

Alberta Conservation Association 2017/18 Project Summary Report

Project Name: Riparian Conservation Program

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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
Fisheries and Oceans Canada (DFO)
Landowners
Longshore Resources Ltd.
Matrix Solutions
Mighty Peace Watershed Alliance
Milk River Watershed Council
Oldman Watershed Council
Sinopec Canada
Syncrude Canada Ltd.
Treecycler
Trout Unlimited Canada
West County Watershed Society
Woodmere Nursery

Key Findings

- Delivered 19 riparian enhancement activities: eight new riparian habitat lease agreements, four fencing projects, three off-site livestock watering initiatives and one tree-planting event.

- Conserved 513 acres (207 hectare) through new and existing riparian habitat lease agreements, installed 0.70 kilometre of new fencing and upgraded 4.88 kilometre of existing fencing to meet wildlife-friendly standards.
- Conducted five riparian health assessments, collected water samples from seven sites, and collected data using aerial videography as part of baseline data collection or ongoing water and habitat quality monitoring.
- Applied bank stabilization and restoration methods by planting 15 balsam poplar palisades and prepared two tree-planting plans for 2018.
- Collaborated with 18 groups and organizations to enhance and facilitate the maintenance of healthy riparian habitat across the province.

Introduction

The ecological integrity and health of Alberta's rivers, streams, and surrounding landscapes are often negatively affected by ongoing human development. Aquatic and terrestrial habitats have been degraded by activities such as agriculture, land conversion, forestry, oil and gas exploration, and urban and rural community development. Significant conservation efforts are needed to restore the ecological function of these impacted areas. Alberta Conservation Association's (ACA) 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 2017/18, the RCP consisted of the following riparian conservation projects delivered throughout the province: Beaverlodge River (Northwest Region), Edson River (Northeast Region), Owl River (Northeast Region), Raven River (Central Region), and South Riparian (Southern Region).

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 where appropriate, 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 2017/18: Beaverlodge, Edson, Owl, Raven, North Raven, and Oldman rivers; and Clear, Todd, Beaver, Drywood, Yarrow, Lyndon, Pincher, and Indianfarm creeks 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 2017/18, 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 on one watercourse and water sampling at permanent sample sites on another watercourse 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 completed eight landowner habitat agreements with terms up to 15 years, installed 0.70 kilometres of fencing and upgraded 4.88 kilometres of fencing to meet “wildlife-friendly” standards, effectively conserving 513 acres (207 hectares) of riparian and upland habitat. In addition, we incorporated two solar-powered off-site watering systems, installed 1.6 kilometres of underground piping as part of a gravity-fed watering system, installed one pond-levelling device, and improved one livestock crossing to further reduce the intensity of grazing impacts by attracting cattle away from streams. Fifteen balsam poplar palisades were also planted at one site as part of a bioengineering project.

In total, we conducted water sampling to assess water quality at seven sites on one project. Water quality in the Beaverlodge drainage continued to be assessed at seven sample sites. Dissolved iron (measured in milligrams/liter [mg/L]) exceeded CCME water quality guidelines of 0.3 mg/L for aquatic life at one of seven locations in the spring and three of seven in the fall samples. Total phosphorus (mg/L) long-term (chronic) water quality guidelines were exceeded at three sites in both spring and fall with the limit set 0.05 mg/L. Total nitrogen long-term (chronic)

water quality guidelines were exceeded at three sites in both spring and fall with a limit of 1.0 mg/L. Total coliforms levels were exceeded at all seven 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). Fall sampling was done after heavy rains had occurred in the area. The spring levels were below this limit.

Table 1. Riparian enhancement and monitoring initiatives throughout the province by project in 2017/18.

