

BUILDING CONSENSUS & RESTORING RIVERS

Twenty Years of Coordinated Resource Management in the Feather River Watershed

“Everybody benefits from a functional watershed.”

THAT’S THE WAY JIM WILCOX EXPLAINS how the Feather River Coordinated Resource Management Group (CRM), a 20-year-old partnership of federal, state, and county agencies with private organizations, corporations, and landowners has overcome its frequently strained individual relationships on other issues to become a model for innovative and successful watershed restoration.

Wilcox is the Program Manager with the CRM. He is also becoming a nationally recognized specialist in geomorphic restoration, largely due to his involvement in the CRM’s success restoring natural river processes on severely degraded reaches of the Feather River and its tributaries. By his count, the CRM has completed at least 70 erosion control projects since installing its first in 1986. That adds up to some 40 miles of restored streams and more than 7,500 acres of re-watered meadows.

“A lot of these people have each other in court all the time over lots of other issues, but they all agree that a dysfunctional watershed doesn’t meet anybody’s mission, whether its water supply, recreation, fisheries, water quality or hydro electric generation,” Wilcox said. “The CRM works because we stay focused on finding solutions that benefit everybody.”



Jim Wilcox, CRM Erosion Control Project Manager • Photo by Will Stockwin

It’s been that way since the beginning, when the original 13 CRM members signed a Memorandum of Understanding (MOU) committing them to the immense task of restoring the Feather River Watershed from the ravages of 140 years of resource extraction activities. The MOU sets out the goal of optimizing beneficial uses of water, emphasizing education and prevention over regulation, and resolving the concerns of all participants through a consensus-based planning process.

“Getting a project going on the ground will do more to galvanize a partnership than a piece of paper will,” said Leslie Mink, CRM monitoring coordinator. “Getting the first project built so quickly in 1985 really showed them what was possible.”

CRITICAL STEPPING STONE: THE CRM’S FIRST PROJECT

The first project completed by the Feather River CRM was a series of four check dams on Red Clover Creek. It was an experiment designed to verify two concepts: that sediment being flushed downstream could be reduced by erosion-control techniques and, more importantly, that the federal, state, and private signatories of the newly formed CRM could actually put aside years of differences and work together.

