

# SOUTHERN EASTERN SLOPES CONSERVATION STRATEGY





## ACKNOWLEDGEMENTS

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The Collaborative would like to extend its appreciation to the people and organizations that were instrumental in compiling this report. For the foothills grasslands target information, we relied heavily on the expertise of both Cheryl Bradley and Kimberly Good. Justin Thompson from Southern Alberta Land Trust Society was also instrumental in devising how to represent the target. We would also like to acknowledge the Government of Alberta for providing GIS data sets that were critical to our analysis; Sarah Green and Jodi Best worked to secure the grazing disposition health data for the analysis. For the white spruce and lodgepole pine target information we are grateful for the forest expertise of Dr. Ralph Cartar, Dr. Hilary Young and Katie Morrison. For the riparian systems target information, we relied heavily on the riparian expertise of Lorne Fitch and Norine Ambrose from Cows and Fish, and for flooding information, Dr. Stewart Rood from the University of Lethbridge. We also relied on the wide-ranging mammals expertise of Dale Paton, Michael Gibeau and Craig Harding. Trevor Reid from the Nature Conservancy of Canada assisted with GIS support on the wide-ranging mammals target. Grant Chapman from Alberta Environment and Parks informed development of the elk winter range layer and Ben Arnold provided GIS support to develop the elk winter range layer. One of the elk datasets used to identify winter elk range included data provided by Kathreen Ruckstuhl and Benn Edwards from the University of Calgary. Alberta Biodiversity Monitoring Institute (ABMI) Wall-to-Wall

Land Cover Map Version 2.1 (ABMIw-2wLCV2010v1.0) (<http://www.abmi.ca>) was used, in whole or part, to create this product.

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# SOUTHERN EASTERN SLOPES CONSERVATION COLLABORATIVE

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The Southern Eastern Slopes Conservation Collaborative (Collaborative) is a coordinated group of conservation based environmental organizations working together to create a bold, detailed, proactive land use vision for public and private lands along Alberta's Eastern Slopes that prioritizes conservation, and unites ENGOs to work more strategically to change policy, and landscape protection and management. The Collaborative comprises four core organizations:

- Canadian Parks and Wilderness Society – Southern Alberta Chapter
- Miistakis Institute
- Southern Alberta Land Trust Society
- Yellowstone to Yukon Conservation Initiative

While the core group is driving the process, other environmental organizations and individuals are critical to the process and were engaged throughout. Organizations that attended at least one of the three full-day workshops included:

- Alberta Native Plant Council
- Alberta Riparian Habitat Management Society (Cows and Fish)
- Bragg Creek Environmental Coalition
- Bow River Basin Council
- Elbow River Watershed Partnership
- Foothills Land Trust
- Ghost Community
- Ghost Watershed Alliance Society
- Nature Conservancy of Canada
- Oldman Watershed Council
- Trout Unlimited Canada

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## ABBREVIATIONS

ABMI.....	Alberta Biodiversity Monitoring Institute	FRF.....	Foothills Restoration Forum
AEP.....	Alberta Environment and Parks	GOA.....	Government of Alberta
AER.....	Alberta Energy Regulator	OWC.....	Oldman Watershed Council
AUC.....	Alberta Utilities Commission	PCF.....	Prairie Conservation Forum
BMP.....	Best Management Practice	SALTS.....	Southern Alberta Land Trust Society
BRBC.....	Bow River Basin Council	SSRP.....	South Saskatchewan Regional Plan
CAP.....	Conservation Action Planning	TNC.....	The Nature Conservancy
CPAWS.....	Canadian Parks and Wilderness Society	Y2Y.....	Yellowstone to Yukon Conservation Initiative
ENGO.....	Environmental Non-Government Organization		

## EXECUTIVE SUMMARY

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The Southern Eastern Slopes Conservation Collaborative (the Collaborative) is both a unique and timely project for Alberta. Never before have a broad set of conservation organizations worked together to assess the health of Alberta's Southern Eastern Slopes and develop strategic goals and objectives for their conservation.

**The strength of the Collaborative's work comes from the breadth of its participants and its science based analysis.**

Groups involved in the project included watershed groups, scientists, angler organizations, and non-profits focused on public and private land protection. This diversity facilitated a robust ecological assessment and development of strategies that span jurisdictions and environmental issues.

Historically, these groups have largely responded independently to specific development proposals or government consultations affecting the Southern Eastern Slopes. Rather than reacting to other processes, **this project clearly identifies what is needed to keep the Southern Eastern Slopes functioning ecologically without looking through a specific organizational, industry or government lens.**

The importance of the Southern Eastern Slopes to Albertans cannot be overstated. This landscape provides a disproportionate amount of the ecosystem services that southern Albertans rely on, including:

- most of the water for the cities of Calgary and Lethbridge, and southern communities and irrigation districts, including providing natural filtration and storage
- many of Alberta's richest remaining pockets of biodiversity

- the province's most productive ranchlands and the cattle industry they support
- recreation opportunities, including camping, hiking, biking, horseback riding, paddling, wildlife watching, hunting and fishing
- magnificent views and the majority of Alberta's world-renowned tourism resources

Using the best available science and data, the Collaborative identified and evaluated four conservation targets that underpin the ecological integrity of the Southern Eastern Slopes. **The conservation targets are foothills grasslands, lodgepole pine and white spruce forests, riparian systems, and wide-ranging mammals.**

A number of threats to the ongoing health of the conservation targets were identified and rated. Several of the threats were rated as "high" for all or more than one of the targets, including:

- **Linear disturbance** – rated as "high" for riparian systems, lodgepole pine and white spruce forests and foothills grasslands and "medium" for wide-ranging mammals.
- **Motorized recreational activity** – rated as "high" for wide-ranging mammals.
- **Commercial logging** – rated as "high" for riparian systems and lodgepole pine and white spruce forests.
- **Rural residential development** – rated as "high" for foothills grasslands, riparian systems and wide ranging mammals.
- **Terrestrial invasive species** – rated as "high" for foothills grasslands and "medium" for riparian systems.

Due to these and other threats, the four targets have seen either a significant reduction in their historic extent or a significant reduction in their health, or a combination of both.

Through the Collaborative's analysis, all four conservation targets were rated as "fair": defined as outside the acceptable range of variation, and requiring human intervention.

What this means is that this treasured landscape requires proactive steps to maintain its integrity for future generations. Further to this, the Collaborative identified goals and priority objectives to conserve this important landscape. **The goals identified by the Collaborative for all four targets include maintaining the current extent of the target and/or improving its current health.**

Historic and current management has led to unofficially sanctioned and incremental degradation of the landscape. This continual decline has occurred through years of independent actions and decisions in the absence of a clear vision and clear accountability for the health of the landscape as a whole. To achieve the Collaborative's conservation goals, changes will be needed to the current and future management of the Southern Eastern Slopes.

This report seeks to provide a clear set of targets, goals and priority objectives across the entire Southern Eastern Slopes landscape. The belief is that by doing so, it will empower and facilitate the work of non-profits, municipalities, landowners, governments and industry working to improve management and health of the Southern Eastern Slopes. More specifically, this report aims to help individuals and organizations identify:

- roles in overall conservation of the Southern Eastern Slopes
- opportunities for collaboration with other organizations and stakeholders to accomplish this task

The report is not intended to dovetail with any one specific government planning process, but rather support individuals or organizations participating in these processes with current or future governments.

Given the enormous economic and social value of the Southern Eastern Slopes, Albertans need to take all steps necessary to avoid having this provincial treasure become a cautionary tale of irreplaceable natural riches lost. From a more optimistic perspective, Alberta is still blessed with significant ecosystem services provided by this unique landscape. With good information and clear goals at our fingertips, it is now up to all of us to ensure those benefits continue for future generations.



# 1

## INTRODUCTION

The Southern Eastern Slopes of Alberta are a treasured landscape. They provide important economic, ecological and social benefits to Albertans and have long been recognized in policy as deserving of special management status. However, over the past few decades, competing demands for resources (agriculture, forestry, mining, and oil and gas), access for recreation, residential development and water use have resulted in habitat loss and fragmentation, species at risk of extinction and compromised watersheds. The ability of the Southern Eastern Slopes to continue to provide benefits Albertans rely on is in jeopardy.

Though current policies and plans, including the recent South Saskatchewan Regional Plan (SSRP), contain some positive overarching direction, they fail to contain many of the strong commitments, tradeoffs, or hard targets necessary to ensure environmental objectives are met. The absence of a comprehensive conservation plan and vision that is supported by Alberta's network of conservation organizations has hampered our ability to effectively influence land-use policy and plans. ENGOs have recognized that a common vision and objectives for conservation are needed so that we can work together with government and other stakeholders to effectively manage the Southern Eastern Slopes

# 2

## PROJECT SCOPE

This project is intended to be a roadmap for ENGOs and other land and water conservation groups in southern Alberta to define a collective vision, priorities and conservation goals for the Southern Eastern Slopes. It is not intended to be a comprehensive land-use plan, but focuses on the ecological health of the Southern Eastern Slopes as the base of the assessment, while also considering social and economic factors within the goals, objectives and actions. While the input of a wider group of stakeholders on how to achieve the goals and objectives will be useful to groups using this report, this report provides a science-based foundation to determine what needs to be done to conserve the Southern Eastern Slopes. Collaborative partners can bring this information to key segments of the public, decision makers and land managers to further the conversation on how to implement the required changes to on-the-ground management.



# 3

## COLLABORATIVE APPROACH

A collaborative approach was important for the development and execution of this project. The report aims to stimulate positive change for both the conservation community and Albertans more broadly through improved management of our valuable Southern Eastern Slopes. Creating a comprehensive plan that identifies the conservation priorities, goals and desired objectives of a collaborative conservation community aligns our individual programs and strengthens the voice of land- and water-based conservation groups in Southern Alberta. The input of many organizations working in the region is invaluable for achieving this outcome, thus the project was developed by a core team with the input and support of many partner organizations.

This project brings together a strong, well rounded collaboration of respected and effective Alberta based environmental non-government organizations (ENGOs) with experience and expertise in different aspects of conservation, including research, policy, large landscape conservation, public and private land conservation, watershed management and public and government engagement. The core team included the Canadian Parks and Wilderness Society (CPAWS) – Southern Alberta Chapter, Yellowstone to Yukon Conservation Initiative (Y2Y), The Miistakis Institute and Southern Alberta Land Trust Society (SALTS). The core team organizations have a long history of land-use planning and conservation work in the Southern Eastern Slopes.

While the core team led the development of the project and report, many organizations working in the Southern Eastern Slopes contributed to the project by providing input and knowledge. Partner organizations with a specific conservation mandate working in the Southern Eastern Slopes that were involved in the project include:

- Alberta Native Plant Council
- Alberta Riparian Habitat Management Society (Cows and Fish)
- Bragg Creek Environmental Coalition
- Bow River Basin Council
- Elbow River Watershed Partnership
- Foothills Land Trust
- Ghost Community
- Ghost Watershed Alliance Society
- Nature Conservancy of Canada
- Oldman Watershed Council
- Trout Unlimited Canada

Experts consulted during the research phase of the project include:

- Cheryl Bradley, Botanist
- Kim Good, Grasslands expertise
- Lorne Fitch, Fisheries Biologist
- Dr. Ralph Carter, Ecologist, University of Calgary
- Dr. Stewart Rood, University of Lethbridge
- Dale Paton, Biologist
- Mike Gibeau, Biologist
- Craig Harding, Nature Conservancy of Canada

# 4

## STUDY AREA

When establishing a project boundary for a project of this nature, there is no perfect solution. There are ecological, jurisdictional and cultural considerations, all of which are valid. There is also a practical element of defining a boundary that can be easily communicated and understood by stakeholders. It is also beneficial that there is consistency both in terms of ecological function and connectivity, as well as cultural and economic similarities. Proposed conservation strategies can therefore be potentially more effective than if they are trying to address more disparate ecosystems or communities that might require very different approaches. Accordingly, key features influencing the boundary for this project include:

- headwaters of the Bow and Oldman Rivers
- areas of predominantly intact native vegetation
- areas of high habitat value for wide-ranging mammals
- areas of high habitat value for species at risk
- creeks and rivers containing native fish species

Based on these landscape features, the core team, in conjunction with the Collaborative partners, established the project boundaries (see Figure 4-1), at the first workshop.

The project's **northern boundary** is the northern boundary of the Bow River Watershed. This is an ecological boundary that also makes sense jurisdictionally in terms of the mandates of the various organizations active on this landscape.

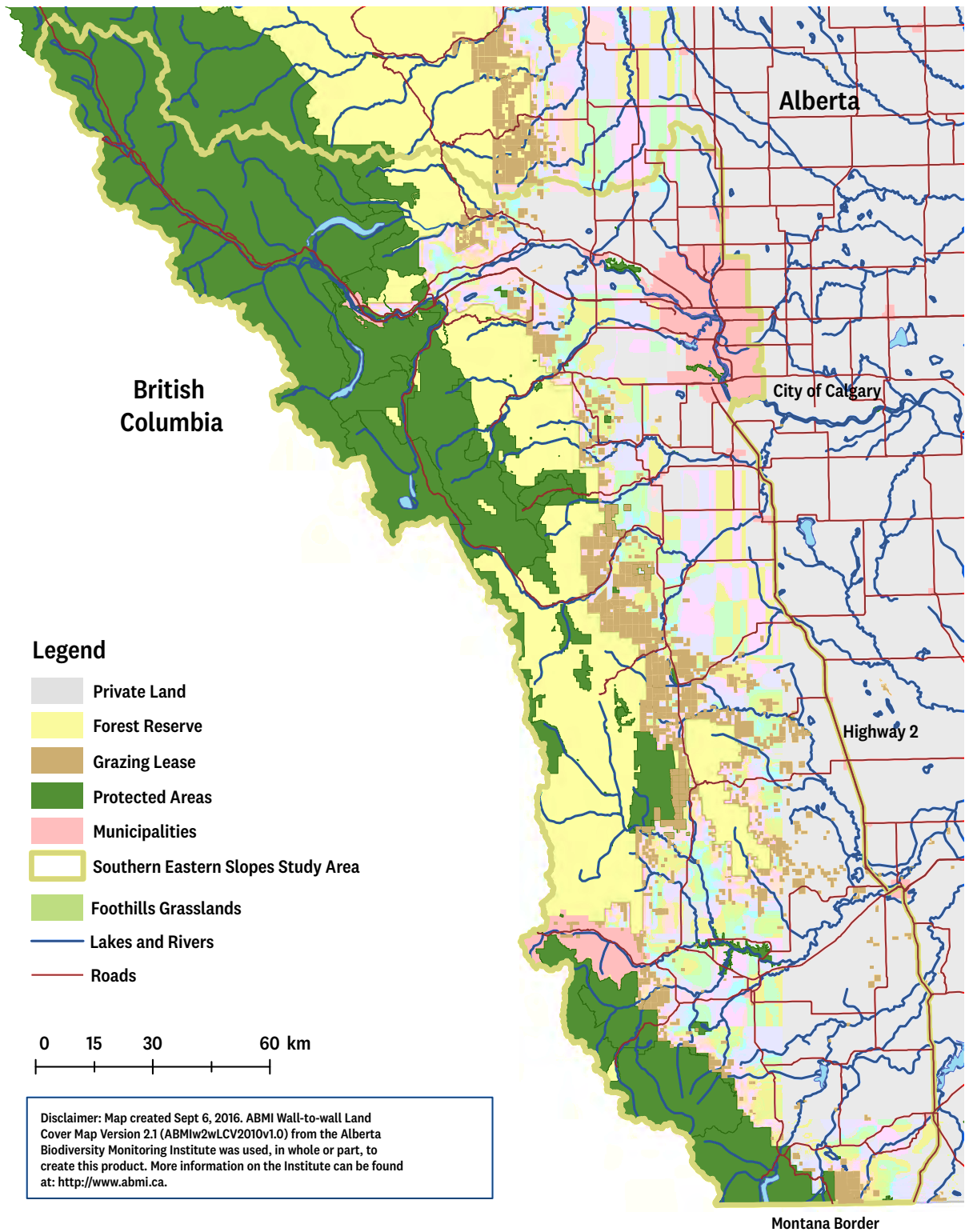
The project's **eastern boundary** is Highway 2, except where it includes the City of Calgary along its eastern border rather than bisecting the city in half. This is important because the fate of the Eastern Slopes and Calgary are intimately linked on many fronts, including water, biodiversity, tourism and recreation. In several locations it could be argued that the eastern boundary should shift west of Highway 2 to avoid cultivated areas, or east to include intact areas of native grasslands. West of Highway 2, however, generally represents a strip of land that remains less fragmented relative to the highly cultivated farming landscape east of the highway. It is also a more appropriate boundary than a natural region as it captures the remaining intact vegetation communities of several natural regions, including Foothills Fescue, Foothills Parkland and Montane (see Figure 4-2). The one exception to including intact areas of native grasslands in the study area is exclusion of the Milk River Ridge country in the southeast corner of the project area. This area, while ecologically significant, extends much farther east of the rest of the project area. It also has both ecological and jurisdictional characteristics that set it apart from the Eastern Slopes, as, for example, it is largely outside the Oldman River watershed.

