



Cold Creek / High Meadows Ecosystem Restoration



Background:

The Forest Service acquired 1,790 acres of land in January 2003 located in the upper Cold Creek Watershed. This acquisition includes a 200-acre montane meadow complex. High Meadows Creek and three of its tributaries run through this meadow complex.

This landscape has been highly altered and degraded since the mid-nineteenth century by logging, cessation of natural and indigenous fire and over 100 years of cattle grazing and associated diversion ditches. This led to down cutting and widening of the stream channel, lowered groundwater table, drying of the meadow and lodgepole pine encroachment into the meadow.

Large scale restoration activities to reverse the trend of degradation began in 2010 and were completed in 2012. Restoration actions were primarily focused on the lower and middle meadows of the complex because these were the areas that showed the most extreme degradation.

Mainstem Cold Creek, 2013



Mainstem Cold Creek, circa 2004



Restoration Goals and Objectives:

- Restore properly functioning channel and floodplain configuration based on application of geomorphic principles
- Decrease pollutant loading by reducing bank erosion, and increasing frequency, duration, and extent of overbank flows onto the floodplain.
- Raise groundwater levels to increase duration and extent of plant available groundwater
- Increase diversity and complexity of riparian and meadow habitat

Restoration Actions:

- Mainstem Cold Creek - constructed 2,200 linear feet of new channel
- Grade control on Cold Creek – constructed 5 boulder weirs and 1.5 acre inset floodplain
- North Fork tributary – constructed 1,200 linear feet of new channel, 4 acres of inset floodplain and 4 bankfull benches on existing channel
- East Fork tributary – constructed 200 linear feet of new channel and 24 in-channel log debris structures
- Abandoned channel – Filled 2,000 linear feet of old Mainstem channel and 500 linear feet of old North Fork channel. Created approximately one acre of ponded water habitat areas along old Mainstem fill area
- Lodgepole pine encroachment - Removal of 8 acres of dead conifers from the meadow

Photo of lower and middle meadow taken November 2012



Effectiveness Monitoring:

While many of the benefits of this project can be easily observed, continued monitoring of this project will provide valuable quantitative information about the effectiveness of these methods. Monitoring will include: Stream Condition Inventories (SCI), complete morphological description of restored channels, groundwater well monitoring, photo points and vegetation monitoring. Monitoring is planned for a minimum of five years.