

Drilling for Flow

Education and Outreach in the Ghost River Watershed 2023

Sharlene Fritz

Ghost Watershed Alliance Society AGM

November 25, 2023

The Crossing at Ghost River



Part 1: Outside Time

- Bug Buddies
- CARA-Starlight
- City of Calgary- Mayor's
- St. Mary's University
- University of Calgary
- CreekWatch Citizen Science
- Walks in the Watershed

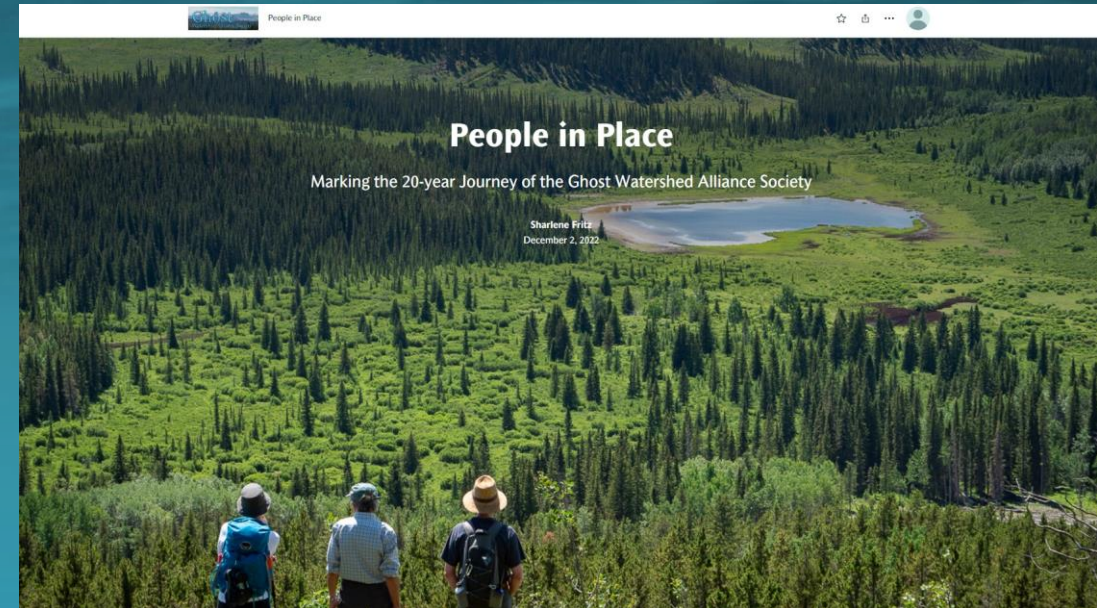
Environment Expo

- Manachaban
- WILD program
- CWF Youth



Part 2: Screen Time

- Ghost River State of the Watershed
- Wetlands Visualization Tool
- Mapping for GWAS programs and projects



The top half of the image features a close-up, slightly blurred view of teal-colored water with gentle ripples and light reflections. The bottom half is a solid, dark teal background.

Part 1

Outside Time

Bug Buddies

- 2 summer events
- community families
- aquatic inverts
- wetland critters



Bug Buddies



CARA - Starlight Event

- Ghost Airstrip PRA
- Sept. 16, 2023
- Rides4Smiles
- Aquatic inverts
- Watershed model



Presented at the City of Calgary's Mayor Environment Expo, June 5 to 8, 2023

Against the Current:

the story of westslope cutthroat trout in Alberta's headwater ecosystems



Photo source: Rocky Mountain Outlook, August 2011

Presented by Sharlene Fritz and Marina Krainer, Ghost Watershed Alliance Society

FIRE + WATER

How Wildfire Affects Calgary's Source Watersheds & Beyond

City of Calgary's Mayor's Environment Expo
June 5-8, 2023

Presented by:
Sharlene Fritz
Marina Krainer
Ghost Watershed Alliance Society



"Education is not the filling of a pail, but rather the lighting of a fire." William Butler Yeats

City of Calgary Mayor's Environment Expo

- City Hall Atrium
- June 5-8, 2023
- Volunteers
- Watershed model
- Costume
- Virtual presentations



City of Calgary Mayor's Environment Expo



Manachaban WILD Grade 8 class

- Scout Camp
- May 4, 2023
- “Meet the Neighbours”
- Volunteers
- Aquatic inverts
- Source Water