The project's **southern boundary** is the Montana border.

The project's **western boundary** is the British Columbia border.

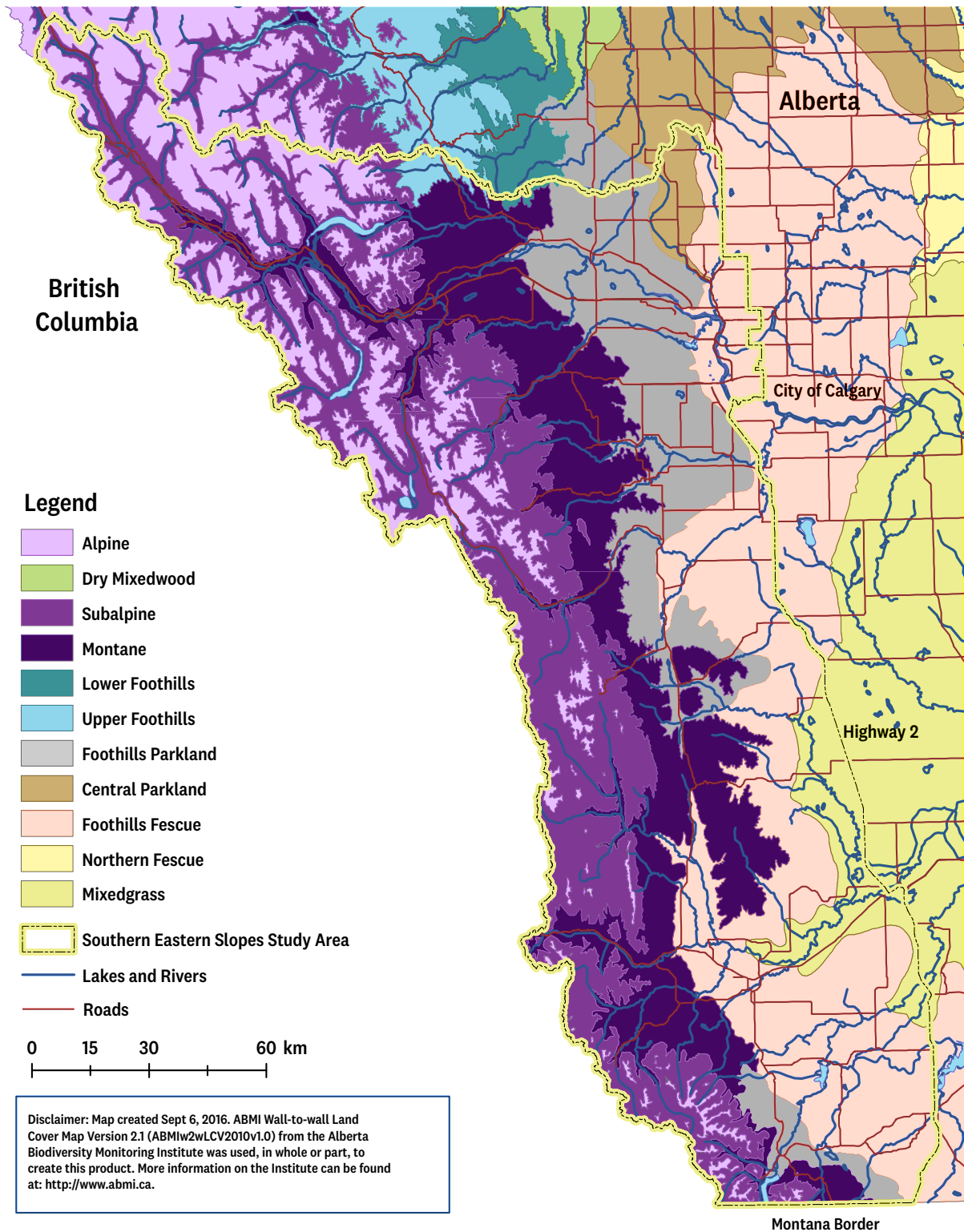
For further clarity, and unlike the boundary of the SSRP, the project area will include provincial and national parks that are partially or wholly within the boundaries described. These protected areas are part of the Oldman and Bow River watersheds and many of the land-use or ecological challenges ENGOS are attempting to address straddle jurisdictional boundaries.

# Southern Eastern Slopes Collaborative Study Area



4-1 Southern Eastern Slopes Conservation Project Study Area

# Alberta Natural Subregions



4-2 Natural Subregions in Southern Eastern Slopes Project Study Area

# 5

## METHODS

The Nature Conservancy (TNC) has developed the 10 step Conservation Action Planning Process<sup>1</sup> to guide conservation practitioners through conservation planning on a specified landscape. The Collaborative followed a modified five-step process to outline a conservation plan for the Southern Eastern Slopes:

1. Project scope and conservation target.
2. Target viability.
3. Threats to target.
4. Indirect threats and opportunities.
5. Strategy development (goals, objectives and example actions).

### **5.1 Project Scope and Conservation Targets**

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In Step 1, the Collaborative identified the study area, developed a common vision and selected specific species and natural systems as conservation targets considered representative of the overall biodiversity in the region. Questions during Step 1 included:

- Where is our project?
- What are we trying to conserve or restore?
- What is the shared vision for this landscape?

To inform Step 1, the Collaborative used an online survey approach for partner groups and then developed a workshop to:

- seek agreement from partnership on draft focal area (mapped)
- seek agreement from partnership on draft vision statement
- generate a list of conservation targets
- prioritize the list of conservation targets

### **5.2 Target Viability – Determining the Status**

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Step 2 focused on each conservation target and how to measure its viability. Viability rating includes consideration of landscape context, size and condition. The

goal was to identify how the target is doing today and what a viable state might look like. This step is the key to knowing which targets most need immediate attention. Questions Step 2 considered include:

- How do we define viability for each target?
- What is the current status of each target?
- What is the desired status for each target?

The Collaborative worked with at least two experts for each target to produce conservation assessment reports that assess the viability of the conservation target. The TNC Conservation Action Planning (CAP) workbook was used to help identify key ecological attributes for each target, select indicators and then rate each attribute to determine overall viability.

### **5.3 Threats to Target**

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Step 3 focused on identifying the various threats that immediately affect the project's focal targets and then rating them considering severity, scope and reversibility. This step allowed identification of critical threats where concerted conservation action is most needed. Questions considered in Step 3 include:

- What threats are affecting each target? (Stressors/ key ecological attributes, source of stress.)
- Which threats are more of a problem? (Assess severity and scope of stressors, sources of stress and irreversibility of those sources)

The Collaborative worked with two experts for each target to produce conservation assessment reports that identified and rated threats to the conservation target. The TNC CAP workbook was then used to identify which threats are having the greatest impact on the target (critical threats).

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<sup>1</sup><https://www.conservationgateway.org/ConservationPlanning/ActionPlanning/Pages/conservation-action-plann.aspx>

## **5.4 Indirect Threats and Opportunities**

Step 4 focused on understanding the current project situation, both the biological issues and the human context. Not meant to be an unbounded analysis, Step 4 instead probed the root causes of critical threats and degraded targets to explicitly focus on contributing factors – indirect threats, key actors and opportunities for successful action. This stage informs strategy development. Questions Step 4 considered include:

- What factors positively and negatively affect each target?
- Who are the key stakeholders linked to each of these factors?

A workshop was held and participants were asked to list indirect threats and opportunities to inform strategy development.

## **5.5 Goals and Objectives**

Step 5 involved specifically and measurably describing what success looks like and developing the priority objectives for each ecological target that the Collaborative and individual organizations will use to identify specific actions to achieve success. In particular, objectives were identified that will enable getting the most positive impact and likelihood of success. Questions Step 5 considered include:

- What do we need to accomplish?
- What is the most effective way to achieve these results?
- What is the impact and likelihood of success?

To inform this process, the Collaborative identified goals and objectives in a workshop, then prioritized objectives for each ecological target in a follow-up workshop.

## **5.6 Workshops**

Workshops were identified as an effective method to engage members of the broader conservation community and to gather important information. Three workshops were designed to feed into critical stages of the conservation planning process:

- defining a vision
- selection of conservation targets
- development and prioritization of goals and objectives

### **5.6.1 Workshop 1**

In anticipation of the first workshop, an online survey was completed by partner groups to identify key species, ecological areas and issues of high value or concern to each organization. This information was summarized and presented during a full-day workshop on May 18, 2016. The objectives of this workshop were to identify the key ecological priorities or conservation targets, and define a vision for the landscape. Through large-group discussions, breakout sessions and sticker dot voting exercises, the team and partners selected the priority conservation targets to address in this report.

### **5.6.2 Workshop 2**

The second workshop was held on November 2, 2016 to develop goals and objectives for improving or maintaining the health of the study area and/or individual conservation targets based on health analyses by the core team. The aim of this exercise was to create goals and objectives that can be used by conservation organizations, watershed groups, municipalities and provincial land managers to focus conservation work in the Southern Eastern Slopes.

### **5.6.3 Workshop 3**

The third workshop was held February 14, 2018 to identify goals and objectives of the wide-ranging mammals target, which was added as a key target after Workshop 2, and to prioritize objectives for each conservation target and identify organizations currently working on priority objectives. The group prioritized objectives by placing each objective on a matrix of impact and likelihood of success, and used consensus to identify the top four to six objectives for each target. For each objective, participants identified if they, their organization or another organization they know of is currently working to achieve the objective. This information was used to identify the priority objectives and create network maps of current conservation work on the four project targets.

# 6

## SOUTHERN EASTERN SLOPES CONSERVATION VISION

A collaborative conservation vision of the Southern Eastern Slopes was developed by the core project team and collaborative partners as the desired state or ultimate condition of the project area. The conservation vision for this landscape is as follows:

**The Southern Eastern Slopes is a landscape revered for clean water, wildlife habitat, open space, wilderness recreation and working communities. Clear conservation objectives and effective stewardship maintain this valuable ecosystem.**





# 7

## PRIORITY CONSERVATION TARGETS

The key first step in this project was to collectively define the focal conservation targets for the Southern Eastern Slopes. Focal conservation targets are a limited suite of species, habitats and ecological systems chosen to represent and encompass the full array of biodiversity and ecological values found in a project area. They are the basis for setting goals, carrying out conservation actions and measuring conservation effectiveness. Together, these systems, habitats and species targets:

- represent the biodiversity at the site
- reflect existing conservation goals:
- are viable or at least feasibly restorable
- are highly threatened

In theory, conservation of the focal targets would ensure conservation of native biodiversity and ecological processes within functional landscapes. For the purpose of this project, potential targets were grouped into two categories:

- Ecological Systems/Habitats – assemblages of ecological communities or habitats that occur together on the landscape and share common

ecological processes (e.g., flooding), environmental features (e.g., soils and geology) or environmental gradients (e.g., precipitation). Examples include riparian systems, foothills fescue grasslands and old-growth forests.

- Species:
- Native species with status assessed as endangered, threatened or of special concern. Examples are westslope cutthroat trout/bull trout, grizzly bear and whitebark pine/limber pine.
- Assemblages of species with similar conservation requirements. Examples are aquatic invertebrates, cold-water fish, or wide-ranging mammals.

Four targets were chosen by the core team and partners as the priority conservation targets for this report:

- foothills grasslands
- riparian systems
- lodgepole pine and white spruce forests
- wide-ranging mammals

Figure 7-1 shows extent of the ecological systems conservation targets in the study area, and Figure 7-2 shows extent of the wide ranging mammals conservation target



## **7.1 Foothills Grasslands**

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Grasslands provide many environmental, economic and social benefits to Albertans. Grasslands are an important ecosystem that is adapted to a specific climate and provides habitat for a wide variety of wildlife and plant life that are well-adapted to live there. From an ecosystem goods and services perspective, grasslands provide water cycling and regulation, pollination, habitat, climate regulation, food, and spiritual and cultural value, to name a few. Grasslands are also very important agriculturally, supporting livestock production.

Foothills grasslands in Alberta are under stress from loss of grasslands due to agriculture crop production, industrial development and urban and rural infrastructure. In this report we explore the value of maintaining this important grassland community as it supports ecosystem resilience, biodiversity and the economy along the Southern East Slopes.

## **7.2 Riparian Systems**

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Riparian areas are critical from both an ecological and economic perspective: they sustain us, our landscapes, our lifestyles and our businesses. The importance and significance of riparian areas is far larger than their size suggests, as they produce and safeguard forage, shelter, fish, wildlife and water. They are part of a healthy, functioning landscape, and are an integral part of watersheds. Riparian systems face a number of threats, both from direct impacts in the riparian area and from landscape changes.

## **7.3 Lodgepole Pine and White Spruce Forests**

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The lodgepole pine and white spruce species play an important role in terms of sustaining downstream water supply and storage, providing flood mitigation protection and wildlife habitat, and supporting both recreational and forestry opportunities. These forest communities were chosen because they are the most prevalent in the study region, and are the main species targeted for timber harvest, considered one of the largest impacts on the Southern Eastern Slopes. Further, lodgepole pine is predicted to be very sensitive to climate change in Alberta. It is expected that lodgepole pine and white spruce forests represent climate change trends in other coniferous forests stands in the Southern Eastern Slopes.

