

Case Study: Tuolumne River Trust

Watershed: Tuolumne River Watershed

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Year	Grant Program	Project Title	Watershed	Award Amount
2000-2005	CALFED Watershed Program	Tuolumne River Initiative: Developing An Integrated Plan	Tuolumne River	\$250,000
2004-2008	CALFED Watershed Program	Clavey River Watershed Assessment	Clavey River	\$774,927
2006-2009	CALFED Watershed Program	Tuolumne River Outdoor Classroom	Tuolumne River	\$201,378
2007-2010	CALFED Watershed Program	Clavey River Ecosystem Project	Clavey River	\$256,140

This case study assesses four CalFed watershed project grants received by the Tuolumne River Trust. Two grants focused on management of the Clavey River watershed, a sub-watershed of the Tuolumne and involved partners with specific interests in the Clavey. Other grants more broadly addressed issues in the lower Tuolumne watershed through the development of an integrated plan and an education program.

Tuolumne River Watershed

From its headwaters at 13,000 feet elevation in Yosemite National Park, the Tuolumne River stretches westward for nearly 130 miles to its confluence with the San Joaquin River in the Central Valley. The Tuolumne River drains a 1,900 square-mile watershed and is the largest tributary of the San Joaquin River. Historically, the river supported the largest population of wild Chinook salmon in the San Joaquin Basin. The Tuolumne River Trust played a part in obtaining *Wild and Scenic River* designation for an 83-mile stretch of the Tuolumne River, which won permanent protection in 1984. Through a system of dams and diversions, much of the Tuolumne River's flow is diverted for agricultural and municipal use in the Central Valley and San Francisco Bay area; on average only 20% is left in the river and makes it to the Sacramento-San Joaquin Delta. A range of economic activities, including the dams and diversions, have changed and impacted spawning areas for salmon, in-stream flows, riparian vegetation, and the dynamics of the river channel. Several watershed projects managed by the Tuolumne River Trust have occurred in the lower portion of the Tuolumne River, which runs through Stanislaus County and the cities of Modesto, Waterford, and Ceres, and eventually joins the San Joaquin River in the Central Valley.

Several tributaries join the Tuolumne River, including Cherry Creek, Jawbone Creek, the North Fork, South Fork, and Middle Fork of the Tuolumne River, Turnback Creek, and the Clavey River. The Clavey River is one of the longest (47 miles) remaining free-flowing rivers in the Sierra Nevada and harbors a pre-glacial population of coastal rainbow trout. The Clavey River scored a 91 out of 100 on the Sierra Nevada Ecosystem Project Report's Index of Biotic Integrity and is designated a Critical Aquatic Refuge in the Sierra Nevada Forest Plan Amendment. It is the state's first *Wild Trout Stream*, designated by the California Department of Fish and Wildlife in 1972. In 1996, the U.S. Forest service ruled that the Clavey River was suitable for *Wild and Scenic River* designation under U.S. Forest Service criteria. The Stanislaus National Forest

(STF), which owns 92% of the 100,370-acre watershed, has managed the river since 1996 as though it were designated *Wild and Scenic River* to maintain the Clavey's unique values.

Background

Founded in 1981, the Tuolumne River Trust promotes stewardship of the Tuolumne River through education, community outreach and adventures, collaboration with a diverse array of stakeholders, on-the-ground restoration projects, and advocacy and grassroots organizing to advance public support for the Trust's work. During the 1996-1997 historical weather and widespread flooding event across the northern California region, the Tuolumne River rose high above flood stage resulting in extensive flood damage. The historic flood event sparked interest among several entities in the watershed to focus activities on the river's floodplain. In 1995, local irrigation districts, the San Francisco Public Utilities Commission, State and Federal fisheries agencies, and non-governmental conservation groups reached a settlement agreement regarding the licensing of the Don Pedro Dam and dam operations. One outcome of the settlement agreement was a habitat restoration plan, which identified a suite of projects for the lower Tuolumne River. In an effort to advance restoration work on the Tuolumne and address concerns associated with the flood event, a local Congressman convened entities to form the Tuolumne River Initiative, later renamed Tuolumne River Coalition (TRC). The establishment of the group was intended to serve as a forum for stakeholders to share and discuss project opportunities (e.g., habitat, flood management, and parks and recreation) along the lower Tuolumne.¹ TRT viewed the CalFed watershed grant solicitation as an opportunity to collaboratively develop a comprehensive integrated plan. On behalf of TRC, Tuolumne River Trust drafted the CALFED grant proposal and served as the fiscal agent for the awarded grant funds to collaboratively develop the plan.

