



**THE ISSUE** Dams created by North American beaver have numerous effects on stream habitat use by trout. The extent to which beaver dams act as movement barriers to salmonids and whether successful dam passage differs among species are topics of frequent speculation and warrant further research. Therefore, we initiated this study to examine the effect of beaver dams on the movement of one native (Bonneville cutthroat) and two non-native (brown and brook) trout species.

### KEY QUESTIONS

- Do beaver dams impede the movement of trout?
- How do physical characteristics of beaver dams affect fish passability?

### BACKGROUND

Recent recovery and reintroduction of beaver, along with restoration strategies that mimic beaver effects, have prompted need for understanding of how native fish species interact with beaver and the structures they create. While increased habitat complexity associated with beaver activity in streams can benefit salmonids, dam structures also have the potential to disrupt fish movement.

### APPROACH

Between 2008 and 2011, we captured 1,375 trout in Spawn Creek and Temple Fork in Logan Canyon, located in northern Utah. We fitted them with PIT tags, which permitted us to track individual fish. Capture locations were recorded with a handheld GPS unit. To determine whether PIT tagged trout passed beaver dams we placed stationary antennas in Temple Fork upstream of its confluence with the Logan River, in Temple Fork upstream of its confluence with Spawn Creek, and in Spawn Creek upstream of its confluence with Temple Fork (Map 1). In addition, we scanned both creeks with mobile antennas each month beginning May 2009. We compared the number of dam passes made by each species to expected dam passes based on the proportion of each species among the tagged fish. Physical characteristics of beaver dams were described by measuring dam height, maximum pond depth, and presence or absence of side channels (Figure 1). We used linear regression modelling to determine which beaver dam characteristics affected dam passability for all fish as well as each individual species.

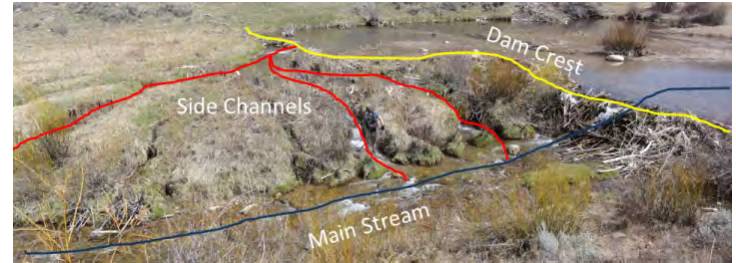


Figure 1: Photo of Temple Fork beaver dam 6 (T6). This dam has been in place since 2004 and contains multiple side channels; it was passed in both directions (upstream and downstream) by Bonneville cutthroat trout.

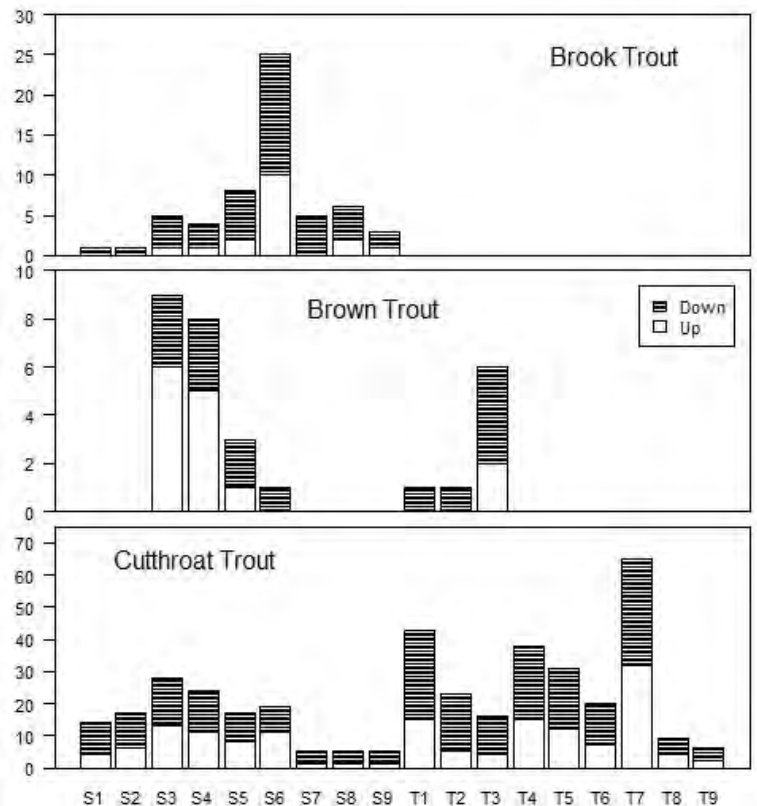


Figure 2: Direction of movement (downstream or upstream) by tagged trout at each of the beaver dams studied in Temple Fork (T1–T9) and Spawn Creek (S1–S9). For each stream, the x-axis presents dams in order from downstream to upstream. Note that the scale of the y-axis (number of passes) differs among species.



