# ATTACHMENT B
# CONSULTATION RECORD

# APPENDIX B
# AGENCY CONSULTATION RECORD DOCUMENTS

From: Patrick Koepele <patrick@tuolumne.org>
Sent: Wednesday, May 18, 2011 6:34 PM
To: Devine, John; Craig, Nancy
Cc: Stephen_Bowes@nps.gov
Subject: Lower Tuolumne River Parkway
Attachments: Parkway Framework.pdf

As requested, I am attaching a copy of "The Lower Tuolumne River Parkway: A Framework for the Future."

Please note this was developed through a collaborative effort which included the districts.

I request that you let the broader group know that you have received this document. I would have sent it to the group email list, but didn't want to clog inboxes with a large file. It would probably be useful to have on the Don Pedro website.

Also, the NPS is leading an effort to develop a lower Tuolumne Boat Trail. I believe Stephen Bowes at NPS could provide additional information.

Thanks,
Patrick

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Patrick Koepele
Deputy Executive Director
Tuolumne River Trust
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# The Lower Tuolumne River Parkway

*A Framework for the Future*

# The Lower Tuolumne River:

## *A Framework for the Future*

April 2005


*www.tuolumnerivercoalition.org*

*Prepared by*
***Tuolumne River Coalition:***
City of Ceres
City of Modesto
City of Waterford
East Stanislaus Resource Conservation District
Friends of the Tuolumne, Inc.
Modesto Irrigation District
San Francisco Public Utilities Commission
Sierra Club, Yokuts Group
Stanislaus County Parks & Recreation
Tuolumne River Regional Park
Tuolumne River Trust
Turlock Irrigation District

***Environmental Planning Consultant:***
Moore Iacofano Goltsman (MIG), Inc.
Berkeley, California

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## WHO WE ARE

The Tuolumne River Coalition ("Coalition") formed in the autumn of 2000 to act as a forum for local organizations to discuss and promote a variety of restoration and recreation projects in the Lower Tuolumne River corridor. The Coalition is a voluntary, local group that represents a balance of interested and affected persons and entities, including local agencies, non-profit organizations, individuals and property owners, as well as cooperating federal and state agencies. The Coalition has come together to develop the Lower Tuolumne River Parkway, and its members will continue to act as the steward of the Parkway.

## THE LOWER TUOLUMNE PARKWAY

The Lower Tuolumne River Parkway is a mosaic of projects that combines private and public enhancement activities to provide habitat and public use opportunities. Together, existing projects of individual Coalition members include over 28 river miles and over 1,500 acres in the Parkway. These diverse projects incorporate elements such as water quality improvement, floodplain management, access and recreation facilities enhancements, riparian habitat restoration, education, and stewardship.

The Coalition's vision for the Lower Tuolumne River Parkway is grounded in sound ecological principles, sensible design approach to park development and river habitat enhancements, and a significant interest in enhancing public interaction in the outdoor environment through diverse recreation and open space opportunities, while respecting current development and private lands.

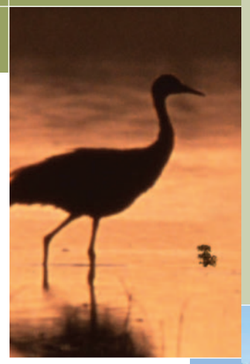
The Lower Tuolumne River Parkway is a vibrant, healthy river corridor providing multiple community benefits.

### Tuolumne River Coalition Common Goals

- Enhance, protect and restore habitat that supports natural resources and river function consistent with the Habitat Restoration Plan for the Lower Tuolumne River Corridor
- Extend and protect open space along the river
- Expand and enhance public access and recreational opportunities where appropriate
- Protect the floodplain from intensive development
- Respect existing development, land ownership and water supply uses
- Support and develop riparian buffers
- Provide flood management benefits
- Enhance water quality
- Build upon and integrate existing plans relevant to the Lower Tuolumne River
- Support the development of a mosaic of public and private projects and programs
- Increase river-focused educational programs

## TOOLS FOR MOVING FORWARD

The development of the Framework for the Future is a major accomplishment, but only the first in a long series of steps necessary to turn the vision of the Lower Tuolumne River Parkway into a reality.



In order to narrow the gap between the present reality and the future of the Lower Tuolumne River Parkway, the Coalition must also focus attention on **funding opportunities** from local grants, state propositions and federal appropriations; **organizational development** to continue to strengthen and define the role of the Tuolumne River Coalition; **scientific and technical studies** to support the development of information and resources and to analyze the impacts and benefits of the Lower Tuolumne River Parkway; and compiling **best management practices** on issues such as water quality management, floodplain management, recreation and other elements affecting the river.

The Framework must continue to align with the Coalition's mission and vision, contribute to the multi-objective development of the Lower Tuolumne River Parkway, and support Coalition activities and efforts. The Coalition will establish protocols for periodic updates to the Framework and the prioritization of strategies and action steps. As a primary tenet of its work, the Coalition will continue its efforts in fostering the involvement of stakeholders and the public.

Our actions and ability to work collaboratively will determine the future health of the Lower Tuolumne River, the communities it supports, and the habitat at its banks. It is critical that we build on past successful projects and continue to integrate recreation and habitat restoration with a clean and abundant water supply—ensuring a reliable water source for farmers and developed communities in the region, as well as a thriving ecosystem to support all those that grow, live or recreate along this truly spectacular natural resource.

Tuolumne River Coalition

**Coalition Steering Committee Members**

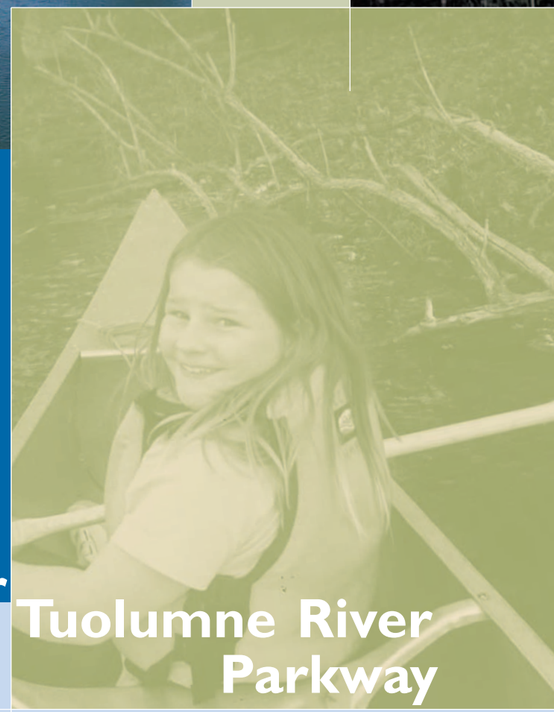
City of Ceres
City of Modesto
City of Waterford
East Stanislaus Resource Conservation District
Friends of Tuolumne, Inc.
Modesto Irrigation District
San Francisco Public Utilities Commission
Sierra Club, Yokuts Group
Stanislaus County Parks and Recreation
Tuolumne River Regional Park
Tuolumne River Trust
Turlock Irrigation District

**Environmental Planning Consultant**

Moore Iacofano Goltsman (MIG), Inc.

For more information and to get a copy of the complete document, "The Lower Tuolumne River Parkway: A Framework for the Future," please visit our website:

**www.tuolumnerivercoalition.org**



# The Lower Tuolumne River Parkway

*A Framework for the Future*

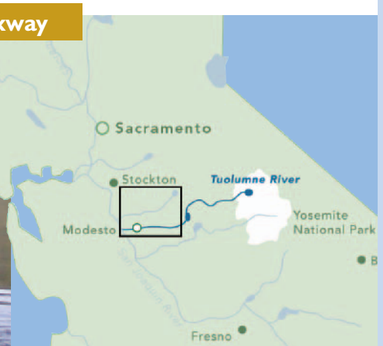
**The Lower Tuolumne River is one of the most significant natural resources in California's Great Central Valley. A jewel of the region, the river spills from the foothills of the Sierra Nevada** and flows through 52 miles of varied watershed, exceptional wildlife habitat and recreational areas. The river provides water for farmers and municipal water supplies and electricity for communities in the local area. Thousands of Chinook salmon return each fall to spawn on the lower river, which supports many wildlife and plant species, including Swainson's Hawk, San Joaquin Valley Kit fox, rare and threatened willow, cottonwood, and other hardwoods. A critical natural resource, the Lower Tuolumne River is one of the larger river systems in the region.

*The Lower Tuolumne River Parkway: A Framework for the Future* is intended to support, enhance and encourage a concurrent planning process for the Lower Tuolumne River that will ensure the health of this important ecosystem. Drafted by the Tuolumne River Coalition, the aim of the Framework is to facilitate greater cooperation and involvement in the future of this magnificent river. The Framework will be a guiding document for the Coalition as it works in partnership with other stakeholders to develop the Lower Tuolumne River Parkway.

The Framework, funded by the California Bay Delta's (CALFED) Watershed Program, focuses on four key tasks:

- **Provide documentation of Parkway projects** and other Coalition activities and accomplishments
- **Analyze existing plans and reports** concerning the Lower Tuolumne River and its floodplain to identify shared goals and potential conflicts across policies
- **Identify strategies and actions** to meet the multi-objective goals of the Coalition
- **Develop implementation actions** that facilitate the Coalition's coordination of multiple projects along the river

## The Lower Tuolumne River Parkway




### A Multi-Objective Approach

As of this publication, the current projects of the Tuolumne River Coalition and its cooperating agencies include:

1. San Joaquin River National Wildlife Refuge Expansion
2. Dos Rios Working Landscape
3. Shiloh Fishing Access
4. Grayson River Ranch Restoration
5. Big Bend Habitat Restoration
6. Riverdale County Park
7. Tuolumne River Regional Park
8. Ceres River Bluff Regional Park
9. Special Run Pools 9 and 10
10. Fox Grove County Park
11. Waterford Percolation Pond Restoration
12. Waterford Urban River Park
13. Gravel Mining Reach Habitat Restoration, Phases I – IV
14. Bobcat Flat Floodplain and Channel Restoration
15. La Grange Regional Park
16. Fine Sediment Reduction and Spawning Gravel Additions
17. Basso Bridge County Park

## CURRENT PLANNING EFFORTS ALONG THE RIVER

Current projects underway along the Lower Tuolumne River highlight both the opportunities and the challenges inherent in creating a river corridor that will support populations of native plant and animal species while connecting people to nature through recreation, open space and educational opportunities. The development of a thriving Lower Tuolumne River Parkway will be an on-going task.

In addition to supporting current projects, the Coalition conducts fundraising activities, including meeting with legislators; outreach activities, including stakeholder interviews and community workshops, meetings with state and federal representatives, and project tours and canoe trips to increase awareness of the river; community and volunteer events; policy collaborations; and continued collaborations with cooperating agencies and private companies.

In the Framework for the Future, the Coalition has conducted an inventory of over 40 plans, reports and studies relevant to the Tuolumne River and its floodplain in order to identify shared goals, potential conflicts, and opportunities across the reports. The Framework provides a detailed summary of these shared goals, potential conflicts and opportunities for the following categories:

- Aquatic Species
- Balanced River Management
- Floodplain Management
- Geomorphology
- Information Needs
- Land Use
- Lower River Reaches
- Recreation and Access
- Riparian Habitat
- Stewardship and Education
- Terrestrial Species
- Upper River Reaches
- Urban Reaches
- Water Quality
- Water Supply

## STRATEGIES FOR THE FUTURE

The Framework identifies specific strategies to assist the Coalition as a whole to meet its multi-objective goals. Strategies and action steps outlined in this document are recommendations for the future work of the Coalition. They are not meant as directives or commitments on the part of individual member organizations. Rather, the Framework is intended to support, enhance and encourage concurrent planning process along the Lower Tuolumne River. The strategies and action steps uphold the goals of the Coalition, build upon the shared goals, address the potential conflicts and/or seize opportunities identified in the analysis of existing reports.

An overarching goal for the Coalition is to facilitate and encourage implementation of projects and programs that are both consistent with the Habitat Restoration Plan for the Lower Tuolumne River Corridor and that also balance and address the needs of diverse users and uses. The strategies presented in the Framework are an attempt to address some of the challenges while offering suggestions for balancing land uses and coordinating Parkway projects that are complimentary to each other. Proposed strategies, and the resulting projects, must be designed to be appropriate for their given context.

### Strategies for Success

- Identify Multi-Objective Projects in the Urban and Rural Reaches of the River
- Support the Coordination of a Water Quality Monitoring and Enhancement Program
- Identify Potential Natural Areas and Working Landscape Projects
- Implement Habitat Restoration Projects
- Increase Recreational Opportunities
- Enhance and Expand Public River Access Points
- Provide Information and Support for a Scenic Trailway Compatible with Private Interests
- Study and Recommend Best Management Practices Regarding the Use of Boats on the Lower Tuolumne
- Create Lower Tuolumne River Parkway Maps and Signage
- Develop a Lower Tuolumne River Parkway Interpretive Program
- Enhance Cleanliness, Safety, and Security for the Users of the Lower Tuolumne River Parkway and Surrounding Communities
- Continue Public Outreach and Involvement

# Chapter 1

## INTRODUCTION



*"The value of a healthy river is immeasurable."*

—TUOLUMNE RIVER COALITION MEMBER

## 1.1 PURPOSE OF THE FRAMEWORK FOR THE FUTURE

This Framework for the Future for the Lower Tuolumne River is intended to facilitate greater cooperation and involvement of stakeholders in the Lower Tuolumne River ("river"), a significant asset to the communities through which it flows in California's Central Valley. With increased interest and more unified goals, policies, projects, and actions, the many values of the Tuolumne can be enhanced for the benefit of all who rely upon it, including agriculture, businesses, wildlife, and the people who visit, live or work near the river.

The Framework for the Future ("Framework") encourages planning for projects along the Lower Tuolumne River that carry multiple benefits and build community interest and involvement in the Tuolumne. The Framework is the guiding document for the Tuolumne River Coalition (Coalition), a group of local public and private entities, as it works in partnership with other stakeholders to develop a Lower Tuolumne River Parkway (Parkway), a collection of private and public projects to enhance habitat and provide public use opportunities that are compatible with existing private land.

To accomplish these purposes, the Framework will focus on four key elements:

- Provide documentation of Parkway projects and other Coalition activities and accomplishments.
- Analyze existing plans and reports concerning the Lower Tuolumne River and its floodplain to identify shared goals and potential conflicts across policies.
- Identify strategies and actions to meet the multi-objective goals of the Coalition.
- Develop implementation actions that facilitate the Coalition's coordination of multiple projects along the river.

These four elements are addressed, respectively, in Chapters Two, Three, Four, and Five of this document. The review of on-the-ground Parkway projects in Chapter One is followed by an analysis of current policies affecting the river in Chapter Two. Together, the information in these chapters provides the foundation and direction for key strategies laid out in Chapter Four by revealing common goals to build upon and gaps to address. The Framework concludes in Chapter Five with an overview of tools necessary to turn these strategies into thriving projects and programs.

The Tuolumne River Coalition's efforts and development of this Framework were funded by the California Bay Delta (CALFED) Program's Watershed Program. Intended outcomes for the Framework identified in the scope of work for this project include:

- Build upon the scientific and technical basis provided in the Habitat Restoration Plan for the Lower Tuolumne River Corridor[1] with social and political aspects provided in other plans and reports that pertain to the Lower Tuolumne River and its floodplain.
- Improve and coordinate implementation of projects.
- Clarify the Coalition's goals and identify opportunities to maximize multiple benefits.
- Recommend and prioritize actions to meet the multi-objective goals of the Coalition.
- Build community interest and involvement.

1. See Page 3-2 for a description of the Habitat Restoration Plan

Finally, this Framework is a "living document." The thoughts, projects, and ideas explored in this document are intended to further the dialogue about key issues surrounding the Lower Tuolumne, so that the on-going enhancement of the Lower Tuolumne River reflects and includes the values of residents, visitors, and other supporters.

### *Scope of the Framework for the Future*

The scope of this document, and of the work of the Tuolumne River Coalition in general, is the area within the floodplain boundaries[2] of the Lower Tuolumne River. This document presents a roadmap with potential strategies and actions for the Tuolumne River Coalition as it develops the Lower Tuolumne River Parkway. However, these strategies are recommendations for the Coalition's work and are not a commitment to perform these actions. Nor do they suggest that the Coalition holds any legal jurisdiction over any member or other existing agency. The Framework is not a Master Plan for the river and therefore does not require environmental review. **Rather, the Framework is intended to support, enhance and encourage concurrent and complimentary planning processes along the Lower Tuolumne**.

## 1.2 THE TUOLUMNE RIVER WATERSHED

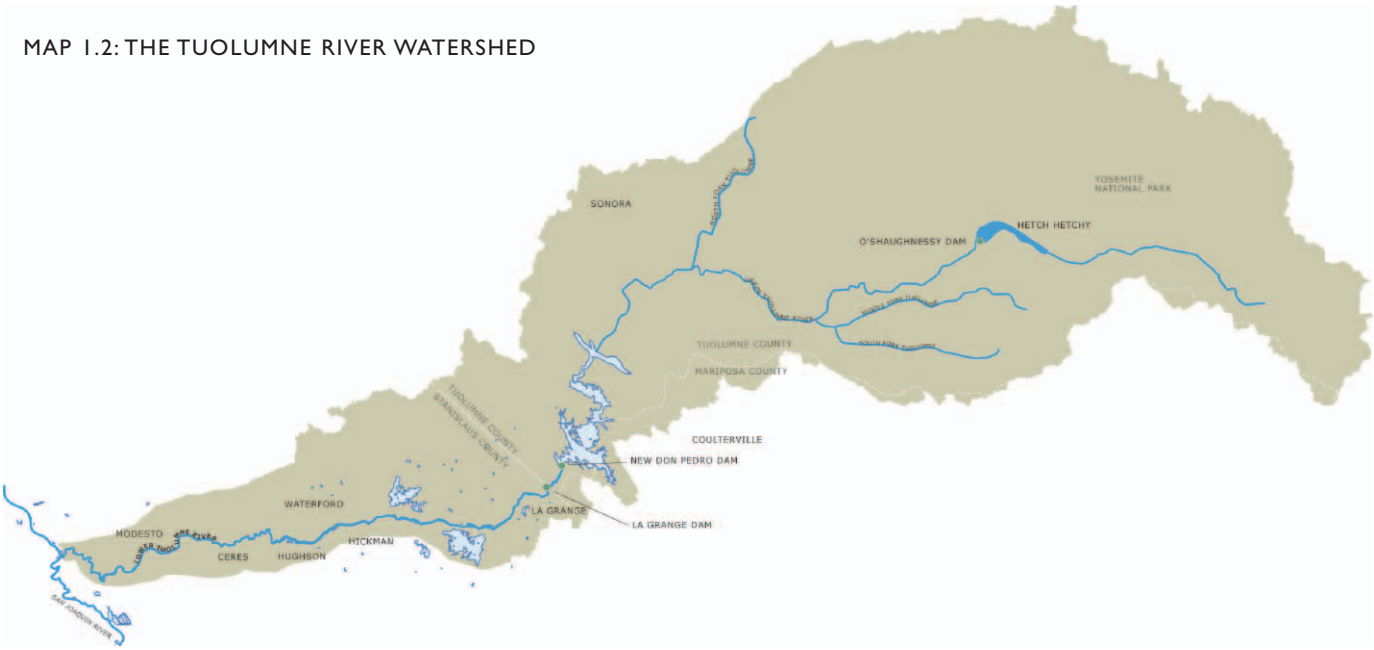
The Tuolumne River is one of the largest rivers in California's San Joaquin Valley and is the largest tributary of the San Joaquin River (see Map 1.1: The Tuolumne River and State of California). The Tuolumne River, which originates at an elevation of over 13,000 feet in the Sierra Nevada range, flows westerly between the Merced River watershed to the south and Stanislaus River watershed to the north, draining a 1,958 square-mile watershed that includes the northern half of Yosemite National Park (See Map 1.2: The Tuolumne River Watershed, on page 1-4). Runoff from the Tuolumne River is typified by brief winter storm runoff peaks followed by prolonged late spring and early summer snowmelt.


MAP 1.1: THE TUOLUMNE RIVER AND STATE OF CALIFORNIA

Like many Sierra Nevada rivers, the Tuolumne River is managed to provide multiple beneficial uses to a local and regional population and economy. These uses include water for irrigation and drinking, hydropower, flood control, recreation, and in-stream water for river habitats. These benefits have come at

2. A floodplain is the part of a river valley made of unconsolidated, river-borne sediment that is periodically flooded. In the case of the lower Tuolumne, this area generally extends from bluff to bluff across the incised river valley, becoming less distinct as the river floodplain merges with the San Joaquin River floodplain west of Modesto.

MAP 1.2: THE TUOLUMNE RIVER WATERSHED




a cost to some of the natural capital inherent in a wild river system, as is characteristic of many developed river systems in California. The development of reservoirs, powerhouses, and diversion facilities in the Tuolumne watershed has affected the lower river and its riparian characteristics.

The two primary reservoir impoundments in the Tuolumne River watershed are Hetch Hetchy and Don Pedro reservoirs. O'Shaughnessy Dam, completed in 1923 in Yosemite National Park, forms the Hetchy Hetchy Reservoir, capturing up to 360, 360 acre-feet and diverting approximately 230,00 acre-feet of water from the upper reaches of the Tuolumne watershed. The Hetch Hetchy system is owned by the City and County of San Francisco and is operated by the San Francisco Public Utilities Commission (SFPUC). This system provides approximately 85% of the total SFPUC system water supply, up to 300 million gallons per day. (The remaining 15% comes from local bay area sources.) Water from Hetch Hetchy provides high quality drinking water, as well as water for other municipal and industrial purposes, hydropower, and is released to meet instream fishery water requirements below SFPUC's impoundments on the Tuolumne and its tributaries. The regional significance of the Tuolumne River is demonstrated by the fact that over 2.4 million people in the Bay Area of California rely entirely or in part on water from the SFPUC system.[3]

The Don Pedro Dam, completed in 1971 near the base of the Sierra Nevada (replacing the smaller Don Pedro Dam built in 1923) forms Don Pedro Reservoir, the sixth largest body of water in the state, with a capacity of 2.03 million acre-feet. The dam is jointly owned by the Turlock and Modesto Irrigation Districts (Districts). Like Hetch Hetchy

3. San Francisco Public Utilities Commission-Bay Area Water Users Association Water Supply Master Plan, April 2000.

above it, Don Pedro provides water for multiple uses including drinking and irrigation water supplies, power generation, flood control and recreation.

Below Don Pedro Reservoir, the Districts divert water from the river at La Grange Dam, completed in 1893. The Modesto Irrigation District (MID) diverts water north of the Tuolumne River, providing irrigation supply to 60,000 acres for the area agriculture industry, 30 million gallons of drinking water per day, and electricity for over 100,000 accounts. Turlock Irrigation District (TID) diverts water south of the river, providing irrigation supply to 150,000 acres and electric service to over 73,000 accounts.

## 1.3 ATTRIBUTES OF THE LOWER TUOLUMNE RIVER

The Lower Tuolumne River emerges from the foothills of the Sierra Nevada at La Grange Dam and travels 52 miles to the confluence of the San Joaquin River, approximately 15 miles west of the city of Modesto, carrying agricultural, recreational, environmental, and municipal water supplies. The lands that border the Lower Tuolumne River are primarily rural, privately owned agricultural land, but also include scattered local, state, and federal public lands. Portions of the cities of Waterford, Ceres, and Modesto lie along the river's edge, as do lands held by Stanislaus County and Modesto and Turlock irrigation districts.

La Grange Dam is considered the uppermost limit of the "lower" river. At the downstream end of the Lower Tuolumne River lies the San Joaquin River National Wildlife Refuge. The Refuge encompasses a vast 12,887 acres of land that lies primarily to the northwest and southwest of the confluence of the Tuolumne and San Joaquin. Although the Refuge primarily borders the San Joaquin River, it does include lands along the north bank of the Tuolumne from its confluence with the San Joaquin extending approximately 1.5 miles upstream. This section of the Refuge contains approximately 300 acres of historic Tuolumne/San Joaquin River floodplain.

The Lower Tuolumne River supports a developed and diversified economy, important recreational opportunities, and a diverse biological community.

**Healthy Regional Economy**. Activities that depend upon the river and dominate the region's economy include agriculture (row crops, vineyards, and orchards), gravel mining, ranching, tourism, and other regional activities that rely upon water supplied by the Tuolumne.

**Extensive Recreation Opportunities**. The Lower Tuolumne runs through Stanislaus County (population 446,997 in 2000) and the Cities of Modesto (population 203,300), Waterford (population 6,924), and Ceres (population 34,609).[4] The river provides numerous open space and recreation opportunities available to the rapidly growing populations of these river towns, as well as all of Stanislaus County.

**Diverse Biological Communities**. The river supports a naturally reproducing population of Chinook salmon as well as other anadromous[5] fish, a wide variety of resident fish species, migratory and resident birds, and other river-dependent wildlife. The Lower Tuolumne River corridor

4. 2000 US Census, SF-1 Data
5. Anadromous fish spawn in freshwater streams or rivers and migrate early in their life cycle to the ocean where the mature. They return as mature adults to spawn in the fresh water of their origin.

continues to support riparian habitat that includes several willow species, Fremont cottonwood, white alder, valley oak, and other native tree species.

The Lower Tuolumne River is 52 miles long, beginning with "river mile" 0 at the confluence with the San Joaquin River, and ending at river mile 52 at the La Grange Dam. The river can be divided into two zones that intergrade, but are defined by the dominant channel sediment: the sand-bedded zone (river miles 0 to 24) and the gravel-bedded zone (river miles 24 to 52). The entire Lower Tuolumne River is further subdivided into seven distinct reaches based on present and historic land uses and channel characteristics.[6] These river miles and reaches are noted on Map C: The Lower Tuolumne River Parkway, on page 1-10, below.

The river reaches are:

- **Reach 1: Lower Sand-bedded Reach** (river miles 0.0-10.5)
- **Reach 2: Urban Sand-bedded Reach** (river miles 10.5-19.3)
- **Reach 3: Upper Sand-bedded Reach** (river miles 19.3-24.0)
- **Reach 4: In-Channel Gravel Mining Reach** (river miles 24.0-34.2)
- **Reach 5: Gravel Mining Reach** (river miles 34.2-40.3)
- **Reach 6: Dredger Tailing Reach** (river miles 40.3-45.5)
- **Reach 7: Dominant Salmon Spawning Reach** (river miles 45.5-52.1)

6. McBain and Trush for the Tuolumne River Technical Advisory Committee. *Habitat Restoration Plan for the Lower Tuolumne River Corridor.* March 2000

River stakeholders include the Steering Committee members and Cooperating Agencies of the Tuolumne River Coalition as described in Section 1.6, below, as well as the National Marine Fisheries Service, San Francisco Public Utilities Commission, Bay Area Water Supply and Conservation Agency (representing the 28 agencies that purchase water from the SFPUC), local communities, landowners and residents, people who benefit from or use the river from other areas, and others.

## 1.4 ENVIRONMENTAL AND CULTURAL HISTORY OF THE RIVER[7]

The first known Native American inhabitants along the Tuolumne River are the Northern Valley Yokuts. The Northern Valley Yokuts relied on the wildlife and vegetation found within the Tuolumne River corridor for hunting, fishing, and the gathering of acorns, roots, bulbs, blackberries, and tall grasses and other food and fibers for daily uses-much use was made of the salmon for food. They lived as one of the highest regional population densities in pre-European North America.

By the late 1700s the Spanish mission at San Jose was already sending out parties to obtain Yokuts to work at the mission. However, significant populations remained in the area until an epidemic in 1833 killed many of the Northern Valley Yokuts in what is now Stanislaus County.

At this time, prior to major Euro-American settlement and land development in the Central Valley, the Lower Tuolumne River was a dynamic, meandering alluvial river, characterized by broad flood-

7. Tuolumne River Technical Advisory Committee. *Habitat Restoration Plan for the Lower Tuolumne River Corridor.* March 2000; EDAW, Inc. *Tuolumne River Regional Park Master Plan Existing Conditions Technical Memorandum #4.* 2000.

plains and terraces, large gravel bar deposits, and extensive riparian wetlands and forests. Streamflows within a given year and between years varied from as low as 100 cfs in late summer months to peak winter floods exceeding 40,000 cfs. Valley walls confined the river corridor to as narrow as 500 feet near Waterford, while reaches downstream of Modesto were unconfined.

Historically, extensive Fremont cottonwood and valley oak riparian forests surrounded the banks of the Lower Tuolumne River. These forests were several miles wide near the San Joaquin River, merging into riparian forests of the neighboring Merced and Stanislaus rivers. These forests provided foraging and breeding habitat for diverse resident and migratory bird and wildlife populations. Particularly large populations of wintering waterfowl were associated with the valley floodplain area that contained extensive tule marshes. A partial list of native species historically found in or along the river corridor is included in Appendix D.

By the 1840's, a few large Spanish land grant ranchos were established in the region. However, the importance of the Tuolumne River's resources to the region's new economy was not established until the 1850's, starting with the California Gold Rush. Soon after the 1849 discovery of gold in the Sierra foothills, the river became a steamboat route for miners and in 1854 Stanislaus County was organized. The remaining Northern Valley Yokuts were largely extirpated in the onrush.

Table 1.1 on page 1-9 provides an historical outline of the various land uses that have altered the channel morphology and impacted the riparian ecosystem surrounding the river. The major land uses include placer mining for gold, dredger mining for gold, streamflow regulation and diversion, live-

*Native Valley Oaks on Bobcat Flat.*

stock grazing, urban growth, agriculture, and commercial aggregate (gravel) mining. The development of hydraulic mining posed particular challenges to anadromous fish populations as it caused sedimentation of spawning grounds. Between 1850 and 1885 hydraulic mining in the Sierra washed tons of silt, sand, and gravel into the Sacramento and San Joaquin Valleys, including the Tuolumne. Gold dredging up to the 1950's vastly altered the river and floodplain in the 15-mile reach below La Grange and sand and gravel mining of the river channel up to the 1970's converted about 10 miles of river into lake-like reaches. Such mining continues next to the river and in much of the floodplain in this reach.

Settlements that became the major cities along the Tuolumne (La Grange, Waterford, Modesto and Ceres) were founded in the late 1850s and 1860s, predominantly by European immigrants. These cities emerged due to the influx of people during the Gold Rush, in areas where passage across the river became necessary, and in areas where agriculture was developing. Before the end of the century, agriculture was quickly established as the driver of the regional economy. The abundance of fertile soils unique to the Central Valley led to the domi-


*Historic La Grange.*

nance of grazing and later crops in the valley around the Tuolumne River. Ranchers and farmers and steamboat operations cleared much of the native vegetation to the river's edge in many locations throughout Stanislaus County.

The Wheaton Dam, built in 1871 near La Grange, became the first primary fish barrier constructed on the Tuolumne River. The formation of the Modesto Irrigation District (MID) and Turlock Irrigation District (TID) was in 1887. Together, they constructed La Grange Dam in 1893 at the site of Wheaton Dam to divert water from the Tuolumne River for irrigation in part of Stanislaus and Merced counties. At that time, La Grange Dam at 128 feet was the highest overflow dam in the country.

Water diversion projects continued on the Tuolumne, with the construction of the O'Shaughnessy Dam and Hetch Hetchy Reservoir upstream in Yosemite National Park in April 1923, the Don Pedro Powerhouse in 1923, and the New Don Pedro Dam and Powerhouse (still the 9th-tallest dam in the United States) in 1970 (see also page 1-4). Simultaneously, private landowners and public agencies built miles of levees along rivers all across the Central Valley, including the Tuolumne, to protect farmlands, with most of the river's floodplains being restricted from inundation by the beginning of the 20th century.

Mining, farming, ranching and the diversion and control of water supplies have been the foundation for a strong and diverse regional economy, provided residents with a steady water supply and afforded numerous people the opportunity to live nearer the Lower Tuolumne River than they would have otherwise. These activities have also altered the river and its corridor by blocking access to upstream spawning areas, decreasing the overall river volume and frequency of large floods, changing the channel morphology, eliminating gravel supply, reducing riparian vegetation, and introducing non-native plant and animal species.

