THE FEATHER RIVER COORDINATED RESOURCE MANAGEMENT GROUP

GREENHORN CREEK TROUT HABITAT ENHANCEMENT PROJECT

Fact Sheet # 4 **January 1996**

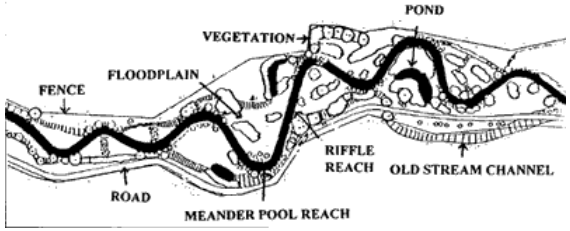
PROJECT LOCATION
Greenhorn Creek is a tributary of Spanish Creek, which joins Indian Creek to form the East Branch North Fork Feather River (EBNFFR) in Northeastern California's Plumas County. Greenhorn Creek flows through ranches and residential areas in Thompson and American Valleys less than two miles from the county seat of Quincy. The project is located in one of the most rapidly urbanizing areas of Plumas County along State Highway 70, one of the county's main transportation corridors.

SITE HISTORY
Due to both natural events and 100 years of intensive human use. Greenhorn Creek's width has increased from 16 and a half feet in 1871, to 50-275 feet today. In 1923, the highway department, while building a highway bridge, channelized and moved the creek from the West edge of American Valley to the middle of the valley where it flows today. In a 1963 flood, a mill pond seven miles upstream of the project area was breached, destroying 8 large beaver dams. In 1968 storms, large gravel bars were deposited in the center of the channel, pushing the creek's waters against the stream banks, causing erosion and undermining riparian vegetation. The banks became bare and the channel became shallow and braided. Water quality declined and trophy size trout were no longer caught from the creek.

PROJECT PLANNING
In 1984, four concerned landowners along Greenhorn Creek requested that the EBNFFR Coordinated Resources Management Group (CRM) accept a section of Greenhorn Creek as an erosion control project. The landowners' goals included improvement of meadow forage, improvement of property values, stopping land loss resulting from erosion, and restoration of Greenhorn Creek's trophy sized fishery potential.

In May 1988, a CRM team, made up of agency resource experts and other interested parties toured the proposed project area and made recommendations on project design, construction, and monitoring. The CRM team was interested in improving the native trout fishery in the project area. They also expected secondary benefits from the project including improved wildlife and waterfowl habitat, improved range and forest land productivity, and increased soil stability and water quality. All of these goals are part of the missions of the resource agencies that employ the team members. The CRM as a whole then met with the landowners and agreed to the following common goals:
• To restore channel stability and riparian habitat in order to increase the trout population.
• To provide roadside, flat-terrain catch and release fishing opportunities within two miles of Quincy,

GREENHORN CREEK PROJECT DESIGN



• To demonstrate geomorphic techniques for trout habitat enhancement.

PROJECT DESIGN
After extensive planning, data collection, and Filing for permit applications, construction of the project took place in the fall of 1991. The project used a combination of biological, engineering, and management restoration techniques, including:

• **Reconstruction of meanders** along 2,800 feet of the existing stream channel. Stream braids were filled in and water was redirected into one stable channel with

GREENHORN CREEK CHARACTERISTICS (Pre-construction)
Elevation - 3,478 feet
Drainage area - 46 square miles of mostly forested mountain side, including one peak at 7,779 feet
Aspect - 90% of the watershed faces the Southwest
Channel width - 50-275 feet average
Channel depth - 8-15 feet average, from a historic depth of 3-4 feet
Channel gradient- 0.6% upstream, 0.4% downstream **Meander length** - 180 feet average
Radius of curvature -69 feet average
Rosgen stream type - existing F4/D4, projected C4 Sediment yield - 3,300 tons per year
Flow - bank full 250-300 cubic feet/second (CFS),
active channel 90 CFS, low 15-20 CFS, floods over 1,000 CFS, highest 3,300 CFS in 1986 flood,
1995 high of 1,800 CFS

Greenhorn Creek before project

Greenhorn creek after project

Monitoring of results has been on-going since revegetation was completed in June 1992.

A five year monitoring plan was designed to track the project's experimental construction techniques. In some cases, pre-construction measurements were taken, but for most factors, post-project measurements are being compared to a control area set up in 1992.

Monitoring is being done by the U.S. Forest Service (USFS), the California Department of Fish and Game (CDF&G), the Soil Conservation Service (SCS), and Quincy High School students. At least 60 grade school students, 20 high schools students and 15 community college students have been involved in project monitoring. Students are collecting information on stream conditions and wildlife.

MONITORING RESULTS

The project's interim monitoring report uses two year's of data to assess the project's success so far. Although there is some information on stream conditions as a result of the project, it is still too early to tell if the main goal of fish habitat enhancement is being reached. A full

PROJECT COOPERATORS

It took the coordinated effort and resources of a combination of agencies, cooperating through the CRM, to accomplish this project.

TOTALS	COOPERATOR	CONTRIBUTION	ROLE
Federal $76,500	Plumas National Forest	$68,000	Project design, archaeological surveying, and monitoring. Donations of logs and boulders.
	Soil Conservation Service	$5,000	Design of grazing alternatives.
	Agricultural Conservation and Stabilization Service	$3,500	Funded fencing.
State $195,550	Wildlife Conservation Board	$150,000	Funded construction and administration.
	Water Resources Control Board	$10,000	Funded non-point source 205 J study.
	Department of Forestry and Fire Protection	$35,550	Funded harvesting and hauling of materials.
	Department of Water Resources	$10,000	Surveying, mapping, and engineering.
	Regional Water Quality Control Board	$7,000	Funded monitoring.
	Department of Fish and Game		Project design and monitoring,
	Department of Transportation		Bridge approach design.
Regional $124,000	Pacific Gas & Electric	$40,000	Funded consultant and administration.
	Local real estate developer	$70,000	Donated root wads.
	North Cal-Neva Resource Conservation & Development District	$4,000	Funded construction training.
Local $10,000	Landowners	$10,000	Constructed fence and deferred grazing.
	Plumas Corporation		Coordination.
	Plumas Unified School District		Student participation in monitoring.
	Plumas County Community Development Commission		Fiscal sponsor.
	Plumas Job Training Center		Work force for monitoring.
TOTAL $406,050			

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BIOLOGICAL RESPONSES:

Revegetation success was high with 79% of transplanted trees, and 87% of container stock living after one year. Willow transplants did well, and grasses showed good germination in the first year. Long-term survival and growth will greatly affect other factors.
Fish population was surveyed before the project, but not since. However, many recently hatched brown trout have been observed in the project area.
Insect population/macroinvertebrates has not changed significantly in either the project or control sections of the stream.
Bird population has not changed in either species or numbers, and is not expected to until there has been a significant change in vegetation.

REFERENCES/REPORTS

California Department of Fish and Game. Flint, Richard. The Greenhorn Creek Project Interim Monitoring Report. Prepared for the Plumas County Community Development Commission. April 1994.

FOR MORE INFORMATION, CONTACT:

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