



# Our Work in the Ghost Watershed in 2025

Presented by:  
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Executive Director

GWAS AGM  
November 8, 2025



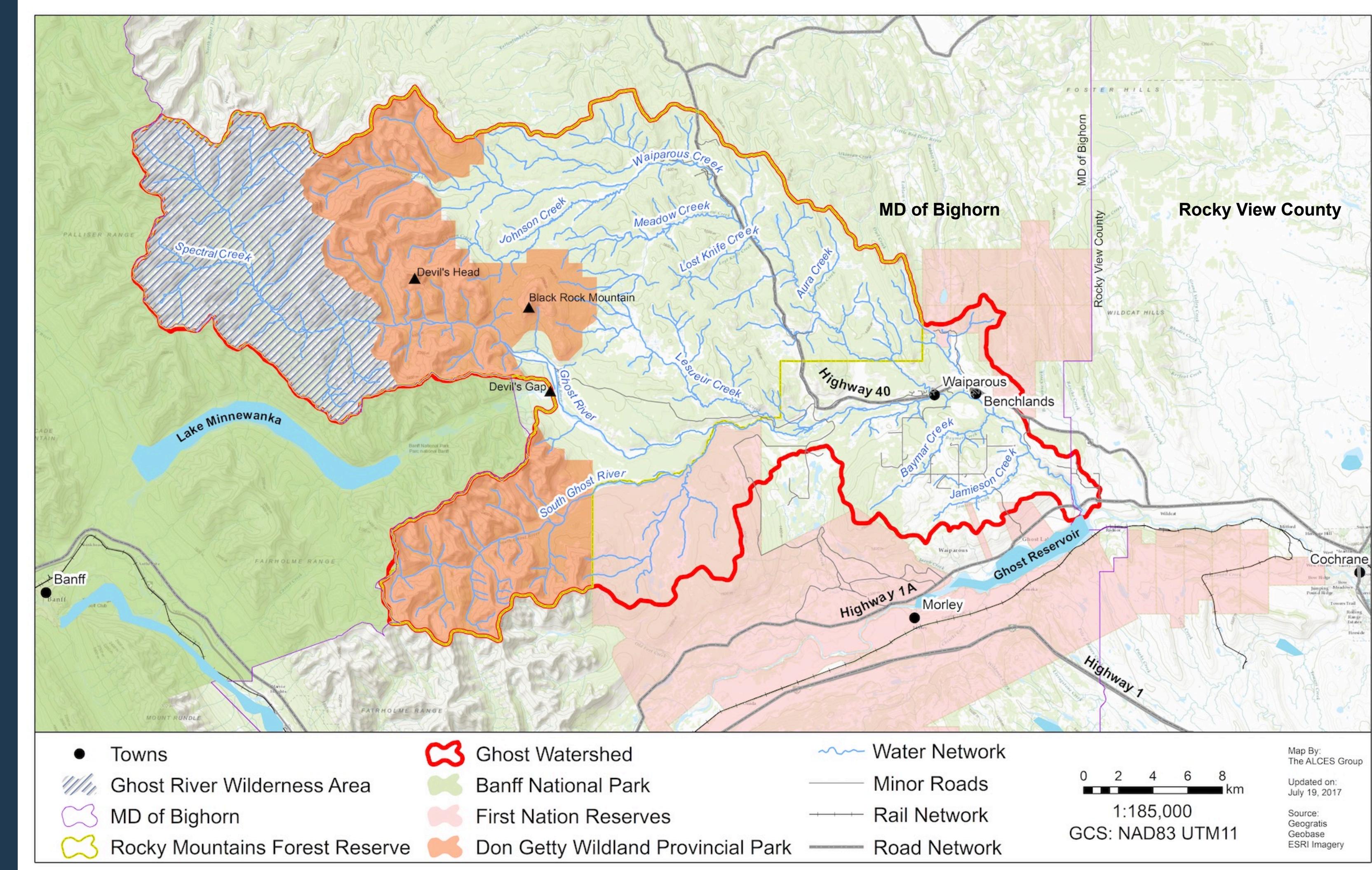
# The Ghost Watershed

- ◆ 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
- ◆ Raise awareness
- ◆ Work collaboratively to improve watershed health



