Nevada Spring Creek Restoration Helmville, Montana[AFS]

Don Peters
DJP Aquatic Consulting
4955 E. Carlton Creek Rd., Florence, MT 59833
fishpeters@aol.com

Through the efforts of numerous individuals and agencies, 4 miles of Nevada Spring Creek have been restored from the source to the mouth. Nevada Spring Creek suffered from a number of interrelated impairments due to an over-widening of the channel and severe nutrient enrichment. Prior to restoration maximum summer water temperatures exceeded 78° F within a 1/4 mile of the artesian water source. Water, livestock and land management in the drainage all contributed to the impaired status. Conservation easements along Nevada Spring Creek provided the long-term protections necessary to initiate and maintain the corrective restoration actions. Stream channel pattern, profile and dimension were mechanically altered to conform to an E4 and E6 channel type. Channel filling and new channel construction were two primary methods used for rehabilitating the channel. We utilized still evolving restoration techniques, including 1) Sod mat stacking on "high" bank reconstruction, 2) Alteration of bottom substrates to reduce weed growth and promote macro invertebrate production and, 3) A conveyor belt gravel delivery system. Maximum summer water temperatures have been reduced 17°F and mean water temperature declined 13 °F to 52 °F at a point 2 mi downstream. Fall and winter thermal conditions have also been changed significantly with "warmer" groundwater affecting temperatures over the entire 4 miles of restored stream channel. All fish species were in low abundance in 2003 prior to completion of restoration work, except perhaps redside shiners (*Richardsonius balteatus*) in the lower Nevada Spring Creek system.