

Ghost Watershed Alliance Society

Operations Plan

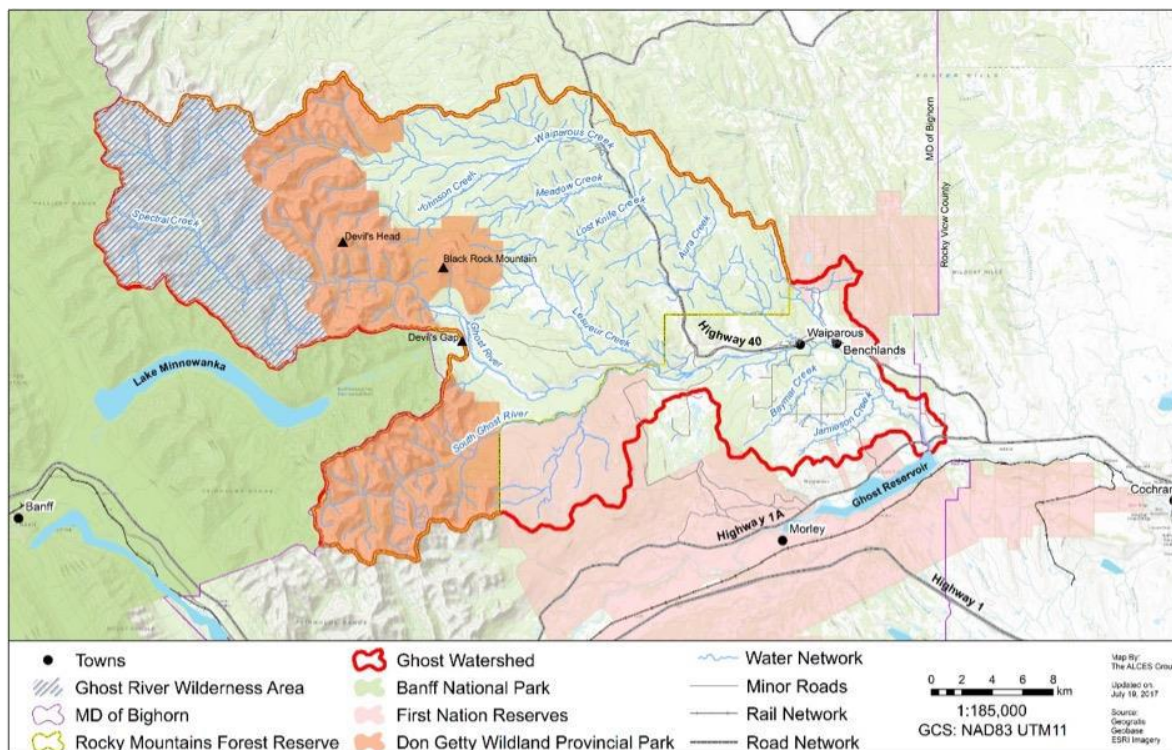
January 1, 2021 – December 31, 2023



1. About the Ghost Watershed¹



The Ghost Watershed, located app. 60 km west of Calgary, Alberta, covers almost 1,000 km². The Ghost River is a tributary to the Bow River, providing an average of 7% of the flow of the Bow upstream of Calgary. Most of the watershed is on public land within the Rocky Mountains Forest Reserve and the MD of Bighorn. Situated along the Eastern Slopes of the Rocky Mountains, the Ghost River and its tributaries flow through a diverse landscape, eventually discharging into the north arm of the Ghost Reservoir where it flows into the Bow River at the site of the Ghost dam. The gradual eastward decrease in elevation and slope defines this watershed, corresponding with changes in geology, soils, climate, vegetation and human use, all of which change along this west to east gradient. These gradual changes determine the numerous natural subregions represented within the Ghost Watershed, including Alpine, Subalpine, Montane, Upper and Lower Foothills, and Foothills Parkland, which provide a complexity that supports biodiversity. Generally, the biota in the watershed is rich and diverse, with a variety of wildlife, fish and plant populations.



¹ Excerpt from the 2018 Ghost State of the Watershed Report. The complete report can be viewed on the GWAS website.