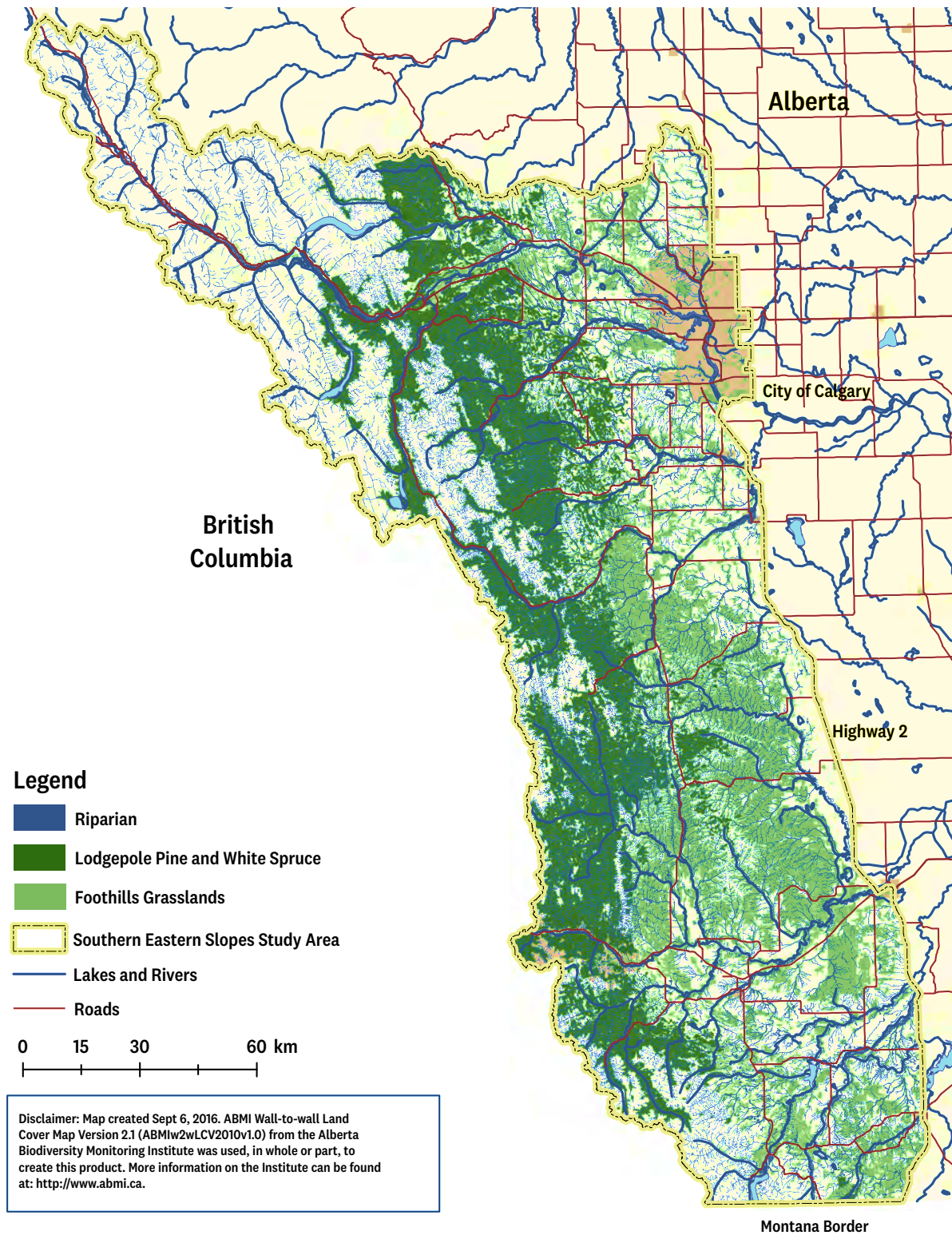
## **7.4 Wide-Ranging Mammals**

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Wide-ranging mammals are often considered umbrella species, since protecting enough habitat for these animals also results in the protection of a diversity of smaller animals and plants. Competing land uses in the Southern East Slopes contribute to habitat loss and fragmentation of the landscape, reducing wildlife access to secure habitat and impeding wildlife ability to move around the landscape to access food, mates and shelter. The wide-ranging mammals target was chosen to represent the connectivity of the Southern Eastern Slopes, using grizzly bear and elk as indicator species.

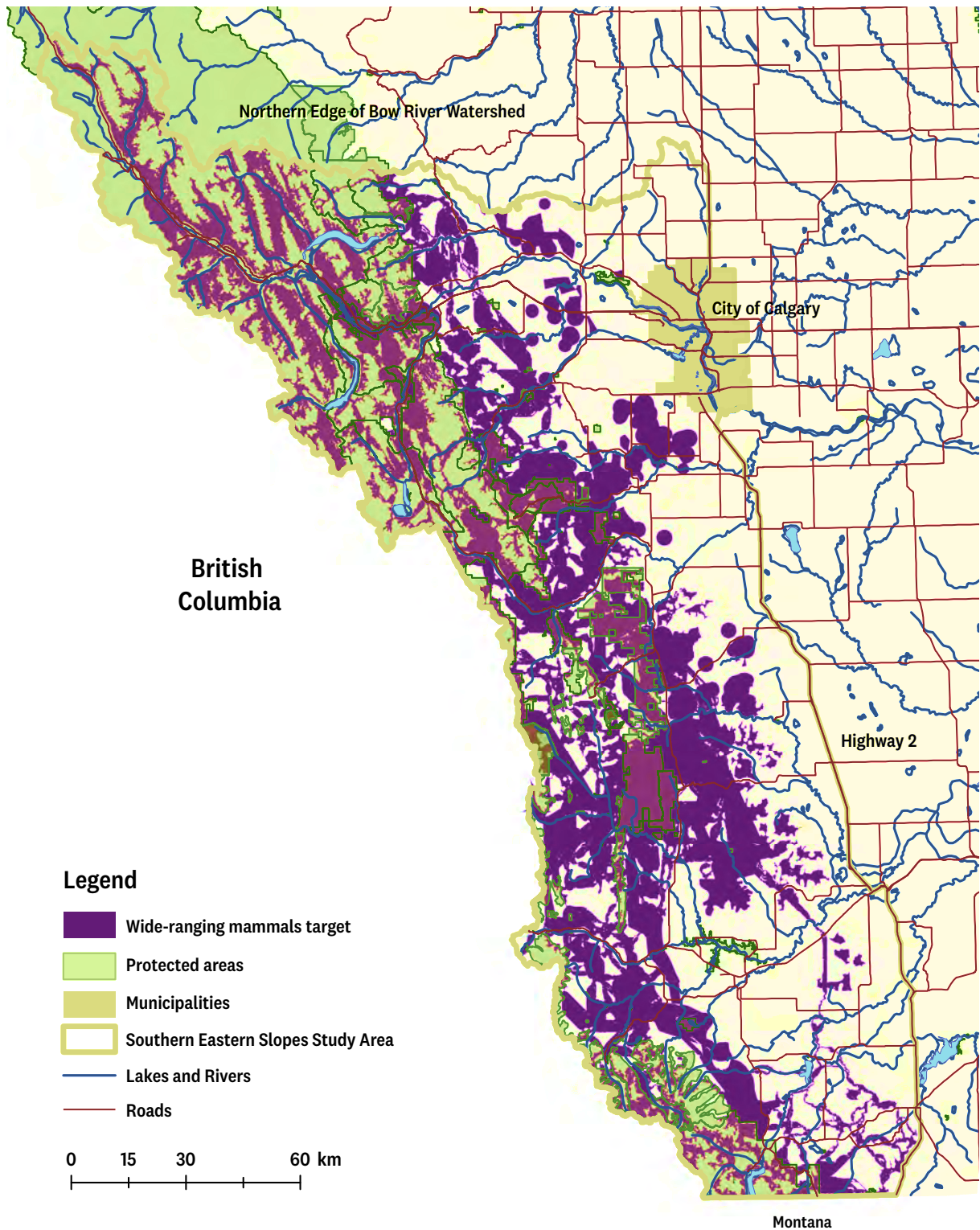


# Conservation Targets



7-1 Ecological Systems Conservation Targets – Extent

# Wide-Ranging Mammals Target



7-2 Wide-Ranging Mammals Secure Habitat and Corridors



# 8

## CURRENT STATE OF CONSERVATION TARGETS

Results of the assessment of the viability of conservation targets and status of threats to conservation targets in the study area are provided in this section. The section begins with a summary of results for all targets. Detailed information on assessment of each target, including identification of indirect threats and conservation opportunities, are provided in the following sections:

- Section 8.1: Foothills Grasslands
- Section 8.2: Riparian Systems
- Section 8.3: Lodgepole Pine and White Spruce Forests
- Section 8.4: Wide-Ranging Mammals

Viability for each of the four conservation targets is assessed as fair, defined as outside acceptable range of variation, and requiring human intervention (see Table 8-1).

Overall, these ratings relate to the following assessment of key ecologic attributes and indicators:

- declining extent (size of the target on a downward trend) of foothills grasslands and lodgepole pine and white spruce forests
- high linear density in most watersheds affecting riparian systems and wide-ranging mammals
- low intactness (measured as size of remaining large blocks) of foothills grasslands, lodgepole pine and white spruce forests, and wide-ranging mammals
- less than healthy condition overall of foothills grasslands (measured by range score) and riparian systems (measured by riparian health score)

Threats to conservation targets and ratings of the impact of each threat on each conservation target are summarized in Table 8-2. Threats rated as “high” are considered critical as the threat is widespread in scope, the effects are difficult to reverse and the threat is likely to seriously degrade the conservation target over some portion of the target’s occurrence in the Southern Eastern Slopes. The current level of linear disturbance and/or associated motorized recreational activities occurring on the landscape is a critical threat affecting all four targets.

Other critical threats affecting one or more targets include:

- commercial logging effects on lodgepole pine and white spruce forests, riparian systems and wide ranging mammals
- rural residential growth effects on foothills grasslands, riparian systems and wide-ranging mammals
- terrestrial invasive species effects on foothills grasslands

Motorized recreational activities, surface disturbance from industrial clearing and conversion to cropland were identified as threats likely to moderately degrade one or more targets in the Southern Eastern Slopes.

Table 8-1 Viability of Conservation Targets

CONSERVATION TARGET	VIABILITY RATING
FOOTHILLS GRASSLANDS	FAIR
RIPARIAN SYSTEM	FAIR
LODGEPOLE PINE AND WHITE SPRUCE FOREST	FAIR
WIDE-RANGING MAMMALS	FAIR

Table 8-2 Summary of Threats and Ratings for Conservation Targets

THREATS		FOOTHILLS GRASSLANDS	RIPARIAN SYSTEMS	LOGEPOLE PINE AND WHITE SPRUCE FORESTS	WIDE-RANGING MAMMALS
1	LINEAR DISTURBANCE (ROADS, RAILS AND TRANSMISSION LINES)	HIGH	HIGH	HIGH	MEDIUM
2	COMMERCIAL LOGGING		HIGH	HIGH	MEDIUM
3	RESIDENTIAL DEVELOPMENT (RURAL RESIDENTIAL GROWTH)	HIGH	HIGH	MEDIUM	HIGH
4	TERRESTRIAL INVASIVE SPECIES	HIGH	MEDIUM	LOW	
5	MOTORIZED RECREATIONAL ACTIVITIES	MEDIUM	MEDIUM	MEDIUM	HIGH
6	SURFACE DISTURBANCE (INDUSTRIAL CLEARING)	MEDIUM	MEDIUM	MEDIUM	MEDIUM
7	CONVERSION TO CROPLAND	MEDIUM	LOW		
8	ALTERED FIRE REGIME			MEDIUM	MEDIUM
9	MANAGEMENT OF PINE BEETLE			MEDIUM	
10	UNSUSTAINABLE RANGE MANAGEMENT	LOW	LOW	LOW	
11	NON-MOTORIZED RECREATION		LOW	LOW	HIGH
12	DAMS AND DIVERSIONS		LOW		

Climate change was identified as an emerging threat that will affect distribution, total extent and condition of all targets in the future.

## 8.1 Foothills Grasslands

The foothills grasslands target represents 23% of the landscape in the Southern Eastern Slopes region (see Figure 7-1) and was selected because grasslands support a variety of ecological goods and services, economic livelihoods and biodiversity. There are limited remaining intact grasslands relative to their historic distribution, and there are numerous ongoing threats reducing viability of remaining grasslands.

The foothills grasslands target is represented spatially by Alberta Biodiversity Monitoring Institute’s (ABMI) grassland and shrubland categories, spanning not only the Grassland and Foothills Parkland Natural Regions

Table 8-3 Threats to Foothills Grasslands

THREATS TO FOOTHILLS GRASSLANDS		RATING
1	LINEAR DISTURBANCE (ROADS, RAILS, AND TRANSMISSION LINES)	HIGH
2	RESIDENTIAL DEVELOPMENT (RURAL RESIDENTIAL GROWTH)	HIGH
3	TERRESTRIAL INVASIVE SPECIES	HIGH
4	CONVERSION TO CROPLAND	MEDIUM
5	MOTORIZED RECREATIONAL ACTIVITIES	MEDIUM
6	RENEWABLE ENERGY	MEDIUM
7	SURFACE DISTURBANCE (MINING)	MEDIUM
8	SURFACE DISTURBANCE (OIL AND GAS)	MEDIUM
9	ALTERED FIRE REGIME	LOW
10	UNSUSTAINABLE RANGE MANAGEMENT	LOW

but also the Montane Natural Region (see Figure 4-2), though data for some key ecological attributes and indicators is lacking for the Montane NR.

The current viability of the foothills grasslands target was rated as fair, defined as outside acceptable range of variation, and requires human intervention. The score was derived from the following assessment of key ecological attributes and indicators:

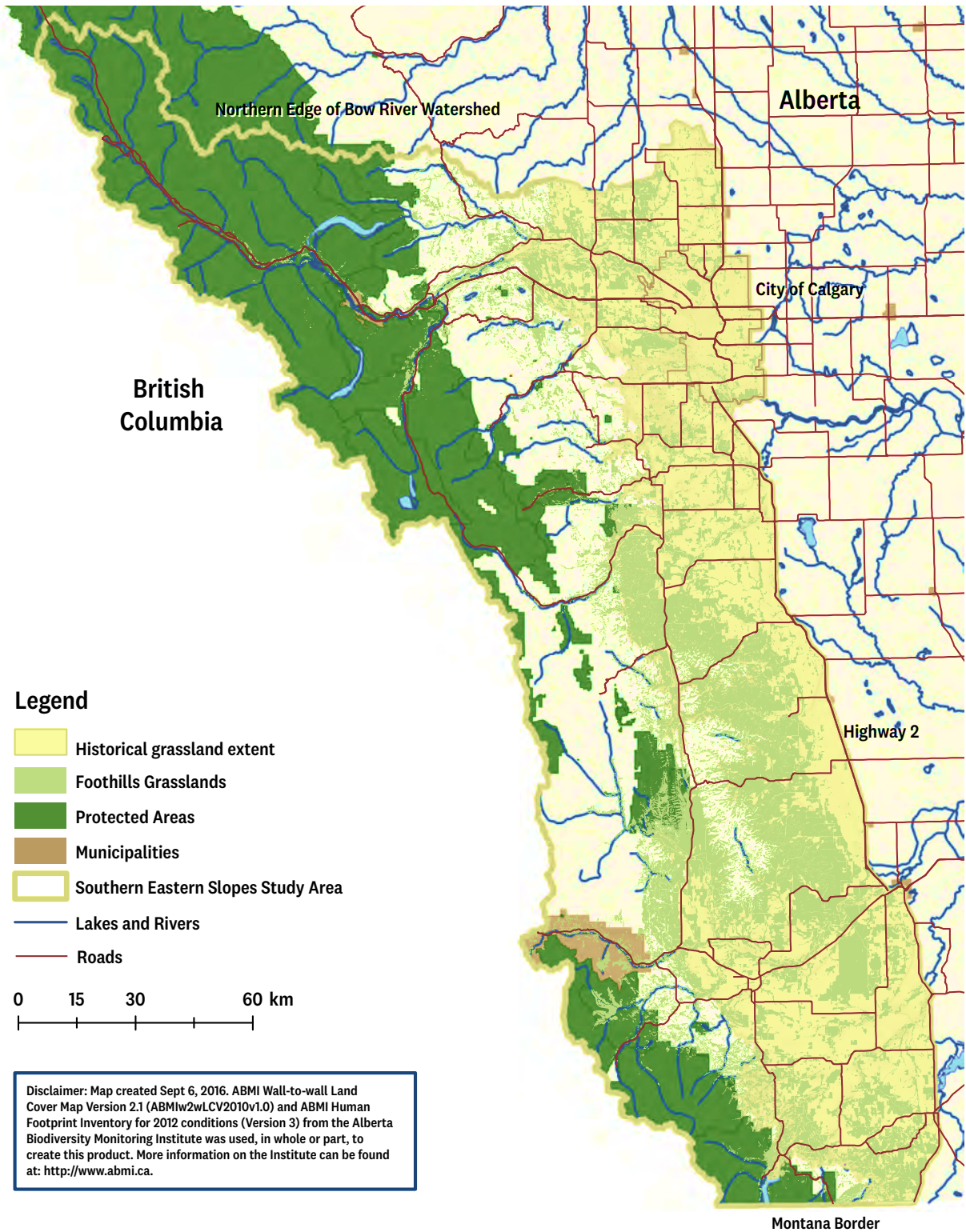
Total extent of the foothills grasslands compared with a historical reference extent, indicates 65% loss in the study area, not including the Montane Natural Region (see Figure 8-1).

