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# Value of Private Land Conservation in Alberta

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Document prepared for: Alberta Land Trust Community

## Value of Private Land Conservation in Alberta

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Prepared for:

Ducks Unlimited Canada  
Edmonton Area Land Trust  
Foothills Land Trust  
Legacy Area Land Trust Society  
Nature Conservancy of Canada  
Southern Alberta Land Trust Society  
Western Sky Land Trust

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# Executive Summary

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Private land conservation plays an important role in protecting natural landscapes that sustain healthy fish and wildlife populations and support ecological systems necessary for human health and recreational activities that benefit the economy. The Alberta land trust community identified a need to document the conservation contributions of private land over the past 20 years. A collective summary of the work of land trusts in Alberta and the value of private land conservation in the province has never been done. This report highlights the significant contributions already made by private land conservation and why its continued growth and success are critical for the future of Alberta.

To highlight the value of land trusts to private land conservation in Alberta we developed *Land Trusts At A Glance and Conservation Impact*—a compilation of high-level progress indicators. We worked with seven land trusts<sup>1</sup> operating in Alberta, all that play a role in conserving private land and with a common goal of maintaining natural systems for the benefit of people and wildlife. In Alberta there are approximately 65,000,000 acres of private land (Government of Alberta, 2020) of which approximately 31,000,000 acres are not cultivated. Of these 31,000,000 acres, land trusts have protected 429,600 acres of natural landscapes (1.4%). If considered as a whole, this is equivalent in area to more than three Waterton Lakes National Parks. Private land conservation includes both land owned by land trusts (36%) and land with conservation easements on the title (64%). Alberta's Land Trust Grant Program (LTGP), funded by the Government of Alberta, has supported 29% of the total area protected by land trusts included in this analysis through private land conservation.

Private land conservation in Alberta represents a true partnership approach to conservation, with contributions from a variety of sources. Six of the seven land trusts indicated a conservative total investment in private land conservation in Alberta over 20 years of \$454,267,701. These contributions include landowners through donations of ecological gifts (52%), federal, provincial, and municipal governments (25%), foundations (11%), and private individuals or corporations (12%). Of the total government dollar contributions of 25%, just over half (13%) is from the LTGP.

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<sup>1</sup> Some organizations and municipalities which can hold conservation easements or purchase private land for conservation are not included in this analysis.

To further understand the role of private land conservation in protecting natural landscapes for people and wildlife we developed a series of metrics to highlight contributions of land trusts to:

- Protect ecosystems that support Alberta’s wildlife and biodiversity.
- Protect water resources (wetlands, rivers, riparian areas) that support essential services for people (flooding, drought, water quality and quantity).
- Protect landscapes that directly and indirectly support culture and recreation (hunting, fishing, wildlife viewing and natural sightseeing).

### *Land trusts help protect Alberta’s wildlife and biodiversity*

Much of Alberta’s wildlife and biodiversity rely on unprotected threatened ecosystems and critical landscapes.

#### Threatened ecosystems

- The majority (80%) of remaining Foothills Fescue Prairie occurs on private land. Land trusts have protected 8% of the private holdings of this at-risk ecosystem.
- The majority (78%) of remaining Central Parkland occurs on private land. Land trusts have protected 2% of Central Parkland in private hands.
- The majority (84%) of wetlands in priority conservation areas (based on the Joint Prairie Habitat Venture) occur on private land. Land trusts have protected 2% of wetlands that are privately held.

#### Critical Landscapes

- A critical portion of ecological corridors in the Crowsnest Pass region occur on private land (34%). Land trusts protect 20% of the private land that occurs in these corridors.
- The majority (65%) of the Beaver Hills Biosphere Reserve occurs on private land. Three percent of this area is protected by land trusts.

Although the area protected by land trusts is small in some cases, private land conservation has, in part, protected significantly more of these at-risk landscapes than is protected on public lands.

### *Land Trusts help protect important water services*

Protecting water resources (wetlands, rivers, riparian areas) that support essential services for people (flooding, drought, water quality and quantity).

- The majority (66%) of riparian areas in the Red Deer River Watershed occur on private land. Land trusts on private land have protected 1% of this area.
- Forty-six percent of riparian area in the Bow River Watershed occurs on private land. Land trusts have protected 2.5% of this riparian area held privately.
- The majority (60%) of riparian area in the Oldman River Watershed occurs on private land. Land trusts have protected 7.5% of these private holdings.
- There are 4,636,205 acres of wetlands in the white zone (settled area of the province, predominately private land) in Alberta, and private land conservation has protected 31,869 acres of these wetlands.

### *Land Trusts help to support outdoor recreation and human wellbeing*

Protecting landscapes that directly and indirectly support culture and recreation in Alberta (hunting, fishing, wildlife viewing and natural sightseeing).

#### Supporting human wellbeing

- Forty-six percent of the Cowboy Trail scenic area occurs on private land. Land trusts have protected 21.9% of this private land.
- Land trusts have protected 167,090 acres of private land within 5 km of provincial or national parks in Alberta.

#### Supporting outdoor recreation

- Privately conserved land supports recreational fishing by protecting 45 km of important fish habitat along the Castle, Crowsnest, Bow and Oldman Rivers. This is 2.4% of these river systems. If you included only the highly utilized sport fishing areas west of Highway 2 and east of Calgary this number would be much higher.
- Half of the supporting habitat that maintains healthy populations of deer, moose, and elk in southwest Alberta occurs on private land (52%). Land trusts have protected 18.7% of this area.

# Introduction

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Private land conservation plays an important role in protecting natural landscapes. They sustain healthy fish and wildlife populations and support ecological systems important to human health and recreation—activities important to the economy.

Land trusts in Alberta have identified a need to document contributions made by the conservation of private lands over the past 20 years. A summary of the work of land trusts in Alberta and the value of private land conservation in the province has never been done. This report highlights why the continued growth and success of private land conservation are critical for Alberta's future.

We identify metrics of ecological and economic value of the special contribution of private land conservation in Alberta. Specifically, our objective was to identify measures that can be reassessed over time to highlight the ongoing role of the land trust community to conservation in central and southern Alberta.

This is a technical report developed as a tool for internal communications purposes. It, along with the metrics, can be updated over time.

# Methods

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To highlight the value of land trusts to private land conservation in Alberta we developed:

- *Land Trusts At A Glance* metrics that document a series of high-level indicators of the land trusts value in Alberta.
- *Conservation Impact* metrics that document the role of private land conservation in maintaining wildlife populations, water services, and outdoor recreation and human health opportunities.

Metrics were developed during a workshop with land trust representatives from each of the seven land trusts (Table 1) and were prioritized using a follow-up, online survey. The process, metrics, and survey results are documented in Appendix A.

Our analyses combine the work of seven Alberta land trusts. Other organizations that protect private land, such as municipalities, Alberta Fish and Game Association,

and the Alberta Conservation Association are not included in here. Despite not being listed in the report, we did include projects involving partnerships with one or more of the land trusts included in the assessment.

## Value of Private Land Conservation in Alberta

### Land Trusts At A Glance

We worked with seven of the land trusts operating in Alberta. All play a role in conserving private land, serving diverse mandates (Table 1). A common goal for land trusts is to maintain natural systems for the benefit of both people and wildlife. A detailed summary of the *At A Glance* metrics are listed in Appendix B.

Table 1: Land Trust Mandate

Land Trust	Mandate
Ducks Unlimited Canada (DUC)	DUC mission is to conserve, restore, and manage wetlands and associated habitats for North America's waterfowl. These habitats benefit other wildlife, people, and our environment.
Edmonton and Area Land Trust (EALT)	EALT conserves nature in Edmonton and area, engaging people and communities in land conservation and stewardship.
Foothills Land Trust (FLT)	FLT conserves and connects natural landscapes within Foothills County.
Legacy Land Trust Society (LLTS)	LLTS works with communities, to help conserve nature, water, wildlife, food, and stories.
Nature Conservancy of Canada (NCC)	NCC is Canada's leading national land conservation organization. A private, non-profit organization, the NCC partners with individuals, corporations, foundations, Indigenous communities, and other non-profit organizations and governments at all levels to protect our most important natural treasures — the natural areas that sustain Canada's plants and wildlife. The NCC secures properties (through donation, purchase, conservation agreement and the relinquishment of other legal interests in land) and manages them for the long term.
Southern Alberta Land Trust Society (SALTS)	SALTS' focus is to work collaboratively with landowners to protect private land of high ecological value from being fragmented and degraded. Their goal is to ensure that Albertans can all continue to enjoy the many benefits derived from the open landscapes that make us grateful to be Albertans.
Western Sky Land Trust (WSLT)	To achieve a significant and measurable conservation impact in Southern Alberta the WSLT conserves watershed lands that have important natural, agricultural, scenic, recreational, and heritage values.

*How much private land has been conserved by land trusts?*

In Alberta there are approximately 65,000,000 acres of private land (Government of Alberta, 2020). Approximately half of private land has been committed to agricultural production through cultivation, lying outside the scope for most land trust conservation. Of the remaining 31,000,000 acres, land trusts have protected 429,600 acres of natural landscapes (1.4%). While not all in one location, this is equivalent in area to more than three Waterton Lakes National Parks. Private land conservation includes both land owned by land trusts (36%) and land with conservation easements on the title (64%). Alberta's Land Trust Grant Program (LTGP), funded by the Government of Alberta, has supported 29% of the total area protected by land trusts included in this analysis through private land conservation (Figure 1). Land conservation by land trusts through other means (e.g., government or industry partnerships for park establishment) are not included here.

