Alberta Conservation Association
2010/11 Project Summary Report

Project Name: *Bearberry Creek Riparian Conservation Project*

Fisheries Program Manager: Peter Aku

Project Leader: Mike Uchikura

Primary ACA staff on project:

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Partnerships

Alberta Environment
Alberta Sustainable Resource Development
Cows and Fish
Fisheries and Oceans Canada
Mountain View County
Mountain View Gazette
Olds College
Penn West Energy
Red Deer River Watershed Alliance
Royal Bank of Canada
Sundre High School

Key Findings

- Completed one new bank stabilization project and repairs on previous projects.
- Invertebrate community was dominated by two taxa (mayflies and midge flies) known to increase with organic pollution.
- Fecal coliform counts were high and likely due to cattle fecal contamination.

Introduction

Bearberry Creek is a tributary to the Red Deer River located west of Sundre, Alberta that historically supported sport fish, including bull trout (Fitzsimmons 2005). Land use practices have degraded riparian and aquatic habitat, negatively impacting water quality and fish populations. Restoring the fisheries of Bearberry Creek may depend, in part, on the health (or condition) of riparian areas. The ultimate goal of our project is to facilitate the re-establishment of a recreational fishery by improving the riparian conditions in the watershed. Building on work initiated in 2005, our objectives for 2010/11 included: developing riparian protection and enhancement projects with landowners, continuing to monitor riparian and water conditions, and conducting public outreach activities.

Methods

We worked with landowners interested in riparian projects to install bank stabilization projects using bioengineering techniques.

We installed temperature data-loggers and collected two water samples on July 14 and September 28 at four sites within the system as part of a long-term water quality monitoring program. Sampled sites included a reference site, a treatment site, a site at the confluence of Smith Creek and Bearberry Creek, and a site near the confluence with the Red Deer River in the town of Sundre. We contracted Cows and Fish to perform Riparian Health Inventories (RHI) at three sites, including a control site (NW-21-033-07-W5), a reference site (NE-09-033-07-W5) and a treatment site (SW-28-033-07-W5).

We conducted invertebrate surveys at 16 sites to monitor the effects of the projects on stream health. We sampled one site each upstream and downstream of four enhancement projects (total of eight sites), four long-term degraded sites and four reference sites (minimal degradation).

As part of public outreach activities, we made a presentation to a local high school environmental class including an electrofishing demonstration that was covered by the *Sundre Roundup* newspaper.

Results

In 2010/11, we constructed one bank stabilization (bioengineering) project consisting of a total of 100 m of wattle fencing, 37 modified brush layers, and 3,060 m^2 of live staking, representing 4,860 m^2 of enhanced riparian habitat (Table 1).

Table 1. Breakdown of bioengineering treatments completed at each site in 2010.

Site ID	Wattle fence (m)	Modified brush layers (#)	Live staking (m^2)	Total area (m^2)
ACAB10-1	50	27	2,000	3,600
ACAB09-2	0	0	60	60
ACAB09-3	50	10	1,000	1,200

Water quality sampling showed that fecal coliform counts were high (>1,000 MPN/100 ml) at several sites. The total number of invertebrate families from the 16 sites was 58 with an average (± SE) of 21 ± 3 families per site and 604 ± 267 individuals per site. Baetidae (mayfly) and Chironomidae (midge fly) were the most common families, both of which are known to increase with increased organic pollution (Barbour et al. 1999). Thus, the presence of these pollution-tolerant taxa and high levels of fecal coliforms are likely results of agricultural and cattle fecal contamination.

We have not yet received the Riparian Health Inventory reports; therefore these results are not available for this summary.

Conclusions

In 2010, we built on project work initiated in previous years by constructing one new bank stabilization project and performing necessary maintenance on previous projects. Despite considerable efforts by Alberta Conservation Association (ACA) staff, the Bearberry Creek Riparian Conservation Project has had limited success. There appears to be decreasing local interest in the project based on our difficulties in recruiting interested landowners, the dissolution of the Bearberry Creek Conservation Working Group, and lack of progress toward meeting the goals of the project. For this reason, ACA has decided to suspend active efforts within the Bearberry drainage. However, we remain open to participating in and supporting future, locally-led initiatives.

Communications

- Presented project and riparian education as well as an electrofishing demonstration to an Environmental Studies class at the Sundre High School.
- Published an article in the *Sundre Roundup* outlining the project and highlighting the electrofishing demonstration.

Literature Cited

Fitzsimmons, K. 2005. A review of fish and fish habitat information from the Bearberry Creek drainage. Alberta Conservation Association. 20 pp + App.

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C, USA.

Photos

Photo 1:
Spring bioengineering. (Photo: Kelly Hooey)

Photo 2:
Matt Szumilak and Ariane Cantin observe fish during invertebrate sampling. (Photo: Kelly Hooey)

Photo 3:
Electrofishing Demo Day for Sundre High School students. (Photo: Kevin Challoner)