

MokeWISE Program Scope of Work:
Project 1f: Riparian Restoration Program – Below Camanche Reservoir

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Problem Statement and MokeWISE Stakeholder Interests

Water users, water purveyors, local landowners, resource managers and environmental groups who use, manage and enjoy the lower Mokelumne River have a common interest in sustaining a productive and robust salmon, steelhead, and resident trout fishery in the river. Beyond a direct interest in maintaining aquatic health to avoid the need for regulatory action, many of these entities share the value that the fishery and its aquatic environment are intrinsically positive and an enhancement of life.

The juvenile lifestage of both salmon and steelhead/rainbow trout is widely believed by resource managers of the Mokelumne River to be their most vulnerable lifestage. Riparian, upland, and channel improvements in the lower Mokelumne River watershed can help improve juvenile survival by providing both cover and edgewater habitat.

The Riparian Restoration Program below Camanche Reservoir will support the implementation efforts of the Lower Mokelumne Watershed Stewardship Plan, which analyzes and addresses riparian restoration needs. The program will study and evaluate potential areas for restoration below Camanche Reservoir, with a focus on the area from the base of the Camanche Dam to the confluence of the Cosumnes and Mokelumne Rivers.

The San Joaquin County Resource Conservation District convened a stakeholder group in 1999 now known as the Lower Mokelumne River Watershed Stewardship Steering Committee. Committee members and participants (including USFWS, CA Dept. of Fish and Wildlife, EBMUD, USDA NRCS) have already conducted an evaluation of watershed conditions, conducted habitat restoration and monitoring activities, and worked with other agencies and organizations to develop integrated projects with the goal of restoring multiple riparian functions, which could include habitat, floodplain function, and improved groundwater recharge.

Using previous efforts as a guide, this project seeks to build on the successful template for ecosystem-based watershed restoration efforts including the continued encouragement and implementation of voluntary restoration and monitoring activities. Implementation could be scaled or conducted in phases depending on funding availability.

Costs for this project are estimated to be \$100,000 for the study, evaluation, and permitting, and \$8,000 per acre restored. Per acre restoration costs are subject to volatility due to factors including non-native invasive species removal, construction of levee setbacks, and the need to pay prevailing wage for all projects where public dollars are used to fund any part of a project. Substantial additional funds will be needed to comply with all required state and federal environmental documentation and permitting.

The study should assess the degree to which project(s) would impact individual private properties in advance of implementing projects. Because this would involve working within

the floodplains, the projects should be implemented in coordination with the local flood control district. The project(s) would only proceed with the participation and voluntary involvement of willing landowners.

Background Information

Reference Programs

According to SJCRCD, the Lower Mokelumne River Watershed is approximately 80 square miles in size, which is roughly 50,000 acres. The Lower Mokelumne Watershed is located below Camanche Dam, and has historically been deteriorated by mining operations and other anthropogenic activities. The stewardship plan outlines riparian restoration needs through various implementation programs (SJCRCD 2002). The riparian restoration programs are variable, and include the following types of activities:

- Replacing non-native species by re-establishing native plants
- Educating local residents, students, and others about the importance of restoration and native functions of the watershed
- Improve water quality on agricultural or rangelands

Given the large and variable nature of potential restoration efforts in the Lower Mokelumne River Watershed, SJCRCD received a Proposition 50 Grant in 2005 from the State Water Board (Agreement # 04-115-555-0) for work that included the development of a strategic framework to identify and prioritize riparian habitat restoration, enhancement, and protection projects. As a result of this work, SJCRCD in early 2008 released the Lower Mokelumne River Conservation Handbook. The Handbook included a weighted restoration ranking criteria, a list of possible restoration activities and practices, and a guide for individual landowners to conduct an initial assessment of their properties for habitat restoration/enhancement potential.

Under terms of the grant agreement, SJCRCD convened a group of federal and state wildlife agency members, local wildlife interests and local landowners to identify and rank natural resource challenges in the watershed which served as the basis for the ranking criteria. The weighting factors for individual projects includes priorities of funding programs, bonds and/or entities in order to ensure the greatest chance for success when seeking project approval and funding.