The Ghost Watershed is one of the most scenic landscapes in Alberta, and people have lived here for thousands of years. More than 100 years ago, the Canadian government recognized the importance of the Eastern Slopes watersheds as the source of water for the prairie region. In 1910, they established the Rocky Mountains Forest Reserve for the maintenance of timber and a continuous water supply. Today, the watershed is sparsely inhabited with only three higher density developments. Although there are few full-time residents, many visitors enjoy camping, hiking, rock and ice climbing, hunting, fishing, horseback riding, wildlife watching and off-highway vehicle (OHV) use. Large portions of the upper reaches of the Ghost Watershed are protected from development and OHV use, including the Ghost River Wilderness Area and Don Getty Wildland Provincial Park. However, outside of these protected areas, the land use history of the watershed, as well as the Ghost Arm of the Ghost Reservoir, has been one of increasing access and human impact, particularly by motorized recreational users.

2. About the Ghost Watershed Alliance Society (GWAS)

The GWAS is a watershed stewardship group (WSG)². It is largely a volunteer run, non-profit organization that was established under the Alberta Societies Act in 2002. Under the Water for Life strategy, WSGs are tasked to promote best management practices, collaborate with land-use managers, and undertake on-the-ground actions to protect the watershed.

GWAS operates using a 'working / management board' governance model. It is currently comprised of 1 executive director (a part-time contract position), 8 board volunteers (nominated from GWAS membership), and over 110 members. It relies on funding from grants and donations to deliver its programs.

Ad hoc committees are struck when required for specific projects that are complex in nature.

GWAS is committed to ensuring that these critical headwaters provide future generations with clean water to drink and a wild place with scenic landscapes and abundant wildlife.

Vision

The Ghost Watershed is a biologically rich, headwaters ecosystem in Alberta's Eastern Slopes that supplies abundant clean water, together with a variety of ecosystem goods and services, maintained through stewardship and holistic management.

² Please see Appendix A for a summary of what watershed stewardship groups do

Mission

As established under the Alberta Government's Water for Life Strategy, GWAS is a partner working toward the Strategy's three main goals: "safe, secure drinking water; healthy aquatic ecosystems; and reliable, quality water supplies for a sustainable economy."

To achieve these goals, GWAS has a **mission** to protect the integrity of the Ghost Watershed through;

- *Identifying ecosystem and environmental conditions and issues,*
- *Raising public awareness,*
- *Providing advice to decision makers, and*
- *Taking action to resolve issues.*

Strategic Objectives

1. *Science, research, monitoring, & knowledge* – To enhance our understanding of the watershed through science so it can be effectively, holistically managed.
2. *Outreach and awareness* – To create information and provide opportunities to understand, learn from, spend time in, and enjoy the watershed.
3. *Advice and recommendations* - To provide advice to decision makers and land managers to assist with the effective management of the watershed.
4. *Ecosystem repair and enhancement* - To initiate and support programs, events, and activities aimed at restoring riparian areas, repairing damage, and generally enhancing the landscape within the watershed.³

³ Foundational to successfully achieving the mission, vision, and strategic objectives is collaboration and healthy relationship with partner organizations.

3. GWAS Operations Plan

Ongoing / in-progress initiatives

Each year GWAS undertakes a number of initiatives that are part of its core program. Many of these are activities or projects that take place in the field and rely on volunteer assistance to make them happen. The initiatives are listed in Table 1 below.

Table 1

Strategic Objectives	Initiative
<i>Science, research, monitoring, & knowledge</i>	<i>No ongoing programs. For projects see Table 2</i>
<i>Outreach, awareness, and Education</i>	<ul style="list-style-type: none">● Walks in the Watershed● Education programs with schools● Outreach / collaboration - meetings and forums with stakeholders and government(s) – deliver presentations on GWAS projects
<i>Advice and recommendations</i>	<i>No ongoing programs currently</i>
<i>Ecosystem repair and enhancement</i>	<ul style="list-style-type: none">● One bio-engineering project per year<ul style="list-style-type: none">○ Include follow-up monitoring, using photos, to document progress over time.○ Considering a second site in 2021 to look at riverscape restoration or erosion control.● One annual site clean-up

Priorities / Projects

GWAS has set out several priorities that link to achieving its strategic objectives and ultimately to its vision. The Strategic Objectives will be reviewed annually but are anticipated to be enduring while priorities may change on an annual basis as new opportunities or risks to the Strategic Objectives arise. With limited capacity to take on initiatives effort on the priorities will vary as time and resources become available. Linkage of priorities to Strategic Objectives is noted in Table 2.

Project charters will be developed for the more substantive projects that require specific expertise and funding. Projects can only be implemented when sufficient resources are available.

Note: Projects / actions are not in order of priority.

