

**Alberta Conservation Association  
2019/20 Project Summary Report**

**Project Name:** Riparian Conservation Program

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**Project Leader:** Jeff Forsyth

**Project Coordinators:** Brendan Ganton [Stefanie Fenson] (Northeast Region: Owl River, Isle Lake), Erin VanderMarel (Central Region: Central Riparian), Jeff Forsyth (Southern Region: South Riparian), and Lenore Seward [Garret Mcken] (Northwest Region: Beaverlodge River)

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**Partnerships**

Agroforestry & Woodlot Extension Society

Alberta Fish & Game Association

Cenovus Energy

County of Grande Prairie

Cows and Fish – Alberta Riparian Habitat Management Society

Environment and Climate Change Canada

Fisheries and Oceans Canada

Huvan Construction

Landowners

Mighty Peace Watershed Alliance

Milk River Watershed Council

Nature Conservancy of Canada  
Oldman Watershed Council  
Ovintiv Inc.  
Red Deer River Watershed Alliance  
Sinopec Canada  
Syncrude Canada Ltd.  
Trout Unlimited Canada  
West County Watershed Society

## **Key Findings**

- Delivered 19 riparian enhancement projects: three new riparian habitat lease agreements, four fencing projects, five off-site livestock watering initiatives, three bioengineering projects, two erosion control projects, two fence stiles for angle access (Table 1).
- Installed two fence stiles to facilitate angler access on the Raven and North Raven rivers.
- Conserved 228.1 acres (92.3 ha) through new and existing riparian habitat lease agreements, installed 21.4 km of new wildlife-friendly fencing, and removed 1.6 km of dilapidated fence.
- Conducted two riparian health assessments and ten riparian health inventories, collected water samples from four sites, and collected data using aerial videography as part of baseline data collection for ongoing water and habitat quality monitoring.
- Created an interactive angler access map showing the RHEA's on Clear Creek, North Raven River, and Raven River to provide better angler access to these corridors.
- Conducted beaver monitoring on the North Raven and Beaverlodge rivers.
- Applied bank stabilization and restoration methods by dense live staking willows and cottonwoods.
- Collaborated with the Fisheries Program in collecting redd survey data on the Raven River system and conducting a literature review on beaver-trout interactions.
- Collaborated with 19 groups and organizations to enhance and facilitate the maintenance of healthy riparian habitat across the province.

- Collected water quality data, conducted fish trapping, and sampled for Arctic grayling eDNA at the Beaverlodge weir, with no hits of Arctic grayling eDNA found and 4 species of coarse fish and northern pike identified upstream of the weir.

## **Abstract**

The ecological integrity and health of Alberta's rivers, streams, and surrounding landscapes are often negatively affected by ongoing human development. Riparian areas are complex ecosystems that provide important ecological functions and are critical to maintaining watershed health. Proper management of this sensitive habitat is essential to maintain water quality and habitat integrity. The primary goal of ACA's Riparian Conservation Program is to protect and restore riparian habitat in priority watersheds through on-the-ground habitat restoration projects by engaging landowners, the public, and other stakeholders through community outreach and education activities. Our collaborative partnerships with landowners, industry, government, watershed groups, and other stakeholders are an integral component of project delivery. In 2019/20, we focused conservation efforts in the following priority watersheds: Beaverlodge, Heart, Raven, and North Raven rivers; and Clear, Dogpound, Todd, Sharples, and Five Mile creeks and their associated tributaries. We delivered 19 enhancement projects using a variety of management tools, including implementing agreements to conserve 228.1 acres (92.3 ha) of riparian and associated upland habitat, five off-site watering systems, three bioengineering projects, two erosion control projects, two fence stiles, and installing of 21.4 km of wildlife-friendly fencing to protect important riparian habitat as part of new and existing agreements. We also monitored water quality and riparian health on three systems to help evaluate the effectiveness of riparian enhancements, supported landowners with riparian enhancement activities, and communicated our Riparian Conservation Program to various communities. Beaver activity monitoring was conducted on two systems to identify fish barriers and monitor habitat. Our efforts have contributed to improvements in riparian habitat health and have positively influenced the stewardship approach of many landowners and leaseholders.