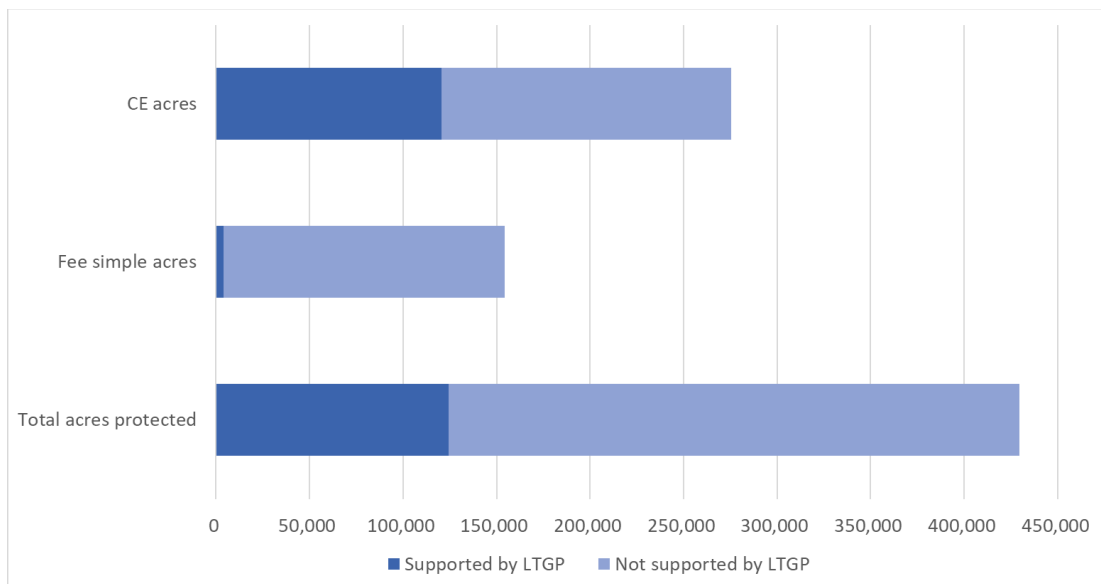


Figure 1: *Private land area protected by land trusts (acres on the horizontal axis) in Alberta shown as total protected, protected in fee simple and protected in conservation easements. The dark blue regions are the contributions of LTGP to private land conservation in Alberta based on seven land trusts included in the analysis.*

*Where do land trusts operate in Alberta?*

Land trusts operate where there is private land, but most have focused areas of operation. Figure 2 shows the area protected through private land conservation per natural region and land use planning region in Alberta (Tables 2 and 3).

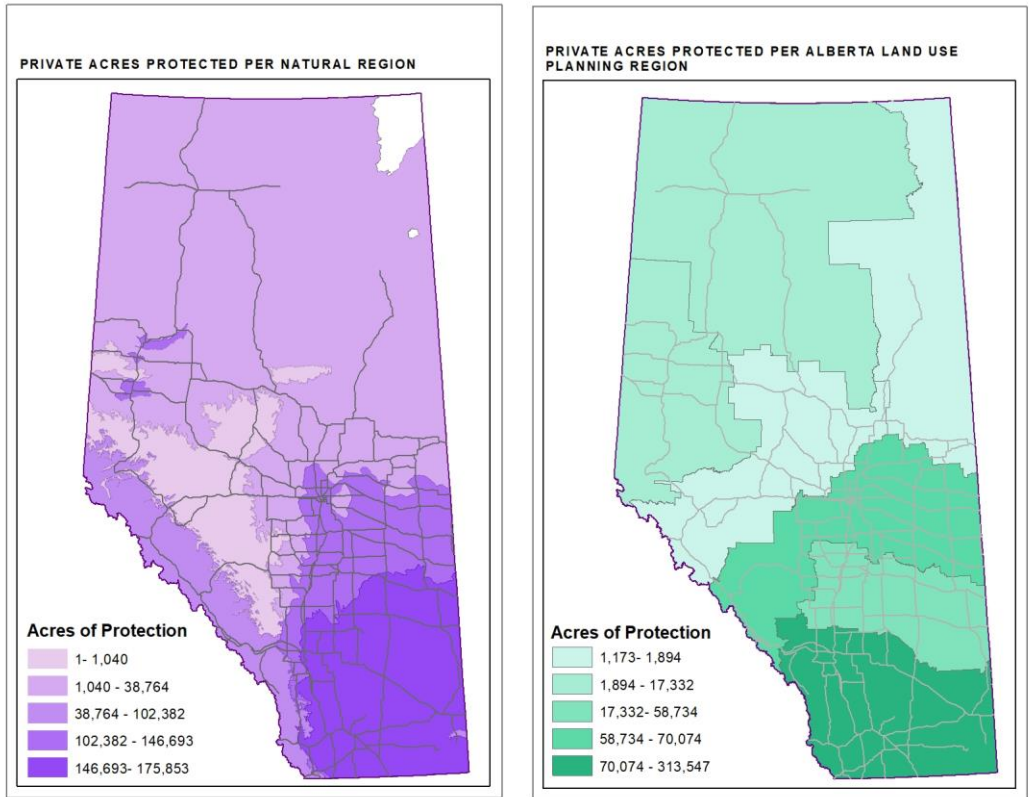


Figure 2: Acres of privately protected land per natural region and land use planning region where increasing number of acres per region is displayed from light to dark.

Table 2: Land area privately protected per natural region in Alberta.

Natural Region	Acres Protected
Boreal	38,764
Foothills	1,040
Grassland	175,853
Parkland	146,693
Rocky Mountain	102,382
Canadian Shield	0

Table 3: Land area privately protected per land use planning region in Alberta

LUF Planning Region	Acres Protected
Upper Peace	17,332
South Saskatchewan	313,547
North Saskatchewan	70,074
Lower Athabasca	1,173
Upper Athabasca	1,894
Lower Peace	1,977
Red Deer	58,734

*How is private land conservation funded?*

Six of Alberta’s land trusts reported a conservative total investment in private land conservation in Alberta over the last 20 years of \$454,267,701<sup>2</sup>. Private land conservation in Alberta represents a true partnership approach to conservation, with contributions from a variety of sources. These include landowners through donations (e.g., ecological gifts) (52%), federal, provincial, and municipal governments (25%), foundations (11%), and private individuals or corporations (12%) (Figure 3). Of the total government dollar contributions of 25%, just over half (13%) is from the LTGP.

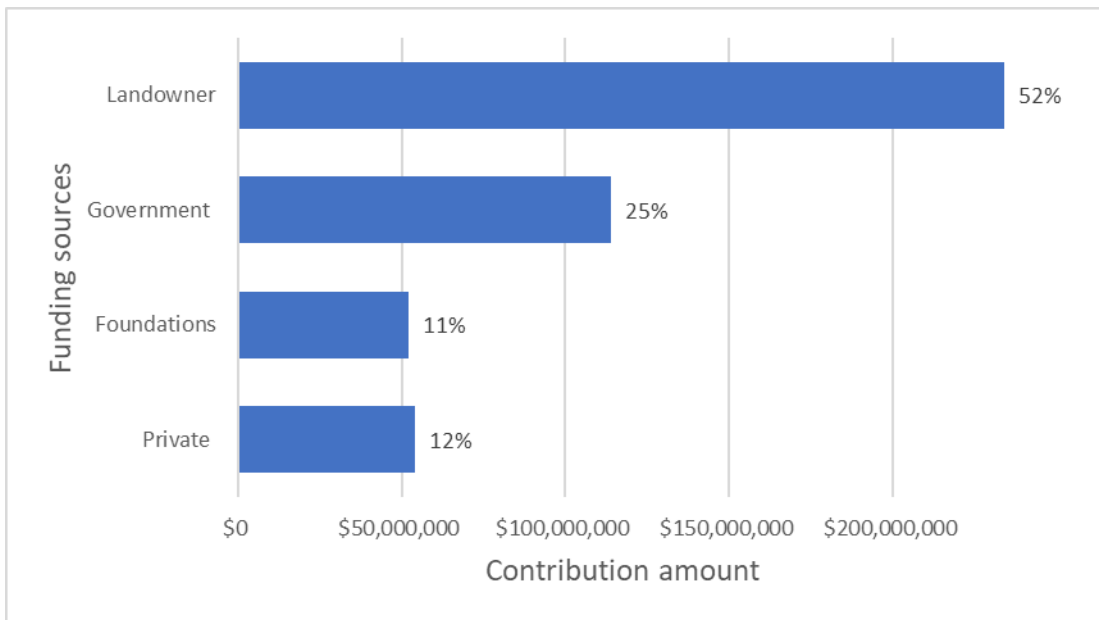


Figure 3: Funding to support private land conservation in Alberta (based on aggregate of 6 land trusts) and breakdown of types of funders.

The LTGP has provided \$59,960,960 in funding to six of the land trusts operating in Alberta since 2010. This value has been leveraged by six land trusts in the analysis to raise \$150,515,715, or 2.5 times the value of the investment by the Alberta provincial government. Of this leverage value, \$118 million is through donations of ecological gifts from landowners.

<sup>2</sup> Ducks Unlimited Canada is not included in this analysis.