Preceding TRC's efforts in the lower watershed, Tuolumne River Trust worked with a variety of local activist groups, nonprofit organizations, and other individuals in the upper watershed to form the Clavey River Preservation Coalition (CRPC) in 1991. CRPC became an "umbrella" organization for different groups and individuals who held interests in the Clavey River watershed and shared the vision to attain *Wild and Scenic River* designation for the Clavey River. CRPC's advocacy combined with new information revealed in the Sierra Nevada Ecosystem Project (SNEP) regarding the Clavey's high biodiversity values led to the U.S. Forest Service's decision to recommend the Clavey as suitable and eligible for *Wild and Scenic River* designation. The efforts did not result in official congressional approval for the designation, however, stakeholders in the watershed continue to preserve the Clavey's Wild and Scenic values through today. Additionally, dam and hydroelectric project proposals for the Clavey River have been unsuccessful. Following the Forest Service's recommendation, STF compiled a *Clavey River Wild and Scenic River Value Review*, a synthesized report describing the Clavey River's *Wild and Scenic* values. As members of the steering committee who offered recommendations based on report's findings, the Tuolumne River Trust and CRPC proposed a collaborative process that would not only consider the Wild and Scenic River values of the Clavey, but would assess all

¹ TRC steering committee members included representatives from: City of Ceres, Friends of the Tuolumne, Inc., East Stanislaus RCD, City of Modesto, Stanislaus County Parks and Recreation, the Turlock and Modesto Irrigation Districts, the Tuolumne River Trust, the City of Waterford, San Francisco Public Utilities Commission, and the California Department of Fish and Wildlife.

values and resources in the watershed, taking into account the cumulative effects of past, present, and planned activities in the watershed. The recommendation for a watershed analysis was among the highest on the list, and in 1999, the Clavey River Ecosystem Project (CREP) steering committee formed to conduct a watershed assessment in the Clavey River watershed.

In 2004, the Tuolumne River Trust secured the \$774,927 CALFED watershed grant on behalf of the CREP steering committee to conduct the watershed assessment. Active participants in the CREP process included: Tuolumne River Trust, the Clavey River Preservation Coalition, STF, Blue Ribbon Coalition (off-highway vehicle users), the Turlock Irrigation District, and others, including interest from the Me Wuk Tribal Council. With the completion of the assessment in 2008, the Tuolumne River Trust facilitated the formation of the Clavey Watershed Council, which served as a steering committee to discuss and review assessment findings, identify priority actions for the watershed, and begin to implement select projects. This post-assessment planning and prioritization process was funded by a second CALFED watershed grant, awarded in 2007, for \$256,140 that was also managed by the Tuolumne River Trust.

2000-2005 Tuolumne River Initiative: Developing an Integrated Plan

In 2000, the Tuolumne River Trust received a grant on behalf of the TRC to develop an integrated plan in the lower Tuolumne River. In addition to developing an integrated plan, goals surrounding the grant included: 1) maintaining the coalition as a forum for coordination of projects, collaboration among entities, and individuals for support and guidance; and 2) engaging members of the community and building local networks and capacity. To accomplish the identified goals, the Coalition aimed to create a tangible integrated plan that would serve as a roadmap for project implementation in the Tuolumne River watershed, identify and clarify common goals, identify and resolve conflicts and gaps, and achieve multiple benefits by integrating existing watershed plans into one coherent plan.

Outcomes and process

Combined efforts of TRC partners resulted in the development of the “Lower Tuolumne River Parkway: A Framework for the Future” document that incorporates existing plans in the watershed and presents a “wish list” of projects to be implemented. The plan focused on the lower Tuolumne River and its floodplain, exploring ways to protect the river from urban and agricultural runoff, increase opportunities for recreational access, and increase the capacity to convey higher flows for flood management. Other tangible outcomes include the development of a TRC brochure and poster and a website. Outreach efforts resulted in gaining the interest of California State Parks, including their participation in TRC meetings. TRC held public information days and presented at community events in order to inform landowners and community members about activities in the watershed.

There is some disagreement among stakeholders concerning whether or not the report, “Lower Tuolumne River Parkway: A Framework for the Future,” was fully completed and implemented. Several stakeholders have reported that the integrated plan was completed and provided a tremendous asset to diverse interests in the watershed, noting that it has been implemented through a number of projects and continues to be a relevant resource to leverage additional grant funds for the watershed. The same stakeholder noted that the plan was successful in acquiring

parcels of land for developing parks and implementing other recreation projects along the lower Tuolumne floodplain. Stakeholders who disagree with the plan's effectiveness say the integrated plan efforts "just died," and fell short of enhancing projects and improving community awareness, a sentiment likely representative of contention within the group, which eventually contributed to TRC's dissolution in 2006.