## **Introduction**

In 2019, Alberta's economy continued to struggle and make some recovery. The oil and gas industry showed little signs of gaining strength and the unemployment rate remained high. Despite the unknown economic future, the population in the province increased to 4.37 million, up from 4.33 million in 2018. Alberta's natural land base continues to be under intense pressure from a variety of sources related to its population growth, including agricultural, municipal, and industrial development. Significant conservation efforts are needed to restore the ecological function of these impacted areas. Alberta Conservation Association's (ACA's) Riparian Conservation Program (RCP) identifies priority watersheds for focused conservation efforts to enhance their potential for successful restoration. Within these focal areas, the primary goal is to improve overall health of riparian areas, which in turn improves the health of associated wildlife and fish communities through enhanced ecosystem processes. ACA collaborates with community-level watershed groups, landowners, government, and industry to implement best management practices and deliver on-the-ground projects. Our objectives are to: 1) deliver on-the-ground restoration projects, 2) collect baseline information on new project sites and monitor existing ones, and 3) engage landowners, the public, and other stakeholders through community outreach and education activities. In 2019/20, the RCP consisted of the following riparian conservation projects delivered throughout the province: Beaverlodge, Heart, Raven/North Raven river systems; and Clear, Dogpound, Five-Mile, Sharples, and Todd creek systems.

## **Methods**

The RCP encompasses activities that conserve, protect, and enhance fish and wildlife habitat and increase consumptive and non-consumptive recreational opportunities, including angling and hunting. This provincial program is delivered at a regional level and is designed to ensure provincial standards are adhered to by Land Management Program (LMP) staff. The LMP team and program manager are responsible for the provincial coordination of this program, while each project's watershed-specific, on-the-ground components are delivered regionally.

On-the-ground riparian projects are delivered as described in the *Guiding Document for ACA's Riparian Conservation Program* (draft). Depending on project-specific site requirements, we use various tools to improve riparian health and offset various environmental impacts, such as

wildlife-friendly livestock exclusion fencing, off-site watering systems, spring developments, bioengineering, riparian pasture management, tree planting, landowner agreements, and outreach and educational activities. We maintain long-term relationships with landowners and other partners and provide technical advice and support for riparian initiatives led by other agencies. In most project areas, we collaborate with several stewardship groups to promote riparian conservation, implement a variety of enhancements, and install signage on project sites. We use aerial videography acquired through helicopter or drone surveys, water sampling, photographic benchmarks, and riparian health inventories and assessments to gather baseline data and monitor project progress and effectiveness.

Many watersheds potentially require conservation initiatives; however, we focus our conservation efforts in areas where riparian habitat may be degraded by agricultural practices and where fisheries may have declined over past decades. The RCP identified the following priority watersheds for focused conservation efforts in 2019/20: Beaverlodge, Owl, Raven/North Raven river systems, and Clear, Five Mile, Sharples, and Todd creek systems and their associated tributaries. Our riparian program is delivered under an adaptive management (or conservation) framework. This framework allows for continual improvement in conservation practices through learning from the outcomes of existing projects in support of program objectives.

## **Results**

We currently manage 35 active RCP agreements that conserves 1,075 acres (435 ha) of riparian habitat and 264 acres (107 ha) of upland habitat across Alberta. In 2019/20, we completed 19 new riparian habitat enhancement projects throughout the province (Table 1). On-the-ground restoration projects were delivered using a variety of management tools, including riparian and upland tree planting, landowner habitat lease agreements, livestock exclusion fencing, and alternate watering sources to reduce or eliminate grazing pressure on riparian habitat. Monitoring initiatives included aerial videography and water sampling at permanent sample sites on the Beaverlodge River to monitor water quality and riparian health assessments using methods by Fitch et al. (2001).

We did not initiate new projects on the Owl River as ACA and Alberta Environment and Parks continue to identify priority sections of the river and review current land-use designations. No new riparian projects on Isle Lake were initiated that involved ACA staff.

We completed three new riparian habitat enhancement agreements (RHEA) with terms up to 10 years, installed 21.4 km of fencing, and removed 1.6 km of dilapidated fence, effectively conserving 228.1 acres (92.3 ha) of riparian and upland habitat. In addition, we incorporated five offsite watering systems, and 6.4 km of above-ground water pipeline, to further reduce the intensity of grazing impacts by attracting cattle away from streams. We assisted with erosion control on three different riparian systems. measures fish passage improvement on the Beaverlodge River at the weir. We also completed two bioengineering projects consisting of live staking willows and planning for four new bioengineering projects in 2019.