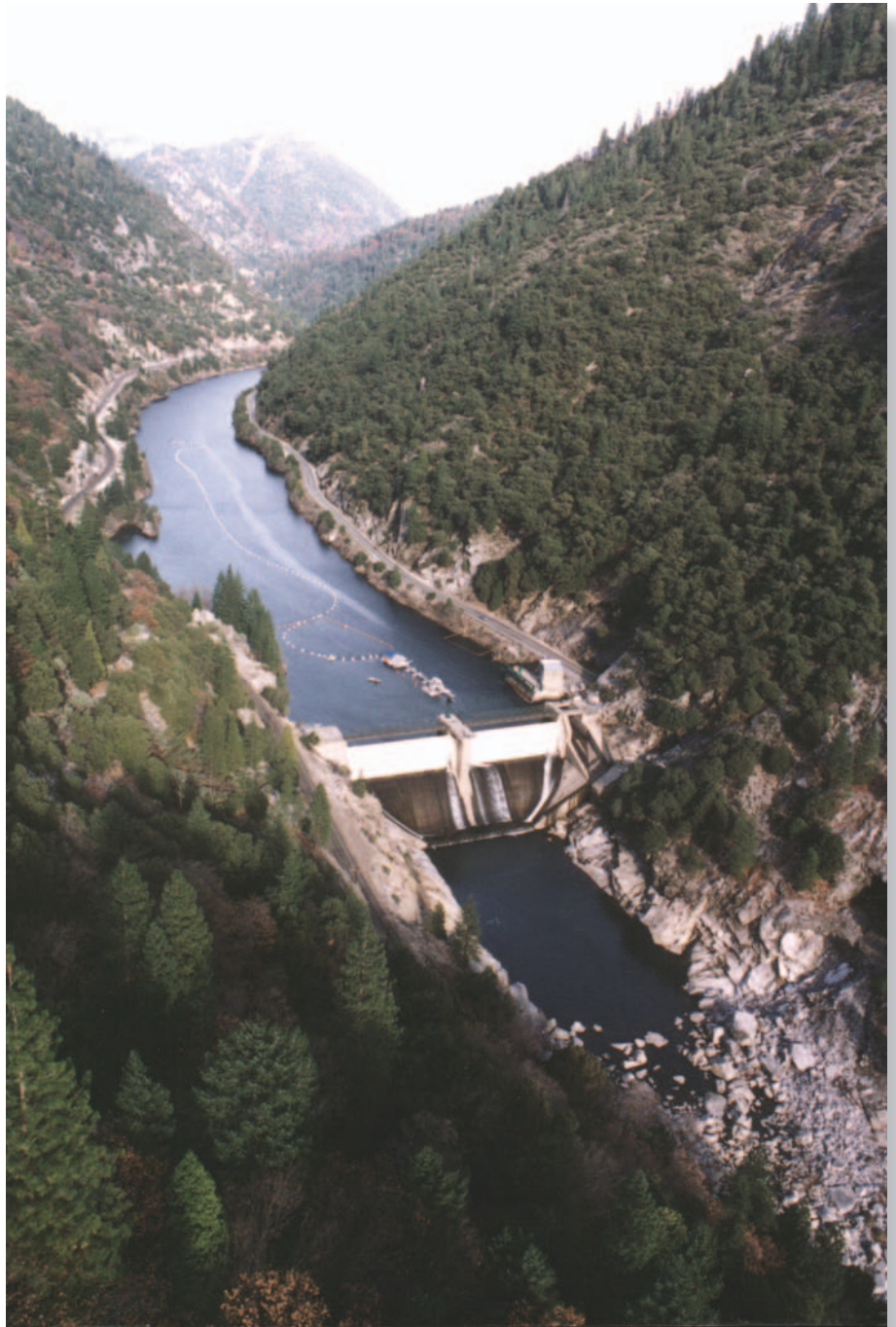
Red Clover Creek, which feeds into the East Branch of the North Fork of the Feather River, drains 75 square miles of the Red Clover Valley, 30 miles north-east of Quincy. Surrounded by Plumas National Forest land, the valley is privately owned and used for grazing cattle. The one-mile stretch of creek where the project was situated is privately owned today by the Goodwin Ranch.

By the mid-1980s, the lush pastures and meadows that had lured dairy farmers to the Feather River Watershed in the 19th Century were largely gone, lost to deepening gullies that drained high country water tables and flushed away eroded soil, which left sage brush and thistle where tall grasses had once thrived. These problems were common throughout the watershed.

On Red Clover Creek, the relentless erosive forces that formed deep, wide gullies were annually washing away 830 tons per square mile of sediment, or fully 640,000 cubic yards in the last half century. The sediment from Red Clover Creek and other tributaries was accumulating 60 miles downstream behind Pacific Gas and Electric's (PG&E) Rock Creek and Cresta dams on the North Fork of the Feather River. The reservoirs had each lost roughly half their respective holding capacity by 1984, when the utility convened a series of meetings on the problem with all the government agencies responsible for controlling upstream erosion.

The first meeting of what would become the Feather River Coordinated Resource Management Group (CRM) took place around John Schramel's kitchen table. Then Plumas County Supervisor, today Schramel is president of the CRM and the Feather River RCD.

"PG&E had identified Red Clover Creek as the biggest contributor of sediment to the huge siltation problem behind its



Massive sedimentation filling in behind PG&E's Cresta Dam on the North Fork of the Feather River prompted the eventual formation of the Feather River CRM and the beginning of restoration work in the watershed. Photo courtesy of Larry Harrison

Rock Creek and Cresta dams, so we decided to put a demonstration project there," he said.

"Getting to that decision wasn't easy," he said, "because everyone had to agree to leave all of their turf issues outside the door. We weren't looking very far beyond that first project and thinking what might come next because we knew the CRM's future would hinge on how this project turned out."

The project's objectives were to stabilize severely cut creek banks and reduce sediment transport by trapping it behind the check dams. Other objectives included raising the ground water table and water storage capacity of the restored meadow, improving range forage for cattle, water quality, and fish and wildlife habitat.

"When we first proposed the project in May 1985, most people figured it would take us at least five years to jump through all the government permitting hoops," Schramel recalled. "But we had a director, John Whiteman, at the fledgling Plumas Corporation who hand-carried the permits around to the various agencies and got them approved in a matter of days."

