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**Wigwam River Bull Trout  
(Creel Survey)**

**Habitat Conservation Trust Fund  
Progress Report (1999)**

by

**W.T. Westover**

Ministry of Environment, Lands and Parks, Fisheries Branch, 205 Industrial Road G,  
Cranbrook, B.C. V1C 6H3

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## ABSTRACT

**Westover, W.T. 1999. Wigwam River Bull Trout (Creel Survey)---Habitat Conservation Trust Fund Progress Report (1999). Fisheries Project Report KO 56, 6 p + 3 appendix.**

A 1998 creel survey documented that there are two distinct fisheries on the lower Elk and Wigwam rivers; a bull trout fishery that is concentrated on the Elk River and a resident cutthroat trout fishery on the Wigwam River (Westover 1999).

The focus of the present (1999) creel survey was the bull trout fishery on the lower Elk River. The survey covered two time periods (June 15 – July 31 and October 1 – 31) to coincide with the migration of bull trout through a very restricted harvest fishery on the lower Elk River.

An estimated 365 anglers fished 941 hours to catch 450 bull trout, 117 cutthroat trout and 5 rainbow trout for an overall success rate of 0.61 fish per rod hour. All of the bull trout and 96% of the trout were released. The fishery was utilized primarily by residents of British Columbia (76%) followed by anglers from Alberta and the United States who accounted for 14% and 9% of the total effort respectively.

## ACKNOWLEDGEMENTS

The author would like to acknowledge Kevin Heidt, the creel census clerk, who spent countless hours walking into the canyons on the lower Elk and Wigwam rivers in search of anglers.

## **INTRODUCTION**

The Wigwam River is a major spawning stream for bull trout (*Salvelinus confluentus*) from the Kootenay River and/or Lake Kooconusa. Over the past four years, 3,283 spawning bull trout have been captured at a fence and trap operated on the upper Wigwam River near its' confluence with Bighorn Creek (Westover and Conroy 1997; Chirico and Westover 1998; Baxter and Westover 1999; James Baxter, pers. comm.).

Radio telemetry studies conducted by the Montana Department of Fish, Wildlife and Parks (MDFWP) have shown that these adult bull trout generally spend the winter in Lake Kooconusa on the Montana side of the international border. They stage in the Kootenay River off the mouth of the Elk River during late May and early June. Between mid-June and mid-July they are in the lower Elk River and by the end of July in the Wigwam River. Spawning peaks the last week of September and adults are back in the Kootenay River by the end of October (Will Young, MDFWP, pers. comm.).

Many anglers target Wigwam River bull trout on their spawning migration through the lower Elk and Wigwam rivers. In 1998/99 the Habitat Conservation Trust Fund (HCTF) funded a creel survey on the lower Elk and Wigwam rivers to determine angling effort, catch success and harvest rates for migrating bull trout and resident cutthroat trout. The 1998 survey included the entire Wigwam River and the lower Elk River for the entire fishing season (June 15 - October 31) (Westover, 1999). The present (1999) creel survey was restricted to the lower Elk River and the Wigwam River downstream of Lodgepole Creek. It covered two time periods (June 15 - July 31 and October 1 - 31) to coincide with the migration of bull trout through a very restricted harvest fishery on the lower Elk River.

## **STUDY AREA**

The 1999 creel survey occurred over approximately 20 km of stream and included the lower 10 km of the Elk River (from Lake Kooconusa upstream to its confluence with the Wigwam River) and the lower 10 km of the Wigwam River. These are the same boundaries as Zone 1 in the 1998 creel survey and are shown in Figure 1.

## **ACCESS**

Access to the study area varies considerably (Figure 1.). Highway #93 to Roosville is the main access route to the lower Elk River. This paved highway crosses over the Elk River at its confluence with Lake Kooconusa at its full pool elevation. A gravel secondary road (Canyon Cut-Off Road) on the south side provides vehicle access at two locations over the lower five km of the Elk River. Another secondary road (Cutts Road) parallels the north side of the Elk River