# 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

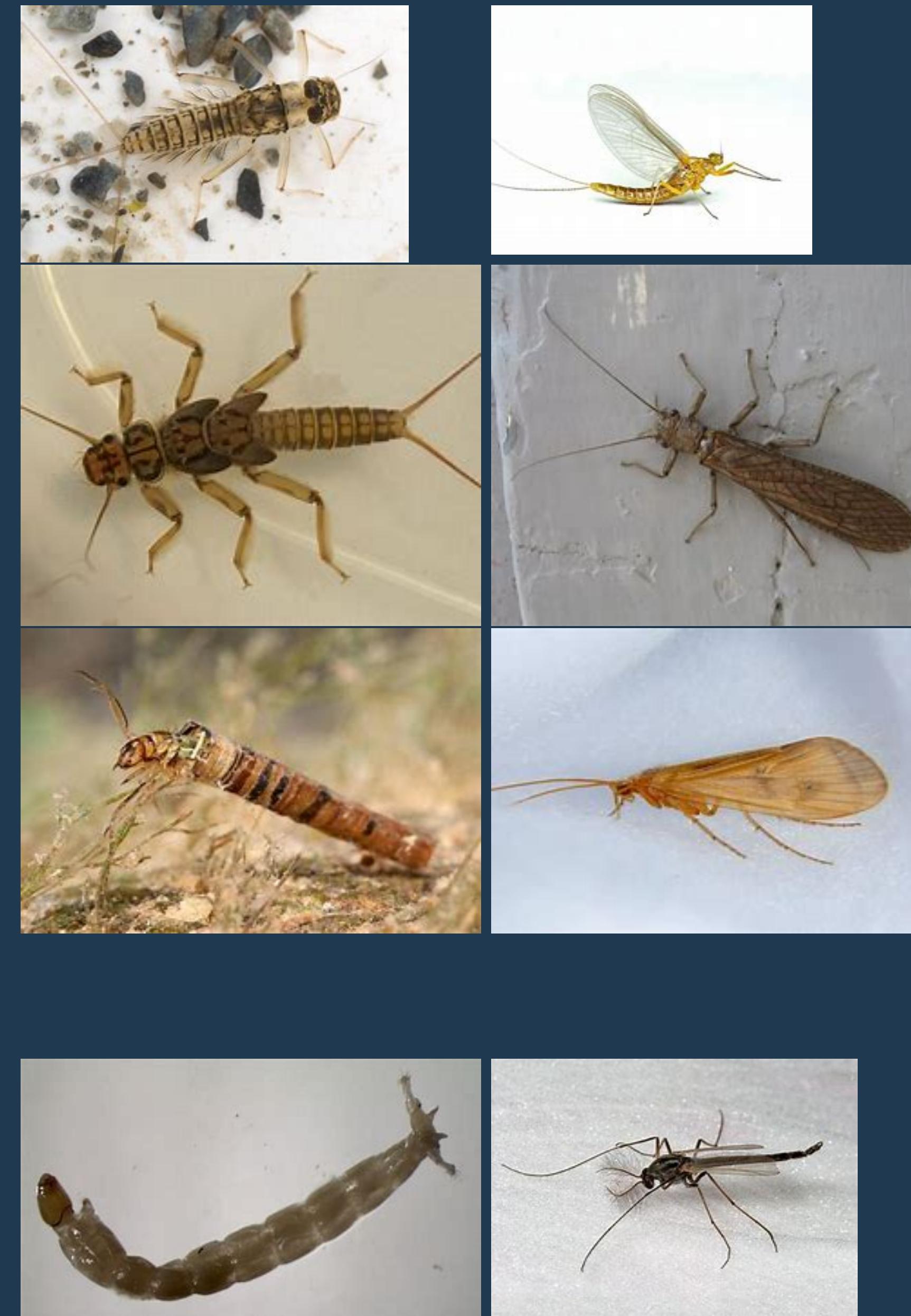


Photo credit: M. Krainer & C. Hill



# Aquatic Insects as Indicators