The regional changes to the river and riparian ecosystem have greatly affected the fish and wildlife that depend on it. For example, spring- run Chinook salmon were once abundant and lived in river reaches much further into the Sierra, such as between Don Pedro and Hetch Hetchy reservoirs. Many of the large wildlife species native to the region of the lower Tuolumne River, such as tule

*Agriculture along the Tuolumne River.*

**TABLE 1.1**[8] LAND USES AND EFFECTS ON THE LOWER TUOLUMNE RIVER FROM 1848 TO PRESENT

| LAND USE | TIME PERIOD | LOCATION | DISTURBANCE | EFFECTS ON CHANNEL |
|---|---|---|---|---|
| Placer Mining | 1848-1880 | La Grange and upstream (RM 50) | Turned over floodplains and terraces; spoil placement on fertile areas | Destroyed natural channel morphology, increased sediment supply, destroyed instream habitat, removed riparian forests |
| Urban Growth | 1850-present | Modesto to Waterford (RM 15 to 30) | Need for commercial lumber, space and aesthetic value | Confined river corridor (reduced width), constructed dikes, removed riparian vegetation, increased pollution loading into river |
| Dredger Mining | 1880-1952 | Robert's Ferry to La Grange (RM 38 to 50) | Turned over entire riparian corridor valley-wall to valley-wall, spoil placement on fertile areas | Destroyed natural channel morphology, increased sediment supply, destroyed instream habitat, removed riparian habitat |
| Grazing | 1850-present | San Joaquin confluence to La Grange (RM 0-50) | Young riparian vegetation is grazed, water sources become feces conduits | Destabilized banks, discouraged natural riparian regeneration |
| Farming | 1860-present | San Joaquin confluence to La Grange (RM 0 to 50) | Mature and establishing riparian vegetation is cleared, channel location stabilized | Confined river corridor (reduced width), constructed dikes, removed riparian vegetation, increased pollution and fine sediment loading into river |
| Flow Regulation | 1890-present | Downstream of La Grange (RM 0 to 52) | Magnitude, duration, frequency and timing of high flow regime is altered and reduced, reduced/eliminated sediment supply from upstream watershed | Bed coarsening and downcutting, fine sediment accumulation in channel, channel fossilized by encroaching riparian vegetation, channel migration and bar building virtually eliminated, floodplain construction and deposition reduced, quantity and quality of instream and riparian habitat greatly reduced |
| Aggregate Mining | 1930-present | Hughson to La Grange (RM 24 to 50) | Large instream and off channel pits, dredger tailing removal | Historic floodplains are left as deep ponds, floodway narrowed by dikes separating ponds from river, riparian vegetation is cleared, regeneration is prevented and mature stands eliminated |

8. Source: McBain and Trush for the Tuolumne River Technical Advisory Committee. *Habitat Restoration Plan for the Lower Tuolumne River Corridor.* March 2000

elk, pronghorn, and grizzly bear were extirpated soon after the gold rush. Fall-run Chinook salmon remain, but their diminished populations are affected by many factors both within and outside the Tuolumne River, including the San Joaquin River, the Bay-Delta region, and the ocean. Riparian vegetation has similarly decreased throughout the river corridor. Virtually all native wildlife species and other natural habitats of the region have been dramatically diminished over the last 200 years.

*Guided canoe and kayak trips down the river.*

## 1.5 THE LOWER TUOLUMNE RIVER PARKWAY

The Lower Tuolumne River Parkway is a mosaic of projects that are not contiguous, from La Grange Dam to the River's confluence with the San Joaquin River in Stanislaus County. The Parkway integrates current uses of the river and emphasizes the natural characteristics of the river by combining private and public enhancement activities to provide habitat and public use opportunities that are compatible with existing private interests. Map 1.3: Reaches of the Lower Tuolumne River on page 1-10 provides a view of the Parkway and the various multiple-benefit projects already proposed or in place.

Currently, the projects of individual Tuolumne River Coalition members together include over 28 river miles and over 1,500 acres along the river. These projects incorporate elements such as water quality improvement, floodplain management, recreation facilities and access enhancement, riparian habitat restoration, education and stewardship along the Lower Tuolumne River. With the development of this mosaic of projects, the Coalition approaches river-oriented planning to balance interactions among people, current uses, the river and riparian corridor, and the preservation or restoration of habitat, plant species and wildlife.

## 1.6 THE TUOLUMNE RIVER COALITION

The Tuolumne River Coalition ("Coalition") formed in the autumn of 2000 to act as a forum for local organizations to discuss and promote a variety of restoration and recreation projects of the Lower Tuolumne River corridor. The Coalition is a voluntary, local group that represents a balance of interested and affected persons and entities within the watershed, including local agencies, non-profit organizations, individuals and property owners, as well as cooperating federal and state agencies. The Coalition has come together to develop the Lower Tuolumne River Parkway, a collection of Coalition member projects, and its members will continue to act as the steward of the Parkway.

The Coalition seeks to identify common goals, coordinate stakeholder involvement, provide support, increase public awareness and involvement, and assist in obtaining federal, state, local, and private funds, where appropriate, for Coalition projects and programs. Through this coordination, the Coalition intends to better understand and integrate existing plans and achieve efficiency, effectiveness, and multiple benefits. More information about the Coalition and its on-going activities and accomplishments are discussed in Chapter Two.

The Mission of the Coalition is "To develop a mosaic of projects for improving habitat and recreation compatible with existing private interests."

City of Ceres

City of Modesto

City of Waterford

East Stanislaus Resource Conservation District

Friends of the Tuolumne, Inc.

Modesto Irrigation District

The San Francisco Public Utilities Commission (SFPUC)

Sierra Club, Yokuts Group

Stanislaus County Parks and Recreation

Tuolumne River Regional Park

Tuolumne River Trust

Turlock Irrigation District

*Coalition Steering Committee Members.*

### *Steering Committee Members*

Detailed profiles of Steering Committee members, including contact information and opportunities for involvement, are listed in Appendix A.

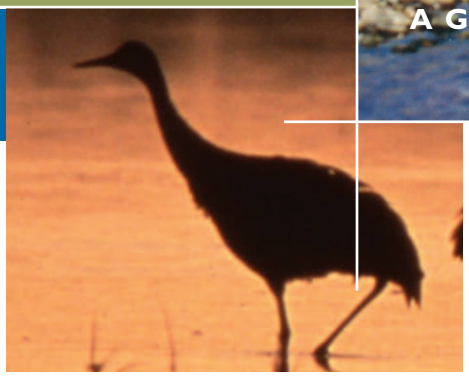
### *Cooperating Agencies*

Cooperating Agencies include those listed below. Detailed profiles of Coalition Cooperating Agencies are also included in Appendix A.

- California Bay-Delta Authority (CALFED)
- California Department of Fish and Game (DFG)
- California Department of Parks and Recreation
- Stanislaus County Council of Governments (StanCOG)
- United States Department of Agriculture-Natural Resources Conservation Service (NRCS)
- United States Department of Commerce-National Oceanic and Atmospheric Administration (NOAA Fisheries)
- United States Fish and Wildlife Service-Anadromous Fish Restoration Program (AFRP)
- United States Fish and Wildlife Service-San Joaquin River National Wildlife Refuge

# Chapter 2

## A GUIDING VISION FOR THE LOWER TUOLUMNE





*"Our success will be measured by the community's attitude toward the river and our river parks."*

—TUOLUMNE RIVER COALITION MEMBER

## 2.1 INTRODUCTION

The Tuolumne River Coalition's vision for the Lower Tuolumne River Parkway is grounded in sound ecological principles, sensible design approaches to park development and river habitat enhancements, and a significant interest in enhancing the public's interaction with the outdoor environment through diverse recreation and open space opportunities, while respecting development and private interests.

This chapter presents the guiding vision and common goals for the Parkway, highlights the natural river and riparian processes, and discusses the social and cultural context surrounding the Tuolumne River Coalition's efforts.

This chapter concludes by describing the "building blocks" of the Parkway: the existing and proposed on-the-ground projects, and other on-going activities of the Tuolumne River Coalition. Together, these projects and programs address the vision for the Lower Tuolumne River Parkway by emphasizing instream and floodplain restoration, recreation and access opportunities, increased river awareness, and water quality enhancements.

*Environmental education at Big Bend.*

*River otter (Reach 1).*

## 2.2 TUOLUMNE RIVER COALITION VISION AND COMMON GOALS FOR THE LOWER TUOLUMNE RIVER PARKWAY

### *Tuolumne River Coalition Vision for the future of the Lower Tuolumne River Parkway*

**Vision:**

The Lower Tuolumne River Parkway is a vibrant, healthy river corridor providing multiple community benefits.

### *Tuolumne River Coalition Common Goals for the Lower Tuolumne River Parkway*

The following goals have guided and will continue to guide the work of Coalition member organizations along the Lower Tuolumne River. The Framework for the Future provides a roadmap to put these goals into action. All recommendations put forth in this document adhere to and support these goals. Figure 1 on the following page illustrates the relationship between the Coalition's guiding vision, mission, primary goals, and key strategy areas for achieving those goals.

- Enhance, protect and restore habitat that supports natural resources and river function consistent with the *Habitat Restoration Plan for the Lower Tuolumne River Corridor*

*Riffle at Bobcat Flat.*

- Extend and protect open space along the river
- Expand and enhance public access and recreational opportunities where appropriate
- Protect the floodplain from intensive development
- Respect existing development, land ownership, and water use
- Support and develop riparian buffers
- Provide flood management benefits
- Enhance water quality
- Build upon and integrate existing plans relevant to the Lower Tuolumne River
- Support the development of a mosaic of public and private projects and programs
- Increase river-focused educational programs

## 2.3 MULTI-OBJECTIVE APPROACH OF THE TUOLUMNE RIVER COALITION

Local and scientific knowledge of the physical and biological processes of the river as well as of human interactions with the river form the basis for the Coalition's development of the Parkway.

### *Physical and Biological Processes of the River*[1]

The Lower Tuolumne River, in its natural state, is an alluvial river. An alluvial river has riverbed, banks, and floodplains composed of coarse and fine sediments (sand, gravel, and cobble). A natural river is dynamic in that it is able to frequently move the channelbed and banks and scour coarse sediments, which are then replaced by comparable materials transported from upstream. The morphology or shape of the river is thus maintained over time.

This dynamic balance creates a river and riparian ecosystem upon which native plants depend for seed dispersal, germination, and growth. Likewise, animal species depend upon it for feeding and foraging, nesting, roosting, migrating, and protection.

The Central Valley's riparian corridors are dominated by winter-deciduous hardwood trees such as cottonwood, willow and valley oak, which survive within the particular conditions available within the river corridor. Although the Tuolumne and its floodplain have been altered over the past century, the river still plays an integral role in supporting a unique biological community. In California, the native amphibian, bird, and mammalian species diversity in Central Valley riparian zones represents the highest biodiversity found anywhere in the state. In general, riparian zones in the Central Valley support 50 amphibians and reptile species, 147 bird species, 55 mammalian species, and 60 native tree and plant species. Appendix G provides a partial list of all plant and animal species, both native and non-native, found in and along the Lower Tuolumne River.

1. Tuolumne River Technical Advisory Committee. *Habitat Restoration Plan for the Lower Tuolumne River Corridor.* March 2000

# THE TUOLUMNE RIVER COALITION'S GUIDING FRAMEWORK FOR THE LOWER TUOLUMNE RIVER PARKWAY

## VISION

The Lower Tuolumne River Parkway is a vibrant, healthy river corridor providing multiple community benefits

## GOALS

***Enhance, protect*** *and* ***restore*** *habitat that supports natural resources and river function*

***Extend*** *and* ***protect*** *open space along the river*

***Expand*** *and* ***enhance*** *public access and recreational opportunities where appropriate*

***Protect*** *the floodplain from intensive development*

***Respect*** *existing development, land ownership, and water use*

***Support*** *and* ***develop*** *riparian buffers*

***Provide*** *flood management benefits*

***Enhance*** *water quality*

***Build upon*** *and* ***integrate*** *existing plans relevant to the Lower Tuolumne River*

***Support*** *the development of a mosaic of public and private projects and programs*

***Increase*** *river-focused educational programs*

## RIVER ENHANCEMENT STRATEGIES

***Identify*** *Multi-Objective Projects in Urban and Rural Reaches of the River*

***Support*** *the Coordination of a Water Quality Monitoring and Enhancement Program*

***Identify*** *Potential Natural Area and Working Landscapes Opportunities*

***Implement*** *Habitat Restoration Projects*

***Increase*** *Recreation Opportunities*

***Enhance*** *and* ***Expand*** *Public River Access Points*

***Provide*** *Information and Support for a Scenic Trailway Compatible with Private Interests*

***Study*** *and Recommend Best Management Practices Regarding the Use of Boats*

***Create*** *Lower Tuolumne River Parkway Maps and Signage*

***Develop*** *a Lower Tuolumne River Parkway Interpretive Program*

***Enhance*** *Cleanliness, Safety, and Security for the Users of the Lower Tuolumne River Parkway and Surrounding Communities*

***Continue*** *Public Outreach and Involvement*

### *Human Interactions with the River*

Archaeological studies demonstrate that humans have relied on the Tuolumne River for sustenance, travel, and other resources for thousands of years. As the history of the river in Chapter One demonstrates, however, the environmental qualities of the river and riparian corridor have been largely modified over the past century and a half. Comprehensive efforts to preserve the river environment for people and wildlife were rare until the past decade, while intensive activities such as placer and dredger mining for gold, streamflow regulation and diversion, livestock grazing, urban growth, agriculture, and commercial aggregate (gravel) mining dominated land uses along the river throughout much of the 19th and 20th centuries.

Recent enhanced efforts (such as those introduced below and discussed in greater detail in Chapter Four) to maintain a healthy river channel, floodplain and watershed, balance the abundance of recreation and economic development opportunities of the Lower Tuolumne River. The river continues to support agriculture, mining, urban development, wildlife viewing and other tourist activities, and serves as a regional outdoor destination. As we move into the 21st century, renewed efforts and increased interest in the river will help highlight the river as a centerpiece of the regional community, for its economic, recreational, and environmental resources.

### *Background on Recent River Enhancements: The FERC Settlement Agreement*

Throughout the 20th century, the Lower Tuolumne River provided residents with water supplies and area wildlife with habitat for feeding, traveling, and nesting. More recently, the 1995 dam license review agreement (the FERC Settlement Agreement, described below) focused attention on river management. Shortly thereafter, the 1997 flood severely impacted water supply, farmland, parklands, and urban areas. Together, these events increased the interest of local governments and community groups, with state and federal encouragement, to re-envision the Tuolumne as a centerpiece of Stanislaus County.

*Birdwatching - a popular activity along the Tuolumne River.*

As part of the process of re-evaluating the 1964 Federal Regulatory Energy Commission (FERC) license for the Don Pedro Project, several stakeholders entered into an historic agreement, known as the 1995 FERC Settlement Agreement (FSA) that outlined several key strategies for increasing naturally reproducing fall-run Chinook salmon and their habitat in the Lower Tuolumne River. The FSA outlined a comprehensive approach that included 1) Higher minimum instream flow requirements below La Grange Dam, 2) Expanded

fishery monitoring, 3) Development and implementation of a Lower Tuolumne River Chinook salmon habitat restoration program, 4) Foundation of a Tuolumne River Technical Advisory Committee (TRTAC), composed of stakeholder organizations, to oversee monitoring and restoration activities laid out in the FSA and 5) Specified funding to conduct the program. The FSA was adopted as part of the Don Pedro Project license in a FERC Order issued in 1996. The ensuing activity has resulted in many unique collaborations along the river. The FSA led to the creation of the "Habitat Restoration Plan for the Lower Tuolumne River Corridor (Restoration Plan)", which identified a basic approach to Lower Tuolumne river restoration based on achieving natural functions while still providing for human uses such as irrigation and domestic supply. The Restoration Plan identified numerous restoration projects (a requirement of the Settlement Agreement) and 10 of those were selected by the TRTAC for implementation by the Districts in fulfillment of the FSA.

*Local artist Al Perry painting in Tuolumne River Regional Park.*

### *Population and Economic Characteristics*

To better envision Stanislaus County's direction in the coming years and to offer assistance in developing future policies and programs for a healthy Tuolumne River corridor, it is important to understand the existing demographics of the community. Assessing the age, ethnicity, and other cultural factors of the population will provide insight into the recreation needs and other interests of the area's population.

In general, the region's population is: growing rapidly, fairly young, and increasingly diverse in terms of ethnicity. These characteristics will affect the relationship residents have with the river, and their preferred recreation activities. Stanislaus County's population was 446,997 in 2000, but this is projected to increase to over 890,000 by 2020, representing an increase of over 62%.[2]

Table 2.1 on page 2-7 provides an overview of general demographic characteristics of the County in 1990 and 2000. Although the County's population has grown considerably, the only significant change in general demographics since 1990 has been the growth in the Latino population and corresponding decrease in the percent of the White population.

### *Economic Development Resources*[3]

The economic base of Stanislaus County is diverse, and continuously diversifying. The California Employment Development Department expects total non-farm employment in Stanislaus County to grow by 22,900 jobs (125.3%) between 2001 and 2008. The trade, transportation and utilities indus-

2. United States Fish and Wildlife Service. *San Joaquin River National Wildlife Refuge Study Report for Proposed Acquisitions.* 2004
3. California Employment Development Department Labor Market Information Division; http://www.calmis.ca.gov

TABLE 2.1[4] DEMOGRAPHIC CHARACTERISTIC OF STANISLAUS COUNTY, 1990 AND 2000

| | 1990 DATA | 2000 DATA |
|---|---|---|
| Gender | | |
| Males | 49% | 49% |
| Females | 51% | 51% |
| Age | | |
| 0-17 years | 31% | 31% |
| 18-64 years | 58% | 59% |
| 65 year and over | 11% | 10% |
| Race and Ethnicity* | | |
| White | 80% | 69% |
| Black/African American | 2% | 3% |
| American Indian/Native | 1% | 1% |
| Asian or Pacific Islander | 5% | 5% |
| Other or Two or More Races | 12% | 22% |
| Latino (of any race) | 22% | 32% |

*The percentages listed here do not add up to 100% due to the fact that a respondent could select both "Latino" and any other race.

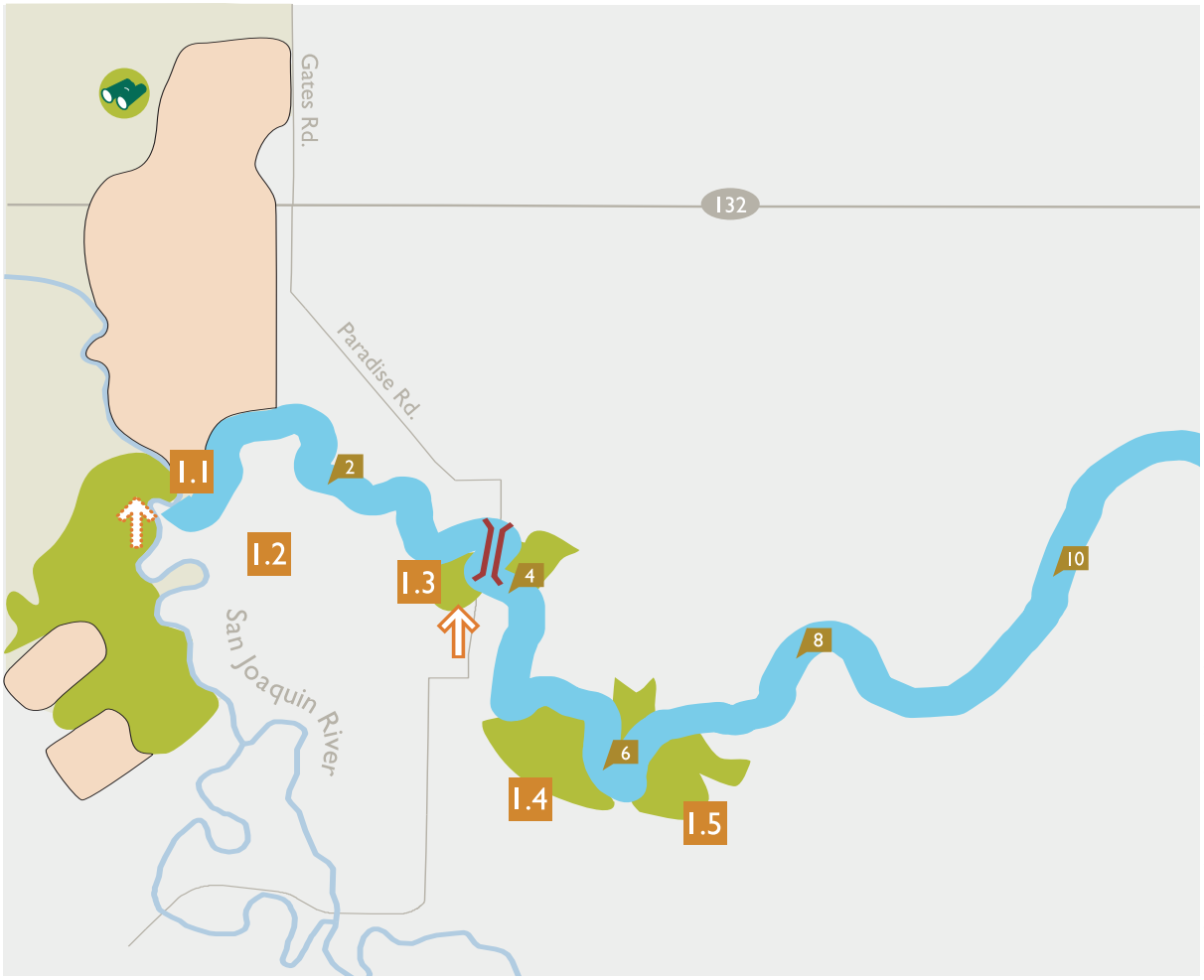
try accounted for the largest single share of industry employment in 2002, at 19.2% of all employment. Other major employers included government (with 15.3% share of all employment), manufacturing (13.6%), educational and health services (10.8%), professional and business services (9.7%), agriculture (8.6%), and leisure and hospitality (8.3%).

Through its municipal and agricultural water supplies, the Lower Tuolumne River contributes to the region's growing economy. The river also directly contributes to economic development through both tourism (visitors recreating in regional parks, boating in the river, and viewing spawning salmon and other wildlife) and resource extraction (aggregate mining).

4. United States Census Bureau. 1990 and 2000 SF-1 Data

## 2.4 PROJECTS OF TUOLUMNE RIVER COALITION MEMBERS AND COOPERATING AGENCIES

The maps and text presented on the following pages demonstrate how the Tuolumne River Coalition has implemented, and will continue to implement, their vision for the Parkway, while considering and incorporating the dynamic human and natural elements discussed above. These maps, organized by river reach, are followed by detailed project descriptions of each existing and/or proposed Coalition member organization project shown on the maps. These maps provide a visual tour of the Coalition's multi-objective efforts. The maps and projects are organized in a downstream to upstream manner.




**Reach 1: Lower Sand-bedded Reach** (river miles 0 - 10.5)

## TUOLUMNE RIVER COALITION MEMBER PROJECTS

- 1.1 San Joaquin River National Wildlife Refuge Habitat Restoration
- 1.2 Dos Rios Working Landscape (Planned)
- 1.3 Shiloh Fishing Access
- 1.4 Grayson River Ranch Floodplain Restoration Project
- 1.5 Big Bend Floodplain Protection & Restoration Project

N

0 Miles 1.5

*Tuolumne River*

*Other Stanislaus County Rivers*

*Existing Lower Tuolumne River Parkway Project Site*

*Planned Lower Tuolumne River Parkway Project Site*

*Bridges*

*Public Access Point*

*Planned Public Access Point*

11 *River Mile Marker*

**Tuolumne River Coalition Member Projects**

*Lower Tuolumne River Parkway Framework for the Future*

Map 2.1. Reach 1: Lower Sand-bedded reach.

## I.1 *San Joaquin River National Wildlife Refuge Expansion*

**Lead Organization:** U.S. Fish & Wildlife Service, P.O. Box 2176, Los Banos, CA 95635. Contact: Kim Forrest, Refuge Manager, (209) 826-3508

### Project Description

LOCATION

The San Joaquin River National Wildlife Refuge is located at river mile 0 of the Lower Tuolumne River, at the confluence of the Tuolumne and San Joaquin Rivers. The Refuge includes extensive lands along the San Joaquin River as well as lands along the north bank of the Tuolumne from its confluence with the San Joaquin extending approximately 1.5 miles upstream. This area consists of approximately 300 acres of historic Tuolumne/San Joaquin River floodplain.

PROJECT OVERVIEW

This12,887-acre refuge was established in 1987 to protect endangered and threatened species, restore and protect wetland habitat for migratory waterfowl and waterbirds, and to provide winter forage for Aleutian Canada Geese and sandhill cranes. The project includes modifying existing flood control levees, restoring historic floodplains, and restoring wetland and riparian forest. Currently there is approximately 3,272 acres within the approved refuge boundary to acquire. There are plans to construct additional public use facilities that will enhance refuge access and interpretive signage. All environmental reviews have been completed for land acquisitions. Approximately 2-3 months (per acquisition) would be needed to complete land appraisal, title work, and contaminants survey.

MULTIPLE BENEFITS

Phase I involves land acquisition, and riparian and wetland habitat restoration. Phase two will entail the development of public use facilities. The project will have multiple regional benefits including public recreation, natural resource stewardship and education, endangered species recovery, open space, flood management, and benefits to the local economy from ecotourism.

KEY PARTNERS

**Working Partners:** River Partners, CSU Stanislaus — Endangered Species Restoration Program, Point Reyes Bird Observatory, Ducks Unlimited.

**Funding Partners:** CALFED, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, Natural Resources Conservation Service, The Resources Agency/Proposition 13 funding, DWR/Flood Protection Corridor Program

*Confluence of the Tuolumne and San Joaquin Rivers.*

## 1.2 *Dos Rios Working Landscape Project*

**Project Title:** Dos Rios Working Landscape Project

**Lead Organization:** Tuolumne River Trust, 914 Thirteenth Street, Modesto, CA 95354. Contact: Patrick Koepele, (209) 236-0330.

**Project Description:**

LOCATION

The project is located east of the San Joaquin River in Stanislaus County, approximately 9 miles west of the City of Modesto. The project site is located between river miles 0 and 3 of the Lower Tuolumne River, at the confluence of the San Joaquin and Tuolumne Rivers adjacent to the San Joaquin River National Wildlife Refuge's eastern boundary. The project includes approximately 1,064 acres of unprotected historic floodplain and 545 acres of protected historic floodplain.

PROJECT OVERVIEW

The Dos Rios project is a working landscape, floodplain protection, and riparian restoration project. The project will have direct benefits to the critically endangered riparian brush rabbit (*Sylvilagus bachmani riparus*) by developing riparian brush rabbit habitat and establishing a brush rabbit colony within the riparian corridor on the property. The riparian brush rabbit is California- and Federally-listed as an endangered species. Through purchase of perpetual habitat and agricultural conservation easements, we expect to increase the riparian zone up to 1000 feet wide, restrict development of the properties, including dairies, orchards, and vineyards, and confined animal facilities while protecting other agricultural uses of the land in perpetuity.

The project will result in the following ecologic benefits:

- Establishment of a self-sustaining colony of critically endangered riparian brush rabbits thus contributing directly towards the recovery and eventual delisting of the species from Endangered Species Act protections.
- The project will result in the permanent protection of 6 miles of river front;
- Up to 700 acres of riparian forest will be restored;
- Up to 800 additional acres of floodplain will be permanently protected from development, use by dairies, confined animal facilities, orchards, and vineyards;
- Up to 800 acres of farmland will be permanently protected;
- Connection of the San Joaquin River National Wildlife Refuge with several upstream habitat restoration projects on the Tuolumne River;
- Improved rearing and spawning habitat for native fish including Chinook salmon, steelhead trout, and Sacramento Splittail;
- Improved nesting and migrating habitat for birds.

KEY PARTNERS

California Rangeland Trust

## 1.3 *Shiloh Fishing Access*

**Lead Organization:** Stanislaus County Parks & Recreation, 3800 Cornucopia Way, Suite C, Modesto, CA 95358. Contact: Sonya Harrigfeld, Director, (209) 525-6750

**Project Description:**

LOCATION

The Shiloh Fishing Access is located in Reach One of the river, and is managed by Stanislaus County Parks and Recreation. The Fishing Access, located along the Shiloh Bridge.

PROJECT OVERVIEW

All of the facilities previously at this site were washed away in the floods of the winter of 1996-1997. Due to the nature of the river in this location, it is recommend that the improvements to the access point be nominal, such as a parking area, small boat launch, as well as removable picnic facilities and portable restrooms.

MULTIPLE BENEFITS

Enhance appearance of the area while providing river facilities with opportunities for boating, places for passive recreation, picnic, and informal play.

KEY PARTNERS

**Working Partners:** California Department of Fish and Game

*View from Shiloh Bridge.*

## 1.4 *Grayson River Ranch*

**Lead Organization:** Friends of the Tuolumne, Inc., 7523 Meadow Avenue Stockton, CA 95207. Contact: Allison Boucher, (209) 477-9033, www.friendsofthetuolumne.org

**Project Description:**

LOCATION

The project is located approximately four miles upstream of the confluence of the Tuolumne River with the San Joaquin River. The 140-acre project extends for one mile along the river.

PROJECT OVERVIEW

Restoration of this floodplain is reestablishing the oak and willow forest. A variety of nearly 7,000 native trees and grasses were planted representing the natural mix of trees that originally grew in this section of the river. Creeping wild rye grass was seeded on approximately 40 acres as an experiment. Sloughs were carved into the floodplain to improve floodwater interface with the project area and provide floodwater refuge for fish. Monitoring shows increased use by birds and animals. The landowner is actively involved in planning, planting, and maintenance of this perpetual conservation easement. The wide floodplain contouring and planting is complete; maintenance and monitoring will continue for several years.

The project carries many benefits. Riparian birds and mammals are benefiting for breeding, rearing, and winter habitat (migratory birds). Floodwaters are being stored during high water events thereby reducing flood impacts downstream. The channels are providing refuge for Chinook salmon and steelhead during flood events. Natural geomorphic and ecological processes are happening.

*Plantings at Grayson River Ranch.*

Construction and planting are complete. Funds are being sought for continued monitoring and maintenance.

KEY PARTNERS

Friends of the Tuolumne, Inc. worked in coordination with the East Stanislaus Resource Conservation District, the USDA Natural Resources Conservation Service, U.S. Fish and Wildlife Service, Anadromous Fish Restoration Program, California Department of Fish and Game, the Bay Delta Authority, Tuolumne River Technical Advisory Committee, and the property owner.

### I.5 *Big Bend Habitat Floodplain Protection and Restoration*

**Lead Organization:** Tuolumne River Trust, 914 Thirteenth Street, Modesto, CA 95354. Contact: Patrick Koepele, (209) 236-0330.

**Project Description:**

LOCATION

The project is located along river miles 6 and 7 of the Lower Tuolumne River, east of the San Joaquin River in Stanislaus County approximately 7 miles southwest of the City of Modesto.

PROJECT OVERVIEW

The Big Bend project is a riparian habitat restoration project along the Tuolumne River west of the City of Modesto. The properties have been protected through the purchase of permanent conservation easements held by the USDA-Natural Resources Conservation Service. Restoration activities will include earthwork and planting to encourage natural floodplain function and improve habitat on approximately 239 acres of river bottom. Earthwork, including notching of private berms to improve channel-floodplain connectivity was completed in autumn 2004. Revegetation of the site commenced in autumn 2004. CEQA/NEPA review has been completed, and all required federal, state, and local permits have been secured. Project plans and designs have been completed. Earthwork and initial planting has been completed.

MULTIPLE BENEFITS

The goals of the restoration project are to improve the functionality of the Tuolumne River floodplain to support riparian plant species, juvenile Chinook salmon and steelhead by restoring approximately 240 acres of floodplain. The objectives for the restoration project are:

*Floodplain plantings at Big Bend.*


**Reach 2: Urban Sand-bedded Reach** (river miles 10.5 - 19.3)

## TUOLUMNE RIVER COALITION MEMBER PROJECTS

2.1 Riverdale Park

2.2 Tuolumne River Regional Park

*Tuolumne River*

*Other Stanislaus County Rivers*

*Existing Lower Tuolumne River Parkway Project Site*

*Planned Lower Tuolumne River Parkway Project Site*

*Golf Course*

*Bridges*

*Public Access Point*

*Historic Oak Grove*

*Trail*

11 *River Mile Marker*

N

0 Miles 1.5

**Tuolumne River Coalition Member Projects**

*Lower Tuolumne River Parkway Framework for the Future*

Map 2.2. Reach 2: Urban Sand-bedded reach.

- Improve channel-floodplain connectivity by increasing the frequency of floodplain inundation on the project site, improve natural regeneration of native riparian plant species, and improve rearing habitat for juvenile Chinook and steelhead. Spawning, rearing, and migrating habitat of other native fishes will also be improved.
- Preserve existing riparian vegetation and plant native riparian species on floodway surfaces appropriate for each species' life history.
- Remove invasive exotic vegetation.
- Provide for public education and involvement in the restoration activities on the northern property (owned by the ESRCD).

KEY PARTNERS

California Department of Water Resources — Flood Protection Corridor Program, United States Department of Agriculture — Natural Resources Conservation Service, NOAA Fisheries, East Stanislaus Resource Conservation District — San Francisco FERC Riparian Fund.

