

Big Flat Meadow Project

DESCRIPTION:

This project moved Cottonwood Creek from its old down cut channel into 4,050 feet of new channel constructed on top of Big Flat Meadow. It was the first project to utilize the "pond and plug" restoration technique in California. The abandoned gully was converted into a series of ponds to create wildlife habitat. After continued post-project monitoring it was determined that the original channel design was oversized (one foot too deep). As a consequence, full re-watering of the meadow had not occurred. In 2004, modification to the channel using locally available basalt gravel/cobble to fill the riffles to the correct elevation was completed. This allowed high surface flows to more readily access the floodplain. This project was also part of a study done by Stanford University analyzing the relationship between surface and groundwater sources in restored versus degraded meadows using remote airborne infrared thermography from 2003-2005.

SPONSORS:

FEDERAL: U.S. Forest Service Plumas National Forest; STATE: California State Water Resources Control Board; PRIVATE: Pacific Gas and Electric Company, Fitch Canyon Allotment permittee; LOCAL: Plumas County Community Development Commission

PROJECT RESULTS:

The project performed as expected during its first winter season. Project designers calculate the greatest risk to the project's long term success to be the establishment of new head cuts which could erode the new channel back down to the level of the old channel. The danger of this happening is the greatest during the first ten years of the project, before newly planted willows and sod have grown enough to anchor the creek's new banks. To reduce this risk, rock step pools were installed at the downstream end of the project to dissipate the energy carried by flood waters. The project was tested during a storm in early February 1996. Peak flows were measured at 164 cfs. Water over-flowed the channel which was designed for 40 cfs and spread out onto the meadow floor as desired. There was no erosion of the project's new channel and the seven ponds filled up with water as expected. On January 1, 1997 the largest flood of record occurred in the Feather River watershed. Streamflows at Big Flat were calculated to be 462 cfs. A limited amount of maintenance was needed. The project continues to function after 20 years. over the next several years will show whether the project stays in place during bigger storm events.

PROJECT REPORTS (IF AVAILABLE):

Big Flat Meadow Fact Sheet

http://www.weebly.com/uploads/4/0/5/5/40554561/big_flat_fact_sheet.pdf

Post-project Flow Duration Chart

http://www.weebly.com/uploads/4/0/5/5/40554561/postproject_flow_duration_chart.pdf