Project planning, based on the objectives of stabilizing stream banks to reduce erosion and sediment loss, and raising the water table to increase ground water storage, began in August and construction shortly after that. The check dams were finished in early 1986 and stream bank re-vegetation was completed the following spring.

"Getting it done that quickly gave us a great deal of confidence," Schramel said. "And then we got an even bigger boost when the project held up through a huge water year and serious flooding in 1986."

Continued monitoring of the project shows that slowing stream flow velocities and replanting stream banks has reduced erosion and significantly raised groundwater table levels, benefiting the return and increasing diversity of riparian and floodplain vegetation.

The monitoring has also successfully demonstrated that erosion control measures can restore a damaged ecosystem in a broader sense. For instance, improved water quality in the project area encouraged increases in trout populations, and waterfowl usage and nesting increased 700% over control sites.

"The CRM partners proved to themselves with this project that they could work together and do something like this," CRM project director Jim Wilcox said. "It was critical to build the kind of trust they needed amongst themselves to work for a common goal. It was an important stepping stone."



The middle two dams of the CRM's first project as seen in 2005. The CRM constructed four loose-rock check dams, replanted stream bank vegetation, and fenced the riparian corridor to keep livestock and vehicles out during a 10-year monitoring period after the work was completed. • Photo by Will Stockwin

In the 20 years since that first success on Red Clover Creek, the CRM has experimented with and installed an impressive array of structural and vegetative geomorphic restoration techniques in a variety of situations. Though generally small-scale, the projects were all focused on the CRM's overall goal of reducing erosion by improving the long-term stability of a treatment area.

Their efforts are a powerful demonstration of two important lessons in watershed restoration: raising the water table increases productivity by restoring natural water storage function of the land, and dealing with erosion problems system-wide, on a large scale rather than symptomatically, results in higher success rates.

Of the first, Mink said, "In over 90% of this watershed, the meadows aren't holding onto water because stream gullying is so severe. A functioning meadow that absorbs water in the spring releases it slowly through the season, so there's more water in the entire system longer. More water for longer in the year benefits everyone who depends on this watershed. Erosion control and increased land productivity is the win-win we're working for."

The CRM's recently completed project on nine miles of Last Chance Creek was the perfect site to take everything that had been learned on smaller projects and apply them system-wide on a large scale.

A SECOND CHANCE FOR LAST CHANCE CREEK

Anatomy of a Conservation Project

LAST CHANCE CREEK DRAINS THE EAST SIDE of the Feather River Watershed, cutting across private and public land on the edge of the Sierra Valley northeast of the small town of Beckwourth.

The highly-degraded, deeply gullied creek has long been identified as the main source of sediment from this area of the watershed, and is a priority in the CRM's overall watershed management strategy. To Wilcox, the obvious solution was to reconnect the channel and floodplain using a practice the CRM had developed on past projects called the "pond and plug technique."

"On the upper reaches of Last Chance the gully grew out of a cattle trail, which is evident above the gully area, so we didn't restore a channel," he said. "Instead, we decided to eliminate the gully and then just let the water sheet flow over the meadow. That's a phenomenal change in thinking."

Plumas County cattle rancher John Matley and his wife Corrine are landowners who are partnering in the Last Chance Creek project. They worked for years on their own fighting erosion and trying to prevent the annual flow of tons of sediment from Last Chance Creek on their property into the North Fork of the Feather River.



Alkali Flat reach on Last Chance Creek, 2003, showing deep-cut gully. Project funding came from a \$980,000 grant from CalFed, awarded in August 2000. The project restoration area takes in 4,330 acres, 1,300 of which are privately owned by John and Corrine Matley (Valley View Ranch) and the rest being public land in the Plumas National Forest.



Alkali Flat reach on Last Chance Creek, 2005, showing one of the ponds that provided fill to plug the gully. "Last Chance verified the soundness of the technology of spreading water across a meadow," Wilcox said. "This is the tenth year we've been using this technique on different projects, but Last Chance was the first on a landscape scale, rather than a postage stamp scale." • Photos courtesy of Feather River CRM

The Matleys run 300–400 head of cattle on their 1,800-acre Valley View Ranch and neighboring US Forest Service land. "We went as far as we could dumping rocks into gullies and fencing off corridors to keep the cattle out, but none of those techniques really work all that well," Matley said.