## 2.1 *Riverdale Park*

**Lead Organization:** Stanislaus County Parks & Recreation, 3800 Cornucopia Way, Suite C, Modesto, CA 95358. Contact: Sonya Harrigfeld, Director, (209) 525-6750

**Project Description:**

LOCATION

The project is located on the Tuolumne River off Parkdale Drive, north west of the intersection of Hatch Road and Carpenter Road. The access is approximately three acres in size with a river oriented put-in facilities aimed at non-motorized or car top boats.

*Riverdale Park.*

PROJECT OVERVIEW

The project will enhance the riparian habitat and restore native vegetation (particularly native grasses) in the flood corridor area of this Stanislaus County Park. This project will provide open space in an urban area and provide the community with an area for passive recreation, including a picnic area with tables, barbeques, security lighting, and a small parking area. The Riverdale Park and Fishing Access Project will also include an active recreation area (playground equipment and informal play area) in the upper quadrant of the park, not in the riparian area. Additionally, there is a storm drain basin in the middle quadrant on this site that will be used in dual use as a turfed informal play area.

MULTIPLE BENEFITS

Public access will be improved, providing pedestrian trails through the park to the Tuolumne River for nature walks, fishing and non-motorized boat carry-in opportunities.

KEY PARTNERS

**Working Partners:** California Department of Fish and Game, Friends of the Tuolumne

**Funding Partners:** State of California, Proposition 40 River Parkways Grant, Park Bond Act of 2000

(Proposition 12, Per Capita), Park Bond Act of 2002 (Proposition 40, Roberti-Z'Berg-Harris), and the East Stanislaus Resource Conservation District.

### 2.2 *Tuolumne River Regional Park*

**Lead Organization:** City of Modesto, 1010 Tenth Street, Suite 4400, P.O. Box 642, Modesto, CA, 95353. Contact: Doug Critchfield, Project Manager, (209) 571-5141

**Project Description:**

LOCATION

The Tuolumne River Regional Park (TRRP) is located in the cities of Modesto and Ceres. TRRP contains approximately 7 miles of river front park space between river miles 12.4 and 19.3. A centerpiece of TRRP is the Gateway Parcel, located next to the Modesto and Ceres downtown areas.

PROJECT OVERVIEW

The Tuolumne River Regional Park Gateway Parcel creates a green space through the heart of these growing urbanized communities. The intent of the design to create a place where people can enjoy the Tuolumne River, gain access to its multiple benefits, gather for community events, operate educational venues, and attract regional interest to the park. By virtue of its location under Highway 99, the Seventh Street and Ninth Street Bridges, this parcel is highly visible. The intent of the design is to enhance the river corridor, improve circulation, improve recreational opportunities, improve water quality, and create a connection between the urban and river environments. This development is consistent with the Tuolumne River Regional Park MEIR (SCH #2000022028), adopted September 2001 by the TRRP Joint Powers Authority. The project is set to begin work on the permitting and construction documentation. Work will commence in late spring 2006 and be completed in fall of 2006, followed by a 3-year monitoring and maintenance program.

*Future view of the Tuolumne River Regional Park.*

MULTIPLE BENEFITS

The Gateway Parcel will provide recreation, gathering areas, habitat restoration, bank stabilization, improved flood conveyance, and a softening of the urban landscape. It will function as a destination location for river access, regional events, wildlife viewing, trails, and educational venue. It will also serve as a water cleansing facility as it will displace some of the run-off from the Modesto Downtown into a wetlands area and treat it through natural processes before it enters the Tuolumne River. Also included will be a significant improvement to floodway conveyance for both Dry Creek and the Tuolumne Rivers.

KEY PARTNERS

A Joint Powers Authority made up of the Cities of Modesto and Ceres and Stanislaus County develops and manages the Tuolumne River Regional Park. This JPA is administered by the TRRP commission, whose membership consists of representatives from each of the three agencies. Contributing agen-


**Reach 3: Upper Sand-bedded Reach** (river miles 19.3 - 24.0)

## TUOLUMNE RIVER COALITION MEMBER PROJECTS

3.1 Ceres River Bluff Regional Park

*Tuolumne River*
*Other Stanislaus County Rivers*
*Planned Lower Tuolumne River Parkway Project Site*
*Golf Course*
*Bridges*
*Public Access Point*
*Trail*
*River Mile Marker*

N
0 Miles 1.5

Tuolumne River Coalition Member Projects

*Lower Tuolumne River Parkway Framework for the Future*

Map 2.3. Reach 3: Upper Sand-bedded reach.

cies also include the California Department of Fish and Game, the Trust for Public Land, the Land and Water Conservation Fund, the U.S. Army Corp of Engineers, California Department of Transportation, and the Regional Water Quality Control Board.

### 3.1 *Ceres River Bluff Regional Park — Lower Terrace*

**Lead Organization:** City of Ceres Parks, Recreation and Facilities Department. Contact: Doug Lemcke, Director, Parks, Recreation & Facilities; 2720 2nd Street, Ceres, CA 95307

**Project Description:**

LOCATION

Located within the city limits, north of Hatch Road and adjacent to River Oaks Golf Course, between Mitchell and Faith Home Roads, the parcel is divided into an upper and lower terrace.

PROJECT OVERVIEW

The city of Ceres purchased 76 acres of land in 2001 for approximately $1 million to construct a regional park. The upper terrace is 38 acres which will include a sports complex and 2.5 acres are zoned commercial. The lower terrace, in the flood zone, is also 38 acres and will be restored to a native riparian habitat, including a wetland area. The lower terrace will consist of 2 phases. Currently, the design and construction of Phase I is being completed which includes 19 of the 38 acres. Phase II will include the remaining 19 acres of the lower terrace. The intent is to protect established trees and vegetation, such as valley oaks and elderberry bushes and preserve the existing wildlife habitat and food sources. Open space will be planted with native meadow grasses and other plants that will increase habitat and food sources for a variety of birds and mammals. The environment review for the entire 76 acres regional park, including the lower terrace 38 acres was completed with a successful Mitigated Negative Declaration in 2003. Phase I of the lower terrace is projected to be completed by March 2006. We are applying for Phase II and if funds are approved, design work could start in January 2006 and construction completed in March 2007.

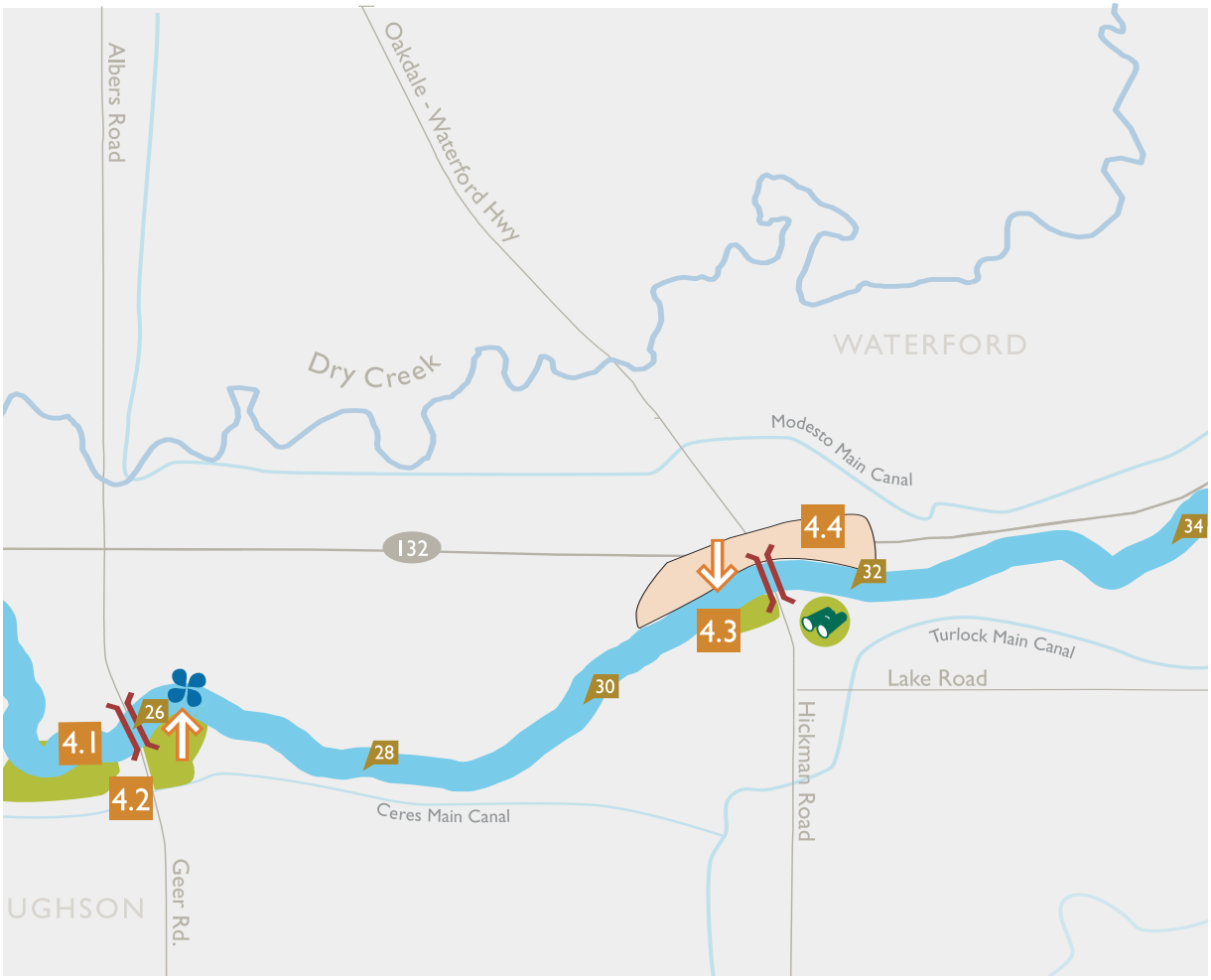
*Ceres River Bluff Regional Park.*

MULTIPLE BENEFITS

In this restored habitat educational activities will be emphasized. Trails and viewing boardwalks will be constructed within the lower terrace. Trees will be planted to provide an environment for terrestrial species and a canopy along the Tuolumne River edge to benefit fish habitat.

KEY PARTNERS

Friends of the Tuolumne and the Ceres Garden Club




**Reach 4: In-Channel Gravel Mining Reach** (river miles 24.0 - 34.2)

## TUOLUMNE RIVER COALITION MEMBER PROJECTS

- 4.1 Special Run Pools 9 (complete) & 10 (planned) Restoration Projects
- 4.2 Fox Grove County Park
- 4.3 Waterford Percolation Pond Restoration
- 4.4 Waterford Urban River Park

*Tuolumne River*
*Other Stanislaus County Rivers*
*Existing Lower Tuolumne River Parkway Project Site*
*Planned Lower Tuolumne River Parkway Project Site*
*Bridges*
*Public Access Point*
*Motorized Boat Access*
*Wildlife Viewing*
*River Mile Marker*

N
0 Miles 1.5

**Tuolumne River Coalition Member Projects**
*Lower Tuolumne River Parkway Framework for the Future*

Map 2.4. Reach 4: In-channel gravel mining reach.

*SRP 9 and SRP 10.*

### 4.1a *Special Run Pool 9*

**Lead Organization:** Turlock Irrigation District.
Contact: Wilton Fryer, (209) 883-8317

**Project Description:**

LOCATION

The project is located at river mile 25.9 of the Lower Tuolumne River, just west of the Geer Road Bridge.

PROJECT OVERVIEW

Special Run Pools 9 and 10, adjacent to Fox Grove Park, represent large-scale restoration projects designed to enhance fall run Chinook salmonid habitat. SRP 9 became an extension of the Fox Grove Park when it was completed in December 2001.

The SRP 9 Project was the first in-stream mining pit to be restored. The restoration project goal is to reduce bass predation on salmon fry and smolts and provide improved rearing habitat during their out migration. The TID is the sponsor for the SRP 9 Project on behalf of the Tuolumne River Technical Advisory Committee (TRTAC). The Project had three phases, with Phase I covering design, environmental permits, and pre project monitoring to establish a basis for both the SRP 9 Project and future SRP 10 project downstream. The TRTAC and AFRP funded design, permits, some construction and monitoring while CBDA, through the Metropolitan Water District of Southern California, funded the construction and revegetation.

The in-channel restoration required over 144,000 cubic yards of material to fill a 1,200 foot long by 500 foot wide mining pit that reached 19 feet deep. The project created five acres of additional floodplain lands and added an upland bench with old valley oaks to the lands already in Fox Grove Park. The Turlock Irrigation District also installed an infiltration gallery under the new river channel to provide a future option to augment existing fishery releases by enabling flows up to 100 cfs, that would normally be diverted at La grange, to be left in the upper 26 miles of the river and then withdrawn through the gallery for delivery into the irrigation system to the south of the SRP 9 Project.

MULTIPLE BENEFITS

The County manages the Fox Grove Park on behalf of the Wildlife Conservation Board. The monitoring from the SRP 9 Project has lead to enhancements to be incorporated into the design for the downstream SRP 10 Project.

KEY PARTNERS

Anadramous Fish Restoration Program, California Bay-Delta Authority (Metropolitan Water District), Stanislaus County Parks Department, Wildlife Conservation Board.

### 4.1b *Special Run Pool 10*

**Lead Organization:** Turlock Irrigation District. Contact: Wilton Fryer, (209) 883-8317

**Project Description:**

LOCATION

The project is located at river mile 25.3 of the Lower Tuolumne River, about ? mile west of the Geer Road Bridge.

PROJECT OVERVIEW

Special Run Pools 9 and 10, adjacent to Fox Grove Park, represent large-scale restoration projects designed to enhance fall run Chinook salmonid habitat. SRP 9 became an extension of the Fox Grove Park, and is now complete.

The SRP 10 Project will be the second in-stream mining pit to be restored, similar in concept, but larger in scope to the work recently completed upstream on the SRP 9 Project at Fox Grove Park. The restoration project goal is to reduce predation on salmon fry and smolts and provide improved rearing habitat during their out migration. The TID is the sponsor for the SRP 10 Project on behalf of the Tuolumne River Technical Advisory Committee (TRTAC). The Project has been divided into two phases, with Phase I covering design, land appraisal, environmental permits and monitoring that is currently fully funded by CBDA and Phase II covering land acquisition and construction that has not been funded.

The in-channel restoration requires over 350,000 cubic yards of material. The land acquisition would be 84 acres. A 15-acre portion will be used to supply materials to create the in-channel restoration and added riparian floodplain. The remaining land consists of 22 acres of riparian land along a 1.2-mile long river frontage and 47 acres of an upland bench currently in walnuts. The walnut orchard has a well and could be used for parkland. All the orchard land is adjacent to the closed County owned Geer Road landfill. The County also owns the parcel north of the project land.

MULTIPLE BENEFITS

The walnut orchard has a well and could be used for parkland. All the orchard land is adjacent to the closed County owned Geer Road landfill. The County also owns the parcel north of the project land. The County has indicated an interest in managing the land as park and public access to the river after the restoration work is complete.

KEY PARTNERS

Anadramous Fish Restoration Program (w/o funding), California Bay-Delta Authority funding of Phase I, and Stanislaus County Parks Department.

### 4.2 *Fox Grove*

**Lead Organization:** Stanislaus County Parks & Recreation, 3800 Cornucopia Way, Suite C, Modesto, CA 95358. Contact: Sonya Harrigfeld, Director, (209) 525-6750


*Fox Grove County Park*

**Project Description:**

LOCATION

The project is located on the Tuolumne River at Geer Road. The river access is approximately sixty-four acres in size on one mile of river frontage with parking area, restrooms, boat ramp, swimming, barbecues, picnic tables, and handicapped access.

PROJECT OVERVIEW

Proposed improvements include upgrade of many of these facilities to comply with ADA and better serve the number of visitors. New features include habitat enhancement with native plant materials and an educational nature trail, new play equipment and an informal play field. The shelter cove should be investigated for a new swimming hole.

MULTIPLE BENEFITS

The intent of the design to create a place where people can enjoy the Tuolumne River, by creating nature trails and habitat enhancement, including native plant material for educational purposes. Provide safe water access and an increase in amenities for family outings will draw more of the public to the park.

KEY PARTNERS

**Working Partners:** Wildlife Conservation Board, California Department of Fish and Game.

*©Modesto Bee. Volunteer planting at Waterford Percolation Ponds.*

**Funding Partners:** Wildlife Conservation Board and California State Off-Highway Vehicle Park

### 4.3 *Waterford Percolation Ponds Restoration*

**Lead Organization:** City of Waterford, P.O. Box 199, Waterford, CA 95386. Contact: Chuck Deschenes, City Administrator, (209) 874.2329, admin@cityofwaterford.org

**Project Description:**

LOCATION

Waterford Area, South Bank of Tuolumne River

PROJECT OVERVIEW

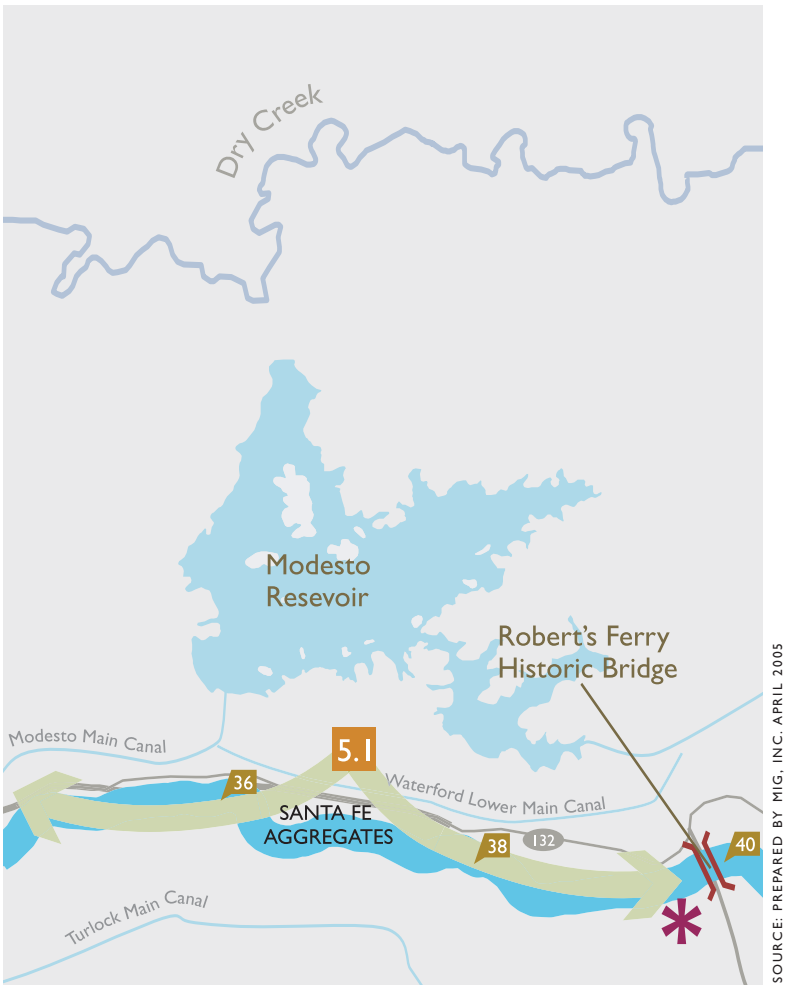
Restoration of native vegetation of the lower portion, adjacent to the river. Project is ready to implement using a phased approach to maximize community involvement and spread out the irrigation and maintenance workload that is needed to get vegetation established in this area.

**Multiple Benefits**

Water quality improvement, Air quality improvement, Enhanced appearance of area, wildlife habitat, better river shading to help maintain cooler water in hot times of the year, better storm water runoff timing and filtration, less noxious weeds and non-native vegetation.

KEY PARTNERS

Friends of the Tuolumne, local schools and civic organizations.




**Reach 5: Gravel Mining Reach** (river miles 34.2 - 40.3)

## TUOLUMNE RIVER COALITION MEMBER PROJECTS

5.1 Gravel Mining Reach Habitat Restoration Phases I-IV

*Tuolumne River*
*Other Stanislaus County Rivers*
*Lakes and Water Bodies*
*Existing Lower Tuolumne River Parkway Project Site*
*Bridges*
*Historical/ Cultural Site*
11 *River Mile Marker*

N
0 Miles 1.5

Tuolumne River Coalition Member Projects
*Lower Tuolumne River Parkway Framework for the Future*

Map 2.5. Reach 5: Gravel mining reach.

*Volunteer clean-up at Waterford Urban Park.*

### 4.4 *Waterford Urban Park*

**Project Title:** City of Waterford Urban Park

**Lead Organization:** City of Waterford

**Project Description:**

LOCATION

City of Waterford, river miles 31-32

PROJECT OVERVIEW

This project includes acquisition of land along the Tuolumne River in and around the City of Waterford. Project includes the vegetation of parcels that have been disturbed, but not developed, with native vegetation where feasible to create open space and passive use parkland, wildlife habitat, and river shading which will also improve water and air quality. The project will also include the development of a non-motorized boat launch, parking, picnic areas and restrooms on parcels that have already been developed or significantly disturbed.

The acquisition, passive amenities and vegetation work is ready to be implemented on most parcels. Some environmental work may be needed for non-passive use activities contemplated.

MULTIPLE BENEFITS

Recreation, Education, River access, non-motorized boat launch, alleviation of eyesores, removal of non-native and non-native noxious plants, improved wildlife habitat, improved water quality, improved air quality.

KEY PARTNERS

Ongoing, feel free to join up! Current and immediate past partners are members of the Tuolumne River Coalition, State of California Department of Resources, The Friends of the Tuolumne, San Francisco FERC Riparian funds administered by the East Stanislaus Resource Conservation District, Grupe Development Company, Hickman School and the Waterford Unified School District.

### 5.1 *Gravel Mining Reach Habitat Restoration, Phases I-IV*

**Lead Organization:** Turlock Irrigation District; Wilton Fryer (209) 883-8317

**Project Description:**

LOCATION

The project is located between River Mile 40.2 and 34.3 with Roberts Ferry Bridge located a River Mile 39.5.

PROJECT OVERVIEW

In total, the Gravel Mining Reach Restoration Project encompasses a 6.1-mile stretch of salmonid habitat restoration in the reach of the river with active terrace mining. The restoration work involves channel reconstruction, setting back existing dikes between the mining pits and the river to widen the floodway, reconstruction of riffle pool sequences to increase spawning and rearing area, and planting riparian forest on the newly created floodway benches. These are considered large-scale projects


*Gravel mining reach restoration.*

given the 6.1-mile length of the river and the magnitude of the materials used for the restoration construction. The project includes planting of over 150 acres of riparian forest and the construction of a 500 -foot wide riparian floodway with setback dikes as part of channel reconstruction. There is no public access at these sites. The Project is divided into four segments, 7\11, MJ Ruddy, Warner-Deardorff, and Reed, to be funded and constructed sequentially.

The first segment, 7\11, is 2.2 miles long covering 87.4 acres, 31.4 acres of which were reforested. Construction and planting occurred between April 2002 and March 2003 at a cost of $6,747,812, including purchase of aggregate mining rights within the footprint of the project. Approximately 540,000 cubic yards of aggregate and topsoil were moved and five new riffles were constructed.

The second segment, MJ Ruddy, is 1.1 miles long covering 56.8 acres. Approximately 36.4 acres of floodplain will be created or modified to increase the floodway capacity, and native riparian habitat will be increased from 18.6 acres to 42.2 acres Approximately 465,000 cubic yards of aggregate and topsoil will be moved in this project. The Project has been fully funded in the amount of $7,737,000 with $115,000 from the Districts and $7,622,000 from the US Fish & Wildlife AFRP. The design work is complete, ROW acquisition is underway, and construction in anticipated to begin in the spring of 2005 with revegetation in the fall of 2005. Maintenance of the revegetation planting will extend through September 2006.

The third segment, Warner Deardorff, is 1.4 miles long covering 75 acres. The project will involve 500,000 cubic yards of material nearly all of which can be generated on site because historic floodplains on the Deardorff parcel will be lowered and the remainder of the Tulare Pond deepened to supply the materials. This phase will also create approximately 63.6 acres of floodplain. Native riparian vegetation will increase from 56.9 acres to 67.5 acres. The Project has been fully funded with $518,670 from the US Fish & Wildlife AFRP and $10,800,000 from the CBDA. The design and permitting of the MJ Ruddy and Warner Deardorff segments has been done as one project under the District's contribution for the MJ Ruddy Segment. The design work is 90% complete; ROW acquisition will commence after completion of the MJ Ruddy ROW acquisition, and construction is anticipated to begin in the spring of 2006 with revegetation in the fall of 2006. Maintenance of the revegetation planting will extend through September 2007.

The fourth segment, Reed, is 1.4 miles long covering 50 acres. In a manner similar to Segment III, the Reed segment restoration was originally intended to use on-site materials for channel and floodplain reconstruction to avoid the need for imported materials. Extensive mining at the site in recent years may now require importation of


**Reach 6: Dredger Trailing Reach** (river miles 40.3 - 46.6)

**TUOLUMNE RIVER COALITION MEMBER PROJECTS**

6.1 Bobcat Flat Channel & Floodplain Restoration

*Tuolumne River*
*Other Stanislaus County Rivers*
*Existing Lower Tuolumne River Parkway Project Site*
*Public Access Point*
*Turlock Lake State Recreation Area*
*Instream Restoration Project*
11 *River Mile Marker*

N
0 Miles 1.5

**Tuolumne River Coalition Member Projects**

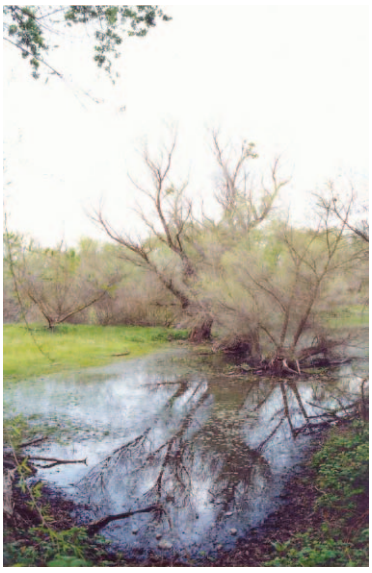
*Lower Tuolumne River Parkway Framework for the Future*

Map 2.6. Reach 6: Dredger training reach.

materials to complete the restoration. Restoration will create approximately 48.2 acres of floodplain. Native riparian vegetation will be increased from 35.9 acres to 47.5 acres. While the Reed Segment has been identified as the fourth project in the Mining Reach there has been no funding by the State, Federal, or District pledged or awarded for the project at this time. In 1999 the estimated cost for this project was $3,340,000. The funding Agencies have asked to see the first three segments completed first before considering funding for the Reed Segment.

MULTIPLE BENEFITS

The projects increase salmon spawning and rearing habitat, increase riparian forest available for avian & terrestrial species and future shaded riverine habitat, provide continuity of fluvial processes within the Mining Reach, remove flow constrictions for improved upstream fluvial processes, and reduce entrapment of salmon fry & smolts by increasing flow capacity of the floodway.



*Bobcat Flat restoration.*

KEY PARTNERS

Funding came from Anadramous Fish Restoration Program, CBDA (including MWD), and Districts (TID, MID, CCSF). Other partners are local aggregate mining companies, local landowners, and TRTAC.

### 6.1 *Bobcat Flat Floodplain and Channel Restoration*

**Lead Organization:** Friends of the Tuolumne, Inc., 7523 Meadow Avenue Stockton, CA 95207. Contact: Allison Boucher, (209) 477-9033 www.friendsofthetuolumne.org

**Project Description:**

LOCATION

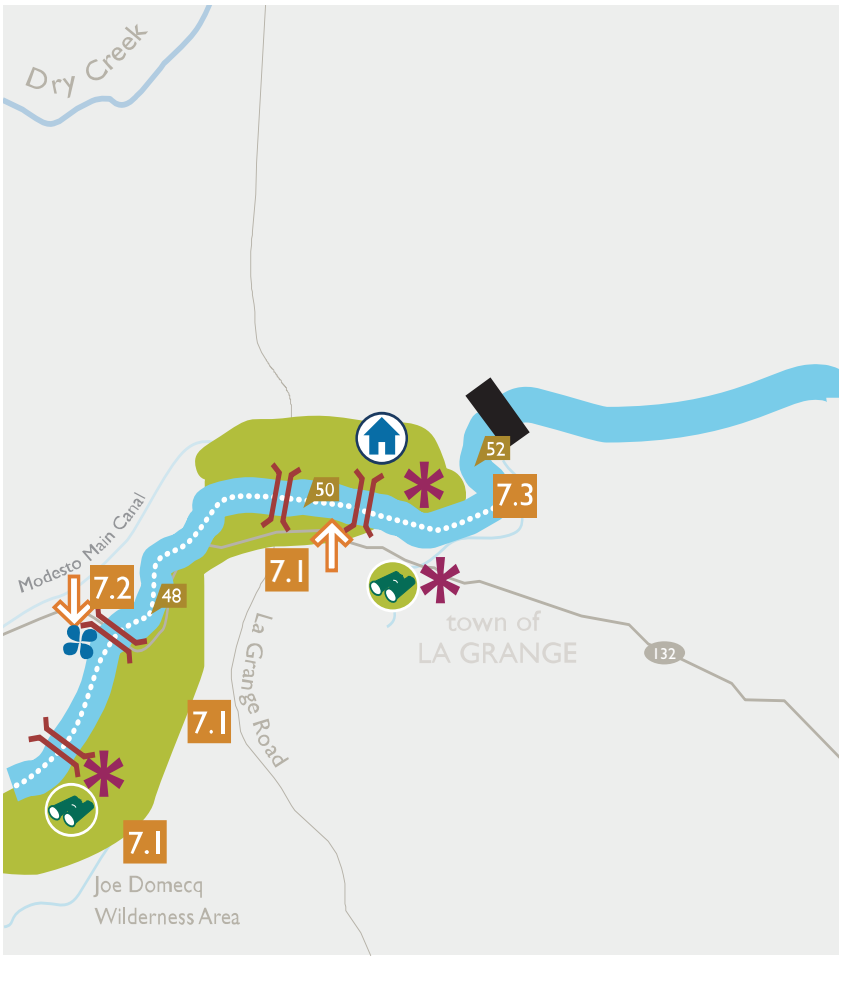
Approximately 12 miles upstream from Waterford in the salmon spawning reach.

**Project Overview**

Coarse spawning gravel is available on site and from a willing seller neighbor. Placing this gravel in spawning riffles would complete the restoration phase started during summer of 2005.

**Project Readiness**

Permits and environmental documentation for excavation and placement of spawning gravel will be completed before construction begins in 2005. The current CALFED budget provides for excavation, placing 5,000 cubic yards of gravel, and replanting of the floodplain. Additional funding is being requested to place another 5,000 cubic yards for spawning riffles. This additional 5,000 cubic yards will be ready for placement along with additional gravel available from a neighbor. The second stage will begin as soon as funding is available.




**Reach 7: Dominant Salmon Spawning Reach** (river miles 46.6 - 52.1)

## TUOLUMNE RIVER COALITION MEMBER PROJECTS

7.1 La Grange Regional Park

7.2 Basso Bridge Fishing Access

7.3 Fine Sediment Reduction & Spawning Gravel Additions

*Tuolumne River*

*Other Stanislaus County Rivers*

*Existing Lower Tuolumne River Parkway Project Site*

*Bridges*

*California Department of Fish & Game— La Grange Field Station*

*Instream Restoration Project*

*Public Access Point*

*Historical/ Cultural Site*

*La Grange Dam*

*Wildlife Viewing*

11 *River Mile Marker*

N

0 Miles 1.5

**Tuolumne River Coalition Member Projects**

*Lower Tuolumne River Parkway Framework for the Future*

Map 2.7. Reach 7: Dominant salmon spawning reach.

*La Grange Regional Park.*

### Multiple Benefits

The instream fishery restoration will benefit both Chinook salmon and steelhead trout for spawning and juvenile rearing. Non-native predator fish habitat will be reduced. The floodplain replanting will benefit birds and mammals that depend on streamside vegetation. The damage from the gold dredgers will be repaired and the floodplain will be able to once again accommodate seasonal inundation and floods. A more natural setting will promote geomorphic and ecological processes. Instream restoration will apply the principles of the AFRP and Tuolumne River Technical Advisory Committee's "Coarse Sediment Management Plan for the Lower Tuolumne River."

KEY PARTNERS

CALFED ($2 million) funded the acquisition and first phase of the restoration. Turlock Irrigation District also partnered with us bringing $300,000 for instream salmon riffle restoration funded by California Department of Water Resources/ Department of Fish and Game. Matching funds for the land acquisition ($138,467) were contributed from the San Francisco FERC Riparian Fund administered by the ESRCD. Stanislaus Fly Fisherman also contributed $1,000 from their conservation fund for this project.