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*For every dollar invested by the provincial government in land conservation, 2½ dollars are coming from other sources including municipalities, the federal government, and donations by landowners in return for charitable receipts. On average across the province, the Land Trust Grant Program is protecting land for less than \$500 per acre, less than ¼ its actual, average value— purchasing the land outright would cost Albertans four times as much.*

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*Who are land trusts engaging with?*

Land trusts engage with many Albertans, playing an important role in conservation education.

A summary of the seven land trusts included in this analysis found:

- As a component of their core business, land trusts have worked directly with approximately 5,000 private landowners in Alberta to make land conservation happen.
- Land trusts currently employ 96 part/full time staff and provide opportunities for summer interns (9 during the COVID-19 pandemic in 2020).
- Land trusts provide opportunities for members of the public to contribute their time by volunteering (3,600 participants in 2020) or participate in educational programming (4,660 participants in 2020).
- Land trusts communicate to over 362,759 Canadians *via* their social media platforms.

## Conservation Impact

*To further understand the role of private land conservation in protecting natural landscapes for people and wildlife, we developed a series of metrics to highlight contributions of land trusts to:*

- Protecting ecosystems that support wildlife and biodiversity.
- Protecting water resources (wetlands, rivers, riparian areas) that support services for people (flood and drought protection, water quality and quantity).
- Protecting landscapes that directly and indirectly support culture and recreation in Alberta (hunting, fishing, wildlife viewing and natural sightseeing).

*Protecting wildlife and biodiversity -Foothills Fescue sub-region*

Grassland ecosystems are among the most threatened in Alberta. In 2016, 57% of the grassland natural region was impacted by human activity (Alberta Biodiversity Monitoring Institute, 2018a). The main threats that this natural region face are changes in land use, invasive species, and biodiversity loss (Hendrickson et al., 2019). The grassland natural region is composed of four subregions: Dry Mixed, Mixed, Northern Fescue, and Foothills Fescue grasslands. Foothills Fescue grasslands experience cool summers and short growing seasons, but with warmer winters and more precipitation than the other grassland natural subregions.

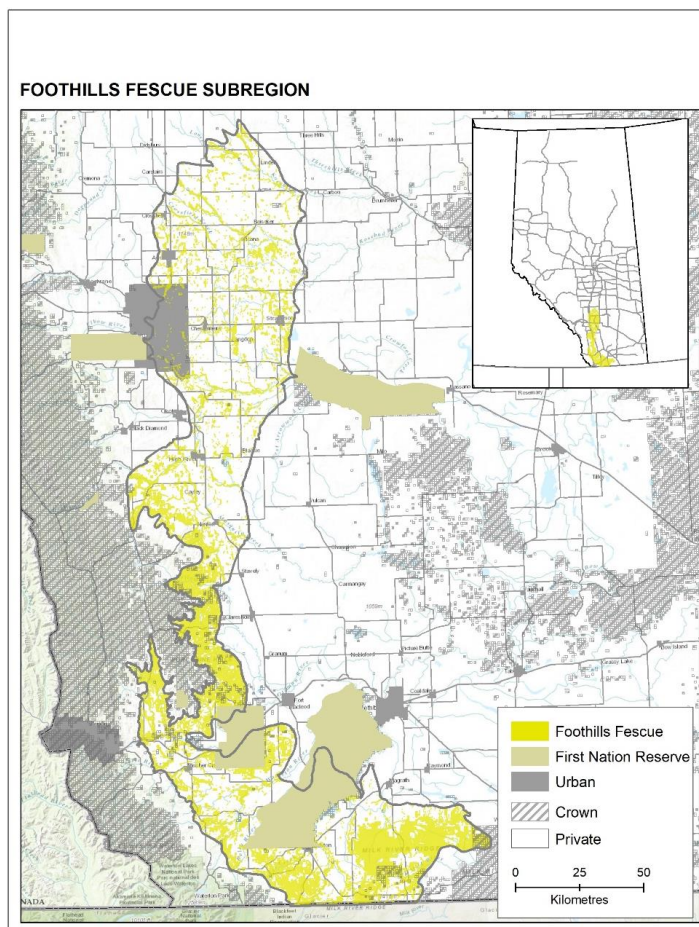


Figure 4: Remaining Foothills Fescue shown in yellow with Crown land represented as grey hatching.

They provide important grazing opportunities for wildlife. Here we demonstrate the value of private land conservation by assessing how many acres have been protected by land trusts in the Foothills Fescue subregion. We determined acres of Foothills Fescue remaining by removing the human footprint from the Foothills Fescue Subregion (Figure 4).

*The majority (80%) of remaining Foothills Fescue Prairie occurs on private land. Land trusts have protected 8% of the private holdings of this at-risk ecosystem.*

Table 4: Remaining Foothills Fescue Subregion

Property	Acres	Percent
Foothills Fescue on Crown land	160,680	20.4
Foothills Fescue on private land	625,388	79.6
Foothills Fescue on private land protected	51,339	8.2

*Protecting wildlife and biodiversity - Central Parkland Subregion*

The Parkland Natural Region is the most densely populated and altered of all of Alberta’s natural regions. It makes up approximately 10% of the province and as of 2016 human footprint covered 78.1% of this natural region (Alberta Biodiversity Monitoring Institute, 2018b). This natural region is composed of 3 sub-regions: Foothills, Central Parkland, and Peace River. The Central Parkland Subregion is a transition between grassland and forest supporting a combination of boreal and grassland species (Alberta Parks, 2015). Here we demonstrate the value of private land conservation by assessing how many acres have been protected by land trusts in the Central Parkland subregion. We determined acres of Central Parkland remaining by removing the human footprint from its total area (Figure 5).

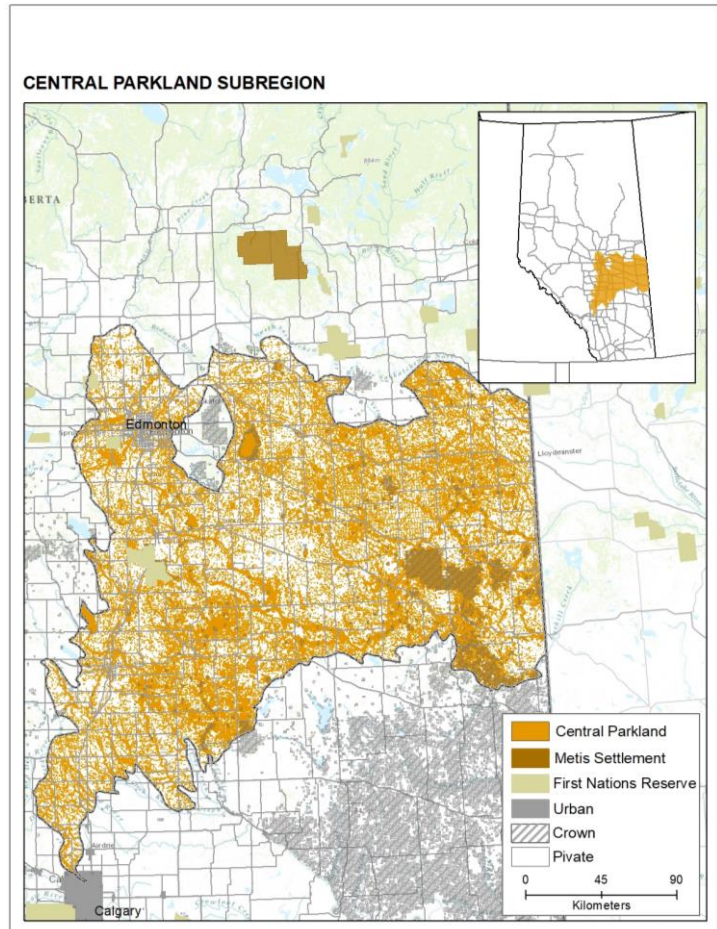


Figure 5: Remaining Central Parkland Subregion shown in orange and Crown as grey hatching.

*The majority (78%) of remaining Central Parkland occurs on private land. Land trusts have protected 2% of Central Parkland in private hands.*

Table 5: Remaining Central Parkland

Property	Acres	Percent
Central Parkland on Crown land	573,681	21.9
Central Parkland on private land	2,046,563	78.1
Central Parkland on private land protected	37,638	1.8

*Protecting wildlife and biodiversity - wetlands and waterfowl*

Wetlands are important for many reasons, including playing an essential role in supporting breeding areas for waterfowl in North America (Hagy et al., 2014). Waterfowl are increasingly at risk of losing their breeding habitats due to agricultural and industrial land modification and climate change (Hagy et al., 2014). We used the Prairie Habitat Joint Venture priority areas (referred to as the Wetland Priority Conservation Area) to determine the area of wetlands that are privately protected (Figure 6). The Prairie Habitat Joint Venture identified two regions, the Prairie Parklands and Western Boreal Forest, that, when combined, are the most important breeding areas for waterfowl in North America (Prairie Habitat Joint Venture, n.d.). These regions were identified through the evaluation of key wildlife criteria, including waterfowl distribution as a function of habitat characteristics, species-specific reproductive success, and nest habitat selection and availability.