Group contention was addressed through a third-party facilitator, contracted by the Tuolumne River Trust. Preceding the CalFed grant, facilitation involved stakeholder groups "passing around the lead" and dividing tasks among each other. After a year of dividing facilitation tasks, Tuolumne River Trust assumed the facilitation role by first employing a staff member as facilitator then eventually hiring and hosting a consulting facilitator. Informants expressed conflicting perspectives concerning the neutrality and biases of the facilitator. Some characterized the facilitator as "neutral," noting that neutral facilitation contributed to strengthening TRC's focus on their vision. Others called out a lack of facilitator neutrality, including the presence of biases toward the hosting organization, and an absence of a consensus-based process. One informant reflected that the process of passing around the facilitation lead was a preferred method and balanced the roles of participating entities, but it did not have enough time to demonstrate its effectiveness. Disagreements about the facilitation process echoed conflicts surrounding internal individual personality clashes and competition in the larger context of the watershed, underlining the need to develop relationships and trust between members of the collaborative group. Some informants suggested that staff turnover within participating stakeholder organizations and agencies contributed to the dissolution of TRC; however, findings reveal that a number of variables likely contributed, including, as one stakeholder stated, "exhaustion" to continue meeting beyond the achievement of completing the plan.

2006-2009 Tuolumne River Outdoor Classroom

In 2006, the Tuolumne River Trust received a CALFED watershed grant to increase watershed management capacity, implement a watershed education curriculum, and implement education projects outlined in the "Lower Tuolumne River Parkway: A Framework for the Future" document. Long-term objectives for the grant included: 1) educate students, teachers, and the public about the health of the Tuolumne River and the importance of the river as a local resource and 2) provide opportunities to school communities to participate in restoration and conservation activities and service-learning projects along the Tuolumne River while also developing a foundation for ongoing support and future stewardship of the river. Specific goals involved teacher trainings, in-class learning sessions, river field trips and tours, service-learning projects, museum exhibits and presentations, and utilizing the Trekking the Tuolumne curriculum.²

Outcomes and process

CalFed funding provided critical support for the expansion of the Tuolumne River Trust's outdoor youth program. The grant funds enabled TRT to achieve number of outcomes that

² Trekking the Tuolumne is a 4th-6th grade curriculum program focused on water issues. The CalFed grant supported the implementation of the Trekking the Tuolumne curriculum, which was developed prior to the grant award.

exceeded anticipated goals as outlined in the grant proposal. Activities and accomplishments included training 96 classroom teachers and after-school program staff, completing 240 in-class learning sessions in each of 42 schools, leading 44 river trips and 41 tours, engaging 4,000 fourth-grade students in the Trekking the Tuolumne program and 17,550 elementary students through tours of the Tuolumne River Watershed Exhibit at the Great Valley Museum and other school-wide service learning projects. In addition, the program reached an additional 11,546 community members through “Trekking the Tuolumne” curriculum activities. With support from the grant, outdoor classrooms grew from one to six. The outdoor classroom model was adapted to three other watersheds (Mokelumne, Stanislaus, and San Joaquin) and was later expanded into a larger “Waterways” program, encompassing all grade levels. The Waterways program remains active today, and engages students from the lower Tuolumne River to the San Francisco Bay.

One of the school sites, Salida Elementary, won the California Golden Bell Award for Excellence in Science for their work with the Trekking Program. Tuolumne River Trust staff presented the program to a Bioneers and River Management Society conference, the Stanislaus County Board of Supervisors, and the Rotary and Teacher Education Summits. Throughout the grant period, the Tuolumne River Trust was able to secure additional funding from the Environmental Protection Agency (EPA), Modesto Irrigation District, and the California Coastal Commission’s Wale Tale program to support the continuation of education programs.

Despite these successes, stakeholders noted multiple obstacles specific to education program implementation. Among the challenges discussed, state budgets and mandates were perhaps the primary obstacle to maintaining the momentum of education programs. The success of education programs is contingent on student and teacher participation, therefore apprehension regarding school funding, test performances, time constraints, and a general lack of confidence working with youth outdoors might lessen school participation. State budget cuts and mandated curriculum and performance standards can create challenges in recruiting new schools and maintaining participation of those already involved. One informant noted that during her involvement with the Tuolumne River Trust’s outdoor education program, many school sites lost funding for field trips and discontinued the Trekking program. School participation is also impacted by the school board’s directive that schools tagged for academic improvement may not be permitted to participate in enrichment programs, such as the Trekking program. As a result, in this case, many disadvantaged or underserved schools did not have the opportunity to participate.