## 7.1 *La Grange Regional Park*

**Lead Organization:** Stanislaus County Parks & Recreation, 3800 Cornucopia Way, Suite C, Modesto, CA 95358. Contact: Sonya Harrigfeld, Director, (209) 525-6750

### Project Description:

LOCATION

This project is the most diverse regional park in the County, with over 700 acres located at 11 sites in the La Grange area, including 225 acres of river bottom along the Tuolumne River.

PROJECT OVERVIEW

**The Town of La Grange**

The project will include nature programs incorporating various components of the park with information on cultural, as well as natural history of the area. The area around the Old La Grange Bridge may include a trailhead with fishing access, picnic area and parking for a loop nature trail connecting the bridge, town and river bottom. The historic bridge will continue to be open only to pedestrian and bicycle traffic.

**River-bottom Area**

Along Yosemite Boulevard between the town of La Grange and Basso Bridge, the county owns approximately 225 acres of river bottom along the Tuolumne River. Most of this area is currently undeveloped. A river access point has been developed at Basso Bridge. Plans recommend a trail system and loop nature trail, but also recommend keeping these improvements low-impact. Improve-

ments to the restroom/showers, as well as future site furnishings (picnic tables, barbecues) at the Basso Bridge area will need to incorporate features to bring the park into compliance with ADA.

MULTIPLE BENEFITS

This project will provide a safe and unique environment for picnicking, hiking, bird watching, possibly biking, camping, fishing and small boating (non-motorized). Native plant restoration programs should promote the restoration of the oak woodlands, wetlands and native grass stands.

KEY PARTNERS

**Working Partners:** California Department of Fish and Game, Turlock Irrigation District (TID)

### 7.2 *Basso Bridge*

**Lead Organization:** Stanislaus County Parks & Recreation, 3800 Cornucopia Way, Suite C, Modesto, CA 95358. Contact: Sonya Harrigfeld, Director, (209) 525-6750

**Project Description:**

LOCATION

The Basso Bridge river access is located off Highway 132 west of the town of La Grange, on the upper reach of the Lower Tuolumne River. This improved access is a part of La Grange Regional Park and currently includes a parking lot, restrooms, boat launch, gravel beach area, and picnic facilities.

PROJECT OVERVIEW

Proposed improvements include upgrade of many of these facilities to comply with ADA and better serve the number of visitors. Trail connections to the adjacent areas should be expanded. New signage and interpretive materials should also inform

*Basso Bridge.*

the visitors not only of the opportunities and precautions relating to the river, but also of the other nearby park resources.

MULTIPLE BENEFITS

Public access will be improved, providing pedestrian trails to adjacent areas. Improvements will provide safe public access, open space, opportunities for boating, passive recreation, picnic, informal play, and educational opportunities regarding river wildlife and vegetation.

KEY PARTNERS

**Working Partners:** California Department of Fish and Game, Tuolumne River Trust, Friends of the Tuolumne, Inc.

### 7.3 *Fine Sediment Reduction and Spawning Gravel Additions*

**Lead Organization:** Turlock Irrigation District. Contact: Wilton Fryer, (209) 883-8317

**Project Description:**

The sediment management projects are intended to improve quantity and quality of spawning riffles. The projects range from cleaning fine sediments deposited in existing riffles, reducing transport of

*Gravel stockpiled for a spawning riffle reconstruction project.*

fine sediments into the principle spawning areas between Basso Bridge and La Grange, and gravel additions or infusions to create more riffles and to provide improved continuity of sediment transport for the long term maintenance of natural fluvial process in segments of the river. There were four sediment management projects identified by the TRTAC.

1. The riffle-cleaning project involves evaluating several methodologies for gravel cleaning to improve the survival to emergence associated with the existing gravel quality of the spawning riffles. The objectives are to: (1) quantify the relationship between substrate permeability and Chinook salmon survival-to-emergence and (2) reduce the volume of sand stored in the mainstem channel and, hence, increase substrate permeability by implementing five riffle-cleaning projects. The project implemented a field experiment to quantify the relationship between permeability and salmon survival-to-emergence to provide guidance on the level of gravel cleaning the project should work towards. Sand storage in riffles throughout the spawning reach has been assessed by the TRTAC monitoring program

**Project Status:** The riffle-cleaning project has been funded by CBDA in the amount of $404,230. The survival to emergence study and pool sand volume assessment has been conducted. The methods and equipment for cleaning sand is currently under evaluation. It is anticipated sand cleaning work will be conducted in the summer of 2005.

2. The Gasburg Creek Project has three elements to reduce the transport of fine sediment into the primary spawning reach of the river. These were an assessment of the Gasburg Creek watershed to evaluate the contribution of sediment from Gasburg Creek to the Tuolumne River, identify major sediment sources within the Gasburg Creek watershed, and provide recommendations for reducing sediment delivery from the watershed. The study found two locations within the basin where remedial action is recommended to reduce the amount of sediment to be handled in a sedimentation basin to be constructed on property owned by the California Department of Fish & Game (CDFG) in La Grange. The construction of a sedimentation basin includes channel restoration design and implementation for a 300-foot reach of the creek downstream of the sedimentation basin.

**Project Status:** The project has been funded by CBDA in the amount of $590,880. The watershed assessment and design work are complete. Construction of the sedimentation basin is scheduled for the summer of 2005 pending approval of the design by CDFG.

3. The third project is the Gravel Augmentation Project. On the Tuolumne River, gravel and cobble are needed to restore degraded sections of river to more productive conditions and to increase salmon spawning habitat. The Gravel Augmentation

Project is implementation of restoration in the priority areas identified in the TRTAC "Coarse Sediment Management Plan". Two important restoration goals in this project are to:

- Continue with large-scale sediment augmentation by placing large volumes of spawning gravel-sized material in the upper gravel-bedded reaches below La Grange Reservoir, to increase spawning habitat availability and improve geomorphic conditions.
- Develop project implementation, monitoring, and adaptive management plans that will facilitate a long-term sediment augmentation program on the Tuolumne River.

The project entails placement of 300,000 cubic yards of screened aggregate to increase salmon spawning habitat by reducing the gradient of existing riffles and by the addition of aggregate in alternate bars within the long runs between existing riffles to further increase available spawning habitat. The project design and implementation process are intended to include protection of existing *O mykiss* habitat while expanding salmon spawning habitat with the aggregate infusion.

**Project Status:** The project has been funded for $4,400,000 with the FSA contributing $50,000 and the CBDA contributing $4,350,000. The design and permitting work has started. Placement of the aggregate can only be done in the summer period when salmon are not present. It is anticipated the placement will take three years, starting in the summer of 2005.

4. The River Mile 43 Project is a joint project with the Friends of the Tuolumne as part of their Bobcat Flat Project in the Dredger Tailings Reach of the river. The project is designed to demonstrate how to increase available spawning areas in the Dredger reach of the river. Reversing the impacts of the dredge mining require conversion from the current "lake-cascade" morphology back to a more natural pool riffle morphology. This can be accomplished by redistributing the elevation drop in the short steep riffles to create low gradient riffles with a slope less than 0.2%. Adding aggregate in the long lake areas to create new bars and riffle areas can create similar conditions. Reducing the riffle slopes will not only improve the hydraulic conditions within each riffle to increase spawning habitat, but it will also greatly increase the total amount of potential spawning habitat by increasing the riffle surface area.

The River Mile 43 Project involves implementing two gravel addition treatments to reduce the gradient at two riffles and to create a new riffle in between. Approximately 10,000 cubic yards of screened aggregate will be placed in the river. The project includes creation of a high flow bypass channel on the adjacent floodplain as the way to generate the aggregate required for the project. The floodplain work is part of a larger riparian reforestation project conducted by the landowner, The Friends of The Tuolumne.

**Project Status:** The RM 43 work is fully funded by the California Department of Water Resources (4 Pumps Project mitigation funds) in the amount of $300,000. The design work has been completed. The process for obtaining the permits required to construct the project has started. It is anticipated that inchannel restoration could start in the summer of 2005.

### MULTIPLE BENEFITS

The projects increase salmon spawning and rearing habitat and provide continuity of fluvial processes

within the spawning reach of the river. The projects are designed to include habitat improvement for *O mykiss*.

KEY PARTNERS

Funding came from Anadramous Fish Restoration Program, CBDA, California Dept. of Fish & Game, Stanislaus County, and Districts (TID, MID, CCSF). Other partners are Friends of the Tuolumne, local landowners, and TRTAC.

## 2.5 ON-GOING COALITION ACTIVITIES AND ACCOMPLISHMENTS

In addition to the projects described above, Tuolumne River Coalition members increase awareness of the river and its surrounding habitat through a variety of efforts. Examples of other recent collaborations and accomplishments include those described below.

### *Fundraising Efforts*

A joint funding request from Coalition member organizations won $2.625 million in state funding for River Parkways in 2002. The funding is helping to improve habitat and recreation in four projects: Tuolumne River Regional Park, Riverdale County Park, Waterford Urban Parks, and Ceres River Bluff Regional Park.

### *Outreach Activities*

- The Coalition conducted stakeholder interviews and held two community workshops, one in November of 2004 and the second in March 2005. The feedback gathered from stakeholders helped enhance the key strategies presented in this document.
- Tuolumne River Trust has organized annual canoe trips to increase awareness of the river and the Coalition and to view the spawning salmon.
- Coalition members met with State and Federal Representatives including Congressman Cardoza, Assemblymen Cogdill, and Agazarian, and state Senators Poochigian and Denham to discuss the vision of the Coalition.
- The Friends of the Tuolumne, Inc. offer tours of their project sites including Bobcat Flat, Grayson River Ranch, and Waterford Percolation Pond restoration sites.
- Coalition members hosted a visit from Attorney General William Lockyer, including a helicopter tour of the river.
- The Tuolumne River Trust, Cities of Modesto and Waterford, TRRP, Stanislaus County Parks and Recreation, and SFPUC jointly sponsored a canoe trip on November 12th to highlight projects along the Lower Tuolumne River. In attendance were over 50 state and federal agency and elected officials. Congressman Cardoza provided opening remarks at Old La Grange Bridge. Participants then went to Mape's Ranch for lunch and project presentations, followed by a tour of the National Wildlife Refuge.

### *Community and Volunteer Events*

- The Hispanic Youth Leadership Council, Great Valley Museum, Friends of Johnny Poppy Seed, Boy Scouts of America, Girl Scouts, Airport Neighborhood United, and several religious and service organizations contribute time, materials and financial support to the Tuolumne River Regional Park. In the good weather months, several volunteer projects are occurring at any given weekend throughout the Regional Park System (from tree planting to refurbishing picnic areas, to painting bollards, to clean-up days) all play a significant role in developing and maintaining TRRP.
- The Yokuts Group of the Sierra Club has worked with the Tuolumne River Trust and Friends of the Tuolumne, Inc. with various river clean-ups and tree-planting efforts at restoration sites.

- Waterford has worked with Friends of the Tuolumne, Inc. and other volunteers for tree plantings at Waterford Percolation Ponds restoration site.
- Members of the Tuolumne River Regional Park (TRRP) Citizen's Advisory Committee volunteer time and labor to the design and public outreach efforts. Members set up booths at Earth Day, Cesar Chavez Celebration, The International Festival and special events. Members of the TRRP staff give presentations to local service organizations such as the Garden Club, Rotary International, Kiwanis, Lions, Soroptomists, the Hispanic Youth Leadership Council and others.

### *Policy Collaborations*

- Coalition members provide on-going feedback to the development of other Coalition member plans.
- In 1995, five Coalition member organizations[5] and supporters signed on to the FERC Settlement Agreement.
- The development of the Habitat Restoration Plan for the Lower Tuolumne River Corridor was a joint effort that included multiple Coalition members and supporters such as Turlock Irrigation District, Modesto Irrigation District, the Department of Fish and Game, San Francisco Public Utilities Commission, Fish and Wildlife Service, the Tuolumne River Trust, and Friends of the Tuolumne, Inc.
- There are 10 priority projects that have been selected per the FERC Settlement Agreement through the Tuolumne River Technical Advisory Committee.
- The TRRP staff assisted the City of Ceres in the development of River Bluff Park.

The Tuolumne River Coalition will continue to plan for and host activities such as Parkway project tours, canoe trips, natural history and environmental interpretation tours, volunteer tree planting days and river clean-ups that increase the awareness of the river and of Parkway projects.

5. Tuolumne River Trust, Friends of the Tuolumne, Inc., Turlock Irrigation District, Modesto Irrigation District, San Francisco Public Utilities Commission

## 2.6 OTHER ENHANCEMENT, RECREATION AND MANAGEMENT EFFORTS

In addition to the on-going efforts of the Coalition member organizations, many state, federal, and private agencies continue to influence the Lower Tuolumne River corridor with their activities.

### *Public*

Public agencies involved with land management along the Lower Tuolumne include the California Department of Fish and Game, which operates a restoration field office in Reach 7 near La Grange, and the USDA's Natural Resources Conservation Service (NRCS), which works with local leadership provided by ESRCD to conserve, improve, and sustain natural resources, the environment and the economy of the river. The NRCS has purchased 5 conservation easements with many parties near Shiloh Road Bridge, including Grayson River Ranch and Big Bend.

California State Parks has also published "California State Parks and the Great Central Valley" in April 2004. The report identifies unique recreation opportunities in the Central Valley, particularly along rivers, and a great recreation need due to booming population growth. California State Parks is actively exploring opportunities to contribute to the Tuolumne River Parkway.

Region-wide efforts that encompass or may encompass the Lower Tuolumne River in the future include several San Joaquin Basin water quality studies. The Central Valley Regional Water Quality

Control Board (RWQCB) will be releasing an updated San Joaquin Basin Water Quality Assessment in 2005. The U.S. Geological Survey also coordinates the San Joaquin Basin National Water Quality Assessment (NAWQA) Program. Also, the San Joaquin River Water Quality Management Program is an informal collaborative of technical consultants that provides mitigation recommendations in response to Total Maximum Daily Loads (see page 3-9) in the Central Valley Regional Water Quality Control Board's plan for the Bay-Delta.

Other regional efforts that affect the Lower Tuolumne River include the CALFED Bay-Delta Program and the Anadromous Fish Restoration Program (AFRP) of the U.S. Fish and Wildlife Service. The CALFED Bay-Delta Program aims to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta System, while the AFRP has a mission to make all reasonable efforts to at least double natural production of anadromous fish in California's Central Valley streams on a long-term, sustainable basis.

### *Private*

Primary biological, engineering, and environmental consultants actively assisting projects on the Lower Tuolumne River include Trust for Public Land, McBain and Trush, Stillwater Sciences, Hart Restoration Team, and River Partners.

Aggregate mining companies are now required by multiple regulatory agencies to accompany gravel mining activities with channel and riparian mitigation or reclamation efforts. Bridge construction will also trigger restoration or mitigation efforts as required by relevant regulatory agencies.

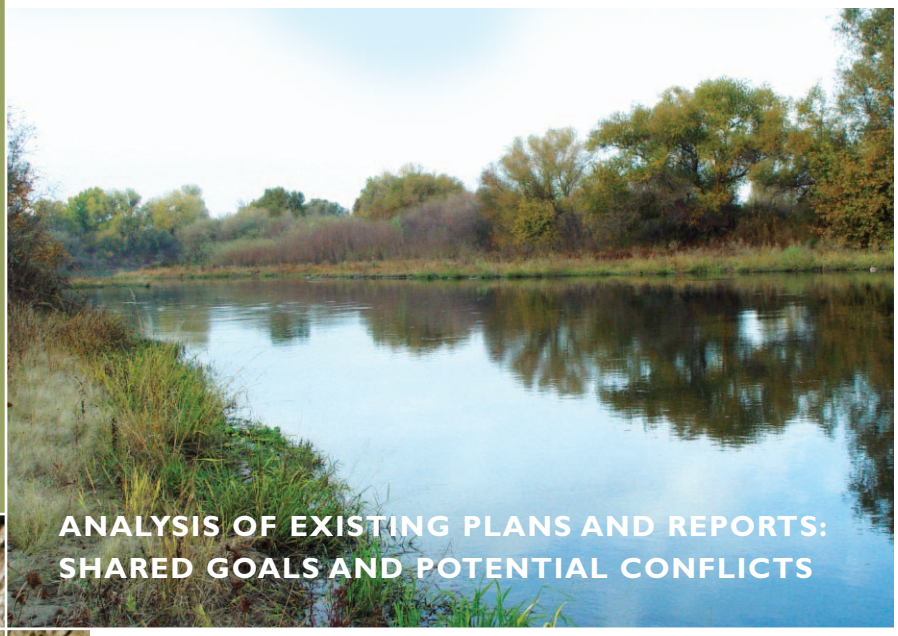
## 2.7 SUMMARY

This review of the river (and the people, wildlife and vegetation it sustains) highlights the many opportunities and challenges inherent to creating a river corridor that will support self-sustaining populations of native species while connecting people to nature through recreation, open space, and educational opportunities and continuing to support a diverse regional economy. Finding and securing funding and other support for Lower Tuolumne River Parkway projects will be an on-going task. The lack of a clear perception of the Lower Tuolumne River's assets and multiple values by the general public also poses a significant challenge.

The Tuolumne River corridor's assets include acres of riparian habitat rich in diverse species, developed parklands and public access points for recreational uses, and special interest groups, governmental bodies and regulatory agencies that have invested significant resources in studies, restoration, and management of the river corridor. There are economic and agricultural uses that depend on the river for sustenance. The dynamic between these interests, as well as those yet unrevealed, play a significant role.

Although there are several uses of the river that require further study and understanding, a review of the river today reveals that there is an emerging relationship between people and the river, which will result in highlighting the river as a centerpiece in the community for those who live, work, and recreate near it. Recent efforts are realizing a new level of environmental values and quality of life along the Lower Tuolumne River corridor.

# Chapter 3



## ANALYSIS OF EXISTING PLANS AND REPORTS: SHARED GOALS AND POTENTIAL CONFLICTS



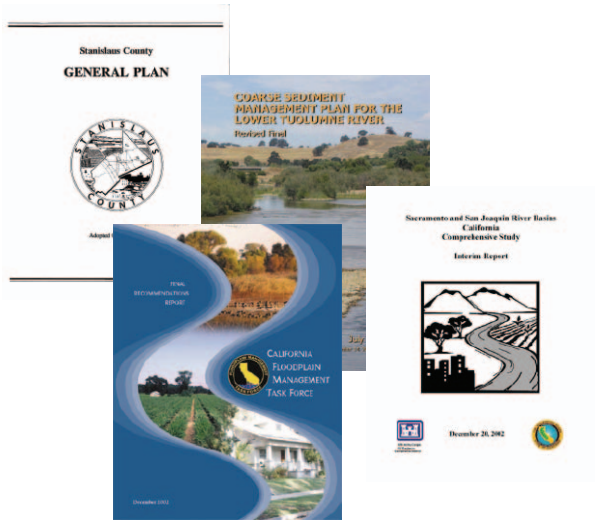
*"Preservation insures that future generations will continue to enjoy the natural ecology of our river."*

—TUOLUMNE RIVER COALITION MEMBER

## 3.1 INTRODUCTION

This chapter addresses the second of four tasks identified in the first chapter: to analyze existing plans and reports concerning the Lower Tuolumne River and its floodplain, building upon the Habitat Restoration Plan for the Lower Tuolumne River Corridor (described in greater detail below).

The Tuolumne River Coalition is guided by the vision and approach outlined in the previous chapter, yet also recognizes the complex policies that affect planning along the river. For example, in addition to all of the Coalition members, many local, state and Federal agencies hold jurisdiction along the river, and their policies wield considerable influence on planning related to the river. These include the California-Bay Delta Authority (CALFED), the US Fish and Wildlife Service Anadromous Fish Restoration Program, California Department of Fish and Game (DFG), Stanislaus County, the US Department of Agriculture-Natural Resources Conservation Service (NRCS), and the US Department of Commerce-National Oceanic and Atmospheric Administration (NOAA Fisheries).




In order to address the diverse array of policies that affect the river in this complex environment, the Coalition has adopted three primary approaches: 1) Analyze current plans, reports and studies that pertain to or affect the Lower Tuolumne River; 2) Create a forum, in the form of the monthly Coalition meetings, for on-going discussion of projects and issues concerning the river; 3) Conduct outreach and education to stakeholders and the public to gather and disseminate information (including a Lower Tuolumne River community workshop in November 2004 and on-going communication with stakeholders).

The results of the Coalition's analysis of plans and reports are presented in this chapter. The Coalition conducted an inventory of many plans, reports, and studies relevant to the Tuolumne River and its floodplain. In all, the Coalition collected more than 40 different documents and conducted an analysis of each of these plans, with special emphasis on identifying shared goals across plans, potential conflicts identified in the plans or between plans, and opportunities revealed in the reports.

The shared goals, potential conflicts, and opportunities from existing reports presented here describe current policies that have helped to shape the projects described in Chapter Two. These goals, conflicts and opportunities provide insight into future policy concerning the Lower Tuolumne and build the foundation for the strategies and actions put forth in Chapter Four. These strategies and actions strengthen the common goals and address the needs and gaps identified in this chapter.

Although the strategies proposed by the coalition build upon or address these common goals and potential conflicts, the statements included in this chapter are simply findings. They reflect the word-

ing and approach of existing reports and are not necessarily statements that are endorsed by the Coalition.

Appendix B includes a detailed table of all plans and reports considered in this analysis. The table lists key river elements contained in each document, cites which of the document's policies or goals were referenced in the development of the Framework for the Future, and lists a website (if applicable) where the document is available. Appendix C is a comprehensive inventory of state-

**TABLE 3.1** LIST OF EXISTING PLANS, REPORTS AND STUDIES CONSIDERED IN THIS ANALYSIS

| AGENCY/ORGANIZATION | PLAN, REPORT OR STUDY |
|---|---|
| California Bay-Delta Authority | • Ecosystem Restoration (ERP) Multi-Year Program Plan (Years 5-8)<br>• Lower Tuolumne River Adaptive Management Forum Report. October 1, 2001<br>• Watershed Program Multi-Year Program Plan (years 5-8) |
| California Department of Fish & Game | • Restoring Central Valley Streams: A Plan for Action. November 1993 |
| California Department of Water Resources* | • Bulletin 118 – Update 2003, California's Groundwater<br>• California Model Floodplain Management Ordinance, December 2001 |
| California Floodplain Management Task Force | • California Floodplain Management Report. December 12, 2002 |
| California Partners in Flight | • Riparian Bird Conservation Plan: A Strategy for reversing the decline of riparian associated birds in California. (Riparian Habitat Joint Venture). August 2000 |
| California Regional Water Quality Control Board, Central Valley Region | • Water Quality Control Plan for the Sacramento and San Joaquin Basins, 1998 |
| California State Parks | • California State Parks and The Great Central Valley, April 2004<br>• Performance Management Report 2004<br>• California Outdoor Recreation Plan 2002 |
| Ceres, City of | • Hatch Road Regional Park Master Plan. July 2002<br>• City of Ceres General Plan |

**TABLE 3.1** LIST OF EXISTING PLANS, REPORTS AND STUDIES CONSIDERED IN THIS ANALYSIS (CONTINUED)

| AGENCY/ORGANIZATION | PLAN, REPORT OR STUDY |
|---|---|
| Department of Commerce, National Oceanic and Atmospheric Administration | • Federal Register Part IJ 50 CUR Parts 223 and 224 |
| Federal Emergency Management Agency Revised as of October 1, 1994 | • National Flood Insurance Program and Related Regulations, |
| Federal Energy Regulatory Commission | • Federal Energy Regulatory Commission Order Amending Articles 37 & 58 of License for Project Number 2299-024 & –031<br>• New Don Pedro Proceeding Settlement Agreement. 1995 |
| Friends of the Tuolumne, Inc | • Bobcat Flat Conceptual Restoration Plan |
| Modesto, City of | • City of Modesto General Plan. 1995, updated 2001<br>• City of Modesto General Plan, Tuolumne River Comprehensive Planning District<br>• County and City-wide Visioning Statements and Related County Policies, February 5, 2002 |
| River Partners | • Annual Report 2003 |
| San Francisco Public Utilities Commission | • Capital Improvement Program, February 25, 2002<br>• SFPUC Master Plan |
| Stanislaus County | • Countywide Visioning Statements and Related County Policies, February 5, 2002<br>• Stanislaus County General Plan. 1994<br>• Stanislaus County Agricultural Elements of the General Plan, 1994<br>• Stanislaus County Parks Master Plan. August 24, 1999<br>• County of Stanislaus Policy Regarding Agricultural Lands Transaction |
| Tuolumne River Regional Park | • Tuolumne River Regional Park Master Plan and Master Environmental Impact Report (SCH# 2000022028)<br>• CEQA Findings of Fact and Statement of Overriding Conditions for the Tuolumne River Regional Park Master Plan (Joint Powers Authority, also including City of Modesto and County of Stanislaus). October 2001 |

**TABLE 3.1** LIST OF EXISTING PLANS, REPORTS AND STUDIES CONSIDERED IN THIS ANALYSIS (CONTINUED)

| AGENCY/ORGANIZATION | PLAN, REPORT OR STUDY |
|---|---|
| Tuolumne River Technical Advisory Committee | • Habitat Restoration Plan for the Lower Tuolumne River Corridor. March 2000 |
| U.S. Army Corps of Engineers | • Tuolumne River & Tributaries Feasibility Study Project Management Plan (currently developing work plan and project schedule). October 31, 2001<br>• Sacramento & San Joaquin River Basins Comprehensive Study for Flood Damage Reduction & Ecosystem Restoration Post-Flood Assessment, December 20, 2002 |
| U.S. Fish & Wildlife Service | • Environmental Assessment and Land Protection Plan. Proposed Addition to the San Joaquin River National Wildlife Refuge Stanislaus County, CA. (for the establishment/expansion of the riparian wildlife refuge in 1998), April 1998<br>• Final Restoration Plan for the Anadromous Fish Restoration Program: A Plan to Increase Natural Protection of Anadromous Fish in the Central Valley of California, January 9, 2001<br>• Central Valley Habitat Joint Venture Implementation Plan, February 1990<br>• The Economic Impact on Stanislaus County of Public land Acquisitions and Conservation Easements on Floodplain Lands Along the Lower Tuolumne and San Joaquin Rivers. Revised Draft Report, December 2002<br>• AFRP Tuolumne River Watershed Data<br>• Workplan for Fiscal Year 2003, September 20, 2002<br>• San Joaquin National Wildlife Refuge Comprehensive Conservation Plan<br>• Coarse Sediment Management Plan for the Lower Tuolumne River, Revised Final, July 20, 2004[1]<br>• Tiered Environmental Assessment. 1998[2] |
| Waterford, City of | • City of Waterford General Plan. November 1991 |

1. This report was co-authored by the U.S. Fish and Wildlife Service and Tuolumne River Technical Advisory Committee.
2. This report was co-authored by the U.S. Fish and Wildlife Service and Turlock Irrigation District.

ments excepted from existing plans and reports that was used as the basis for analysis. A list of agencies and their documents considered in this analysis include those listed in Table 3.1 on page 3.3.

### *Overview and Role of the Habitat Restoration Plan for the Lower Tuolumne River*

The Habitat Restoration Plan for the Lower Tuolumne River is a document prepared by consultants McBain and Trush under the direction of the TRTAC, including the irrigation districts, federal agencies, and local non-profits (see page 2-33 for a list). The Restoration Plan was finalized in 2000.

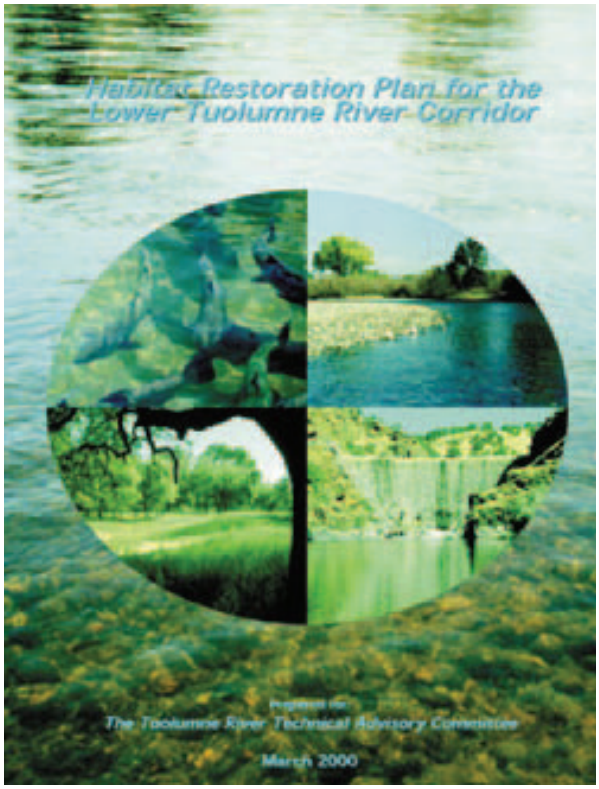
The Restoration Plan is based on the assumption that many human and economic uses depend upon the Tuolumne River and a strategy for restoring the river must recognizes these uses. The Restoration Plan provides extensive technical information about restoring the Lower Tuolumne river channel and riparian corridor, especially to improve Chinook salmon and wildlife habitat. It provides information about the history of the Tuolumne River, anadromous fish, riparian vegetation, and fluvial morphology. It also established the boundaries of the seven reaches of the river referred to in this document.

The Framework for the Future builds upon the technical foundation of the Restoration Plan through the examination of other plans and policies concerning the Lower Tuolumne River and its floodplain. The Restoration Plan focuses on restoring riverine and riparian habitats and presents more limited information concerning the social and cultural environment surrounding the river. The Framework for the Future addresses more fully those aspects and will act as an advisory document to the work of the Tuolumne River Coalition.

The Habitat Restoration Plan for the Lower Tuolumne River Corridor (Restoration Plan) combines knowledge of salmon ecology with information about the fluvial geomorphic and hydrologic processes, presents results from extensive fluvial geomorphic and riparian vegetation investigations, develops river-wide as well as reach-specific restoration goals and strategies, and proposes an adaptive management monitoring approach for restoration projects.

The primary goals for restoring the Lower Tuolumne River laid out in the Restoration Plan include:

- A continuous river floodway along the Lower Tuolumne River with capacity that safely conveys at least 15,000 cfs above Dry Creek and 20,000 cfs below Dry Creek




*Habitat Restoration Plan for the Lower Tuolumne River Corridor.*

- A continuous riparian corridor along the Lower Tuolumne River, with a width exceeding 500ft minimum in the gravel-bedded reaches to a width up to 2,000ft near the San Joaquin River.
- A dynamic alluvial channel, maintained by flood hydrographs of variable magnitude and frequency adequate to periodically initiate fluvial geomorphic processes (e.g. mobilize channel bed surface, scour and replenish gravel bars, inundate floodplains and promote channel migration).
- Variable streamflows, such as during Chinook spawning, rearing and emigration, to benefit salmon and other aquatic resources.
- A secure gravel supply to replace gravel transported by the high flow regime, thus maintaining the quantity and quality of alluvial deposits that provide Chinook salmon habitat.
- Bedload transport continuity throughout all reaches.
- Chinook salmon habitat created and (once re-established) maintained by natural processes, sustaining a resilient, naturally reproducing Chinook salmon population.
- Self-sustaining, dynamic, native woody riparian vegetation and reduced extent of exotic plants.
- Continual revision of project management to ensure adaptive management, addressing areas of scientific uncertainty that will improve our understanding of river ecosystem processes and refine future restoration and management.
- Increased public awareness and involvement in the Tuolumne River restoration effort.
- A clean river. Community's perception of a river's intrinsic value is largely based on visual aesthetics. To most people, a clean river is worth caring for, and the public will be more conscious of keeping it clean.

## 3.2 SHARED GOALS AND POTENTIAL CONFLICTS FROM THE ANALYSIS OF EXISTING PLANS, REPORTS AND STUDIES

The analysis of existing plans, reports, and studies involved cataloguing and comparing goal and policy statements from within these documents that relate to the Tuolumne River. Small groups within the Tuolumne River Coalition analyzed the goal and policy statements to identify those that communicated shared goals, called out potential conflicts, or identified common opportunities relating to the river. In many cases, statements from documents were recorded word for word; in others, they were summarized or consolidated.

Coalition members then organized the goal and policy statements into categories characterized by either a river element (such as water supply or habitat restoration) or river location (such as the upper reaches of the river). This section discusses the analysis by river element first, and then by river location. **They are not presented in priority order.**

Each element or category begins with a discussion of the current status of the element, followed by statements concerning shared goals across existing reports, potential conflicts across existing reports, or identified by the reports, and/or opportunities revealed in the analysis of existing documents. Each statement is numbered, so that the first statement for "Water Supply", for example, is called "WS-1" and the second "WS-2" and so on. These statements of analysis are summarized in Appendix D. Appendix F links specific strategies (as outlined in the Chapter Four) to the specific statements of analysis they address.