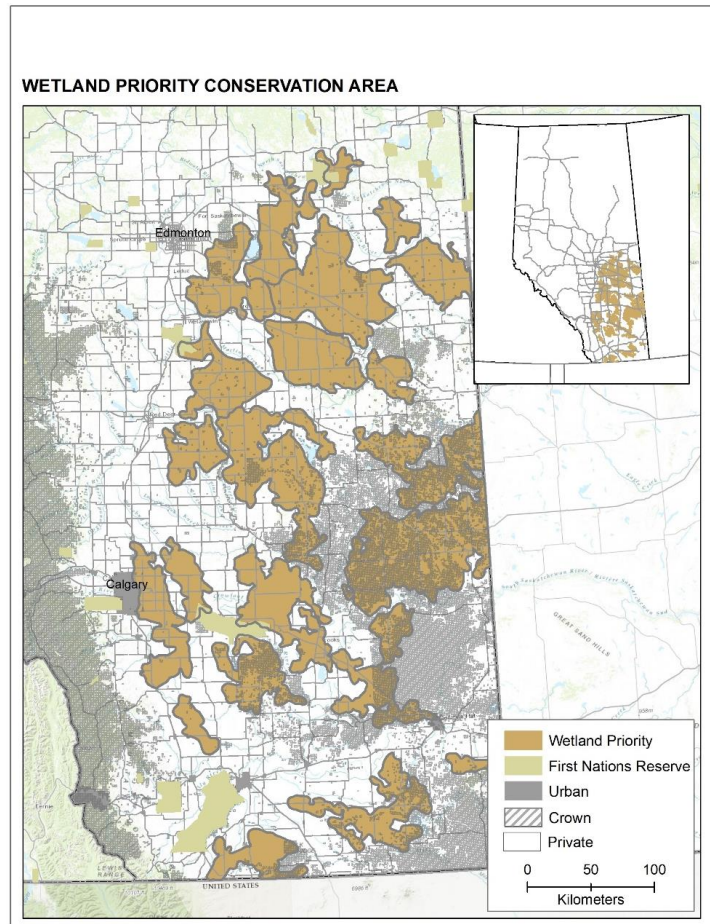


Figure 6: Wetland Conservation Priority Area shown in brown and Crown as grey hatching.

*The majority (84%) of wetlands in priority conservation area (based on the Joint Prairie Habitat Venture) occur on private land. Land trusts have protected 2% of wetlands that occur on private land.*

Table 6: Wetlands within Wetland Conservation Priority Area

Property	Acres	Percent
Wetlands on Crown land	183,450	16.2
Wetlands on private land	947,546	83.8
Wetlands on private land protected	21,295	2.3

*Protecting wildlife and biodiversity - Ecological corridors*

Corridors that support animals with large home ranges are important for ensuring elk, moose, deer, and grizzly bears are able to move around the landscape to access resources (Nantel et al., 2014). In the Crowsnest Pass, ecological corridors have been identified to support terrestrial large mammal<sup>3</sup> movement (Figure 8) (Clevenger et al., 2010; Miistakis Institute, 2016). Key north-south movement corridors along the eastern slopes are intersected by private land. If some private land is not protected from development, these ecological corridors could lose their function for wildlife, effectively fragmenting the Canadian Rocky Mountains to terrestrial large mammal movement (Figure 7, Table 7).

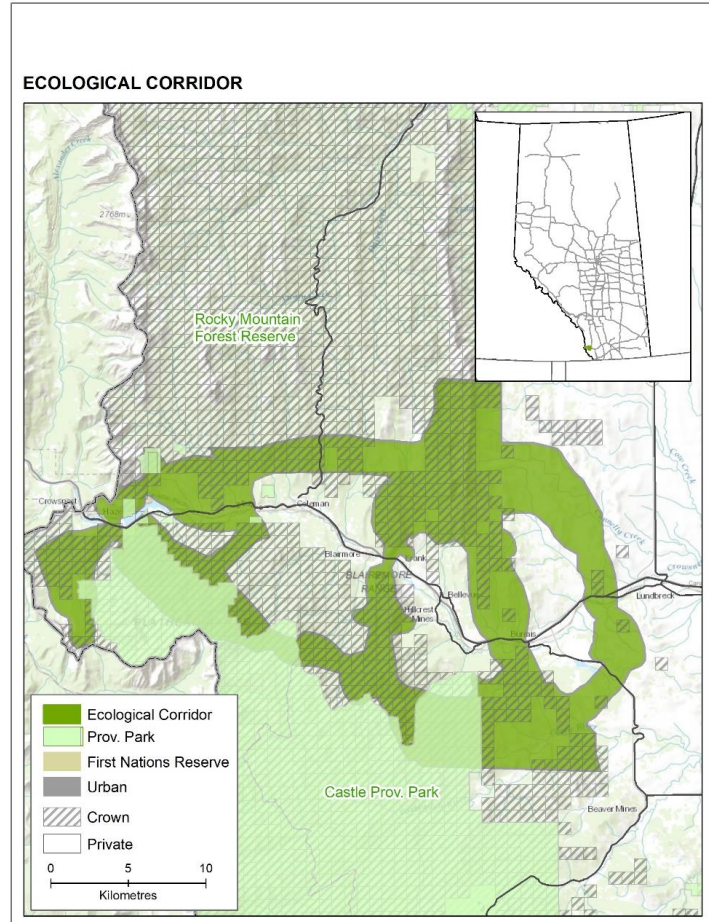


Figure 7: Ecological corridors for terrestrial large mammal corridors in Crowsnest Pass. Ecological corridors on crown lands north and south of Crowsnest Pass not shown.

*A small but critical portion of the ecological corridors in the Crowsnest Pass region occur on private land (34%) and land trusts have protected 19% of the ecological corridors that occur on private land.*

Table 7: Ecological corridors in Crowsnest Pass region

Property	Acres	Percent
Ecological corridors on Crown land	61,411	66.5
Ecological corridors on private land	30,943	33.5
Ecological corridors on private land protected	5,929	19.2

<sup>3</sup> Ecological corridors delineation was developed using grizzly bear, wolverine, moose, elk, mule deer, and white-tailed deer habitat and/or connectivity models.

*Protecting wildlife and biodiversity - Beaver Hills*

The Beaver Hills Biosphere Reserve is an extensively treed, upland area consisting of rolling to hummocky terrain. It is rich in native wetlands and aspen dominated Boreal mixed wood forest supporting a high diversity of vegetation, waterfowl, mammals, and birds (Beaver Hills Biosphere, n.d.). Here we demonstrate the value of private land conservation by assessing how many acres have been protected by land trusts in the Beaver Hills Biosphere Reserve (Figure 8, Table 8).

*The majority (65%) of the Beaver Hills Biosphere Reserve occurs on private land. Three percent of this area is protected by land trusts.*

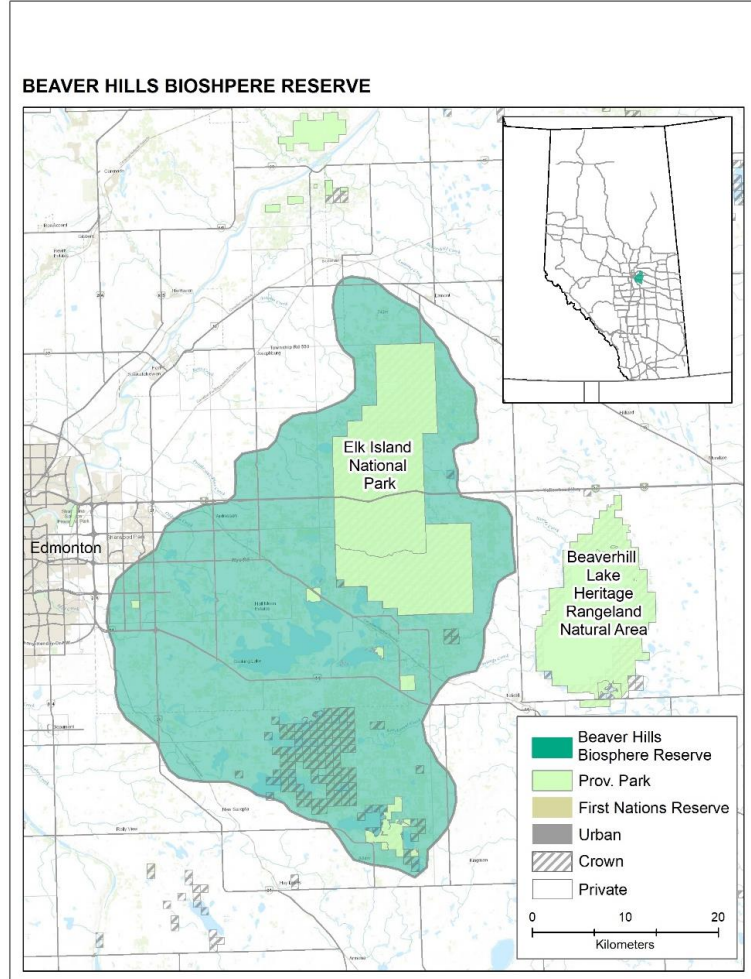


Figure 8: Beaver Hills Biosphere Reserve shown in dark green with Crown land represented as grey hatching.

Table 8: Beaver Hills Biosphere Reserve

Property	Acres	Percent
Beaver Hills Biosphere Reserve on Crown land	138,083	35.1
Beaver Hills Biosphere Reserve on private land	255,771	64.9
Beaver Hills Biosphere Reserve on private land protected	7,779	3.0

## Watershed services- Riparian areas

Riparian areas associated with wetlands, rivers and streams play an important role in watershed health and the resulting ecosystem services (habitat, water quality, flood and drought mitigation, and water storage) (Luke et al., 2007). Here we demonstrate the value of private land conservation by assessing how many acres have been protected by land trusts in riparian areas in the Red Deer River, Bow River, and Oldman River watersheds (Figure 9, Table 9). Riparian areas were derived using a digital elevation model and Strahler order (common stream ordering method) that included all types of hydrology.

