Alberta Conservation Association
2017/18 Project Summary Report

Project Name: East Slopes Trout and Mountain Whitefish Recovery

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Partnerships

Alberta Environment and Parks
Alberta Streamwatch Conservation Coalition
Forest Resource Improvement Association of Alberta

Key Findings

- We detected fish at seven of the ten randomly selected backpack electrofishing sites we sampled in the lower Ram River watershed comprising six different species.
- We captured 76 bull trout electrofishing, 67 were captured at two sites located along Fall Creek, a tributary of the Ram River bull trout use for spawning.
- We caught 70 bull trout and 33 cutthroat trout while angling a 26 km reach of the Ram River.
- We counted 65 bull trout redds on a survey of a 3.5 km reach of Fall Creek.

Introduction

Bull trout, classified as *Threatened* (Saskatchewan – Nelson rivers populations), are particularly sensitive to habitat change and are thought to reflect general ecosystem health (COSEWIC 2012). This sensitivity, coupled with their relatively wide distribution, make bull trout an attractive species for monitoring sustainability in the North Saskatchewan River watershed. A new government-led initiative, the North-Central Native Trout (NCNT) program, is being implemented to recover native trout and whitefish in the central and northern East Slopes of Alberta (Government of Alberta 2017). Although details of the program are still being worked out, the general approach involves implementation of recovery actions (e.g., trail remediation/closure, implementing industry best-management practices, suppression of non-native species) in an adaptive management framework. These management actions will be evaluated using Alberta Environment and Park's Fish Sustainability Index (FSI). The FSI is a standardized process of assessment that provides a landscape-level overview of fish sustainability within the province and enables broad-scale evaluation of management actions and land use planning (MacPherson et al. 2014). Native fish populations will be monitored during a five-year recovery period using a combination of FSI metrics, redd surveys, and habitat assessments.

Methods

From June 27 to July 26, 2017, we used a combination of backpack-electrofishing, angling, and redd surveys to assess the bull trout population in the lower Ram River watershed. Our sample frame for backpack-electrofishing included all third- to fifth-order streams. Ten randomly selected sites were sampled following AEP's standard operating procedure for sampling small streams (Figure 1). Float electrofishing was intended to be used for sampling the Ram River; however, low water levels precluded us from using our electrofishing gear. We therefore angled 26 km of the Ram River capturing and tagging adult bull trout to characterize the bull trout population in the Ram River. We surveyed a 3.5 km reach of Fall Creek, a known bull trout spawning tributary, for bull trout redds. We also monitored summer water temperature (hourly) at seven locations throughout the study area to assess thermal suitability of habitat for bull trout (Figure 1).