Table 2

Strategic Objectives	Priorities	Projects / Actions to advance priorities	Priority & Year
<i>Science, research, monitoring, & knowledge</i>	Ensure adequate ongoing monitoring of water quantity and quality and that data is accessible.	1. Landscape Monitoring – Continue implementing Water monitoring Program (WMP) year two. Sample up to 10 sites with focus on the Ghost River.	H 2021 is year 2
		2. Phase 1: Determine state of linear feature mapping and identify gaps. Initiate through meeting with AEP and AAF staff. Phase 2: Develop a feasibility plan to work stakeholders to map linear features not already identified (e.g. single-track and new undesignated trails). Phase 3: Work with stakeholders to identify sources of stream sediment and opportunities to remediate.	H Start 2021
	Have available a complete inventory of wetlands and their current condition.	3. Determine what the state of wetland identification and mapping is in the Ghost Watershed. If required, work with stakeholders to complete wetland mapping.	M Start 2022
<i>Outreach, awareness, and Education</i>	Improve awareness of the state of the watershed, challenges it faces, and opportunities for improvement.	4. Implement year 2 of education and awareness program in schools and other academic institutions. Work will be done through a service contract. Given COVID 19, much outreach will be done by providing online services.	H 2021 is year 2
		5. Work with Bow River Basin Council to set up a session of WSGs to explore common issues and plans.	M Start 2022
		6. Investigate the feasibility of developing an information portal using Geographic Information System (GIS) layers and partnership approach.	H Start 2021
		7. Support St. Mary’s University students in senior level biology project over winter of 2021.	L 2021
<i>Advice and recommendations</i>	Develop a practical approach for implementing State of the Watershed (SOW) report recommendations.	8. Participate in GOA led landscape management planning project and other government initiatives (e.g. Source Water Protection Plan Implementation).	H TBD
		9. Work with partners (BRBC, OWC, ERWP, etc.) and GOA to look for potential solutions to Recreation Issues (random camping and shooting). This will only proceed if partners and GOA willing.	H TBD
<i>Ecosystem repair and enhancement</i>	Undertake field level projects to improve water quality.	<i>Bioengineering and site cleanups are part of ongoing initiatives. See Table 1. Above.</i>	

Table 3 – Parked Items for Future Consideration

Item	<i>Parking lot Priorities (for future consideration)</i>
1	Understand risk of wildfire, current activities to reduce risk, and what further work needs to be done.
2	Investigate opportunities where members could volunteer to assist with Alberta Biodiversity Institute (ABMI) work in the watershed (e.g. riparian health assessments and wildlife surveys).
3	Understand and raise awareness of impact of upstream sedimentation on loss of capacity in downstream portion of system.
4	Update existing studies.
5	Inventory of high value sites in the watershed that should be protected.
6	Obtain data from fish surveys in the Waiparous and Ghost to monitor trends and river health.
7	Determine if GWAS has a position on the Ghost diversion, what it should do, and when.
8	Citizen science project to monitor biotic recovery in logged cutblock versus reference unlogged forest (could be a Walk in the Watershed project)

How can you help?

GWAS is a volunteer run organization that needs people passionate about the Ghost Watershed and its ongoing health. A variety of skill sets, knowledge, and experience is critical to understanding the watershed, the challenges it faces, and developing solutions in a collaborative manner that respects the rights of a diverse set of users. If you have time to share, consider becoming a member, a volunteer or a board member. The only requirements are enthusiasm, a passion for the Ghost Watershed, and a little bit of time.

To find out more about GWAS and the Ghost Watershed, please visit <https://www.ghostwatershed.ca/>

