



# Our Work in the Ghost Watershed in 2025

Presented by:  
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Executive Director

GWAS AGM  
November 8, 2025



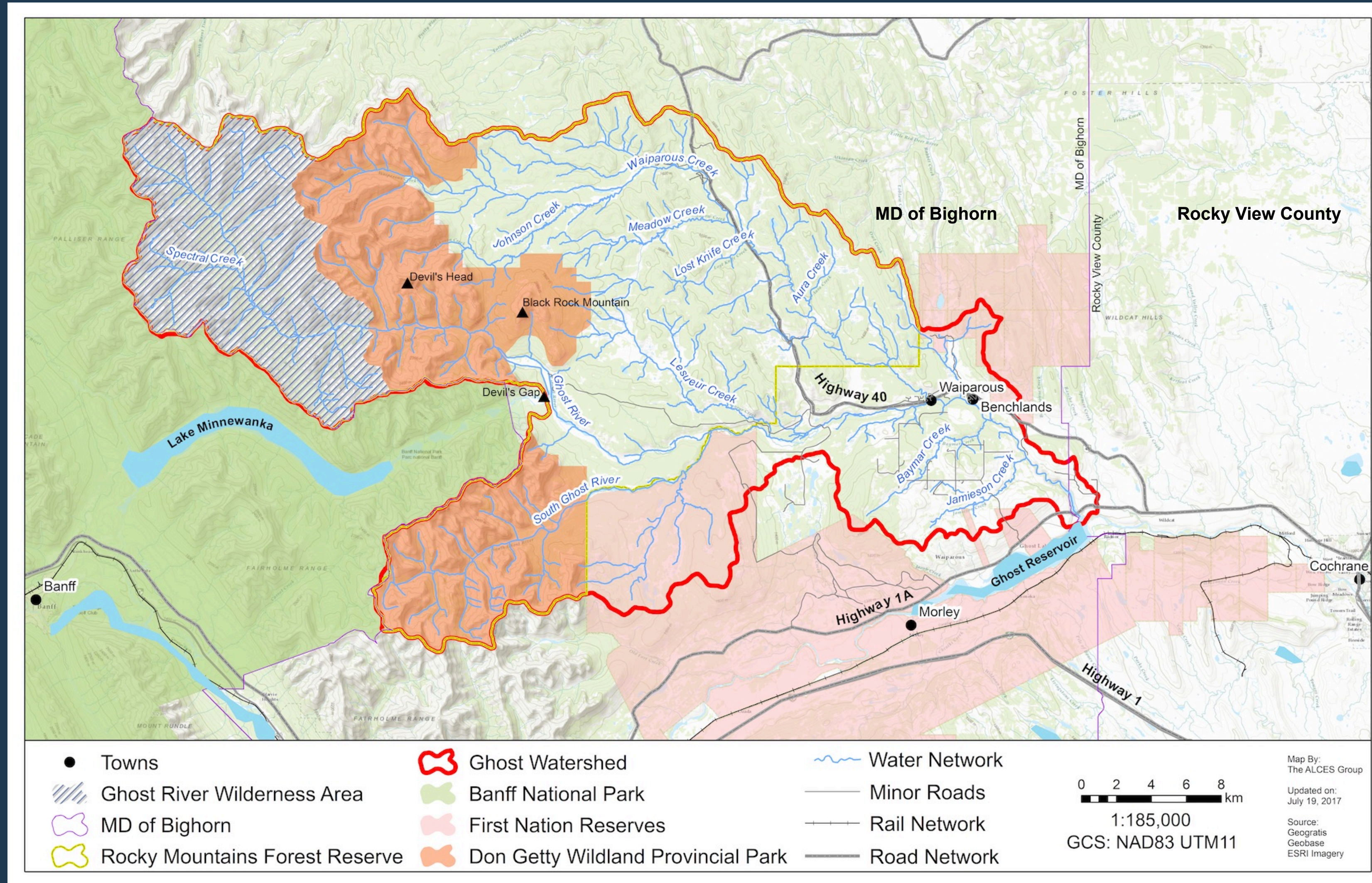


# The Ghost Watershed

- ◆ Almost 1,000 km<sup>2</sup>
- ◆ Provides app. 7% to flow in Bow River upstream of Calgary
- ◆ Important source water area



**Source Water Protection Plan**  
Protecting our source watershed through proactive collaboration





# What does GWAS do?

- ◆ Gather and share knowledge
- ◆ Work collaboratively to improve watershed health
- ◆ Raise awareness





# GWAS Operations Plan - Strategic Objectives

- ◆ Science, research, monitoring & knowledge
- ◆ Outreach, awareness, education
- ◆ Advice and recommendations
- ◆ Ecosystem repair and enhancement



Photo credits: M. Krainer & F. Tang



# GWAS Water Monitoring

◆ CABiN

◆ Stream  
temperature  
loggers

◆ CreekWatch



Photo credit: K. Allan



# GWAS Water Monitoring Plan

- ◆ Started in 2020
- ◆ Helps us close data gaps identified in State of the Watershed Report





# GWAS Water Monitoring - CABiN

- ✦ CABiN - Canadian Aquatic Biomonitoring Network
- ✦ Led and maintained by Environment and Climate Change Canada
- ✦ Uses aquatic insects as indicators for watershed health