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



Mayflies (E)

Stoneflies (P)

Caddisflies (T)

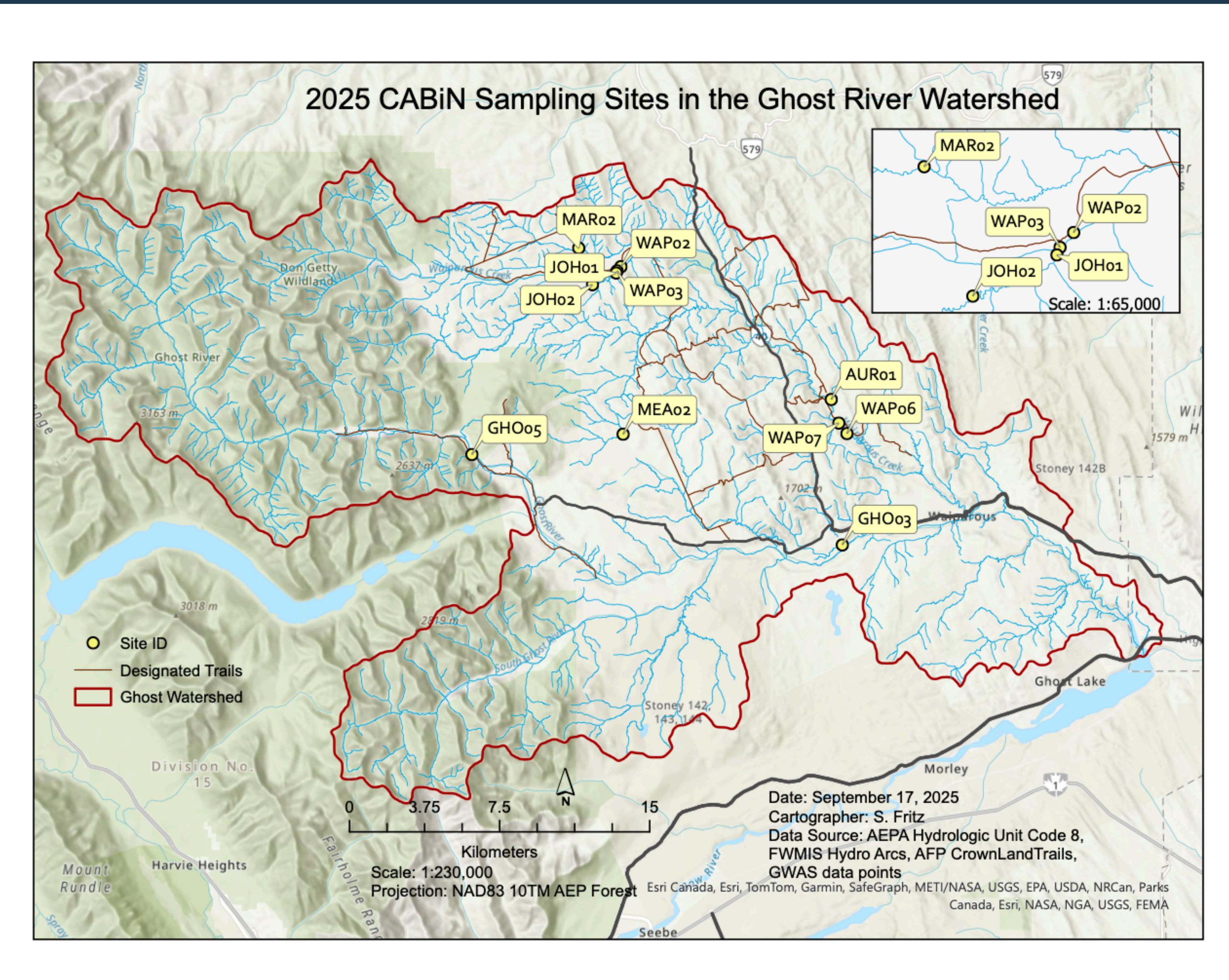
Flies and Midges (C)