Canadian Wildlife Federation

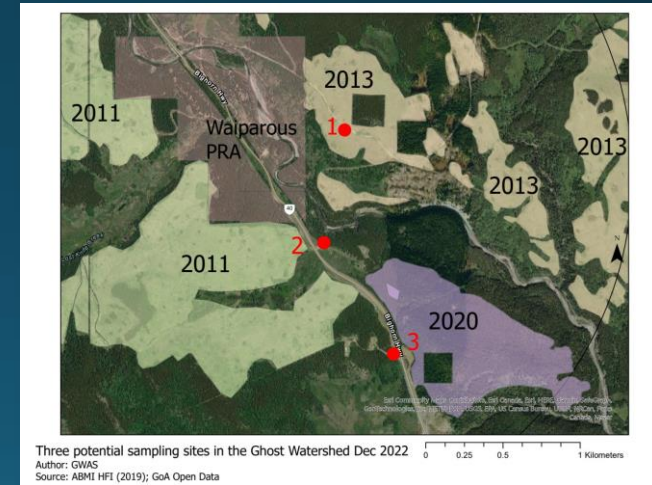
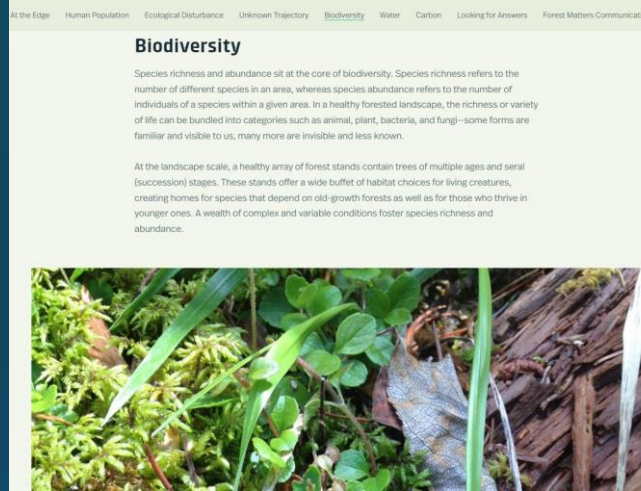
Wild Outside Youth Summer Program

- Waiparous PRA
- August 16, 2023
- Aquatic inverts
- Bioengineering tour
- Clean-up of target shooting debris

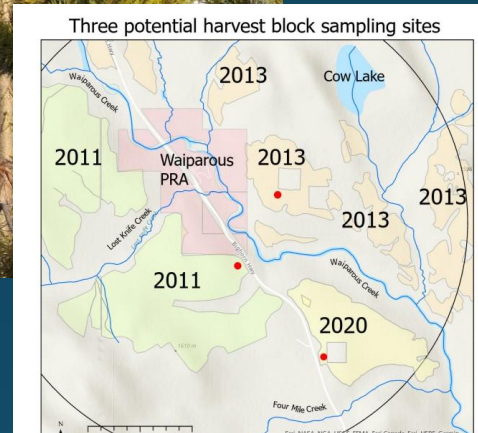


St. Mary's University Biology 451 class

- Nov 2022 to March 2023
- Collaboration with Forest Matters
- Partnership with Dr. MacLean
- Bill Beese virtual presentation
- 2 student groups conducted field work + presented at Beaupre Hall
- StoryMap on Recovery



University of Calgary Environmental Science



- Dec 2022 to April 2023
- Collaboration with Forest Matters
- Biodiversity theme
- Recovery of harvest areas
- Field work
- Presentation at U of C