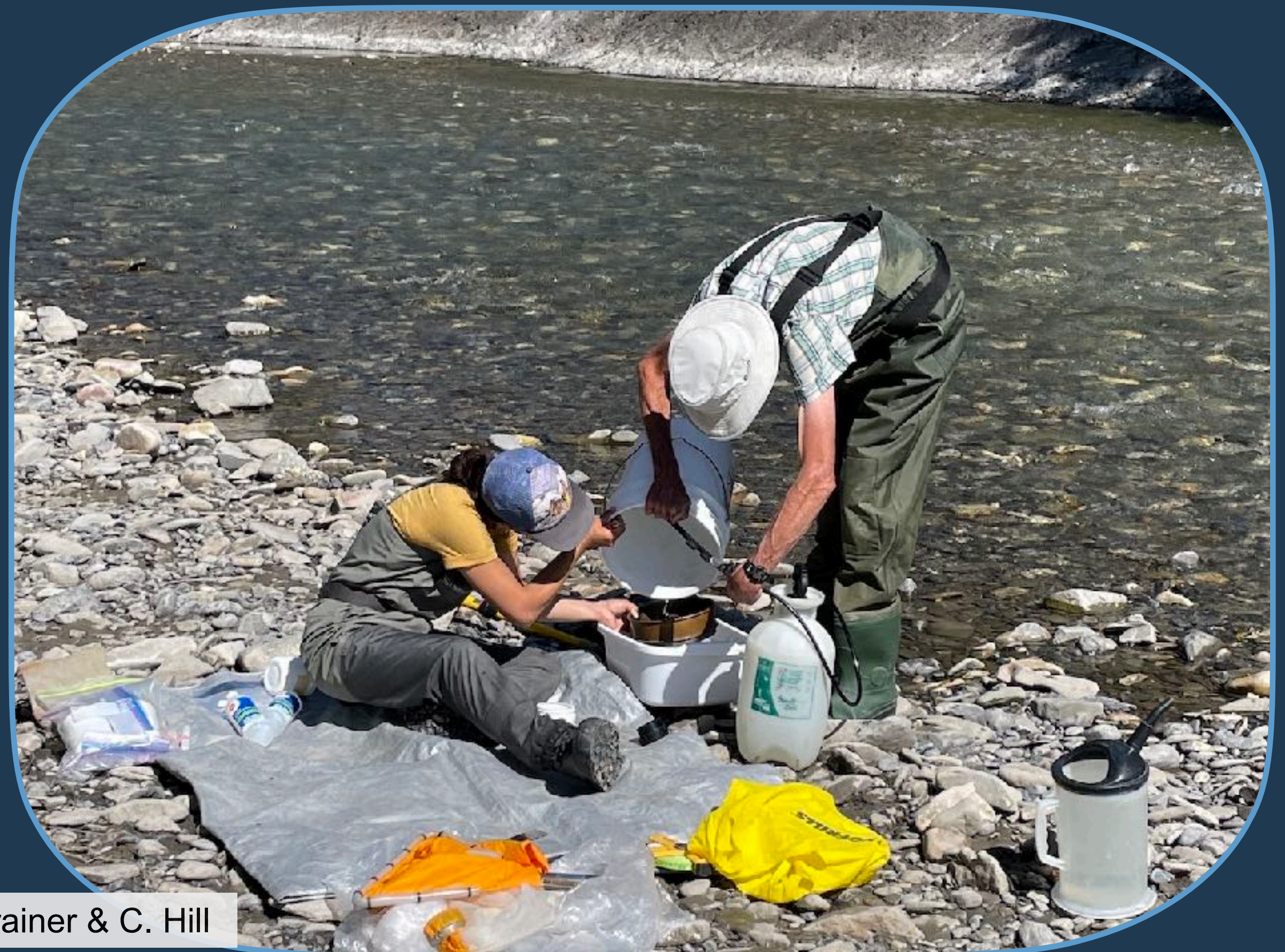


Photo credit: M. Krainer & C. Hill



# Aquatic Insects as Indicators

Ratio of pollution sensitive vs. pollution tolerant species is an indicator for watershed health.



Mayflies (E)



Stoneflies (P)



Caddisflies (T)

Sensitive



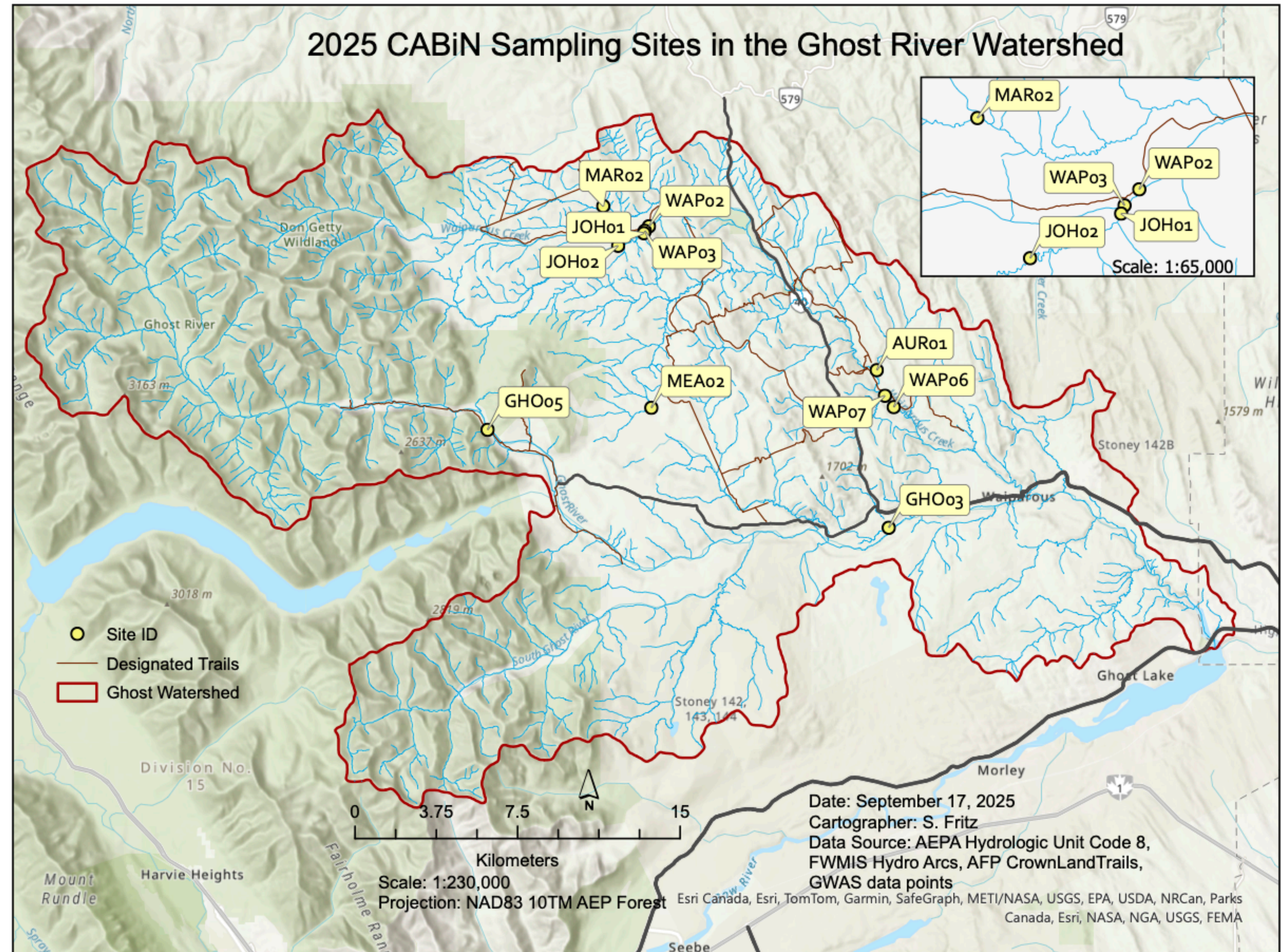
Flies and Midges (C)