- The vascular plant intactness score from ABMI for the region is 59%, based on an assessment of 36 native vascular species found in plots, not including the Montane Natural Region.
- The biodiversity intactness score from ABMI for the region is 67%, based on the expected occurrence of 194 species, not including the Montane Natural Region.
- Range health scores on public lands in the Southern Eastern Slopes indicate the majority of scores were either healthy (39% of assessments) or healthy with problems (30% of assessments). Only 0.2% of assessments scored as unhealthy. Results are unavailable for approximately 30% of public grasslands.
- Intactness of grasslands (areas remaining with little or no human footprint) was assessed by percentage of foothills grasslands target that contributes to native habitat patches  $\geq 10$  km<sup>2</sup> in the study area. Only 26% of the foothills grasslands target falls in native habitat patches  $\geq 10$  km<sup>2</sup> (see Figure 8-2). Grasslands on the outskirts of Calgary and Cardston, and along Highway 2 were the least intact. Geographically, there are intact patches south of the Highwood River in and around the Porcupine Hills and Whaleback, on the Piikani First Nation and along the Waterton Front southwest of Cardston.

Of the 10 threats identified that affect health of the foothills grasslands target (see Table 8-3), three were rated as high, five were rated as medium and two were rated as low.

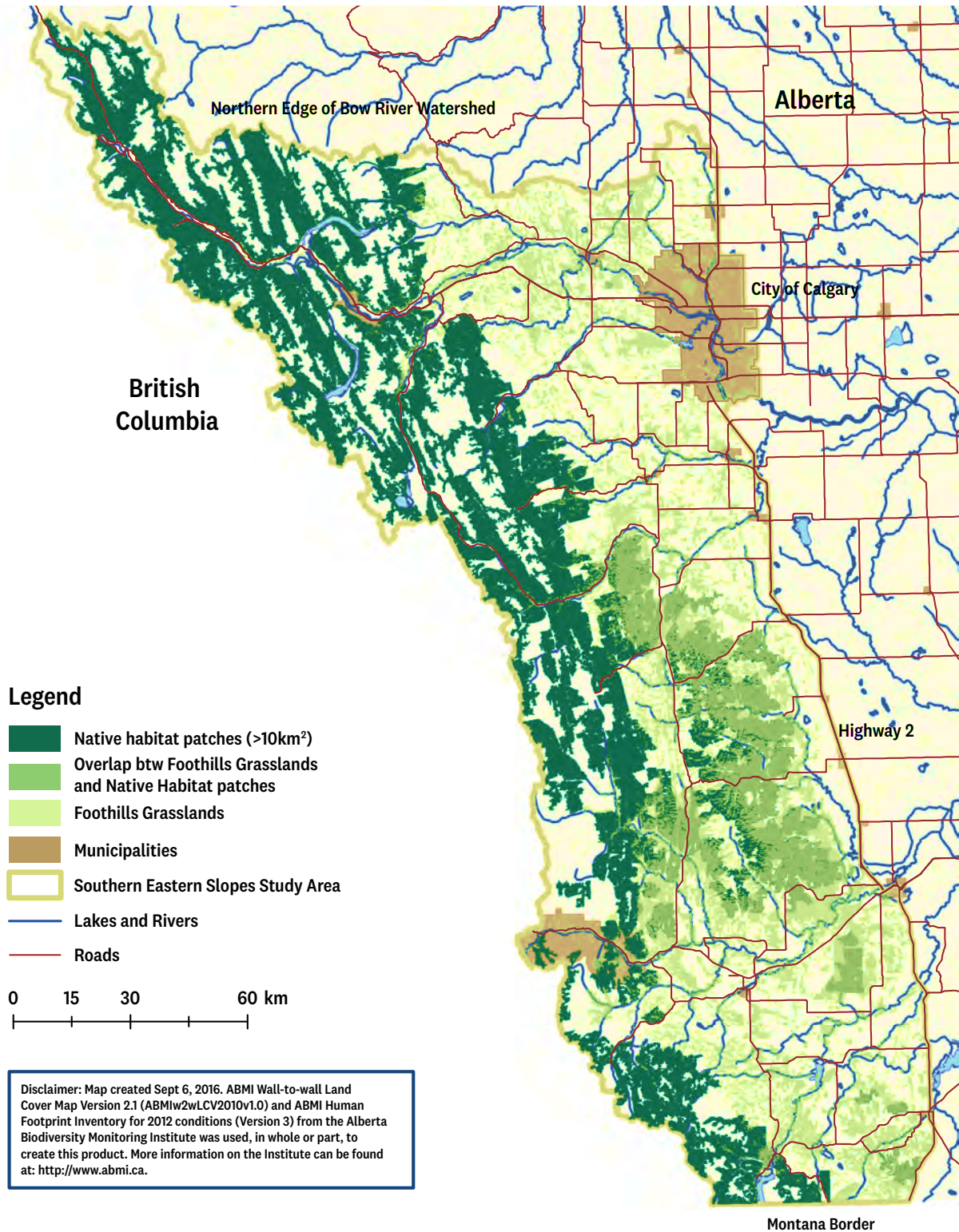


# Extent of Foothills Grasslands



8-1 Historic and Current Extent of Foothills Grasslands

# Native Habitat Patches and Foothills Grassland



8-2 Foothills Grasslands Occurring in Patches  $\geq 10 \text{ km}^2$

Climate change was identified as an **emerging threat** for the foothills grasslands target, with predictions of increased temperature, changes in precipitation and increased frequency of both flooding and drought conditions. Strategies that promote resilience by improving grasslands health and connectivity will be important considerations in strategy development.

**Indirect threats** are factors that influence direct threats. The following indirect threats were identified for the foothills grasslands target:

- Lack of integrated land management and government policies requiring one road network that services different industries.
- Land values based more on potential for recreational and rural residential development than for ranching.
- Fluctuating agricultural markets that result in the value of the land for crop production being higher than the value for livestock production, hence promoting cultivation of native grasslands.
- Current ranching family demographics and uncertainty about intergenerational transfer of ranchlands.

A number of **opportunities** were also identified that might influence conservation of the foothills grasslands target:

- GOA Land Trust Grant Program, which enables land trust organizations to maintain foothills grasslands in a natural state.
- GOA desire to meet conservation targets for natural subregions through Alberta's Plan for Parks and the Land-use Framework.
- GOA implementation of the SSRP, which makes foothills grasslands conservation a priority. Other regional plans are also being developed.
- GOA is developing a Land Footprint Management Plan for the Livingstone-Porcupine Hills area, which will set limits on roads and trails accessible to motorized vehicles on Crown land.

- Public desire to purchase products from local conservation landscapes that support maintaining natural state.
- Ecotourism potential of iconic landscapes as revenue-generating opportunity to maintain land in natural state.

For detailed information on the viability and threat assessment of the foothills grasslands target, see Appendix A: Haddock, R., T. Lee, K. Sanderson, C. Bradley and K. Good. July 2018. Foothills Grasslands Conservation Assessment Report. Southern Eastern Slopes Conservation Collaborative. Results were used to form strategies, including objectives and actions aimed at improving the viability of the foothills grasslands target (see Section 9.1).

## **8.2 Riparian Systems**

The riparian systems target represents 18% of the landscape in the Southern Eastern Slopes study area (see Figure 7-1) and was selected as a target because they are very productive in terms of biomass, are important to water conservation and provide critical wildlife habitat. A riparian system that is healthy in terms of composition, structure and function improves ecosystem resilience to climate change and extreme weather events. Despite their important value, they are relatively small systems, and impacts such as linear disturbance in watersheds can have profound effects on their composition, structure and function.

**The current viability of the riparian systems target was rated as fair, defined as outside acceptable range of variation, and requires human intervention.**

The score was derived from the following assessment of key ecological attributes and indicators:

- Riparian health scores in the Oldman Watershed were rated as >55% healthy with problems, indicating many riparian functions are still

operating, but some clear signs of stress are apparent. The upper reaches of the Bow Watershed were rated as healthy.

- Watershed intactness measured as linear disturbance found that the majority of the watersheds have a linear density >0.6 km/km<sup>2</sup>. This is above acceptable levels for Species At Risk dependent on riparian systems in the Southern Eastern Slopes, including westslope cutthroat trout, bull trout and grizzly bear, and is at moderate risk for headwaters health (see Figure 8-3).

Table 8-4 Threats to Riparian Systems

THREATS TO RIPARIAN SYSTEMS		RATING
1	COMMERCIAL LOGGING	HIGH
2	LINEAR DISTURBANCE (ROADS, RAILS AND TRANSMISSION LINES)	HIGH
3	URBAN DEVELOPMENT	HIGH
4	INVASIVE SPECIES	MEDIUM
5	MOTORIZED RECREATION	MEDIUM
6	SURFACE DISTURBANCE (E.G. GRAVEL MINING, CLEARING OF VEGETATION.)	MEDIUM
7	AGRICULTURE CROPLAND	LOW
8	DAMS AND DIVERSIONS	LOW
9	GRAZING	LOW
10	NON-MOTORIZED RECREATION	LOW

Of the 10 threats identified that affect viability of the riparian systems target (see Table 8-4), three were rated as high (critical), three as medium and four as low.

Climate change was identified as an **emerging threat** for riparian systems, with the Rocky Mountains experiencing shorter, warmer winters (estimates range from 40 to 50% decreases in annual snowpack and increased fall precipitation), resulting in diminished spring/summer runoff. Strategies that promote resilience of ecosystems by improving riparian health will be important considerations in strategy development.

**Indirect threats** are factors that influence direct threats. The following indirect threats were identified for the riparian systems target:

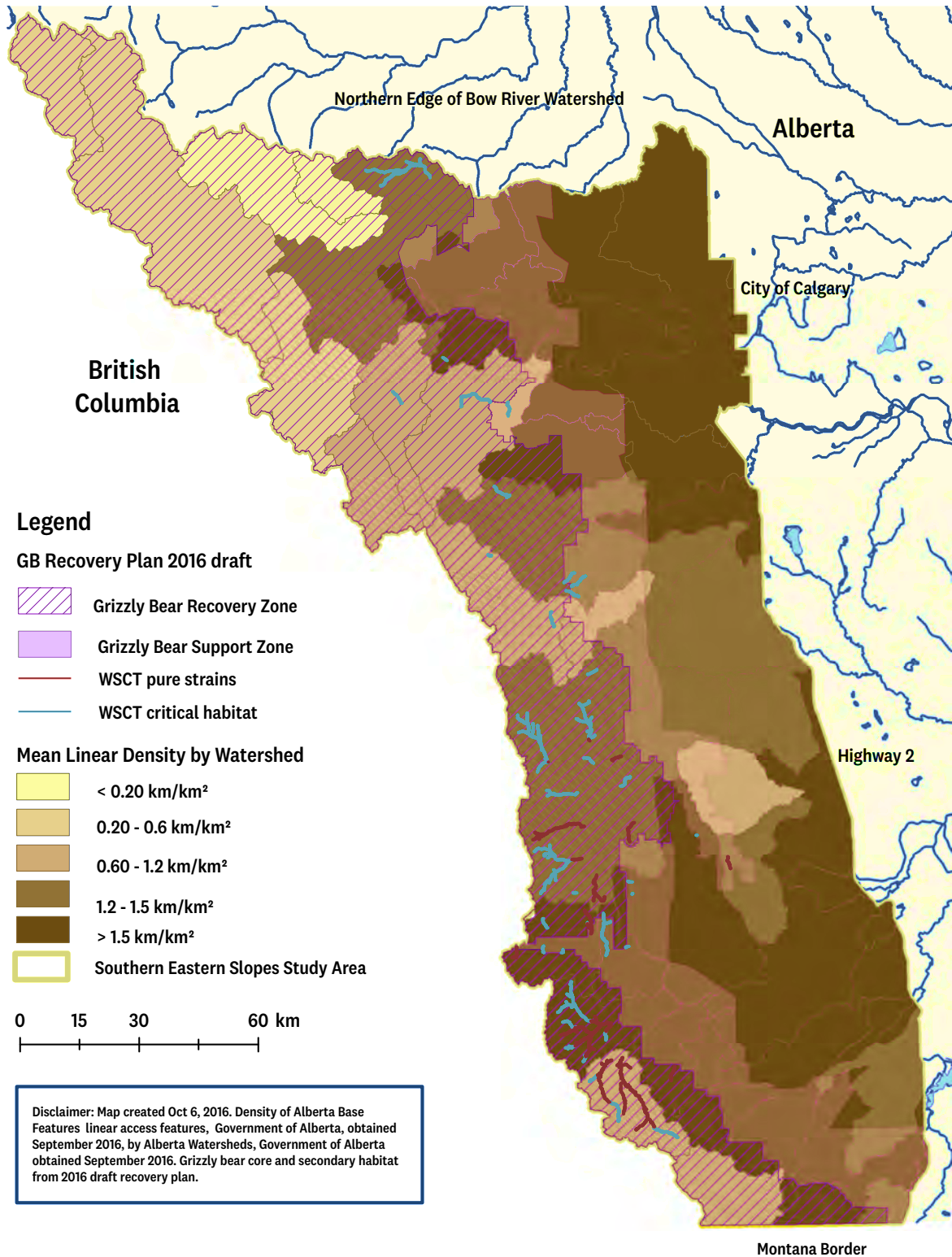
- Timber harvest operating ground rules do not include setbacks for ephemeral and unnamed streams.
- Failure to reclaim roads and trails once no longer needed for industrial activity.

A number of **opportunities** were also identified that could influence conservation of the target:

- Westslope cutthroat trout recovery plan and bull trout recovery plan (in development).
- Better recognition of importance of watershed from urban municipalities (urban interest in water).
- New appreciation for the role that beavers can play in improving watershed resilience.

For detailed information on the viability and threat assessment of the riparian systems conservation target, see Appendix A: Haddock, R., T. Lee and K. Sanderson. July 2018. Riparian Systems Conservation Assessment Report. Southern Eastern Slopes Conservation Collaborative. Results were used to develop strategies, including defining goals, objectives and actions aimed at improving the health of the riparian systems target (see Section 9.2).