2003-2008 Clavey River Watershed Assessment

On behalf of the Clavey River Ecosystem Project (CREP) steering committee, the Tuolumne River Trust received and managed a CALFED grant that supported development of a watershed assessment for the Clavey River, providing a basis for desired long-term protection and management of the watershed. Goals of the assessment included: 1) determine existing conditions in the watershed, 2) define desired future conditions of the watershed, 3) identify and prioritize projects and management actions to move the watershed to the desired future condition, and 4) build community capacity to understand and participate in management of the Clavey. Grant objectives included: 1) facilitate and improve coordination, collaboration, and assistance among government agencies, other organizations, and local watershed groups; 2) develop watershed monitoring and assessment protocols; 3) support education and outreach; 4) define the relationships between watershed processes and the goals and objectives of the

CALFED Program; and 5) implement a strategy that will ensure support and long-term sustainability of local watershed activities.

Outcomes and process

Combined efforts of the CREP steering committee and project partners resulted in a scientifically robust watershed assessment for the Clavey River watershed. The assessment outlined existing and desired conditions categorized in three dimensions: aquatic, terrestrial, and socio-cultural. A range of indicators were assessed to determine conditions, including measures associated with recreation, hydrology, forestry, fisheries, wildlife, fire, and aquatic species. Data collection, vegetation mapping, and data analysis elements were contracted to STF, which conducted majority of the assessment and increased the technical capacity of CREP. Tuolumne River Trust's Sierra Nevada Program director managed the project and administered the grant, and consultants from Sierra Connections, Breeze-Martin Consulting, and Pacific Management Consultants were contracted for facilitation, public outreach, and education.

Outreach efforts resulted in an increased number of people active in CREP processes, including participation from seven new organizations in the assessment process. Monthly CREP meetings enabled collaboration among key project partners. Forest Service staff attended 33 out of 36 CREP meetings, which contributed to a process and results that were reflective of Forest Service goals. Outreach consultants organized four public outreach events to gather input on assessment elements and to review draft reports as they became available. Through formal interview process, the outreach consultants collected input and recommendations to be incorporated in the assessment from twenty-three interested community members. With a supplemental grant from Sonora Area Foundation, outreach consultants produced a documentary titled, *Clavey Reflections*, which was made available online and presented information about the Clavey River watershed and assessment goals. Additionally, all landowners in the watershed were notified about the assessment, and those interested were added to a mailing list to receive updates and additional information.

The CREP Steering Committee formed a Science Review Team to review assessment reports and make suggestions, a process taken to ensure scientific credibility. The Science Review team was comprised of individuals from the U.S. Forest Service's Pacific Southwest Research Station and Adaptive Management Services Enterprise Unit, California Department of Fish and Wildlife Game (now Department of Fish and Wildlife), Sierra Nevada Research Center, Wildland Resource Management, and McBain and Trush, Inc. The Review team provided strong peer reviews for the fire and fuels, wildlife, recreation, hydrology, and amphibian sections of the assessment. Informants noted that a less thorough peer review was given for the vegetation and fish sections. Overall, STF representatives, the CREP Science Review Team, and local scientists and experts expressed confidence in the quality and usefulness of the data contained in the assessment. Though partners agreed on the usefulness of the data, some disagreed on the process of translating assessment findings to management recommendations and implementation.

Due to difficulties with contracting, the Forest Service absorbed project costs for their first year of work. As a result, project spending came in under budget. Following the completion of the assessment in 2007, CREP partners and the Tuolumne River Trust secured a second grant through the CALFED Watershed program to develop a Clavey River Watershed Action Plan.

2007-2010 Clavey River Ecosystem Project

In 2007, Tuolumne River Trust was awarded a CALFED watershed grant on behalf of the CREP steering committee to develop a Clavey River Watershed Action Plan. The action plan built upon the Clavey River Watershed Assessment, creating a framework for identifying and implementing high-priority, stakeholder-supported projects. The major goal of the grant was to engage a collaborative stakeholder process to develop a list of recommended actions based on the Clavey Watershed Assessment, begin implementation of identified priority projects, and increase stakeholder involvement in the development and implementation of the action plan.

Outcomes and process

Using data from the watershed assessment and incorporating diverse input, CWC identified a wide range of recommended projects that addressed multiple goals from interest groups, including cattle, timber, restoration, and recreation perspectives. Around the completion of the Watershed Action Plan, the State's budget freeze in 2009 disrupted grant funding, impacting Tuolumne River Trust's capacity to provide facilitation for CWC. As a result, momentum around implementing the recommended projects slowed and STF's priorities shifted. Informants noted that at least two meadow restoration "demonstration" projects identified in the action plan were implemented using funds from Sierra Nevada Conservancy's Rim Fire recovery grant program.