Tolerant



# Ghost Watershed CABiN Sampling Sites

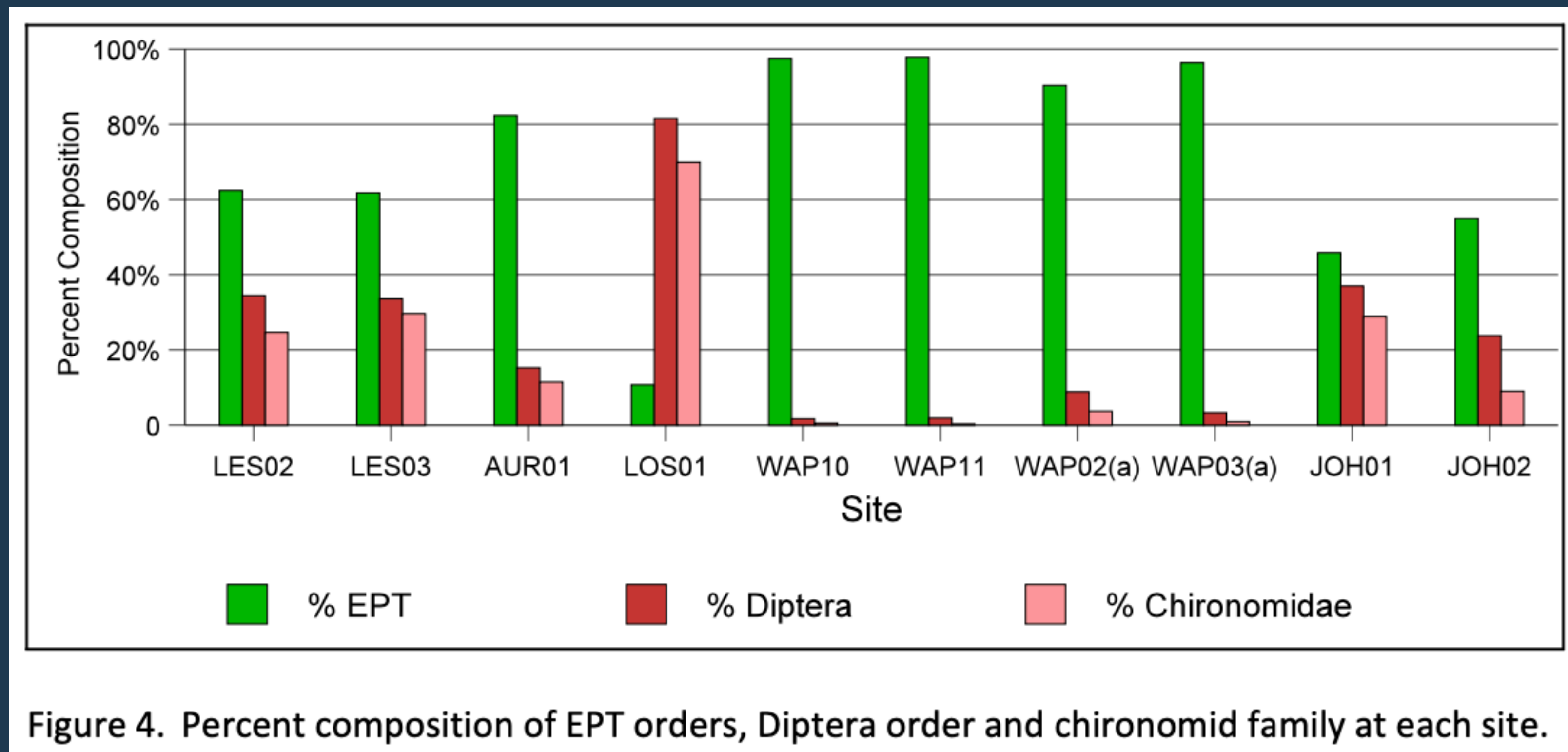
- ◆ 11 sites sampled this year!
- ◆ 54 samples collected since 2020
- ◆ 31 unique sites to date





# Ghost Watershed CABiN Results Highlights

- ✦ Most sites in very good to excellent condition.
- ✦ Lost Knife Creek (LOS1), a potential reference site, was the anomaly in 2024. It was a much smaller creek than any sampled to date, with a largely silty bottom versus gravel and cobble, and with overhanging vegetation.





# Ghost Watershed CABiN Results Highlights

- ✦ Comparing 2020 to 2024 results on aquatic invertebrates, Lesueur Creek (LOS02) and the two Johnson Creek sites were of most concern.
- ✦ However, Lost Knife Creek (LOS1) again showed the lowest ratio. Not necessarily because of low water quality, but could be result of silty substrate.

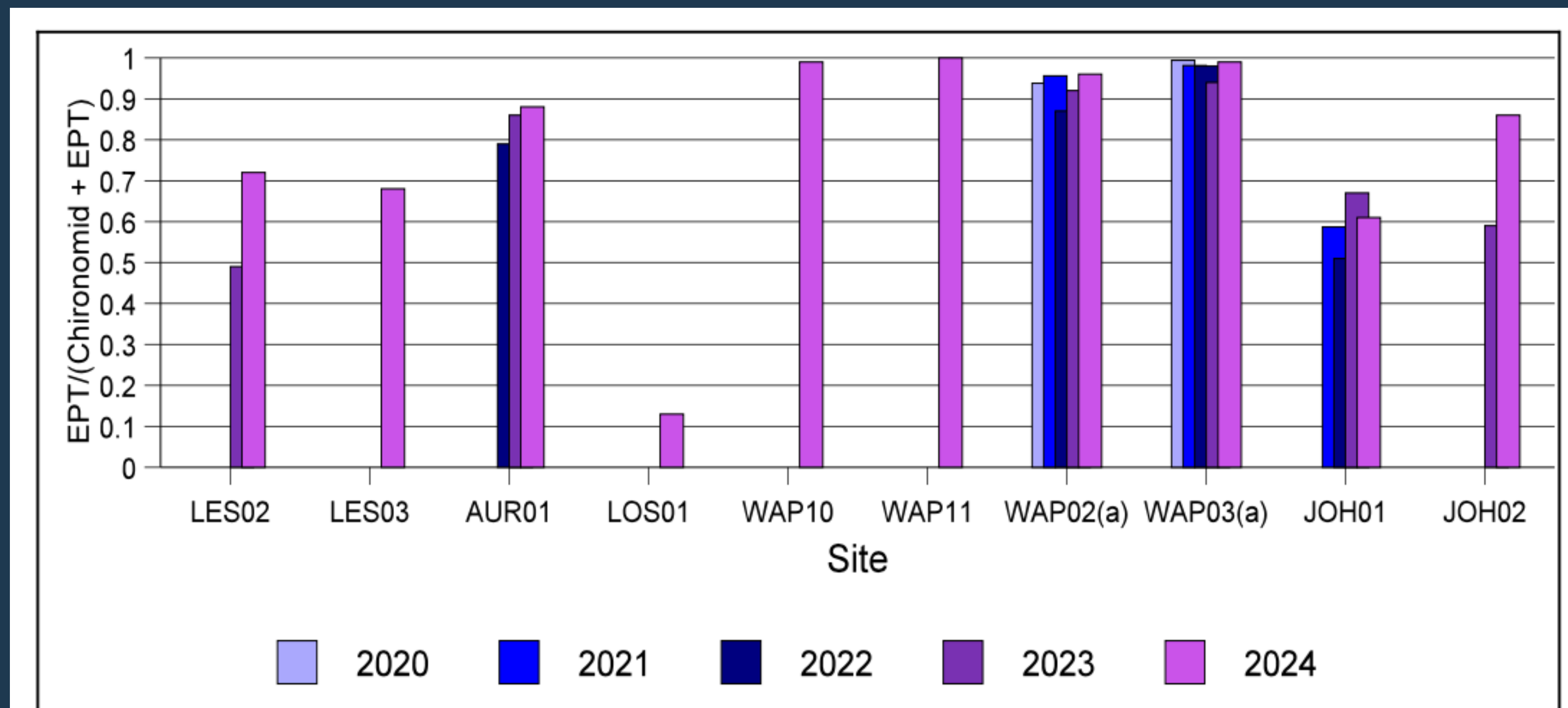


Figure 6. EPT/(chironomid + EPT) ratio for each site using percent community composition.