Sensitive

Tolerant

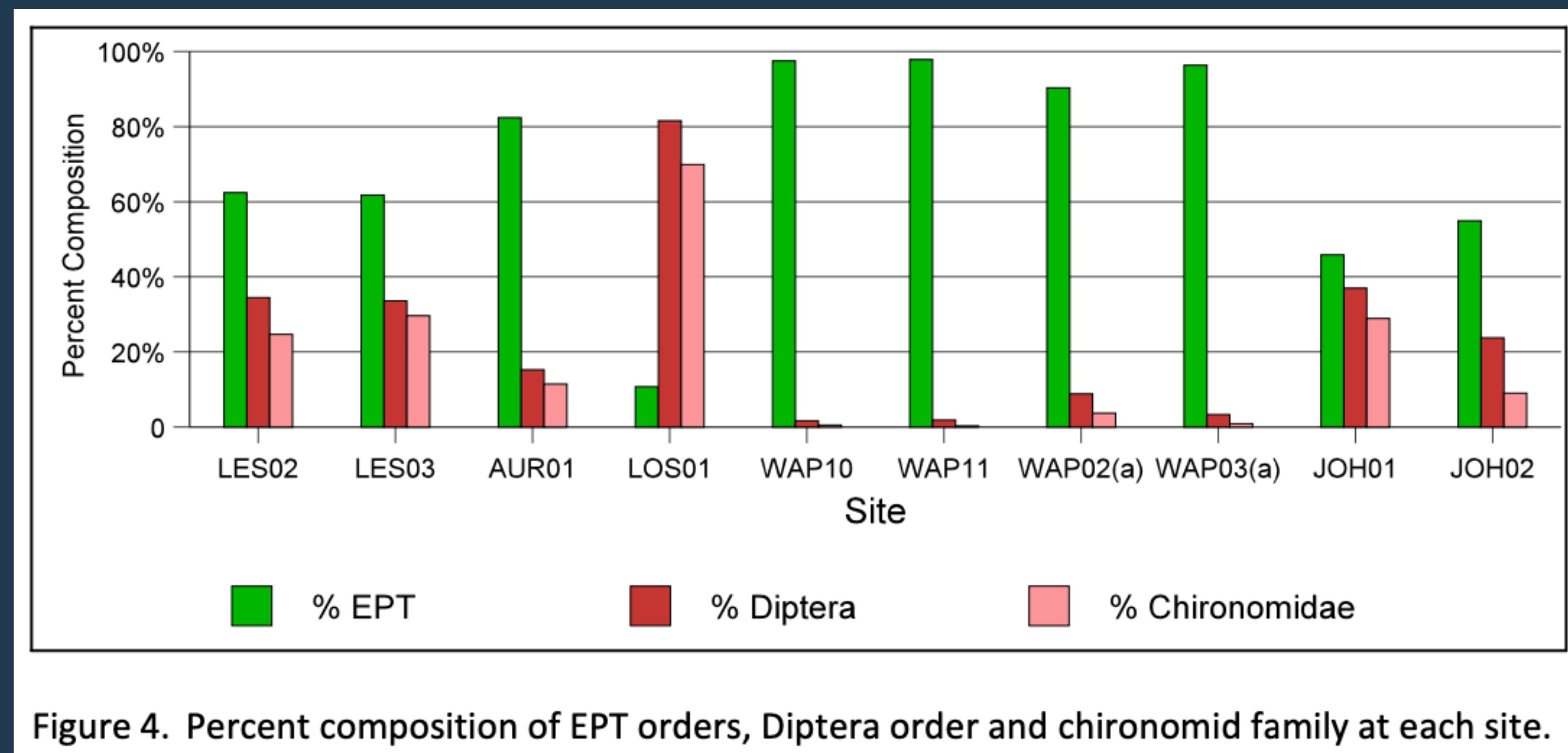
# Ghost Watershed CABiN Sampling Sites

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



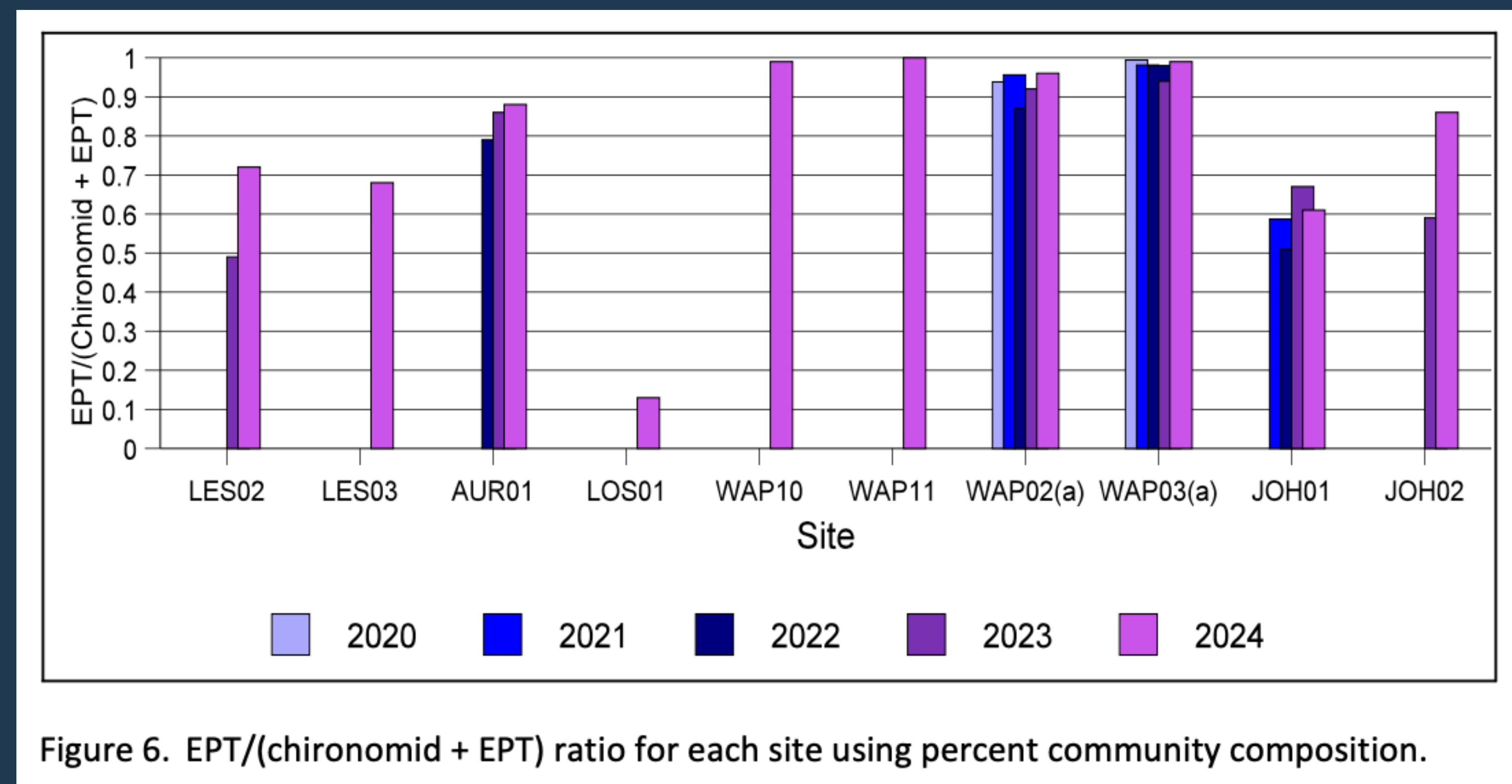
# Ghost Watershed CABiN Results Highlights

- ◆ 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.