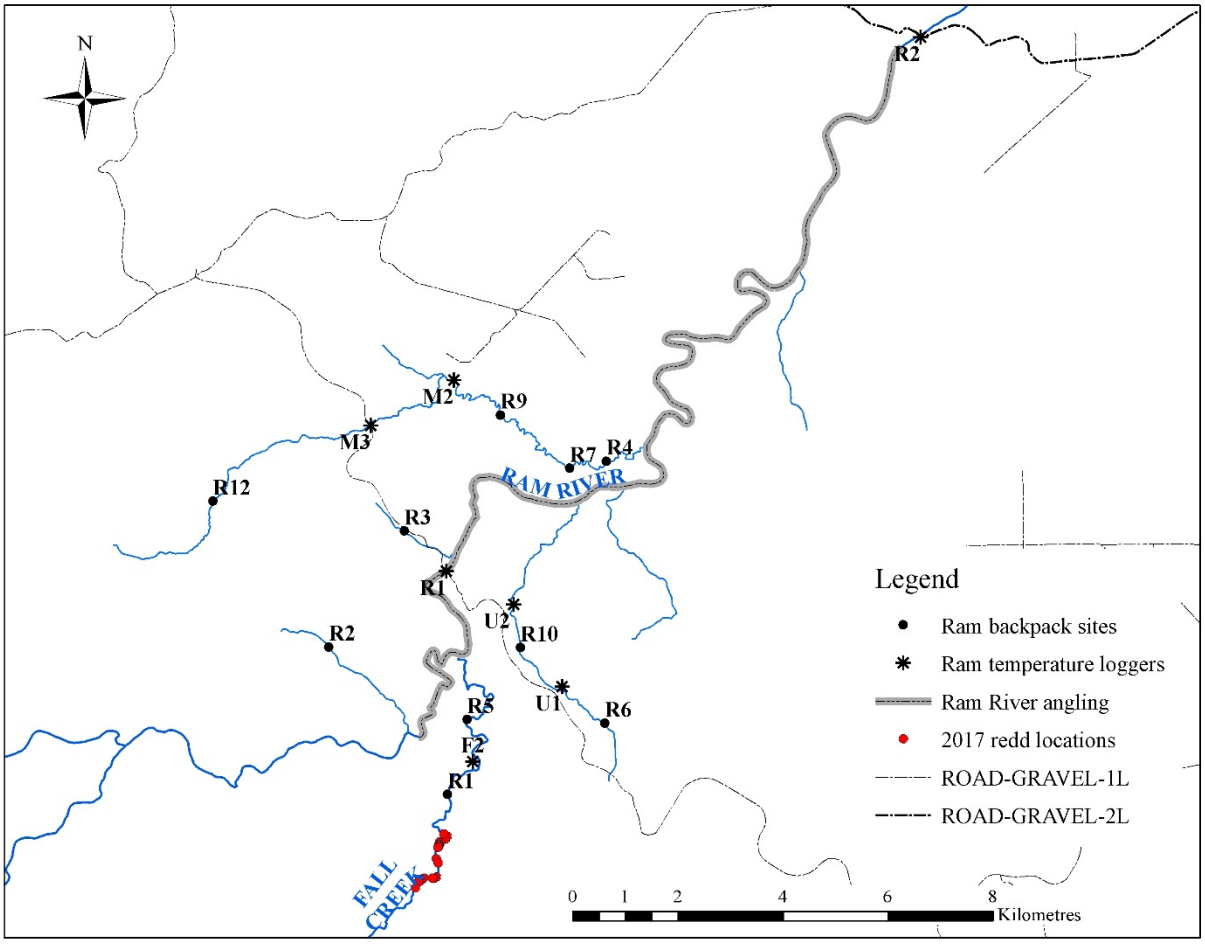

Figure 1. East Slopes trout and mountain whitefish recovery project 2017 study area and sample sites.

Results

We backpack-electrofished ten sites resulting in over 9,000 seconds of electrofishing effort over 3,000 meters of stream. Fish were captured at seven of the ten sites and included 8 brook trout, 76 bull trout, 16 cutthroat trout, 72 longnose dace, 3 mountain whitefish, and 7 white sucker (Table 1). We angled 26 km of river resulting in 44.6 hours of effort. We captured 70 bull trout and 33 cutthroat trout of different size classes (Figure 2). We conducted a redd survey on 3.5 km of Fall Creek, on September 29 and counted 65 bull trout redds. Yearly bull trout redd counts are summarized in Figure 3. Average water temperature over the summer months is summarized for each logger location in Figure 4.

Table 1. Summary of backpack-electrofishing site locations (NAD 83, Zone 11) and fish capture by species in the Ram River watershed, June 27 – July 26, 2017. Species codes: BKTR = brook trout, BLTR = bull trout, CTTR = cutthroat trout, LNDC = longnose dace, MNWH = mountain whitefish, WHSC = white sucker.

Site ID	Date (dd/mm/yyyy)	UTM		Distance (m)	Effort (s)	Species					
		Easting	Northing			BKTR	BLTR	CTTR	LNDC	MNWH	WHSC
R1	26/07/2017	598586	5788768	300	1149	0	49	4	0	0	0
R2	28/06/2017	596308	5791569	300	711	0	0	0	0	0	0
R3	28/06/2017	597731	5793753	300	433	0	0	0	0	0	0
R4	28/06/2017	601606	5795103	300	1009	2	0	0	14	1	5
R5	26/07/2017	598943	5790200	300	1044	1	18	7	0	1	0
R6	27/06/2017	601576	5790111	300	610	0	1	0	0	0	0
R7	28/06/2017	600896	5794990	300	1139	5	0	1	29	1	0
R9	28/06/2017	599579	5795981	300	867	0	1	1	29	0	2
R10	27/06/2017	599958	5791562	300	1105	0	7	3	0	0	0
R12	29/06/2017	594102	5794329	300	989	0	0	0	0	0	0