# Watershed Linear Density and Species at Risk Habitat



8-3 Linear Density by Watershed and Species-At-Risk Habitat

### 8.3 Lodgepole Pine and White Spruce Forests

The lodgepole pine and white spruce forests target represents 15% of the landscape in the Southern Eastern Slopes region (see Figure 7-1). Lodgepole pine and white spruce forests were selected because these species make up the dominant forest stands within the forest landscape and play an important role in water provisioning, flood protection and as wildlife habitat. Lodgepole pine and white spruce forests are stands that are predominantly targeted for timber harvest.

The current health of the lodgepole pine and white spruce forests target was rated as fair, defined as outside acceptable range of variation, and requires human intervention. The score was derived from the following key ecological attributes:

- Total extent of the lodgepole pine and white spruce forests compared with a historical reference extent, indicates 12% loss in the study area (see Figure 8-4).
- Total extent of remaining old growth (defined for this report as forests older than 116 years) lodgepole pine and white spruce forests is 36% of the forest stands, and of this, 32% occurs in protected areas. Under natural conditions for a forest with a fire return interval of 120 years, approximately 50% would likely occur as old growth. In addition, the average patch size of old growth forest is only 0.4 km<sup>2</sup> (see Figure 8-5).
- Intactness of lodgepole pine and white spruce forests (areas remaining with little or no human footprint) was assessed by percentage of lodgepole pine and white spruce forests target that contributes to native habitat patches  $\geq 10$  km<sup>2</sup> in the study area. Currently, 36% of the lodgepole pine and white spruce forests target falls in intact native habitat patches (see Figure 8-6).

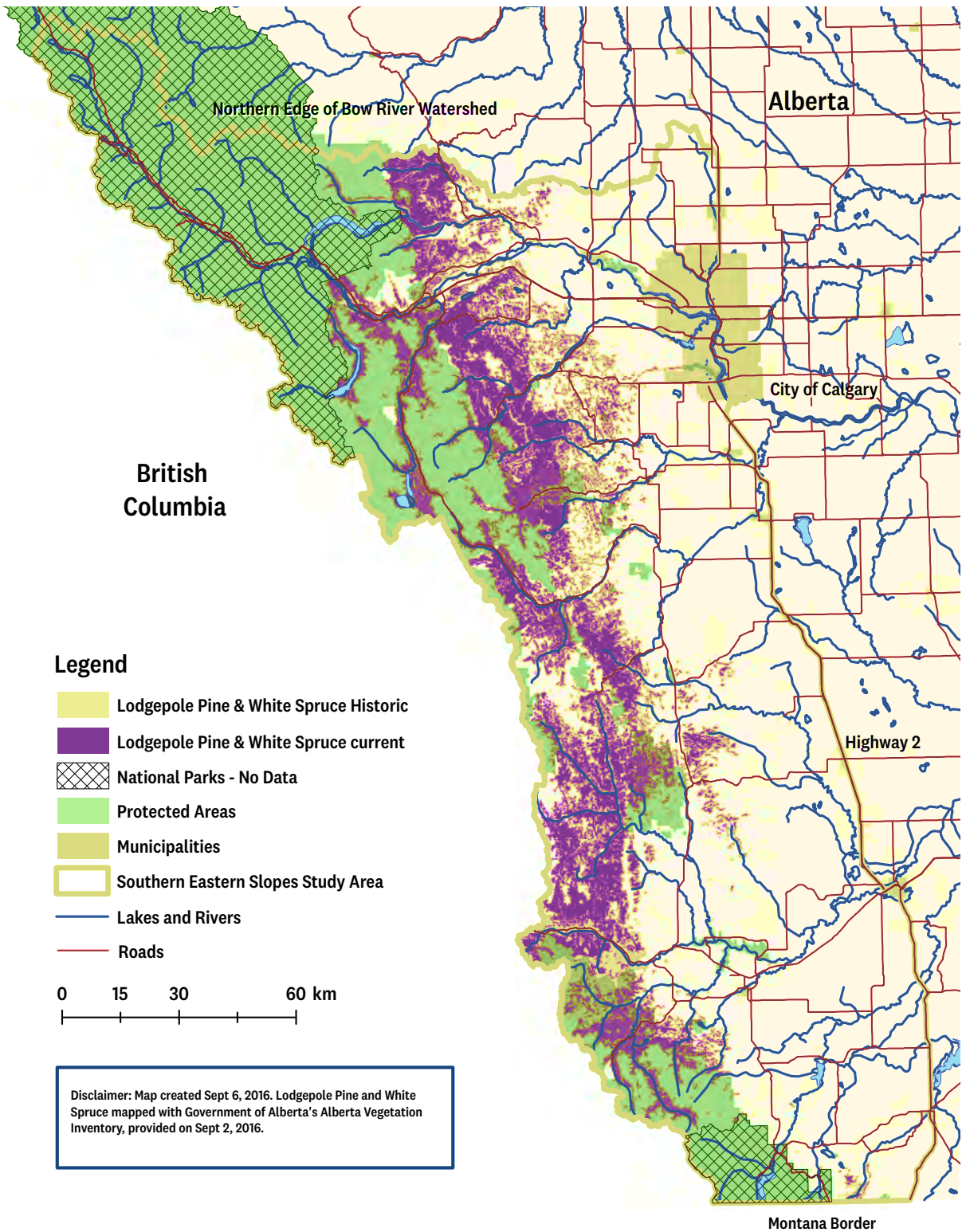
The two threats rated as having high impact on viability of the lodgepole pine and white spruce forests target are commercial logging and linear disturbance (see Table 8-5).

Table 8-5 Threats to Lodgepole Pine and White Spruce Forests

THREATS TO LODGEPOLE PINE AND WHITE SPRUCE FORESTS		RATING
1	COMMERCIAL LOGGING	HIGH
2	LINEAR DISTURBANCE	HIGH
3	ALTERED FIRE REGIME	MEDIUM
4	MANAGEMENT OF PINE BEETLE	MEDIUM
5	MOTORIZED RECREATION	MEDIUM
6	RESIDENTIAL DEVELOPMENT	MEDIUM
7	SURFACE DISTURBANCE	MEDIUM
8	NON-MOTORIZED RECREATION	LOW
9	UNSUSTAINABLE RANGE MANAGEMENT	LOW
10	TERRESTRIAL INVASIVE SPECIES	LOW

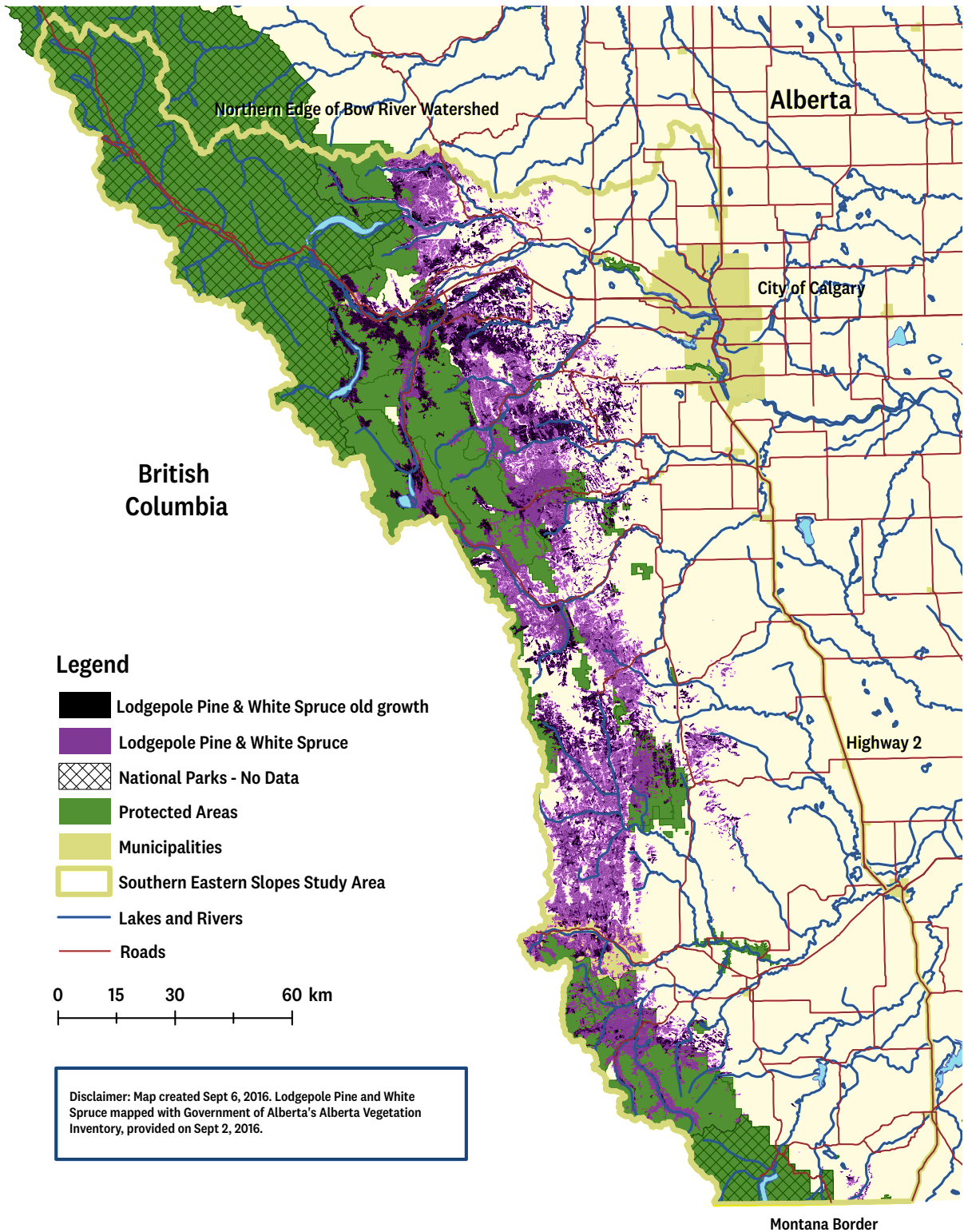


# Lodgepole Pine & White Spruce Historic Extent



8-4 Lodgepole Pine and White Spruce Forests – Historic and Current Extent

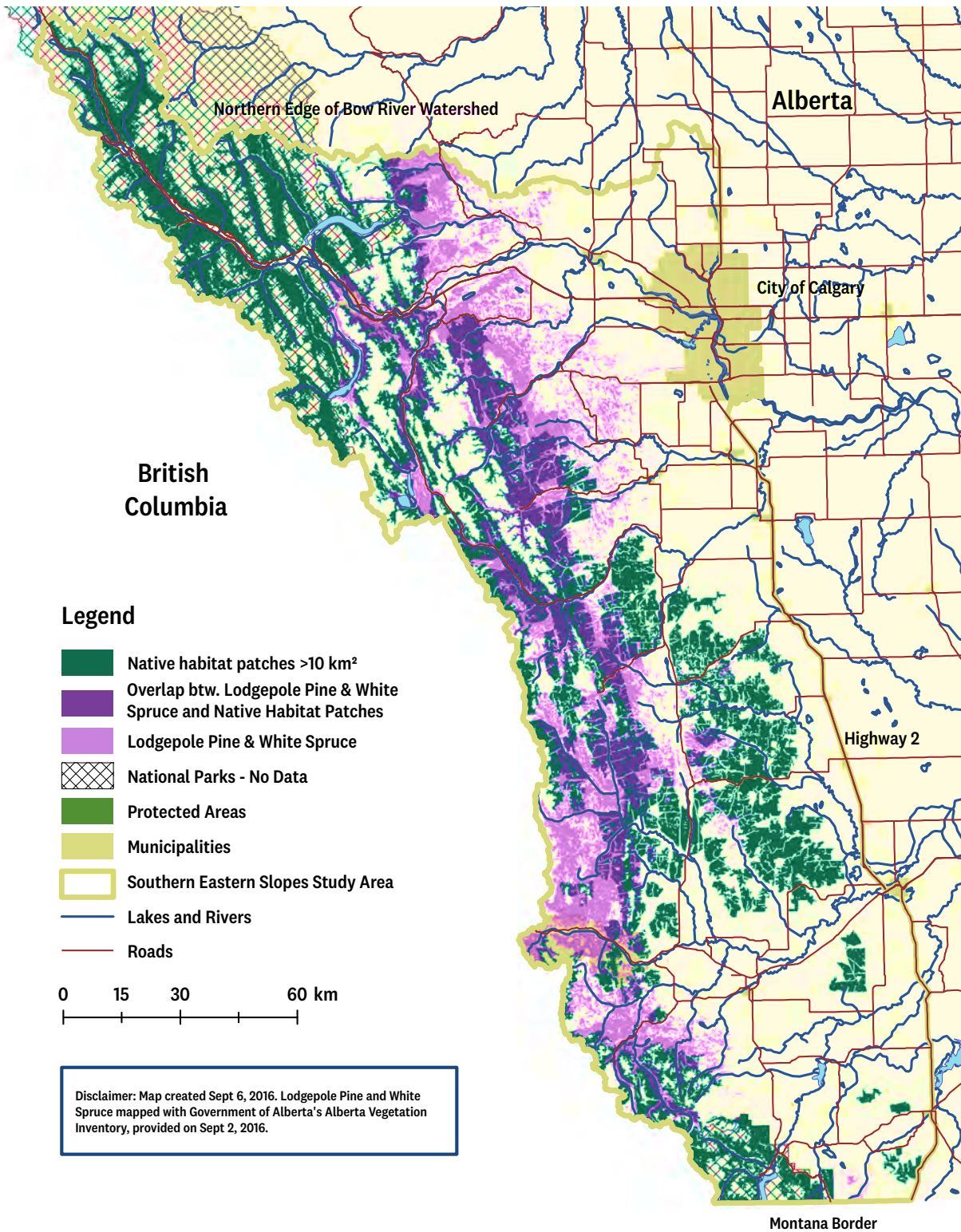
# Lodgepole Pine & White Spruce Old Growth



8-5 Lodgepole Pine and White Spruce Forests – Old-Growth Extent



# Patches of Native Habitat and Lodgepole Pine and White Spruce



8-6 Lodgepole Pine and White Spruce Forests – Core Patches  $\geq 10$  km<sup>2</sup>

Climate change was identified as an **emerging threat** for the lodgepole pine and white spruce forests target that likely rates high. The literature indicates that under climate change the Rocky Mountains could experience shorter, warmer winters (estimates of 40–50% decreases in annual snowpack and increased fall precipitation), resulting in diminished spring/summer runoff. Climate change is predicted to only slightly reduce the extent of lodgepole pine over the next 30 years. However, conditions will favour other species, and models predict a potential long-term reduction in the range of lodgepole pine to the point of local extinction. Management decisions affecting this forest type should aim to conserve areas of climate refugia and increase the resiliency of the forest to climate change. However, fully assessing the impact of this threat was beyond the scope of this project and it was therefore identified as an emerging threat and considered in both short- and long term strategies.

**Indirect threats** are factors that influence direct threats. The following examples of indirect threats were identified for the lodgepole pine and white spruce forests target:

- Lack of coordination or policy for a single road network that services different industries.
- Lack of transparent decision making about harvesting forest stands considered threatened by mountain pine beetle.

A number of **opportunities** were also identified that might influence conservation of the lodgepole pine and white spruce forests target:

- Compile existing case studies highlighting possibility of managing the forest for ecosystem health rather than timber yield.
- A fire regime group formed through the City of Calgary could help create more understanding of the role of fire on the landscape and help generate support for fire as a management tool to promote forest health.
- Frameworks of the SSRP, including the Land Footprint Management Plan, create the opportunity to use science-based thresholds to limit and reduce linear disturbances on the Southern Eastern Slopes.

