

Post-Harvest Riparian Assessments on Small Streams: A Cumulative Examination (2016-2019)

Project Summary and Preliminary Findings



Small stream surveyed in Unit G,
Cutblock G-8. Uschenko 2018.

OBJECTIVES: The management of riparian habitats is critical in supporting proper stream function, maintaining viable fisheries habitat and supporting ecosystem diversity. Since 2016, the College of New Caledonia's Research has been conducting riparian assessments to evaluate stream health and function, and to determine mitigating actions during forest harvesting and road building.

METHODS: Utilizing the Forests and Range Evaluation Program (FREP) Fish/Riparian Monitoring Protocol (Government of British Columbia), 18 small, non-alluvial, S4 streams have been assessed in 6 Research Forest Units in the Bear Lake area. Although this protocol typically excludes road crossings, to further understand the impact of road crossings on small streams, all deactivated

and/or rehabilitated road crossings were included within the 100m reaches established at each stream. All streams with active road crossings were assessed immediately downstream. Measuring several indicators including, but not limited to: moss coverage, sediment deposition, aquatic invertebrate diversity, reserve retention and bank microclimate, this protocol classifies streams into one of four categories: Properly Functioning, Functioning but at Risk, Functioning but at High Risk and Not Properly Functioning. Since the implementation of this project, 2 streams have been reassessed, one located within Research Forest Unit A (A-1), initially assessed in 2016 and another stream previously assessed in 2017, which was reassessed after the removal of an active road crossing (2018) in Research Forest Unit G (G-4).

RESULTS: Findings from these assessments included:

- 2 streams were **Properly Functioning**: G-4 (2017), B-3 (pre-harvest 2018)
- 9 streams were **Functioning but at Risk**: B-1 (stream 2(2017)), A-2 (2018), A-8 (2018), B-4 (pre-harvest (2018), post-harvest (2019)), G-4 (bridge removal (2018)), G-7 (2018), G-8/9 (2018), F-5 (2019), F-9 (2019)
- 8 streams were **Functioning but at High Risk**: A-1 (reassessed (2019)), B-1 (stream 1(2017)), B-2 (2018), D-3 (2017), E-8 (2018), F-6 (lower stream (2019)), F-6 (upper stream (2019)), G-9 (2019)
- 1 stream **Not Properly Functioning**: A-1 (initial assessment (2016))
- Insufficient riparian retention (within 10 m of stream channel) and high sediment accumulation were the main problems identified, with the maintenance of riparian habitat being inadequate among 14 of the streams assessed. Insufficient vegetation structure was lacking in 8 streams assessed, with poor vegetation vigor and form noted in 4 of the 8. In addition, unsatisfactory vegetation recruitment was also noted at 3 of the 4 sites in which poor vigour and form was noted.
- High sediment accumulation was noted in fifteen of the streams assessed, with large pockets of sediment blanketing the streambed noted in 9 of these streams. Direct sediment from roads (active, deactivated, rehabilitated) or windthrow was noted in 7 of the 9 streams. Temporary blockages to fish, debris and sediment movement was noted in 14 of the streams sampled
- Follow-up assessments are recommended to occur 5 years after initial assessments to determine trends in functioning condition rating and to determine if additional restoration efforts are warranted.