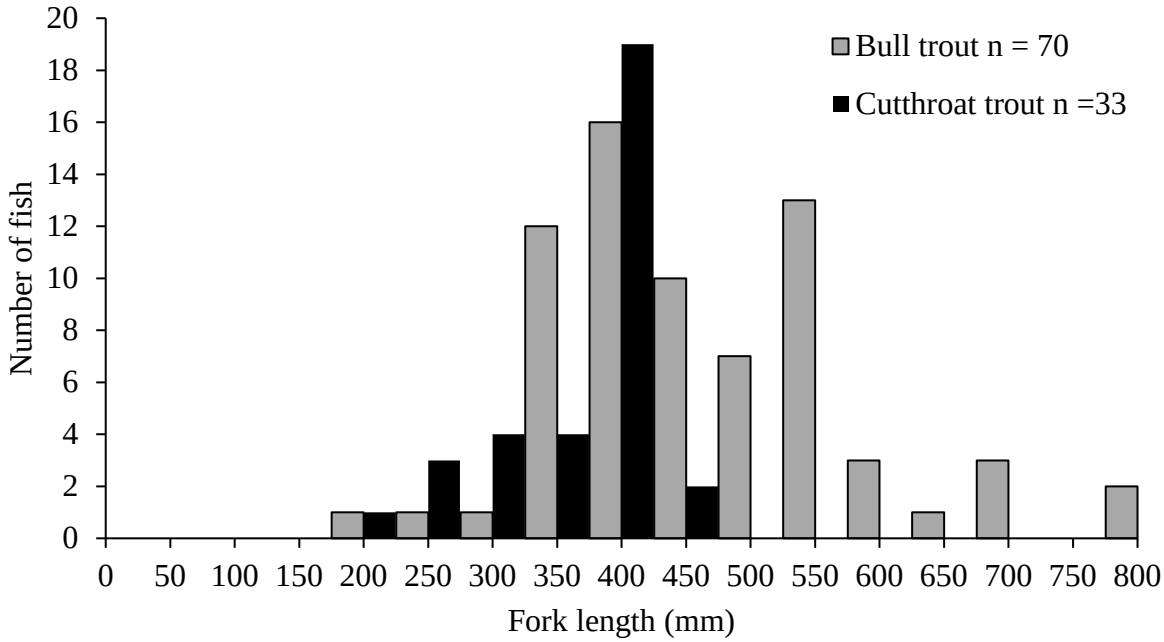

Figure 2. Length/frequency distribution of fish captured angling the Ram River, 2017.

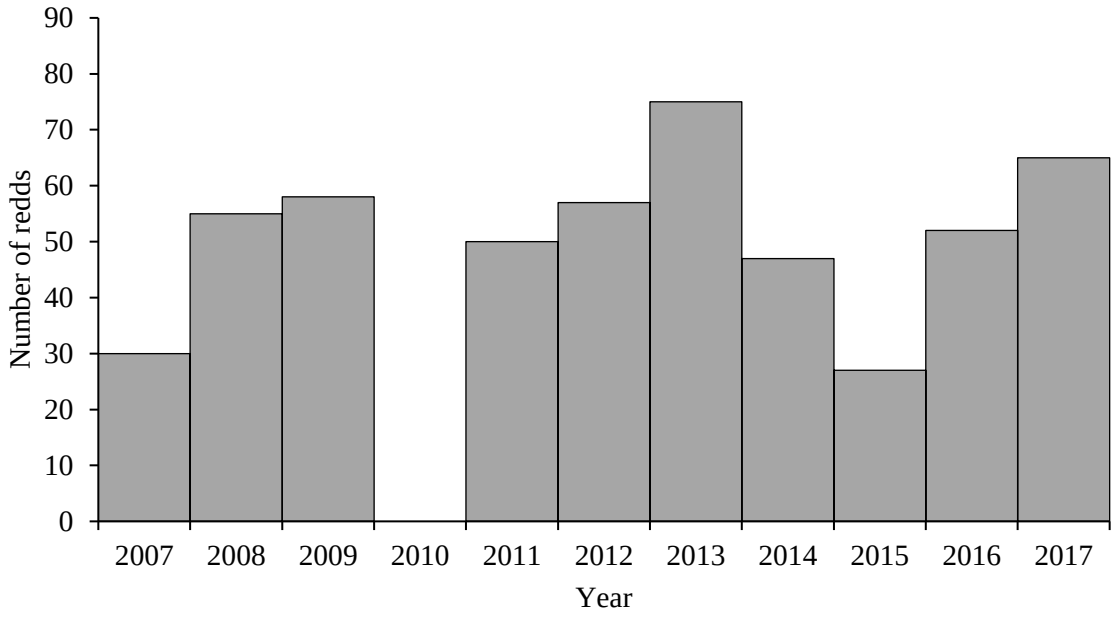

Figure 3. Survey counts by year of bull trout redds found along Fall Creek, 2007 – 2017 (note: a redd survey was not conducted on Fall Creek in 2010).