The categories of river elements or location are as follows:

## 3.3 WATER SUPPLY[3]

The Lower Tuolumne River, along with three major reservoirs, provides drinking and irrigation water to Stanislaus County. Currently, the water supply from the Lower Tuolumne River is regulated through a variety of mechanisms. Don Pedro Dam regulates releases of stored runoff (for example, seasonal rainfall and snowpack melt) that continually re-charge the Tuolumne River. Modesto and Turlock Irrigation Districts are responsible for maintaining river flows below La Grange Dam to meet the needs of fisheries and for the purposes of flood

3. San Francisco Public Utilities Commission Water Supply Master Plan; Tuolumne River Technical Advisory Committee. Habitat Restoration Plan for the Lower Tuolumne River Corridor. March 2000; Modesto Irrigation District: http://www.mid.org/

*Irrigated fields.*

management. As discussed in Chapter One, water diversions from the Upper Tuolumne River also impact the river and riparian characteristics of the lower section. Runoff from the Upper Tuolumne supplies the Hetch Hetchy system, which is the largest water supply and conveyance system of the San Francisco Public Utilities Commission (SFPUC), providing about 85% of the total SFPUC system water supply.

Water from the Lower Tuolumne River not only supports many plant and animal species, but also provides for industrial, environmental, recreational and agricultural uses as well. River flows, whether high or low, affect habitat conditions as well as recreation, while high flows can pose potential threats to some residents, businesses, and farms, they are necessary at times to sustain certain types of riparian vegetation, and may also be unavoidable. Low flows can affect fish ecology and distribution, riparian habitat, and recreation opportunities.

### *Shared Goals, Potential Conflicts and Opportunities*

**WS-1:** Analysis of existing plans and reports indicates a shared goal to enhance support for innovative means to accommodate diverse water uses.

*MID Main Canal, near Reach 7.*

- Commonly proposed approaches focus on water conservation, reclaimed wastewater, and groundwater management programs.

**WS-2:** The analysis of plans reveals there may be conflicts and competition for limited water resources for diverse urban, agricultural, environmental, and recreational needs.

- Water management may affect the degree to which a natural functioning river ecosystem is restored to the Lower Tuolumne.
- Boating and other recreational opportunities are affected by river flows
- Flow affects water temperatures which influence the status (e.g., health and numbers) of aquatic species.

## 3.4 WATER QUALITY (WQ)[4]

Areas of concern along the Lower Tuolumne include the confluence with Dry Creek and other areas where urban and agricultural run-off enters the river. There also exist several land uses of potential concern located near the river, including three sewage treatment sites, a tallow factory, a junkyard, chlorine storage, gravel mining activities, adjoining residential development, and various industrial uses in the urban areas. In recent years, cities and the County have begun various mitigation efforts to control storm-water run-off.

The Tuolumne is included in the geographic area of the State Water Resources Control Board's Organophosphorous Pesticide and Salt and Boron TMDL[5]s. The Lower Tuolumne is also on the 303(d) list[6] for impairment by diazinon, Group A Pesticides, and unknown toxicity.

The Central Valley Regional Water Quality Control Board's (RWQCB) Intensive Basin Unit, in conjunction with its Surface Water Ambient Monitoring Program (SWAMP) Unit monitors specific sites along the Tuolumne and Dry Creek for Total Coliform, E. coli, Total Suspended Solids (TSS), Total Organic Carbon (TOC), Trace Elements (TE), Partial Mineral, Nutrients A and B, and Toxicity in addition to conductivity (EC), pH, Dissolved Oxygen (DO) and temperature.

The sites that are monitored by the RWQCB are as follows: Tuolumne at Old La Grange Bridge; Tuolumne at Legion Park; Tuolumne at Riverdale Fishing Access; Tuolumne at Shiloh Fishing Access; and Dry Creek at La Loma Rd. The pesticides unit

4. Central Valley Regional Water Quality Control Board: Tuolumne River Technical Advisory Committee. *Habitat Restoration Plan for the Lower Tuolumne River Corridor.* March 2000

5. "TMDL"s are "Total Maximum Daily Loads", a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. By law, EPA must approve or disapprove lists and TMDLs established by states, territories, and authorized tribes. If a state, territory, or authorized tribe submission is inadequate, EPA must establish the list or the TMDL. EPA issued regulations in 1985 and 1992 that implement section 303(d) of the Clean Water Act - the TMDL provisions.

6. Section 303(d) of the Clean Water Act requires water departments to develop prioritized lists of streams and lakes that do not support their designated uses, and to provide information on the pollutants and sources that are the causes of non-support.

*Tuolumne River, Downstream of Waterford*

also monitors the following sites most frequently for Diazinon and Chlorpyrifos: Tuolumne at Santa Fe Road near Empire; Tuolumne at Modesto; Dry Creek at Gallo Bridge; and Dry Creek at Modesto.

Several region-wide water quality efforts were identified in Chapter 2.

### *Shared Goals, Potential Conflicts and Opportunities*

**WQ-1:** A common goal across plans and reports is to maintain or improve current water quality of the Lower Tuolumne and its tributaries to support human uses and diverse aquatic ecosystems.

- There is support for the implementation of practices to improve water quality and floodplain restoration. Approaches include Best Management Practices such as water quality and wastewater planning, monitoring, management of agricultural and urban run-off, and riverbank restoration.
- There is widespread support for significant efforts to address dumping of refuse in the river.

**WQ-2:** The study of plans reveals that there may be conflicts between upstream water diversions that decrease flows in the river and water quality (temperature, dissolved oxygen, cleanliness).

**WQ-3:** Plan analysis points to other potential conflicts when land uses and water diversions may lead to excessive sedimentation therefore limiting water quality improvement efforts.

**WQ-4**: The examination of existing plans indicates that a lack of coordination across cities and other entities that manage land along the river may inhibit water quality improvement efforts.

## 3.5 FLOODPLAIN AND FLOODWATER MANAGEMENT (FM)

Currently, floodplains along the Lower Tuolumne are managed and maintained through a variety of mechanisms including agricultural practices, flood control (flow restrictions and levees), private mining and agricultural berms, riparian habitat restoration, open space and park/golf course designation, and controlled land use (such as restricting building within the floodplain). These mechanisms represent diverse, and at times conflicting, approaches to flood and floodplain management.

### *Shared Goals, Potential Conflicts and Opportunities*

**FM-1:** A common goal across several of the plans and reports analyzed is to manage floods to protect people, developed areas, and habitat through diverse mechanisms.

- Flood management approaches include non-structural approaches (utilizing the natural floodplain to accommodate flood waters).
- Flood management approaches include allowing inundation where it could contribute to the ecological value of the corridor and not threaten people or development.

*Flooding near Modesto.*

- Filling, dredging, or grading that could increase flood damage can be controlled.

**FM-2:** Through the analysis of plans, it appears that there may be conflicts or limitations between existing land uses and flood management approaches.

- Safety of residential developments must be of primary concern in considering any floodplain management approach.
- Existing mining practices may intensify flood damage.
- Natural floodplain and channel processes may be limited by urban development and other land uses.
- Existing or potential development may restrict the use of non-structural approaches to flood damage reduction.
- Some flood management approaches may limit habitat restoration opportunities.

## 3.6 GEOMORPHOLOGY (GM)

Geomorphology is defined as the evolution and configuration of rocks, soils, and landforms. The geomorphology, or physical configuration, of the river (or "fluvial" environment) determines, in part, what plants and animals will be found in and near the river.

The Lower Tuolumne River is an alluvial river. An alluvial river has riverbed, banks, and floodplains composed of coarse and fine sediments (sand, gravel, and cobble). A natural river is dynamic in that it is able to frequently move the channelbed and banks and scour coarse sediments, which are then replaced by comparable materials transported from upstream. The morphology or shape of the river is thus maintained over time in what is called a "dynamic quasi-equilibrium".

*Floodplain near Waterford.*

#### *Shared Goals, Potential Conflicts and Opportunities*

**GM-1:** Several of the plans and reports share goals to attain an active and vegetated floodplain that supports multiple uses and resources.

- Natural river processes could be achieved through managing coarse sediment supplies and flood management that contributes to the ecological value of the river corridor.

**GM-2:** The examination of plans indicates that finite sediment resources may lead to competition between gravel mining, habitat restoration, natural river processes, and flood management.

**GM-3:** Plans and reports call out that conflicts may occur because upstream water management may limit the potential to achieve naturally functioning processes, such as a balance of coarse and fine sediments.

### 3.7 RIPARIAN HABITAT (RH)

The area of riparian vegetation along the Lower Tuolumne River has been greatly reduced as reviewed in Chapter 2. Like the rest of the Central Valley, much of the riparian forest along the river corridor has been eliminated.[7] The main terrestrial vegetation communities represented along the Tuolumne River are: grasslands, riparian woodland, agriculture land, and wetlands. The most abundant and significant native species remaining today are the Narrow-leaf willow (and willow species in general), the Fremont Cottonwood, and the Valley oak. Both native and non-native plant species are listed in Appendix G.

Riparian vegetation serves as habitat for diverse breeding and migratory songbirds, provides nesting sites for birds of prey and colonial nesting waterbirds, and acts as home and travel corridors for forest-dependent wildlife.

#### *Shared Goals, Potential Conflicts and Opportunities*

**RH-1:** Goals shared across several plans and reports are to protect and conserve riparian habitat.

- Native, sensitive, and self-sustaining habitats are prioritized for protection.

7. United States Fish and Wildlife Service. *San Joaquin River National Wildlife Refuge Comprehensive Conservation Plan.* 2004

*Bobcat Flat Preserve.*

- Valley oak and Fremont cottonwood stands in particular are identified for protection.
- Emphasis is placed on preserving habitat for both ecological and public values.

**RH-2:** The analysis of plans reveals that the Habitiat Restoration Plan Goal to establish a riparian corridor of 500-2,000 ft along the Lower Tuolumne may conflict with other existing or projected land uses.

**RH-3:** The analysis highlights that multiple plans and reports identify opportunities to restore habitat through a multi-pronged approach.

- Adequate flows and floods could assist in restoration.
- Restoration could include mitigation from new development as well as restoration in undeveloped areas.

*Studying Riparian brush rabbits at the Refuge.*

*Aleutian cackling geese arrive at the Refuge.*

- Restoration could be assisted, where possible, by widening of the river corridor.
- Individual volunteers, especially landowners along the river, could significantly enhance habitat improvements through restoration of their properties.

## 3.8 TERRESTRIAL SPECIES[8] (TS)

### *Mammals*

Endangered or Threatened mammalian species potentially found in the Lower Tuolumne River corridor include the San Joaquin Kit Fox, the San Joaquin Valley (Riparian) Woodrat, and the Riparian Brush Rabbit. There are now multiple known sites of the Riparian Brush Rabbit in or near the San Joaquin River National Wildlife Refuge, and the Refuge is expanding their habitat. There may also be bat species present that are Species of Concern.

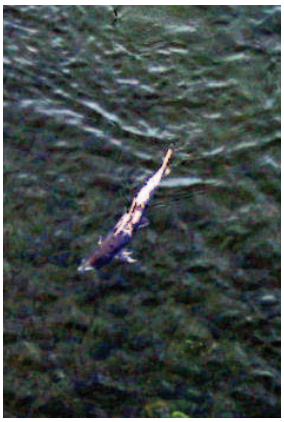
8. San Joaquin River National Wildlife Refuge Study Report; San Joaquin River National Wildlife Refuge Comprehensive Conservation Report; Stanislaus Audubon; Central Valley Habitat Joint Venture Implementation Plan; TRRP Master Plan Existing Conditions Technical Memorandum #4; Habitat Restoration Plan for the Lower Tuolumne River Corridor; Mitigated Negative Declaration for Special Run Pool 9 (TID)

River Otters have been sighted in both the lower and upper reaches of the river. Other river-oriented mammals found in the river corridor include mink, muskrat (introduced), weasel (long-tailed) and beaver. Many terrestrial mammal species rely on the riparian corridor. The disruption of the riparian corridor in the urban reaches has restricted the location of certain larger mammals, such as deer, to the upper reaches of the river.

*Birds*

California supports more than 60 percent of all waterfowl (excluding sea ducks) wintering in the Pacific Flyway and about 20 percent in the entire United States, with the Central Valley playing the most significant role of all regions. The Lower Tuolumne River corridor provides habitat for many bird species, and supports approximately 23 bird species of concern. With increasing wetlands restoration projects, the National Wildlife Refuge at the confluence of the Tuolumne and San Joaquin Rivers supports significant waterfowl and waterbird resources and is capable of providing habitat for an even greater abundance of these resources.

Specifically, riparian birds found in the Lower Tuolumne River corridor include Swainson's hawk, Willow flycatcher, Yellow warbler, Osprey, Belted kingfisher, and colonial nesting birds such as herons, egrets, and cormorants. The Bank swallow and Yellow-billed cuckoo are riparian bird species that have become locally extinct in the northern San Joaquin Valley, but whose populations could recover with habitat restoration efforts.



*Spawning salmon in Reach 7.*

*Other Species*

Other Endangered or Threatened species currently living within the Lower Tuolumne River corridor include the Valley Elderberry Longhorn Beetle and other Species of Concern include the Western Pond Turtle and the Silvery Legless lizard. Appendix G contains a more comprehensive list of all species found in the Lower Tuolumne River region.

#### *Shared Goals, Potential Conflicts and Opportunities*

**TS-1:** The analysis of plans reveals a common goal across many plans to enhance the river corridor as bird habitat for native bird species.

**TS-2:** The analysis indicates that achieving species recovery through habitat restoration efforts is also a mutual goal.

- Emphasis is placed on protecting wildlife habitat through working with public and private landowners.
- The recovery and protection of federal and state listed endangered, threatened, sensitive and rare wildlife is prioritized.

### 3.9 AQUATIC SPECIES[9] (AS)

NOAA Fisheries has proposed that the Central Valley steelhead trout remain a Federally-listed Threatened species. Currently, the fall-run Chinook salmon is a candidate species. Both steelhead and salmon are anadromous.[10] Other fish species of

concern found in the river include Pacific lamprey and river lamprey.

Chinook salmon provide an illustrative example of the life cycle of an anadromous fish. Chinook salmon are the largest of the five anadromous North American Pacific salmon species. The life cycle of the Chinook salmon begins and ends on the spawning grounds. In the San Joaquin basin, adults typically arrive at the spawning grounds from October into December, peaking in early- to mid-November. Spawning takes place from mid-October through late-December. Fry, about 1.5 inches long, emerge mostly from January to March. Fry may emigrate from the river into San Joaquin river and the Bay Delta estuary soon after emergence, but some rear in the river for several months before migrating, mostly in April to May as 3-4 inch smolts. Tuolumne River Chinook salmon return to spawn when they are between two- and five-years old.

The life cycle of Central Valley steelhead is similar to that of the salmon in that they are anadromous fish, migrating to sea as juveniles and returning to inland waterways to spawn, as two- to four- year olds. Upstream migration of steelhead occurs in August through March, altered from native patterns as a result of interbreeding with hatchery strains and altered flow and temperature conditions below major dams. Steelhead spawning typically occurs December through April. Unlike Chinook salmon, most steelhead do not die after spawning, and many live on to be repeat spawners. Females have a higher survival rate, and some spawn up to four times. Steelhead that survive spawning return to the sea between April and June. Juveniles generally rear in fresh water for over a year before emigrating as larger smolts, often 8-12 inches long in December through May.[11]

### *Shared Goals, Potential Conflicts and Opportunities*

**AS-1:** Mutual goals revealed through the analysis of plans include enhancing and maintaining fisheries, particularly for native anadromous fish.

- Common goals focus on maintaining or improving overall instream habitat, water quality and river flows that support species recovery.

**AS-2:** Plans and reports indicate that simultaneous demands for increased water supply for fish species, especially steelhead, and other uses such as irrigation may conflict.

**AS-3:** The plan analysis highlights opportunities to share information regarding annual anadromous fish counts more broadly in order to integrate the community into observing and tracking fish species.

**AS-4**: Plans also indicate that there are opportunities to examine fisheries projects with an ecosystem perspective when possible.

- Develop complementary and linked fish habitat and riparian habitat restoration efforts.
- Upstream and downstream projects should be integrated to the greatest degree possible.

9. Habitat Restoration Plan for the Lower Tuolumne River Corridor; Adaptive Management Forum Report; Mitigated Negative Declaration for Special Run Pool 9 (TID)
10. Anadromous fish spawn in freshwater streams or rivers and migrate early in their life cycle to the ocean where the mature. They return as mature adults to spawn in the fresh water of their origin.
11. United States Fish and Wildlife Service. *Working Paper on Restoration Needs*

*Above Grayson River Ranch and Big Bend (Reach 1).*

## 3.10 LAND USE[12] (LU)

***Agriculture in the Great Central Valley***

Agriculture continues to be a major industry in Stanislaus County and the entire Central Valley. A number of the largest employers in Stanislaus County produce agricultural related commodities. Principal agriculture includes dairy, almonds, poultry and grapes. Much of this farmland is classified as "Important Farmland", meaning that the land meets certain land use and soil requirements. A 2000 inventory found that over 280,000 acres in Stanislaus County qualified as Important Farmlands, almost 30% of the County. Stanislaus County was, however, also one of the top 10 counties in terms of urbanization of irrigated farmlands throughout the 1990s. The San Joaquin Valley as a whole has been the leading region in California in terms of conversion of irrigated farmland to urban lands for at least two decades.

12. Habitat Restoration Plan for the Lower Tuolumne River Corridor, ; The Economic Impact on Stanislaus County of Public Land Acquisitions and Conservation Easements on Floodplain Lands Along the Lower Tuolumne and San Joaquin Rivers; Department of Conservation Division of Land Resource Protection Farmland Mapping and Monitoring Program

Along the Tuolumne River, agriculture is still prevalent in all but the urban reach (Reach 2), which includes the Cities of Modesto and Ceres. Agriculture is a major contributor to the local economy and an important aspect of regional identity. Agricultural land use on the terraces above the floodplain includes field crops, livestock grazing, orchards and vineyards. Agricultural use in the floodplain is typically considered marginal because of frequent flooding.

Most of the agricultural lands within the Tuolumne River floodplain are in private ownership. Agencies such as USFWS and NRCS have programs to acquire marginal agricultural lands with additional benefits of habitat restoration and riparian buffers.

All current acquisition and easement programs operate in a "willing seller" basis. A 1998 study, "The Economic Impact Stanislaus County of Public Land Acquisition and Conservation Easements on Floodplain Lands along the Lower Tuolumne and San Joaquin Rivers" found that the application of public land acquisition and easements are not likely to have a significant impact on the economy of Stanislaus County.

***Other Land Uses***

A broad array of diverse land uses is found along the river, including agricultural (as discussed above) as well as park and recreation, natural, residential, and industrial areas.

The majority of publicly-owned and accessible areas bordering the river are parks or recreation areas, such as those presented below in Table 3.2. These areas are well planned, involve community input into the design, are managed to facilitate and regulate the general public, provide opportunities for various recreational activities, and are generally linked by public access points. Restored and pro-

tected areas along the river include Lower Tuolumne River Parkway projects such as Bobcat Flat and NRCS floodplain easements near Shiloh Bridge such as Grayson River Ranch and Big Bend. Other non-park or agriculture open space areas include multiple private and public golf courses located next to the river (there are two golf courses along the river in Reach 2 and two in Reach 3), and the large Lakewood Memorial Cemetery in Reach 3.

Residential and industrial lands are mostly found in the cities of Modesto, Ceres, and Waterford and adjacent County lands (Reaches 2-4). The residential areas along the river are predominantly single-family homes. In some areas, residential facilities such as private homes, backyards and swimming pools are located near the river's edge.

The industrial areas along the river include light and heavy industry such as waste treatment and gravel mining operations. Specifically, in Reach 2, the Modesto Airport, Modesto Wastewater Treatment Plant, and rendering and truss plants border the river. The Hughson sewage disposal ponds border Reach 3 of the river, the Waterford sewage disposal ponds are in Reach 4, and aggregate mining operations are located in Reaches 4-6.

### *Shared Goals, Potential Conflicts and Opportunities*

**LU-1:** Common goals across several plans revealed in the analysis include supporting continued land use controls to help guide growth.

- The use of urban boundaries so that the County will grow in a compact and efficient manner is highly supported.
- Priority is placed on the continued use of the Williamson Act and other mechanisms such as easements to preserve agricultural lands to conserve agriculture as open space, and to conserve open space for itself.

**LU-2:** The review of plans highlights mutual goals across plans to maintain, expand and link open space.

- Priority is placed on preserving open space in the floodway.
- Open space can provide buffers between the river and urban environments.
- Open space can provide scenic corridors.
- Open space provides recreation opportunities.
- Open space provides sensitive habitat protection.

**LU-3:** The analysis of plans indicates shared goals across many plans to preserve Important Farmland (such as prime farmland and farmland of local and statewide importance) from conversion and urbanization.

**LU-4:** The analysis of plans reveals joint goals to maintain farm and ranch land as important components in open space networks of wildlife habitat and scenic corridors.

**LU-5:** Common goals stressed in many plans are to collaborate and partner with farmers and landowners concerning water quality and supply enhancements as well as habitat restoration and other efforts.

**LU-6:** Through the analysis of plans, it appears that conflicts may arise when there are real and perceived effects of removing crops from production on individual profitability, the County's economy, and a sense of identity.

**LU-7:** The examination of plans demonstrates that conflicts may arise due to poorly defined and balanced types of open space.

**LU-8:** The analysis of plans shows that there is a need and opportunity to define riparian "buffers" and how they function in different roles.

### 3.11 RECREATION AND ACCESS (RA)

The responsibility of maintaining parks and recreation facilities in Stanislaus County falls primarily upon local and state agencies. These agencies ensure that the general public has access to the Tuolumne River. Twelve access points and many public facilities currently border the river.

**TABLE 3.2** PUBLIC FACILITIES ON THE LOWER TUOLUMNE RIVER

| PUBLIC FACILITIES | RESPONSIBLE AGENCIES | PUBLIC RIVER ACCESS SITES |
|---|---|---|
| La Grange Dam, River Mile 52 | Modesto Irrigation District<br>Turlock Irrigation District | No<br>No |
| DFG Research Site, River Mile 50.5 | California Department of Fish and Game | No |
| La Grange Regional Park, River Mile 50-51 | Stanislaus County Parks and Recreation | Yes |
| Basso Bridge, River Mile 48 | Stanislaus County Parks and Recreation | Yes |
| Fox Grove County Park, River Mile 26 | Stanislaus County Parks and Recreation | Yes |
| Riverdale Park, River Mile 12 | Stanislaus County Parks and Recreation | Yes |
| Shiloh Bridge, River Mile 3.5 | Stanislaus County Parks and Recreation | Yes |
| California Department of Fish & Game at La Grange Field Station, River Mile 49 | California Department of Fish and Game | No |
| Turlock Lake State Recreation Area, River Mile 42 | California State Parks | Yes |
| Waterford Urban River Park, River Mile 31.5 | City of Waterford | Yes |
| Ceres River Bluff Regional Park, River Mile 19 | City of Ceres Parks, Recreation, & Facilities | Yes |
| Tuolumne River Regional Park, River Miles 12-19 | Tuolumne River Regional Park JPA (Ceres, Modesto, and Stanislaus County) | Yes |
| SJR National Wildlife Refuge, River Mile 1 | U.S. Fish and Wildlife Service | Yes |

Multiple parks and open space areas are located along the river from La Grange to the San Joaquin River National Wildlife Refuge. The largest and closest to downtown Modesto is the Tuolumne River Regional Park (TRRP), which borders the river for seven continuous miles through the cities of Modesto and Ceres. A Joint Powers Authority between the Cities of Ceres and Modesto and Stanislaus County manages TRRP. TRRP provides extensive passive and active recreation opportunities in the urbanized river reach and offers a template for linking river trails and other open space areas with neighboring parks and open space.

Table 3.2 presents a list of responsible agencies and the public facilities they maintain that border the Lower Tuolumne River, along with general public access sites.

### *Shared Goals, Potential Conflicts and Opportunities*

**RA-1:** The examination of plans and reports shows shared goals to enhance human interactions with the river.

**RA-2:** Goals common to several plans include linking bicycle and pedestrian trails along or near the river on public lands.

*Stanislaus County Parks Boat Launch.*

**RA-3:** Analysis reveals that multiple plans include the goal to increase collaborations across agencies to discuss multi-purpose and appropriate recreation opportunities along and near the river.

**RA-4:** The review of plans shows that there is a goal to conduct a region-wide recreation needs assessment.

**RA-5:** The analysis if plans reveal a shared goal to support the use of non-motorized boat access to the river as an existing and future beneficial use.

**RA-6:** The study of existing plans demonstrates a shared goal to enhance existing river access sites.

**RA-7:** Many plans and reports were revealed to share the goal of managing access in order to reduce or eliminate potential threats to sensitive habitats and private properties, through increased security or other means.

**RA-8:** The analysis indicates that several of the plans and reports have a goal to provide recreation and access opportunities to all residents. (Public agencies must ensure ADA compliance.)

**RA-9:** Through the analysis, it appears that a goal of many plans is to enhance the aesthetics and attractiveness of the river by addressing dumping, trespassing, drug use and other illegal activities along the river.

**RA-10:** The analysis of plans reveals that current management practices and land uses have not sufficiently addressed issues of public safety along the river including drug use, trespassing, homeless encampments, and the dumping of refuse.

**RA-11:** Existing plans and reports point out that types of recreation may limit or conflict with each other.

- Motorized boating may not be compatible with non-motorized boating and other activities on the river.
- Passive and active recreation may compete for limited space and resources.

**RA-12:** The analysis of plans shows that there is a need and opportunity to define passive and active recreation.

- Plans often call for passive recreation at some locations and active recreation in others.

**RA-13:** The analysis of plans shows that there is a need and opportunity to plan for increased maintenance needs that will be required by enhanced river accesses.

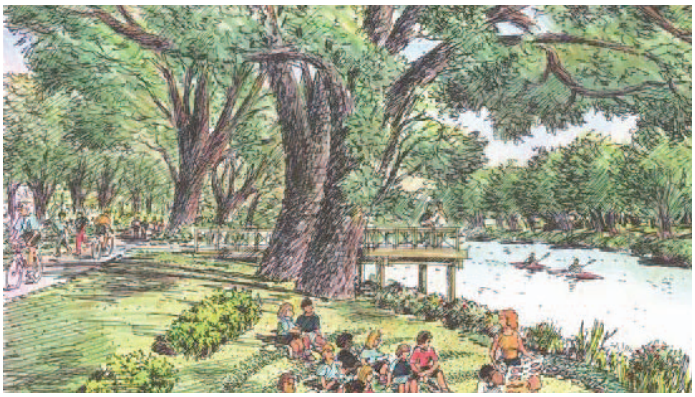
**RA-14:** The analysis of plans shows that there is a need and opportunity to increase public access and park patrols to reduce trespassing and improve safety.

### 3.12 STEWARDSHIP AND EDUCATION (SE)

The existing educational and stewardship opportunities (such as field-trips for schools, volunteer planting days, informal educational programs and so on), can be enhanced and expanded to expose more residents to the river, educate more people about it, and involve more people in caring for it.

Awareness of the river and an emerging dialogue between the public and local governments is being fostered by public workshops presented by the City of Ceres and the Tuolumne River Regional Park. Private landowners have also increasingly integrated restoration into their river front properties. Groups such as the Friends of the Tuolumne, Inc., East Stanislaus Resource Conservation District, Sierra Club and Tuolumne River Trust have assisted in the restoration of and education about these properties.

Multiple sites along the river also offer recreational amenities, viewing of wildlife and hands-on educational programs. For example, the San Joaquin River National Wildlife Refuge continues to enhance and expand environmental education about native California wildlife, their habitat, and their conservation. Visitors to the Refuge can also view multiple wildlife species, as well as experience traditional area activities, including waterfowl hunting and fishing. Recreational access points, such as the Old La Grange Bridge, allow for interaction with the river by the general public.



*Concepts for Tuolumne River Regional Park.*

#### *Shared Goals, Potential Conflicts and Opportunities*

**SE-1:** Analysis shows that many plans share the goal to increase access to and awareness of the river to increase stewardship.

- Stewardship is encouraged through public participation in design workshops, educational venue and classes, volunteerism and frequent access to the river and its multiple values.
- Stewardship would be encouraged through the development of interpretive centers and interpre-

*Reach 7.*

tive trails, community monitoring and research projects, and the preservation of the area's archaeological and historical legacy.

**SE-2:** A common goal across multiple plans is to continue to provide information to private landowners on the river about stewardship opportunities, such as conservation easements and funding for habitat projects.

**SE-3:** Through the review of plans, it appears that there are shared goals to further develop sites for environmental education along the river and corresponding school outreach programs.

**SE-4:** The analysis of plans shows that there is a need and opportunity to integrate evaluation and monitoring into the planning and development of projects in the Lower Tuolumne River Parkway as a means for sustaining on-going involvement and stewardship of river-oriented projects.

### 3.13 UPPER REACHES (UR)

The upper reaches of the Lower Tuolumne River span from the town of La Grange to just below Gee Road. These reaches are unique in terms of instream sediment composition, floodplain width, and surrounding land uses. The upper reaches are defined as being the gravel-bedded reaches of the river (river miles 24 to 52) and include Reach 7 (Dominant Salmon Spawning Reach), Reach 6 (Dredger Tailing Reach), Reach 5 (Gravel Mining Reach), and Reach 4 (In-channel Gravel Mining Reach).

Sediment composition of the upper reaches is characterized by gravel riffles between runs and pools containing beds ranging from sand to bedrock. Problems include excessive sand in gravel riffles and a lack of adequate gravel. This need for coarse sediment supplies also highlights the potential competition amongst instream restoration needs and the needs of gravel mining businesses and other habitat restoration activities that use gravel.

The surrounding areas are characterized by low-density development such as the town of La Grange and a mix of intensive agriculture and ranching.

*Under 9th St. Bridge in Modesto.*

### *Shared Goals, Potential Conflicts and Opportunities*

**UR-1:** The examination of plans and reports indicates a mutual goal to improve anadromous fish spawning and rearing habitat in the upper reaches.

- Improving fish habitat can include securing gravel supply, reducing fine sediment influx, adding spawning gravel, and reducing stranding potential.

**UR-2:** A common goal across many plans is to reduce impacts on water quality and riparian habitat from surrounding land uses.

- There are common goals to reduce grazing along the banks of the upper reaches and tributaries.

**UR-3:** The analysis of plans indicates that proposed active recreation in the upper reaches and recommendations to widen the riparian corridor may be incompatible with goals to reduce impacts on habitat restoration.

- There may be conflicts between: existing grazing; County plans for active recreation sites near La Grange (interpretive center, camps, sports field, and trails); potential linked trail systems near Waterford; and Habitat Restoration Plan recommendations to widen the riparian corridor to 500 feet.

**UR-4**: The analysis of plans shows that there is a need and opportunity to address the effects of activities that remove or deposit sediment and alter the balance of coarse and fine river sediment, including: aggregate mining, the use of gravel for spawning habitat, land uses in the floodplain, flows, and flood management.

**UR-5:** The analysis of plans shows that there is a need an opportunity to develop additional information on the water quality of the upper reaches.

## 3.14 URBAN REACHES (URB)

The most significant urban reach along the river is Reach 2 (Urban Sand-Bedded Reach), which is dominated by the Cities of Modesto and Ceres. Reach 3 (Upper Sand-Bedded Reach) is also influenced somewhat by outlying areas of Modesto, Ceres, and the City of Hughson, as well as the unincorporated community of Empire. A two-mile stretch of Reach 4 (In-Channel Gravel Mining Reach) is influenced by the City of Waterford. The urban reaches provide unique opportunities and challenges for balancing river-oriented recreation and restoration.

### *Shared Goals, Potential Conflicts and Opportunities*

**URB-1:** The review of plans and reports demonstrates a shared goal to preserve and/or extend riparian buffers, existing setbacks, and scenic corridors around urban growth and development.

**URB-2:** A common goal revealed in the analysis of plans is to enhance and promote key river access sites near urbanized areas in order to provide access where residents need it most and to preserve other less developed areas as such.

*The confluence of the Tuolumne and San Joaquin Rivers*

**URB-3:** The examination of plans indicates that future urban growth/development and open space preservation may conflict where each focuses on the river corridor.

**URB-4:** The analysis of plans reveals that existing urban and industrial land uses may limit restoration opportunities.

**URB-5:** Analysis of plans highlights the opportunity to protect an active and vegetated floodplain while supporting multiple uses and accommodating current and expected urban development.

**URB-6:** The review of plans demonstrates that several promote opportunities to integrate storm-water runoff and reclaimed wastewater programs.