For more detailed information on the assessment of viability and threats for the lodgepole pine and white spruce forests target, see Appendix A: Haddock, R., T. Lee, K. Sanderson, K. Morrison and H. Young. July 2018. Lodgepole Pine and White Spruce Forests Conservation Assessment Report. Southern Eastern Slopes Conservation Collaborative. Results were used to form strategies, including objectives and actions aimed at improving the viability of the lodgepole pole pine and white spruce forests target (see Section 9.3).

## 8.4 Wide-Ranging Mammals

The wide-ranging mammals target represents 40% of the landscape in the Southern Eastern Slopes region (see Figure 8-7). Wide-ranging mammals, such as grizzly bears, wolverine, wolves, cougars, bighorn sheep, moose, deer and elk require large blocks of habitat to survive and to enable seasonal and migratory movements important to long-term survival. Wide-ranging mammals are often considered umbrella species, since protecting enough habitat for these animals also results in protection of many smaller animals and plants. The wide-ranging mammals target was chosen to represent the connectivity of the Southern Eastern Slopes, using grizzly bear and elk as indicator species. Competing land uses in the Southern Eastern Slopes contribute to habitat loss and fragmentation of the landscape, reducing wildlife access to secure habitat and impeding wildlife ability to move around the landscape to access food, mates and shelter.

The current health of the wide-ranging mammals target was rated as fair<sup>2</sup>, defined as outside acceptable range of variation<sup>3</sup>.

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<sup>2</sup>Fair – outside acceptable range of variation; requires human intervention.

<sup>3</sup>Acceptable Range of Variation – key ecological attributes of focal targets naturally vary over time. The acceptable range defines the limits of this variation that constitute the minimum conditions for persistence of the target (note that persistence might still require human management interventions). This concept of an acceptable range of variation establishes the minimum criteria for identifying a conservation target as “conserved” or not. If the attribute lies outside this acceptable range, it is a degraded attribute.

The score was derived from the following key ecological attributes:

- A fair rating, as only 27% of the recovery area is deemed as secure grizzly bear habitat (see Figure 8-8).
- A fair rating, as only 30% of elk winter range (see Figure 8-9) is not disturbed by human features.
- A good rating for ungulate vehicle collisions (UVCs) on Highway 1 and Highway 3, with the caveat that there are plans for mitigating hotspots.
- A poor to fair rating for human-caused grizzly bear mortality in BMA 5 and BMA 6.

Of the eight **critical threats** identified (see Table 8-6) that affect health of the wide-ranging mammals target:

- Four threats are ranked high, including motorized recreational activity (human use and trail footprint), residential development, non-motorized recreational activity (human use and trail footprint) and surface disturbance (oil and gas). A high threat is likely to seriously degrade the conservation target over some portion of the target’s occurrence at the site.
- Four threats are ranked medium, including linear disturbance (roads, rail and transmission lines), altered fire regime, commercial logging and surface disturbance (industrial clearing; loss of interior habitat). A medium threat is likely to moderately degrade the conservation target over some portion of the target’s occurrence at the site.

It is important to note that consistency was maintained in how threats were described for each conservation target. For example, linear features alone are considered to have a different type of impact than the actual use of linear features – such as intensity of use from motorized recreation. Linear features alone, without active ongoing human use, were used as the measure of threat across all four conservation targets. Motorized recreational activities were ranked separately from linear features as

this activity has different effects on the targets than the linear feature alone. If, however, the use of the feature had been considered as part of the linear features threat, the threat ranking would be “high.” Strategies were developed that aim to reduce overall linear features that support high levels of human use – roads, trails, transmission lines, railroads.

Climate change and renewable energy development were identified as **emerging threats** for the wide ranging mammal target but were not rated for this study.

**Indirect threats** are contributing factors that are drivers of the direct threats for the wide ranging mammals target:

Table 8-6 Threats to Wide-Ranging Mammals

THREATS TO WIDE-RANGING MAMMALS		RATING
1	MOTORIZED RECREATIONAL ACTIVITIES	HIGH
2	RESIDENTIAL DEVELOPMENT (RURAL RESIDENTIAL GROWTH)	HIGH
3	NON-MOTORIZED RECREATIONAL ACTIVITIES	HIGH
4	SURFACE DISTURBANCE (OIL AND GAS)	HIGH
5	LINEAR DISTURBANCE (ROADS, RAILS, AND TRANSMISSION LINES)	MEDIUM
6	ALTERED FIRE REGIME	MEDIUM
7	COMMERCIAL LOGGING	MEDIUM
8	SURFACE DISTURBANCE (INDUSTRIAL CLEARING, MINING)	MEDIUM

- Highway 3 twinning and realignment currently in functional design stage.
- Regional population growth and urban sprawl leading to increased recreational pressure and rural residential development.
- Uncertainty around provincial and municipal land-use planning.

A number of **opportunities** were also identified that could influence target health:

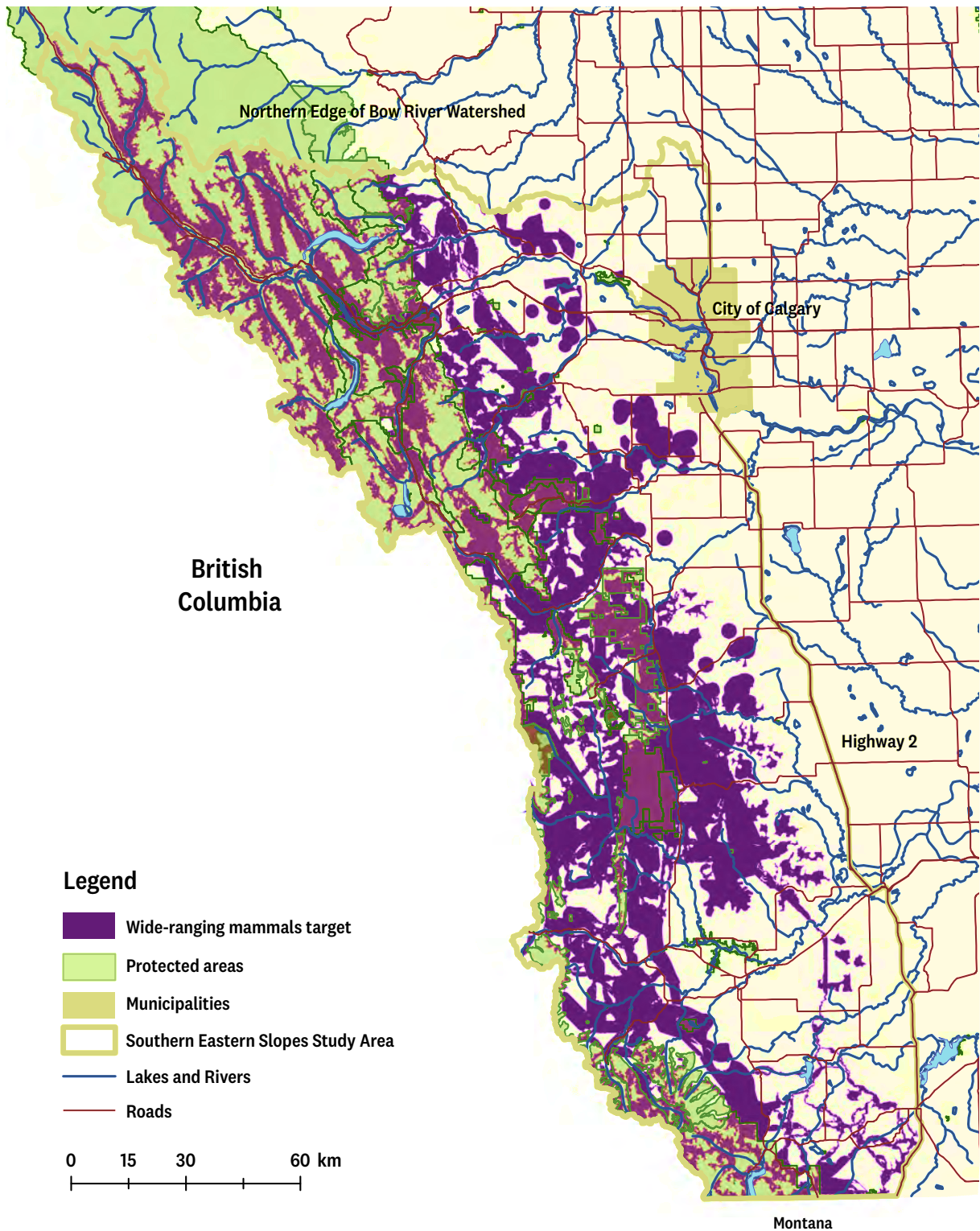
- SSRP, and the various subregional plans, including the Livingstone–Porcupine Hills Land Footprint Management Plan and Recreation Management Plan, can support strategies to reduce impacts on wildlife.
- Draft Alberta Grizzly Bear Recovery Plan identified many strategies that are complementary to improving health of grizzly bears in the study area if implemented.
- Municipal government awareness and engagement on where wildlife core areas and corridors are located.

- Many successful community engagement programs, (Carnivore Working Group, managed by Waterton Biosphere Reserve; Roadwatch in the Pass, managed by Miistakis).
- Alberta Transportation and Alberta Minister of Environment support for wildlife mitigation across highways, including Requests for Proposals for Highway 3, Highway 1 and Highway 22 to inform mitigation.

For more detailed information on the viability and threat assessment of the wide-ranging mammals target, see Appendix A: Lee, T., H. Kinas, K. Sanderson, D. Paton, M. Gibeau and C. Harding. July 2018. Wide Ranging Mammals Conservation Assessment Report. Southern Eastern Slopes Conservation Collaborative. Results were used to form strategies, including objectives and actions aimed at improving the viability of the wide-ranging mammals target (see Section 9.4).

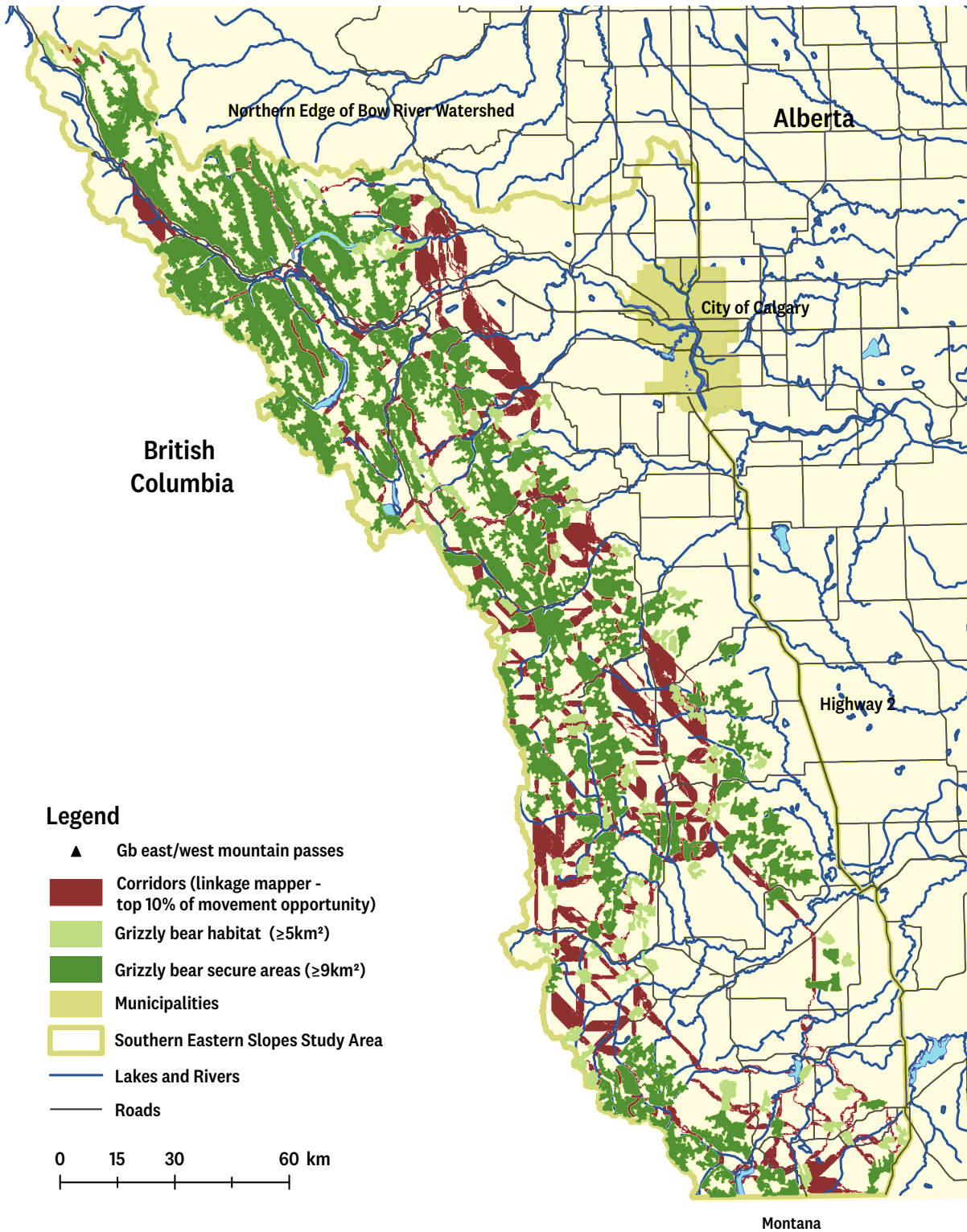


# Wide-Ranging Mammals Target



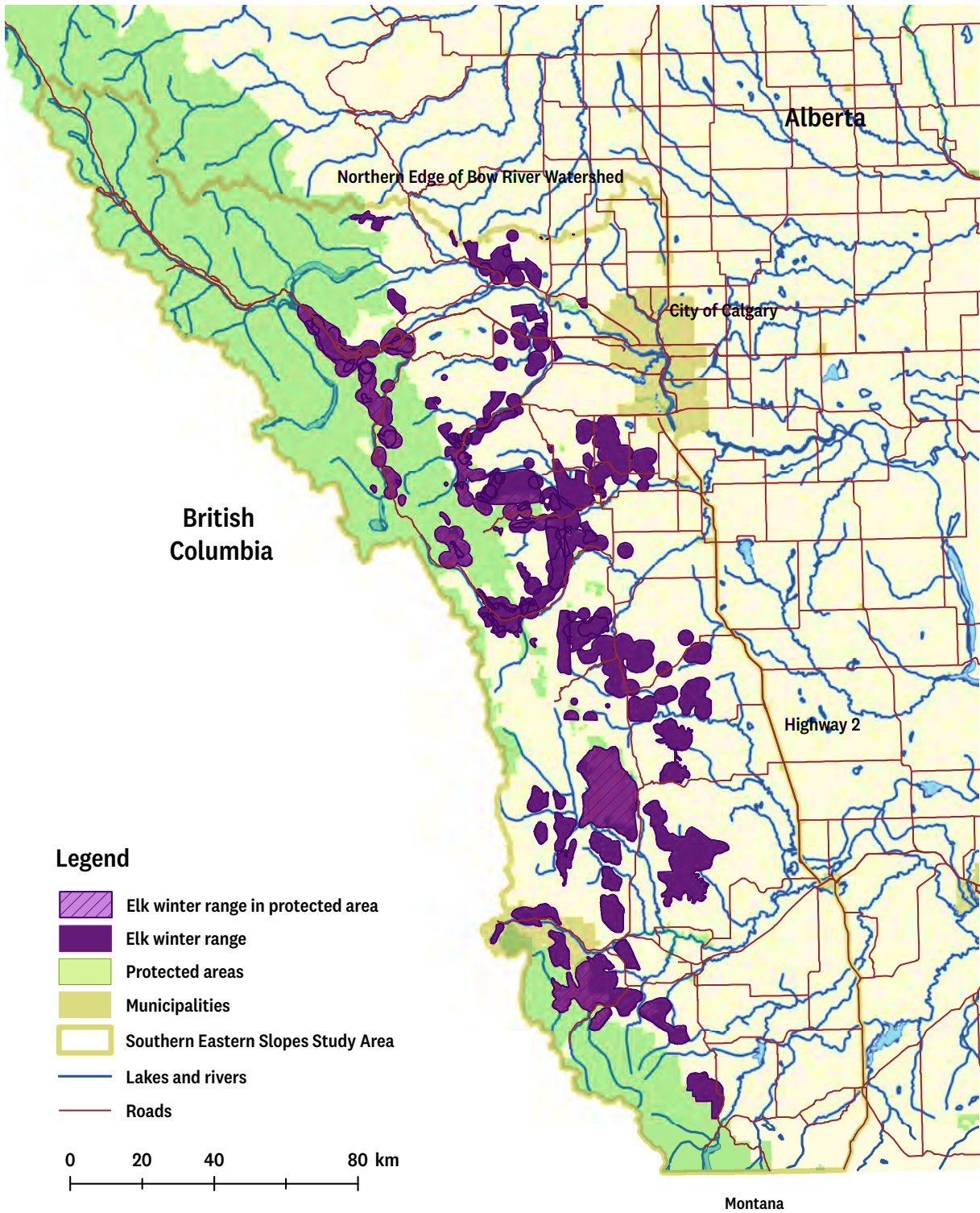
8-7 Wide-Ranging Mammals Secure Habitat and Corridors

# Grizzly Bear Secure Habitat and Corridors



8-8 Grizzly Bear Secure Habitat and Corridors

# Elk Winter Range



8-9 Elk Winter Range and Corridors





# 9

## CONSERVATION STRATEGY: GOALS AND OBJECTIVES

As part of a strategy toward conservation of the Southern Eastern Slopes, goals and objectives were developed by the Collaborative to address the key threats to improve the viability of conservation targets or the study area as a whole.