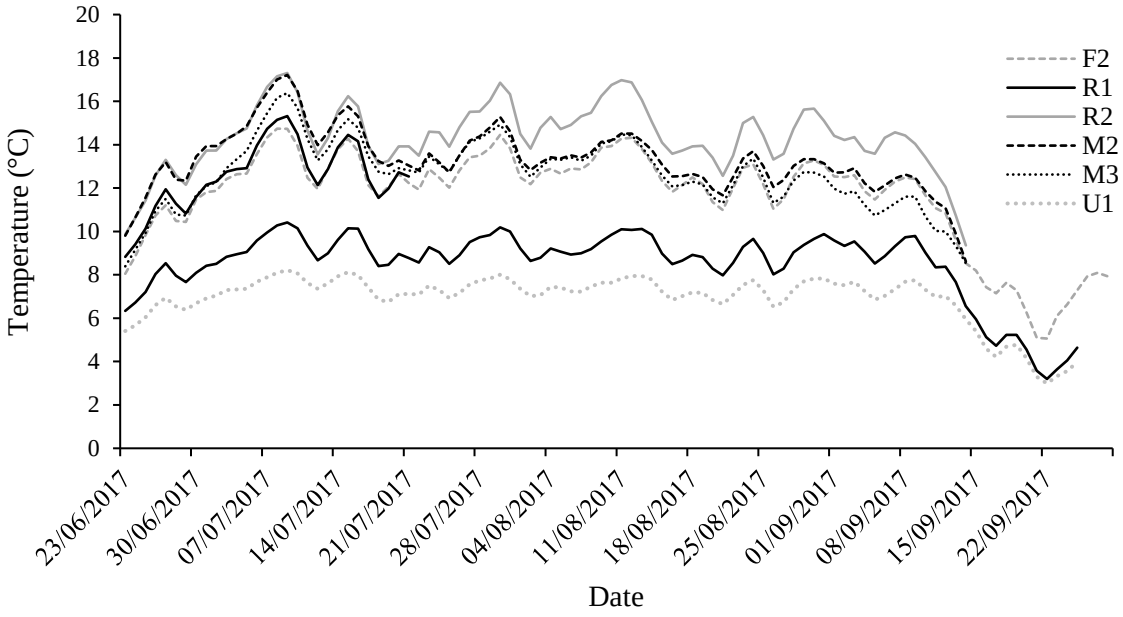

Figure 4. Two-day moving average water temperature at seven locations in the Ram River watershed from June – September 2017.

Conclusions

Bull trout were the most abundant and widely distributed species detected while electrofishing. Bull trout were most abundant at two sites located along Fall Creek, a tributary to the Ram River used by spawning bull trout. We angled 70 bull trout in the Ram River; however, it is suspected that some fish have migrated into the Ram River from the North Saskatchewan River at the time of sampling. Additionally, there has been an increase in the number of bull trout redds observed along Fall Creek since 2015. Bull trout populations in the Ram River watershed will continue to be monitored next year, repeating the same methods as this year. Our study provides managers with information on fish species distribution and abundance necessary to minimize land-use impacts on fish and evaluate bull trout response to proposed recovery actions.

Communications

- Submitted data to Alberta Environment and Parks for inclusion in its Fisheries and Wildlife Management Information System database.
- Submitted progress report to Alberta Environment and Parks and the Forest Resource Improvement Association of Alberta.
- Final summary report to be submitted to Forest Resource Improvement Association of Alberta.

Literature Cited

COSEWIC. 2012. COSEWIC assessment and status report on the bull trout Salvelinus confluentus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa, Ontario, Canada. 103 pp.

Government of Alberta. 2017. North Central Native Trout Recovery Program - North Saskatchewan River and Lower Ram River. Alberta Government factsheet.

MacPherson, L., M. Coombs, J. Reilly, M.G. Sullivan, and D.J. Park. 2014. A generic rule set for applying the Alberta fish sustainability index, second edition. Environment and Sustainable Resource Development, Edmonton, Alberta, Canada. 51 pp.

Photos

Alberta Conservation Association staff Britt Schmidt and Bryce O'Connor backpack electrofishing an unnamed tributary to the Ram River. Photo: Chad Judd

Bull trout caught while test angling the Ram River. Photo: Chad Judd

Alberta Conservation Association staff Chad Judd and Zach Spence conducting a bull trout redd survey on Fall Creek. Photo: Mike Rodtka