# 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.

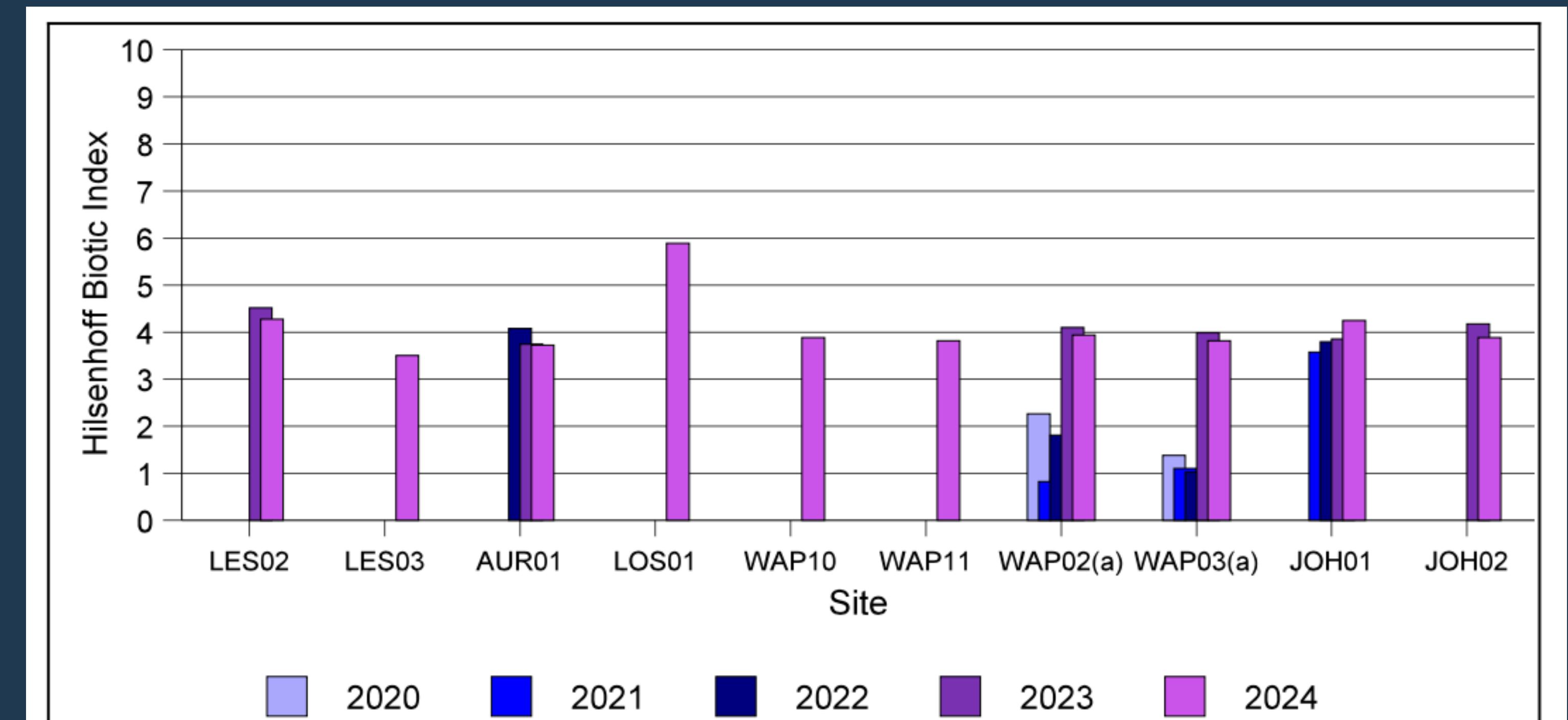
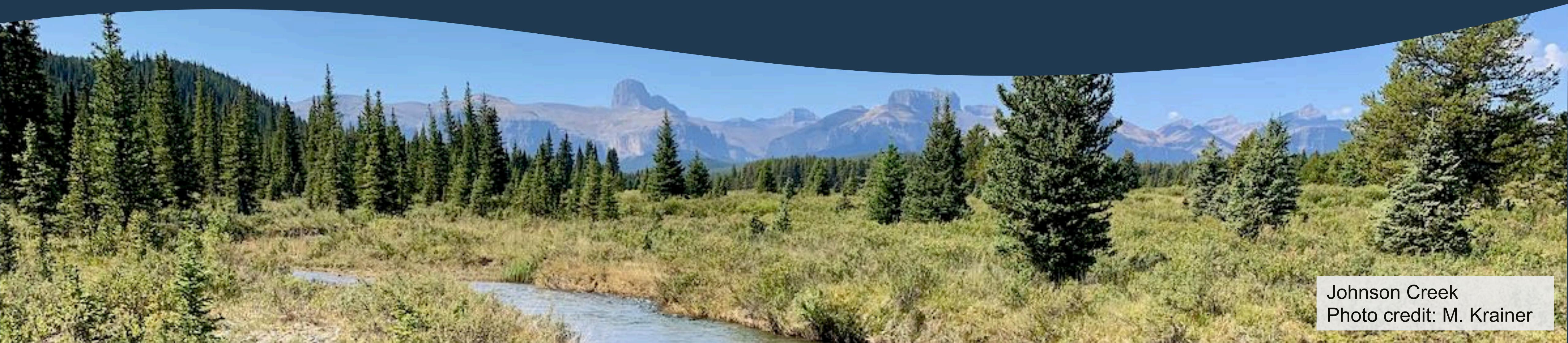


Figure 14. Hilsenhoff Biotic Index for each site.

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.