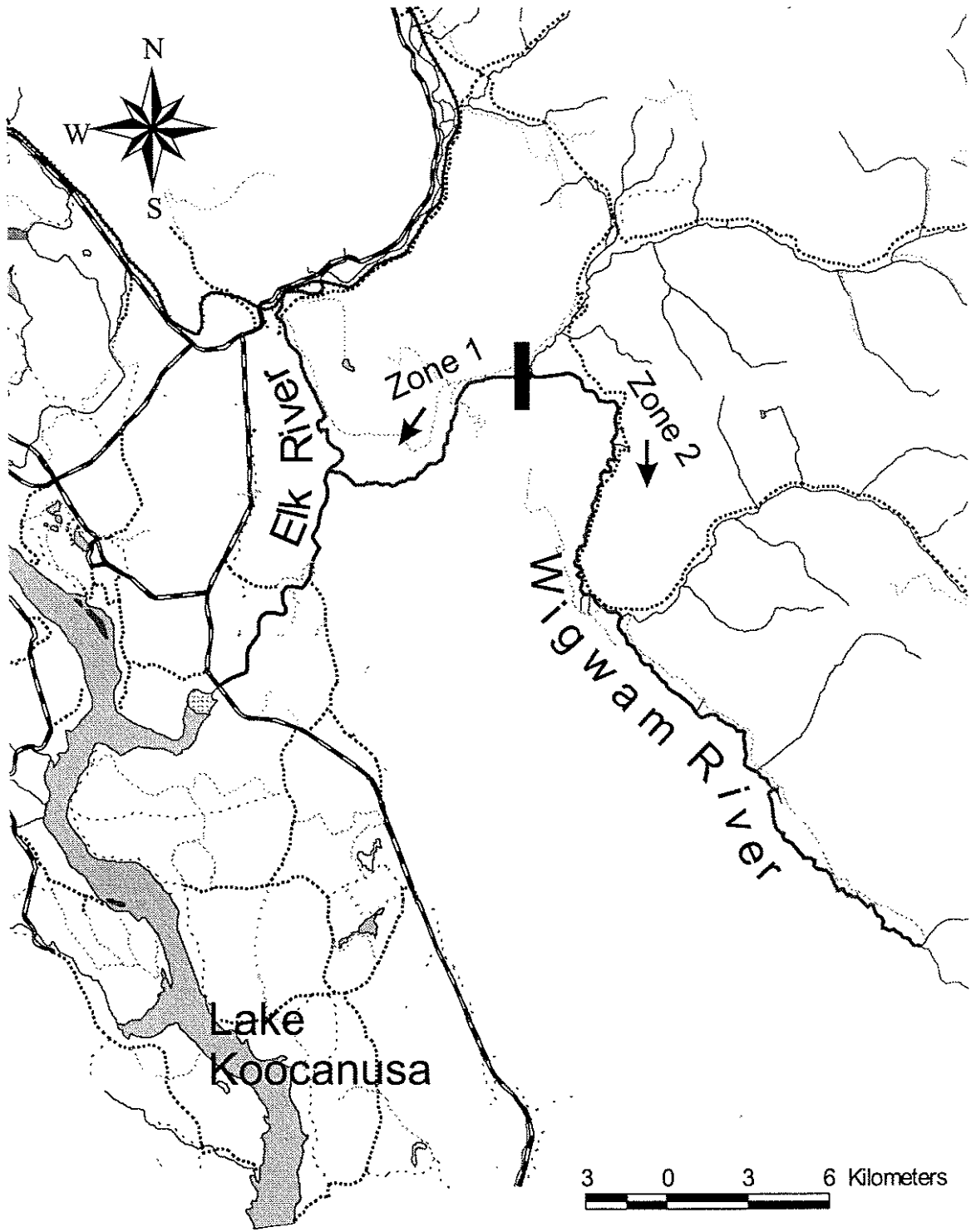


Figure 1. Location and access map for the lower Elk and Wigwam rivers.

for approximately 3 km. This road is within the Sheep Mountain Access Management Area and is only open to vehicular traffic to the Jack Cutts Ranch. Anglers park and walk to the river from three different locations along this road. The lower 10 km of the Wigwam River is partially accessible by vehicular traffic between June 15 and July 15. This area is located within the Wigwam Flats-Mt. Broadwood/Sportsman Ridge Access Management Area and is closed to the operation of all vehicles for the remaining part of the year.

## **METHODS**

Creel data were collected by a roving census clerk who travelled the length of the study area by truck and interviewed anglers. For each angler interviewed, the following information was collected: place of residence, hours fished, and number of fish caught and released by species (Appendix I).

The creel survey covered two time periods (June 15 – July 31 and October 1 – 31) to coincide with the upstream and downstream migration of bull trout on the lower Elk River. The survey was carried out on 44 days during these time periods. Creel days were stratified by day type (weekend vs weekday). Although 20 km of river were involved in the survey, angler access was restricted to a few favourite locations. The creel clerk estimated that he interviewed approximately 80% of the anglers within each zone and consequently the final estimates of effort and catch have been adjusted to 100 percent.

When creel data were being extrapolated, the creel survey was broken down into three time periods based on similar effort and catch success. Effort and success were obtained by multiplying the number of anglers interviewed, hours fished and fish caught by the number of days of that class in the particular time period. Actual totals for each zone were then expanded by 20% to account for missed anglers. Total effort and success for the entire study area were obtained by adding the expanded totals.

## **REGULATIONS**

Fishing regulations in effect on the lower Elk River during the creel survey included: single barbless hook, bait ban and a daily quota for trout/char of 1 (no cutthroat under 30 cm, no bull trout under 75 cm). The Wigwam River was regulated fly-fishing only and catch-and-release for trout/char

## **RESULTS**

### **Creel survey**

Creel survey data are shown in Appendix II and have been extrapolated in Table 1. An estimated 365 anglers fished 941 hours on the lower Elk and Wigwam rivers for the period indicated and caught 450 bull trout, 117 cutthroat trout, and 5 rainbow trout for an overall success rate of 0.61 fish per rod hour (Table 1). All of the bull trout and 96% of the trout were released. Two of the five cutthroat trout harvested were illegal fish.