Project Name (ACA Region)	Number of New Enhancement Projects and Activities	Monitoring Activities	Outreach Activities
Owl River (Northeast)	–	<ul style="list-style-type: none"> Completed aerial videography on >50 km of riverbank to assess riparian condition 	<ul style="list-style-type: none"> Engaged 6 landowners to participate in resurveying sites for Riparian Health Inventories
Raven River (Central)	12 <ul style="list-style-type: none"> 6 new landowner agreements 1 wildlife-friendly livestock exclusion fencing project (695 m installed) 3 existing fences upgraded to wildlife friendly specifications (4.88 km of repaired fence) 1 solar-powered off-site watering system installed 106 acres riparian and associated upland area conserved through landowner agreements 7.6 km of (1.1 km on Clear Creek, 6.5 km on Raven River) of riparian habitat conserved 15 poplar palisades planted as part of 1 bioengineering project 	<ul style="list-style-type: none"> 18 existing landowner agreements inspected for compliance 5 in-house riparian health assessments completed on new riparian agreements 	<ul style="list-style-type: none"> 1 brochure developed and distributed to promote riparian activities and encourage future stewardship 5 landowner participation signs developed and installed Re-visited four bioengineering projects on the Bearberry Creek to determine potential of future landowner engagement.
Beaverlodge River (Northwest)	2 <ul style="list-style-type: none"> Assisted with improving livestock crossing for 1 landowner Assisted with installation of pond leveller for 1 landowner Assisted with continued efforts to remove a weir on the Beaverlodge River and replace with rock-riffle fish passage 	<ul style="list-style-type: none"> 7 water sampling sites (spring, autumn) 5 existing landowner agreements inspected for compliance 	<ul style="list-style-type: none"> Delivered 3 presentations (Spring tour, West County Watershed Society AGM, Riparian Management Workshop) Maintained membership on Redwillow Watershed Restoration Team Spring and autumn newspaper ad to engage landowners for future projects

		<ul style="list-style-type: none"> • Prepared plans for tree planting at 2 locations 	<ul style="list-style-type: none"> • Attended Mighty Peace Watershed Alliance AGM (WW)
Edson River (Northeast)	1	<ul style="list-style-type: none"> • Secured 155-acre Edson Creek Conservation Site via ACA's Habitat Securement Program 	<ul style="list-style-type: none"> • 1 existing landowner agreement inspected for compliance
South Riparian (Southern)	4	<ul style="list-style-type: none"> • 2 new landowner agreements • 1 livestock distribution / solar-powered off-site watering project installed • 1.6 kilometres of water pipeline installed for a gravity fed watering system • 407 acres riparian and associated upland area conserved through landowner agreements 	<ul style="list-style-type: none"> • 1 existing landowner agreement inspected for compliance • Maintained active membership on Milk River Watershed Council and Oldman Watershed Council Rural Team
TOTAL	19		

We conducted five riparian health assessments on the Raven River for participating landowners. 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 three watershed groups: the Redwillow Watershed Restoration Team, the Oldman Watershed Council Rural Team, and the Milk River Watershed Council. We advertised Raven River project activities locally through a mail-out brochure and 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. The Edson River Riparian Project was finalized this year through the acquisition of the Edson Creek Conservation Site; 155 acres of boreal forest surrounding an unnamed fish-bearing tributary to the Edson River.

Conclusions

We led riparian conservation projects in southern Alberta and in the Raven/North Raven, Beaverlodge, and Owl river systems through a variety of initiatives. We provided technical advice and support to several landowners and watershed groups in the Milk, Oldman, and Beaverlodge river basins. We delivered 19 new riparian enhancement projects throughout the province and led or participated in several community outreach and educational events. Monitoring data collected during 2017/18 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 enhancement activities and will continue to communicate our riparian initiatives to the community.

Communications

- Delivered presentations to Beaverlodge and area high school students, the West County Watershed Society, and landowners/consultants/environmental professionals at a Riparian Management Workshop with AWES, Cows and Fish, and the Mighty Peace Watershed Alliance.
- Spring and autumn newspaper ads in the *Grande Prairie Town and Country Newspaper*.
- Active member of the Redwillow Watershed Restoration team.
- Promoted the North Raven/Raven River Riparian Conservation project through a brochure mail-out to local landowners.
- Collaborated on updating the *On the Living Edge* resource materials (Kipp 2002).
- Updated *Riparian Conservation: A Landowner's Guide* resource document for ACA external website.
- 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



Riparian presentation at the Beaverlodge High School. Photo: Garret McKen



Pond leveler installation on Windsor Creek with participating landowner.
Photo: Garret McKen



Livestock stream crossing on Windsor Creek completed with participating landowner.
Photo: Garret McKen



View of unnamed tributary bisecting the Edson Creek Conservation Site.
Photo: Stefanie Fenson



Riparian sign installed for participating landowner on the Raven River.
Photo: Erin VanderMarel



Riparian buffer and new fence installed on Raven River. Photo: Mandy Couve



Off-site watering unit using a gravity-based watering distribution system on the A7 Ranche. Photo: Jeff Forsyth



Damaged watering source prior to installation of solar-powered off-site watering.
Photo: Mike Uchikura