Continued Invasion of Nonnative Trout and Associated Changes in Fish Communities in Shields River Tributaries From 1974 to 2003[AFS]

Bradley B. Shepard
Montana Fish, Wildlife & Parks
Montana Cooperative Fishery Research Unit
Department of Ecology, Montana State University
Bozeman, MT 59717-3460
bshepard@montana.edu

Nonnative brook trout (*Salvelinus fontinalis*) have been implicated as part of the reason for the documented decline of cutthroat trout (*Oncorhynchus clarki spp.*); however, a question remains as to whether brook trout continue to invade cutthroat trout habitats or whether they rapidly expanded following their initial releases in the early to middle twentieth century and have remained relatively static since that time. I assessed whether brook trout continued to invade Yellowstone cutthroat trout (*O. c. bouveri*; YCT) habitats, and whether they displaced cutthroat trout, in the Shields River drainage from 1974 to 2003. Sampling was repeated during 2001-2003 in 17 sites that had been surveyed in 1974. There was no apparent change in the fish community in four sites (YCT remained allopatric in three sites and YCT and brook trout were at similar proportions in another site); brook trout had recently invaded two sites; brook trout currently made up a higher proportion of the fish community in seven sites; Yellowstone cutthroat trout made up a higher proportion of the fish community in two sites; and brown trout appeared to be replacing brook trout in two sites. These results appeared to be spatially dependent and fish community dynamics and water temperature may be playing a role. These data suggest brook trout are continuing to invade habitats within the upper Shields drainage and often displace Yellowstone cutthroat trout, similar to what has been found for westslope cutthroat trout (*O. c. lewisi*) although in contrast to what was found in the Snake River drainage in Idaho.