Project Information

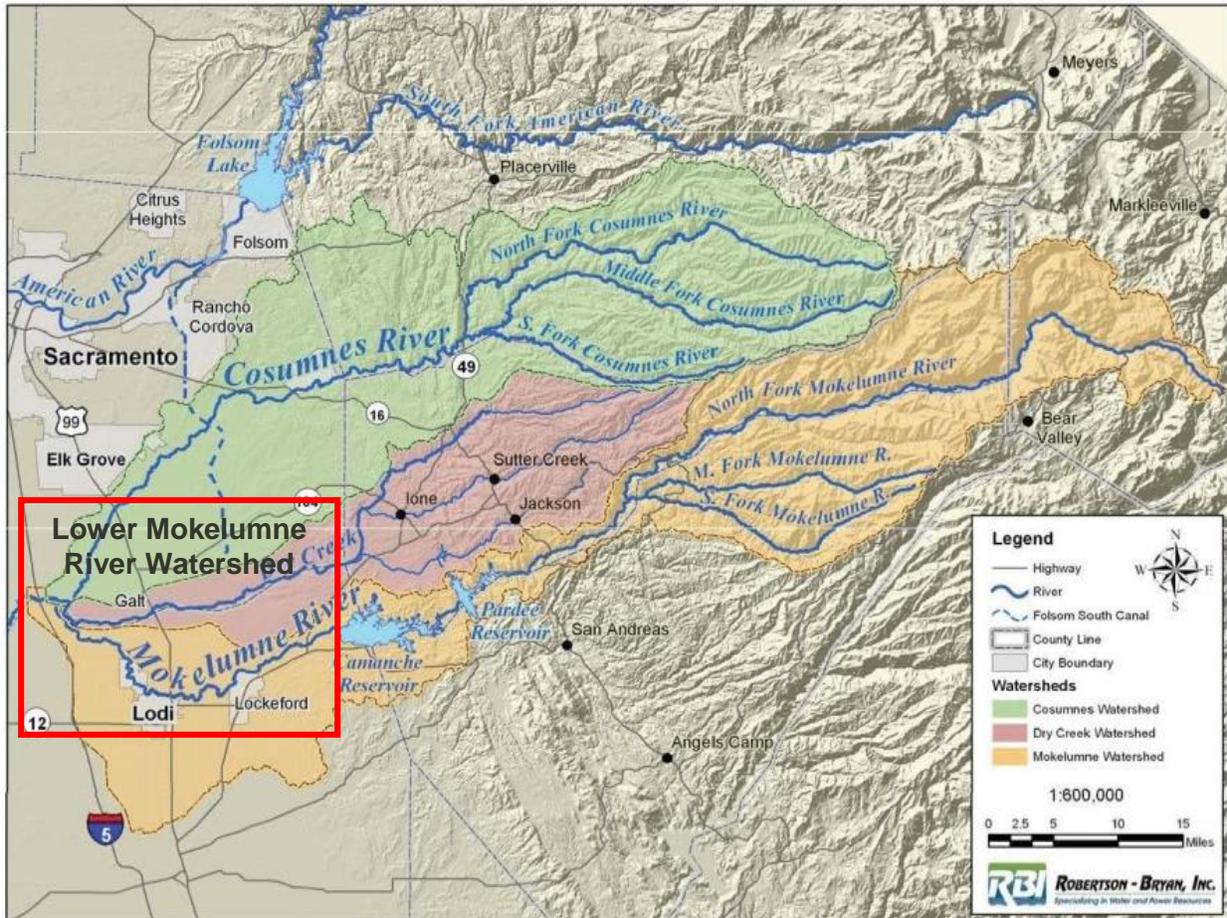
Project Description

The purpose of this project is to support the implementation efforts of the Lower Mokelumne Watershed Stewardship Plan, which analyzes and addresses riparian restoration needs. Specifically, the project will include studying and evaluating potential areas for restoration below Camanche Reservoir; in total, it is anticipated that 50 acres of land will be restored. Restoration efforts, while site specific, must include working with willing landowners. Potential actions include: to create set back levees, re-configure side channels and/or increase riparian buffer areas to maximize available habitat for salmonids. Restoration could also restore floodplain function and promote groundwater storage. Restoration efforts could be scaled or conducted in phases depending on funding availability.

Project Location

Restoration efforts would focus on the area that is known as the Lower Mokelumne River Watershed, which ranges from the base of the Camanche Dam to the confluence of the Cosumnes and Mokelumne Rivers (see **Figure 1**). This watershed is also referred to as the Lower Cosumnes-Lower Mokelumne Watershed by the United States Environmental Protection Agency (SJCRCDD 2002).

Figure 1: Lower Mokelumne River Watershed



Source: Robertson-Bryan, Inc. 2006.

Project Sponsor

San Joaquin County Resource Conservation District (SJCRCD) would serve as the lead, the Foothill Conservancy would be a co-sponsor.

Scope of Work

Of the estimated 50,000 acres within the Lower Mokelumne River Watershed, this project aims to restore approximately 50 acres. It is important to note that unlike many watersheds in the state of California, most of the land in the Lower Mokelumne Watershed is privately owned. Therefore, the cooperation of willing landowners is vital to any successful habitat enhancement/restoration program. Due to the limited nature of restoration compared to the

size of the watershed, the first step will be to conduct landowner outreach and determine funding availability.

Task 1. Convene Stakeholder Group

In order to ensure success of the project, it is necessary that a stakeholder group be formed to include all interested parties and stakeholders, including interested members of the Lower Mokelumne River Watershed Stewardship Planning Committee and the former Mokelumne Collaborative Group (MCG). It is recommended that this group be convened at the outset of the project to discuss its purpose, solidify project goals and objectives, and guide implementation efforts.