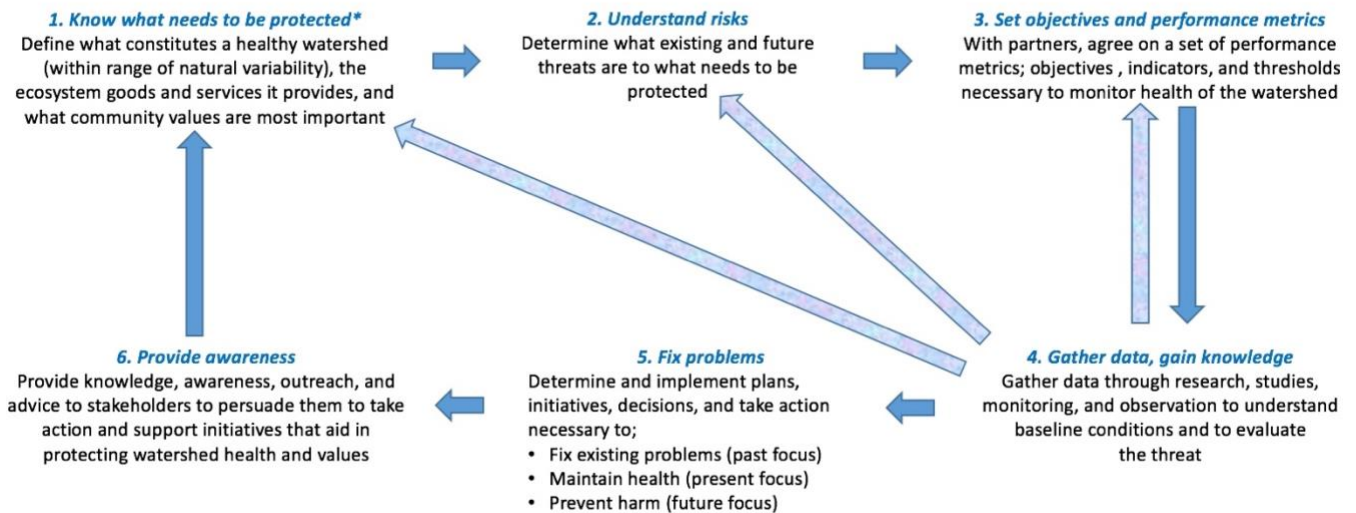
You can contact GWAS by emailing office@ghostwatershed.ca.

Appendix A – Watershed Stewardship Groups



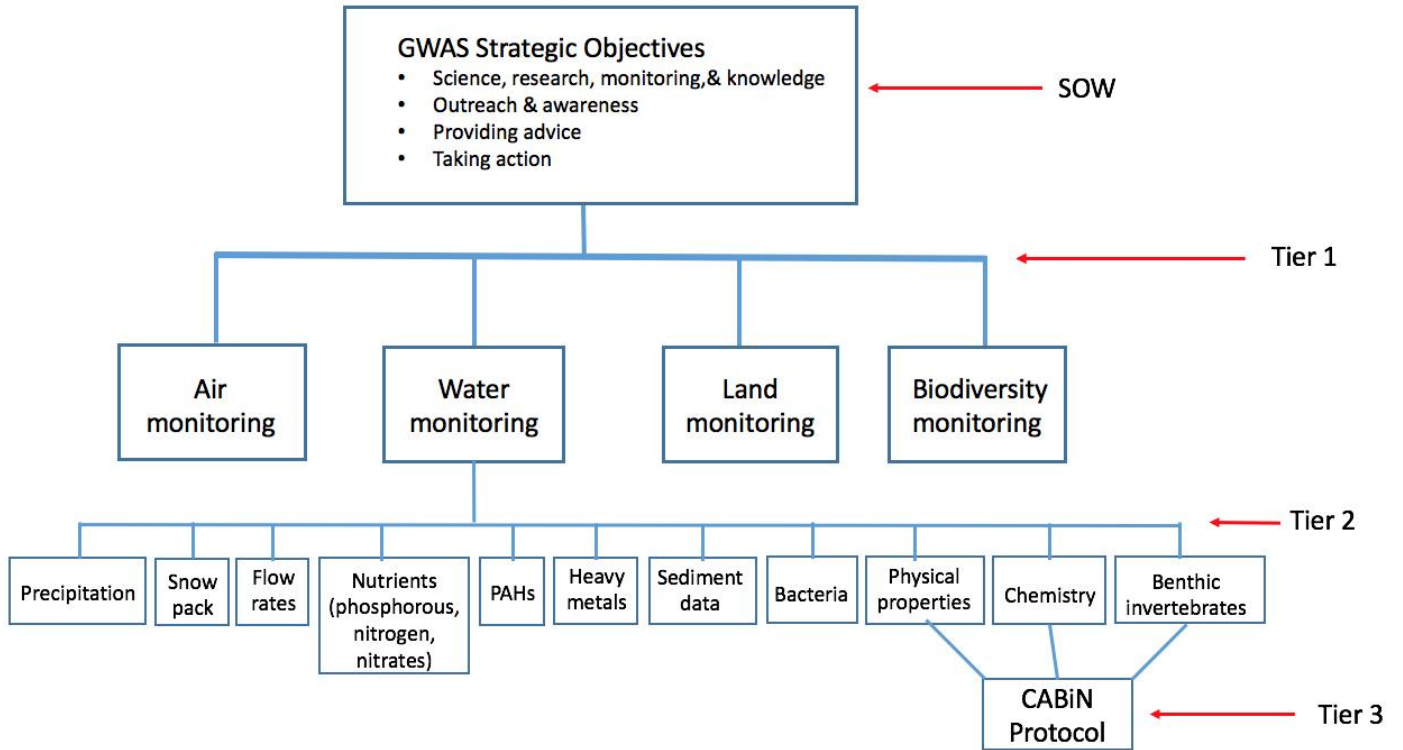
What Watershed Stewardship Groups do

Provide on-the-ground solutions and community level actions to protect the environmental health of the watershed and the ecosystem goods and services it provides