# Ghost Watershed CABiN Results Highlights

- ✦ Waiparous Creek sites (WAP02, WAP03) have been rated as excellent from 2020 - 2022 and very good in 2023 and 2024, suggesting that organic enrichment increased.
- ✦ Johnson Creek sites rating of very good, but HBI index is indicating possible slight organic enrichment.
- ✦ Lost Knife site rated fair, but indicator not geared towards such small, slow flowing streams.

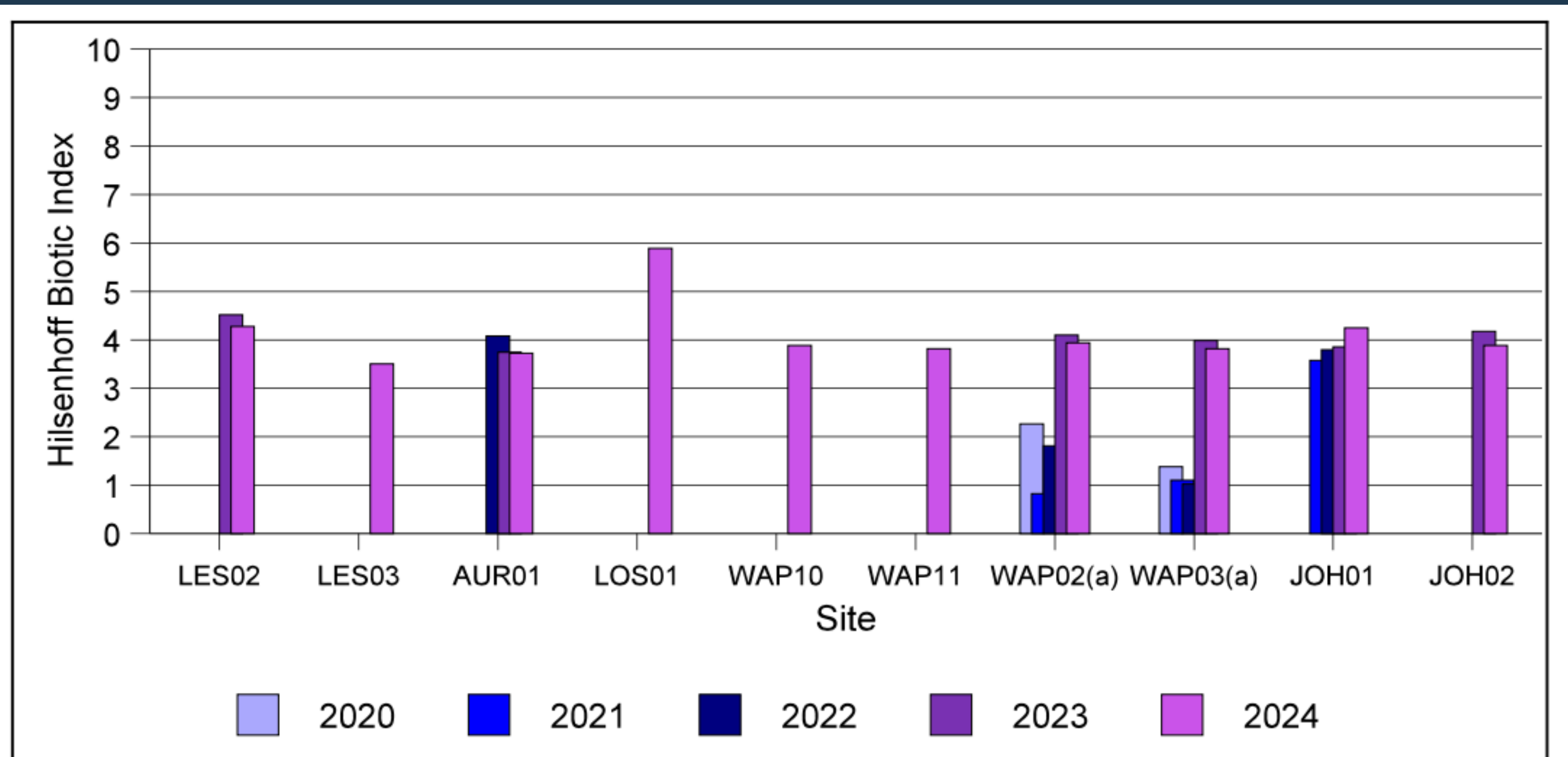


Figure 14. Hilsenhoff Biotic Index for each site.

0.00 - 3.50	Excellent
3.51 - 4.50	Very Good
4.51 - 5.50	Good
5.51 - 6.50	Fair



# Ghost Watershed CABiN Results Highlights

- ✦ Aura Creek: total suspended solids rose each year from 2022 to 2024, as did turbidity, but not enough to cause concern.
- ✦ Additional sites on Johnson Creek further upstream would help to determine the health of the creek.
- ✦ Recommendation by Biota Consultants, CABiN Project Manager for GWAS:  
*“The sites sampled from 2020 to 2024 should be monitored as frequently as possible,..., giving priority to those sites where water quality may be more comprised.”*



Johnson Creek  
Photo credit: M. Krainer



# Stream Temperature Loggers

- ◆ 9 loggers installed in 2025
- ◆ Data shared with fRI Research for development of a stream temperature model to aid in native trout recovery.

