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Do you agree with the federal government's passage of Bill C-19, that lead to the abolition of the federal gun registry and having the records destroyed?

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How Cranbrook gets its water

FROM A TRICKLE TO A ROAR: PART ONE

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JULY 22, 2011

SALLY MACDONALD
SALLY@DAILYTOWNSMAN.COM

I am standing on top of Cranbrook Mountain, grass and shale at my feet, seeing Gold Creek from a snowflake's point of view.

Joe McGowan, Cranbrook's director of public works, is spending his morning to show me just how it is that when I turn on my kitchen tap, water gushes out.

This is where it all begins. The tip of Cranbrook mountain is the edge of a horseshoe-shaped ridge that makes up the rim of Gold Creek watershed.

From here, water trickles down the rocky slopes, before settling at the bottom of the basin and flowing out in the form of Gold Creek.

"The watershed is very much like a stainless steel bowl. Fill it with popcorn. Put your hands in the middle and push the popcorn to the sides. Most stays at the bottom and some moves up the sides," says Joe McGowan.

That popcorn is soil, he explains. Here, at the top of the bowl, there is nothing but rock beneath us, but the further down the basin you go, the more soil lies above the rock.

"Water comes here in the form of snow. It melts and goes straight down until it hits an obstacle, then it flows along the rock basin," says McGowan. "The ground filters the water."

We head down the mountain, and I notice more and more soil - or "popcorn", as Joe calls it - mixed with the rock, until we reach the bottom of the basin.

"We are standing at the choke point of the Gold Creek watershed," says Joe.

It's like standing in a rainforest. Lush ferns grow from moss-covered soil. He reaches down, grabs a handful of green earth and passes it to me. It's so water-logged that it retains its palm shape as it lays on my hand.

Joe points down, and I see water trickling out of the ground. Beyond us, Gold Creek gushes over river rock, and we are standing on the source - essentially, a 28,020-hectare sponge.

"The rock is shaped like a bowl. The soil sits on top and acts like a sponge. Water can only filter so fast through the soil," says Joe.

All over the basin, the city has built stations to measure environmental and water quality parameters.

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One on the ridge measures humidity, wind speed, temperature, and the amount of precipitation. A pillow beside the station measures the amount of snow in winter time.

Here, by Gold Creek, a station measures the depth of the water, its temperature, turbidity and conductivity.

"These measurements help us decide where we pull the water from," says Joe.

What he refers to is that Cranbrook is lucky enough to have not one, but two basins that collect water for the city. Gold Creek is the highest, but just north is the Joseph Creek watershed.

"If you took the mean elevation - the difference between the top and bottom of the ridge - for Gold Creek and Joseph Creek watersheds, there is a 150-metre vertical difference," says Joe.

"Joseph Creek basin starts to melt first, and Gold Creek a month later because it's higher."

The beauty of this situation, he explains, is that we can choose which basin we take water from. The measurements collected at the creeks help make that decision.

"We watch the freezing level. When it starts to go up, Joseph Creek melts and our water starts to come from Gold Creek," says Joe. "We don't want Joseph Creek melt when it's at a high level."

That's because snow-melt water moves too quickly over the rock basin.

"(At melt), water flows fast and picks up particles. That's a real issue for us. Stuff in the water is bad because bugs can stick to it," says Joe. "Dirt can't hurt you but a single bug can kill you."

We drive downstream to the Gold Creek dam. Historical survey documents refer to this dam in 1908 - that's how old it is.

"The city's forefathers did a lot of thinking," nods Joe.

This dam is the highest point in the city's water distribution system. Pipes from here carry water throughout Cranbrook. Joe points out a small platform over the surface of the dam. Beneath it is a tiny whirlpool, the size of a saucer. That, Joe says, is where water is being drawn down into a 20-inch pipe that runs to a diversion structure at Joseph Creek, then on to Phillips Reservoir.

I compare that tiny whirlpool to the torrent of water that is, in July, gushing through the dam overflow, and I think again: we are lucky. There is a lot of water in these hills.

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