

Alberta Conservation Association
2023/24 Project Summary Report

Project Name: Conservation Stocking of Native Trout

Fisheries Program Manager: Peter Aku

Project Leader: Jason Blackburn

Primary ACA Staff on Project: Andrew Clough, Kevin Fitzsimmons, Lindsay Marley, Kade McCormick, and Kelly Riehl

Partnerships

Alberta Native Trout Collaborative
Canadian Nature Fund for Aquatic Species at Risk
Government of Alberta

Key Findings

- We searched for westslope cutthroat trout spawning habitat in the Waiparous Creek watershed to support provincial conservation stocking.
- We used spring spawning surveys and electrofishing catches of age-1 and age-2 westslope cutthroat trout to identify spawning locations.
- We established paired stream and air temperature monitoring stations at 11 locations to determine the westslope cutthroat trout spawning window.
- In 21 electrofishing sites, brook trout dominated the catch at 79%, followed by westslope cutthroat trout at 13%.
- We confirmed 7 km of spawning habitat on Johnson Creek and 5 km on Margaret Creek.
- We identified three additional tributaries as potential gamete sources for 2024 verification, for the further enhancement of broodstock genetic diversity.

Details

Alberta's westslope cutthroat trout occupy 5% of their historic range, which lies entirely within

the Oldman and Bow River watersheds. The species is listed as *Threatened* under Canada's *Species at Risk Act*, and reintroduction efforts will be necessary to ensure their persistence in the province. Development of conservation broodstocks is a critical first step toward establishing population reserves and starting recovery introductions. In recent years, inter-agency collaboration, coordinated by the Government of Alberta (GOA), was successful in collecting gametes from spawning westslope cutthroat trout in the Oldman River watershed and establishing a provincial broodstock for the species. To ensure broodstocks are well suited to the diverse range of receiving habitats in the native range, collection of gametes from streams in the Bow River watershed is also essential. Achieving this depends on locating spawning westslope cutthroat trout and collecting gametes from different streams during the narrow spring spawning window while fish are ripe. This requires detailed information on spawning timing and location. The Waiparous Creek watershed is among the largest remaining core areas of pure westslope cutthroat trout in the Bow River system, and a principal candidate for gamete collection. To narrow our search, we used juvenile westslope cutthroat trout densities as a predictor of upstream spawning activity from archived electrofishing and spring redd-count data. Based on this information we completed spring spawning surveys and 21 electrofishing surveys along the mainstems of Margaret, Johnson, and Meadow creeks. To define the spawning window, we established paired temperature monitoring stations to collect air and stream temperatures at 11 locations across the Waiparous Creek watershed. We captured over 2,000 fish during electrofishing including brook trout (79% of the catch), westslope cutthroat trout (13%), bull trout and bull trout x brook trout hybrids (7%), and mountain whitefish (1%). We confirmed 7 km of spawning habitat on Johnson Creek and 5 km on Margaret Creek. We also collected tissue samples from 230 westslope cutthroat trout, 139 bull trout, and six presumed bull trout x brook trout hybrids for genetic testing, and 36 brook trout specimens as surrogates for the GOA disease testing protocols. Following 2023 electrofishing results, we identified Waiparous Creek mainstem and tributaries to Waiparous and Meadow creeks as potential gamete sources for 2024 verification, for the further enhancement of broodstock genetic diversity.

Photos



Photo 1. Alberta Conservation Association staff, Kevin Fitzsimmons and Lindsay Marley, electrofishing on Margaret Creek. Photo: Andrew Clough



Photo 2. Brook trout (top) and westslope cutthroat trout (bottom) from Meadow Creek. Photo: Andrew Clough (top) and Kade McCormick (bottom)



Photo 3. Spawning habitat on Johnson Creek. Photo: Andrew Clough

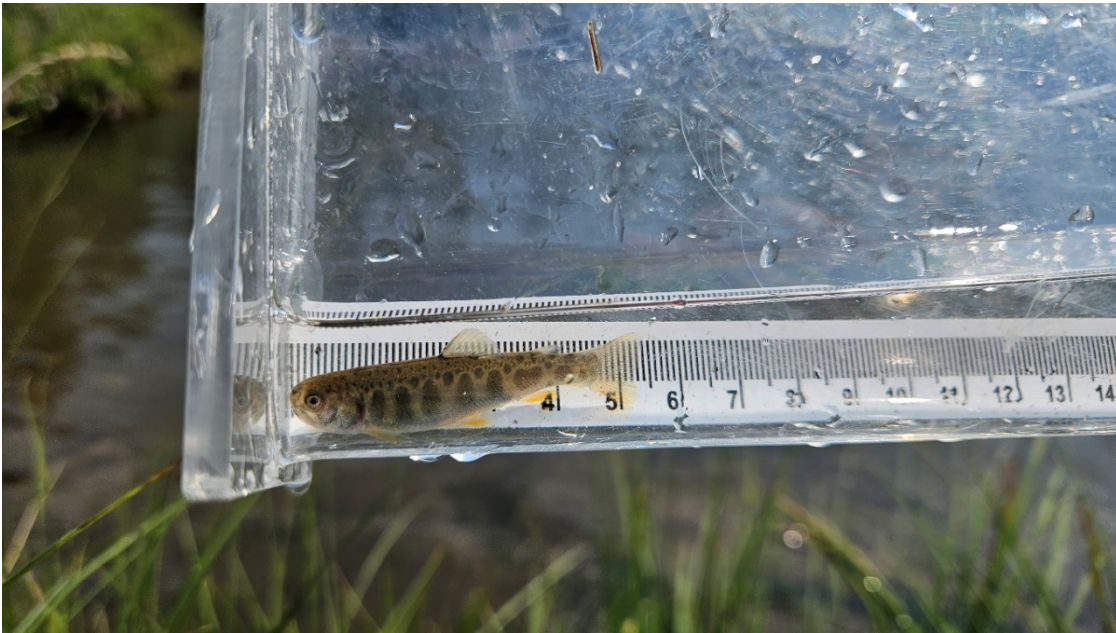


Photo 4. Age-1 westslope cutthroat trout from Johnson Creek. Photo: Kade McCormick



Photo 5. Aerial view of Waiparous Creek valley. Photo: Andrew Clough