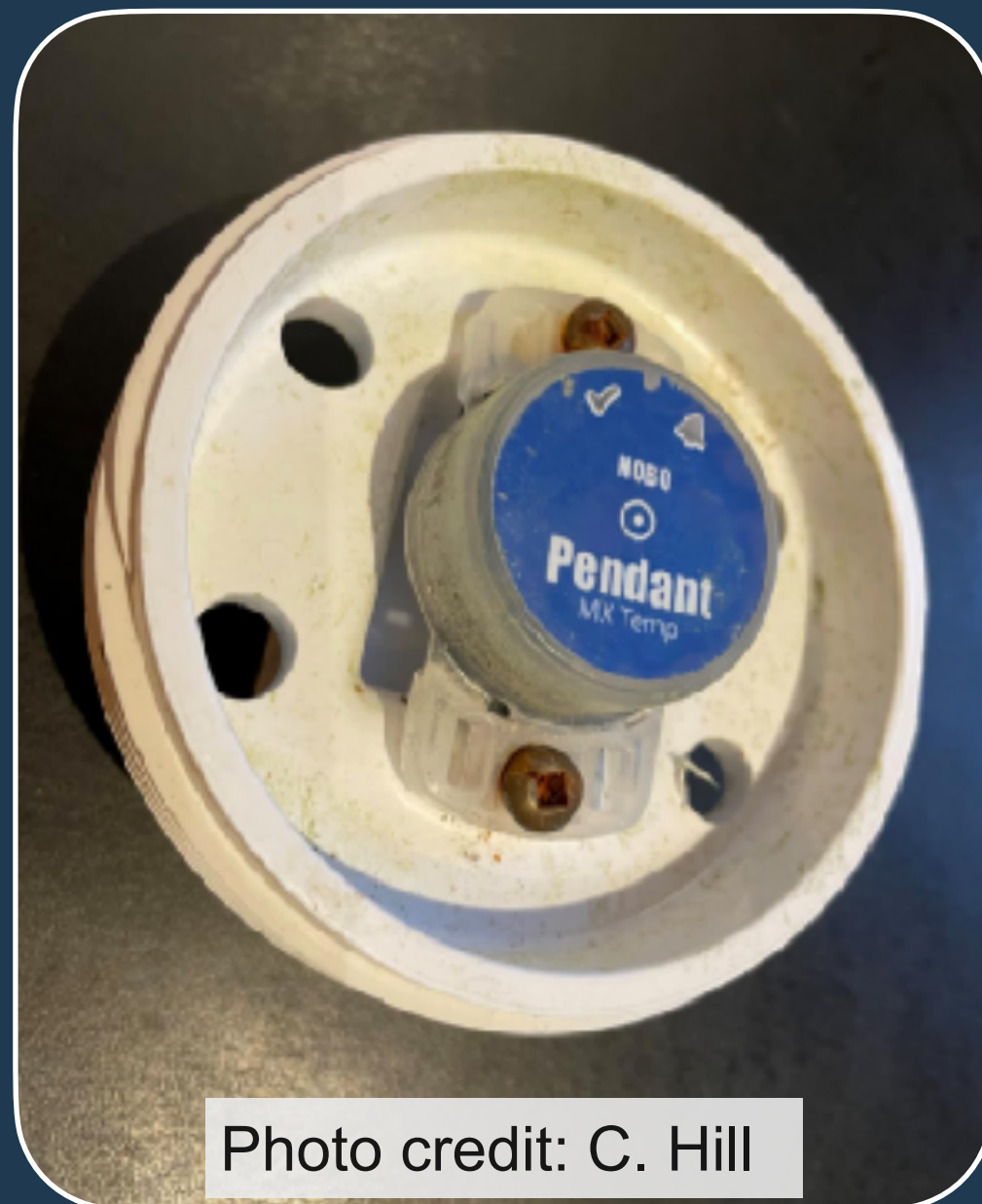
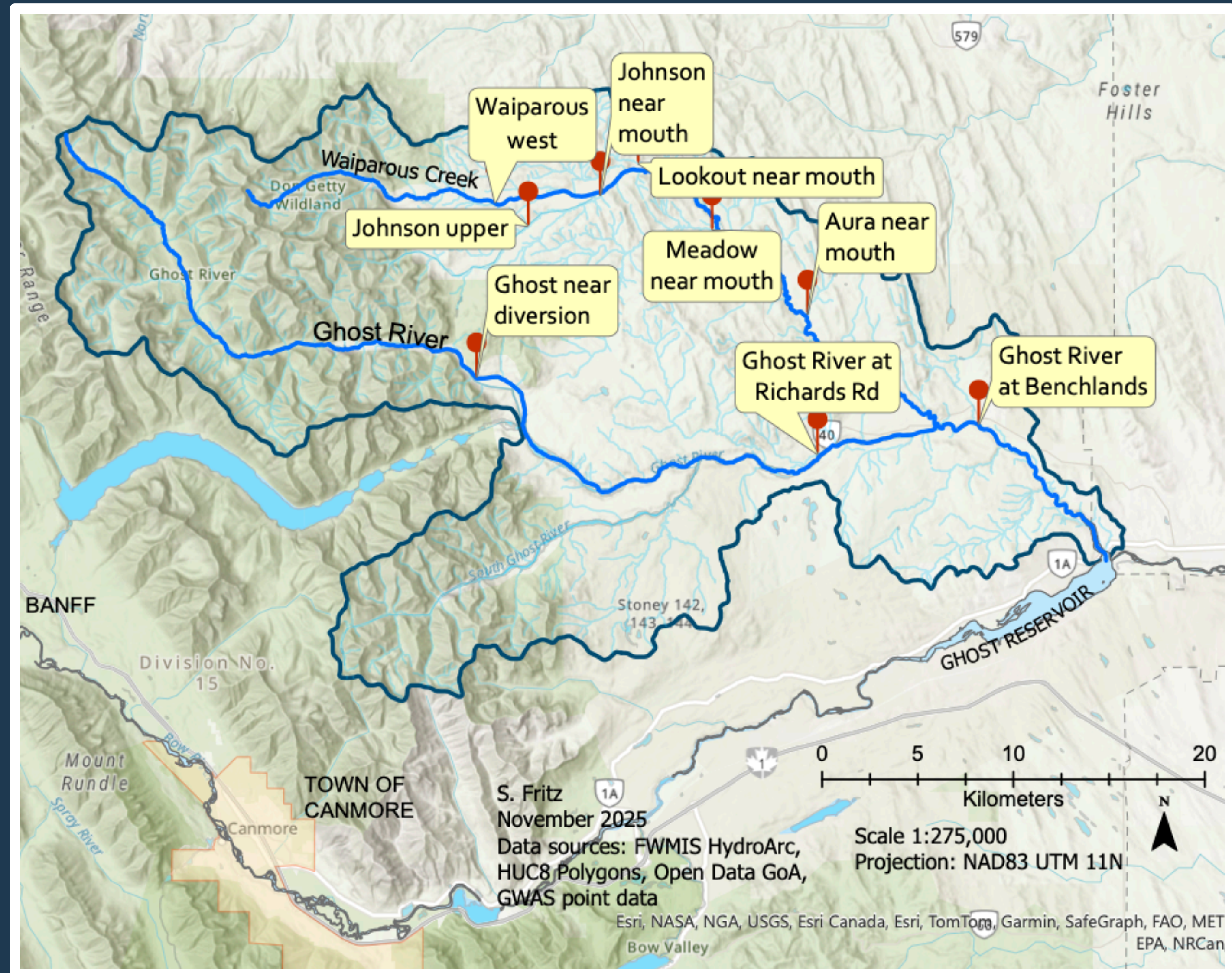


Photo credit: C. Hill





# Stream Temperature Loggers



Thank you  
to our dedicated  
volunteers!