The majority of the angling effort occurred on the lower Elk River during the month of July when an estimated 261 anglers fished 736 hours and caught and released 417 bull trout and 83 cutthroat trout for a catch per rod hour of 0.68 fish (Table 1).

**Table 1. Total angler effort and success for Zone 1\* for the time period indicated, 1999.**

Time Period	No. of Anglers	Hours Fished	<u>Bull Trout</u>		<u>Cutthroat</u>		<u>Rainbow</u>		Fish/Rod Hour
			H	R	H	R	H	R	
June 15 – 30	43	71	-	-	-	-	-	-	-
July 1 – 31	261	736	-	417	-	83	-	5	0.68
October 1 – 31	61	134	-	33	5	29	-	-	0.50
<b>Totals</b>	<b>365</b>	<b>941</b>	<b>-</b>	<b>450</b>	<b>5**</b>	<b>112</b>	<b>-</b>	<b>5</b>	<b>0.61</b>

\* Zone 1: lower Elk River and the Wigwam River downstream of Lodgepole Creek.

\*\* 2 of the 5 cutthroat trout harvested were illegal fish (over limit).

### Angler residency

A total of 179 anglers were interviewed during the creel survey (Appendix III and Table 3). The lower Elk and Wigwam river fishery were utilized primarily by residents of British Columbia (76%) followed by anglers from Alberta and the United States who accounted for 14% and 9% of the total effort, respectively.

**Table 3. Place of residence for anglers fishing the lower Elk and Wigwam rivers between June 15 and July 31 and October 1 - 31, 1999.**

Place of Residence	Number of Anglers	Percent
British Columbia	136	76%
Alberta	25	14%
United States	16	9%
Other Canadians	2	1%

### DISCUSSION

The 1998 creel survey documented that there are two distinct fisheries on the lower Elk and Wigwam rivers; a bull trout fishery that is concentrated on the Elk River and a resident cutthroat trout fishery on the Wigwam (Westover 1999). Anglers mainly fish for bull trout that are migrating through the lower Elk River between June 15 and the end of July. At this time of year these fish are starting their spawning migration and entering the lower Elk River from Lake Koochanusa. In 1998 this fishery peaked during the first week of July and was finished by July 15, however, in 1999 it peaked during the middle of July and continued until July 31. Anglers also target post spawning bull trout in this same area during the month of October when they are returning to Lake Koochanusa.

Fishing conditions on the lower Elk River, when it opens on June 15, can be quite variable and depend in large part on the timing of spring run-off. The snow pack during the winter of 1998/99 in the Elk Valley/Flathead area was between 30% - 40% above normal and resulted in higher than normal water levels during the spring and summer of 1999 (Ed Shaw pers comm). The Elk River was high and dirty during the last two weeks of June which probably accounts for the low effort and success, however, once the river cleaned up during the first week of July the high water doesn't appear to have affected fishing success.

Approximately 1,175 bull trout spawned in the Wigwam river drainage during the fall of ~~1995~~ <sup>1999</sup> (James Baxter pers comm). Anglers caught and released an estimated 450 bull trout or 38% of the entire spawning run during this creel survey. This is similar to the 1998 creel survey when anglers in Zone 1 caught approximately 34% of the spawning run over a comparable period of time. Given these high catch rates there is a real need to determine the post-hooking mortality of bull trout.

## REFERENCES

- Baxter, James S., and W. T. Westover. 1999. Wigwam River bull trout---Habitat Conservation Trust Fund Progress Report (1998). Fisheries Project Report KO 54, 21p.
- Chirico, A., and W. T. Westover. 1998. Wigwam River bull trout---Habitat Conservation Trust Fund progress report (1997). Fisheries Project Report KO 53, 16p.
- Malvestuto, Stephen P., Sampling the Recreational Fishery p. 397-419 in Larry A. Nielsen and David L. Johnson Ed. Fisheries Techniques. American Fisheries Society, Bethesda, Maryland.
- Martin, A.D. 1983. Fisheries Management Implications of Creel Surveys Conducted at the Elk River in Kootenay Region 1982-83. Fisheries Management Report No. 78 (1983).
- Personal Communication. Baxter, James 1999. Baxter Environmental
- Personal Communication. Shaw, Ed 1999 Water Management, Ministry of Environment, Cranbrook, B.C.
- Personal Communication. Young, Will 1997. Montana Department of Fish, Wildlife and Parks
- Westover, W.T., and D. Conroy. 1997. Wigwam River bull trout--Habitat Conservation Trust Fund progress report for 1996/1997. Fisheries Project Report KO 51, 19 p.
- Westover, W.T. 1999. Wigwam River Bull Trout (Creel Survey)—Habitat Conservation Trust Fund progress report (1998). Fisheries Project Report KO 55, 8 p + 3 appendix.





**Appendix III: Place of residence for anglers fishing the lower Elk and Wigwam rivers  
between June 15 – July 31 and October 1 – 31, 1999.**

<b>Place of Residence</b>	<b>Number of Anglers</b>
British Columbia	136
Alberta	25
Montana	13
Alabama	3
Ontario	2