CreekWatch Citizen Science

- Two sites on the Ghost River
- May to Oct
- Volunteer driven
- 28 samples



Walks in the Watershed

- Waiparous Creek Canyon
- Winter wonder



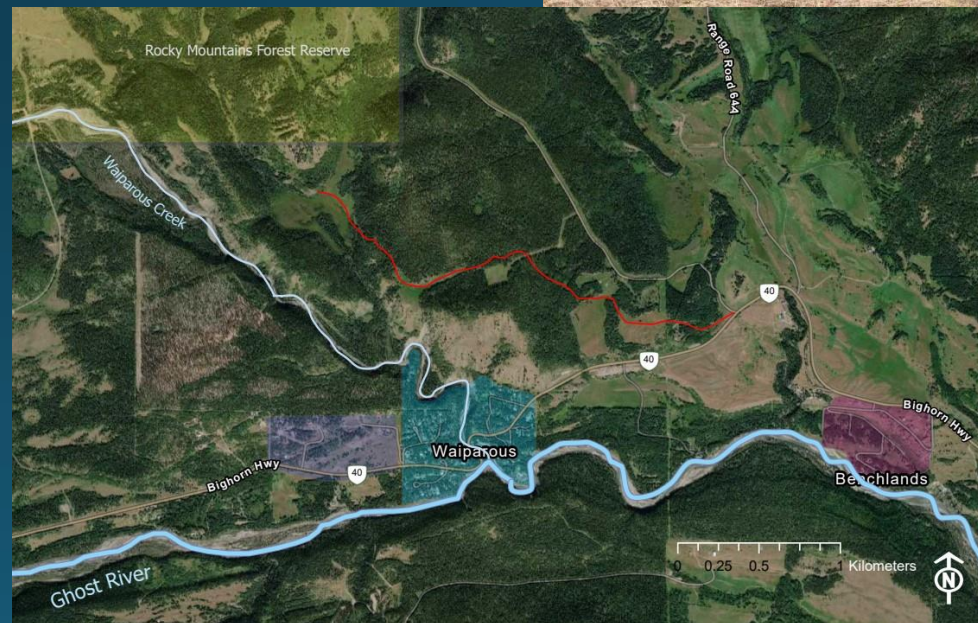
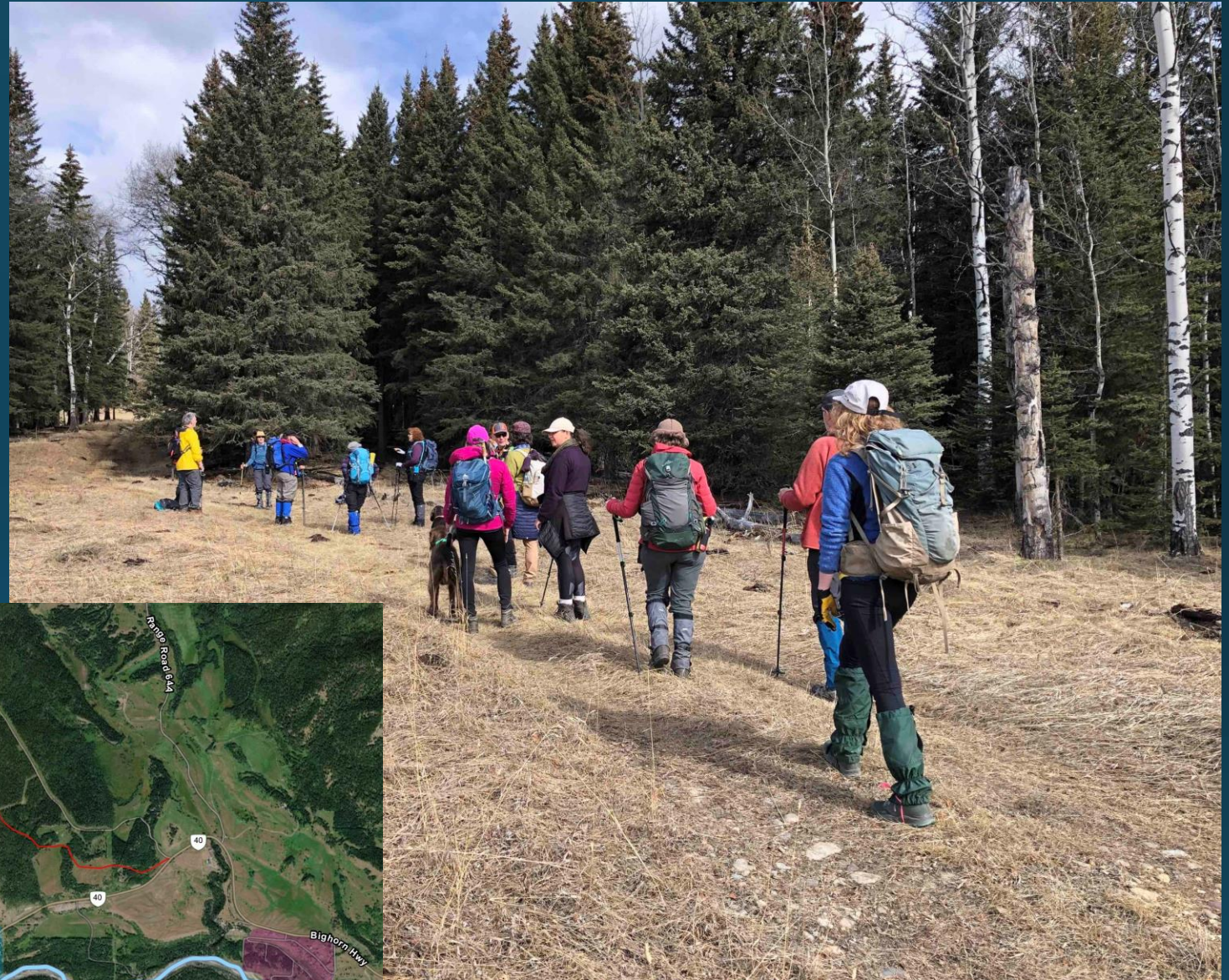
Remote Responder Certificated Course

