

**Bull Trout Population Status Assessment in the upper Oldman River Watershed  
2008 Phase II Findings**

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## **Background:**

The Alberta Conservation Association (ACA) is conducting a bull trout population status assessment in the Upper Oldman River (UOM) watershed. The study focuses on intercepting migratory adult bull trout with fish traps stationed in spawning streams throughout the UOM drainage. Redd surveys are also conducted at each spawning stream to account for spawning bull trout that fail to be captured.

Identifiable passive transponder tags are applied to each captured adult bull trout that will, in the event of a recapture, permit a fish's migratory movements to be tracked. Tracking migratory fish movements will provide ACA and fisheries managers with a greater understanding of the migratory patterns and behaviors expressed by the UOM bull trout.

During the preliminary phase of the study (2007), a fish trap was stationed in Hidden Creek, a historic bull trout spawning stream, to intercept migratory adult bull trout. To understand the timing of bull trout spawning movements, a uni-directional fish trap was stationed in the creek to intercept pre and post spawning fish. The objectives of the preliminary phase were to determine the significance of Hidden Creek as a bull trout spawning stream, and to identify the post spawning period when migratory bull trout complete their spawn and migrate out of the stream. Redd surveys were not conducted during the preliminary phase of the study.

The following year, 2008, four directional fish traps, targeting post spawning migratory bull trout were stationed in four spawning streams: Hidden Creek, Racehorse Creek, Dutch Creek, and Livingstone River (Figure 1). Redd surveys were completed at each of these bull trout spawning streams to identify primary spawning areas so they can be resurveyed and analyzed over consecutive years.

A complete redd survey census was assessed throughout Hidden Creek to enumerate all bull trout redds and to key in on all primary redd areas (Figure 2). The census effort was initiated to collect baseline data prior to the timber harvesting in the Hidden Creek drainage proposed for the summer of 2009.

Study Area:

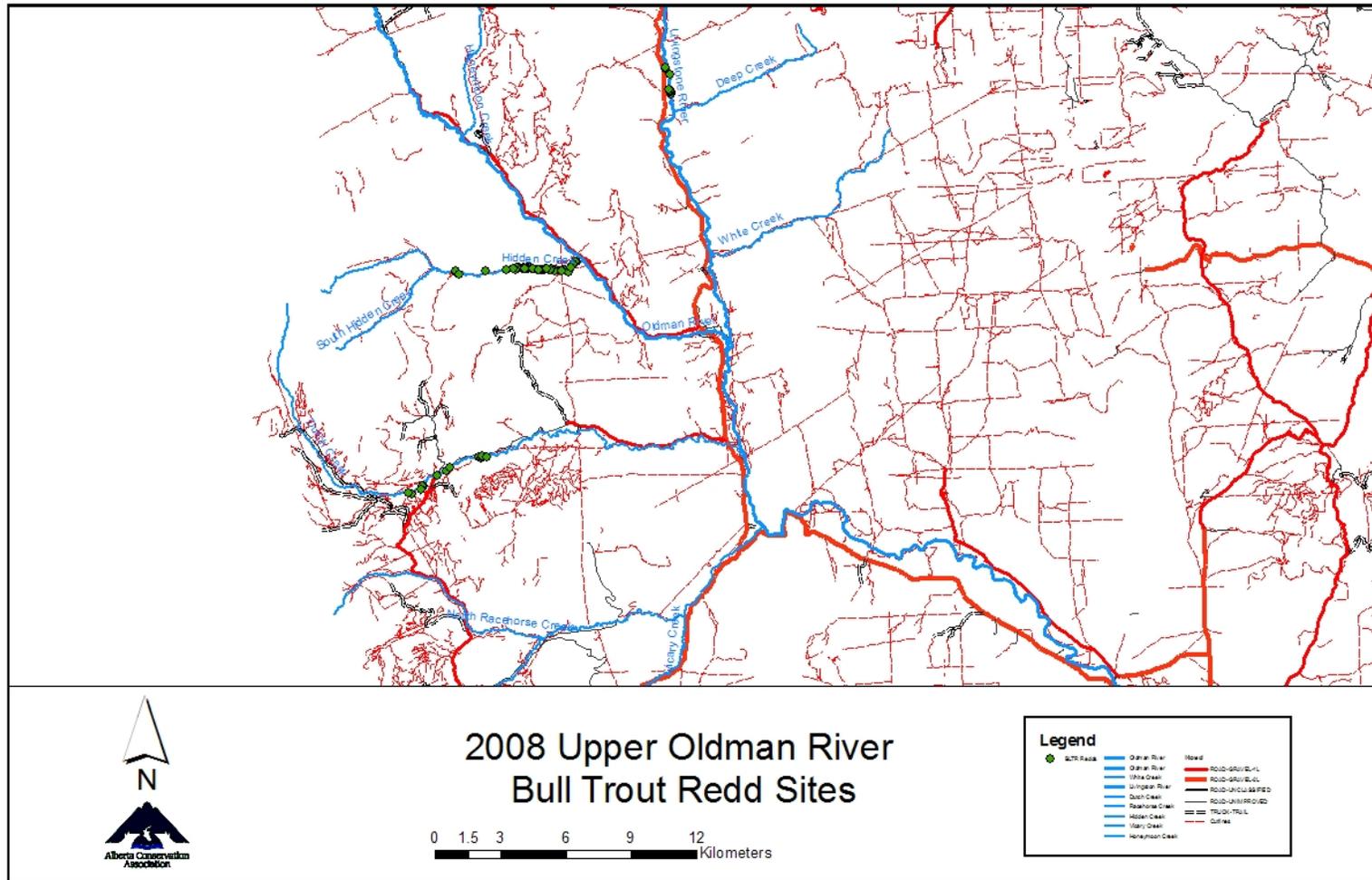


Figure 1. Upper Oldman River bull trout study area

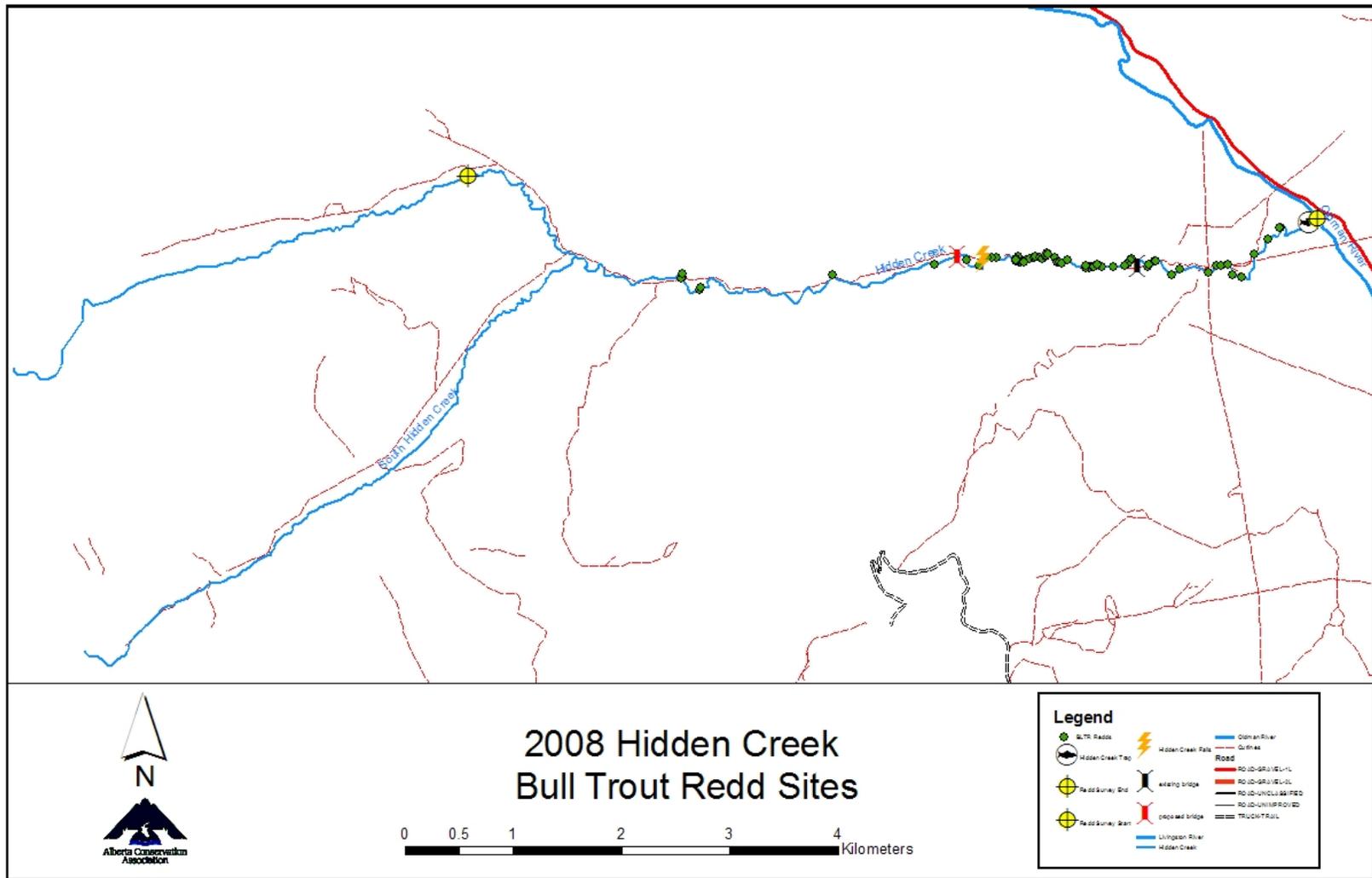


Figure 2 Hidden Creek bull trout redd sites, 2008.