**URB-7:** The analysis of plans shows that there is a need and opportunity to uphold diverse passive and active recreation opportunities that minimize impact on surrounding habitat restoration and water quality.

**URB-8:** Analysis of plans highlights the opportunity to explore the possibility for economic development opportunities built around parks and open space, in keeping with the parks and open space character.

## 3.15 LOWER REACH (LR)

The lower reaches include Reach 3 (Upper Sand-bedded Reach), Reach 2 (Urban Sand-bedded Reach), and Reach 1 (Lower Sand-bedded Reach). However, the opportunities and challenges will be primarily applicable to Reaches 1 and 3 because Reach 2 is so dominated by urbanization and is addressed in the previous section. Also, as noted in the previous section, some of the opportunities and challenges of the urban zones apply to Reach 3.

The lower reaches span from the confluence of the Tuolumne and San Joaquin Rivers at RMA 0 to RMA 24, and are defined as the sand-bedded portion of the river. Reach 1 is characterized by extensive riparian, floodplain, and wetland restoration and education opportunities. Reach 1 is anchored by the San Joaquin River National Wildlife Refuge, contains only one public access site and is bordered almost exclusively by orchards and other farmland. Reach 3 extends from Mitchell Road Bridge to the gravel-bedded reaches at RMA 24. These reaches are relatively undeveloped and therefore offer many opportunities for partnering with farmers and other landowners, expanding open space and/or maintaining minimally disturbed habitat.

### *Shared Goals, Potential Conflicts and Opportunities*

**LR-1:** Analysis across multiple plans reveals a common goal to maintain land uses in the lower reach as primarily agricultural lands or open space, with minimal public river access sites.

**LR-2:** The analysis of plans indicates a shared goal to revegetate and restore floodplains and terraces along the lower reach.

**LR-3:** Multiple plans highlight their goal to stress the role of the San Joaquin River National Wildlife Refuge as a key link in the Pacific Flyway.

**LR-4:** The review of plans demonstrates a mutual goal to support the restoration of off-channel wetlands to increase and support wildlife habitat.

**LR-5:** The analysis of plans reveals that Habitat Restoration Plan recommendations to widen the riparian corridor up to 2,000 feet in lower reach areas may conflict with existing agricultural and

other private and public uses along the lower reaches.

**LR-6:** Analysis of plans highlights the opportunity to expand the riparian corridor and wetlands surrounding San Joaquin River National Wildlife Refuge through conservation easements and land acquisition.

## 3.16 BALANCED RIVER MANAGEMENT (BRM)

A primary theme emerging from the analysis of existing plans and community dialogue is to balance diverse uses and needs along the river. What defines a "balance" of activities and uses may take on very different interpretations for different people. At times, there may even be a need to balance uses of land among different restoration projects, or among various recreation-oriented projects.

Overall, however, this Framework for the Future highlights existing efforts to balance the need for land, materials, and funding across different projects, and identifies areas where a balance of these necessary elements is still needed. The findings presented below represent some specific directions and needs concerning balanced river management.

### *Shared Goals, Potential Conflicts and Opportunities*

The assessment of existing plans and reports revealed the following recommendations for stakeholders concerned with establishing a balance of uses and users for the entire river.

**BRM-1:** Balance diverse efforts (e.g., channel, floodplain restoration, and riparian habitat restoration) that may compete for limited water supply and sediment.

**BRM-2:** Explore management of run-off from land uses (grazing, farming, urban) that impact the river and its tributaries.

**BRM-3:** Engage and encourage diverse voices and interests.

**BRM-4:** Consider the following existing or potential land uses and their impacts on each other when reaching a balance:

- Riparian corridor of up to 500-2000 feet in some areas
- Passive and active recreation opportunities.
- Population growth in Stanislaus County
- Reduction of riparian encroachment
- Marginality of certain farmland in the floodplain due to frequent flooding
- Riparian habitat restoration opportunities

**BRM-5:** An abundance of opportunities exist along the river, and recent efforts represent a positive movement in enhancing habitat, recreation, and other river corridor enhancements.

## 3.17 INFORMATION NEEDS (IN)

The Coalition identified the following information needs, based on group discussions, public feedback, and the review of existing reports:

**IN-1:** Comprehensive water quality assessments for the Lower Tuolumne and its tributaries to identify specific pollutants and their sources, as well as barriers to improving water quality.

**IN-2:** Additional information about the impacts of restoration on urban uses and vice versa, to balance these uses with one another, spatially and temporally.

**IN-3:** Mapping of current locations of key wildlife species along the river that rely on a riparian corridor (such as river otters, coyotes, and deer) or are Threatened, Endangered, or Species of Concern (such as Riparian Brush Rabbits, and others).

**IN-4:** Information regarding the effects of current or projected flows on wildlife and vegetation.

**IN-5:** Information on feeding, resting, nesting, and rooting patterns in the Lower Tuolumne River floodplain, and how human activities impact these activities.

**IN-6:** Additional information concerning regional recreation needs, such as through a river-oriented recreation needs assessment survey.

**IN-7:** Additional evaluation and monitoring of key efforts as outlined in the Habitat Restoration Plan for the Lower Tuolumne River Corridor relating to channel and floodplain morphology.

- It is necessary to understand how changes to channel and floodplain morphology impact fish recovery, what the positive and negative effects might be from various flows, and to assess ecosystem response in general through on-going monitoring and criteria for success.

# Chapter 4

## RIVER ENHANCEMENT STRATEGIES AND FUTURE PROJECT OPPORTUNITIES



*"Protection of the natural environment is an important aspect of outdoor recreation."*

—TUOLUMNE RIVER COALITION MEMBER

## 4.1 INTRODUCTION

This chapter describes strategies for moving the Tuolumne River Coalition forward and fulfills the third key task of this document (as described in Chapter One): to identify strategies to meet the multi-objective goals of the Coalition. This chapter identifies specific strategies that together achieve the Coalition's primary goals and provides detailed action steps for each strategy.

The strategies (and their strategy action steps) emerged directly from the analysis in Chapter Three and fulfill two primary requirements: 1) to meet and exceed the goals of the Tuolumne River Coalition (as presented in the graphic below); and 2) to build upon the shared goals, address the potential conflicts, and/or seize opportunities as presented in the analysis of Chapter Three.

The strategies and strategy action steps presented here are intended as a reference for existing and future work of the Coalition and Coalition member organizations. However, this document is not a commitment to perform these actions. Nor does it suggest that the Coalition or this document holds any legal jurisdiction over any member or other existing agency regarding these strategies or action steps. The Framework is not a Master Plan for the river and therefore does not require environmental review. **Rather, the Framework is intended to support, enhance and encourage concurrent planning processes along the Lower Tuolumne.**


*The Tuolumne River Coalition at work.*

*Volunteer planting at the Refuge.*

An overarching goal for the Lower Tuolumne River Parkway is to facilitate and encourage implementation of projects and programs that are consistent with the Habitat Restoration Plan for the Lower Tuolumne River Corridor and that balance and address the needs of diverse users and uses. The strategies presented here are an attempt to address some of the challenges while offering suggestions for balanced land uses and coordinating Parkway projects that are complementary to each other. Proposed strategies, and the resulting projects, must be designed to be appropriate for their given context.

# THE TUOLUMNE RIVER COALITION'S GUIDING FRAMEWORK FOR THE LOWER TUOLUMNE RIVER PARKWAY

## VISION

The Lower Tuolumne River Parkway is a vibrant, healthy river corridor providing multiple community benefits

## GOALS

***Enhance, protect*** *and* ***restore*** *habitat that supports natural resources and river function*

***Extend*** *and* ***protect*** *open space along the river*

***Expand*** *and* ***enhance*** *public access and recreational opportunities where appropriate*

***Protect*** *the floodplain from intensive development*

***Respect*** *existing development, land ownership, and water use*

***Support*** *and* ***develop*** *riparian buffers*

***Provide*** *flood management benefits*

***Enhance*** *water quality*

***Build upon*** *and* ***integrate*** *existing plans relevant to the Lower Tuolumne River*

***Support*** *the development of a mosaic of public and private projects and programs*

***Increase*** *river-focused educational programs*

## RIVER ENHANCEMENT STRATEGIES

***Identify*** *Multi-Objective Projects in Urban and Rural Reaches of the River*

***Support*** *the Coordination of a Water Quality Monitoring and Enhancement Program*

***Identify*** *Potential Natural Area and Working Landscapes Opportunities*

***Implement*** *Habitat Restoration Projects*

***Increase*** *Recreation Opportunities*

***Enhance*** *and* ***Expand*** *Public River Access Points*

***Provide*** *Information and Support for a Scenic Trailway Compatible with Private Interests*

***Study*** *and Recommend Best Management Practices Regarding the Use of Boats*

***Create*** *Lower Tuolumne River Parkway Maps and Signage*

***Develop*** *a Lower Tuolumne River Parkway Interpretive Program*

***Enhance*** *Cleanliness, Safety, and Security for the Users of the Lower Tuolumne River Parkway and Surrounding Communities*

***Continue*** *Public Outreach and Involvement*

The on-going execution of these strategies is detailed in the next (and final) chapter, Chapter Five. The strategies and action steps are also laid out in Appendix E, which provides broad prioritization for the action steps and identifies key partners for each strategy. The priorities do not necessarily reflect the priorities of individual member organizations but those of the Coalition as a whole at this time. The Coalition intends to revisit and amend the strategies, action steps, and prioritizations regularly to update and adapt them as the river, community, and circumstances change.

## 4.2 RIVER ENHANCEMENT STRATEGIES AND STRATEGY ACTION STEPS

The Tuolumne River Parkway aims to facilitate and encourage implementation of projects and programs that are consistent with the Habitat Restoration Plan for the Lower Tuolumne River Corridor and that balance and address the needs of diverse users and uses. However, finding this balance is complicated by a range of issues, as the analysis in Chapter Three revealed. For example, balancing water quality, habitat, supply, floodplain management, and recreation can be influenced by surrounding land uses, existing habitat types, and residents' desires. The strategies presented below address these complications and offer a direction for crafting a balance through the development of complementary projects.

*Concepts for the Tuolumne River Regional Park.*

### *Strategy 1: Identify Multi-objective Projects in the Urban and Rural Reaches of the River (S1)*

Both the urban and rural reaches of the Tuolumne have characteristics compatible with different types of projects. The urban reaches, close to developed areas, provide exceptional opportunities for access and recreation with less extensive habitat elements. The rural reaches of the river, with fewer developed areas close to the river, offer significant opportunities for habitat restoration with less active recreational elements. Projects in both reaches can address other objectives such as flood management or water quality. The Coalition aims to better define a balanced approach appropriate to the Tuolumne and its communities by reaching out to landowners and expanding community outreach.

**S1.1:** Compile case studies and Best Management Practices concerning the co-existence of recreational uses and habitat. Provide specific information on how to enhance and/or restore natural river processes where urban development and river accesses exist, and vice versa.

**S1.2:** Develop an outreach program targeted to landowners along the river corridor to learn about landowner concerns and to educate them about natural river processes.

**S1.3:** Encourage a comprehensive and on-going assessment of water quality in Dry Creek, a major polluter to the urban reaches of the Lower Tuolumne River.

**S1.4:** Identify key river access sites in the urban reaches for enhancement and expansion.

### *Strategy 2: Support the Coordination of a Water Quality Monitoring and Enhancement Program (S2)*

Cities, residents, agriculture, recreationists, wildlife and plants all depend upon high quality water for their needs. Municipal and agricultural water supplies are carefully monitored by several jurisdictional agencies (see page 3-9 for more information). Given that the Tuolumne River is listed as an impaired water body for certain contaminants, the Coalition could undertake the action steps listed below, partnering with existing water quality monitoring efforts to compile information, develop additional monitoring efforts, and create reference information.

**S2.1:** Encourage a comprehensive, on-going assessment of water quality in the Tuolumne and its tributaries.

**S2.2:** Compile and distribute Best Management Practices for water quality enhancement that include: bank protection, riparian restoration and constructed wetlands as filters, and management of run-off from various land uses.

**S2.3:** Continue to integrate water reclamation, filter, and riverbank restoration projects in Lower Tuolumne River Parkway projects where possible.

**S2.4:** Initiate a tributary restoration program with nearby landowners to manage run-off for Dry Creek.

**S2.5:** Spearhead or partner with a stream-watcher program for local volunteers and schools.

**S2.6:** Encourage Sewage Treatment plans to complement Lower Tuolumne River Parkway projects.

*Riparian corridor near Waterford.*

### *Strategy 3: Identify Potential Natural Area and Working Landscapes Projects Along the Lower Tuolumne River (S3)*

Natural areas and working landscapes provide recreation, environmental education, habitat protection, and riparian buffers, and can include parklands as well as working farms. Building upon existing efforts of the CALFED Working Landscapes Program and the NRCS Conservation Security Program, the Coalition can identify possible locations where such areas could be preserved within the corridor. Approaches include those outlined below.

**S3.1:** Inventory and map all existing open space areas of the Lower Tuolumne River, delineating between type of ownership and management, including public and private lands and those preserved as open space through the Williamson Act or conservation easements.

**S3.2:** Compile and distribute potential criteria for prioritizing open space preservation for the Lower

Tuolumne River Corridor, as resources and opportunities arise.

**S3.3:** Compile and make available guidelines for acquisition and maintenance of open space areas, such as facilitating voluntary land acquisition, developing floodplain zoning, and supporting the use of fees.

### *Strategy 4: Implement Habitat Restoration Projects (S4)*

The Lower Tuolumne supports a variety of instream and riparian habitats and has opportunities for expanding or enhancing habitat. Habitat restoration strategies could include the development of guidelines for restoration approaches and identification of priority areas. Habitat restoration opportunities will also continue to reflect the unique circumstances of various locations along the river. Some of these strategies are listed below.

**S4.1:** Develop criteria for prioritizing habitat restoration or mitigation opportunities. These could include:

*Grey fox near Bobcat Flat.*

- Location (Can this site be linked to other restoration sites? What will the positive and negative effects be on surrounding land uses, recreation and restoration opportunities? What is the habitat type?)
- Potential to be a self-sustaining corridor
- Availability of public land, potential of acquiring private land, or potential to partner with the existing landowner
- Ability to integrate and allow for natural flow and flooding processes
- Potential to protect rare, threatened, endangered or otherwise sensitive species or habitat (such as those listed in the riparian inventory of the Habitat Restoration Plan for the Lower Tuolumne River Corridor)

**S4.2:** Review and update as needed the identified habitat restoration opportunities of the Restoration Plan.

- Compile information on potential opportunities for securing off-river gravel sources for gravel augmentation.
- Gather Best Management Practices regarding issues such as incorporating restoration into gravel-mining permits and alternative grazing strategies, especially ways to eliminate illegal cattle grazing on County land at La Grange.
- Support implementing operation of the Geer Road irrigation water diversion and the Turlock Area Drinking Water Project.

**S4.3:** Develop recommendations to reduce potential conflicts with public and private landowners.

**S4.4:** Encourage project demonstration sites of natural river processes (e.g., through passive levee breaches) and low-impact design (e.g., alternative bank protection mechanisms) at the San Joaquin River National Wildlife Refuge.

*Canoeing for all ages down the Tuolumne.*

### *Strategy 5: Increase Recreation Opportunities (S5)*

The Lower Tuolumne River Parkway aims to increase opportunities for residents and visitors to recreate on or near the river in a safe, clean environment, in a way that does not place additional stress on surrounding sensitive habitat. The Coalition could help to provide information on recreation needs and potential solutions for park and recreation areas by moving forward with the actions listed below.

**S5.1:** Support a river-oriented region-wide recreation needs survey, focusing on uses of and interest in the river corridor.

**S5.2:** Identify areas along the river where additional recreational lands could be acquired in areas least impactful to sensitive habitats.

### *Strategy 6: Enhance and Expand Public River Access Points (S6)*

Improving existing access as well as adding additional ones along the Lower Tuolumne River could enhance recreation, environmental education and public engagement opportunities. Through the action steps listed below, the Coalition could prioritize the maintenance, enhancement, and promotion of existing public access sites for all users on the river, while working to identify additional access needs and potential areas for accommodating those needs.

**S6.1:** Use public outreach and information strategies (described below in Strategy 8) to help clean, maintain, and promote existing river access sites.

**S6.2:** Assess key issues of safety at river access sites and support the implementation of enhanced security and patrols at access sites.

**S6.3:** Sponsor or support activities and other community events at existing access sites that highlight recreational opportunities unique to the Lower Tuolumne River Parkway.

### *Strategy 7: Provide Information and Support for a Scenic Trailway Compatible with Private Interests (S7)*

A scenic trailway could include route maps, signage, and controlled access points to the river to highlight trails, roads, bike and pedestrian paths that already exist on public lands. Bike lanes and

*Historic Robert's Ferry Bridge.*

pedestrian trails offer a pleasant, human-scale and non-disruptive means for enjoying the river corridor in a way that protects sensitive areas of the river. This Trailway, which would not cross private lands except under special agreements or easements with the property owner, could emphasize the various projects, parks, residential, commercial and regional uses of the river through partnerships with transportation agencies, community advocacy groups and public and private land developers. Potential action steps for moving forward with this strategy include those listed below.

**S7.1:** Support the development of a Class I trail along Scenic Highway 132 and potential connections between this trail and other trails that lead to the river on public lands. Support the development of Class II bike lanes on Highway 132 where Class I trails are not feasible.

**S7.2:** Identify all existing and potential bicycle and pedestrian paths or trails bordering the Lower Tuolumne River by identifying areas where trails could be linked without negatively impacting sensitive habitat or private property, including through the use of existing public rights-of-way.

*Enjoying a ride down the Tuolumne River.*

S7.3: Create a trailway map and identify the trailway sections on Lower Tuolumne River Parkway signage (e.g., establish wayfinding signs along bike lanes and pedestrian paths that identify mileage, directions to points of interest, river overlooks, viewpoints, or other sites where visitors interact with the river).

### *Strategy 8: Study and Recommend Best Management Practices Regarding the Use of Boats on the Lower Tuolumne (S8)*

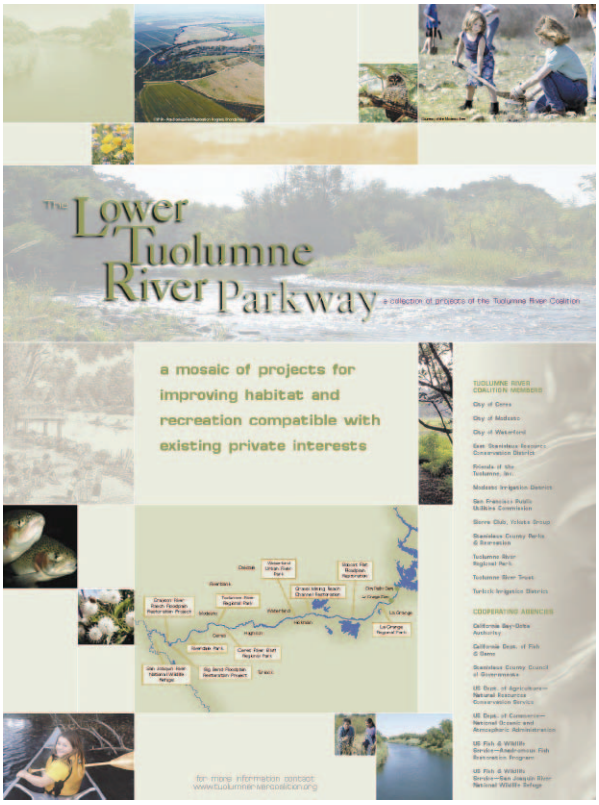
Boating provides a very direct way to experience and observe the river and all that the river sustains. Some types of boating may be better suited to different parts of the river, and the Tuolumne River Coalition could help analyze this issue by moving forward with the steps listed below.

**S8.1:** Evaluate policies regarding watercraft use (e.g., use of motorized or non-motorized craft, speeds allowed) on the Tuolumne and other local rivers and support the implementation of boating laws.

**S8.2:** Improve and/or support the development of additional non-motorized access sites to expand the "canoe trail" that does not conflict with private property or sensitive habitats.

**S8.3:** Identify all put-in or take-out sites for canoes on Lower Tuolumne River Parkway maps, signs, and guidebooks.

**S8.4:** Host fall canoe trips to view spawning salmon and other trips when possible to educate stakeholders about the river, the Coalition and Parkway projects.




*The Lower Tuolumne River Parkway Poster.*

### *Strategy 9: Create Lower Tuolumne River Parkway Maps and Signage (S9)*

Key to increasing public awareness, gaining landowner support, and securing financial backing is a clearly identified Parkway. A comprehensive signage program ("way-finding") can demonstrate the unique mosaic of projects throughout the Lower Tuolumne River. Such an approach could include a common logo design, maps identifying key access points and viewpoints, as well as a corresponding Lower Tuolumne River Parkway guidebook.

**S9.1:** Create a Parkway image and identity program including a common logo and graphics for way-finding signage, and place at key locations.

**S9.2:** Develop and distribute a Parkway recreation and use guidebook that highlights:

- Parks, paths, trails, public recreation and access areas, overlooks, and public facilities.
- Habitat and wildlife information and other significant areas on the river.
- Information, if applicable, on how and when private properties can be accessed by the public.

### *Strategy 10: Develop a Lower Tuolumne River Parkway Interpretive Program (S10)*

A comprehensive interpretive program can increase the sense of place and stewardship of the river. Simple informational signage and other written and graphic materials could provide a quick, cost-efficient yet impactful approach to complement people's experience of a place. Other potential action steps include those listed below.

**S10.1:** Support the development of an interpretive center(s) about the river.

**S10.2:** Support interpretive trails in and along the river corridor that link existing and proposed trails, where appropriate, on public lands.

*Native Button Brush.*

**S10.3:** Develop interpretive signage for unique features along the river corridor.

**S10.4:** Compile written educational materials that illustrate the important roles of unique and native plant and animal species.

### *Strategy 11: Enhance Cleanliness, Safety, and Security for the Users of the Lower Tuolumne River Parkway and Surrounding Communities (S11)*

A primary barrier to further river enhancements is the community's lack of involvement with the river and the fear and reality of illegal activities and dumping along the riverside. In order to ensure long-term community involvement in and support of recreation, education and restoration activities along the Lower Tuolumne River, the Coalition could sponsor and support community outreach activities, in tandem with other outreach as described in Strategy 12 below, specifically designed to address issues of illegal activities and dumping along the river.

*Volunteer river planting near Waterford.*

**11.1:** Develop education and outreach programs in partnership with law enforcement to protect open space areas, habitat, and quality of experience for visitors.

**11.2:** Integrate river clean-ups and adopt-a-river-mile efforts into a Tuolumne River Coalition Volunteer Program (see S12.2, below)

**11.3:** Develop a Lower Tuolumne River Parkway security and patrol program by advocating for increased river policing and developing a community-based monitoring program.

### *Strategy 12: Continue Public Outreach and Involvement (S12)*

A comprehensive outreach and education program could include programs for students, landowners, and the general community. A multi-pronged communication approach could include tools such as a newsletter, advertising through the media and the website, and the use of graphics such as a master map of the Parkway. These efforts could be sustained through a formalized Parkway volunteer program.

**S12.1:** Develop education and outreach programs in partnership with, and specifically targeted for, the following groups:

- Students and youth groups.
- California State University-Stanislaus Biology and other students for research projects.
- Community organizations such as the Great Valley Museum to educate the community about the river and its ecology.
- Farmers and other landowners.

**S12.2:** Structure an on-going Tuolumne River Coalition Volunteer Program that could include a Stream-watcher Program, and project monitoring.

**S12.3:** Update the public about on-going meetings and community forums through the use of a Tuolumne River Newsletter as well as the Coalition website, brochure, and other outreach materials.

**S12.4:** Appeal to print and news media to produce or write public interest pieces concerning the river (e.g., request a slot on the television show "Valley Mosaic" and submit information to the Modesto View website).

**S12.5:** Place Coalition projects and efforts on relevant regional and statewide inventories, such as the EPA's Watershed site and the Natural Resource Projects Inventory.

**S12.6:** Publish a master map of the Lower Tuolumne River Parkway (with pedestrian trails, bike lanes and paths, the canoe trail, access sites, interpretive centers and trails, and all Coalition projects).

*Native California Poppy.*

# Chapter 5

## IMPLEMENTATION ACTIONS AND TOOLS FOR MOVING FORWARD



*"River public access adds to quality of life."*

—TUOLUMNE RIVER COALITION MEMBER

## 5.1 INTRODUCTION

Although the development of this Framework for the Future is a major achievement, it remains only the first in a long series of steps necessary to turn the vision of the Lower Tuolumne River Parkway into a reality.

This chapter introduces some of the components required to narrow the gap between the present reality and the future of the Lower Tuolumne River Parkway, and addresses the fourth key task for this document: to develop implementation actions that facilitate the Coalition's coordination of multiple projects along the river. These implementation actions are necessary to turn the strategies presented in the previous chapter into thriving projects and programs.

Appendix E expands on these implementation actions. This appendix presents an action plan for moving forward and outlines prioritization and key partners for specific strategies. As the action plan indicates, the implementation of the strategies put forward here will not be the sole responsibility of any single organizational entity. It will instead result from the collective endeavors of many public and private organizations pursuing a variety of projects over time, but guided by this Framework for the Future.

*River bend near La Grange County Park.*

The implementation actions discussed in this chapter cover a variety of approaches and steps that will help the Coalition develop or compile the following:

**5.2.1** Funding Opportunities

**5.2.2** Organizational Development

**5.2.3** Scientific and Technical Studies

**5.2.4** Best Management Practices

This chapter also includes tools for the Coalition to move forward with their project work such as Guidelines for Amending the Framework for the Future Document.

## 5.2 IMPLEMENTATION STRATEGIES

### *5.2.1 Funding Opportunities*[1]

**Funding Action 1:** Work with CALFED Bay-Delta Program officials to determine a coordinated approach to the award of new CALFED Bay-Delta Program Funds.

The CALFED Bay-Delta Program has recently been re-authorized at the Federal level and the State's Proposition 50 was passed by voters and provides resources to continue funding its programs as outlined in the 2004 Program Plans Report adopted by the California Bay-Delta Authority in the Fall of 2004. The CALFED Bay-Delta Program 10-Year Finance Plan tables are available on the

1. See Appendix H for a project funding matrix that includes all Parkway projects.

Authority's website at http://www.calwater.ca.gov. CALFED programs include:

***Watershed Program:***
The grant is expected to focus on projects that address **watershed assessment**, **watershed planning**, **education,** and **increasing the local capacity** of entities to engage in watershed management.

Within these broad categories of eligibility projects should address one or more of the following:

- Broaden participation in existing watershed partnerships
- Initiate new partnerships dedicated to watershed management
- Advance the application and use of science in assessing, planning, and managing watersheds and in increasing public understanding of watershed characteristics, functions, and conditions
- Foster and support strategies to ensure long term sustainability of watershed management and local stewardship groups
- Maintain or enhance the network of communication among watershed stakeholders

This program may be the best opportunity for funding continued Coalition activities and for a Coalition Program Coordinator position.

***Ecosystem Restoration Program—State Proposition 50***
Project Solicitation Package is under development at the State Department of Water Resources for the next round of environmental restoration projects. Coalition projects, which address Eco-System Restoration should be identified for funding applications.

*Volunteer planting near Waterford.*

**Funding Action 2:** Continue to pursue Federal appropriations.

Continue to work with Congressman Dennis Cardoza to coordinate, prepare, submit and advocate for annual Federal Appropriations for selected Coalition projects. House Appropriation Subcommittees and programs to be targeted include:

Water and Energy Development Committee:

- Central Valley Project Conservation Program; Central Valley Project Improvement Act-Habitat Restoration Program (CVPIA PL 102-575 Section 3406(b)(1) and Section 3407);
- California-Bay Delta Authorization Act, PL108-361 Section 103 (f) (2).

Interior and Environment Committee:

- Land and Water Conservation Fund (LWCF); Multinational Species Conservation Fund-Migratory Bird Conservation Fund.
- National Parks Service

**Funding Action 3:** Support the preparation of an Integrated Regional Water Management Plan under the State of California's Proposition 50 and identify implementation projects for funding.

Coalition members could help participate in the development an Integrated Regional Water Resources Management Plan to maximize the region's competitiveness for Proposition 50 IRWMP funding for planning and implementation of key river projects.

- Develop strategy among Coalition members, including water supply agencies, to compete for Proposition 50 IRWMP Planning and Implementation grants over the next two (2) years.
- Prepare IRWMP Implementation grant applications for strategic and competitive projects by individual agencies.

**Funding Action 4:** Coordinate application for upcoming 2005-2006 State Water Resources Control Board (SWRCB) Clean Water Act programs and mandated water quality programs.

Develop and refine strategy among Coalition members to compete for next round of Consolidated Grant Programs of the SWRCB water quality and Non-Point Source programs.

The next funding cycle is expected at the end of 2005.

**Funding Action 5:** Pursue California River Parkways Program-Proposition 50 funds.

This program has been established in the office of the Secretary of the Resources Agency. Regulations are under development for Proposition 50 funded River Parkway projects Statewide, which are anticipated to provide up to $100 million in new River Parkway Projects in 2005 and 2006.

To be eligible for a grant, a project must provide public access **or be a component of a larger parkway plan that provides public access and, at a minimum,** meet two of the following conditions:

- Provide compatible recreational opportunities such as trails for strolling, hiking, bicycling, and equestrian uses along rivers and streams.
- Protect, improve, or restore riverine or riparian habitat, including benefits to wildlife habitat and water quality.
- Maintain or restore the open-space character of lands along rivers and streams so that they are compatible with periodic flooding as part of a flood management plan or project.
- Convert existing developed riverfront land uses into uses consistent with river parkways.

Provide facilities to support or interpret river or stream restoration or other conservation activities.

### *5.2.2 Organizational Development*[2]

**Organization Development Action 1:** Continue to Strengthen and Define the Tuolumne River Coalition Goals and Objectives.

1. Define the future organizational structure of the Tuolumne River Coalition:
   - Consider a Memorandum of Understanding to formalize membership of the Coalition
   - Seek funding for and hire a Tuolumne River Coalition Project Coordinator

2. See Appendix J for a review of organizational structure options and guidelines for developing Memorandums of Understanding and 501(c)3 status.

2. Establish roles and responsibilities for the Coalition:
    - *Leadership:* Continue voluntary rotations of internal project leaders (e.g., Chair, Vice-chair, Secretary)
    - *Steering Committee*
    - *Subcommittees* (recommended 2-3 members each): Funding Development Subcommittee; Education and Outreach Subcommittee; Scientific Information Subcommittee; Social and Cultural Subcommittee
    - *Volunteer Base*
3. Research opportunities to expand the Coalition's membership through partnerships with regional groups such as the San Joaquin Regional Watershed Program, San Joaquin Conservancy, the American River Parkway Foundation and others than can provide regional resources and organizational models.
4. Explore the possibility of partnering and coordinating efforts with regional groups such as the Downtown Modesto Blueprint Committee that are affecting change in neighborhoods surrounding the Tuolumne River.
5. Identify roles for Coalition representation at City and County hearings, and other forums on issues that relate to the river.

### *5.2.3 Scientific and Technical Studies*

**Scientific and Technical Studies Action 1:** Support the Development of Needed Information and Resources

The Coalition will actively encourage, seek out and support the development of new or additional technical studies covering topics that will help and strengthen projects of the Lower Tuolumne River Parkway. The following subject areas are of interest to Coalition members:

1. Habitat requirements for wildlife and natural processes (e.g., the Point Reyes Bird Observatory's Riparian Bird Conservation Plan).
2. Effects of channel improvements on habitat and wildlife.
3. Interactions between wildlife and human uses temporally and spatially.
4. Links between instream and riparian habitat restoration efforts.
5. Effects of current and potential flows on river processes, vegetation, and wildlife.
6. Sediment analysis.
7. Recreation needs analysis.
8. Benefits to human health due to interaction with the river (especially in urban environments).
9. The river environment as a community asset.
10. Public investment as a tool for access, improvement and public stewardship of the river corridor.

**Scientific and Technical Studies Action 2:** Analyze Impacts and Benefits of the Lower Tuolumne River Parkway

1. Build upon existing evaluation efforts of Coalition members to develop comprehensive baseline information for the entire Lower Tuolumne River Parkway and continue on-going evaluations over time. Efforts could include:
    - Existing conditions of the Lower Tuolumne River Parkway through extensive photographic, mapping, and written assessments.

*Chinook salmon spawning riffle survey.*

- Studies of human uses of the river corridor (e.g., increased park visits, canoe trips, partnerships with educational institutions)
- Integration of adaptive management protocol into restoration efforts.
- Implementation and integration of a biotic resources evaluation, including species and habitat surveys (Bird and other species population data may be available through partnerships with the San Joaquin River National Wildlife Refuge, California State University-Stanislaus, Stanislaus County Parks and Recreation bird monitoring program, and others such as Stanislaus Audubon Society).
- Map the locations of key species (river otters, deer), and Endangered or Threatened species (Riparian Brush Rabbit, Swainson's Hawk, and others).