Task 2. Conduct Outreach

To facilitate successful projects, strategic outreach to appropriate partners and applicable landowners is critical. This task can include reaching out to a number of organizations such as the Lower Mokelumne River Stewardship Steering Committee, Farm Bureau, UC Cooperative Extension, Lodi Winegrape Commission, NRCS and Sustainable Conservation. This can occur in many different forms, from attending meetings, to featuring articles in their publications, to distributing applicable information to their members, to meeting one-on-one with interested parties. Through the SJCRCD's relationships with these organizations and local landowners, potential projects and/or interested landowners can be identified. Further, outreach events can be held if deemed necessary to promote potential restoration opportunities.

One key resource to utilize within any outreach effort is the cooperation of local landowners who have already conducted habitat restoration activities or are in the process of restoring habitat. There are multiple locations in the watershed where habitat restoration projects have been completed and landowners are willing to host field days to show their peers how habitat restoration can coexist with or even complement and assist components of their overall farming operation (i.e., integrated pest management).

Task 3. Assess Watershed Condition

SJCRCD completed a study titled the *Historical Assessment of the Ecological Condition and Channel Dynamics of the Lower Mokelumne River: 1910-2001*, which provides a detailed understanding of past riparian functions in the watershed (SJCRCD n.d.). Because this study includes information about past riparian functions of the watershed, it should be used as the basis for assessing the current condition of the watershed. It is possible that this study has outdated information, and should therefore be updated to ensure a complete and current condition assessment of the watershed is available.

Task 4. Establish Restoration Goals

Once a working understanding of the watershed is attained, restoration goals should be established and prioritized in consultation with the stakeholder group. It is anticipated that these goals will focus on the potential (past) riparian functions of the watershed, and will also include a prioritization of the riparian functions that are most important to restore. Additional goals may include restoring floodplain function and promoting groundwater storage.

Task 5. Develop Integrated Projects

The next task will be to develop a suite of integrated restoration projects, each of which, when implemented, would restore multiple riparian functions identified in Task 2. It is anticipated that the stakeholders convened as part of Task 1 will be involved in identifying the integrated restoration projects. Projects could include creating set-back levees, re-configuring side channels and increasing riparian buffer areas.

Depending upon funding available, it is possible that the group will need to prioritize projects for implementation. The group should use the prioritized riparian functions as the basis for this prioritization, and prioritize projects that maximize restoration of priority riparian functions.

Task 6. Implement Integrated Restoration Projects

Once the integrated projects are developed, each project should be implemented in accordance with final environmental, design, and permitting stipulations. Implementation could be scaled or conducted in phases depending on funding availability.

Task 7. Conduct Monitoring

Per information from the USDA, project monitoring is critical to both understand if riparian functions are being restored and also learn lessons about restoration that can be applied to any future prioritization and implementation processes.

Numerous studies indicate that neo-tropical migrant songbirds are the first to respond to habitat restoration enhancement. Previous projects utilized Point Reyes Bird Observatory (now Point Blue) to conduct monitoring, and their activities were paid for by grant funds as part of the overall project. If a landowner enrolls in the programmatic safe harbor agreement established watershed-wide for Valley Elderberry Longhorn Beetle, additional monitoring will be conducted as a part of that agreement.

Budget

The budget for this project is dependent on the number of acres restored and the specific restoration needs of each site. Costs are estimated to be \$8,000 per acre restored. Costs associated with the project are broken out as follows:

- Study, Evaluation, and Permitting: \$100,000
- Implementation: \$8,000 * number of acres restored
 - Total cost is variable and dependent on the total number of acres to be restored and other needs including the extent of non-native invasive species removal or engineering for levee set back work.
 - Permitting can be a substantial additional cost, and previous experience indicates it takes an inordinate amount of time for all final permits to be secured. While a CEQA categorical exemption can be secured for most small scale restoration projects, all projects involving levee set-backs will require a more thorough evaluation. And, any vegetation removal/replacement in the 100 year flood plain will require a CA Flood Protection Board/County Public works permit which at minimum require engineering diagrams and in most cases a full hydrologic study.
- **Total Project Costs: \$100,000 + \$8,000 * number of acres restored**

References

San Joaquin County Resource Conservation District (SJCRCDD). N.D. Special Studies.
Available at: <http://sjcrdd.org/programs/hstmk.htm>

San Joaquin County Resource Conservation District (SJCRCDD). 2002. Lower Mokelumne River Watershed Stewardship Plan. Available at: <http://sjcrdd.org/articles/MokP.pdf>

United States Department of Agriculture (USDA). 2011. Watershed Condition Framework.
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http://www.fs.fed.us/publications/watershed/Watershed_Condition_Framework.pdf