- Classroom session
- Field day at Bragg
Creek Provincial
Park



Walks in the Watershed

- Eau Claire Tote Road
- Historic route



Walks in the Watershed

- Horse Lake
- Peter Balagus
wildlife biologist
- Bird survey



Walks in the Watershed


- Butters Ranch
- A very huge thank you to the Butters family for the generous lunch!
- Plant specialist Karel Bergman



Walks in the Watershed

- Hoodoo Hall
- Springs of the Ghost



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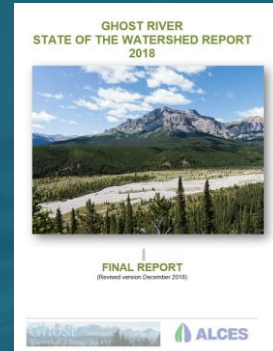
Part 2

Screen Time

State?

“...the particular condition...at a specific time...”
Oxford Dictionary

Terms of Reference established
Using *Handbook for State of
Watershed Reporting* (GoA 2008)

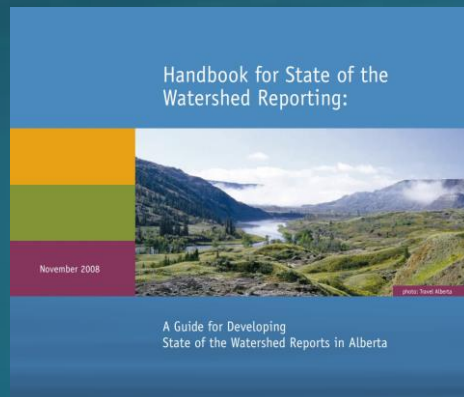


Release of online
*Ghost River State of the Watershed
Report* through BRBC

2015

2018

2023



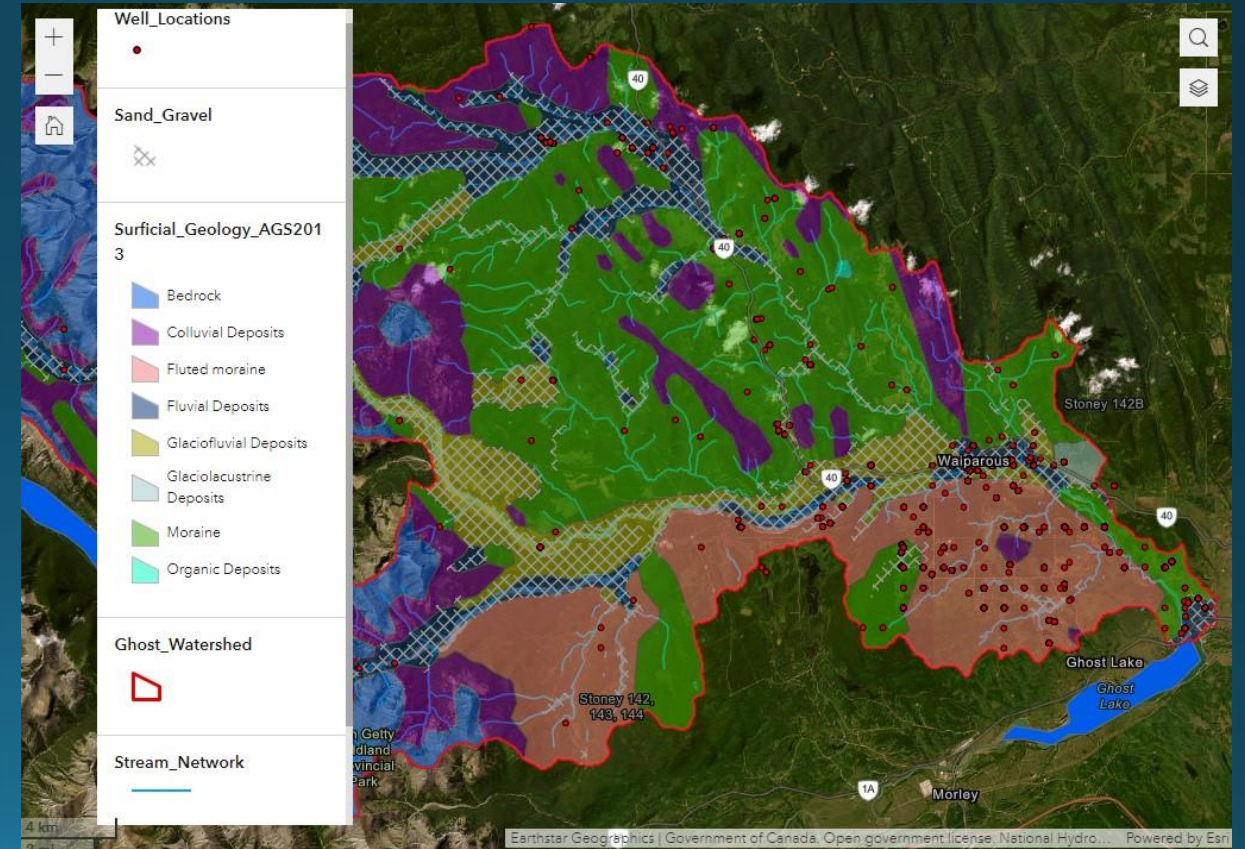
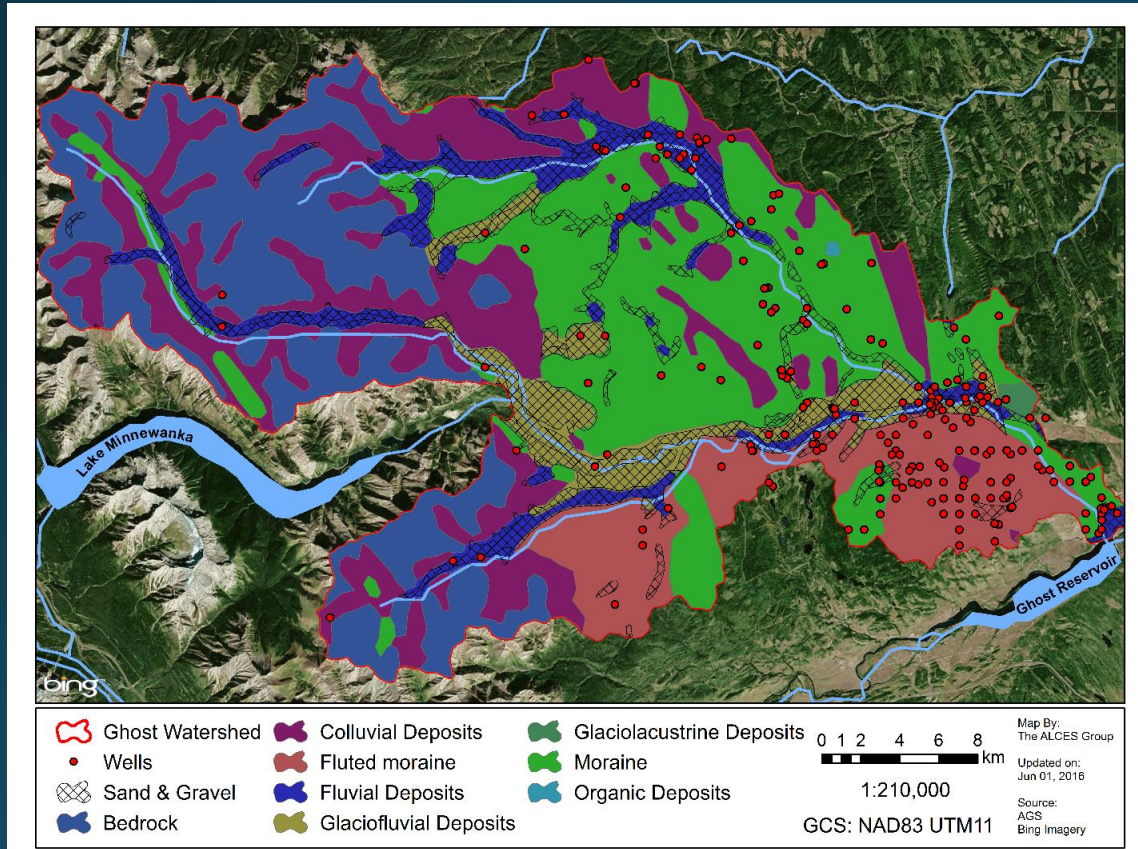
*Ghost River State of the Watershed
Report* published as a hard copy
document and a .pdf file on
www.ghostwatershed.ca