For the purpose of this report, goals are defined as a broad course of action intended to achieve a specific objective (i.e., outcome) that abates a critical threat, enhances the viability of a conservation target, or secures project resources and support.

Objectives are specific and measurable statements of potential project achievements. They represent the assumption as to what needs to be accomplished in the study area and as such, become the gauge against which conservation progress is measured. Objectives can be stated in terms of reducing the status of a critical threat, enhancing or maintaining the status of key ecological attributes of focal targets, securing project resources and/or the outcomes of specific conservation actions<sup>4</sup>.

A full-day workshop was held to develop goals and objectives. Workshop participants comprised the core team and representatives from the broader collaborative of conservation-based organizations. Using summary information from the conservation assessment reports for each conservation target, including the health ratings and threats to each target, in facilitated dialogue and breakout sessions, a long list of potential goals and objectives for each target was developed.

During a second workshop on goals and objectives, the key objectives for each conservation target were prioritized according to their impact and likelihood of success. Current and future work by the collaborative organizations and other groups was identified with a focus on actions that aim to achieve the priority objectives (see Figures 9-1 to 9-4).

The following sections outline the overall goals developed for each conservation target in the Southern Eastern Slopes. For each goal, the objectives outlined are the **selected top priorities** for each conservation target (see Appendix A for a complete list of objectives).

### 9.1 Foothills Grasslands

Four goals were identified for the foothills grasslands conservation target:

1. Maintain current extent of foothills grasslands target.
2. No additional linear disturbance in large parcels ( $\geq 10$  km<sup>2</sup>) of foothills grasslands.
3. Protect and enhance structural connectivity between foothills grasslands patches.
4. Achieve range health scores on public and private grasslands of at least 60% healthy, no more than 35% healthy with problems and no more than 5% unhealthy.

Five priority objectives were identified to achieve the goals of the foothills grasslands conservation target (see Figure 9-1):

- Increase the rate of private land conservation on foothills grasslands (given that 79% of remaining foothills grasslands in the study area occur on private land).
- Apply appropriate designations to protect grasslands in the Forest Reserve to avoid additional linear disturbance on large parcels.

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<sup>4</sup>The Nature Conservancy. 2007. Conservation Action Planning Handbook: Developing Strategies, Taking Actions and Measuring Success At Any Scale. The Nature Conservancy. Arlington, VA.

- Work toward greater inclusion of grasslands conservation goals in municipal planning.
- Reduce current recreational/industrial footprint on grasslands in the Forest Reserve.
- Develop a strategy to protect or enhance priority areas for connectivity between patches, including targeted protection or restoration of key linkages (e.g., cropland planted to permanent cover).

## **9.2 Riparian Systems**

Four goals were identified for the riparian systems conservation target:

1. Restore riparian health to levels approximating natural range of variation, shifting riparian health scores to 60% healthy, and less than 15% unhealthy.
2. Minimize linear disturbance to <0.6 km/km<sup>2</sup> maximum on public lands and for sub-watersheds with Species at Risk (native fish/grizzly bears) restore to <0.2 km/km<sup>2</sup>.
3. Reduce sedimentation point sources.
4. No new surface development (buildings, clearing vegetation) in riparian areas. (Buildings defined in broad term, human structures – picnic shelters, parking lots, trailheads.)

Six priority objectives were identified to achieve the goals of the riparian systems conservation targets (see Figure 9-2):

- Manage forests for the primary purpose of maintaining/improving ecological function (as per key criteria).
- Strengthen and apply timber harvest ground rules (i.e., setbacks from all waterbodies).
- Apply BMPs for grazing in riparian areas.
- Explore use of beavers as watershed management tool.
- Restore watershed below acceptable linear disturbance levels by removing linear features or enabling a return to natural state.

- Work with provincial government to establish appropriate policy for setbacks of developments from riparian areas.

## **9.3 Lodgepole Pine and White Spruce Forests**

Three goals were identified for the lodgepole pine and white spruce forests conservation target:

1. Maintain natural age structures (represented as maintaining >50% of managed forest in Southern Eastern Slopes as forest older than 116 years).
2. Maintain natural vegetation in current extent of pine–spruce forest.
3. Increase area of pine-spruce forests in intact natural vegetation patches (≥10 km<sup>2</sup>) to >40% of the study area (short term) and >60% (long term).

Six priority objectives were identified to achieve the goals of the lodgepole pine and white spruce forests conservation target (see Figure 9-3):

- Prohibit harvest of old growth forests in the Southern Eastern Slopes.
- Adopt a new system of forest management that prioritizes ecological values and watershed health over timber production.
- Maximize net economic public good of land and resources in the Southern Eastern Slopes.
- Create policies on linear features and recreation planning with a maximum linear density threshold of 0.6 km/km<sup>2</sup>, including open motorized roads and trails and restricted industry roads.

- Develop and implement recreation management policies and plans on public lands, including designated camping areas, designated trails and supporting infrastructure (e.g., trash bins, outhouses and signage) in appropriate areas.
- Use relevant forest regrowth data, including climate modelling and predictions.

## 9.4 Wide-Ranging Mammals

Five goals were identified for the wide-ranging mammals conservation target:

1. Current extent of wide-ranging mammals target is maintained and improved.
2. Increase grizzly bear secure areas, defined as 68% secure habitat, to ensure security for wide ranging mammals.
3. Improve and maintain connectivity for wildlife across major highways and roads.
4. Stakeholders (including MDs and industry), include wide ranging mammal needs in land-use and development planning and implementation.
5. Meet mortality targets for grizzly bears of <4% overall, of which <1.2% is female.

Seven priority objectives were identified to achieve the goals of the wide-ranging mammals conservation target (see Figure 9-4):

- Industry planning (logging, mining, oil and gas) incorporates wide ranging mammals secure habitat and connectivity in terms of new linear development and logging operations.
- Reduce open public and restricted linear footprint (<0.6 km/km<sup>2</sup>) by supporting provincial government in creating and implementing a land footprint management plan and recreational management plan that takes into account the needs of grizzly bears.

- Increase support and identify additional tools for private land conservation in the wide ranging mammals target areas.
- Support highway mitigation that enables safe passage of wildlife across Highway 1, Highway 22, Highway 3 and secondary highways to reduce wildlife mortality.
- Secure land (private and public) adjacent to prioritized highway mitigation sites (Highway 1, Highway 22, Highway 3 and secondary highways).
- Build awareness and engage municipalities and industry on the needs of wide range mammals, including movement corridors.
- Support continuation and expansion of community-based mitigation programs, including carcass pickup, attractant management, composting livestock carcasses.

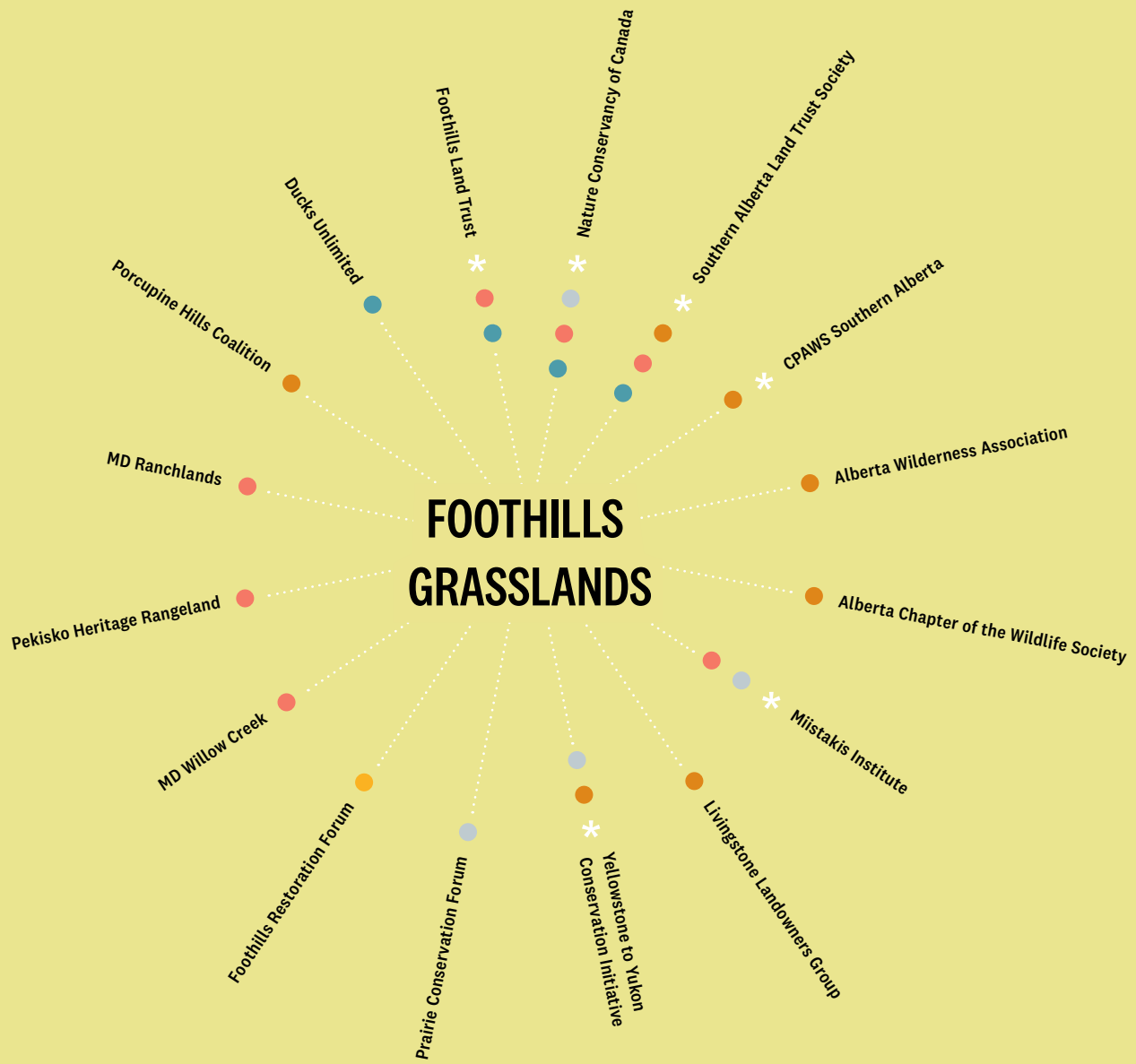
## 9.5 Organization Network Maps of Priority

### Objectives

The southern East Slopes Conservation Collaborative is comprised of organizations who are working, within the scope of their mandates and resources, towards achieving the vision and priority objectives in this report. Collaborative work is a focus of the Eastern Slopes Collaborative Conservation Strategy as it helps focus efforts and resources to achieve priority objectives through effective stewardship of the Southern Eastern Slopes ecosystems.

To help facilitate and encourage this approach during the third workshop, the Collaborative identified, to the best of their knowledge, organizations working on elements of the priority objectives. An organizational network map was created for each conservation target with the hope that organizations with common goals will seek, where possible, collaborative approaches with partner organizations to achieve conservation goals.





**Figure 9-1**

## Foothills Grasslands Priority Objectives and Organizations

\* Collaborative Partner Organization

### Objectives:

- Apply appropriate designations to protect grasslands in the Forest Reserve to avoid additional linear disturbance on large parcels.
- Work towards greater inclusion of grasslands conservation goals in municipal planning.
- Reduce current recreational/industrial footprint on grasslands in the Forest Reserve.
- Increase the rate of private land conservation on foothills grasslands (given that 79 percent of remaining foothills grasslands in the study area occur on private land).
- Develop a strategy to protect or enhance priority areas for connectivity between patches including targeted protection or restoration of key linkages (e.g. cropland planted to permanent cover).

