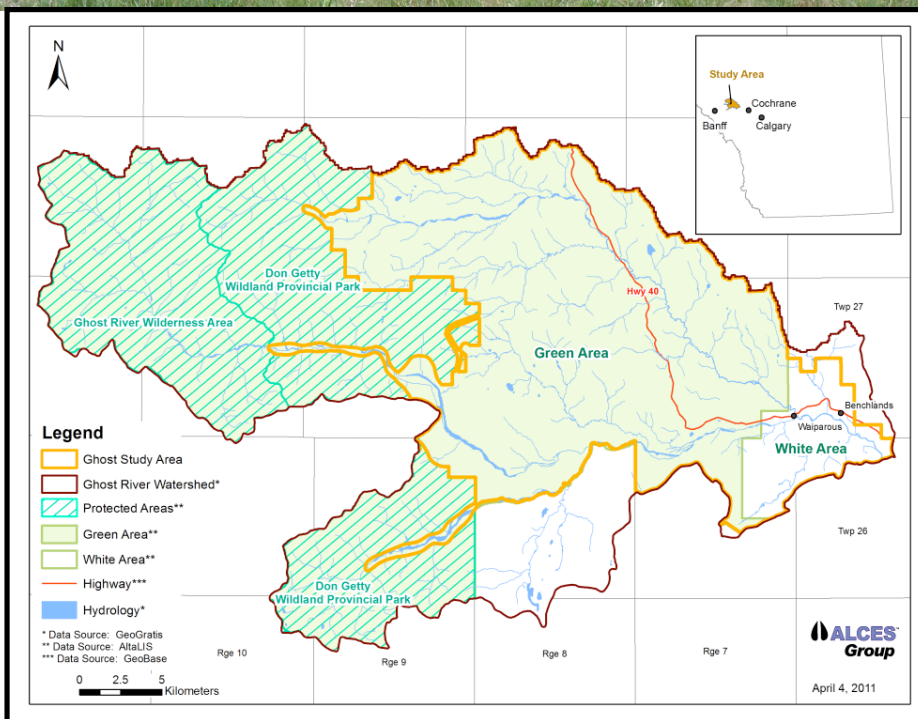


Ghost River Watershed Cumulative Effects Study Phase 2: Beneficial Management Practices



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The Ghost Watershed Alliance Society's (GWAS) vision is to preserve and enhance the integrity of the ecosystem in the Ghost River Watershed. The GWAS seeks to identify ecosystem and environmental issues affecting the watershed of the Ghost-Waiparous, raise public awareness, and work towards resolving these issues.

This Phase 2 report examines the merits of Beneficial Management Practices (BMP) and was prepared under contract to GWAS by ALCES Landscape and Land-use Ltd. Ghost Watershed Alliance Society gratefully acknowledges Alberta Ecotrust Foundation, Bow River Basin Council and the Calgary Foundation for their financial and non-financial support of this project.

Disclaimer

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Specific analytical or methodological questions concerning this report can be directed to the ALCES Group at www.alces.ca

A narrated powerpoint presentation describing the key findings of this project is available as a youtube video and can be viewed at: <http://www.youtube.com/watch?v=x7ZTpawvwoY>. If this link becomes inactive, please contact GWAS or the ALCES Group for a new active link.

EXECUTIVE SUMMARY

The watershed of the Ghost River lies in the upstream shadow of the burgeoning metropolis of Calgary and its surrounding bedroom communities. The Ghost River watershed possesses an exceptional abundance of natural resources, including forests, grasslands, rivers, diverse flora and fauna, and majestic scenery. It also hosts an abundance of consumptive natural resources including wood fiber, livestock forage, hydrocarbons, and wildlife and fish. During recent decades, a rapid increase in intensity of several landuses has occurred, as forestry, livestock grazing, oil and gas extraction, rural residential, hunting, and non-motorized and motorized recreation have all grown to satisfy increasing regional demand.

The historical management paradigm of the Government of Alberta for the East Slopes is best described as “multiple use”. This strategy reflects the belief that multiple overlapping land-uses can co-occur without meaningfully compromising the performance of key ecological, social, and economic indicators. Increasingly, quantitative and subjective assessments by the scientific community and the public have shown that the laissez-faire nature of the government’s “multiple use” formula is no longer serving society well. In 2011, a Phase 1 report examining the cumulative effects of “business-as-usual” land-uses within the Ghost River watershed identified a number of challenges to maintaining acceptable performance levels of ecological, industrial, and recreation indicators. Projections using the ALCES landscape simulator (www.alces.ca) quantified past and potential future declines in water quality, recreation potential, fish and wildlife indicators, and problems with sustainable forestry. The Phase I report can be downloaded from

<http://www.ghostwatershed.ca/GWAS/Home.html>.

The Ghost Watershed Alliance Society received funding from the Alberta Ecotrust Foundation and the Calgary Foundation to explore and assess beneficial management practices (BMP) that have the potential to improve performance of indicators relative to the business-as-usual (BAU) practices explored in Phase 1. Through a series of four independently facilitated workshops, the GWAS sought to engage local and regional communities, recreationalists, and government representatives in exploring potential solutions to enhance sustainable land stewardship for the watershed. Information obtained from these workshops was augmented with data obtained from other relevant projects examining the interface between BMP and ecological goods and services in Alberta’s east slopes.