Interactive Content

2018 original map of (1) sand and gravel
(2) surficial geology and (3) wells

2023 interactive map – same datasets,
different base map, more functionality

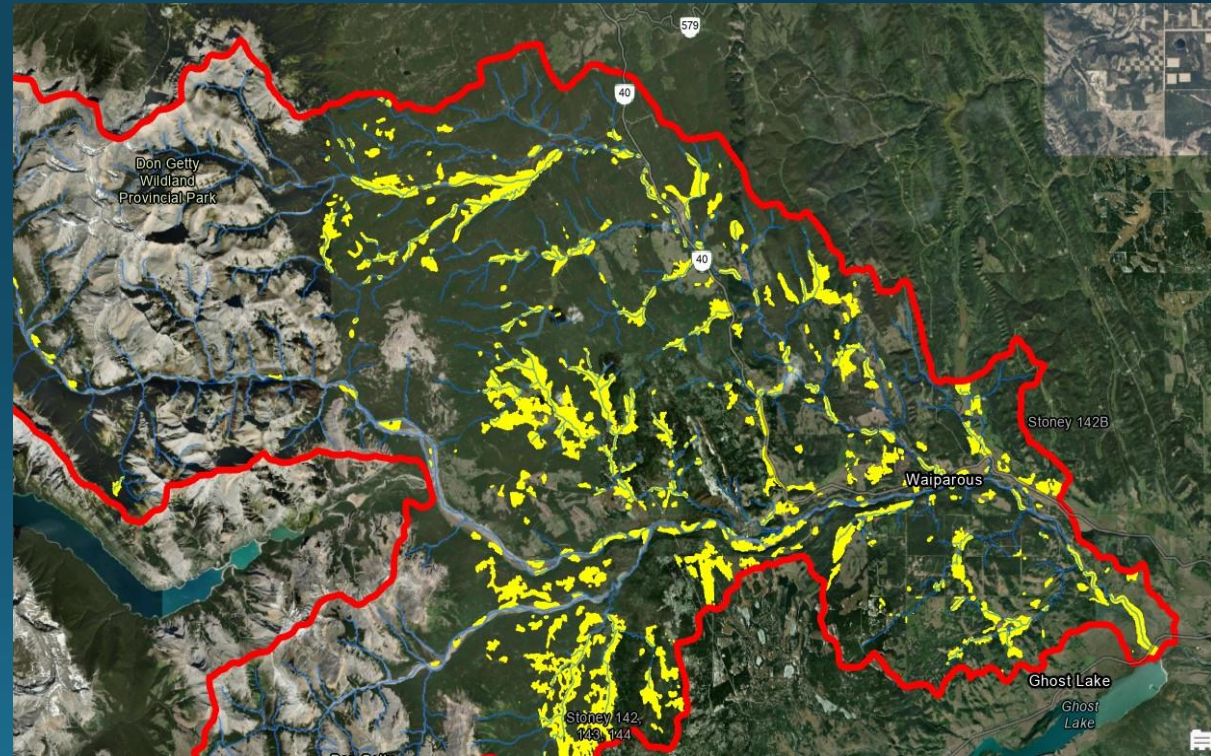


Updated Content

ABMI Land Cover classes (2010)



ABMI Wetland Inventory (2021)



New Content



Wildfire and Source Water Protection

New wildfire perimeters map

Ghost River State of the Watershed Report

Biodiversity and Wildlife Resources [Land Use and Development](#) Existing Plans, Programs and Watershed Steward