Photo credits: K. Laustsen





# Bio-engineering

- ◆ Workshops promote collaboration & Team-building
- ◆ Opportunity to share knowledge and perspectives
- ◆ Improve watershed health and fish habitat





# Why do we undertake bioengineering?

- ◆ Control erosion
- ◆ Prevent channeling of run-off
- ◆ Prevent excessive amounts of sediment from ending up in streams
- ◆ Re-establish riparian vegetation





# Ecosystem Repair & Enhancement - Bioengineering

- ◆ March 22: Harvesting workshop (20 volunteers, app. 2,000 stakes)
- ◆ May 24: Field workshop at Waiparous bridge & west culvert (15 volunteers)





# Ecosystem Repair & Enhancement - Bioengineering

- ♦ June 20: Monitoring trip during rainfall event





# Waiparous Creek Bio-engineering Site

2021



2025



Photo credits: C. Hill & M. Krainer



# Ecosystem Repair & Enhancement - Bioengineering

- ♦ July 4: Field workshop at Whispering Pines west culvert (13 volunteers)





# Ecosystem Repair & Enhancement - Bioengineering

- ◆ July 7: Field visit to potential restoration site on a designated trail
- ◆ Working with West Fraser and Freshwater Conservation Canada



Photo credits: M. Krainer



# Margaret Lake Restoration Project

- ✦ 2024: T4T and CARA installed new fence near designated access trails
- ✦ Goal: Restore lakeshore and encourage people to walk to the lake



Photo credit: T4T, C. Hill



# Margaret Lake Restoration Project

- ✦ September 13: Bio-engineering to revegetate approach to lake
- ✦ Willow staking, transplanting spruce seedlings
- ✦ Collected and spread local seeds
- ✦ Spread mulch and large woody debris



Photo credits: M. Krainer & V. Van Der Merwe (T4T)



# Margaret Lake Restoration Project

- ◆ App. 30 volunteers
- ◆ A huge thank you to the many volunteers and to our partners!

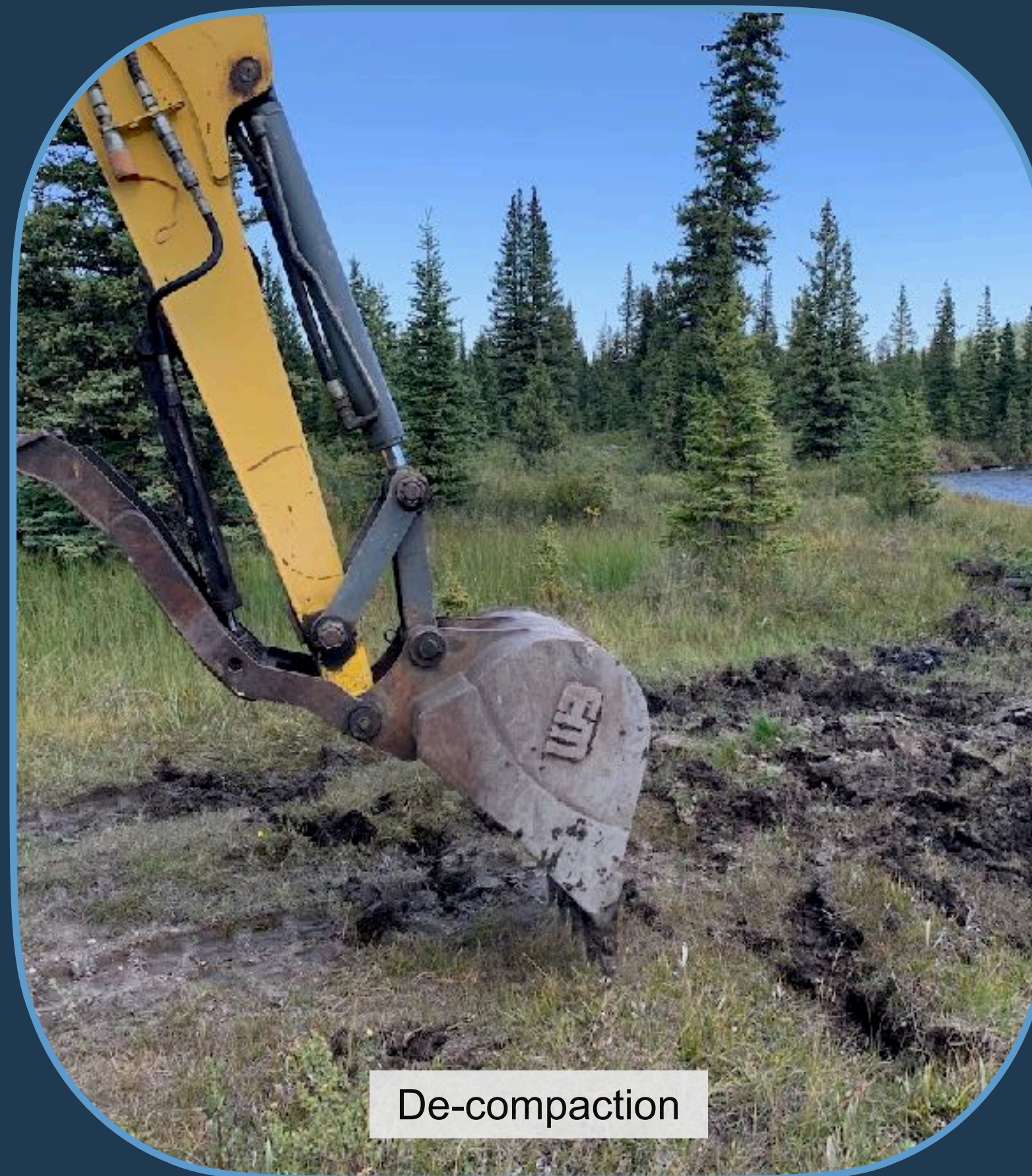
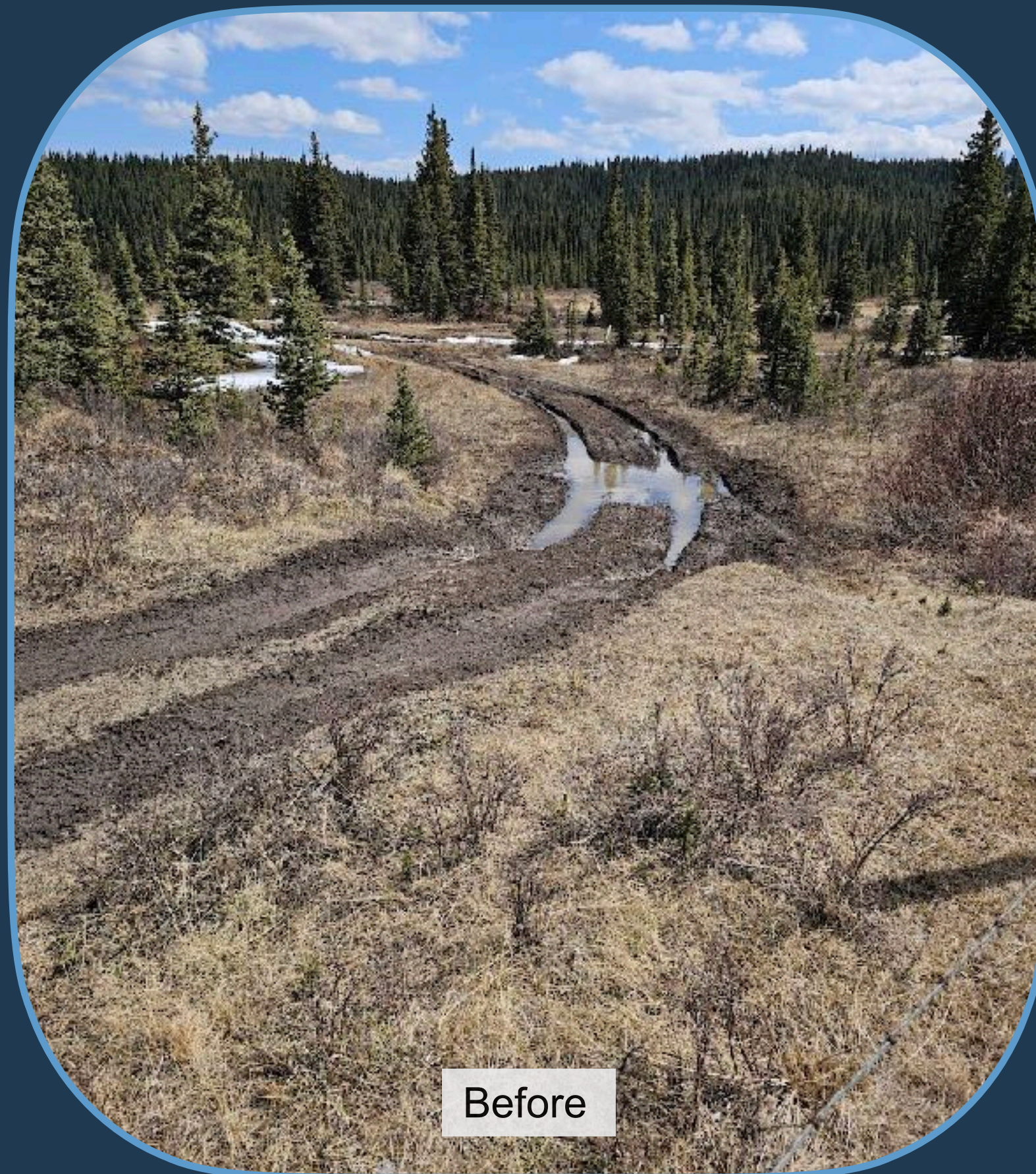


