

# California's Feather River Story—Surviving the Test of Time

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The Feather River Coordinated Resource Management group (FRCRM) is an alliance of 21 natural resource management agencies, local land owners, academia, public and private sector groups working towards restoration of California's Feather River watershed. Since 1985, the FRCRM has implemented over 50 restoration projects, which were planned and funded by watershed partners. Since inception, members of the FRCRM recognized the critical link between watershed condition and local economic stability, and the important role restoration plays in sustaining this balance. Building stakeholder partnerships was identified as the best vehicle to achieve restoration goals, which promoted adoption of the CRM approach.

The Feather River watershed includes 3,222 square miles of land base that drains west from the crest of the northern Sierra Nevada into the Sacramento River. Water produced from these watersheds provides over 1,400 MW of hydroelectric power, and represents a significant component of the State Water Project, annually providing 3.2 million-acre feet for urban, industrial and agricultural consumers downstream. Timely delivery of high quality water is becoming more imperative as demand increases. Restoration and maintenance of headwater systems is critical to meeting future demand since the quantity and quality of California's water supply is dependent upon the condition of source watersheds.

The Feather River watershed has been affected by 140 years of intensive human influence. Extensive mining, grazing, timber harvesting, wildfire, railroad, and road construction and maintenance have contributed to watershed degradation, resulting in accelerated erosion, sedimentation in streams and reservoirs, and degraded terrestrial and aquatic habitats. Restoration of watershed function is a key element in reversing these trends. Stable, well vegetated streams with functioning meadows, aquifers and uplands are critical to reducing erosion and modifying surface flow to reduce peak runoff and extend summer flow. Attempts to reduce erosion and modify the magnitude and timing of surface flow begin with the restoration of headwater meadows, which is the current focus of the FRCRM.

## Evolution of the FRCRM Restoration Strategy

The FRCRM restoration effort has evolved from implementing demonstration projects located mid-level in the watershed that treat sediment supply problems, to restoring the water and sediment retention and release functions in headwater reaches. After more than a decade of experience, FRCRM partners have determined that the primary channel characteristic impacting restoration goals is the disconnection of the channel from its historic functional floodplain. This channel/floodplain disconnection is pervasive throughout the upper watershed meadows and valleys due to past land management practices. Reconnecting degraded streams to their floodplain has become a major area of emphasis for the FRCRM. Though there is no "cookbook" as to when and where a given technique or combination of techniques should be used, the FRCRM has successfully used a geomorphic approach on alluvial meadow projects. One such project, Cottonwood Creek/ Big Flat Meadow, is described in the FRCRM Fact Sheet below.

The restoration approach has also evolved from a project level focus to a broader watershed scale. Historical and current watershed affects are taken into consideration in the design and implementation process via watershed analysis. In addition, emphasis has shifted from a

“project-of-opportunity” approach to a strategic approach that provides for long-term watershed maintenance in the highest priority areas at the right time. The FRCRM is also seeking to build bridges and form partnerships with academia, to apply better science to restoration projects, and better understand watershed processes.

### Activities in 1999

Current FRCRM activities include headwater meadow rewatering projects, road rehabilitation and obliteration, testing alternative land management practices, biotechnical revegetation, watershed analysis, and preparation of technical papers that document results. The FRCRM has also formed several partnerships with academic institutions to propose and carry out research projects that improve our understanding of watershed function and its relationship to restoration.

The FRCRM is also implementing a two-year pilot watershed monitoring for the upper Feather River. The program is funded through a Clean Water Act 319 (h) grant. The purpose of the program is to identify and evaluate long term trends in watershed condition resulting cumulatively from restoration activities, land management changes and natural processes. A series of permanent sampling stations and stream reference reaches have been established in 33 watershed locations, and data collection will be conducted through June 2000. The monitoring strategy is based on the Stream Condition Inventory (SCI) protocol developed by the US Forest Service, which includes geomorphologic, biologic and chemical parameters. The program will be integrated with ongoing Feather River monitoring activities conducted by federal and state agencies and the Quincy Library Group. A GIS data management system that is compatible with the Plumas National Forest system has been developed to facilitate data storage, analysis and sharing. Data will be made available via the FRCRM website in year 2000.

Two geomorphic stream restoration projects are being implemented over the next two years in the Indian Creek watershed. The project is funded by a Proposition 204 grant and seeks to reduce meadow erosion, improve fish and wildlife habitat, while maintaining a productive ranch operation. A geomorphic approach will be used to reconnect Ward Creek with its floodplain and repair the entrenched channel that now drains the meadow. Initial monitoring of similar CRM meadow projects indicates the potential for functional meadow floodplains to attenuate floods and increase summer baseflows through groundwater storage. A conversion of vegetation from less desirable dry site annuals and forbs to perennial moist meadow grasses is also anticipated.