Wildfire and Source Water Protection

The Ghost Watershed is considered part of the Bow River source watershed for the City of Calgary. As one of two key risks identified in the City of Calgary's Source Water Protection Plan (City of Calgary 2018), wildfire in source watersheds can contribute nutrients, metals, organic carbons, polycyclic aromatic hydrocarbons (PAHs) and other contaminants to source water through surface run-off and mobilization of materials during precipitation events. In high enough concentrations these substances can pose challenges for drinking water treatment facilities. Wildfires in the Ghost Watershed have occurred both as part of the natural fire disturbance regime and on account of human ignition as discussed in the *Socio-Economic History and Condition* section. Over the last century, effective fire detection, prevention and suppression have further altered the landscape. Fire perimeters from 1931 to 2020 are shown in Figure 10-3.

On September 4, 2020, an abandoned campfire in Don Getty Wildland Provincial Park near the North Ghost River became the point of origin for the Devil's Head wildfire (CWF-156) as confirmed by subsequent investigations. Approximately 2100 hectares burned in forested areas of the Upper Ghost River sub-basin (1600 ha) and Waiparous Creek sub-basin (500 ha). See Figure 10-3 for the fire perimeter. Along with provincial fire-fighting efforts, precipitation and cooler temperatures in mid-October helped to extinguish the blaze (Camm and Wagner 2022). Residents east of the burn site were on evacuation alert for several days and livestock were evacuated in anticipation of worsening conditions.

The initial monitoring response for CWF-156 in 2020 by the City of Calgary included increasing the frequency and parameters of water quality monitoring at Benchlands during the early period of the active wildfire. In addition, the City of Calgary partnered with Alberta Agriculture, Forestry and Rural Economic Development (AAFRED) and Alberta Wildfire (AW) to collect ash from the active burn area. At the end of October once the fire had been extinguished, these agencies worked together to monitor water quality and take soil and fire retardant samples. CABIN sampling was undertaken by fRI Research with logistical support from AAFRED and technical advice from GWAS. These sampling data were shared with GWAS.