*The majority (66%) of riparian areas in the Red Deer River Watershed occur on private land. Land trusts on private land have protected 1% of this area.*

*Forty-six percent of riparian area in the Bow River Watershed occurs on private land. Land trusts have protected 2.5% of this riparian area held privately.*

*The majority (60%) of riparian area in the Oldman River Watershed occurs on private land. Land trusts have protected 7.5% of these private holdings.*

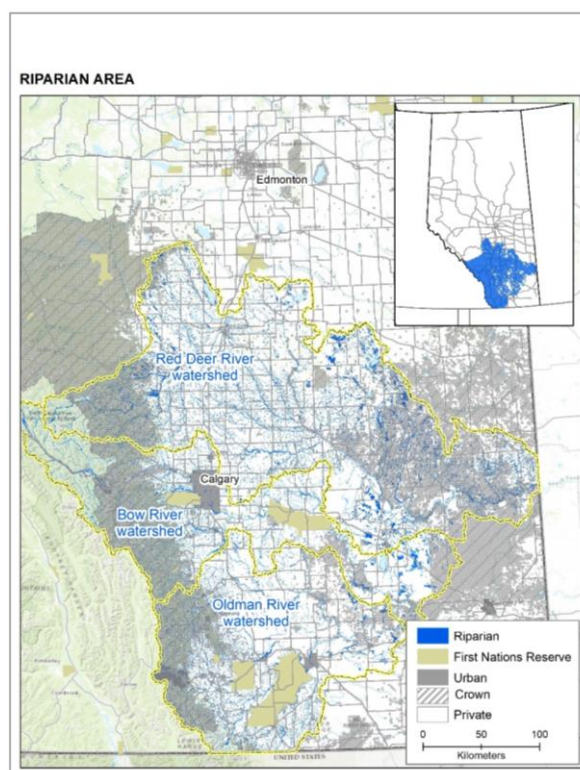


Figure 9: Riparian Areas

Table 9: Riparian Areas

Watershed	Property	Acres	Percent
Red Deer River	Riparian on Crown land	490,431	34.4
	Riparian on private land	933,309	65.6
	Riparian on private land protected	10,653	1.1
Bow River	Riparian on Crown land	338,846	54.3
	Riparian on private land	285,564	45.7
	Riparian on private land protected	7,226	2.5
Oldman River	Riparian on Crown land	253,738	40.2
	Riparian on private land	377,582	59.8
	Riparian on private land protected	28,218	7.5

### *Watershed services- wetlands*

Wetland loss in Alberta is high, with an estimated 60–70% lost to conversion in the settled areas (Government of Alberta, 2021). Wetlands and their riparian areas play a unique role in habitat and watershed health (Government of Alberta, 2021). Certain species rely on wetlands and wetlands store and filter water in different ways than riparian areas along rivers and streams. Here we demonstrate the value of private land conservation by assessing how many acres of wetlands have been protected by land trusts in the white zone (settled area) of Alberta (Figure 10)<sup>4</sup>.

*There are 4,636,205 acres of wetlands in the white zone in Alberta, and private land conservation has protected 31,869 acres (0.7%) of these wetlands.*

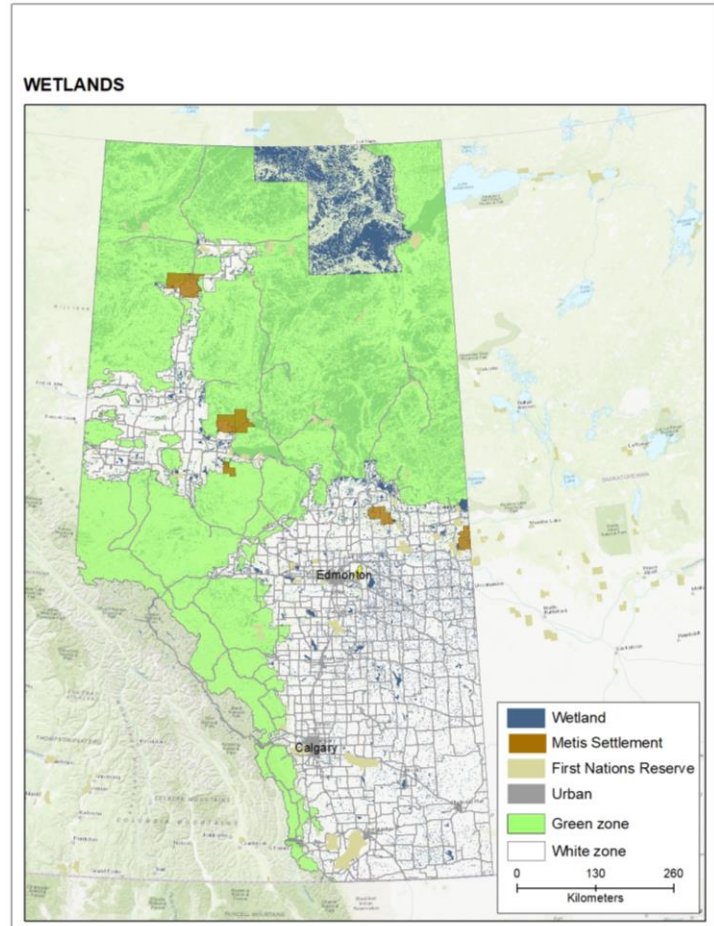


Figure 10: Wetlands displayed in blue within the white zone.

<sup>4</sup> Crown land within the white zone was not removed from this calculation due to data deficiency. This metric is a conservative estimate and percent protected on private land would be higher if Crown land was removed from the analysis.

*Outdoor recreation & human wellbeing - Recreational Sport Fishing*

Recreational sport fishing contributes 660 million Canadian dollars annually to the provincial economy (Crowe-Swords, 2020). Here we demonstrate the value of private land conservation to sport fishing by calculating the shore length (km) of sport fishing rivers protected in southern Alberta (Figure 11).

*Privately conserved land supports recreational fishing by protecting 45 km of important fish habitat along the Castle, Crowsnest, Bow and Oldman Rivers. This is 2.4% of these river systems. If you included only the highly utilized sport fishing areas west of Highway 2 and south of Calgary this number would be much higher.*

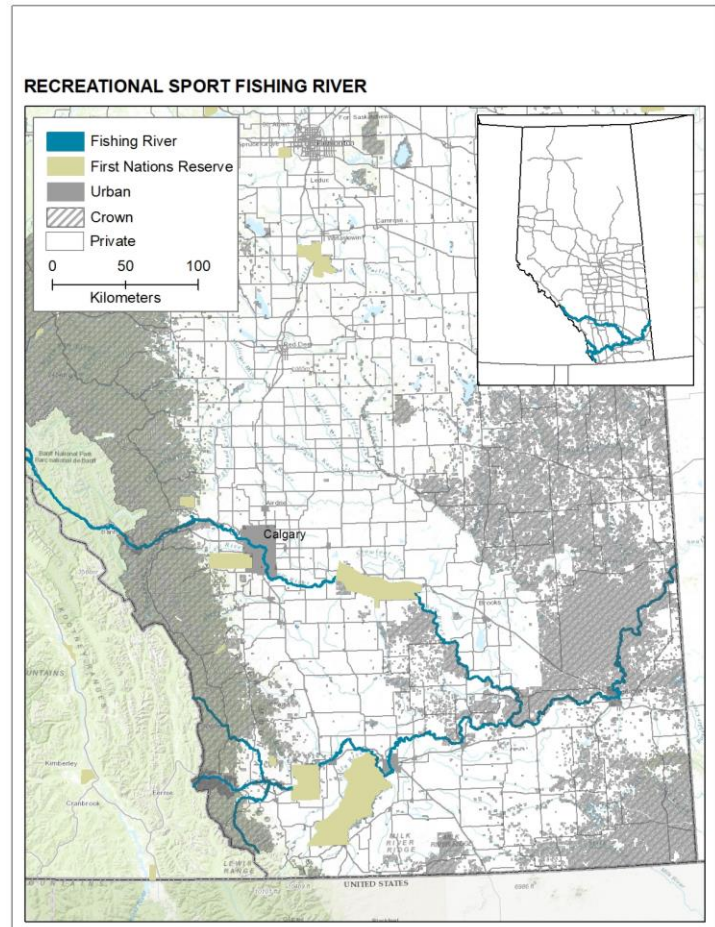


Figure 11: Recreational sport fishing rivers

## Outdoor recreation & human wellbeing - Scenic Views

Alberta is recognized internationally for its scenic vistas, particularly along the Eastern Slopes. In 2010, Alberta Culture and Tourism contracted O2 Consulting to undertake a scenic resource assessment of the South Saskatchewan Planning Region (O2 Planning & Design Inc, 2010). Visual value was generated using scenic quality (based on a combination of water visibility, vegetation variety, terrain variation, and land use) and visual sensitivity (based on how visible a landscape is from important recreational use areas and scenic corridors) models. High visual value areas have both high scenic quality and high visual sensitivity (O2 Planning & Design Inc, 2010). Here we demonstrate the value of private land conservation by assessing the area of high and very high visual value that have been protected by land trusts along the Cowboy Trail (Highway 22). We determined the Cowboy Trail scenic area using a 20 km buffer along Highway 22 from Black Diamond to the Highway 3 junction (Figure 12).

