

**FINLEY RANCH ENHANCEMENT
PROJECT**

COMPLETED BY

THE SISKIYOU RESOURCE CONSERVATION DISTRICT

Contract # P0010317
(RCD Ref. # 75)

May 1, 2003
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BACKGROUND:

General Information:

The Siskiyou Resource Conservation District (SRCD) and the Scott River Watershed Council (SRWC) work closely together to determine and resolve watershed health conditions related to water quality and anadromous fisheries. Together, the two community groups have addressed watershed conditions and limiting factors that include in-stream enhancement, water quality improvement measures, riparian planting, upland issues, monitoring and assessments, road improvement/decommission projects, fish screens and numerous educational endeavors.

The physical location of the project is on the Scott River and Kidder Creek, both located within the Scott Valley. Both project areas are located at T43N, R9W, and Section 14. The upstream project boundary is .5 miles below the Serpa Lane Bridge and extends downstream to the section line. The site on Kidder Creek is .4 miles below the bridge on Serpa Lane and continues downstream .4 miles.

Project Reach Description:

The Scott River is a major tributary to the Klamath River. The project, Finley Ranch Enhancement, is located just north of Fort Jones. Worked occurred on stream reaches in both Kidder Creek and the Scott River. The Scott River and Kidder Creek are used by chinook and coho salmon as well as steelhead.

Kidder Creek is a major tributary to the Scott which is fed by Johnson Creek, Crystal Creek and Patterson Creek. Kidder Creek drains much of the West side of Scott Valley (between Etna and Fort Jones). Head waters of tributaries to Kidder Creek begin in the Russian and Marble Mountains and rush down steep slopes to the floor of Scott Valley. Anadromous spawning and rearing occurs at the base of the mountains where stream gradient flattens and year round flows occur.

The project site is located in the valley floor reach of Kidder Creek, approximately 1.2 miles above the confluence of the Scott River. Flows in the valley floor reach occur from November through July. During the summer months, the streams are intermittent and water temperatures become lethal prior to becoming intermittent. None the less, the valley floor reaches are important winter, spring and early summer rearing areas and need to be restored for these purposes. The reach of Kidder Creek through Scott Valley possesses slough like qualities. The channel sinuosity is high and remains in contact with the flood plain throughout the reach. Stream gradient is too flat to possess considerable spawning areas throughout the project site. The riparian planting sites on Kidder Creek have been grazed by previous property owners and the riparian areas are broken and narrow. The potential for regeneration is great as the water table is shallow and the stream channel is stable.



On the Scott River, the project site is located on the lowest gradient reach (1 foot of fall for every 1000 linear feet of river) of the main stem. Through the project site the river is entrenched, the channel width is narrow and instream complexity is low. The river is dominated by long runs, short riffles and few pools. The banks are vegetated by contiguous decadent sandbar and narrow leaf willow stands. The willow species provide some cover and shading but later stages of over story species are needed to cast more shade over the narrow channel and provide large woody debris recruitment.

Both the Kidder Creek and the Scott River project areas are not spawning areas. The reaches are also not known for over summering habitat as some of the rivers' highest water temperatures are recorded here and the slough dries up in August. However, numerous anadromous fish were observed feeding in the project area on the Scott River area during August 2000.

Reach Condition:

The portion of the Scott River which runs through Scott Valley can be broken into several different reaches which have different characteristics. The reach where the proposed project is located has its own character and value. The reach is dominated by runs, the active channel is very narrow (comparatively), and there are few pools. Anecdotal historical information has told us that this reach has not been a popular area for fish to spawn in or to hold in during the summer months. This does not mean the reach is not important because the reach provides migrating fish access to quality holding/rearing areas both upstream and downstream of the reach. On the negative side, the reach is contributing to the water temperature problem on the Scott River. Some of the characteristics contributing to water quality decline through the reach are natural while others are a result of cumulative impacts. Natural conditions impacting temperature are low stream gradient and a non-porous clay layer which prevents ground water mixing. Cumulative impacts include loss of riparian over story species of Ponderosa Pine, Black Cottonwood and Pacific Willow. The farming family property owners value the fishery values on the Scott River and intend to farm the agricultural ground leaving the riparian corridors available for riparian regeneration, meander adjustment and wildlife use. No grazing will occur for at least ten years.