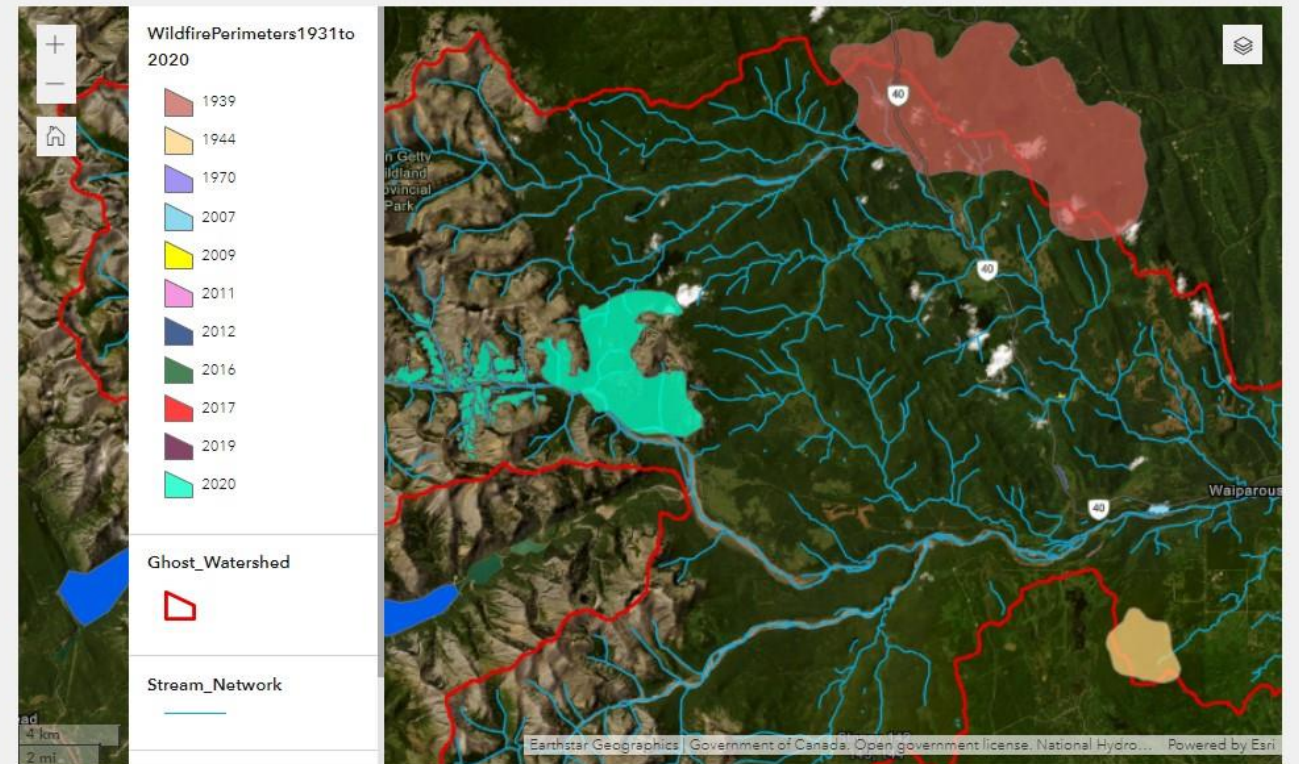


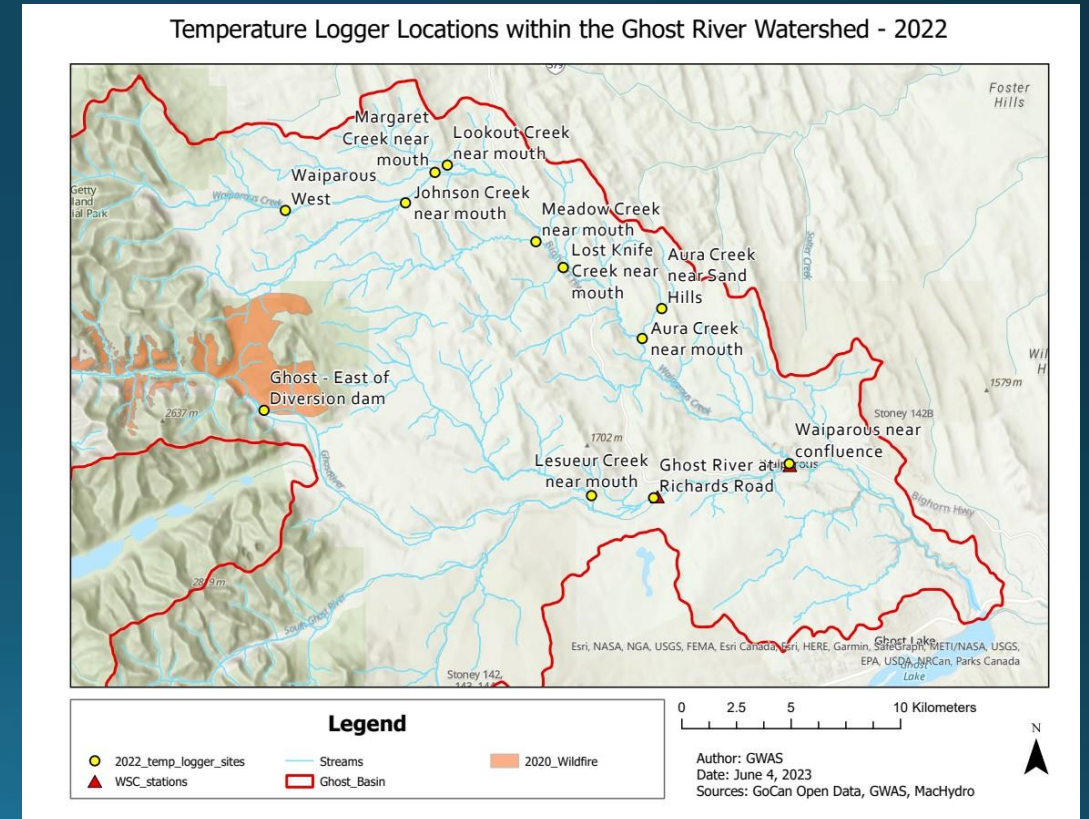
Figure 10-3. Wildfire perimeters in the Ghost Watershed from 1931 to 2020. Dataset provided by MacDonald Hydrology Consultants Ltd. (2022).

Spin-offs

GIS capacity through BRBC ESRI ArcGIS license

Access to apps for building education & outreach tools plus communicating

Spatial data for decision making



Visionary Funders



**Bow River
Basin Council**



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Thank you!

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