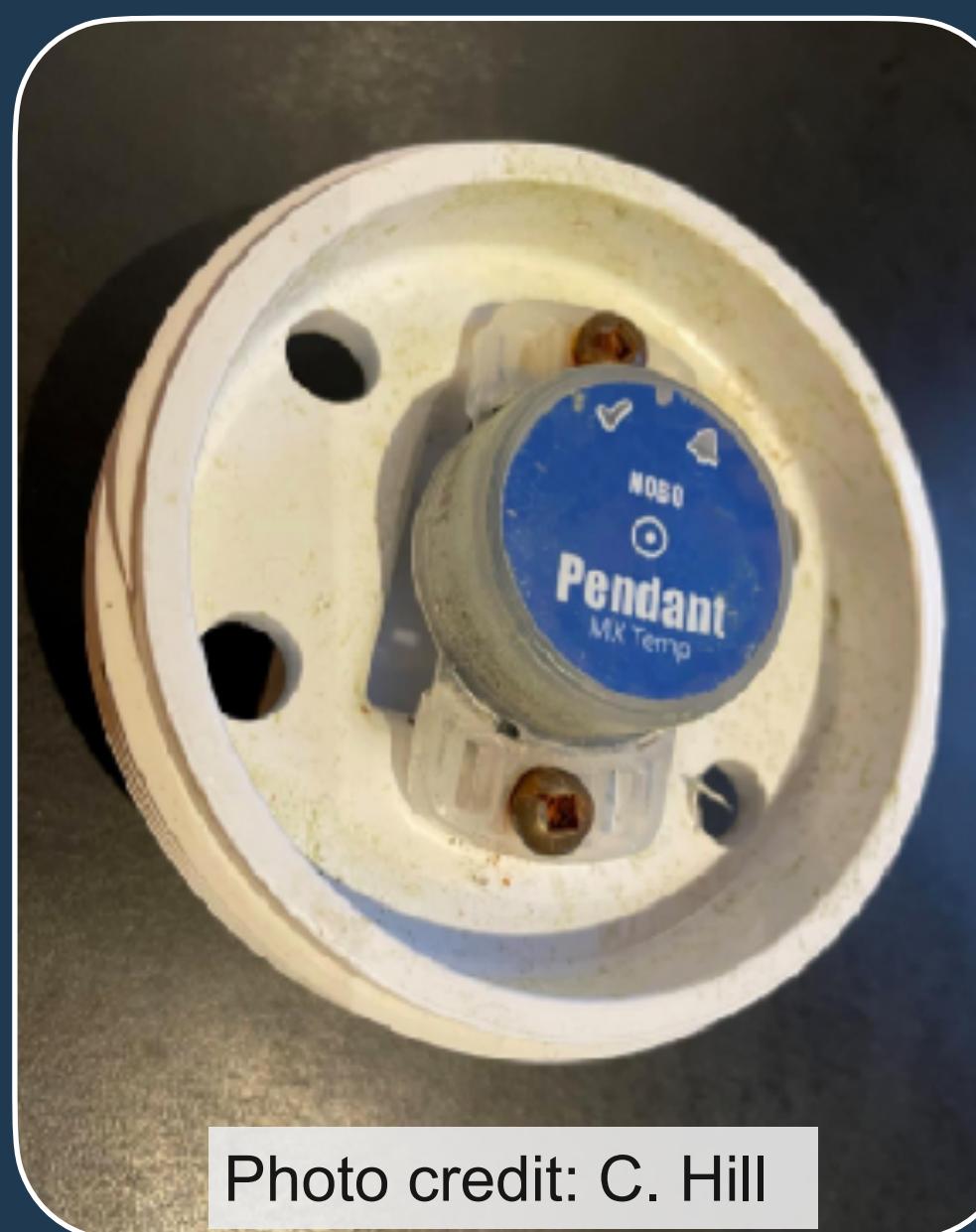


Photo credit: C. Hill



# 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



