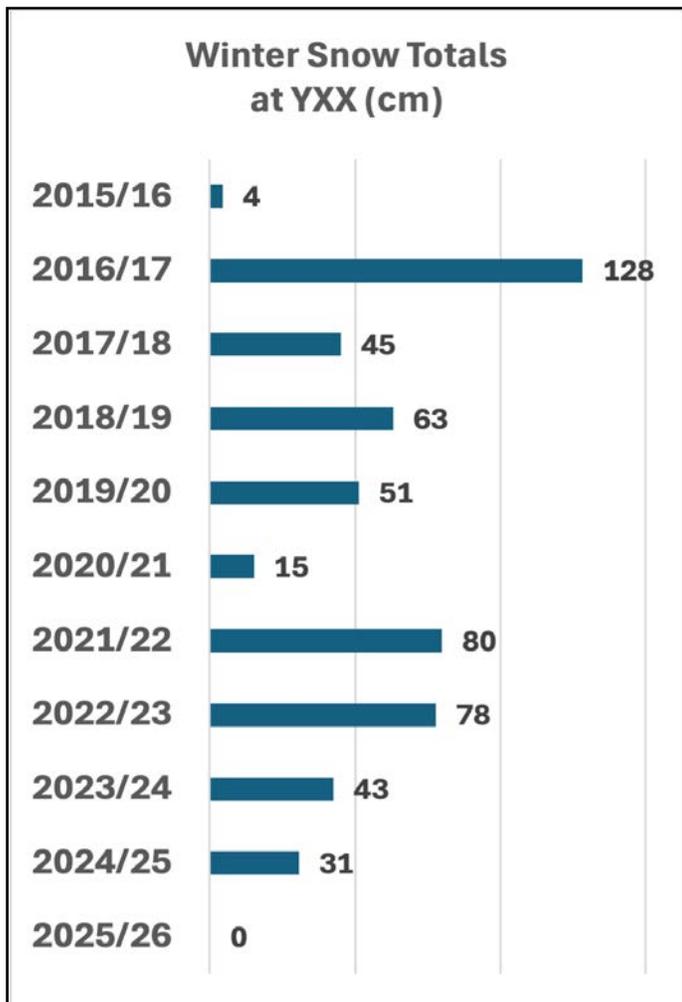


A Winter Without Snow!

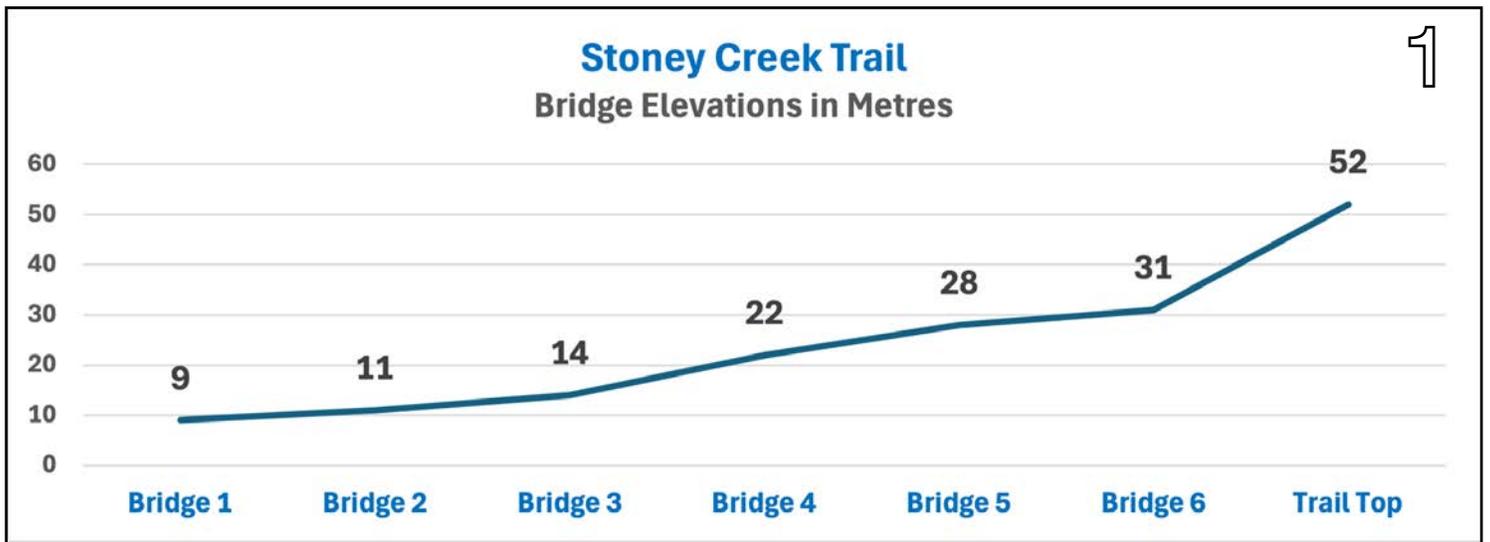
We've always had some snow in winter, with February always being the snowiest month. But not this winter—unless you call this snow....