Over the last several years, the Matleys began to keep an eye on the neighboring erosion-control projects being conducted by the CRM. They were intrigued by the CRM's process and success rate, but wary of getting involved in a large-scale project. It eventually took about a year to convince themselves to become partners in the CRM's biggest project to date.

John expressed his vision and goal for the land simply as "we just want to leave the land better than we found it." Matley explained "I didn't like the idea of tearing up the ground and having raw earth out there for a year or more because of the chance we'd get a large weather event and the damage that would do. The potential for making things worse than they already were scared me to death."

Working through that concern meant looking at a lot of the CRM's other projects and some long question and answer sessions with Wilcox. "Their concerns about a series of big storms blowing the project out before it was finished were valid, and we worked with that in mind," Wilcox said. "They were also thinking along the lines of what they were already familiar with – check dams or fencing – but through a two-year planning/scoping process they came to see pond and plug as the best option to meet their own stewardship goals for the land. They just had to get comfortable with it." 



John and Corrine Matley contributed fencing and 3-5 years of deferred and restricted grazing on restored creek areas. They were so pleased with the results of the work on their property in 2002, that they requested, and received, additional restoration work in 2005. • Photo by Will Stockwin



Construction on this reach of the Last Chance Creek project began in fall 2002. Filling the deep gully seen running parallel to the road required material taken from borrow pits that would become ponds when the water table rose. Eliminating the gully produced seven plugs (1.8 acres) and seven ponds (2.6 acres). Photo courtesy of Feather River CRM



The gully was replaced with 4,781 feet of new stream channel designed to readily spill onto the floodplain. The CRM put in 5,187 feet of new fence to protect the area from grazing cattle. This picture was taken in 2005. Photo courtesy of Feather River CRM



The project also required moving a section of county road 150 feet upslope, off the Matley's property and onto Forest Service land. The Plumas National Forest Beckwourth Ranger Station and Plumas County Department of Public Works led the road re-construction effort. Roadside revegetation was done by students from the Jim Beckwourth Continuation High School with locally collected seeds. • Photo courtesy of Feather River CRM



John Matley (far right) meets with the CRM Technical Advisory Committee (TAC) in May 2001 to finalize project plans. Landowner objectives and concerns are an integral part of project design. Other TAC members bring expertise in engineering, vegetation, and hydrology into the project design. • Photo by Will Stockwin

STRUCTURE OF THE FEATHER RIVER CRM

Local Partnerships

THE FEATHER RIVER CRM BEGAN with the Coordinated Resource Management & Planning (CRMP) process. CRMP is a voluntary, locally-led planning process that brings together all local stakeholders, both private and public, to develop common natural resource management strategies that affect their community. A “people process,” CRMP is open to everyone who has an interest in resource issues and strives to balance environmental concerns with economic and social needs at the local level. It enables government agencies, community groups, private landowners, schools, and businesses to come together on an equal footing to find cooperative solutions to conservation dilemmas.

At the Feather River CRM, governance relies on an Executive Committee that is responsible for policy guidance and dispute resolution; a Management Committee that administers projects; and a Steering Committee that reviews program status, approves new projects, and interacts with landowners. The CRM forms a Technical Advisory Committee (TAC) for each project, consisting of interdisciplinary teams of