Bonneville  
Cutthroat Trout

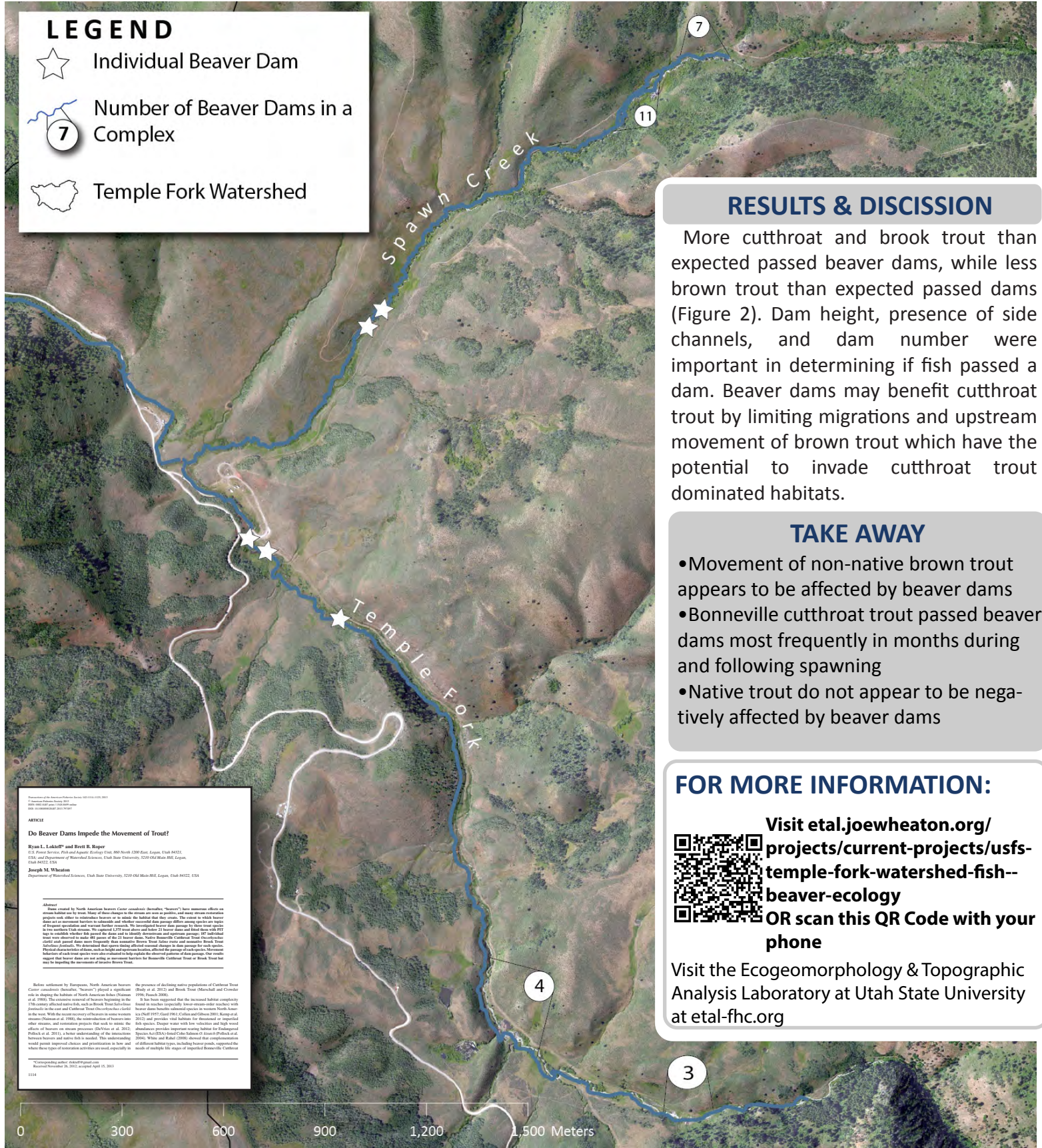


Brook Trout



Brown Trout

# Do Beaver Dams Impede the Movement of Trout?



Map 1. Beaver dam locations on Spawn Creek and Temple Fork in Logan Canyon, located in northern Utah .

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