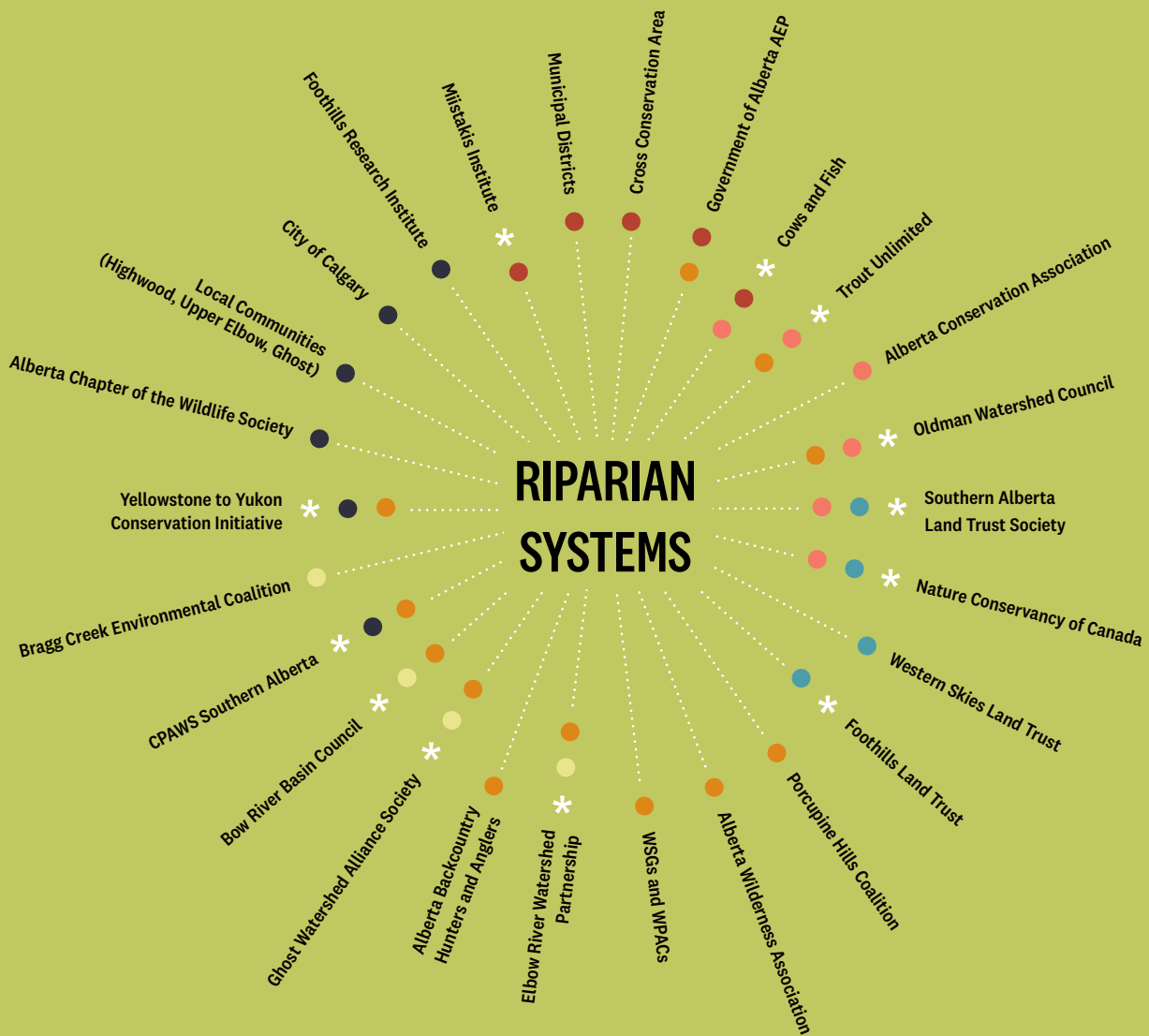


Figure 9-2

## Riparian Systems Priority Objectives and Organizations

\* Collaborative Partner Organization

### Objectives:

- Explore use of beavers as watershed-management tool.
- Manage forests for the primary purpose of maintaining / improving the ecological function (as per key criteria).
- Strengthen and apply timber harvest ground rules (i.e. setbacks to all water bodies).
- Restore watershed below acceptable linear disturbance levels by removing linear features or enabling a return to natural state.
- Work with the provincial government to establish appropriate policy for development in riparian areas.
- Apply BMPs for grazing in riparian areas.

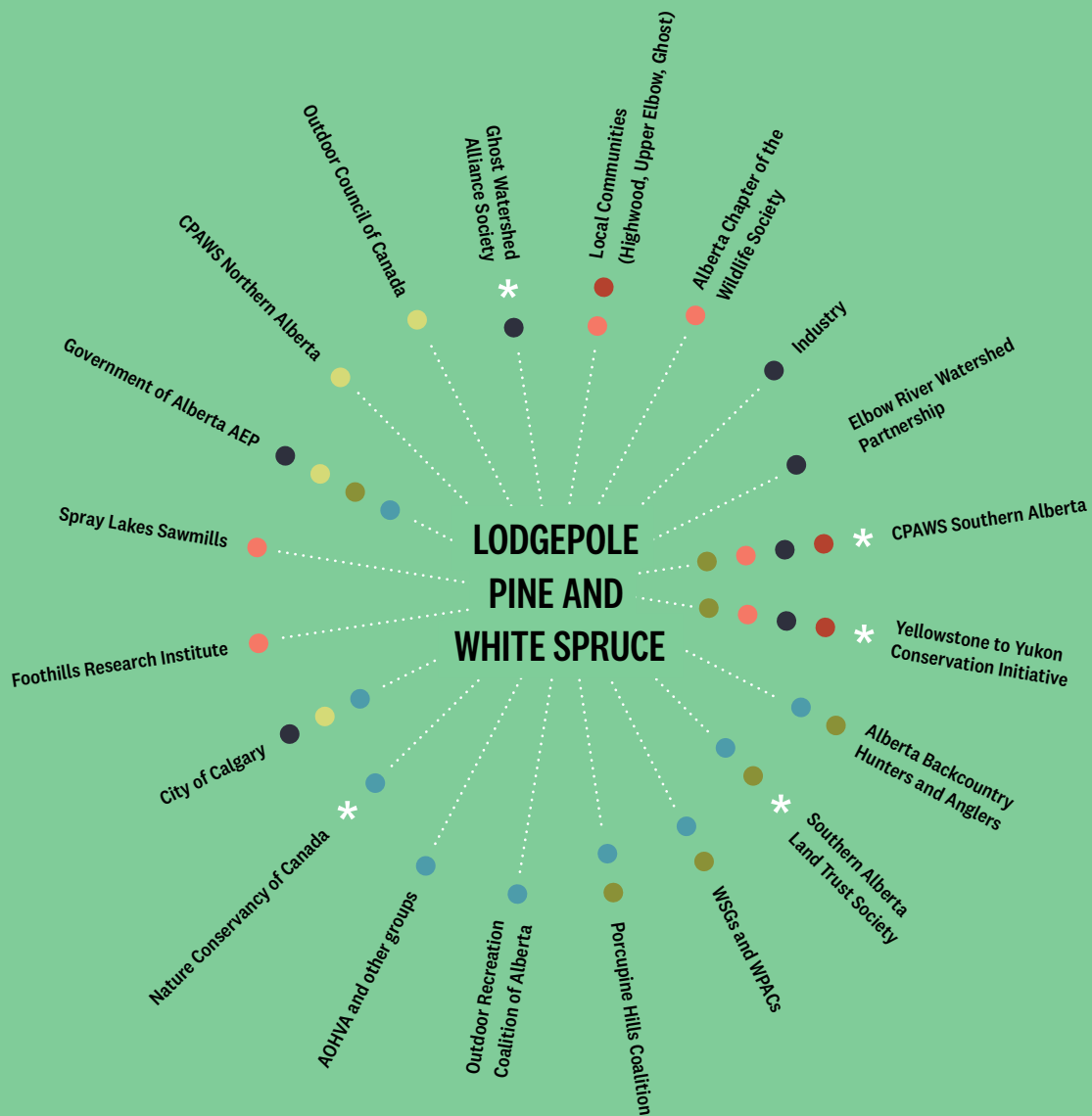


Figure 9-3

## Lodgepole Pine and White Spruce Priority Objectives and Organizations

\* Collaborative Partner Organization

### Objectives:

- Prohibit harvest of old growth forests on the Southern Eastern Slopes.
- Use relevant data for forest standards regarding re-growth, including climate modeling and predictions.
- Maximize net economic public good of land and resources on the Eastern Slopes.
- Adopt a new system of forest management that prioritizes ecological values and watershed health over timber production.
- Develop and implement recreation management policies and plans on public lands including designated camping areas, designated trails and supporting infrastructure (e.g. trash bins, outhouses, signage) in appropriate areas.
- Create policies on linear features and recreation planning with a maximum linear density threshold of 0.6km/km<sup>2</sup>, including open motorized roads and trails and restricted industry roads.

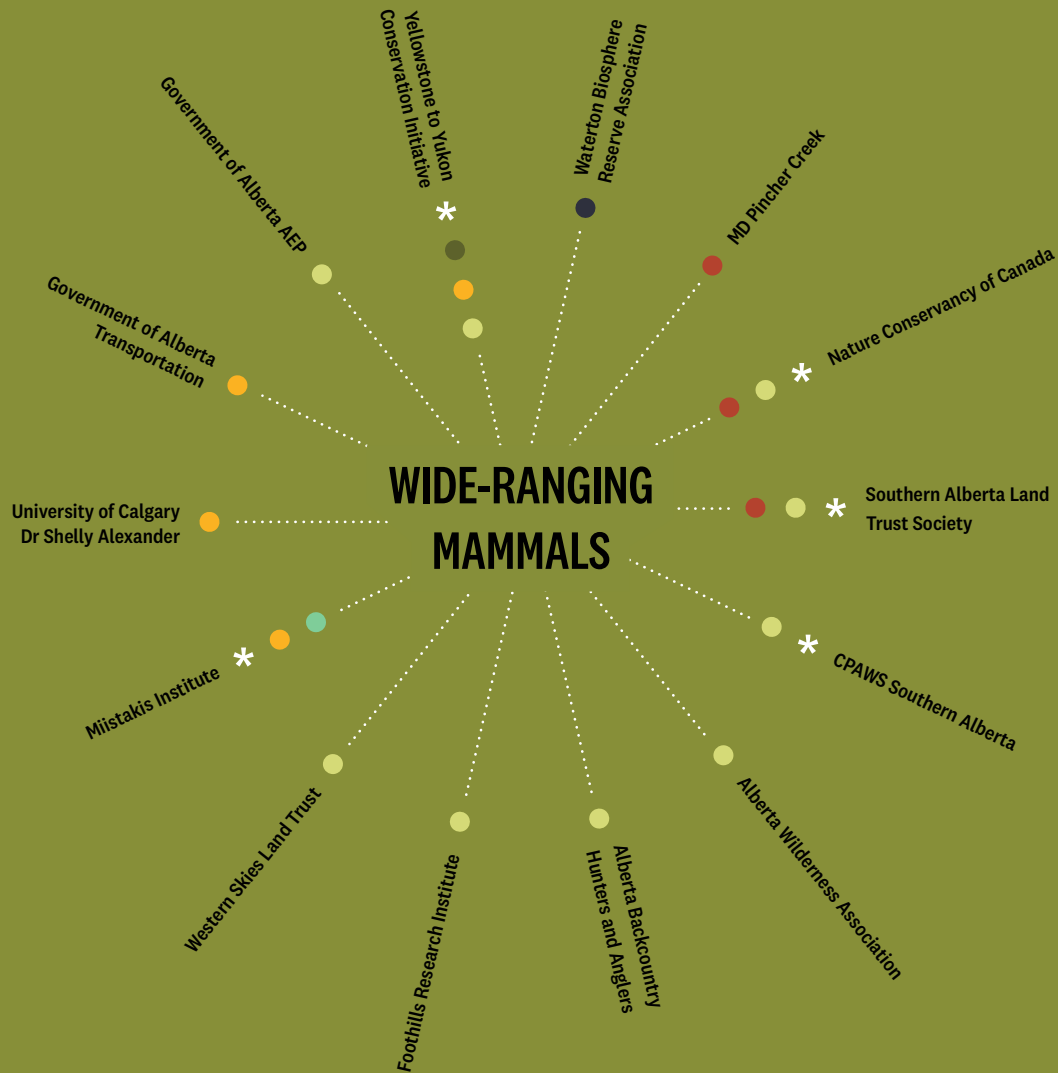


Figure 9-4

## Wide-ranging Mammals Priority Objectives and Organizations

\* Collaborative Partner Organization

### Objectives:

- Support the continuation and expansion of community based mitigation programs including: carcass pick up, attractant management, composting livestock carcasses, etc.
- Industry planning (logging, mining, oil and gas) incorporates wide ranging mammal secure habitat and connectivity in terms of new linear development and logging operations.
- Reduce open public and restricted linear footprint (<0.6km/km<sup>2</sup>) by supporting the provincial government in creating and implementing a land footprint management plan and recreational management plan.
- Build awareness and engage municipalities and industry on the needs of wide range mammals, including movement corridors.
- Reduce current recreational/ industrial footprint on grasslands in the Forest Reserve.
- Secure land (Private and public) adjacent to prioritized Highway mitigation sites (Highways 1,3,22 and secondary highways)
- Identify additional tools for private land conservation within the wide ranging mammal target areas.

# 10

## HOW TO USE THIS REPORT

This project and report will help guide positive change for both the conservation community and Albertans more broadly through improved management of our valuable Southern Eastern Slopes. Creating, as a collaborative conservation community, a comprehensive plan that identifies conservation priorities, goals and objectives will help align individual programs and strengthen the voice of land- and water-based conservation groups in southern Alberta.

The priority goals and objectives developed for each conservation target as part of this project were created to ultimately address and improve the overall viability of the conservation target with the biggest impact and likelihood of success. The goals and objectives are not exhaustive; others might identify alternative objectives that support reaching the goal. The intent is, that by addressing each objective, the overall goal will be achieved. Similarly, example actions were included to demonstrate action in support of a specific objective, but the list is not exhaustive. We envision conservation practitioners identifying actions as they relate to their organization's priorities. The power of this document will be realized in the collective identification and implementation of actions in overall support of the objectives and goals.

Ultimately, this report will be used in myriad ways to support conservation in Alberta. We envision conservation organizations might use this document to:

- provide valuable scientifically based information specific to the Southern Eastern Slopes
- prioritize conservation actions
- align conservation strategies across organizations
- identify areas for collaborative efforts
- establish new conservation programs to address gaps identified

While the primary audience for this report is conservation organizations, it was also created for governments, agency personnel, landowners and other interested stakeholders to support conservation action. We envision others using this report to:

- provide valuable scientifically based information specific to the Southern Eastern Slopes
- provide specific landscape information to support land-use planning, specifically with implementation of the SSRP
- identify areas of common interest and priority across agencies and organizations
- provide support and direction for design and implementation of conservation-based programming





# 11

## CONCLUSION

This project is a first of its kind for Alberta. It is a conservation planning effort driven by a diverse group of conservation organizations and scientists active in the Southern Eastern Slopes. Its purpose is to clearly identify what is needed to keep the Southern Eastern Slopes functioning ecologically, without looking through a specific organizational or jurisdictional lens. It does so by identifying key conservation targets, evaluating their viability, assessing the key threats to their viability, and then providing goals and objectives to maintain or improve the target viability.

The organizations and individuals involved have expertise in science, planning and conservation. It is intended that this report be a valuable resource for those working to see the health and viability of the Southern Eastern Slopes maintained over the long term.

The report can and will be used in myriad ways to support conservation in Alberta by leveraging science, mapping and partnerships to tackle specific land-use challenges that threaten the health of the Southern Eastern Slopes. While the primary audience for this report is conservation organizations, it was also created to support governments, agency personnel, landowners and other interested stakeholders.

Given the enormous economic and social value of the Southern Eastern Slopes, Albertans need to take all steps necessary to avoid having this provincial treasure become a cautionary tale of irreplaceable natural riches lost. Alberta is still blessed with significant ecosystem services provided by this unique landscape. With good information and clear goals established, it is incumbent on Albertans to ensure those benefits continue for future generations.

### APPENDIX A: TECHNICAL CONSERVATION TARGET REPORTS

Haddock, R., T. Lee, K. Sanderson, C. Bradley and K. Good. July 2018. *Foothills Grasslands Conservation Assessment Report*. Southern Eastern Slopes Conservation Collaborative. 36 p.

Haddock, R., T. Lee and K. Sanderson. July 2018. *Riparian Systems Conservation Assessment Report*. Southern Eastern Slopes Conservation Collaborative. 28 p.

Haddock, R., T. Lee, K. Sanderson, K. Morrison and H. Young. July 2018. *Lodgepole Pine and White Spruce Forests Conservation Assessment Report*. Southern Eastern Slopes Conservation Collaborative. 26 p.

Lee, T., H. Kinas, K. Sanderson, D. Paton, M. Gibeau and C. Harding. July 2018. *Wide-Ranging Mammals Conservation Assessment Report*. Southern Eastern Slopes Conservation Collaborative. 42 p.

