



Al Martin HCTF Conservation Scholarship Recipient 2026



Sabine Rankin

Sabine Rankin is a master's student in Ecological Restoration at the British Columbia Institute of Technology, supervised by Dr. Douglas Ransome. Her research is based on a series of low-tech process-based restoration (LTPBR) projects implemented across interior BC by her project partner, the BC Wildlife Federation, and their local partners. Sabine's research examines the groundwater and surface water responses of degraded streams to LTPBR treatment by analyzing hydrological field data and remotely sensed imagery.

Low-tech process-based restoration is a low cost and scalable approach to restoring streams that have been simplified and degraded due to colonial land use changes, including the widespread removal of the North American beaver. Inspired by how this keystone species creates healthy stream and wetland habitats, LTPBR involves building beaver dam analogues and post-assisted log structures to mimic the structurally driven processes facilitated by natural beaver dams and log jams. LTPBR structures work to slow and spread water, consequently helping streams reconnect with their floodplains and replenish groundwater stores. These processes help create diverse habitat for myriad species and bolster the system's resilience to intensifying drought, flood, and fire conditions brought on by climate change.

The majority of LTPBR projects, thus far, have been implemented in the western United States. Interest in this technique has been growing in BC in recent years, in tandem with water availability and seasonal fire concerns. Between 2024 and 2025, the BC Wildlife Federation constructed complexes of LTPBR structures at 12 sites across BC's interior as part of their 10,000 Wetlands Project. This work presents an opportunity to generate knowledge of LTPBR in the Canadian context.

Using hydrological data collected from these sites, Sabine aims to answer whether LTPBR is effective at increasing groundwater and surface water storage on the landscape, mitigating spring flooding and summer dewatering of streams, and avoiding negative impact to downstream water users. She will specifically be comparing relative differences in groundwater and surface water levels and stream discharge within each site, and across all sites, as well as before and after LTPBR treatment.

Additionally, Sabine will explore whether two satellite imagery-derived indices, the Normalized Difference Vegetation Index and Normalized Difference Water Index, can be used as accurate proxies for groundwater and surface water storage, respectively. If deemed reliable, remote sensing could provide a cost-effective and long-term approach for quantifying hydrological responses of streams to LTPBR treatment in BC and elsewhere.



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