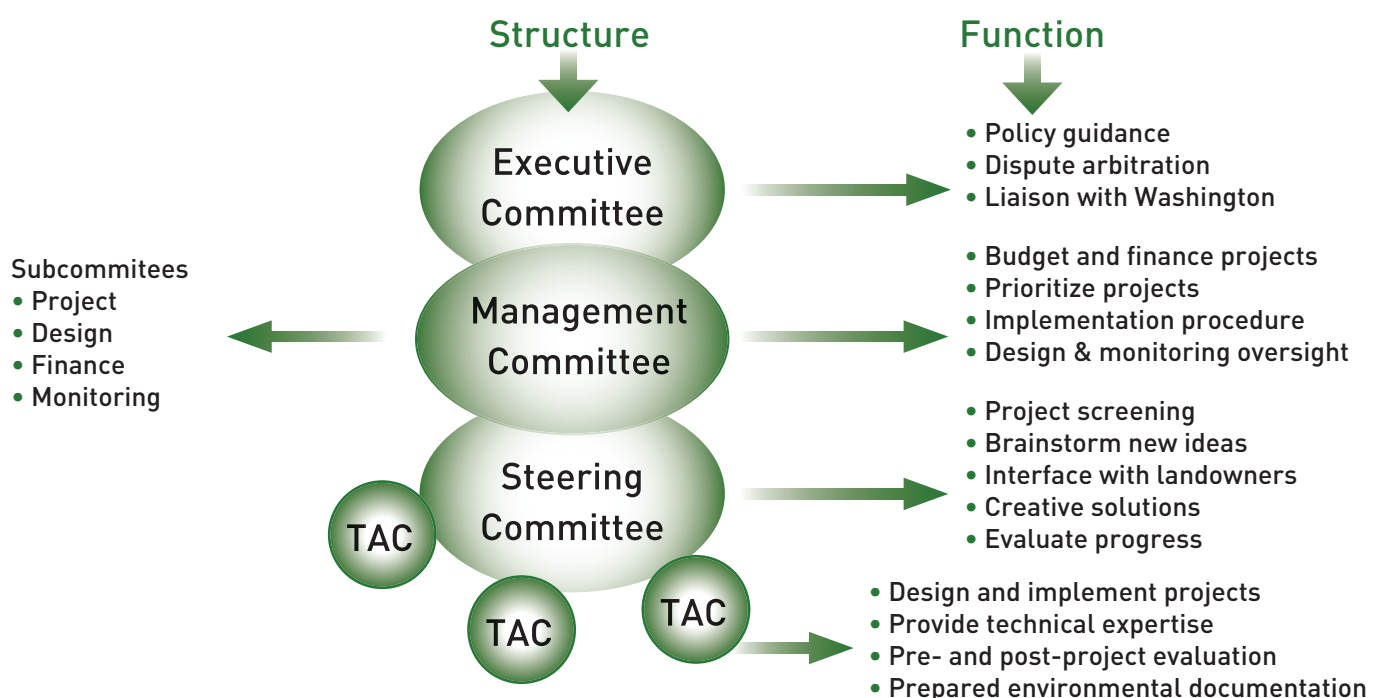
interested and qualified CRM members that provide technical guidance and oversight and develop detailed plans. CRM Members are listed in the [Appendix](#).

After becoming an official Coordinated Resource Management Planning group (CRMP), they dropped the ‘P’ because they felt it placed too much emphasis on planning, where they were more focused on actually doing projects.

“One of the reasons for our success is that everything runs through the TAC,” Wilcox said. “Project leaders work up all the data and bring it to the TAC, then we take their input plus input from the landowner and work that into an overall plan. Revisions go back through the same process.”

“Some might call it design by committee but after 15 years of using this process I’d be a lot less comfortable if I was the only one trying to figure out all the hydrologic, physical, chemical, and biological aspects of a project,” he said. “All of the perspective and experience the TAC members bring to the problem make for a much better solution in the end.”

FEATHER RIVER COORDINATED RESOURCE MANAGEMENT (CRM)



Implementation and funding requests are coordinated by Plumas Corporation, a local non-profit dedicated to economic development, increasing tourism, and watershed restoration. Landowner cooperation and participation in the CRM, facilitated by the Feather River Resource Conservation District, is critical as most of the alluvial valleys where the sediment originates is privately owned.

THE ROLE OF THE FEATHER RIVER RCD

The Feather River Resource Conservation District (RCD) plays a number of important roles in the overall CRM process.

"It's a critical check and balance against the potential of the CRM, or any of its agency partners, to run over a landowner's rights," CRM project manager Jim Wilcox said. "We also need a strong presence in the CRM to represent the landowners and encourage them to keep working with us."

He said the RCD, which can also invest in a CRM project, essentially acts as the gatekeeper for landowners wanting to bring project proposals to the CRM.

"If a landowner comes directly to us for help, the first thing we do is have them write a letter to the RCD requesting that it forward their proposed project to the CRM," Wilcox said. "That letter triggers a formal process by the CRM to evaluate and eventually adopt the project."

