Miners Ravine Restoration Project
Placer County, California

In June of 1998, Placer County was awarded a $605,400 grant from the State Water Resources Control Board. The purpose of the grant was to prepare a resource management plan for the Dry Creek watershed, a Miners Ravine Pilot Restoration/Enhancement project and a watershed quality monitoring and assessment plan. Major components included:

- Restoration Demonstration Project on Miners Ravine
- Water Quality Monitoring
- Watershed Management Plan
- Public Outreach
- Grant Management

This project has been coordinated with the various individuals and agencies participating in the Coordinated Resource Management Plan group. The CRMP "Planning Group" meets on a monthly basis. The Planning Group also played a key role in this project through participation in the Technical Advisory Committee that helped guide the planning process. In addition, the CRMP Planning Group is expected to work with the County directly on developing and implementing objectives for the Dry Creek watershed produced by this planning effort. The County has been responsive to the CRMP Planning Group throughout this planning effort in order to insure that the objectives of the CRMP were met.

Habitat Restoration Tasks

1. Habitat preservation and restoration efforts shall focus on the streambed, the stream aquatic environment, riparian areas and associated woodlands and uplands within the 100-year floodplain.
2. Identify habitat restoration opportunities that positively influence sediment loading.
3. Identify opportunities to minimize the impact of new infrastructure development within the watershed and in particular the floodplain, riparian area, the aquatic environment and the streambed.
4. Identify areas to retrofit existing infrastructure facilities to further implement the goals and objectives of the plan.
5. Develop habitat restoration techniques that allow for natural stream dynamics within the floodplain.
6. Develop habitat restoration techniques that allow for natural vegetative succession to occur within the 100-year floodplain.

Workers planting new native plants at the Preserve restoration site.
Fall 2002

The Miners Ravine Restoration Project construction work was undertaken by Habitat Restoration Contractors.

Miners Ravine Restoration Project

The project team examined the feasibility of specific restoration proposals for Miners Ravine. First priority was given to evaluating the ten (10) locations on Miners Ravine outlined by Debra Bishop's stream assessment (1997). The assessment evaluated the potential for success over time given the current and anticipated changes in the channel.

The Miner's Ravine portion of the project was delayed. Due to a temporary loss of a key subcontractor, ECORP had requested that the Miners Ravine restoration activities be delayed. Construction was initiated in Fall 2002.

Technical Advisory Committee (TAC)

The County formed an interdisciplinary Technical Advisory Committee (TAC) to oversee the progress and technical aspects of the project. The TAC was asked to review ongoing work, interim contract reports, and the draft final report. The TAC included individuals with expertise in riparian ecology, restoration, hydrology, geomorphology, fisheries biology, and water quality. The TAC also served a liaison function between the larger CRMP group and the team.

TAC Membership includes:

- Gregg Bates, Dry Creek Conservancy
- Loren Clark, Placer County Planning
- Jeff Finn, CA Dept. of Fish and Game
- Kelly Finn, National Marine Fisheries Service
- Craig Fleming, US Fish and Wildlife Service
- Hal Freeman, ECORP Consulting
- Ted Frink, Dept. of Water Resources
- Leslie Gault, Placer County Flood Control Agency
- Rich Gresham, Placer County Resource Conservation District
- Melissa Batteate, Placer County Planning
- Brian Keating, Placer County Flood Control Agency
- Kate Kirsh, Foothill Associates
- Glenda Marsh, Department of Water Resources
- Mark Morse, City of Roseville
- John Nelson, CA Dept. of Fish and Game
- Lori Webber, Central Valley Reg. Water Quality Control Board

Restoration Feasibility Study/Recommendations/Draft Plan

Bishop (1997), in *An Evaluation of Dry Creek and its Major Tributaries in Placer County, California* conducted an inventory of the condition of the entire Dry Creek watershed riparian area, and identified restoration/enhancement opportunities within Miners Ravine, a tributary of Dry Creek located in Placer County. In addition, Swanson (1992), in *The Miners Ravine Creek Watershed Enhancement and Restoration Plan for the Reduction of Flood Hazards and the Enhancement and Protection of Environmental Resources*, produced a plan for the reduction of flood hazards and enhancement and protection of environmental resources for the Miners Ravine watershed. These studies provided the foundation for pilot restoration/enhancement activities undertaken through this grant. In fact, both Bishop and Swanson were subcontracted by ECORP to assist with this project.

Feasibility Study. The Consultant produced a feasibility study that included a qualitative assessment of conditions within the Miner's Ravine watershed in order to 1) develop an understanding of what is currently occurring within the channel, 2) to assess conditions that will cause changes to the channel over time and 3) to build an information base to identify potential restoration sites and determine the feasibility of restoration efforts at those sites.

The consultant evaluated the feasibility of specific restoration proposals. First priority was given to evaluating the ten (10) locations on Miners Ravine outlined in Bishop (1997). The assessment evaluated the potential for success over time given the current and anticipated changes in the channel. The feasibility study shall contained a recommendation on whether or not the ten (10) sites referenced in Bishop (1997) were feasible given the information obtained from the watershed qualitative assessment. If one or more of the subject sites are deemed infeasible additional sites are to be identified. A total of ten sites were to be selected.

The Miners Ravine Feasibility Study was completed in November 2001. Eight of the original ten projects called for major stream bank reconfiguring and expansion of the stream corridor on private property. Projects on private land were deemed to be ambitious given the limited project construction budget and the requirements necessary to expend public funds on private land.

Recommendations. After evaluating all ten sites, those within the Placer County-owned Miners Ravine Nature Preserve were found to hold the best opportunity for meeting the project objectives and minimizing the risks of pursuing projects on private property. The Miners Ravine Nature Preserve is on Auburn-Folsom Road north of Douglas Boulevard in Granite Bay.