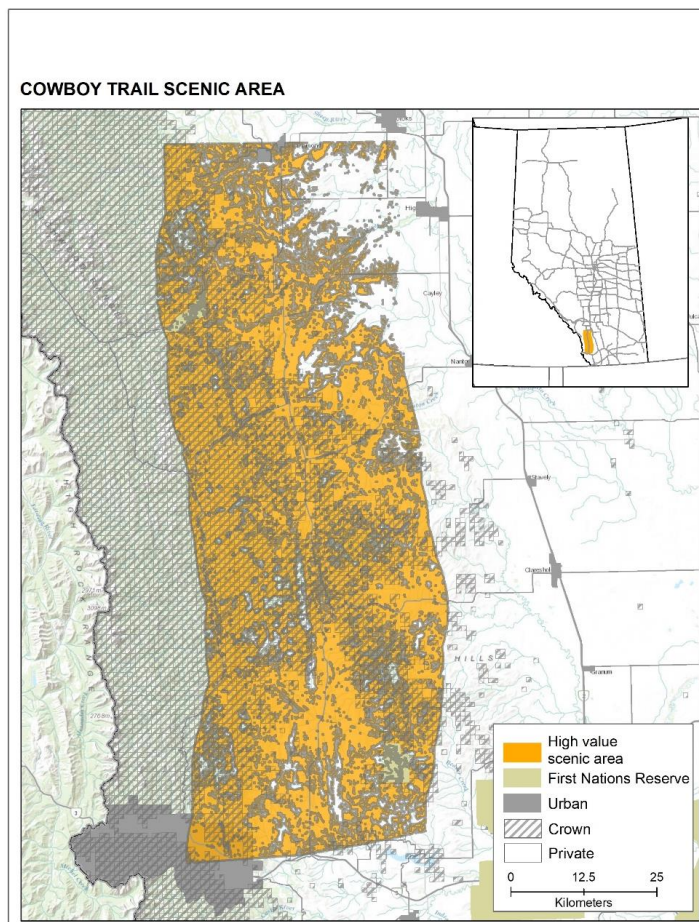


Figure 12: High value scenic areas

*Forty-six percent of the Cowboy Trail scenic area occurs on private land. Land trusts have protected 21.9% of this private land.*

Table 10: Cowboy Trail scenic area

Property	Acres	Percent
Cowboy Trail scenic area on Crown land	518,743	53.9
Cowboy Trail scenic area on private land	443,643	46.1
Cowboy Trail scenic area on private land protected	97,183	21.9

## *Outdoor recreation & human wellbeing - Protected Areas*

Albertans love their parks and protected areas. Protected areas play a vital role in conserving natural areas and biodiversity. They also offer opportunities for recreation and spiritual renewal. In addition, many of the species we find in our parks rely heavily on habitat inside and outside of parks for their survival. This is particularly true for many species that winter outside of parks on adjacent private land. Here we demonstrate the value of private land conservation in buffering protected areas and supporting the wildlife in parks by documenting the number of acres protected within 5 km of a provincial or national park (Figure 13).

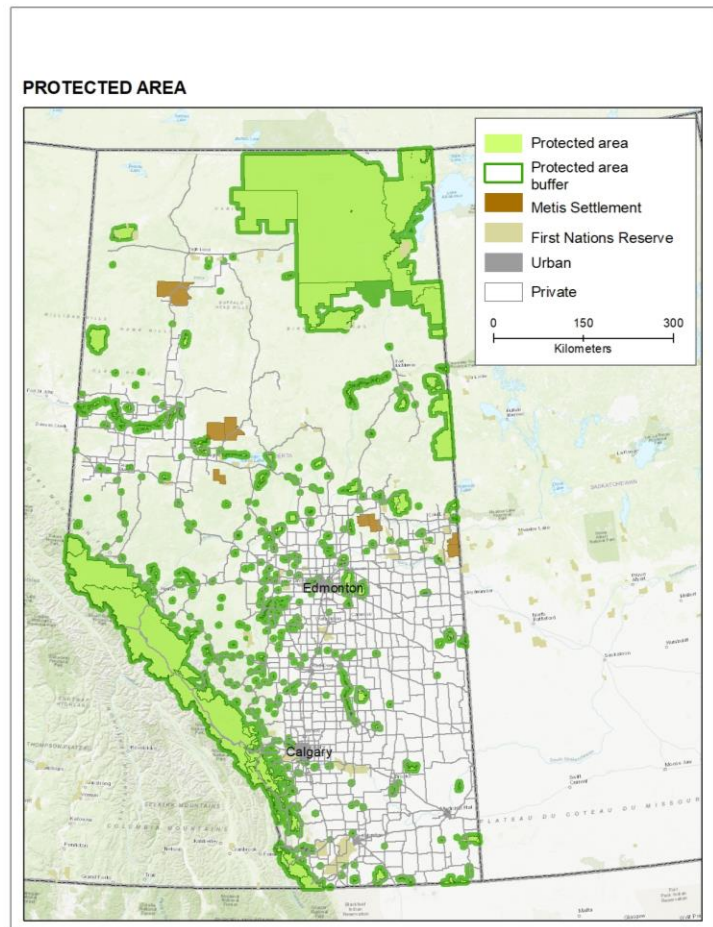


Figure 13: Protected areas buffered by 5 km in Alberta.

*Land trusts have protected 167,090 acres of private land within 5 km of Provincial or National Parks in Alberta.*

*Outdoor recreation & human wellbeing - recreational hunting*

Recreational hunting and wildlife viewing are important to Albertans. Private land conservation directly supports 148,786 acres where landowners provide access to hunters. More importantly, private land conservation supports habitat that is important to maintaining healthy population of huntable species. Here we demonstrate the value of private land conservation by assessing how many acres of “supporting habitat” have been protected by land trusts in the Oldman and Bow River watersheds. To identify “supporting habitat” for maintaining healthy populations of huntable wildlife, we used the key biodiversity layer developed by Alberta Environment and Parks<sup>5</sup>, derived from ungulate winter ranges and riparian systems (Figure 14, Table 11).

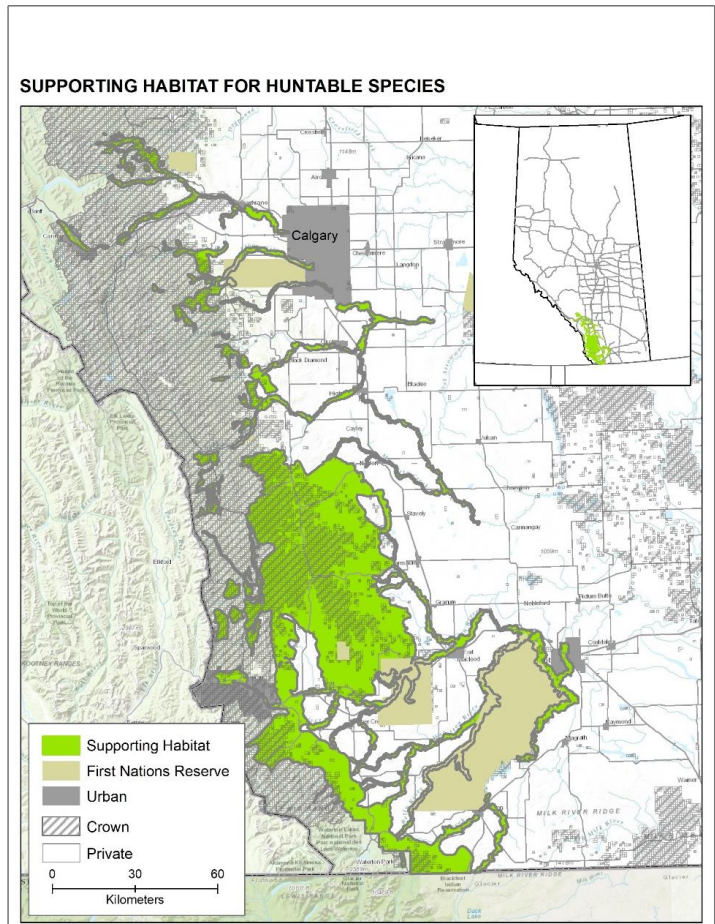


Figure 14: Supporting habitat for maintaining healthy populations of huntable species

*Half of the supporting habitat that maintains healthy populations of deer, moose, and elk in southwest Alberta occurs on private land (52%). Land trusts have protected 18.7% of this area.*

Table 11: Supporting habitat for huntable species

Property	Acres	Percent
Supporting habitat area on Crown land	830,985	47.5
Supporting habitat on private land	916,562	52.4
Supporting habitat on private land protected	171,777	18.7

<sup>5</sup> Key biodiversity areas published by the AEP, Jan 2021; <https://www.alberta.ca/wildlife-sensitivity-maps.aspx>

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## Appendix A: Survey results and metric adjustments

To help prioritize conservation impact metrics we conducted an online survey. Land trusts were asked to rank metrics and comment on data analysis area.