## **Results:**

### **Hidden Creek**

#### **2007**

The uni-directional fish trap stationed in Hidden Creek was active from July 25 to October 2, 2007. Throughout this period 125 migratory bull trout were captured, 122 bull trout of which were tagged. Bull trout fork lengths ranged between 266 – 760 mm and averaged 549 mm (n = 125). Weights ranged between 202 – 4000 g and averaged 1753 g.

In conjunction with the UOM cutthroat trout study, 42 bull trout were captured and tagged throughout the entire UOM watershed. One adult bull trout intercepted and tagged at the Hidden Creek fish trap on August 3, 2007 was later recaptured on the Livingstone River at electrofishing site LSMRMS07 on September 7, 2007.

#### **2008**

In 2008, a directional fish trap was positioned in Hidden Creek on August 26 to October 5, 2008 to intercept post spawning bull trout. A total of 82 migratory bull trout were captured during this period, 28 bull trout of which were recaptured fish from 2007 - approximately 34% of the 2008 Hidden Creek catch. Fork lengths of bull trout captured in ranged from 321 - 751 mm and averaged 558.3 mm (n = 82). The average weight for the 2008 bull trout was 1842 g and ranged between 328 - 3950 g.

In total there are 176 tagged migratory adult bull trout that spawn in Hidden Creek. During the final redd survey, it was observed that several adult bull trout remained upstream of the fish trap and were not intercepted, indicating that there are at least 176 adult bull trout that spawn in Hidden Creek over the past two seasons.

Of the remaining 54 of the 82 bull trout that were captured in 2008, one fish tagged from the Oldman River at electrofishing site OMMRMS07 (2007) was recaptured in the 2008 Hidden Creek fish trap. In addition, a total of four post spawning bull trout tagged at the Hidden Creek fish trap, as early as September, 2008, were later recaptured at the downstream end of the Livingstone fish trap migrating upstream; two additional tagged bull trout from 2007 were also

recaptured in Hidden Creek, 2008, and subsequently recaptured a second time in the Livingstone River, 2008. An individual fish captured and tagged at Hidden Creek during September 06, 2008, was later recaptured migrating upstream in Racehorse Creek September 15, 2008. Furthermore, one bull trout that was initially tagged from the 2007 Hidden Creek fish trap was recaptured at the downstream end of the Racehorse Creek fish trap on September 27, 2008.

## **Redd Survey**

A total of 10.55 stream kilometers were surveyed for bull trout redds, between the Hidden Creek confluence and just beyond the South Hidden Creek confluence (Figure 1). A total of 108 class one bull trout redds were observed between September 02 and October 12, 2008. It was observed that 97 of the 108 redds were located between the Hidden Creek/Oldman River confluence and the Hidden Creek Falls, a distance of approximately 3.87 stream kilometers. *To be noted, 99 class one redds were situated downstream of the proposed bridge planned during the 2009 timber harvest.*

Redd surveys conducted early in the spawning season revealed a greater spawning activity rate when spawning bull trout were actively spawning. Near the end of the spawning season, however, spawning activity was substantially lower even though several bull trout remained upstream suggesting the end of the bull trout spawning season.

## **Livingstone River 2008**

Livingstone River fish trap captured 19 bull trout from August 27 to October 12, 2008. Fish fork lengths ranged from 333 – 680 mm and averaged 551 mm (n = 19). Bull trout weights ranged from 350 – 2800 g and averaged 1657 g.

A total of 6 bull trout were recaptured in 2008 from the Hidden Creek fish trap. It was observed that two fish initially tagged from Racehorse Creek and two initially tagged fish from Dutch Creek were all recaptured on the downstream end of the Livingstone River fish trap. A total of 10 of the 19 bull trout (53%) captured at the Livingstone River fish trap were initially captured earlier in the spawning season at other spawning streams.

## **Redd Survey**

Several redd surveys were conducted on the Livingstone River upstream from the fish trap (White Creek confluence) to the Livingstone Falls. A total of 26 class one redds were observed at one section immediately upstream of the Deep Creek/Livingstone River confluence between September 3, 2008 and October 4, 2008.

## **Racehorse Creek**

**2008**

Racehorse Creek fish trap intercepted a total of 15 adult bull trout between August 26 and October 3, 2008. The average fork length was 551 mm and ranged from 434 - 693 mm (n = 19). Weights ranged from 700 - 2950 g and averaged at 1663 g.

## **Redd Survey**

Numerous redd surveys were conducted between the fish trap and beyond the North Racehorse Creek and South Racehorse Creek confluence. No redds were observed between September 06 and September 14, 2008.

## **Dutch Creek**

**2008**

Dutch Creek fish trap was the least productive of the four fish traps, a total of 9 adult bull trout were captured between Aug 27 and September 23, 2008. Fork lengths ranged between 580 - 617 mm, and averaged 601 mm (n = 9). Bull trout intercepted in the Dutch Creek weighed from 1200 – 2750 g and had an average weight of 1970 g.

## **Redd Survey**

Redds surveys were conducted between September 04 and October 03, 2008 from the fish trap upstream to beyond the Atlas logging road. In total, 25 class one redds were observed both downstream and upstream and within the vicinity of the Atlas Road (Figure 1).