The Technical Advisory Committee endorsed pursuing the restoration project at the Miners Ravine Preserve site on November 27, 2001. In February 2002, the County formally asked the Contract Manager for authorization to reduce the scope of the Miners Ravine Restoration component to focus on one site. Due to property ownership, feasibility, time constraint and cost concerns, the restoration of the Preserve project was approved.

Draft Plan. By May 2002, EDAW had produced a draft plan/initial study and a proposed mitigated negative declaration for the restoration project. The Miners Ravine Preserve restoration project included the following componenets:

1. Recontour banks;
2. Floodplain creation;
3. Debris removal;
4. Non-native vegetation removal and control;
5. Revegetation with native species;
6. Barrier removal;
7. Landowner intervention; and,
8. Public education.

Landowner Consultations/Public Workshop

A meeting with affected landowners on Miners Ravine was conducted. The informational meeting was held with the Shelborne Estates Home Owners Association and property owners adjacent to the Preserve at the Granite Bay Library on June 10, 2002. The draft Plan was presented to the residents and the costs and benefits of the proposed work were discussed. In addition, County staff discussed the project with the Granite Bay Municipal Advisory Committee (MAC) on August 8th, 2002 and the County Supervisor for the area, Ted Gaines.

A homeowner along Miners Ravine contacted the County with concerns about contractors needing access to their property. A small portion of the work (Site ‘A’) required access to their property, 7855 Wingate Court. The owner had concerns that the work would increase stream velocity. The property owner would not sign an access agreement and a Supplemental Hydraulic Modeling Summary was prepared to answer their questions regarding velocity utilizing HEC RAS modeling. Access was granted after the results from this unbudgeted additional study were provided to the homeowner.

Site-Specific Permits

EDAW on behalf of the County, obtained permits from the US Army Corps of Engineers (Section 404), Department of Fish and Game (Streambed Alteration Agreement) and the California Regional Water Quality Control Board (Section 101). The County also consulted with the National Marine Fisheries Services regarding the restoration plan. The Streambed Alteration Agreement was renewed and extended for one year in September 2003 to cover the fish passage improvement project that was underway.

Preparation of Final Plan

The Preserve site project involved the excavation of the eastern bank in three locations to an appropriate elevation for a functional floodplain and riparian vegetation. The project was designed to simultaneously reduce hydraulic force, bank erosion and sediment generation. The final plan for the restoration project included the following:

- Reconfiguring banks of incised channels at precise locations to remove sediment sources by creating flooplain benches at locations which exhibit excessively high eroding banks;
- Placing removed soil (±1508 yards) in a spoils area within the Reserve along Auburn-Folsom Road. After the soil was in place, it was seeded with native species. This also included the planting of trees and shrubs. The spoil mostly consisted of mine tailings;
- Removing non-native blackberry and pampas grass from stream banks to enhance native plant species more beneficial to ecosystem function and flood flows; and,
- Revegetation of banks to enhance bank stability and riparian habitat.

The project also included provisions to ensure landscape establishment and maintenance for a period of three (3) calendar years following acceptance of the installation by Placer County.

Construction

Initial work commenced in late September 2002 and was substantially completed by December 1, 2002.

Restoration Site 'A'

The Site 'A' restoration involved the removal of soil in a 120 ft. by 160 ft. area. The removal lowered soil level by 6 ft. and restored 3,200 sq.ft. of floodplain. This additional floodplain will allow water surface expansion during high flows. A back loader, a bobcat and other equipment were used to complete the work.

There was no tree removal at Site 'A', however the Himalayan blackberry (Rubus discolor) present at the site was removed in the restoration areas. Removal consisted of cutting the canes back and applying an herbicide directly to the fresh cuts. Follow-up treatments were necessary.

Restoration Site 'A'
"Before"- Downstream

Restoration Site 'A'
"Before"- Upstream

Restoration Site 'A'
"After"

Restoration Site 'A'
"After"

Restoration Site 'B'

The Site 'B' restoration consisted of the removal of 619 cubic yards of soil from a 140 ft. by 30 ft. area. This was designed to lower the current soil level from 114 ft. to 104 ft. Four trees were removed at this site (one walnut (Juglans sp.), two oaks (Quercus sp.), and one cottonwood (Populus fremontii)). Erosion at this site was causing the area to be a significant source of sediment. The goals for this site were to create floodplain, stabilize the bank, and establish native plants. Non-native periwinkle (Vinca major) from the bank opposite the restoration sites was removed. Residents had 'landscaped' the riparian area behind their homes. The reduction of that riparian buffer is detrimental to the creek.

Restoration Site 'B'
"Before"

Restoration Site 'B'
"Before"

Restoration Site 'B'
"After"

Restoration Site 'C'

The Site 'C' restoration consisted of the removal of soil from a 170 ft. by 30 ft. area. This lowered the soil level three to four feet and created 3,300 sq.ft. of floodplain. This site is near where household garbage had been burned and there is a paved driveway exists right to the bank of the creek.

Restoration Site 'C'
"Before"

Restoration Site 'C'
"After"

Restoration Site 'C'
"Before" Downstream

Restoration Site 'C'
"After" Downstream

Spoils Area

Soil removed from the restoration sites (±1508 yards) was placed in a spoils area within the Preserve along Auburn-Folsom Road. After the soil was in place, it was seeded with native species, trees and shrubs. The spoil mostly consisted of mine tailings. Fencing will enclose the spoils area until the plants are established.

Spoils Area
"Before"

Spoils Area
"After"