Recovery Of Westslope Cutthroat Trout Populations Following Removal Of Nonnative Brook Trout

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We investigated whether 75-mm and longer westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) and brook trout (*Salvelinus fontinalis*) occupied similar niches by comparing biomasses, population densities, and condition factors prior to and following total removal of brook trout in 2.3- to 3.0-km reaches of three headwater streams in Montana. Biomasses and their associated errors were estimated using depletion estimators. Total trout biomass did not

change significantly after brook trout removal indicating that these two species have similar niches in these streams. Densities of juvenile westslope cutthroat trout were significantly and negatively affected by densities of juvenile brook trout and positively related to densities of adult westslope cutthroat trout ($R^2 = 0.482$; F-ratio = 15.415; $P < 0.001$). Including densities of westslope cutthroat trout or brook trout from the previous year did not measurably improved model performance. Densities of juvenile brook trout were negatively associated with body condition of juvenile westslope cutthroat trout. We found evidence for size-asymmetric competition in one stream, but not in the other where it was assessed. Interspecific competition between brook trout and westslope cutthroat trout was nearly as strong as intraspecific competition within westslope cutthroat trout, especially among juveniles, providing insight into one mechanism by which brook trout displace westslope cutthroat trout.