### Wildlife/Biodiversity Metrics

Table 1A: Wildlife and biodiversity metrics

Conservation impact		
<i>Conservation Message: Wildlife populations/Biodiversity</i>	<i>Metric (will be reported in % and acres for each category)</i>	<i>Geography (area of analysis)</i>
The <b>Grassland natural region</b> is the most threatened of Alberta's six natural regions. Private land conservation plays a key role in protecting the remaining grasslands.	% of remaining Foothills Fescue on private land % privately protected Foothills Fescue	<b>Foothills Fescue Subregion</b>
The <b>Parkland natural region</b> is an at risk ecosystem and is the most densely populated and altered of all natural regions. Private land conservation plays a key role in protecting the remaining Parkland.	% of remaining Central Parkland on private land % privately protected Central Parkland	<b>Central parkland Subregion</b>
<b>Wetlands</b> are critical breeding areas for waterfowl in North America. Private land conservation plays a key role in protecting waterfowl and other bird populations in Alberta.	% of wetlands on private versus Crown land % wetlands privately protected wetlands	<b>Prairie Habitat Joint Venture - Priority Area</b>
During the winter <b>ungulates (elk, moose, deer, and bighorn sheep)</b> are exposed to harsh conditions, depending on specialized winter habitats for survival. Private land conservation plays a key role in protecting winter ungulate range.	% of winter ungulate range that occurs on private land % winter ungulate range privately protected	<b>SW Alberta - south of the Bow River</b>
<b>Wide-ranging mammal corridors</b> are important for ensuring elk, moose, deer, and grizzly bears can access resources. In the Crowsnest Pass Region private land conservation plays a key role in protecting large mammal movement corridors.	% of private land in north/south movement corridors % privately protected land in movement corridors	<b>North/South movement corridors in Pincher Creek and Crowsnest Pass</b>
Habitat protection needs have been identified for several sensitive and threatened <b>fish species</b> in Alberta including westslope cutthroat trout. Private land conservation plays a key role in protecting these important fish habitat areas.	% of habitat protection area for westslope cutthroat trout on private land. % of privately protected land in FSI habitat protection needed for westslope cutthroat trout	<b>Eastern slopes</b>
The <b>Beaver Hills</b> is an extensively treed, upland area consisting of rolling to hummocky terrain rich in native wetlands and aspen dominated Boreal mixed wood forest supporting a high diversity of vegetation, waterfowl, mammals and birds. Private land conservation plays a key role in protecting the Beaver Hills Biosphere Reserve.	% of private land in Beaver Hills Biosphere Reserve % privately protected land in the Beaver Hills Biosphere Reserve	<b>Beaver Hills Biosphere Reserve</b>

Table 2A: Prioritization of wildlife/biodiversity

Metric	Score
Parkland natural region — Central parkland	6.25
Grassland natural region — Foothills fescue sub-region	5.6
Wetlands in Prairie Habitat Joint Venture priority areas	4.2
Wide-ranging mammal corridors — Pincher Creek/Crowsnest Pass	3.25
Beaver Hills — Beaver Hills Biosphere Reserve	2.75
Westslope cutthroat trout — SW Alberta -south of the Bow River	2.5
Winter ungulate range — SW Alberta, south of the Bow River	2.25

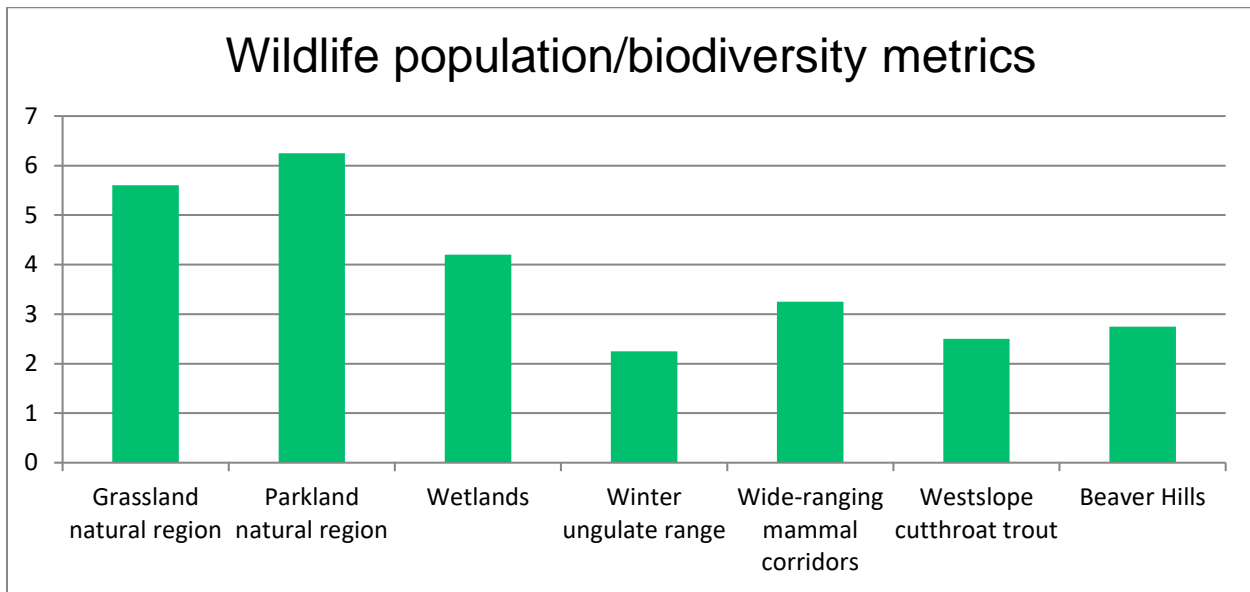


Figure 1A: Wildlife population/biodiversity metrics

Participants requested we include the Central Parkland Region as the focus area for the Parkland Natural region rather than focusing on Buffalo Lake.

### Water Services

Table 3A: Water service metrics

<b>Conservation Message: watershed services</b>	<b>Metric</b>	<b>Geography (area of analysis)</b>
Riparian areas associated with wetlands, rivers and streams play an important role in watershed health and the resulting ecosystem services (habitat, water quality, flood and drought mitigation and water storage). Private land conservation plays a key role in watershed health by protecting riparian areas.	% of riparian occurring on private land in the Oldman watershed (and calculated for the Bow watershed)	Oldman watershed Bow watershed Red Deer River watershed

<p>The conservation of linear hydrological features and their buffer zones provide not only valuable wildlife habitat but also important watershed services. Natural buffers slow runoff, reduce siltation, and capture pollutants. This is particularly important in Alberta's headwaters that have the highest density of linear features and high precipitation. Private land conservation helps protect these valuable hydrological features.</p>	<p>Kilometers of linear hydrological features (lotic) protected in the headwaters of the Bow (and calculated for Oldman)</p>	<p>Oldman headwater Bow headwater</p>
<p>Wetland loss in Alberta is high. Wetlands and their riparian areas play a unique role in habitat and watershed health. Certain species rely on wetlands — they store and filter water in differently from riparian areas along rivers and streams. Private land conservation has protected a significant number of wetlands and continues to protect more each year.</p>	<p>Number of wetlands protected by private land conservation in Alberta</p>	<p>Alberta</p>

Table 4A: Prioritization of water services metrics

<b>Metrics</b>	<b>Score</b>
Riparian areas: Bow headwaters (and Oldman)	2.75
Wetlands: Alberta	1.6
Linear hydrological features: Bow watershed (and Oldman)	1.5

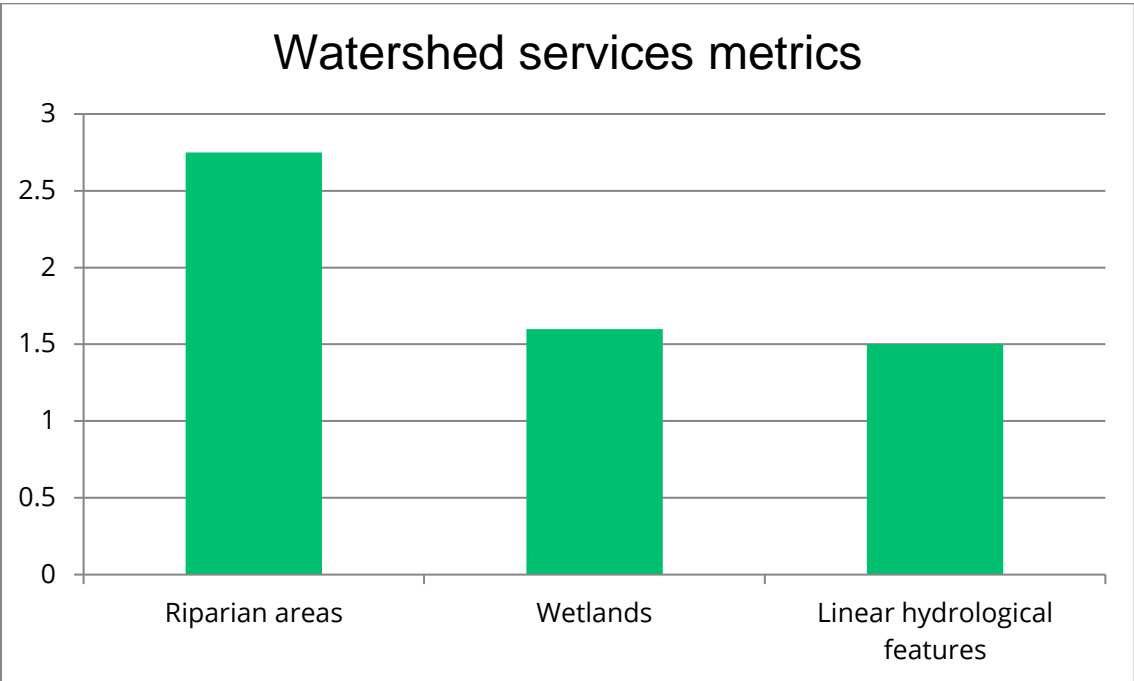


Figure 2A: Watershed services metrics

Participants requested the following modifications to the metrics:

- Inclusion of the Red Deer and North Saskatchewan Rivers.

