A New Hypothesis for the Origin and Dispersal of the Eastslope (=Westslope) Cutthroat Trout [AFS]

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The prevailing hypothesis for the origin and dispersal of the inland cutthroat trouts involves upstream penetration of the Columbia River and headwater transfers to adjacent drainages. Data supporting this hypothesis are not conclusive, and its general acceptance is partially due to the lack of viable alternatives. Recent work with poorly dispersing aquatic invertebrates suggests another possibility. Headwater transfers of organisms in Montana are primarily from east to west, except upstream of Canyon Ferry where a massive transfer from the Snake River is suggested. Historically, the upper Snake River was not connected to the Columbia River. Before its capture by the Columbia River, the upper Snake River had highly variable connections to the southeast and across the southwest and west. These zoogeographic patterns are supported by geologic data involving the Yellowstone Hotspot and continental drift. Under the new hypothesis, the ancestor of the westslope cutthroat entered the Missouri River headwaters from the southwest before the passing Yellowstone Hotspot blocked this route by reversing the drainage. Cutthroats remaining in the upper Snake River were eliminated by the massive volcanic eruptions that occurred there. This area was subsequently recolonized by cutthroats from the nearby Great Basin. A headwater transfer, common to both hypotheses, allowed these fish into the Yellowstone River. This new hypothesis explains many, previously mysterious distributions, but it does require a more ancient origin for "eastslope" cutthroat.