Photo credits: M. Krainer



# Ecosystem Repair & Enhancement - Bioengineering

- ♦ August 26: Site preparation with equipment at Johnson Creek





# Ecosystem Repair & Enhancement - Bioengineering

◆ October 3 & 4: Field workshops at Johnson Creek (20 volunteers)





# Monitoring and Adaptation

- ◆ Restoration projects are never a one-and-done project
- ◆ Monitoring, maintenance and adaptation is crucial!





# Need for Adaptation

- ◆ Heavy rain caused beaver dam at gravel pit restoration site to overflow.
- ◆ Flooded designated trail and trail braiding occurred.
- ◆ Working with CARA, FCC and AEP to address the issue.



Photo credits: M. Krainer



# Ecosystem Repair & Enhancement - Bioengineering

- ◆ October 7: GoA staff installed signage for Johnson Creek





# Richards Road Beaver Coexistence

- ◆ MD Bighorn asked for contact to help with beaver coexistence
- ◆ Referred them to Cows & Fish
- ◆ Extensive review process by DFO for the MD
- ◆ Participated in info session on project



Photo credit: M. Krainer

*Richards Road*

**BEAVER  
CO-EXISTANCE**  
*Project*

*Information Session*

THURSDAY, AUGUST 14<sup>TH</sup>  
7:00 - 8:30 PM at the Ghost River Fire Hall  
64095 AB-40, Benchlands, AB

Please join the MD of Bighorn, the Ghost Watershed Alliance Society, and Cows & Fish to learn more about our Beaver Co-Existence Project. There will be presentations followed by a period for questions. No registration required.



# Richards Road Beaver Coexistence

- ◆ Sometimes things don't go as planned...
- ◆ Beavers left the site a week before the project started. Food ran out!
- ◆ Beaver coexistence was completed, but there were no beavers to build up the dam around the structure again.
- ◆ Cows and Fish planted willows on site. Eventually beavers will return!



Photo credits: M. Krainer



# Education & Outreach

- ◆ School field trips
- ◆ Hands-on educational events



Photo credits: M. Krainer



# Education & Outreach

- ◆ Presentations
- ◆ Booth at Events
- ◆ Field trips



Photo credits: M. Krainer, S. Fritz, M. Wagner



# Power of Collaboration



User experiences

Local knowledge

Sharing knowledge and perspectives

Finding common ground

Workshops

Working towards shared goals

Low-tech process-based restoration

Riparian Health Assessments

Technical expertise

Connecting Science & Practice







# Power of Collaboration



Photo credit: V. Van Der Merwe, T4T



# Working Together on Native Trout Recovery

- ◆ Working with organizations part of the Native Trout Collaborative
- ◆ Helped GWAS build expertise and capacity



## Alberta's



**COWS  
& FISH**



**CPAWS**  
CANADIAN PARKS AND WILDERNESS SOCIETY  
SOUTHERN ALBERTA CHAPTER



Alberta Conservation  
Association



Freshwater  
Conservation  
Canada



**fRI Research**  
Informing Land & Resource Management



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada



# Being a Voice for the Watershed

- ◆ Provide input on forest harvest plans
- ◆ On-going communication with GoA lands department on land-use issues
- ◆ Field tours (GoA, DFO, City, WF)