- Inclusion of entire watersheds, not just the headwaters, of the watershed in the first two metrics.

### *Outdoor Recreation/Tourism and Human Wellbeing*

Table 5A: Outdoor recreation/tourism and human wellbeing

<b><i>Conservation Message: Outdoor Recreation/Tourism and Human Wellbeing</i></b>	<b><i>Metric</i></b>	<b><i>Geography</i></b>
Recreational sport fishing contributes XX dollars to the provincial economy. Private land conservation protects important fish habitat.	kilometers of riverbank protected by private land conservation along the Bow, Oldman, Crowsnest and Castle Rivers.	<b>Bow, Oldman, Crowsnest and Castle Rivers</b>
Alberta is recognized internationally for its scenic vistas, particularly along the Eastern Slopes. Private land conservation contributes to the protection of these highly valued scenic landscapes.	% of privately land owned with high visual value. % privately protected.	<b>Cowboy Trail, south of Black Diamond</b>
Recreational hunting and wildlife viewing are important to Albertans. Private land conservation contributes to protecting biodiversity to support recreational activities.	% of key biodiversity areas on private land. % of private land that is privately protected.	<b>Alberta</b>
Albertans love their parks. Private land conservation helps to protect lands around parks that are important to maintain park health.	Number of acres of privately protected land within 5 km of the park.	<b>Alberta</b>
The majority of Albertans live in urban areas where natural spaces play an important role in human wellbeing. Private land conservation helps to protect lands in the urban and peri-urban environment.	Number of CE's and acres of privately protected lands in large urban centers (Calgary, Edmonton, and Lethbridge) and surrounding areas.	<b>Edmonton, Calgary, and Lethbridge Regions (city limits with 2 km buffer)</b>

Table 6A: Prioritization of outdoor recreation/tourism and human wellbeing

<b>Metric</b>	<b>Score</b>
Recreational sport fishing — Bow, Crowsnest, Castle and Oldman Rivers	3.75
Hunting and wildlife viewing — SW Alberta, south of the Bow River	3.75
Proximity to parks — Alberta	3.4
Scenic vistas — Cowboy Tail	2.5
Urban and peri-urban — Edmonton region	1.8

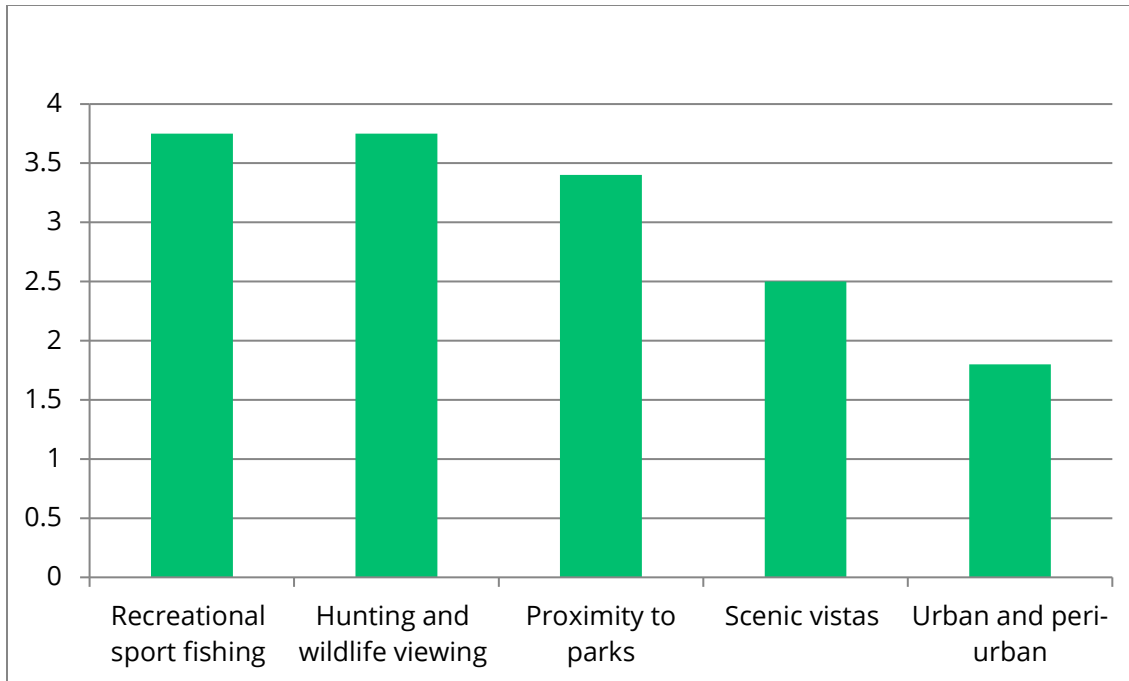


Figure 3A: Outdoor recreation/tourism and human wellbeing

Participants requested the following adjustments to the metrics:

- Expansion of the urban and peri-urban to include a buffer around additional urban centers — add Calgary and Lethbridge
- Adjust the urban and peri-urban metric to be number of properties
- Extend hunting and fishing metrics to all of Alberta
- Scenic — Include Bow and Red Deer Rivers for their high scenic values
- Scenic value — Expand current focus area north to include Black Diamond to Longview to incorporate FLT properties

Lastly, participants were asked to identify additional metrics to improve representation of the model or their land trust. This was in response to feedback that none of the land trusts felt the current list of focus areas represented their land trust well. There was some confusion over the purpose of individual metrics (i.e., outdoor metrics listed also support wildlife and water services).

New metrics for inclusion and recommendations for change:

- The Boreal natural area.
- Poor representation of the Red Deer River region.
- Southeast grasslands are not well represented yet important for migratory birds.

## *Recommended Adjustments*

To address the shortcomings outlined by participants, we propose updating the Conservation Impact Metrics as follows:

- Add an introductory section that includes calculations on the percent private land protected in each natural region and land use planning region. This will provide context for the land trust community that can be easily tracked over time.
- We recommend adjusting the focus area for analysis as follows:
  - Parkland Natural Region — adjust focus area from Buffalo Lake to the Central Parkland Subregion.
  - Scenic Vistas — adjust focus area from Highway 22 south of Longview to south of Black Diamond.
  - Riparian Areas — add the Red Deer River watershed as focus area.
  - Recreational hunting and fishing — adjust to include key biodiversity areas for the Bow and Oldman watersheds.
  - Urban and peri-urban nature conservation — include major urban centers (Calgary, Edmonton, and Lethbridge) for focus area reporting.
- Based on prioritization results, we recommend considering the following metrics as lower priority for this iteration of the analysis:
  - Ungulate range
  - Westslope cutthroat trout
  - Linear hydrological features
  - Urban and peri-urban

## Appendix B: Land Trust At A Glance Metrics

At a Glance Spreadsheet		
<b>Ducks Unlimited Canada, Edmonton and Area Land Trust, Foothills Land Trust, Legacy Land Trust Society, Nature Conservancy of</b>		
<b>Land trusts: Canada, Southern Alberta Land Trust Society, Western Sky Land Trust</b>		
Aim:	Highlight contributions of private land conservation in Alberta	
Acres Protected	Total	Notes
Total acres in fee simple	154,169.20	
Total acres supported by LTGP	3,898.75	
Total acres in CE	275,431.15	
Total acres with Ecogift	177,093.14	
Total acres supported by LTGP	120,494.35	
Total acres that are both LTGP and Ecogift	95,602.91	
Engagement		
Number of members	26,102	10 year time frame (e.g. only count a member once who has been a member for 10 years)
Number of funders	5,319	10 year time frame, includes individuals, foundations, corporations
Number of individual volunteers	3,647	10 year time frame, includes board members
Number of conservation landowners (initial not subsequent)	4,927	Since first conservation property (only count one where multiple agreements with same owners for one project/property; e.g. separate agreement with husband and wife on different titles or individual vs farm corp. on different titles)
Number of people employed by LT full time	87	Current
Number of people employed by LT part time	9	Current
Number of student interns	9	Current summer
Social media followers	362,759	Total from all platforms
Facebook	215,467	Current
Instagram	66,179	Current
Twitter	81,113	Current
Funding		
Total LTGP funding for all LT projects since start of program	\$59,960,960	
Total funding leveraged to LTGP	\$113,579,960	
Total match funding used for all LTGP projects by:	\$150,515,715	Total from all sources
Private (individuals/corporations)	\$7,643,935	
Foundations	\$3,785,702	
Government (municipal/federal)	\$20,245,095	
Landowner donated charitable receipt value	\$118,840,983	
Total funding for private land conservation not used for LTGP projects	\$243,791,026	Total from all sources Either before the LTGP existed or recent projects completed without LTGP funding
Private	\$46,456,125	
Foundation	\$48,385,235	
Government	\$33,798,161	
Landowner donated charitable receipt value	\$115,151,505	
Education and Research Opportunities		
Number of educational programs or activities offered by the land trust	625	5 year time frame
Number of people participating in educational activities	23,321	5 year time frame
Number of researchers engaged in projects with LT	58	5 year time frame
Number of landowners engaged in specific stewardship projects/activities	35	5 year time frame (count number of off stream watering, fencing, weed management, etc. projects)
Number and list of organizations partnered with LT education or research	252	5 year time frame (e.g. OWC, Cows and Fish, ABMI, Lethbridge College)
Access		
Number of acres supporting hunting with landowner permission	148,786	Support public in allowing hunting access (incl LT landowner)