PROJECT DESCRIPTION

RESTORATION ENGINEERING LLC
Aquatic Restoration and Environmental Hydraulics

Stream Restoration, Fish Habitat Enhancement

Cayuse Creek

Stream Restoration & Fish Habitat Enhancement

Location: Melville, Montana

Client: Private Client and NRCS

Key Project Elements:

- Initial Site Inspection & Feasibility Analysis
- Restoration Design to NRCS Specifications
- Fish Habitat Enhancement
- Construction Implementation
- Riparian & Wetland Revegetation

Project Description:

Restoration Engineering's principals were retained by a ranch owner to develop a restoration plan for Cayuse Creek, a spring creek that flows through agricultural lands on the eastern flank of the Crazy Mountains near Melville, Montana. The creek had been physically manipulated and was generally degraded as a result of historic and ongoing agricultural activities. A majority of the channel within the project reach was shallow and overwidened, bank instability and erosion was prevalent, and aquatic habitat was highly degraded. Channel function, including sediment transport, was compromised and caused sediment to smother stream bed gravels, severely limiting trout spawning success and aquatic invertebrate productivity.

The RE team developed a Natural Resources Conservation Service (NRCS) certified design to restore over 11,000 feet of the degraded channel. We developed and implemented a plan that integrated channel restoration, riparian corridor fencing, off channel water facilities, and water gap crossing locations. An adjacent wetland was the source of the sod which was used to construct new channel banks. The borrow sites created shallow open water areas that added habitat diversity to the wetland. Willow cuttings were used to reestablish a woody shrub component to the stream system.

The result of the project is a stable, naturally functioning channel with abundant, high quality aquatic habitat and a flourishing trout population. Improved hydraulic efficiency has washed fines from the stream bed; gravels have been mobilized and sorted, and trout have been regularly observed spawning again in the creek. Stream banks have been stabilized and native riparian vegetation keeps them intact, provides overhead trout cover, and reduces solar input and thermal stress.