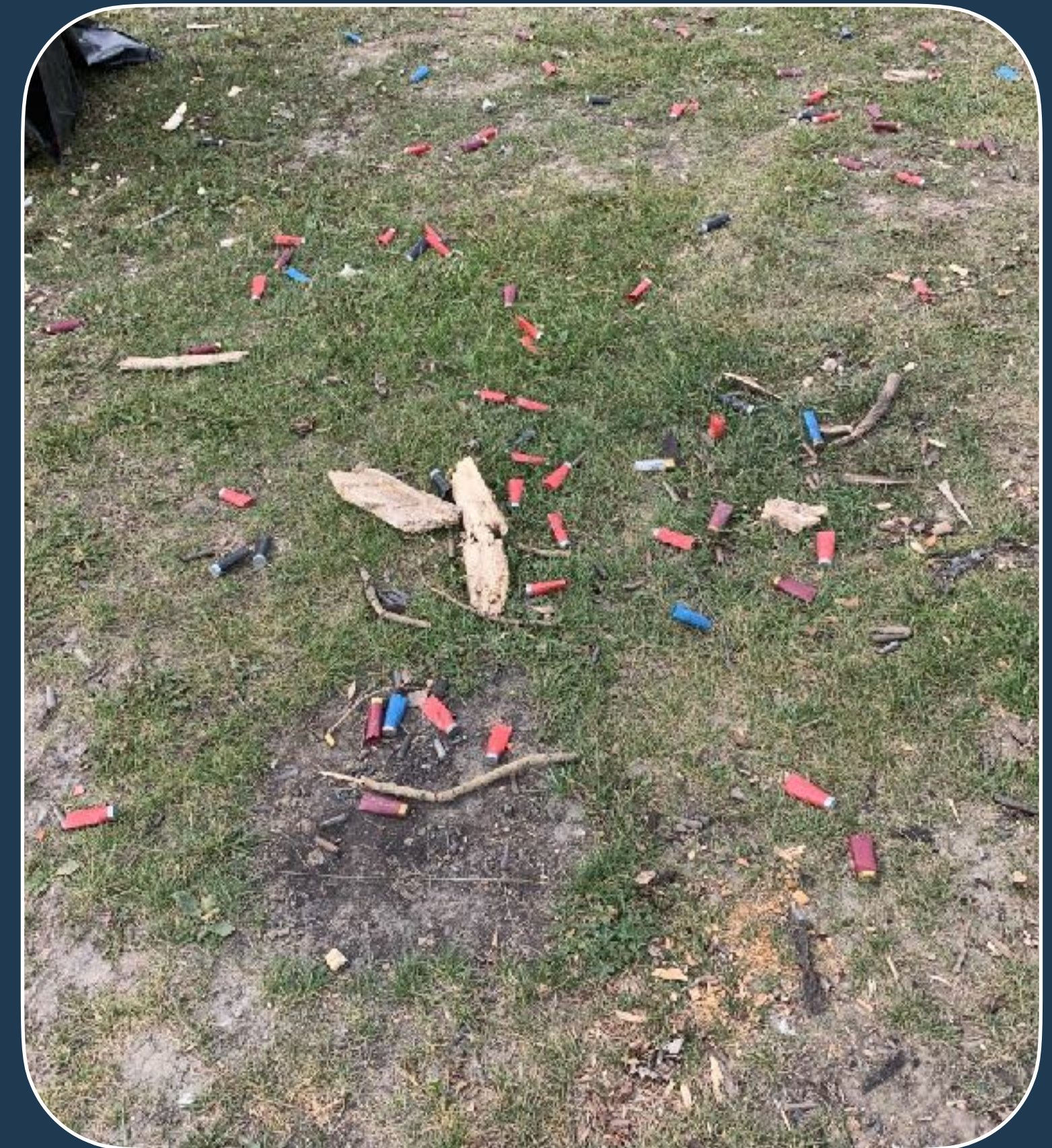
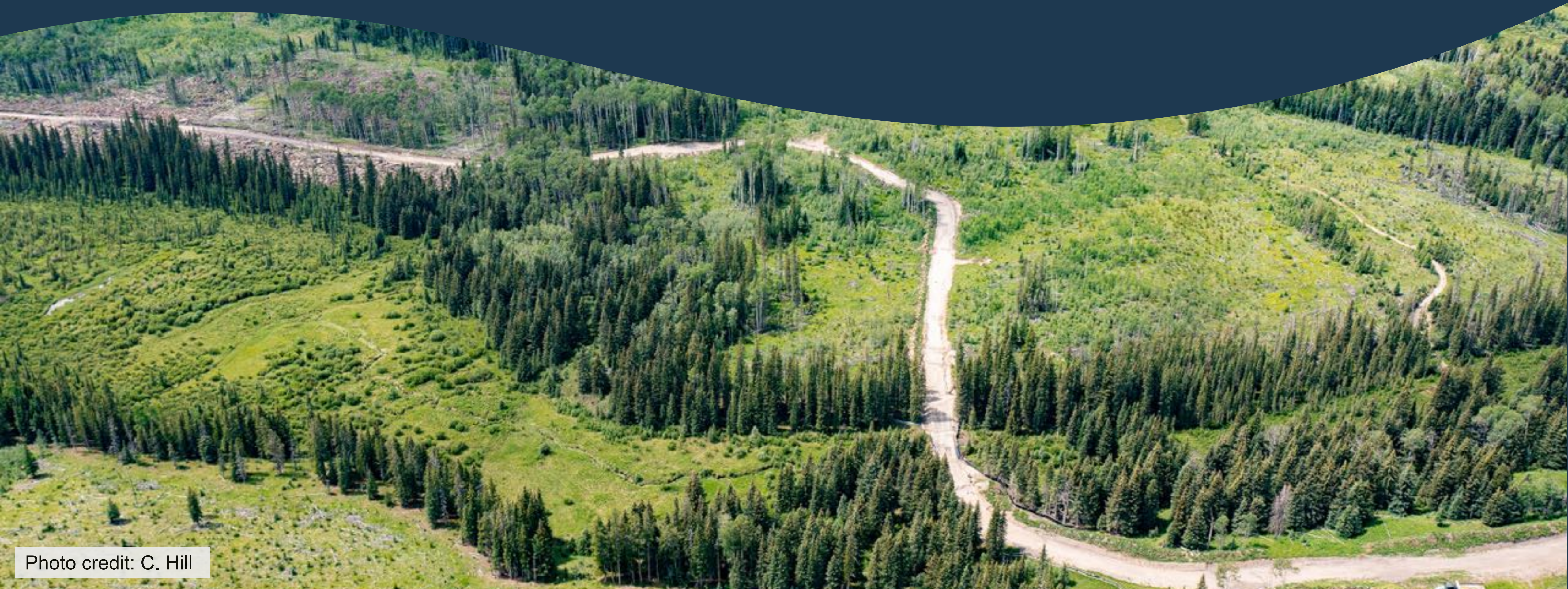


Photo credits: M. Krainer



# Forestry

- ◆ GWAS continues to communicate with West Fraser on logging operations
- ◆ Met with West Fraser / SLS in May, June and in the field in July 2025
- ◆ Discussed and provided input on Fuel Reduction Program plans





# Plans for 2026

- ◆ Continue Water Monitoring Program
- ◆ Bio-engineering
- ◆ Collaboration on landscape planning
- ◆ On-going collaboration with partners on projects and outreach
- ◆ Work on further analysis of the data collected



Photo credit: M. Krainer



# Plans for 2026

- ◆ Continue Education & Outreach work
- ◆ Maintain and share our knowledge, improve outreach resources
- ◆ Redesign of GWAS website and a new logo
- ◆ Continue to be a voice for the watershed



Photo credit: S. Fritz



# Casino Fundraiser

- ◆ November 21 & 22, 2025
- ◆ Ace Casino Blackfoot Calgary
- ◆ Casino funds are crucial to support GWAS' operations and programs!
- ◆ We need more volunteers to run the Casino event especially for the night shift and the count room! Please spread the word! Thank you!



Photo credit: M. Krainer



# Thank You to our Volunteers!



Photo credit: M. Krainer



# Thank you to our funders!

Alberta Conservation Association

Alberta Ecotrust

BP Volunteers

City of Calgary

Forest Resource Improvement Association of Alberta  
(FRIP grant sponsored by WF / SLS and BRBC)

Land Stewardship Centre

MD of Bighorn

Fisheries and Oceans Canada - Habitat Stewardship Program

&

our members and all the generous individual donors!