Snow Pellets

Also known as soft hail or **graupel**, snow pellets are delicate, but have a violent history. They started as specks of dust high in the atmosphere, attracted water vapor, froze, and became snowflakes. As they fell, they passed through a cloud of supercooled water droplets which instantly froze when they collided. After many more collisions, they lost their distinctive octagonal shape, becoming soft, white, crunchy pellets which fell straight to the ground.



Odds & Ends



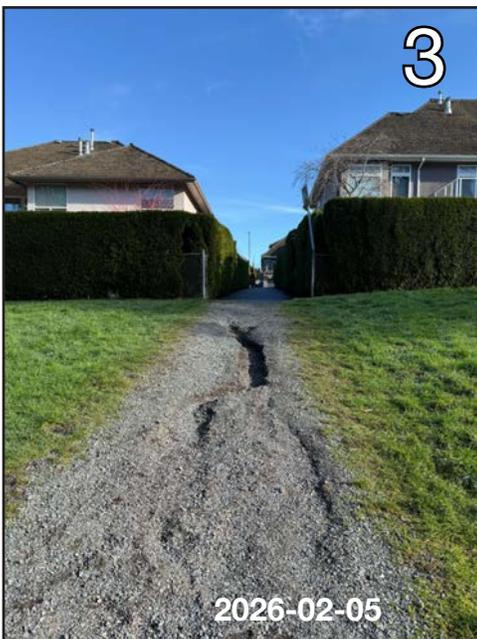
1. The bar chart shows that walking the trail from the parking lot at Bateman Road up to the Latimer Street exit would be like climbing a 14-storey building.

2. Those fish symbols placed by ARPSES at the bottom end of Hearthstone Court are a reminder that tire particles and other substances on the street will end up in Stoney Creek during a heavy rainfall.

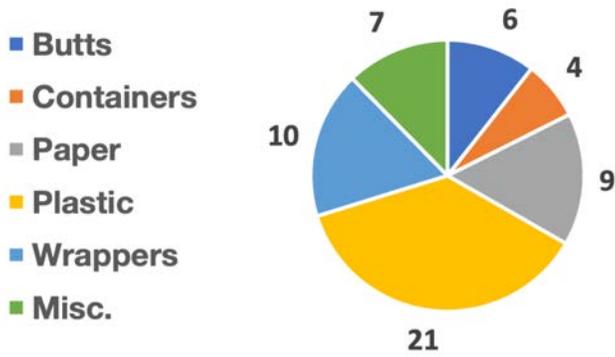
3. This rain-worn rut in the Coachstone path, first shown in the November report, has become a small gully.

4. Here's another redcedar, upstream from Bridge 6, that's been undercut and felled by the creek.

5. With difficulty, I managed to recover that blue drinking bottle from well off the path. The other container was left on the barrel by some considerate person.