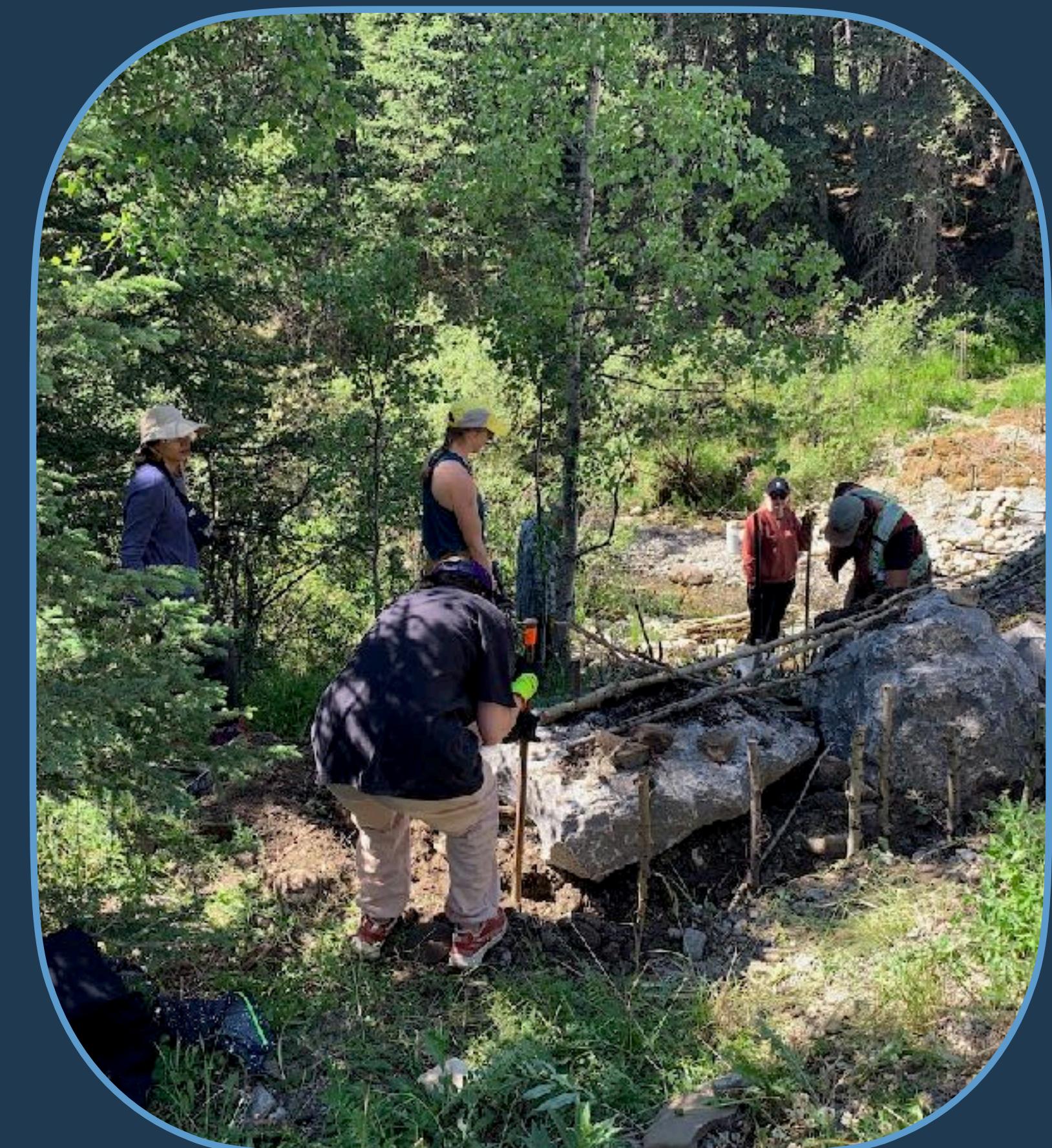
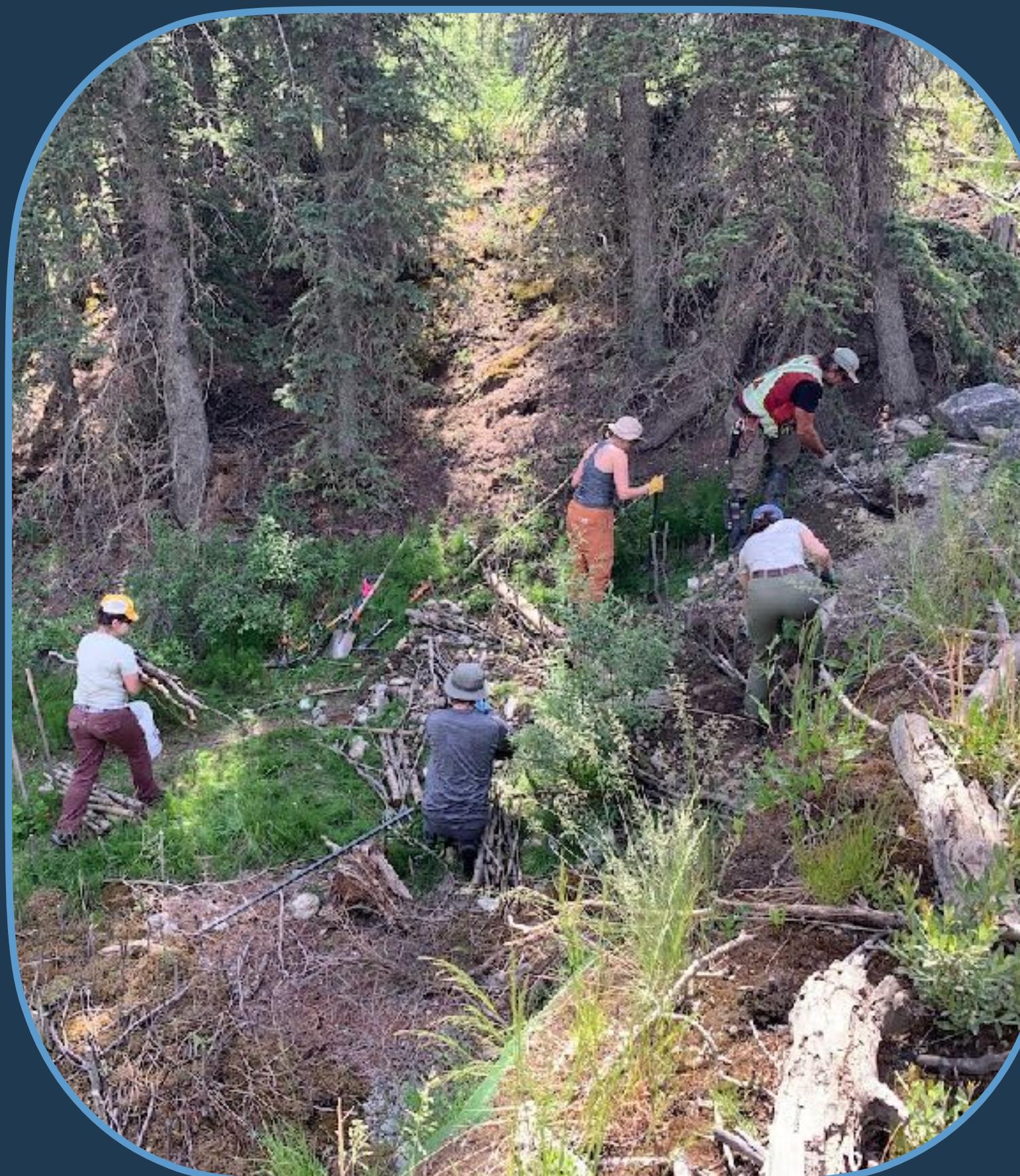
2021



