

Lizard Creek: A Unique Habitat for Aquatic Life in the Elk Valley

Fact Sheet submitted by the Elk River Watershed Alliance (ERA), March 31, 2023
www.elkriveralliance.ca

The following summary of the current status of Lizard Creek is based upon Elk River Alliance (ERA) information generated by its Community Based Water Monitoring (CBWM) data from 2012 to the present, the Lizard Creek riparian restoration pilot project (2015), the Elk River Cutthroat Trout Research Initiative (2019), Elk Valley Cumulative Effects Management Framework aquatic effect assessment report (2018), as well as the Teck Calcite Report which refers to the Westslope cutthroat trout spawning suitability (2020) of Lizard Creek.



Lizard Creek CBWM monitoring site close to the mouth (left) and inside Mount Fernie Park (right), ERA 2022.

Indicators of Aquatic Health

Water quality and benthic invertebrate community metrics have been monitored by ERA since 2012. Two Lizard Creek sampling stations collect data: one located close to the mouth and the second inside Mount Fernie Provincial Park. Other creeks in the ERA CBWM program are Boivin, Alexander, Coal, and Morrisey. All of the creeks are wadeable and none are affected by current coal mining.

All measured water quality variables in Lizard Creek have met BC guidelines for the protection of aquatic life. Lizard Creek is a smaller creek with lower overall water flow than other creeks in ERAs monitoring program. Lizard Creek and Coal Creek mouths have tended to have higher turbidity than other sites. There has been no monitoring of indicators of human waste (such as total coliforms or *E. coli*).

The most recent benthic invertebrate data analysis (2022) indicates that both Lizard Creek sites diverge significantly from the “reference condition” for streams with similar geological, topographic, climate, streamflow amount and pattern and vegetation cover characteristics. In particular, the percent of mayfly, caddisfly and stonefly taxa is far lower than what can be expected based on reference sites. Some taxa have very high abundance, but there is a lower diversity of taxa.

High abundance with lower diversity of benthic invertebrates may signify declining health of the Lizard Creek system. This result requires further investigation to confirm the results and to better understand the role of current pressures in the Lizard Creek catchment.

Current pressures include increased roads, traffic and road crossings, formal and informal recreational trails and users, historic logging, adjacent rural residential development, and Island Lake Lodge at the headwaters. Anecdotal evidence from regular visitors to Lizard Creek point to increasing algae growth, which may be in response to increased nutrient releases to the creek.

Lizard Creek Habitat Quality

In the 2019 ERA survey of fish habitat in Coal, Forsyth, Lizard and Morrissey creeks, **Lizard Creek contained by far the highest number of Westslope cutthroat trout (WCT) spawning redds**, with a total of 55 redds (for a rate of 22.9 redds/km). No redds were found in Coal or Forsyth creeks, and 7 redds were found in Morrissey Creek (1.9 redds/km).

Teck Coal's report on calcite effects to Westslope cutthroat trout spawning suitability in 2020, used Lizard Creek as one of their reference sites, **showing the highest redd counts in both 2019 and 2020.**

Habitat assessments conducted in Lizard Creek showed relatively high habitat scores but identified concerns related to the proximity of roads to the creek. For example a road within the provincial park (which also serves as access to Island Lake Lodge) is close to a steep eroding slope. The site provided good fish habitat but erosion could cause a bank failure, risking part of the road failing into the creek, with subsequent adverse effects on habitat.

Two significant erosion sites associated with trails, located adjacent to Lizard Creek in Mount Fernie Provincial Park, were restored by the Elk River Alliance in 2014. Initial erosion at one of the sites was likely caused by clearing of vegetation to build the trail. Rip rap was placed to stabilize the stream channel, eliminating riparian habitat. The other site involved a failed slope adjacent to a decommissioned trail which resulted in ongoing erosion and sedimentation.

Increases in the number of formal and informal trails in the riparian zone of the creek will increase the likelihood of similar erosion sites.



Lizard Creek slope failure adjacent to hiking trail (left 2014) and 3 years after ERA's rehabilitation (right 2017)

Cumulative Effects on Lizard Creek

The Elk Valley Cumulative Effects Management Framework (CEMF) assessed hazard from pressures in the Elk Valley to riparian habitat and Westslope cutthroat trout (CEMF 2018). **The study concluded that stream crossings and road density near streams have caused the**

greatest hazards across the Elk Valley to date. The Lizard Creek catchment was rated as under Moderate Hazard.

The aquatic hazard roll-up suggests that **hazards for WCT populations are associated with populated areas and areas with substantive road development.** These factors can affect WCT populations by increasing angling access, habitat fragmentation, altered flow regimes (peak/low flows) and increased sediment inputs.

The CEMF analysis suggests that under future climate warming and maximum future development conditions, it is likely that the thermal regimes of streams and rivers in the Elk Valley will change. The analysis also indicated that while equivalent clearcut area was less impactful than roads, hazard may increase under a scenario of elevated natural disturbance (fire and pests).

Summary of Lizard Creek Unique Features

Lizard Creek provides some of the highest-value habitat for Westslope cutthroat trout in the Elk River system. It already has examples of the cumulative effects of road density and proximity of trails. Benthic invertebrate communities in the creek are currently indicating that the creek is in declining health. Important additional potential contributors to cumulative effects on the creek (notably nutrient inputs and reductions in groundwater discharge to the creek associated with residential development) have not yet been monitored and assessed.

Implications of the Proposed Galloway Lands Development

This proposed development will increase the pressure of road density, road crossings and close proximity of some roads to the creek. These pressures will increase angling and recreational trail access, contribute to further stream habitat fragmentation, increase sediment inputs and alter flow regimes. Potential effects from nutrient and contaminant inputs as well as reduced groundwater discharges may contribute to declining health of the Lizard Creek ecosystem.

References

Elk River Alliance 2015 Lizard Creek Riparian Restoration Pilot Project.

https://elkriveralliance.ca/wp-content/uploads/2023/03/LizardCreekRiparianRestoration_FINALReport-1.pdf

Elk River Alliance. 2020. Elk River Westslope Cutthroat Trout (WCT) Research Initiative: 2019 Report.

https://gyg.sob.mybluehost.me/wp-content/uploads/2022/02/FRI_Phase_1_2019_Report_Report_Apps_compressed.pdf

Elk River Alliance 2023. Community-based water monitoring. 2021 Monitoring Report. Draft under review.

Elk Valley Cumulative Effects Management Framework (CEMF) 2018. Aquatic ecosystems cumulative effects assessment report.

https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/cumulative-effects/final_ev_cemf_aquatic_ecosystems_cea_report_24072018.pdf

Teck Calcite Report.

https://www.teck.com/media/13_Calcite_Effects_to_WCT_Spawning_Suitability_2020_Report_w_Cover_Page.pdf