Litter Tally February 2026



Total litter items = 57

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

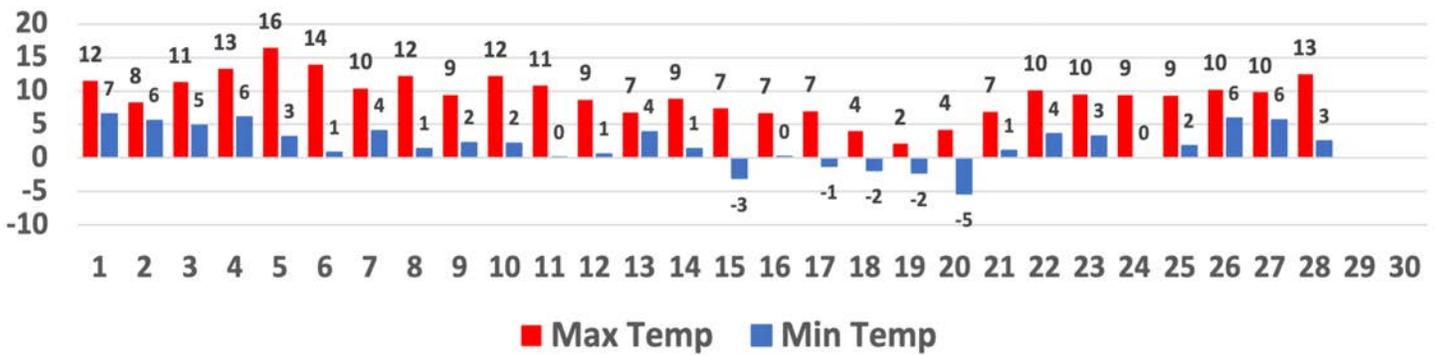
Paper: tissues, napkins, posters, newspaper, receipts, cardboard, etc.

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

Wrappers: candy wrappers, foil, cellophane.

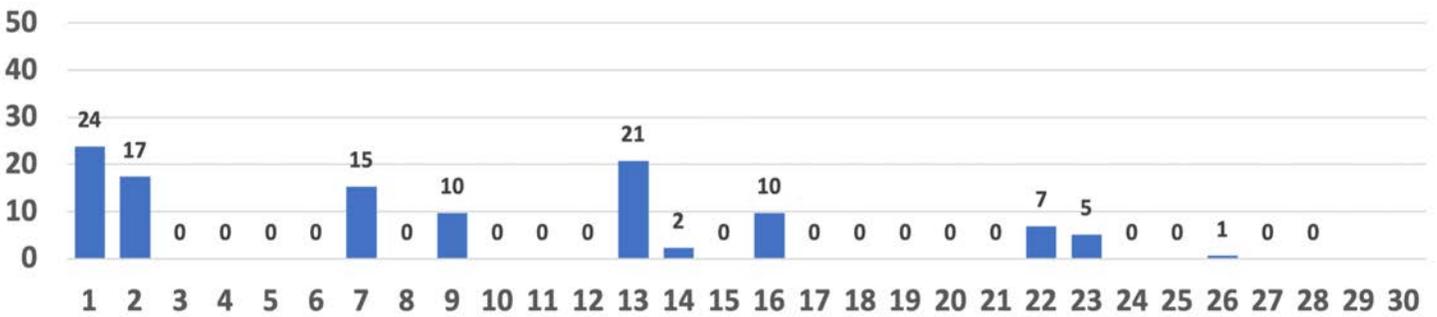
Miscellaneous: clothing, glass, chewing gum, dog balls & fragments, etc.

Air temperatures at YXX February 2026 (°C)



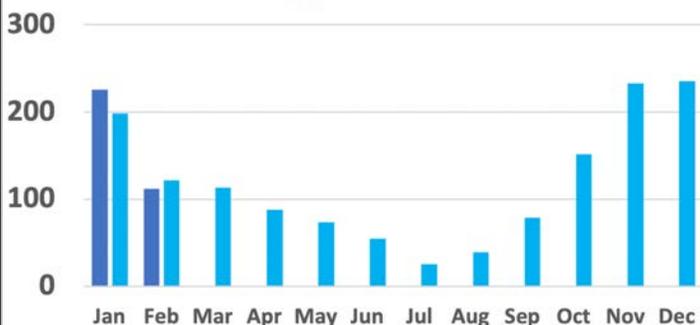
Precipitation at YXX February 2026

Total = 111.6 mm



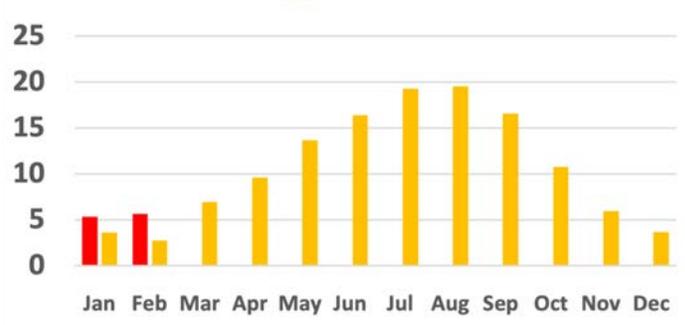
Precipitation in 2026 (mm)

Average: 2019-2025



Average Temperatures in 2026

Average: 2019-2025



For reference, I use these custom place-names:

