

## **Alberta Conservation Association 2015/16 Project Summary Report**

**Project Name:** Riparian Conservation

**Land Management Program Manager:** Darren Dorge

**Project Leaders:** Stefanie Fenson (Riparian Conservation Program Lead, Northeast Region, Owl River), Lenore Seward (Northwest Region, Beaverlodge River), Juanna Thompson (Northeast Region, Edson River), Mike Uchikura (Southern Region, South Riparian) and Erin VanderMarel (Central Region, North Raven River)

### **Primary ACA staff on project:**

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### **Partnerships**

Alberta Environment and Parks  
ConocoPhillips  
County of Grande Prairie  
Enerplus  
Fisheries and Oceans Canada  
Government of Canada  
Landowners  
Oldman Watershed Council  
Syncrude Canada Ltd.  
Tree Canada  
Trout Unlimited Canada  
West County Watershed Society

### **Key Findings**

- Delivered 8 riparian enhancement activities: 2 new riparian habitat lease agreements, 3 fencing projects, 1 off-site livestock watering initiative and 2 tree-planting events.
- Conserved 69 ac (28 ha) through riparian habitat lease agreements and installed 3.15 km of fence, most of which was constructed using wildlife-friendly fencing techniques.
- Conducted 6 riparian health assessments and collected water samples from 12 sites as part of baseline data collection or ongoing water quality monitoring.
- Applied bank stabilization and restoration methods by planting 8,416 trees and shrubs and 2 strips of wetland sod.
- Collaborated with 12 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 the 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 for 2015/16 were 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 2015/16, 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 staff. The Land Management 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, 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, to improve riparian health and offset various environmental impacts. 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, 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 programming; however, we focus our conservation efforts in areas where riparian cover may be degraded by agricultural practices and where fisheries may have declined over the past decades. The RCP identified the following priority watersheds to focus conservation efforts in 2015/16: 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

We completed eight 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 water sampling at permanent sample sites to monitor water quality and riparian health assessments using methods by Fitch et al. (2001). We did not undertake any new projects on the Owl River because ACA and Alberta Environment and Parks continue to identify priority sections of the river and review current land-use designations.

We completed two landowner habitat agreements with terms up to 15 years and installed 3.15 km of fencing, effectively conserving 69 ac (28 ha) of riparian and upland habitat. In addition, we incorporated one solar-powered off-site water system with a fencing project to further reduce the intensity of grazing impacts by attracting cattle away from streams. With the help of staff and volunteers, 8,416 white spruce trees and willows were planted at two sites. Two wetland sod strips made of native sedges and bulrushes were also planted on the river banks of one project site to give the area a head start on restoration and prevent invasive plants from establishing on the bare soil.

In total, we conducted water sampling to assess water quality at 12 sites across two projects. Where water was sampled along the Edson River ( $n = 5$ ), most water quality variables from both spring and fall sampling efforts were below recommended maximums for protection of aquatic life (CCME 2010). Samples exceeded guideline limits for total fecal coliforms at one of the five sampling sites. Water quality variables generally met the guidelines over the last four years, except for 2012/13 fall water-quality monitoring where total coliforms exceeded guideline limits at two of the five sample stations. Water quality in the Beaverlodge drainage continued to be assessed at seven sample sites, with some sites showing improvements over 2014/15. Similar to 2014/15, dissolved iron and fluoride exceeded water quality guidelines for aquatic life at three locations. Total coliforms also exceeded guidelines at three locations, which is down from six locations in 2014/15 (ESRD 2014; CCME 2010).

In total, we conducted six riparian health assessments on Raven River ( $n = 1$ ) and Beaverlodge River ( $n = 5$ ). The baseline riparian health assessment conducted on the Raven River scored on the low end of *healthy*, primarily due to the presence of invasive plant species on site. Of the riparian assessments on Beaverlodge River, four sites remained *healthy* while one remained *healthy with problems* (Fitch et al. 2001).

Table 1. Riparian enhancement and monitoring initiatives throughout the province by project in 2015/16.

Project name (ACA region)	Number of new enhancement projects and activities	Monitoring activities	Outreach activities
Owl River (Northeast)	0	–	–
Raven River (Central)	5 <ul style="list-style-type: none"> <li>• 2 new landowner agreements</li> <li>• 2 wildlife-friendly livestock exclusion fencing projects (1.95 km installed)</li> <li>• 1 solar-powered off-site watering system</li> <li>• 44 ac riparian and associated upland area conserved through landowner lease agreements</li> <li>• 1.61 km of riverfront habitat conserved</li> </ul>	<ul style="list-style-type: none"> <li>• 1 riparian health assessment</li> <li>• 15 existing landowner lease agreements</li> </ul>	–
Beaverlodge River (Northwest)	3 <ul style="list-style-type: none"> <li>• 2 tree planting projects</li> <li>• 7,616 white spruce seedlings, 800 willow stakes, and 2 strips of wetland sod planted (7.5 sq. ft.)</li> <li>• 1 wildlife-friendly livestock exclusion fencing project (1.20 km installed)</li> <li>• 25 ac riparian area conserved</li> </ul>	<ul style="list-style-type: none"> <li>• 5 riparian health assessments</li> <li>• 7 water sampling sites</li> <li>• 2 existing landowner lease agreements</li> </ul>	<ul style="list-style-type: none"> <li>• Engaged 50 student volunteers</li> <li>• Delivered 2 presentations and 2 demonstration site tours</li> <li>• Maintained membership on Redwillow Watershed Restoration Team</li> <li>• Installed 1 project sign</li> </ul>
Edson River (Northeast)	0	<ul style="list-style-type: none"> <li>• 5 water sampling sites</li> <li>• 1 existing landowner lease agreement</li> </ul>	<ul style="list-style-type: none"> <li>• Published information ad in <i>Edson Leader</i> newspaper</li> <li>• Distributed project information to local residents</li> </ul>
South Riparian (Southern)	0	–	<ul style="list-style-type: none"> <li>• Maintained active membership on Oldman Watershed Council Rural Team</li> <li>• Assisted with the Holding the Reins landowner workshop</li> </ul>
TOTAL	8		

We continued to be active in community outreach and educational activities by delivering presentations to Beaverlodge and area high school students and the West County Watershed Society; delivering two tours of demonstration sites in the Beaverlodge area; and assisting with the Holding the Reins landowner workshop in southern Alberta. We also provided technical support as members of two watershed groups, the Redwillow Watershed Restoration Team and the Oldman Watershed Council Rural Team. We advertised Edson project activities locally through newspaper ads and mail-outs, and installed one project sign highlighting a riparian project with a participating landowner on the Beaverlodge River.

## **Conclusions**

We led riparian conservation activities in the Raven/North Raven, Beaverlodge, Edson and Owl river systems through a variety of activities. We provided technical advice and support to several landowners and watershed groups in the Oldman River basin. We delivered eight new enhancement projects throughout the province and led or participated in several community outreach and educational events. Monitoring data collected during 2015/16 for new and existing projects will be used for future evaluation of the riparian program. Our efforts have contributed to enhanced awareness of and improvements in riparian habitat health and have positively influenced the stewardship approach of landowners and leaseholders.

We will continue to monitor water quality and riparian health to help us evaluate the impacts 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 tours of various riparian projects in the Beaverlodge area.
- Delivered presentations to Beaverlodge and area high school students and the West County Watershed Society.
- Promoted the Edson River Riparian Conservation project through an advertisement in the local newspaper (*Edson Leader*).
- Circulated project information by mail to local landowners along the Edson River.
- Participated in and assisted with the Holding the Reins landowner workshop with Oldman Watershed Council Rural Team.
- Initiated updates to *Caring for Shoreline Properties* brochure (Valastin 1999).

## **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.
- Ambrose, N., G. Ehlert, and K. Spicer-Rowe. 2004. Riparian health assessment for lakes, sloughs, and wetlands; field workbook. Produced by Cows and Fish Program, Lethbridge, Alberta, Canada. 90 pp.

Canadian Council of Ministers of the Environment (CCME). 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.

Valastin, P. 1999. Caring for shoreline properties. Alberta Conservation Association and Alberta Environment. Edmonton, Alberta, Canada. 29 pp.

## Photos



Beaverlodge Riparian Spring Tour of a project site with local high school students. Photo: Garret Mcken





Alberta Conservation Association biologist Dan Sturgess deploying a stream temperature logger at one of five sampling sites on the Edson River. Photo: Juanna Thompson





An area of bare soil and eroding river bank along the Beaverlodge River is an ideal candidate for wetland sod installation (top picture). Post-treatment, the well-established sod, comprised of native sedges and rushes, grows quickly and helps prevent the colonization of invasive weeds (bottom picture). Photo: Lenore Seward





Healthy riparian habitat along the Raven River that has been protected under riparian habitat lease agreements since 1981. Photo: Erin VanderMarel



Fly fishermen Corey Rasmussen and Kevin Gardiner on the Raven River at the Drake Conservation Site. Photo: James Potter