2025

# 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

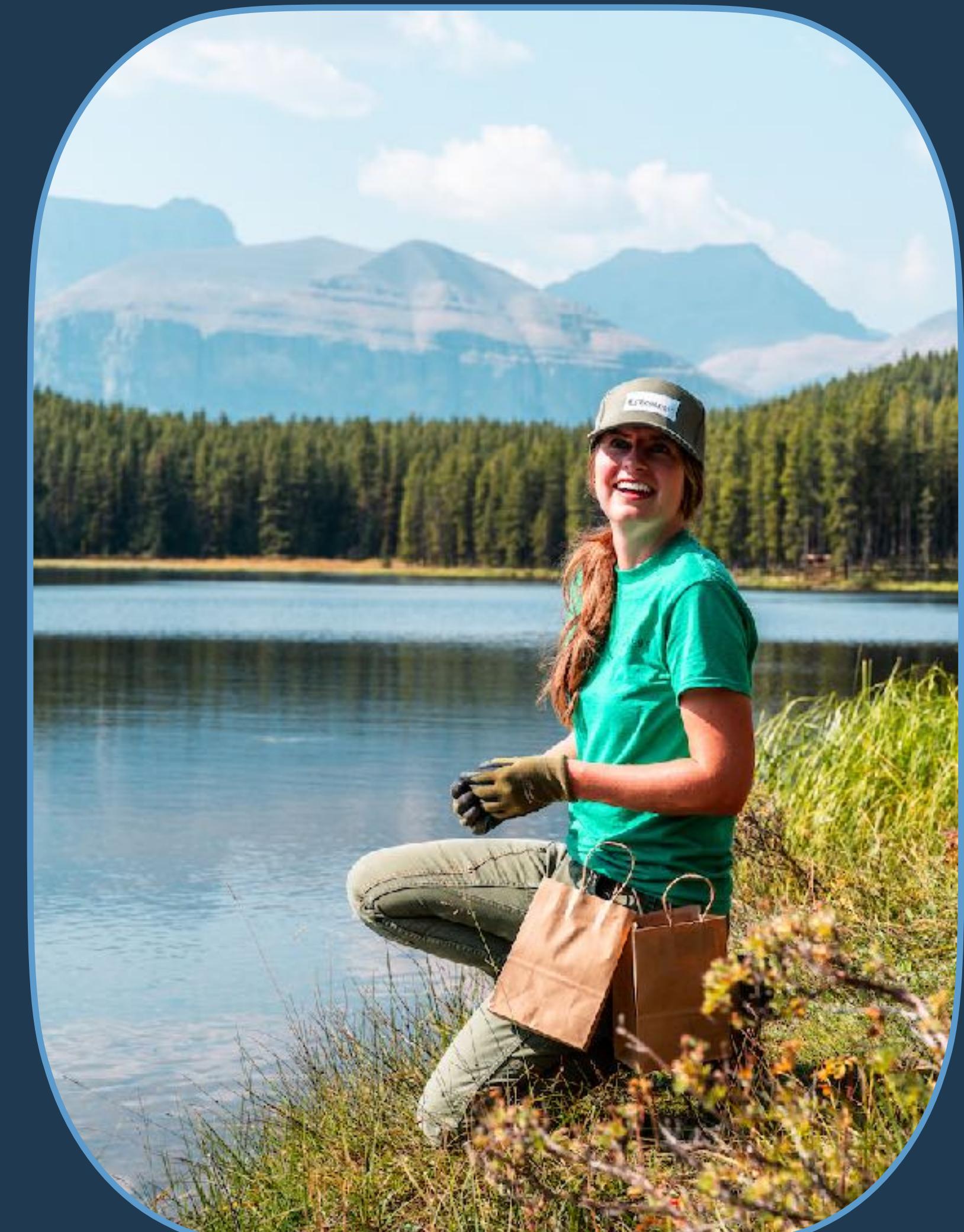
# Margaret Lake Restoration Project

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



# 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



# Margaret Lake Restoration Project

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



Before



After

# Ecosystem Repair & Enhancement - Bioengineering

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



Before



De-compaction



After

# 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



# 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



# Power of Collaboration



User experiences

Local knowledge

Sharing knowledge and perspectives

Finding common ground

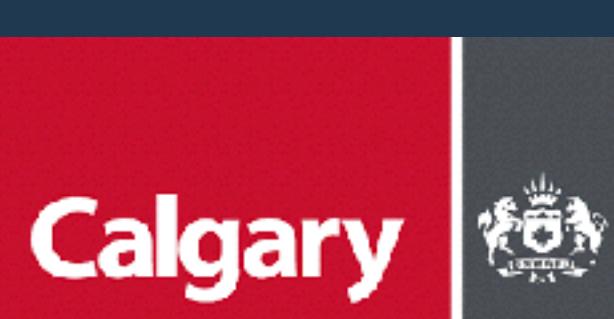
Technical expertise

Workshops

Connecting Science & Practice

Working towards shared goals

Low-tech process-based restoration





# 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



# Being a Voice for the Watershed

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



# 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!