Key Findings

Since its formation, the Tuolumne River Trust has advanced watershed improvement initiatives such as working with collaborative groups to develop management plans and advancing outdoor education programs throughout the Tuolumne River watershed. As observed in the four projects supported by the CalFed Watershed Program, processes that prioritized partnership building and adaptability have yielded long-lasting and wide-reaching impacts. Among these impacts, stakeholders considered the highest achievement in outcomes that represented diverse stakeholder perspectives, demonstrated balanced partner outreach, spawned additional initiatives, and extended beyond the terms of the grant to continuously impact the watershed and people who live and work in it.

The outdoor classroom project remains active today and continues to expand internally and externally as TRT's model has been adapted to watersheds beyond the Tuolumne. Although different in nature from the three projects focused on management plans, the outdoor classroom project shared similar processes and challenges, particularly related to work with partners. The success of the outdoor classroom program strongly relied on the continuous buy-in from the school board and individual schools to ensure consistent student participation and supplemental funding for transportation and other costs. With adequate outreach and creative demonstrations from the Tuolumne River Trust, school board partners and teachers realized the importance of engaging students in outdoor classroom, resulting in the program's continued growth and evolution into a more robust and comprehensive Waterways Program. A worthy investment of the outdoor classroom project involved teacher trainings, which built the technical capacity of the program, increased teacher expertise and confidence, and improved the likelihood of the program's longevity. Outdoor classroom activities have grown to be a primary program area for

the Tuolumne River Trust, and several stakeholders have noted that CalFed funding provided essential “seed” funding and initiative to increase momentum of the program.

Efforts in the Clavey River watershed centered on collaboratively developing a scientifically robust management assessment and stakeholder-supported action plan. Such deliverables met the immediate objectives of the grants; however, a number of obstacles, including challenges with varying capacity of partners, partner turnover, and effective dissemination complicated the longevity of outcomes stemming from the plan. The primary landowner in the Clavey River watershed and a major partner of the Clavey River assessment was the U.S. Forest Service, which commonly lacked capacity to implement forest and watershed projects at a desired pace and scale. This challenge is especially underscored when the development of a grant-funded plan relies on the Forest Service budgets for implementation. Limited capacity, budget changes, and frequent staff turnover within the Forest Service resulted in a plan that was minimally implemented and eventually landed on a shelf. Stakeholders also attribute the plan’s shelf life to a lack of outreach regarding the plan’s completion to interests outside of the collaborative group, particularly considering challenges with information sharing in rural areas.

Despite the challenges with dissemination and implementation, developing the Clavey River assessment and plan was an inclusive collaborative process. Stakeholders commended the robust collaboration of entities in the Clavey River watershed and the incorporation of science in the production of the plan. Not all collaborative efforts, however, smoothly move through this process, and at times experience contentious bumps in achieving objectives. As seen in this case, effective collaboration is contingent on many factors, one being the makeup of group personalities and compatibility of individual objectives. In the Tuolumne River Initiative project, numerous stakeholders alluded to the clash of individual personalities in the collaborative group as a primary inhibitor of the group’s ability to seamlessly produce an integrated plan. While the plan was completed, objectives were met to the extent that only some stakeholders benefited and were able to utilize the plan to acquire grant dollars to implement projects while others seemingly lacked knowledge about the plan’s utility and failed to benefit. The failure to unanimously implement the plan was likely a result of frayed relationships as well as staff turnover within the entities involved with its development. Persistent frayed relationships reveal that trust was never completely established among group members owing to imbalances with facilitation and partisan personalities of the group. In light of the unsettled outcomes surrounding the integrated plan and the need to incorporate more habitat improvement projects, some stakeholders expressed the desire to revisit the process and develop an updated Lower Tuolumne Parkway plan.

Appendix A. Methods

This case study is informed by a review of available grant documents and seven phone interviews conducted by two researchers. Interviews were conducted over a timespan of many months due to a slow and challenging process to find updated contact information for individuals involved with the grants.

Appendix B. Participants

Representatives from:

Tuolumne River Trust (current and former staff)
East Stanislaus Resource Conservation District
Central Sierra Environmental Resource Center

Appendix C. Available Grant Documents

Tuolumne River Trust	Individual Grant Proposal	Catalogued Description	Annual Update(s)	Individual Final Report	Catalogued Report	Other
Tuolumne River Initiative: Developing An Integrated Plan		x				
Clavey River Watershed Assessment				x		
Tuolumne River Outdoor Classroom				x		
Clavey River Ecosystem Project				x		