

**Alberta Conservation Association
2018/19 Project Summary Report**

Project Name: Riparian Conservation Program

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Project Coordinators: Brendan Ganton (Northeast Region: Owl River, Isle Lake), Erin VanderMarel (Central Region: Central Riparian), Jeff Forsyth (Southern Region: South Riparian), and Lenore Seward (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

Landowners

Mighty Peace Watershed Alliance

Milk River Watershed Council

Nature Conservancy of Canada

Oldman Watershed Council
Sinopec Canada
Suncrude Canada Ltd.
Trout Unlimited Canada
West County Watershed Society

Key Findings

- Delivered 25 riparian enhancement projects: six new riparian habitat lease agreements, six fencing projects, nine off-site livestock watering initiatives, two bioengineering projects, one weir removal, and one livestock crossing improvement.
- Conserved 151 acres (61.1 ha) through new and existing riparian habitat lease agreements, installed 7.9 kilometre (km) of new fencing, and upgraded 2.0 km of existing fencing to meet wildlife-friendly standards.
- Conducted one riparian health assessment and four riparian health inventories, collected water samples from seven sites, and collected data using aerial videography as part of baseline data collection for ongoing water and habitat quality monitoring.
- Applied bank stabilization and restoration methods by dense live staking willows and prepared four live-staking plans for 2019.
- Collaborated with 16 groups and organizations to enhance and facilitate the maintenance of healthy riparian habitat across the province.

Introduction

In 2018, Alberta's economy continued to recover, the oil and gas industry showed some signs of recovery, and the unemployment rate remained high and above the national average. Despite the unknown economic future, the population in the province increased to 4.33 million, up from 4.31 million in 2017. 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. 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 2018/19, the RCP consisted of the following riparian conservation projects delivered throughout the province: Beaverlodge, Owl, Raven/North Raven river systems; and Clear, Five Mile, and Todd creek systems.

Methods

The RCP encompasses activities that conserve, protect, and enhance wildlife and fish 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 cover 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 2018/19: Beaverlodge, Owl, Raven/North Raven river systems, and Clear, Five Mile, 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

In 2018/19, we completed 25 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. We worked with Cows and Fish to complete three Riparian Health Inventories as well as riparian condition photos and health observations to summarize the impact of restoration work completed along the Owl River to date.

We completed six landowner habitat agreements with terms up to 15 years, installed 7.9 km of fencing, and upgraded 2.0 km of fencing to meet “wildlife-friendly” standards, effectively conserving 151 acres (61.1 ha) of riparian and upland habitat. In addition, we incorporated nine

solar-powered off-site watering systems, and improved one livestock crossing to further reduce the intensity of grazing impacts by attracting cattle away from streams. We assisted with 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 seven established sampling sites. Dissolved iron (measured in milligrams/liter [mg/L]) exceeded CCME water quality guidelines of 0.3 mg/L for aquatic life at five of seven locations in the spring and one of seven in the fall samples. Total phosphorus (mg/L) long-term (chronic) water quality guidelines were exceeded at five sites in spring and four sites in the fall with the limit set 0.05 mg/L. Total nitrogen long-term (chronic) water quality guidelines were exceeded at four sites in spring, and five sites in the fall with a limit of 1.0 mg/L. Total coliforms levels were exceeded at three sites during spring sampling and two sites during fall sampling using a limit of 1,000mpn/100mL (Alberta Environment and Sustainable Resource Development 2014; Canadian Council of Ministers of the Environment 2010).

Table 1. Riparian enhancement and monitoring initiatives throughout the province by project in 2018/19.

Project Name (ACA Region)	Number of New Enhancement Projects and Activities	Monitoring Activities	Outreach Activities
Owl River (Northeast)	—	<ul style="list-style-type: none"> • 3 riparian health inventories completed • 1 riparian photo and health inventory completed 	<ul style="list-style-type: none"> • Completion of riparian health inventory and recommendations, including photos, maps, and plant species lists

Raven River (Central)	11	<ul style="list-style-type: none"> • 3 new landowner agreements • 1 landowner agreement renewal • 1 wildlife-friendly livestock exclusion fencing project (2.7 km installed) • 1 existing fence upgraded to wildlife friendly specifications (190 m of repaired fence) • 4 solar-powered off-site watering systems installed • 116 acres of riparian and associated upland area conserved through landowner agreements • 5.5 km of riparian habitat conserved on the Raven River. • 1 bioengineering project consisting of two waddle fences with brush layers and live stakes using more than 300 willow cuttings. 	<ul style="list-style-type: none"> • 14 existing landowner agreements inspected for compliance • 1 temperature logger monitored on Clear Creek 	<ul style="list-style-type: none"> • 5 landowner participation signs installed • Contacted potential partnering counties to determine future landowner interest for new riparian program focus area. • Completed desktop exercise to assess potential of a new riparian focus area in Central Region.
Beaverlodge River (Northwest)	4	<ul style="list-style-type: none"> • Assisted with improving livestock crossing for 1 landowner and provided one off-site watering system (existing agreement) • Assisted with fish passage improvement project on the Beaverlodge River at the weir 	<ul style="list-style-type: none"> • 7 water quality sampling sites (spring, autumn) • 2 dissolved oxygen data loggers deployed (above and below weir, prior to fish passage work) • 1 riparian health inventory completed • 3 temperature loggers monitored in 	<ul style="list-style-type: none"> • Delivered 3 presentations (Spring tour, West County Watershed Society AGM, Bioengineering Workshop) • Continued collaboration on Redwillow Watershed Restoration Team • Assisted with and attended the Soil