Water quality in the Beaverlodge drainage continued to be assessed at the weir to monitor changes in water quality from the weir's construction. Water quality parameters assessed were favourable for conditions required by Arctic grayling. In conjunction with the water quality monitoring, fish trapping and ID couple with eDNA was conducted above the weir to monitor for Arctic grayling presence in the Beaverlodge River. No Arctic grayling eDNA hits were found; however, 4 species of coarse fish and northern pike were identified upstream of the weir. Monitoring for compliance was completed for active RHEAs throughout the regions. Riparian health assessments were completed by ACA staff for two projects and 10 riparian health inventories were completed by Cows and Fish. Aerial surveys were conducted on the Beaverlodge River, Raven and North Raven River, and Dogpound Creek. Beaver monitoring as also completed on the Beaverlodge and North Raven River.

Table 1. Riparian enhancement and monitoring initiatives throughout the province by project in 2019/20.

<b>Project Name (ACA Region)</b>	<b>Number of New Enhancement Projects and Activities</b>	<b>Monitoring Activities</b>	<b>Outreach Activities</b>
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Owl River (Northeast Riparian)		-N/A	-N/A	-N/A
Isle Lake (Northeast Riparian)		-N/A	-N/A	-N/A
Central Riparian	5	<ul style="list-style-type: none"> <li>• 1 new landowner (RCP-CE-0018) agreement on Dogpound Creek</li> <li>• 2 wildlife-friendly livestock exclusion fencing projects (10.7 km installed)</li> <li>• 2 fence stiles installed on the North Raven and Raven River</li> <li>• 73 acres of riparian and associated upland area conserved through landowner agreements</li> <li>• 4.3 km of riparian habitat conserved on Dogpound Creek.</li> </ul>	<ul style="list-style-type: none"> <li>• 25 existing landowner agreements inspected for compliance</li> <li>• 1 Riparian health assessment completed</li> <li>• Entire length of North Raven River flown and filmed as part of the angler surveys</li> <li>• Entire length of Dogpound Creek flown and filmed</li> <li>• Conducted beaver monitoring during summer and fall along the North Raven River</li> </ul>	<ul style="list-style-type: none"> <li>• Presentation to Mountain View County Agricultural Service Board on new Dogpound focus area</li> <li>• Technical advisor to Red Deer County ALUS program.</li> <li>• Created online angler map for the Raven River watershed</li> <li>• Attended Red Deer Watershed Alliance AGM</li> </ul>
Northwest Riparian	2	<ul style="list-style-type: none"> <li>• Installed erosion control techniques at two properties.</li> </ul>	<ul style="list-style-type: none"> <li>• 10 existing landowner agreements inspected for compliance</li> <li>• Aerial survey for beaver dams flown on Beaverlodge River</li> <li>• Water quality sampling completed by Matrix Solutions to monitor changes from weir construction.</li> <li>• Trapping and identification of fish above the weir, including eDNA for Arctic grayling (year 1 of 5)</li> </ul>	<ul style="list-style-type: none"> <li>• Delivered 2 presentations (Spring tour and West County Watershed Society AGM)</li> <li>• Continued collaboration on Redwillow Watershed Restoration Team</li> <li>• Assisted Redwillow Watershed Restoration Team with Soil Erosion Series</li> <li>• Fall targeted social media advertisement to engage landowners willing to conduct riparian enhancements.</li> </ul>

		<ul style="list-style-type: none"> <li>• 10 riparian health inventories completed by Cows and Fish</li> <li>• 3 temperature loggers monitored in the Beaverlodge River system.</li> </ul>	<ul style="list-style-type: none"> <li>• Spring and autumn newspaper ad to engage landowners for future projects</li> <li>• Continued collaboration with Mighty Peace Watershed Alliance AGM</li> <li>• Landowner meet and greet co-hosted with County of GP and Peace Country Beef and Forage Association</li> <li>• Attended regular Heart River Watershed WAC meetings.</li> <li>• Heart River project tour hosted by Northern Sunrise County, visiting landowner project sites.</li> </ul>
South Riparian	12	<ul style="list-style-type: none"> <li>• 1 new landowner agreement (RCP-SO-006) on Todd Creek</li> <li>• 1 new landowner agreement (RCP-SO-007) on Sharples Creek <ul style="list-style-type: none"> <li>• Planted 500 willows cuttings and 250 cottonwood palisades on Five Mile Creek, and 500 willow cuttings on Deer Creek Ranch</li> </ul> </li> <li>• 1 watering trough installed as part of a new agreement on Todd Creek</li> <li>• 4 watering troughs installed, including 4 miles of above ground waterline as part of a new agreement on Sharples Creek</li> <li>• 2 wildlife-friendly livestock exclusion fencing projects (10.7 km installed and 1.6 km removed)</li> <li>• 155.1 acres riparian and associated upland habitat conserved</li> </ul>	<ul style="list-style-type: none"> <li>• 5 existing landowner agreements inspected for compliance</li> <li>• 1 Riparian health assessment completed</li> <li>• Maintained active membership on Milk River Watershed Council</li> <li>• Presented at NCC meet and greet in Twin Butte</li> <li>• Maintained active membership on Oldman Watershed Council Rural Team</li> <li>• Participated in Pincher Creek Watershed Group Blueweed Blitz</li> </ul>