Project Description:

Our goal on the Finley Ranch was to address some of the limiting factors on the property. The two factors to be treated on the property were bank stabilization and riparian enhancement. The first objective was to stabilize an eroding bank on the Scott River located on the outside of a meander and provide instream complexity and cover while stabilizing the bank. The meander pattern was experiencing moderate erosion over several years. Alternative structures for bank stabilization (other than rip-rap) were used on the site experiencing erosion. The Siskiyou RCD has used deflectors for five years in place of rip rap. The structures are small jetties composed of large boulders and trees with root wads and extend 12-15 feet into the active channel. The deflectors extension into the active channel disturbs the high speed laminar flow (which is eroding the bank) and creates turbulent flow. The turbulent flow creates scour pools off of each deflector. The pool and structure provide much needed cover and flow variation for fish moving through

the reach.

Bank erosion is limited by deflectors because the thalweg (highest velocity of the stream), which used to be against the bank, is broken up by the deflectors and the velocity is pushed toward the center of the stream. The tight curvature of the eroding meander and velocity of high flows are the two components needed to generate scour pools and the structure of the deflector creates cover.

The following is a description of the proposed treatment of the eroding meander based on specific site needs, erosion rates, and potential for treatment success.

Example:

Treatment site #, property owner, side of stream, linear length of site, average height of bank, severity of erosion, proposed treatment.

#1.) Finley Family, West side, 190 feet, 14 foot tall banks, moderate erosion, Proposed Treatment - Installed 7 deflectors composed of large boulders and/or large boulders with trees & root wads. Deflectors are keyed into the bank and will extend into the channel 12-15 feet. Spacing between deflectors is 40 feet. Toe rock was placed between deflectors 2 and 3.

The instream treatment was installed in the fall of 2001. The structures have been in the stream through two winters and have performed well. The eroding bank is revegetating and the structures provide variation in flow velocities for fish. There are quiet pockets behind the deflectors for holding fish and higher velocity water for fish when feeding. Unfortunately, during the summer months, the pools scoured out by the deflectors during high flows fill in with sand.

The second objective is to establish a riparian zone by providing an over story riparian community along a reach of the Scott River and Kidder Creek. Riparian plantings will be used to provide shade and overhanging cover and woody debris recruitment over time. The RCD planted approximately 7.5 acres of riparian trees on the Scott River and Kidder Creek. Approximately 2.5 acres were planted along the West side of the Scott River where afternoon shade will extend across the channel. The remainder was planted on the Kidder Creek slough. The planting density depended on site specifics but ranged from 160-220 trees per acre, depending on terrace elevation, distance from the stream and quality of the soil. In the Scott River, the best planting method the RCD has found is to plant large stock very deep into the soil due to the fluctuation of the water table. The holes will be dug by a back-hoe, two cuttings will be placed in each hole (hole size is approximately 4'X12') and planted to the estimated depth of the summer water table. Once buried, each tree will receive specific covering for browse protection where needed. Mulch will be used if there are no ground cover plants to reduce refractive heat at the ground level. Ponderosa Pines were also planted and received vexar tubing protection.

Much of the planting was done in the spring of 2002. The planting success was among the best the RCD has achieved. Survival rate is determined to be at 91% after one season

(a drought year) and planting vigor is high. Most plantings grew several feet while many grew 4 or more feet. We are encouraged because last year was a drought year and the survival and vigor was excellent. An additional acre of willow and Cottonwood and Ponderosa Pine were planted in the winter of 2002-2003. The Finely Ranch had its employees spend extra effort to ensure the trees were irrigated by the wheelines. Dave Bennett and employees maintained the cages on the trees for the first season. We found that the deer browse was nearly non-existent. The Finely Ranch is committed to irrigating the plantings for several years using their wheelines. In conclusion, the project implementation went well and response since then has been impressive. We are pleased that the objectives of the project were either met or exceeded and efforts will be continued to monitor the project.