		<ul style="list-style-type: none"> • Signed one new agreement on the Redwillow River • Assisted with one bioengineering project consisting of dense live staking • Scoped out three new bioengineering projects within the Redwillow Watershed Restoration Team and applied to the WRRP grant for funding to complete these projects 	the Beaverlodge system	<p>Erosion Series with guest Craig Sponholtz of Watershed Artisans</p> <ul style="list-style-type: none"> • Assisted with Livestock Crossing Tour • Spring and autumn newspaper ad to engage landowners for future projects • Attended Mighty Peace Watershed Alliance AGM • Attended the Beavers on our Landscape Workshop • Article for ACA's Spring 2019 magazine regarding the fish passage improvement at the Beaverlodge River weir
Todd Creek, Five-mile Creek (South)	10	<ul style="list-style-type: none"> • 2 new landowner agreements • 2 off-site water systems installed • 2 livestock distribution / solar-powered off-site watering systems installed • 2 portable electric fence units purchased (Razer Grazer) for riparian pasture management • 2 wildlife-friendly livestock exclusion fencing project (5.2 km installed) and 1.8 km removed • 35 acres riparian habitat conserved 	<ul style="list-style-type: none"> • 3 existing landowner agreements inspected for compliance 	<ul style="list-style-type: none"> • Maintained active membership on Milk River Watershed Council and Oldman Watershed Council Rural Team • Attended NCC meet and greet • Attended Canadian Land Reclamation Association AGM

through landowner
agreements

TOTAL	25
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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 and area 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 five watershed groups: the Redwillow Watershed Restoration Team, the Oldman Watershed Council Rural Team, and the Milk River Watershed Council, the Sturgeon River Watershed Alliance, and Parkland County Alternative Land Use Services (ALUS) Program. We installed five project signs highlighting riparian projects with participating landowners on the Raven and North Raven rivers. We worked with Cows and Fish to engage landowners through meetings and written letters to participate in Riparian Health Inventory data collection scheduled for 2018 along the Owl River.

Conclusions

We led riparian conservation projects in the Beaverlodge, Owl, Raven/North Raven river systems, and Clear, Five Mile, 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 Isle Lake, Milk, Oldman, and Beaverlodge river basins. We delivered 25 new riparian enhancement projects throughout the province and led or participated in several community outreach and educational events. Monitoring data collected during 2018/19 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 and area high school students and the West County Watershed Society.
- Spring and autumn newspaper ads in the *Grande Prairie Town and Country Newspaper*.
- Michael Short – Owl River.
- Active member of the Redwillow Watershed Restoration team.
- Active member of the Oldman Watershed Council.
- Active Member of the Milk River Watershed Council of Canada.
- Active member of Parkland County ALUS Program Advisory Committee.
- Active member of the Sturgeon River Watershed Alliance.
- Promoted the work completed at the Beaverlodge River weir to improve fish passage through *Conservation Magazine* article (Spring 2019)
- Collaborated on updating the *On the Living Edge* resource materials (Kipp 2002).
- Created an interactive mapping database showing the RHEA 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.
- Participated in Wetland Policy Workshop to further understand the regulatory framework and examine ACA's role in becoming a certified wetland restoration agency.

Literature Cited

Alberta Environment and Sustainable Resource Development (ESRD). 2014. Environmental quality guidelines for Alberta surface waters. Water Policy Branch, Policy Division, Edmonton, Alberta, Canada. 48 pp.

Canadian Council of Ministers of the Environment. 2010. Canadian water quality guidelines for the protection of aquatic life: ammonia. *In*: Canadian water quality guidelines, 1999. Canadian Council of Ministers of the Environment, Winnipeg, Manitoba, Canada.

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



New off-site watering system and riparian fence for participating landowner on Raven River.
Photo: Erin VanderMarel



Riparian habitat on Raven River conserved through new agreement. Photo: Erin VanderMarel



Beaverlodge River weir before fish passage improvement (June 2018) and after fish passage improvement (September 2018).

Photos: Lenore Seward (top) and Garret McKen (bottom)





Aerial image of the Beaverlodge River at the weir with the two natural rock passage structures. These structures change the gradient of the river so that fish can pass over the weir in times of low flows. Photo: Nikita Lebedynski



Five-Mile Creek riparian habitat conserved through new agreement. Photo: Jeff Forsyth



Todd Creek riparian habitat conserved through new agreement. Photo: Jeff Forsyth