

Interview

from

Weasel

Head

Information from: Lisa Dahlseide & Georgia Blum

What causes soil erosion at Weaselhead?

The main cause observed is actually our school programs and we are aware of that. Students step off the trail, despite being instructed to stay on trail. They have caused a little side trail of erosion right alongside the paved path. Other park users also contribute to this. The main areas of soil erosion are where we take our student groups off trail... you might remember the Aspen stand location half way down the hill at the start (and end) of your field trip. That area is eroded because we stop there to teach about the Aspen stand and have done so since 1997 when our education programs began. I will address this issue more with the questions below.

Another cause of soil erosion is from the illegal trails that other park users have caused. They do not even realize these trails are illegal and the negative impacts that they cause to the park. Every foot step taken on these illegal trails contributes to the erosion and loss of plant diversity as well as soil compaction. When it rains, or when the snow melts, there is little capacity for absorbing the precipitation into the ground because of the soil compaction. The water thus runs over the dirt surface and contributes to turbidity in the water as it picks up particles of dirt and deposits it into the Elbow River or wetlands near these trails.

These illegal trails also impact park biodiversity by increasing fragmentation and something called edge effect. Some species prefer these edges and utilize these areas, but the majority of species do not prefer these areas and thus their populations are impacted with increased edge effect in the park.

The City of Calgary has also increased the water capacity of the Glenmore Dam. They improved the dam in 2020, raising the water levels by 1.5m. The increased water levels are killing off the plants on the edge of the water that are not evolved to tolerate being inundated in water throughout their growing season. We are now witnessing massive die off of both willow and spruce in the park. You will see considerable change in park habitat as a result. Soon the majority of the standing willows and spruce trees will be dead and be washed away into the reservoir leaving considerable soil erosion around the edge of the water when the water is intentionally lowered in the spring (they raise the water levels from July -December). This is going to cause significantly increased risk of flooding as these riparian plants were essential in reducing flood impacts. This was a tricky situation... The City made the decision without doing an environmental impact assessment because it was an economic decision. They were spending millions of dollars a day pulling water from the Bow River to feed the needs of the 40% of Calgarians who typically access their water from the Elbow when the Elbow was too low to supply their needs. Thus the decision to improve the dam and increase the water capacity in the Glenmore Reservoir for those in south Calgary to use. The city didn't even consider the fact that they would directly impact the entire habitat in the park and reduce flood capacity. As a result, the Weaselhead Society has created a Memorandum of Understanding with the City and a Partnership, so that they will also be consulting us with big decisions like this moving forward. They are in for a big surprise when all the plants die off and enter the reservoir and the next flood comes through! The plant's root systems were responsible for maintaining that soil stability, and without them, we will be witnessing considerable erosion effects.

Why is soil erosion damaging at Weaselhead?

Some of this is answered above when discussing how soil particles have increased access to the local water bodies increasing the water turbidity. Turbidity is the murkiness of the water. This naturally happens in spring with spring runoff. However, soil erosion contributed to it even more and it is damaging to both the plants and animals in the water. The animals with gills have a particular issue with turbidity as it makes it harder for them to breathe the dissolved oxygen in the water (fish, tadpoles and aquatic invertebrates). Water turbidity is hard on plants submerged in water as the sunlight can not reach them as easily in the murky waters and thus they can not produce their own food as easily through photosynthesis and also can not thus produce oxygen in the water as easily for those animals with gills to breathe.

Another impact is invasive plant species. Invasive plants tend to establish in disturbed areas... such as areas that were eroded. This causes loss of habitat for all sorts of animals who are dependent on our native plant species as the invasive ones push them out and outcompete the native plants. We have an extensive invasive plant program in the park that works to control their spread and prevent them from establishing.

What does Weaselhead do to prevent soil erosion?

We have tried to distribute our school groups to different areas to allow for areas like the aspen stand to recover. However then we realized we were actually increasing soil erosion to more areas by doing so. So we have decided we will keep the school groups in those areas as there is already extensive erosion that would take years to recover.

However, we are now avoiding the meadow (center of the park, maybe you went there? There is a wooden tipi constructed by other park users in the meadow). The City of Calgary has requested we avoid that area because there are rare mountain plants that have been identified in it.

Interestingly enough the meadow has only recently started to show signs of erosion. As it is a place of ecological successional change it is dominated by what we call pioneer plants.... plants that are very hardy and resistant to erosion (strawberry, northern bedstraw and bearberry being some of these hardy plants). It took about 25 years of school groups using the meadow before we started seeing the negative effects of erosion from their use. In comparison, the trail edges started eroding as soon as students started using those areas.

We are now also working in partnership with the City of Calgary with their Habitat Management Plan and will be addressing soil erosion concerns. However, that is still at the early stages so I do not yet have information to share on exactly how the issue will be addressed.

You will see the City has fenced off illegal trails, put up snow fences in areas to keep people out and fence off areas where they are trying to get plants to establish. However, humans being humans, they often just go around or over the fencing and continue causing soil erosion ignoring the Cities efforts. Legal trails are all marked by a wooden post and signs are up to help educate people. Instructions on the bylaws are available on the City website. But sadly there are no resources available to provide by-law officers in the area to enforce these bylaws.

What areas of Weaselhead have the most soil erosion?

Sides of trails, Aspen stands spot half way down the hill, the meadow and the numerous illegal trails. There are also some spots with minor erosion where school groups stop along the trail, such as in the riparian forest at the bottom of the Weaselhead hill. In coming years we will see extensive soil erosion where the riparian plants are dying off from the increased water levels. We predict that another habitat will establish in those water edges and over time the erosion issue there will be naturally dealt with by mother nature and recover. However, the places where erosion is caused by human feet will not recover as easily unless the humans can be stopped from stepping on those areas... a much more difficult task than imagined.