Government agencies do not have to go through the RCD, unless there is a private landowner's grazing lease involved in a proposed project.

"Then we have the agency go through the RCD to make sure the landowner has a voice as well," Wilcox said. "There have been times in the past when landowners haven't had a voice in USFS proposals and the agency's projects have been subsequently turned down by the CRM when the RCD refused to support them because of the agency's tactics with the landowner."

Back to Red Clover Creek

AND NOW CRM PLANNERS ARE COMING BACK TO RED CLOVER CREEK for what will be their biggest project yet. Wilcox said it will restore four miles of channel, including smaller tributaries, in just five months starting July 2006.

"The creek will be diverted into a new channel, but won't be connected to the ponds," Wilcox said, adding that this project will also be tied to the four check dams built for the CRM's original project. "That project was so important in terms of being the CRM's first one, and it holds a strong spot in people's hearts. The preferred design will submerge the lower two dams but the upper two will remain in place and functioning."

The project site is on land owned by the 7,000-acre Goodwin Ranch. Ranch manager and partner Scott Thompson is amazed by how much has changed in the twenty years since the check-dams went in at Red Clover. The on-going effect the original project is still having on the land was his main inspiration for doing this project, adding "every time I go out there I can see new things that are different."

The new project on Red Clover Creek promises to usher in another twenty years of cooperation and success on the Feather River.



Red Clover Creek, seen just below the original project, will be diverted into a new channel before the gully treatment begins. It will incorporate as many as 45 ponds of varying shapes and sizes, including "pot-hole ponds" that will provide fill material to plug 3-foot to 6-foot-wide gullies on the main creek's tributaries. • Photo by Will Stockwin

Critical Steps to Success

AFTER 20 YEARS OF PARTNERSHIP, THE FEATHER RIVER CRM continues to demonstrate the value of a locally-led, consensus-based process. The CRM's results-oriented focus has resulted in a series of successful projects on an increasingly ambitious scale that are raising the bar for watershed restoration.

VISION: The 1985 Memorandum of Understanding signed by participating CRM organizations and agencies focuses on the goals of optimizing beneficial uses of water; emphasizing education and prevention over regulation; and resolving the concerns of all participants through a consensus-based planning process.

COLLABORATION: The Feather River CRM comprises 23 public, private, local, state, and federal entities, including the US Forest Service (which administers 75% of the watershed), PG&E, Plumas County and the Plumas Corporation, a nonprofit community-development corporation. The Feather River RCD provides an important link between agencies and private landowners involved in the CRM.

RESOURCES: Since its beginning in 1985, more than \$4 million has been raised and spent on 70 projects, using funds and in-kind contributions from private utilities, landowners, government agencies, state and federal grant programs, and private donations.

PLANNING AND IMPLEMENTATION: All affected parties necessary to implement long-term restoration solutions are involved at every step of the project planning process. All project participants agree to achieve shared goals, to assist in securing project permits, and to use monitoring to document the success or failure of a restoration project.

EVALUATION: Monitoring restoration results consists of three basic components including: continuous monitoring of temperature and surface flow at eight continuous recording stations located strategically in the watershed; biannual monitoring of 21 designated reference reaches, including selected physical and biological parameters such as stream morphology, water chemistry, habitat, macro-invertebrates, and fisheries; assessment of the current state of the watershed in order to produce a "snapshot" of baseline watershed condition prior to initiating the monitoring program.

EDUCATION: FRCRM activities have led to the establishment of the first community college watershed management technician program in California at Feather River College in Quincy. Local high-school students are also gaining scientific knowledge and skills through their involvement in replanting restored areas and project monitoring.

LESSONS LEARNED

- Addressing erosion problems system-wide rather than symptomatically results in higher success rates.
- Raising the water table also makes the land more productive by restoring its natural water storage function.

INNOVATIVE CONSERVATION STRATEGIES

- The "plug and pond" technique is used to eliminate gullies. Ponds provide the material to plug the gully. Water is re-routed into existing remnant channels on the surface of the meadow. The effect of the practice raises the water table in surrounding meadows, essentially "re-watering" the meadows and improving plant growth, riparian habitats, and livestock forage.

Written by Will Stockwin.



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