Based on guidance obtained from BMP workshops and other studies (Southern Foothills Study, Upper Bow Basin Cumulative Effects Study, South Saskatchewan Regional Plan), the following issues and BMP were explored for the Ghost River Study:

Issue: High level of landscape fragmentation

BMP: -Accelerated rates of reclamation of linear features such as seismic lines, minor roads, inblock forestry roads, and non-designated off-highway vehicle trails

Issue: High levels of vehicle accessibility

- BMP:** -Restriction of off-highway vehicle (OHV) activity to an engineered and designated OHV trail system that minimizes adverse effects on erosion and wildlife and provides safe and enjoyable OHV activity.
-Enforcement increased to minimize off-highway vehicle use on non-designated trails and contain use to a designated vehicle trail network

Issue: **High Level of Watershed Discontinuity**

- BMP:** Increased replacement of “washed out” or “hung” stream culverts

Issue: **Loss of Riparian Habitat, Forest Structure, Wood Security**

- BMP:** -Reduction of current annual allowable forestry harvest commensurate with increased in-block retention of trees, and increased buffers along watercourses and ephemeral streams

Issue: **Reduced Water Quality from Elevated Nutrient Runoff**

- BMP:** -Increased protective buffers along streams found within cutblocks and in croplands
-Restrictions of livestock from streams through off-stream watering and salting
-Accelerated reclamation of unvegetated trails that are not part of the designated trail network

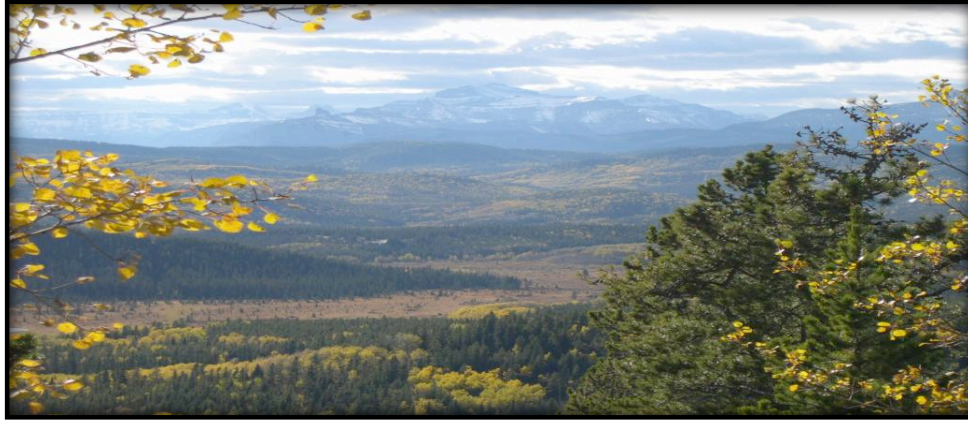
Issue: **Reduced Water Quality caused by human waste**

- BMP:** -Provision of sanitation facilities at trail heads and designated campsites
Installment of advanced septic field technologies at rural residential sites

Relative to the “business-as-usual” simulations, the simulated adoption of beneficial management practices in the Ghost River Watershed improved all ecological indicators. Landscape level improvements in ecological indicators included a decrease in Grizzly Bear Mortality index, an increase in the Index of Native Fish Integrity, an improvement in water quality, an increase in recreation potential of the watershed, and a level of forest harvest that is more likely to be sustainable.

The results of this study highlight the significant opportunities to government agencies, land-use sectors, and various recreational groups, to minimize loss of ecological goods and services and improve the sustainability of the Ghost River Watershed. Justification for adopting these practices are equally defensible from social, economic, and ecological perspectives. This work by the Ghost Watershed Alliance Society is intended to catalyze a new conversation about sustainable management of the Ghost River watershed based on full cost accounting of a comprehensive list of performance indicators. The take-home message of this project is decidedly pro-landuse, but one in which land-use decisions functionally “optimize” (not maximize) a full suite of socio-economic and ecological indicators.

Although this Phase II report is written with the intent that it is a stand-alone document, stakeholders are encouraged to read the Phase I report as it contains additional information relating to the business-as-usual scenario.



In the summer of 1859, the Palliser Expedition was exploring southwest Alberta on horseback.

Dr. James Hector said to Peter Erasmus, a Metis hunter and guide on the Palliser Expedition
“You must prepare yourself and your associates to adjust to a new order in this country. The progress of civilization renders this inevitable.”

Captain John Palliser adds,

“Your work with our expedition is but a phase of things to come. All the great territory now sparsely populated by a few wandering tribes will someday be the homes of thousands of prosperous people engaged in agricultural pursuit, stock raising, and other industries that always follows the settlement of vacant lands.”

Extracted from **Buffalo Days and Nights**.
Peter Erasmus, as told by Henry Thompson.
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