2. Create a community-based, volunteer-driven program to monitor and observe visitation patterns and habitat changes as the Parkway develops.

### *5.2.4 Best Management Practices*

**Best Management Practices Action 1:** Compile and Support the Use of Best Management Practices for the Lower Tuolumne River

The Coalition can act as a clearinghouse for information regarding current best practices for water quality management, habitat restoration, recreation enhancement, floodplain management, open space conservation, and other elements affecting the river. These could include but are not limited to the following:

1. Recreation Use Guidelines that evaluate policy guidelines regarding watercraft use on the Tuolumne; promote good recreational stewardship; promote means for ensuring universal access to river recreation sites; and support best management practices at facilities along the river.
2. Summary of key mechanisms to maintain open space along the river corridor.
3. Guidelines regarding flow and flood management, and its effects on water quality, recreation, open space, and ecological restoration.
4. Overview and illustrations of diverse quality enhancement approaches including: erosion control, riparian restoration and constructed wetlands as filters, and management of run-off from various land uses.
5. Model floodplain management ordinances that include standards for construction, development, non-structural approaches, and floodways.
6. Guidelines for facilitating voluntary land acquisition, working in partnership with landowners and the public.
7. Effective habitat restoration practices in urbanized and highly developed or developing areas.
8. Summary of key recommendations from the Restoration Plan concerning geomorphic processes and the effects of channel improvements on habitat.
9. Design recommendations and opportunities for experimentation from the Adaptive Management Forum Report's review of large channel restoration projects.
10. Explanations of the different functions or types of open space and buffers.

## 5.3 RECOMMENDED STEPS FOR UPDATING AND AMENDING THE FRAMEWORK

In order to proceed with the strategies and action steps outlined in this document in an efficient and consistent manner, the coalition will need to adopt a set of criteria for project and process endorsement. Such criteria could include the following:

1. In order to be fully endorsed or initiated by the Coalition, a project must: align with the Coalition Mission and Vision Statements; contribute to the multi-objective development of the Lower Tuolumne River Parkway; and, support Coalition activities efforts.
2. Structure a working group or subcommittee to further prioritize strategies and action steps, as outlined in the Framework. Identify those strategies and actions steps that can be implemented immediately, and establish timelines for the achievement of each strategy. Formalize these timelines as an appendix to this document.
3. Establish protocols for periodic updates of the Framework (e.g., devote one meeting annually to reviewing and amending strategies and action steps). From these updates, develop a memorandum that lists which strategies and

specific action steps have been accomplished in the previous year and which will be addressed in the following year. This memorandum should also identify specific barriers and potential solutions for each strategy and should list any new or removed strategies.

4. Assess Coalition membership based upon the review of strategies. Consider expanding Steering Committee or general membership in order to accomplish strategies.

5. Refine the action plan (provided in Appendix E) as needed based upon periodic updates.

6. Use the action plan as a tool in promoting on-going collaborations with key partners listed (e.g., provide updates to key partners by distributing the memorandum on strategy updates and the refined action plan).

7. Adhere to the public outreach and involvement strategy and formalize community feedback on the Framework (e.g., hold a community workshop to review strategies every other year).

8. Use these updates as a means for continuously communicating with potential funding sources.

# APPENDICES

## Appendices

# Appendix A: Organizational Profiles of Tuolumne River Coalition Members

## City of Ceres

Guided by the principle "Together We Achieve," the City of Ceres exists to provide current and future citizens with the best municipal services, which improve quality of life, prosperity and safety. We will do this in a compassionate, professional and cost-effective manner, promoting fairness and inclusion of all citizens.

The 5-person Ceres City Council hires the City Manager who leads and manages all staff, finances, contracts, and CIP projects. There are 6 Departments including: the Parks, Recreation, and Facilities Department, Management Services, Public Safety, Public Works Department, and the Planning and Finance Department. There are approximately 220 full-time employees working for the City of Ceres.

**Major On-going Projects:** Presently a Task Force is working on the conceptual design and construction drawings of the lower 38 acres. The City of Ceres is seeking input from the public regarding habitat restoration of the lower terrace leading to the Tuolumne River.
**Meetings or other forums:** Please call the Ceres Parks, Recreation and Facilities Department regarding future public meetings.
**Contact:**
Doug Lemcke, Director of Parks, Recreation, and Facilities
2720 2nd Street
Modesto, CA 95356
(209) 538-5628

## City of Modesto

**On-going Projects**: The City of Modesto participates in the Tuolumne River Regional Park, a 500-acre river park running through the Modesto Urban Area. Currently Modesto operates Dryden Municipal Golf Course and owns property in the floodplain that is slated for neighborhood parkland. These sites are being reviewed for irrigation and future improvements.
**Meetings or other forums**: Future public meetings are scheduled as parkland is planned.
**On-going volunteer activities**: The City of Modesto is working closely with volunteer organizations that work in the floodplain areas to clean up and beautify City owned property.
**Contact:**
Doug Critchfield
1010 10th Street, Modesto, CA 95354 / P.O. Box 642, Modesto, CA 95353
(209) 577-5200

## City of Waterford

**Contact:**
Chuck Deschenes
PO Box 199
Waterford, CA 95386
(209) 874-2328

## East Stanislaus Resource Conservation District

Across the United States, nearly 3,000 conservation districts are helping local people to conserve land, water, forests, wildlife, and related natural resources. The RCD is committed to local control, believing the more we learn about our resources, the more we control our own backyard. The more we work with our neighbors, the less we face outside regulatory solutions that don't work. To this end, we are working to integrate resource management solutions that will:

- Bring together parties with common goals and interests.
- Create integrated management models to encourage best "multiple" resource use.
- Prevent pollution of waterways and groundwater from pesticide run-off, sediment, and nutrient buildup.
- Reduce losses of habitat and diversity, both in wildlife and plant species.

The East Stanislaus RCD includes the area east of the San Joaquin River to the Tuolumne and Calaveras County lines and is bordered by San Joaquin County to the North and Merced County to the South. The communities of Modesto, Ceres, Turlock, Oakdale, Salida, Hughson, Hickman, Riverbank, Denair and Waterford are included within the District. The East Stanislaus Resource Conservation District encompasses 984 square miles.

**Contact:**
Martin Reyes
3800 Cornucopia Way Suite E
Tuolumne Building
Modesto, CA 95358
(209) 491-9320

## Friends of the Tuolumne, Inc.

The Friends is a local grassroots, 501(c)(3) land trust focusing only on the lower 52 miles of the Tuolumne River. We have been working to foster and promote conservation, preservation, and restoration of natural resources on the Lower Tuolumne River since 1994.

The mission of the Friends of the Tuolumne, Inc. is the restoration of a riparian habitat corridor along the Tuolumne River in Stanislaus County. Activities shall foster and promote conservation, preservation and restoration of natural resources which are consistent with agricultural and other relevant adjacent land uses, including appropriate recreational uses.

**On-going Projects:** Bobcat Flat (300 acre restoration); Grayson River Ranch (133 acre restoration); Waterford Percolation Ponds Restoration (approx 9 acres); Advocacy for the river at the Technical Advisory Committee (Don Pedro Dam license agreement) and other available opportunities
**Meetings or other forums:** We schedule meetings and workshops for our projects as they progress.
**On-going volunteer activities:** We offer numerous tours and planting parties. Please contact us for dates.
**Contact**:
Allison Boucher
7523 Meadow Avenue
Stockton, CA 95207
(209) 477-9033
www.friendsofthetuolumne.org

## Modesto Irrigation District

The Modesto Irrigation District (MID) provides electricity and irrigation water and treats surface water for drinking water supply. MID is an independent, publicly owned utility with business operation on a not-for-profit basis. MID serves over 100,000 electrical accounts in the greater Modesto area (north of the Tuolumne River, Waterford, Salida, Mountain House (Northwest of Tracy) and parts of Ripon, Escalon, Oakdale and Riverbank. MID provides irrigation water to 60,000 acres and is a partner in the Don Pedro Project with the Turlock Irrigation District (see on-going projects listed under TID).

The MID mission is to deliver superior value to our irrigation, electric and domestic water customers through teamwork, technology, and innovation.
**Contact**:
Tim Ford
PO Box 949
Turlock, CA 95381
(209) 883-8275

## San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission ("SFPUC") provides 2.4 million Bay Area residents and businesses with reliable, high quality and affordable water from local and Tuolumne River watersheds. The SFPUC also has charge of power operations, the City's Clean Water Program, and management of natural resources under its care.

The SFPUC is a party signatory to the FERC settlement agreement for the New Don Pedro Project, which enhanced instream flows in the lower Tuolumne River and created funding for monitoring and restoration projects. Through the FERC settlement agreement and associated agreements with Turlock and Modesto Irrigation Districts, the SFPUC makes annual payments for fish flows in the lower Tuolumne, and provided over $2.4 million dollars in additional funding for lower Tuolumne River habitat restoration and improvement projects.

**Contact:**
John Chester
1000 El Camino Real
Millbrae, CA 94030
(650) 871-2027

## Sierra Club, Yokuts Group

The mission of the Sierra Club is to preserve the environment – for our families, for our future.

As part of the Mother Lode Chapter of the Sierra Club, the Yokuts Group has about 900 members, drawn from all of Stanislaus County. The Yokuts Group holds 9 general meetings a year and mails out 1,400 copies of "The Valley Habitat" newsletter 9 times a year.

On-going activities of the Yokuts Group include concern to protect the Tuolumne River from inappropriate development. The Group is prepared to organize and present testimony to prevent such development so that the river can be rehabilitated. Conversely, the Group also presents testimony in support of restoration projects or for acquisition for restoration or parkland.

**On-going Projects:** Outings and hikes, for all levels from strolls along the river to several-day hikes in the Sierras. Sierra Club monitors and comments on landfill, land-use, air pollution, recycling, and other activities.
**Meetings or other forums:** General meetings are held the third Friday of the month from September through May, except for December. There is socializing with snacks at 7:00 pm, and the meeting starts at

7:30pm. Program includes slides of others' travels or talks of local activities, such as land use or recycling. Meetings are held in the Modesto Police Department Community Room (600 10th St).
**On-going volunteer activities:** Annual activities including Earth Day, Garage sale, and cleanups and tree plantings when requested.

**Contact:**
Caroline Mitton
1120 Tasmania Way
Modesto, CA 95356
(209) 577-3086
www.motherlode.sierraclub.org/yokuts

## Stanislaus County Parks and Recreation

The mission of the Parks and Recreation Department is to implement the policies established by the Board of Supervisors pertaining to Parks which include acquiring, developing and maintaining recreation areas serving every segment of society, including the disabled and the economically disadvantaged; providing the leadership necessary to develop and manage parks and recreation facilities in ways that will provide the best possible experience for people to enjoy the out-of-doors at the most reasonable costs.

The Department of Parks and Recreation employs approximately 60 staff members and is responsible for the maintenance and operations of over 8,000 acres of County Parks and for grounds maintenance of county facilities. The County currently operates a system of 25 Parks encompassing 16,487 acres of land and water. The Parks can be divided into three primary types: Regional Parks, Fishing Accesses, and Neighborhood Parks.

**Contact:**
Terri Sanders, Manager, Parks and Recreation
3800 Cornucopia Way, Suite C
Modesto, CA 95358
(209) 525-6771

# Tuolumne River Regional Park

Tuolumne River Regional Park

The Tuolumne River Regional Park consists of over 500 acres of land along a 7-mile stretch of river generally bounded by Mitchell Road to the east and Carpenter Road to the west. Of the land acquired by the TRRP Joint Powers Authority (comprised of Stanislaus County and the cities of Ceres and Modesto), only approximately 180 acres have been developed for recreational purposes. In 1995, the TRRP Joint Powers Authority acquired a pivotal property along the park corridor. This remnant walnut orchard at the foot of 10th Street, referred to as the "Gateway Parcel", completed the missing link in the chain of park land along the Tuolumne and provided significant focus to the regional park.

**On-going Projects**: The Tuolumne River Regional Park (TRRP) is operated by a Joint Powers Authority consisting of the City of Ceres, City of Modesto and Stanislaus County. TRRP owns and maintains over 500 acres of land adjacent to the Tuolumne River. The TRRP JPA recently certified the TRRP Master Plan and MEIR, which created a blueprint and gave environmental clearance for future park improvements. Currently, TRRP is working on developing a 90-acre site located in the heart of the regional park and adjacent to the City of Ceres and Downtown Modesto. Identified as the 'Gateway Project', it will consist of river restoration, wetlands, trails, boardwalks, river access, gathering areas, amphimeadow, and picnic facilities. The cost for development of the Gateway Project is over $20 Million. Recently, TRRP received a Proposition 40 line item grant in the amount of $1,140,000 for the development of this project.
**Meetings or other forums**: TRRP is administered by the TRRP Commission, consisting of elected representatives from the City of Ceres, City of Modesto and Stanislaus County. Meetings are regularly scheduled for the 3rd Monday of every other month. The TRRP Citizen's Advisory Committee meets the third Wednesday of every month to review plans and make recommendations to the TRRP Commission. When plans are in the development stage, TRRP organizes public workshops for input. Information about upcoming events and meeting agendas is posted on the TRRP sponsored website at www.trrp.info
**On-going volunteer activities**: Boy Scout and Girl Scout service projects, the Hispanic Youth League Council's semi-annual volunteer project, The Tuolumne School Park Partners, education and grassroots volunteer projects and many other projects are performed for the Tuolumne River Regional Park.

**Contact:**
Jim Niskanen
1010 10th Street
Modesto, CA 95354
P.O. Box 642
Modesto, CA 95353
(209) 577-5200
www.trrp.info

## Tuolumne River Trust

Tuolumne River Trust

The Tuolumne River Trust works to promote the stewardship of the Tuolumne River and its tributaries to ensure a healthy watershed.

The Tuolumne River Trust is a nonprofit public benefit corporation organized and operated exclusively for charitable and educational purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code. The Trust currently has 14 Board members, 16 advisors, and five staff, including an Executive Director, Central Valley Program Director, and Sierra Nevada Program Director.

The Trust protects and conserves critical natural areas in the Tuolumne watershed, with offices in Groveland, Modesto, and San Francisco. The Trust links Sierra and Valley conservation issues and communities together and forges strong ties with the San Francisco Bay urban areas that rely on and recreate near the river.

**On-going volunteer activities and events:** Spring 2005 Big Bend volunteer planting day; Summer 2005 Hikes and Educational Events in Sierra Nevada; Fall 2005 Canoe trips
**Contact:**
Jenna Olsen, Executive Director
917 13th Street
Modesto, CA 95354
(209) 236-0330
www.tuolumne.org

## Turlock Irrigation District

TID WATER & POWER

Turlock Irrigation District is the oldest continuously operating irrigation district in California, delivering water to 150,000 acres of land and low cost electrical energy to over 65,000 customers.
The TID is the manager of the Don Pedro Project on behalf of the Turlock and Modesto Irrigation Districts and both are members of the Tuolumne River Technical Advisory Committee (TRTAC).

The Turlock Irrigation District mission is to provide dependable, competitively prices water and electricity in an environmentally responsible manner that is consistent with the interest of our customers.

**On-going Projects:** Predator Reduction Projects: SRP 9 at Fox Grove complete. SRP 10 adjacent to SRP 9 in design stage. Mining Reach channel restoration Projects: 7\11 Segment No. 1 complete; MJ Ruddy Segment No. 2 in ROW acquisition; Warner-Deardorff Segment No. 3 in final design. Sediment Management Projects: RM 43 in permitting stage; Fine Sediment Management (a) Gasburg Creek sediment control basin designed ready for construction & (b) spawning gravel cleaning systems under design; Gravel Infusion Project under design.
**On-going volunteer activities:** None planned.

**Contact:**
Wilton B. Fryer, P.E., Turlock Irrigation District
333 East Canal Dr.
Turlock CA 95380
(209) 883-8316

## Cooperating Agencies

**California Bay-Delta Authority**
Dan Wermiel, (916) 445-5398

**California Department of Fish and Game**
Contact: Pat Brantley, (209) 772-0703

**Stanislaus County Council of Governments**
Contact: Bruce Abanathie, (209) 558-4762

**United States Department of Agriculture-Natural Resources Conservation Service**
Contact: Michael A. McElhiney, District Conservationist, (209) 491-9320 x. 102

**United States Department of Commerce-National Oceanic and Atmospheric Administration (NOAA) Fisheries**
Contact: Madelyn Martinez or Jeff McLain (916) 930-3600

**United States Fish and Wildlife Service-Anadramous Fish Restoration Program**
Contact: Carl Mesick (209) 946-6400

**United States Fish and Wildlife Service-San Joaquin National Wildlife Refuge**
Contact:

| | |
|---|---|
| Eric Hopson | Kim Forrest |
| Assistant Refuge Manager | Refuge Manager |
| San Joaquin River NWR | San Luis National Wildlife Refuge Complex |
| 2714 Dairy Road | 947 West Pacheco Blvd., Ste C |
| Vernalis, CA 95385 | Los Banos, CA 93635 |
| (209) 587-5532 cell | (209) 826-3508 |
| (209) 832-9035 office | |

http://sanluis.fws.gov/sanjoaquin_info.htm
**On-going Projects:** Endangered Riparian Brush Rabbit Recovery; Wetland and Riparian habitat restoration; Floodplain Hydrology Restoration
**Meetings or other forums:** Meeting to discuss and comment on the Refuge's Draft Comprehensive Conservation Plan; (fall/winter 2004/5); Modesto (Time and location TBA)
**Other volunteer activities:** On-going volunteer projects are developed and tailored to fit individual experience and interest levels. Contact Eric Hopson, 587-5532; Docents are needed to lead third grade wildlife interpretation field trips through the Faith Ranch and Refuge Lands. Contact John Hertle, 545-0815;
Guided bird watching trips are conducted on the Refuge by the Stanislaus Audubon Society one or two times per month. Contact Bill Amundsen 521-8256, or Dave Froba 521-5890.

# Appendix B: Table of Existing Plans, Reports and Studies

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| 1 | CALFED | **1a.** Ecosystem Restoration (ERP) Multi-Year Program Plan (Years 5-8) | ▪ Riparian Habitat<br>▪ Floodplain/Run-off management | Strategic Goals 1-6, and corresponding objectives | http://calwater.ca.gov/Programs/EcosystemRestoration/Ecosystem.shtml |
| | | **1b**. Lower Tuolumne River Adaptive Management Forum Report. October 1, 2001. | ▪ Riparian Habitat<br>▪ Floodplain & Run-off management | Key Recommendations (p. 8-26) | http://calwater.ca.gov/Programs/Science/adobe_pdf/LowerTuolumneForumReport.pdf |
| | | **1c.** Watershed Program Multi-Year Program Plan (years 5-8) | ▪ Coordination with ERP | | http://baydeltawatershed.org/ |
| 2 | California Department of Fish & Game | Restoring Central Valley Streams: A Plan for Action. November 1993. | ▪ Riparian Habitat<br>▪ Floodplain/Run-off management | Central Valley Action Plan: San Joaquin Region: Tuolumne River (p. VII-113) | |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **3** | California Department of Water Resources* | **3a.** Bulletin 118 – Update 2003, California's Groundwater | ▪ Floodplain/Run-off management | Major Recommendations | http://www.groundwater.water.ca.gov/bulletin118/update2003/index.cfm |
| | | **3b.** California Model Floodplain Management Ordinance, December 2001 | ▪ Floodplain/Run-off management | Section 1.4; Sections 5.1, 5.2, 5.3, 5.4, 5.4, 5.6, 5.8, and 5.9 | http://www.fpm.water.ca.gov/ordinance/Ordinance01.doc |
| **4** | California Floodplain Management Task Force | California Floodplain Management Report. December 12, 2002. | ▪ Floodplain/Run-off management<br>▪ Land use<br>▪ Stewardship & Education<br>▪ Riparian Habitat | Floodplain Management Actions & Key Recommendations | http://fpmtaskforce.water.ca.gov/ |
| **5** | California Partners in Flight | Riparian Bird Conservation Plan: A Strategy for reversing the decline of riparian associated birds in California. (Riparian Habitat Joint Venture). August 2000. | ▪ Riparian Habitat<br>▪ Floodplain/ Run-off management<br>▪ Stewardship & Education | Conservation Recommendations Objectives 1-13 | http://www.prbo.org/calpif/pdfs/riparian_v-2.pdf |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **6** | California Regional Water Quality Control Board, Central Valley Region | Water Quality Control Plan for the Sacramento and San Joaquin Basins, 1998 | ▪ Water Quality<br>▪ Water Supply | Surface Water Bodies and Beneficial Uses; Specific Dissolved Oxygen Water Quality Objectives | http://www.epa.gov/ost/standards/wqslibrary/ca/ca_9_central_valley.pdf |
| **7** | California State Parks | **7a.** California State Parks and The Great Central Valley, April 2004 | ▪ Land Use<br>▪ Riparian Habitat<br>▪ Recreation<br>▪ Stewardship & Education<br>▪ Terrestrial Species | Acquisition and Development Strategies; Key Recommendations | http://www.parks.ca.gov/ |
| | | **7b.** Performance Management Report 2004 | ▪ Land Use<br>▪ Riparian Habitat<br>▪ Recreation<br>▪ Stewardship & Education<br>▪ Terrestrial Species | Core Programs and Outcome Measures | http://www.parks.ca.gov/ |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| | | **7c.** California Outdoor Recreation Plan 2002 | ▪ Land Use<br>▪ Riparian Habitat<br>▪ Recreation<br>▪ Stewardship & Education<br>▪ Terrestrial Species | Actions (Issues 1-6) | http://www.parks.ca.gov/ |
| **8** | Ceres, City of | **8a.** Hatch Road Regional Park Master Plan. July 2002. | ▪ Water Quality<br>▪ Land Use<br>▪ Recreation<br>▪ Access | Program Elements and Phasing Plan | |
| | | **8b.** City of Ceres General Plan. | ▪ Land Use<br>▪ Water Quality<br>▪ Water Supply<br>▪ Riparian Habitat<br>▪ Terrestrial Species | Policies 1.A.2, 1.A.3, 1.A.4, 1.A.5; 4.C.1, 4.C.3, 4.C.4, 4.D.1, 4.D.4, 4.E.1, 4E.3, 4.E.6, 4.E.10; 5.A.1, 5.A.6, 5.A.7, 5.B.1, 5.B.2, 5.C.1; 6.A.1, 6.A.2, 6.A.5, 6.A.6, 6.B.1, 6.B.2, 6.B.3, 6.B.4, 6.B.5, 6.C.1, 6.C.2, 6.C.3, 6.C.4, 6.C.5; Goals 6D, 6E, and 7B and all Policies; | http://www.ci.ceres.ca.us/GeneralPlan.pdf |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **9** | Department of commerce, National Oceanic and Atmospheric Administration | Federal Register Part II 50 CFR Parts 223 and 224 | ▪ Aquatic Species | | |
| **10** | Federal Emergency Management Agency | National Flood Insurance Program and Related Regulations, Revised as of October 1, 1994 | ▪ Floodplain/Run-off management<br>▪ Land Use | Part 60: 60.2-60.26 | |
| **11** | Federal Energy Regulatory Commission | **11a.** Federal Energy Regulatory Commission Order Amending Articles 37 & 58 of License for Project Number 2299-024 & –031 | ▪ Riparian Habitat<br>▪ Land use<br>▪ Floodplain/Run-off management<br>▪ Aquatic Species | | |
| | | **11b.** New Don Pedro Proceeding Settlement Agreement. 1995. | ▪ Riparian Habitat<br>▪ Land use<br>▪ Floodplain/Run-off management<br>▪ Aquatic Species | | |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **12** | Friends of the Tuolumne, Inc. | **Bobcat Flat Conceptual Restoration Plan** | ▪ Riparian Habitat<br>▪ Floodplain/Run-off management<br>▪ Terrestrial Species<br>▪ Aquatic Species | | |
| **13** | Modesto, City of | **13a.** City of Modesto General Plan. 1995, updated 2001. | ▪ Riparian Habitat<br>▪ Land Use<br>▪ Access<br>▪ Floodplain/Run-off management | Community Facilities Policies C.2, C.3; D.2, D.3; E.2, E.3; G.2, G.3; Public Safety Policies C.2, C.3; Environmental Resources and Open Space Policies B.1-B.7; D.2, D.3E.2, E.3; F.2, F.3 | http://www.modestogov.com/cdd/Planning/documents/generalplan.asp |
| | | **13b.** City of Modesto General Plan, Tuolumne River Comprehensive Planning District | ▪ Land Use | Land Use Policies | |
| | | **13c.** County and City- wide Visioning Statements and Related County Policies, February 5, 2002 | ▪ Land Use<br>▪ Water Quality<br>▪ Water Supply<br>▪ Access | Strategy (and corresponding actions) V.A.6, XI.A, I.B.1.a, I.B.1.b, I.B.1.c | |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **14** | River Partners | Annual Report 2003 | ▪ Riparian Habitat | Tuolumne River Project Facts | http://www.riverpartners.org/documents/2003AnnualReport.pdf |
| **15** | San Francisco Public Utilities Commission | **15a.** Capital Improvement Program, February 25, 2002 | ▪ Water Supply<br>▪ Water Quality | Capital Improvement Planning Programs | http://sfwater.org/detail.cfm/MSC_ID/6/MTO_ID/NULL/MC_ID/7/C_ID/452/holdSession/1 |
| | | **15b.** SFPUC Master Plan | ▪ Water Supply<br>▪ Water Quality | | |
| **16** | Stanislaus County | **16a.** Countywide Visioning Statements and Related County Policies, February 5, 2002 | ▪ Land Use | Land Use Action Items; Environment Action Items; | |
| | | **16b.** Stanislaus County General Plan. 1994. | ▪ Riparian Habitat<br>▪ Land Use<br>▪ Access<br>▪ Floodplain/Run-off management | **Chapter One:** Goal 1: Policies 2, Goal 2: Policies 4, 7, 10, 12; **Chapter Three:** Goal 1: Policies 1-4; Goal 2: Policies 5,6,8,9; Goal 3: Policies 10-11; Goal 4: Policies 12-15; Goal 5: Policy 16; Goal 8: Policies 24; Goal 9: Policies 26-28; Goals 10: Policies 29-30; **Chapter 5**: Goal 1: Policy 2 | http://ceres.ca.gov/planning/counties/Stanislaus/plans.html |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| | | **16c.** Stanislaus County Agricultural Elements of the General Plan, 1994 | ▪ Land Use<br>▪ Water Quality<br>▪ Water Supply | Goal 1, Policies 1.1, 1.2, 1.3, 1.10, 1.11, 1.12, 1.26<br>Goal 2, Policies 2.1 to 2.14<br>Goal 3, Policies 3.5 to 3.7 | http://ceres.ca.gov/planning/counties/Stanislaus/plans.html |
| | | **16d.** Stanislaus County Parks Master Plan. August 24, 1999. | ▪ Access<br>▪ Recreation<br>▪ Land use<br>▪ Stewardship & Education | Design Recommendations; Future Planning: New Regional Parks, New River Accesses and Geer Landfill; Specific Park Plans; Economic Development Opportunities: County Resources | http://www.co.stanislaus.ca.us/er/Execsum.htm |
| | | **16e.** County of Stanislaus Policy Regarding Agricultural Lands Transaction | ▪ Land Use | Criteria A to D | Great Valley Center |
| **17** | Tuolumne River Regional Park | **17a.** Tuolumne River Regional Park Master Plan | ▪ Recreation<br>▪ Access<br>▪ Land Use<br>▪ Riparian Habitat<br>▪ Stewardship & Education<br>▪ Terrestrial Species | Preliminary Goals & Objectives; Chapters 3,4,5; Implementation Action Plan | |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| | | **17b.** CEQA Findings of Fact and Statement of Overriding Conditions for the Tuolumne River Regional Park Master Plan (Joint Powers Authority, also including City of Modesto and County of Stanislaus). October 2001. | ▪ Recreation<br>▪ Access<br>▪ Land Use<br>▪ Riparian Habitat<br>▪ Stewardship & Education | | |
| **18** | Tuolumne River Technical Advisory Committee | Habitat Restoration Plan for the Lower Tuolumne River Corridor. March 2000. | ▪ Riparian Habitat<br>▪ Land Use<br>▪ Floodplain/Run-off management<br>▪ Aquatic Species | Restoration Goals & Objectives; Restoration Strategies; Restoration & Preservation Approaches; Riparian Inventory | http://www.delta.dfg.ca.gov/afrp/documents/tuolplan2.pdf |
| **19** | U.S. Army Corps of Engineers | **19a.** Tuolumne River & Tributaries Feasibility Study Project Management Plan (currently developing work plan and project schedule). October 31, 2001. | ▪ Floodplain/Run-off management<br>▪ Riparian Habitat | Plan Formulation & Planning Objectives; Chapter 3 Phase I: Measures 1-6 | |
| | | **19b.** Sacramento & San Joaquin River Basins Comprehensive Study for Flood Damage Reduction & Ecosystem Restoration Post-Flood Assessment. December 20, 2002. | ▪ Riparian Habitat<br>▪ Floodplain/Run-off management | Policies on Agriculture in the Floodplain; Guiding Principles; Approach for Project Development; The Lower San Joaquin River Region | http://www.compstudy.org/docs/interimreport20021220/interimrpt-cover.pdf |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **19** | U.S. Fish & Wildlife Service | **20a.** Environmental Assessment and Land Protection Plan. Proposed Addition to the San Joaquin River National Wildlife Refuge Stanislaus County, CA. (for the establishment/expansion of the riparian wildlife refuge in 1998). April 1998. | ▪ Riparian Habitat<br>▪ Land Use<br>▪ Terrestrial Species | Purpose & Need; Guiding Principles; Goals; Habitat & Land Acquisition Process | |
| | | **20b.** Final Restoration Plan for the Anadromous Fish Restoration Program: A Plan to Increase Natural Protection of Anadromous Fish in the Central Valley of California. January 9, 2001. | ▪ Riparian Habitat<br>▪ Stewardship & Education | Central Valley and Tuolumne-Specific Action and Evaluation Items | www.delta.dfg.ca.gov/afrp/restplan_final.asp |
| **20** | U.S. Fish & Wildlife Service, Cont'd | **20c.** Central Valley Habitat Joint Venture Implementation Plan. February 1990. | ▪ Riparian Habitat<br>▪ Terrestrial Species<br>▪ Floodplain/run-off management<br>▪ Stewardship & Education | Six Primary Objectives | |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| | | **20d.** The Economic Impact on Stanislaus County of Public land Acquisitions and Conservation Easements on Floodplain Lands Along the Lower Tuolumne and San Joaquin Rivers. Revised Draft Report | ▪ Land Use | Past and Future Acquisitions and Easements | http://www.delta.dfg.ca.gov/afrp/documents/Rev_Report-12-16.pdf |
| | | **20e**, AFRP Tuolumne River Watershed Data | ▪ Water Quality<br>▪ Aquatic Species | | http://www.delta.dfg.ca.gov/afrp/ws_stats.asp?code=TUOLR |
| | | **20f.** Workplan for Fiscal Year 2003, September 20, 2002 | ▪ Aquatic Species | Central Valley and Tuolumne Specific Program Objectives | http://www.delta.dfg.ca.gov/afrp/documents/AWP2003Final.pdf |
| | | **20g.** San Joaquin National Wildlife Refuge Comprehensive Conservation Plan | ▪ Riparian Habitat<br>▪ Terrestrial Species | Chapter One | |
| | | **20h.** Coarse Sediment Management Plan for the Lower Tuolumne River, Revised Final, July 20, 2004 | ▪ Aquatic Species<br>▪ Riparian Habitat | 6.3; 6.4; 7.2; 7.3; 7.4; 7.5; | |

| | Agency/ Organization | Plan, Report or Study | Plan Elements | Plan, Goals, Policies Cited | Contact Information & Availability |
|---|---|---|---|---|---|
| **21** | Waterford, City of | City of Waterford General Plan. November 1991. | ▪ Riparian Habitat<br>▪ Access<br>▪ Land use<br>▪ Floodplain/run-off management<br>▪ Water Quality<br>▪ Water Supply | Land Use Element: Policies 4.1.4, 4.1.5, 4.1.6; 4.2.4; Open Space and Conservation Element: Policies 7.1.17.3.5, Goal 7.4 and all Policies; Goal 7.6 and all Policies; Policy 7.7.1; Safety Element: Policy 8.1.5; Parks and Recreation Element: Goal 10.1 and all Policies; Goal10.4 and all Policies | |

# Appendix C: Inventory of Detailed Plan Elements and Objectives

## Plan Elements & Objectives for the Lower Tuolumne River

The following table includes excerpts from over 40 plans and documents that pertain to or affect the Lower Tuolumne River. The table is organized by "river element", such as recreation or water quality. In addition, the table includes references to river location, if any elements addressed specific reaches of the river (see the Key). All statements are followed by a citation of the original source document. Refer to Appendices B for more information about the documents referenced here.