through landowner  
agreements

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<b>TOTAL</b>	<b>19</b>
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We continued to be active in community outreach and educational activities through advertising in local newspapers and by delivering presentations to Beaverlodge Regional High School, the West County Watershed Society, and as part of a Riparian Management Workshop directed at landowners in the area. We also provided technical support as members of seven watershed groups: the Redwillow Watershed Restoration Team, the Oldman Watershed Council Rural Team, and the Milk River Watershed Council, the Sturgeon River Watershed Alliance, Mighty Peace Watershed Alliance, West County Watershed Alliance, and Parkland County Alternative Land Use Services (ALUS) Program. We installed two project signs highlighting riparian projects with participating landowners on the Raven River and Beaverlodge River.

## **Conclusions**

We led riparian conservation projects in the Beaverlodge, North Heart, Raven/North Raven river systems, and Clear, Dogpound, Five Mile, Sharples, and Todd creek systems through a variety of riparian conservation initiatives. We provided technical advice and support to several landowners and watershed groups in the Milk, Oldman, Red Deer, and Beaverlodge river basins. We delivered 18 new riparian enhancement projects throughout the province and led or participated in several community outreach and educational events. Monitoring data collected during 2019/20 for new and existing projects will be used for future evaluation of project success and to develop monitoring protocols for our riparian program as a whole. Our efforts have contributed to enhanced awareness and improvements in riparian habitat health and have positively influenced the stewardship approach of many landowners and leaseholders.

We will continue to monitor water quality and riparian health to help us assess the effectiveness of our conservation efforts. We recognize the importance of collaborating with landowners on riparian conservation efforts and we will continue to communicate our success of our riparian projects to local communities and our stakeholders.

## Communications

- Delivered presentations to Beaverlodge Regional High School students and the West County Watershed Society.
- Presented to Mountain View County Agricultural Service Board on Dogpound Creek projects
- Spring and autumn newspaper ads in the *Grande Prairie Town and Country News*.
- Active member of the Redwillow Watershed Restoration team.
- Active member of the Oldman Watershed Council.
- Active member of the Oldman Watershed Council.
- Active member of the Mighty Peace Watershed Alliance.
- Active Member of the Red Deer Watershed Alliance.
- Active member of the Heart River Watershed Alliance.
- Attended Heart River project tour hosted by Northern Sunrise County.
- Presented at the NCC meet and greet in Twin Butte.
- Participated in the Pincher Creek Watershed Group Blueweed Blitz.
- Created an interactive angler access map showing the RHEAs on Clear Creek, North Raven River, and Raven River to provide better angler access to these corridors.
- Updated the external website combining information from existing site and the *Riparian Conservation: A Landowner's Guide* document.

## Literature Cited

- Fitch, L, B.W. Adams, and G. Hale (eds.). 2001. Riparian health assessment for streams and small rivers – field workbook. Cows and Fish Program, Alberta Riparian Habitat Management Program, Lethbridge, Alberta, Canada.
- Kipp, S. 2002. On the living edge: your guide for waterfront living. Federation of Alberta Naturalists. Edmonton, Alberta, Canada. 148 pp.

## Photos



Beaverlodge River spring tour. Photo: Garret Mcken



Beaverdam aerial survey on the Beaverlodge River. Photo: Garret Mcken





Powell Site erosion control workshop near Sexsmith Alberta. Photo: Garret Mcken



Willow stake planting and growth on Raven River. Photo: Erin VanderMarel





Clear Creek riparian habitat conserved through new agreement. Photo: Joe Hopkins



Five Mile Creek cottonwood planting. Photo: Jeff Forsyth



Sharples Creek riparian habitat to be rehabilitated under new landowner agreement.  
Photo: Jeff Forsyth