* Foundational to delivering the 6 steps shown is collaboration and healthy relationship with partner organizations

Appendix B – Components of a Proposed Landscape Monitoring Framework



Appendix C – 2020 Project Accomplishments

Legend

	Completed as planned
	Some progress made or limited by circumstances beyond GWAS control
	Not scheduled to proceed until 2021 or after
	Project suspended
	Unplanned project

2020 Plan				
Strategic Objectives	Priorities	Projects / Actions to advance priorities	Priority & Year	Status as of Dec 1, 2020
<i>Science, research, monitoring, and knowledge</i>	Ensure adequate ongoing monitoring of water quantity and quality and that data is accessible.	1. Landscape Monitoring – Develop a 3 tier (see Appendix B) landscape monitoring framework for the Ghost Watershed (GW). Tier 1 & 2 identify components of a well-designed landscape monitoring framework. Tier 3 is the design and implementation of a 3-year CABiN program.	H Start 2020	Completed first year of water monitoring program with 10 sites sampled, 8 on the Waiparous Creek and 2 on the Ghost River.
		2. Collaboration with of the University of Calgary Environmental Science Program to assist students with projects in the watershed.	H Start 2019	Successful project completed
		3. Phase 1: Determine state of linear feature mapping and identify gaps. Phase 2: Develop a feasibility plan to work stakeholders to map linear features not already identified (e.g. single-track and new undesignated trails). Phase 3: Work with stakeholders to identify sources of stream sediment and opportunities to remediate.	M Start 2021	Phase 1 to proceed if resources available
		4. Submit letter to the Municipal District of Bighorn and Alberta Environment Parts highlighting the results of E.coli in the Ghost River and Waiparous Creek.	H 2019	Done
	Have available a complete inventory of wetlands and their current condition.	5. Determine what the state of wetland identification and mapping is in the Ghost Watershed. If required, work with stakeholders to complete wetland mapping.	M Start 2022	Not started, slated for 2022

<i>Outreach, Awareness, and Education</i>	Improve awareness of the state of the watershed, challenges it faces, and opportunities for improvement.	1. Pilot a new education and awareness program in schools and other academic institutions. Work will be done through a service contract.	H Start 2019	Successful year despite COVID. Much work done online.
		2. Work with Bow River Basin Council to set up a session of WSGs to explore common issues and plans.	M Start 2020	Only initial discussions, will pursue through various initiatives.
		3. Investigate the feasibility of developing a GW information portal using Geographic Information System (GIS) layers and partnership approach.	H Start 2021	Will meet to discuss feasibility and logistics of advancing this initiative. Issue will be capacity and funding.
<i>Advice and recommendations</i>	Develop a practical approach for implementing State of the Watershed (SOW) report recommendations.	1. Continue with SOW dissemination workshops by hosting GOA and Public workshops. Continue meeting with academic institutions.	H Start 2019	Sessions suspended due to COVID. Will now address through collaboration with partners on key SOW recommendations.
		2. Participate in GOA led landscape management planning project and other government initiatives (e.g. Source Water Protection Plan Implementation)	H TBD	Supported Calgary on Source Water Protection Plan and related policy development with letter of support and briefing at City Council. East Kananaskis – Ghost River Landscape Management plan not started by GOA
		3. Unplanned project – Completed survey of random camping and shooting sites because of the much higher volume of users this year. Results submitted in a document to the Ministers of AEP and AAF. Also, tour with MLA Miranda Rosin on November 12, 2020 to show her these sites.		Report submitted to GOA. Response was an offer for follow-up with staff.
<i>Ecosystem repair and enhancement</i>	Undertake field level projects to improve water quality.	1. Initiate, with partners, a demonstration project to vegetate a flood retention berm.	H Start 2020	Investigated feasibility with TransAlta, but no uptake at this time. Project suspended for now.