**KEY:**

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| Elements unique to Reaches 1-7 | **1-7** |
| Elements common to the Lower (sand bed) Reaches | **8** |
| Elements common to the Upper (gravel bed) Reaches | **9** |
| Elements common to all Reaches | **10** |

| Element: | Objectives: |
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| ✓Recreation | ▪ Formal recreation (sports fields, concessions, picnicking, river overlooks) as well as passive recreation (wetlands restoration, trail development, river overlooks, natural recreation) (*source: City of Ceres General Plan*) **[2]**<br>▪ Walking and biking along the River and enjoying the natural beauty of the River through the development of the Tuolumne River Regional Park (*source: Friends of the Tuolumne, City of Ceres General Plan*) **[2]**<br>▪ Focus on multi-purpose recreation: enhancing a trail system (riverwalk), river overlooks, pedestrian bridges, outdoor classrooms, beaches, small piers, amphimeadow, canoe and kayak launches, regional sports complex, and interpretive center. Specifically, passive recreation oriented to the River East and West of the Gateway Parcel; Active recreation and facilities in the Gateway Parcel (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Consideration and use of natural forces affecting sites; Avoid permanent structures in the floodplain if possible (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Develop Phases I-III of the Ceres River Bluff Regional Park to include soccer fields, paths and fencing, parking lots, basketball courts, play areas, restrooms, softball facilities, other formal recreation elements, and pathways and overlooks on this upper-bluff area. Develop Phase IV along the lower terrace to include a natural recreation area with river cleanup, removal of the existing orchard to restore natural riparian habitat, seasonal wetlands constructed as water detention areas, trail systems, overlooks, picnic areas, other native and riparian plantings, and enhanced vehicular access and a parking lot for the non-motorized boating access (*source: Hatch Road Regional Park Master Plan*) **[2]**<br>▪ Develop resources that attract regional visitors (regional river park), and parkways and greenbelts (*source: City of Waterford General Plan, Tuolumne River Regional Park Master Plan*) **[4]**<br>▪ Maintain City's open space for passive and active recreational use accessible to everyone by developing a recreation guide, mapping trails and parks and their |

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| | connections with other communities, and plans for sensitive habitat areas that include trail systems, access, and interpretive centers (*source: City of Waterford General Plan*) **[4]**<br>▪ Develop an interpretive center, camps, amphitheater, sports fields and other facilities, trail systems, and fishing access at La Grange and connections of pedestrian, bike, and equestrian trails near Waterford (*source: Stanislaus County Parks Master Plan*) **[7]**<br>▪ Canoeing and rafting (*source: Central Valley Regional Water Quality Control Board*) **[10]**<br>▪ Fishing access, boating, picnicking, informal play, camping, river trails, and other passive recreation along the River to create a "string of pearls" of access sites. (*source: Stanislaus County Parks Master Plan*) **[10]**<br>▪ Maintain the natural environment in areas dedicated as parks and open space and include provisions in County parks for native vegetation conservation (*source: Stanislaus County General Plan*) **[10]**<br>▪ Provide open space and recreation needs of residents through a system of local and regional parks, by acquiring open space where future growth is planned, and by creating an interconnection of recreation areas and open spaces that are oriented to bike and pedestrian use while making parks more universally accessible (*source: Stanislaus County General Plan*) **[10]**<br>▪ Provide diverse recreational opportunities such as horseback riding, hiking trails, and bikeways (*source: Stanislaus County General Plan*) **[10]**<br>▪ Coordinate provision of recreation opportunities with other providers such as the Army Corps of Engineers, State Resource Agency, school districts, river rafters, horse stables, and private organizations such as the Sierra Club and Audubon Society (*source: Stanislaus County General Plan*) **[10]**<br>▪ California State Parks has outlined the following Strategic Initiatives: Increase Diversity; Increase Leadership in Parks and Recreation; Focus on Cultural resources; Utilize Technology; Increase Leadership in Natural Resource Management; Develop a New Image (to communicate a clear message); Create an Urban Connection; Expand Recreational Opportunities (to keep pace with California's divers ad changing lifestyles) (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Key outcomes for California State Parks' 6 Core Program (Natural Resource Protection, Cultural Resource Protection, Facilities, Education/Interpretation, Public Safety, and Recreation) are that ecosystems and constituent elements are in a desired condition; significant cultural sites, features, structures, and collections are protected and preserved; quality infrastructure is provided and maintained; the public understands the significance and value of the State's natural and cultural resources through education, interpretation, and leadership; a safe environment is provided within parks; and the quality of life for Californians is improved through the provision of diverse, high-quality recreation experiences and opportunities. (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Natural Resource Protection is measured through securing lands that contribute to sustainable ecosystems (providing or creating linkages to existing protected areas, contributing to complete watershed protection, provide buffers from urban impacts); the control and management of exotic species; continuing the Inventory, Monitoring, and Assessment Program for flora and |

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| | fauna; restoring natural processes (e.g. prescribed fires); increasing visitor satisfaction; and Paleontological Resource Management (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Cultural Resource Protection is measured through cataloging, scanning, and documenting objects and photographs; continuing archaeological site assessment, protection, and maintenance; conducting condition assessments of historic buildings and structures; securing appropriate housing for artifacts; conducting the Cultural Stewardship Program; securing land of cultural resources; and increasing visitor satisfaction (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Facilities are measures through increasing visitor satisfaction; documentation of repair and maintenance; and the accessibility of facilities (compliance with ADA) (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Education and interpretation are measured by increasing visitor satisfaction; participant hours in education and interpretation programs; and congruity with educational curricula (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Public Safety is measured by ratio of accidents and crimes to visitors; and increasing visitor satisfaction/perceptions of safety (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Recreation is measured by increasing visitor satisfaction; visitor attendance rates; and accessibility (recreational activities are ADA compliant) (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ The California Outdoor Recreation Plan prioritized the following 6 issues: the status of parks and recreation; financing parks and outdoor recreation; access to public parks and recreation resources; protecting and managing natural resource values; preserving and protecting California's cultural heritage; and statewide leadership in parks and outdoor recreation (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Actions to enhance the status of parks and recreation: Document and publicize benefits related to parks and outdoor recreation; Raise public awareness of elected official's decisions; Develop statewide political action committee; Introduce legislation mandating General Plan recreation element; Expand California Roundtable membership to expand legislative and advocacy efforts; Develop a State/Federal healthy lifestyle initiative; Emphasize elements of parks and recreation field most valued by public (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Actions to improve financing: Support full stateside funding from the Land and Water Conservation Fund based on State population and level of recreation-related travel; Sponsor/support legislation to create a professionally managed statewide endowment for acquisition, capital outlay, and extraordinary maintenance; Conduct statewide inventory rating needs for infrastructure maintenance and new facilities; Advocate for State legislation to allocate new or existing tax revenues towards parks and recreation; Coordinate technical assistance for obtaining grants and identifying funding sources; Design a standard interpretive template for promoting acquisitions, new and rehabilitated facilities (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Actions to improve access: Complete statewide inventory of federal, state, county, city and special district outdoor recreation facilities; Track emerging |

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| | outdoor recreation trends and conduct research for access, relevance, safety, ad barriers; Develop statewide parks and recreation area standards; Establish a multicultural advocacy council to promote parks ad recreation benefits to youth; Create inclusive camping areas for educational and recreational experiences; Have every K-12 student visit a resource-based park during their school career (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Actions protect natural resource values: Complete gap analysis of biological diversity, bio-corridors and linkages; and sustainable landscapes; Develop a coordinated land acquisition strategy for under-represented ecosystems and additional resource-based recreational properties; Establish a Council on Carrying Capacity to minimize the social and environmental carrying capacities of park and recreation areas; Adopt a statewide environmental education program and code of outdoor recreation ethics; Create partnerships with education providers on educating youth about preserving and protecting natural resources; Identify a funding source and prioritize natural systems for restoration projects (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Actions to preserve cultural heritage: Increase the number of significant private and public historic resources following a gap analysis of missing or under-represented cultural themes; Incorporate historic preservation into public policy at all levels of government; Provide technical, financial, and leadership assistance to state agencies and local governments; Increase the understanding of historic preservation in those individuals; organizations, and local governments who influence public opinion and the planning process; Promote historic preservation through education, training and outreach programs; Stimulate California's economy through historic preservation incentives that promote jobs, community investments, and heritage tourism (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Actions to increase leadership: convene a Parks and Recreation Summit to establish a common vision, an Outdoor Code of Ethics, a set of guiding principles, long range goals and a plan to achieve them; NPS resumes technical assistance to park and recreation service providers; DPR re-establish technical assistance to park and recreation service providers; Federal, state and local provider adopt relevant project goals from the Vision Insight Planning team to meet their specific needs; Expand private sector and non-traditional California Roundtable membership; Post park and recreation research findings on a central website; Create a Leadership Academy to identify and mentor future parks and recreation leaders (*California Outdoor Recreation Plan 2002*) **[10]**<br>▪ Expand recreational facilities for camping, day use, fishing, boating, and trails to accommodate larger families and groups in existing parks along river corridors, at Valley reservoirs and in the Delta (*California State Parks and the Great Central Valley, 2004*) **[10]**<br>▪ Expand landholdings at existing parks and acquire new parklands along major river corridors such as the Sacramento, Tuolumne, Stanislaus, San Joaquin and Merced Rivers, particularly where an opportunity exists to link state parks and other lands in public ownership (*California State Parks and the Great Central Valley, 2004*) **[10]**<br>▪ Acquire lands that preserve and protect vanishing natural resources once more abundantly evident in the CV, such as blue oak and sycamore |

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| | woodlands, riparian habitat, and native grasslands (*California State Parks and the Great Central Valley, 2004*) **[10]**<br>▪ Better preserve and interpret the rich history associated with the CV's past, including the full sweep of agricultural history, Native American past and continuing life ways; Highway 99, the Valley's oil industry, and the stories of immigrant workers from around the world, of Depression-era dust bowl refugees, and of California's country and western music artists (*California State Parks and the Great Central Valley, 2004*) **[10]**<br>▪ Acquisition and development opportunities (to acquire and expand state parks) should focus on lands containing under-represented natural or historical resources; lands with water features to support a multitude of uses and interests; river corridors and parkways; lands that have the capacity for high demand recreational activities such as camping, day use, trails and youth activities; Lands that link large blocks of protected habitat resulting in combined acreage; Lands that serve growing communities and a diversity of interests; Lands that offer the possibility of partnerships with other organizations (*California State Parks and the Great Central Valley, 2004*) **[10]**<br>▪ Habitat: Protect and/or restore functional habitat types in the Bay-Delta estuary and its watershed for ecological and public values such as supporting species and biotic communities, ecological processes, recreation, scientific research, and aesthetics. (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Water and sediment quality: Improve and/or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta estuary and watershed, and eliminate, to the extent possible, toxic impacts to aquatic organisms, wildlife, and people (*source: CALFED Ecosystem Restoration Program*)<br>▪ Coordinate the AFRP with appropriate activities supported by the Riparian and Recreation Improvement fund that was established by the New Don Pedro Settlement Agreement (*source: AFRP Final Restoration Plan*) |
| ✓ **Floodplain & Run-off Management** | ▪ Reduce flood damages in the Modesto area in compliance with local land use plans in an efficient manner (contributing to NED) with on-going environmental restoration and management plans. (*source: ACOE Feasibility Study Project Management Plan. Habitat Restoration Plan for the Lower Tuolumne*) **[2]**<br>▪ Mitigate increases in peak storm water flow and volume (positive drainages, drainage ponds, on-site drainage, irrigation facilities), consider using higher quality storm water to replenish groundwater basin, restore wetlands and riparian habitat, irrigate agriculture, or as open space and recreation enhancements, and develop floodway zoning (*source: City of Ceres General Plan*) **[2]**<br>▪ Purification of urban stormwater runoff using constructed wetlands (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Focus on non-structural approaches to flood control and prevention (e.g. preserve undeveloped floodway/floodplain areas for non-urban use, permit new development when proved to be protected from 100-year floods, and restrict amount of new development run-off from exceeding current conditions) (*source: City of Modesto General Plan*) **[2]**<br>▪ Minimize local flooding and reduce burden on sanitary system (construct lines to River from various watersheds, add storm drainage basins and use Modesto Irrigation Canal system to increase volume of water carried by River), and |

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| | designate floodway along river with standards for building within 100- and 500- year floodplains (*source: City of Waterford General Plan*) **[4]**<br>▪ Prioritize potential coarse sediment supplies for sediment augmentation, as well as channel/floodplain reconstruction projects, to minimize additional demands on commercial aggregate supplies (*source: Course Sediment Management Plan*) **[9]**<br>▪ General flood management that contributes to ecological values of River corridor (*source: ACOE Feasibility Study Project Management Plan. Habitat Restoration Plan for the Lower Tuolumne*) **[10]**<br>▪ Explore future flood damage reduction and ecosystem restoration projects in cooperation with state and federal agencies (e.g. passive levee breaches near confluence with San Joaquin River, control weirs, improve effectiveness of Don Pedro reservoir through physical improvements, coordinated pre-releases, or strategic releases to support more natural hydrologic regime, riparian vegetation, and ecosystem functioning) (*source: ACOE Sacramento and San Joaquin River Basins Comprehensive Study*) **[10]**<br>▪ Reserve lands subject to natural disaster as open space: development will not be permitted in the floodplain unless otherwise approved by the State Recreation Board and information will be provided to anyone interested in creating a Flood Control District (*source: Stanislaus County General Plan*) **[10]**<br>▪ The California Model Floodplain Management Ordinance contains methods and provisions to: Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which results in damaging increases in erosion or flood heights or velocities; Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters; Control filling, dredging, grading, and other development which may increase flood damage; Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas. (*source: California Model Floodplain Management Ordinance, DWR*)<br>▪ Implement provisions for flood hazard reduction including standards for construction, standards for utilities, standards for subdivisions, standards for manufactured homes, standards for recreational vehicles, prohibit encroachments, including fill, new construction, substantial improvement, or other new development, in the floodway unless certified by a registered engineer; standards for mudslide prone areas, and standards for flood-related erosion-prone areas (*source: California Model Floodplain Management Ordinance, DWR*)<br>▪ Flood plain management criteria for flood-prone areas are detailed depending upon how much data is available. The Administrator will provide the data upon which floodplain management regulations shall be based. If the Administrator has not provided sufficient data to furnish a basis for these regulations in a particular community, the community shall obtain, review, and reasonable utilize data available from other Federal, State, or other sources pending receipt of data from the Administrator. However, when special flood hazard area designations and water surface elevations have been furbished by the Administrator, they shall apply In all cases the minimum requirements |

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| | governing the adequacy of the flood plain management regulations for flood-prone areas adopted by a particular community depend on the amount of technical data formally provided to the community by the Administrator. (Minimum standards for communities are outlined in subchapter 60.3) Flood plain management criteria and planning considerations for mudslide-prone areas, for erosion-prone areas, for State-owned properties in special hazard areas, and guidelines for local coordination are also outlined. (*source: FEMA National Flood Insurance Program and Related Regulations*)<br>▪ Better understanding of and reducing risks from reasonable foreseeable flooding: expand State Awareness Floodplain Mapping; prepare floodplain maps that consider future build-out and are based on watersheds; develop cross-agency compatible GIS flood maps; map alluvial fan floodplains; installation of real-time gages and monitorig in priority locations; identify repeatedly-flooded structrures; increase flood warning and local community flood response systems; use other resources in addition to FIRMS; exceed NFIP floodplain management requirements; update the Governor's 1977 Executive Order for Floodplain Management; coordinate State Multi-Hazard Mitigation Plan and FEMA requirements; coordinate across various multi-hazard mapping efforts to develop GIS-based advisory maps; ensure that State Building Codes meet or exceed NFIP requirements. (*source: California Floodplain Management Task Force*) **[10]**<br>▪ Multi-Objective Management Approach for Floodplains: promote a Multi-Objective Management approach to flood management projects; flood management projects should maximize opportunities for agricultural conservation and ecosystem protection and restoration; integrate non-structural approaches, restoration and conservation of agricultural natural lands into flood management programs; develop tools to protect flood-compatible uses; protect floodplain groundwater recharge areas; consider the costs and impacts of vector control; encourage multi-jurisdictional partnerships; monitor projects on the watershed level; manage floodplains proactively and adaptively; work with stakeholders to identify BMPs; develop training, education and professional certification in multi-objective floodplain management; coordinate across agencies and groups; update the Sate General Plan guidelines according to these recommendations; coordinate across federal, state, local and nongovernmental sources to fund multi-objective floodplain management (*source: California Floodplain Management Task Force*) **[10]** |
| ✓Geomorphology | ▪ Floodplain as resource to be used for waterfowl, habitat, aquifer recharge, fishery enhancement, agricultural water supply (*source: City of Ceres General Plan*) **[2]**<br>▪ Permanently protect (as open space) areas of natural resource value such as wetlands, riparian corridors, and floodplains to full extent possible (*source: City of Ceres General Plan*) **[2]**<br>▪ Design strategies consistent with natural hydrologic processes; riparian restoration and restoration of riparian terraces along Gateway Parcel and Carpenter Road area (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Reconstruct remnant channel left by gold dredger operations to a natural river and floodplain form; Secure remnant dredger tailings for future restoration; Increase floodway width to at least 500 feet; Restore a natural river and |

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| | floodplain morphology; Restore and maintain riparian corridor through gravel mining zones (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[9]**<br>▪ Continue to focus on the area of the river between La Grange and Waterford as an "Aggregate Resource Area". Manage extractive mineral resources to ensure an adequate supply without degrading the environment (e.g. surface mining will be encouraged in areas classified by State Division of Mines and Geology, permits will not be supplied four uses that threaten the potential to extract minerals, and land used for extraction shall be reclaimed) (*source: Stanislaus County General Plan*) **[9]**<br>▪ A secure gravel supply to replace gravel transported by the high flow regime, thus maintaining the quantity and quality of alluvial deposits that provide salmonid habitat. *(Sources: Habitat Restoration Plan for the Lower Tuolumne River Corridor; CALFED Ecosystem Restoration Program)* **[10]**<br>▪ Restore and improve opportunities to inundate the floodplain on a seasonal basis, conduct a feasibility study to construct setback levees in the floodplain, restore stream channel and overflow basin configuration, minimize effects of structures (bridges, etc.) on floodplain process and develop a floodplain management plan. *(Sources: Habitat Restoration Plan for the Lower Tuolumne River Corridor; CALFED Ecosystem Restoration Program)* **[10]**<br>▪ Restore, expand, and protect floodplain (modify levees, restore floodplain width, restore wetlands and riparian forest), lower floodplains to be wetted by spring flows (*sources: Proposed Addition to the San Joaquin National Wildlife Refuge, Friends of the Tuolumne, Inc, City of Ceres, Habitat Restoration Plan for the Lower Tuolumne*) **[10]**<br>▪ Restructure channel and floodplain morphology to an active and vegetated floodplain in order to restore natural ecosystem functioning and the survival of key channel and floodplain species – principally the fall-run Chinook salmon (*source: AFRP, Habitat Restoration Plan for the Lower Tuolumne*) **[10]**<br>▪ Salmonid habitat created and maintained by natural processes, sustaining a resilient, naturally reproducing populations (*sources: AFRP, Habitat Restoration Plan for the Lower Tuolumne)*<br>▪ Design and implement in-stream, channel, and floodplain projects with a tributary-scale, ecosystem perspective: Develop conceptual models for the Lower Tuolumne River which integrate the models for the gravel-bedded reach with the models for the sand-bedded reach; Define a project's success in terms of its contribution to overall ecosystem functions at the tributary scale; Determine and identify the metrics of ecosystem response to the Lower Tuolumne River restoration efforts (Adaptive Management Forum Report)<br>▪ Integrate a monitoring plan into the HRP that defines a monitoring network, sampling methods, or data processing protocol that integrates required monitoring with proposed monitoring: Collect sufficient baseline data to detect change (hydraulic modeling, topographic map of river bottom and overbanks, vegetation map); Stronger commitment to monitoring (include a list of variables, monitor predation at a scale to detect change, expand and improve river-wide monitoring, early collection of adequate information on salmon survival or bass predation rates); Consider monitoring invertebrate production; Avoid monitoring activities that could harm the ecosystem; Develop O&M plans regarding monitoring; Consider multivariate design and |

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| | analysis; Document failures and lessons learned (Adaptive Management Forum Report)<br>▪ For project design and implementation, identify gains and losses of river flow and ensure that ecological objectives of restoration projects are adequately captured in the engineering design and are the primary consideration during construction (Adaptive Management Forum Report)<br>▪ Identify and integrate opportunities for experiments, with low-flow investigations; Riparian vegetation ecology experiments (physical sites factors and seeding and planting); Predation experiments for the SRPs; Spawner distribution; Nursery habitat- fry retention; Gravel augmentation/infusion; Riparian vegetation as fish nursery habitat (Adaptive Management Forum Report)<br>▪ Ecological processes: Rehabilitate natural processes in the Bay-Delta estuary and its watershed to fully support, with minimal ongoing human intervention, natural aquatic and associated terrestrial biotic communities and habitats, in ways that favor native members of those communities (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Improve watershed management and restore and protect instream and riparian habitat, including consideration of restoring and replenishing spawning gravel and performing an integrated evaluation of biological and geomorphic processes (*source: AFRP Final Restoration Plan*)<br>▪ Utilize an integrative approach to reestablish critical ecological functions, processes and characteristics tat, under regulated flow and sediment conditions, best promotes recovery and maintenance of a resilient, naturally reproducing salmon population and the river's natural animal and plant communities (*source: AFRP*)<br>▪ Protect, enhance or recreate natural riparian processes, particularly hydrology and associated high-water events, to promote the natural cycle of channel movement, sediment deposition, and scouring that create a diverse mosaic of riparian vegetation types (control all nonnative species, manage flows and avoid impacts on the natural hydrology of river channels) (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Restore coarse sediment supply and Chinook salmon and O. mykiss spawning gravels to the gravel-bedded reaches below La Grange Dam in a manner that protects existing habitat values for both salmon and O. mykiss (*source: Course Sediment Management Plan*) **[9]**<br>▪ Introduce coarse sediment to create immediately usable spawning habitat for both Chinook salmon and O. mykiss to supplement existing degraded habitat and/or create new habitat where none currently exists (*source: Course Sediment Management Plan*) **[9]**<br>▪ Prioritize potential coarse sediment supplies for sediment augmentation, as well as channel/floodplain reconstruction projects, to minimize additional demands on commercial aggregate supplies (*source: Course Sediment Management Plan*) **[9]**<br>▪ Identify alternative strategies for the environmental compliance process for coarse sediment management and other large-scale restoration projects (*source: Course Sediment Management Plan*) **[9]**<br>▪ Establish monitoring and adaptive management guidelines for evaluating the long-term coarse sediment management needs and the success of this |

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| | program in restoring coarse sediment supply equilibrium, geomorphic processes, spawning gravel availability, and spawning habitat quality (*source: Course Sediment Management Plan*) **[9]** |
| ✓Water Quality | ▪ Improve water quality to protect public health and ensure a healthy aquatic community by minimizing or eliminating use of pesticides and fertilizers that may run off into the River, maintaining or restoring streambanks to minimize erosion and siltation into the River, and treat storm water runoff on-site using constructed wetlands and vegetated swales where possible (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Maintain standards for effluent water and biosolids as established by the Central Valley RWQCB by exploring land application of biosolids, encouraging regional beneficial reuse of reclaimed water, focusing on source control and demand management for wastewater management, developing positive storm drainage systems in new development areas, and preventing water pollution from urban storm run-off as established by the Central Valley RWQCB (surface water) and the EPA (ground water) (*source: City of Modesto General Plan*) **[2]**<br>▪ Focus storm water drainage facilities on rehabilitation, remediation of developed areas with inadequate levels of drainage, and expansion of the system for future development (with a dual-use focus) (*source: City of Modesto General Plan*) **[2]**<br>▪ Form regional partnerships for water and wastewater development, develop a comprehensive water and wastewater strategy, and protect water supply from storm drainage contamination (*source: City of Modesto Visioning Project 2000*) **[2]**<br>▪ Preserve, manage, and enhance the quality and quantity of ground and surface waters of the Tuolumne and other wetlands; Quality and quantity of surface water runoff from properties will not exceed existing flows or quality standards and will comply with City standards for off-site drainage (*source: City of Waterford General Plan*) **[4]**<br>▪ Increase the amount of Dissolved Oxygen in the region of the River from La Grange to Waterford (*source: Central Valley Regional Water Quality Control Board*) **[9]**<br>▪ Support state-wide water quality planning and water resource management and monitor and protect existing beneficial uses and plan for potential beneficial uses of water in the San Joaquin Basin. Potential beneficial uses of surface waters from the Lower Tuolumne River include Municipal Domestic Supply. Existing beneficial uses include irrigation, stock watering, river access, canoeing and rafting, warm and cold freshwater habitat, cold water salmon and steelhead spawning, and wildlife habitat. (*source: Central Valley Regional Water Quality Control Board*) **[10]**<br>▪ Policies or plans for the San Joaquin Basin include: Urban Runoff, Wastewater Reuse, Controllable (human) Factors, Water Quality Limited Segments, San Joaquin River Agricultural Subsurface Drainage (a Valley-wide drain to carry salts generated by agricultural irrigation out of the Central Valley), Antidegradation Implementation, Application of Water Quality Objectives, Investigation and Clean up of Contaminated Sites, Policy for Obtaining Salt Balance in the San Joaquin Valley, and Watershed Proposal (supports the implementation of a watershed-based approach to addressing water quality problems) (*source: Central Valley Regional Water Quality Control* |

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| | *Board*) **[10]**<br>▪ Manage agricultural drain water (pesticides and other toxic substances) in the San Joaquin Basin and require use of feasible Best Management Practices to protect waters from the adverse effects of construction and urban runoff (*source: Central Valley Habitat Joint Venture Implementation Plan)* **[10]**<br>▪ Conserve water resources and protect water quality by protecting groundwater aquifers and recharge areas by exploring pollution control, water conservation measures, water-conserving landscapes, and alternative irrigation methods and by expanding the Water Quality Monitoring Program (*source: Stanislaus County General Plan*) **[10]**<br>▪ Water and sediment quality: Improve and/or maintain water and sediment quality conditions that fully support healthy and diverse aquatic ecosystems in the Bay-Delta estuary and watershed, and eliminate, to the extent possible, toxic impacts to aquatic organisms, wildlife, and people (*source: CALFED Ecosystem Restoration Program*)<br>▪ Reduce toxic chemical and trace element contamination (*source: AFRP Final Restoration Plan*) |
| ✓Water Supply | ▪ Maintain an adequate supply of high quality water for urban uses and stabilize groundwater levels by viewing water sources such as groundwater, surface water, and recycled wastewater as an integrated hydrologic system, by establishing guidelines, policies, and programs to implement water conservation to the maximum extent feasible, and through local management of groundwater resources (*source: City of Modesto General Plan*) **[2]**<br>▪ Protect the water supply and the quality of the River, investigate use of surface water supplies fir domestic uses, promote efficient water use and explore use of reclaimed wastewater and ground water management program (*source: City of Ceres General Plan*) **[2]**<br>▪ Expand and improve domestic water supply to accommodate growth and reduce water consumption through water conservation measures (*source: City of Waterford General Plan*) **[4]**<br>▪ River supplies water for diverse uses, including irrigation and municipal uses (source: Friends of the Tuolumne, Central Valley Regional Water Quality Control Board, others) **[10]**<br>▪ Secure adequate water supply for wetlands restoration, acquisition, and easements (e.g. 402,450 ac-ft for National Wildlife Refuges in the Central Valley) (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Meet increase in demand of SFPUC customers through recycled water, groundwater development, conservation and demand management, and construction of additional water transmittal and storage facilities; Improve SFPUC infrastructure to address increasing demand, aging infrastructure, natural threats, changing regulations (*source: SFPUC Capital Improvements Program*) **[10]**<br>▪ Conserve water resources and protect water quality by protecting groundwater aquifers and recharge areas by exploring pollution control, water conservation measures, water-conserving landscapes, and alternative irrigation methods and |

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| | ensuring new development can access water supplies without adversely impacting existing water resources by investigating additional water sources such as developing surface water or other potential sources (*source: Stanislaus County General Plan*) **[10]**<br>▪ Protect, conserve, and develop water resources for local domestic use and irrigation, and support the operation of the Tuolumne River Groundwater Basin Association as well as the San Joaquin Valley Water Coalition Council (*source: Stanislaus County Visioning Statements*) **[10]**<br>▪ Protect water resources by encouraging water conservation for both agricultural and urban uses through increasing education about irrigation methods and Best Practices and coordinated conservation efforts with key soil and farmland partners, cities, irrigation and water districts, as well as considering water-conserving elements when reviewing proposed developments and using conserved water locally *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ One opportunity for meeting the projected need of additional 71mgd of delivery capability could come from water supplies made available from the Tuolumne River system through transfers from senior Tuolumne water rights holders or increased storage under existing SFPUC water rights. Additional storage capacity opportunities could include expansion of Hetch Hetchy or other reservoirs, groundwater banking in the Central Valley along the San Joaquin Pipelines, new surface reservoirs such as Corral Hollow Reservoir along the San Joaquin Pipelines. SFPUC could also convert grave quarries in the Sunol Valley to water storage reservoirs or expand Crystal Springs and/or San Antonio Reservoirs. The SFPUC could also acquire water from MID/TID or could participate in conservation and/or groundwater banking programs. The Sunol Quarries Project is expected to generate about 6mgd of firm delivery, so about 65mgd of firm Tuolumne River supply must be acquired. (*source: SFPUC Water Supply Master Plan*) **[10]** |

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| ✓Land Use (Urban Buffers; Open Space; Agriculture) | ▪ Establish urban limit lines to preserve open space, farmland, natural beauty, historic buildings, and critical environmental areas (*source: City of Modesto Visioning Project 2000*) **[2]**<br>▪ Future Urban Growth Boundary; Current very-low density urban development along River (*source: City of Ceres General Plan*) **[2]**<br>▪ Maintain agricultural areas around Waterford to set Waterford apart from surrounding urban areas (*source: City of Waterford General Plan*) **[4]**<br>▪ Create and maintain riparian buffer (corridor) along urban/agricultural zones in Reaches 2,3, and 4; Preserve existing urban setback from river (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[8]**<br>▪ Acquire lands that where growth is likely in and surrounding wetlands (*source: Central Valley Habitat Joint Venture Implementation Plan)* **[10]**<br>▪ Review zoning regulations for compatibility between development and natural areas and review all development requests to ensure that sensitive areas including riparian habitat are undisturbed or mitigation measures are put in place (*source: Stanislaus County General Plan*) **[10]**<br>▪ Urban growth shall be discouraged in areas with growth-limiting factors such as high water table, poor soil percolation, and prohibited in geological fault and hazard areas, floodplains, riparian areas, and airport hazard areas unless measure to mitigate the problems are included in application (e.g. development next to riparian areas that require discretionary approval must include measures for protecting that habitat) (*source: Stanislaus County General Plan*) **[10]**<br>▪ Create urban limit lines, providing for areas of open space, agriculture, very low density, rural development, or greenbelts in which urban development cannot occur (*source: Stanislaus County Visioning Statements*) **[10]**<br>▪ Reduce development pressures on agricultural lands by encouraging high-density infill development in built-up areas of the County, encouraging clustering of development on agricultural land when necessary, directing development away from the most agriculturally productive areas, limiting new development to areas of less productive agricultural land (generally the East and West sides of the County), and excluding agricultural lands from assessments to pay for infrastructure needed to accommodate new development *(source: Stanislaus County General Plan Agricultural Element)* **[10]** |

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| | ▪ Protect open space qualities of the River such as riverbluffs (*source: City of Ceres General Plan*) **[2]**<br>▪ Open space will be provided through a comprehensive network of regional, community, and neighborhood parks (*source: City of Modesto General Plan*) **[2]**<br>▪ Visual corridors of the River will be protected and enhanced and all scenic resources will be protected as resources of public importance (*source: City of Modesto General Plan*) **[2]**<br>▪ 1,380 acres will be designated as "open space" along the River in the Tuolumne River Comprehensive Planning District and will comprise a public park which will be represented by the TRRP Master Plan (*source: City of Modesto General Plan*) **[2]**<br>▪ Continue to focus open space preservation on: preservation of natural resources, public health and safety, managed production of resources, and outdoor recreation. The River is considered open space for the preservation of natural resources as the areas is required for the preservation of plant and animal life and for ecological and other scientific study purposes (*source: City of Modesto General Plan*) **[2]**<br>▪ Create open space corridors along the River by adopting a scenic corridor plan, preserve riparian vegetation, define sensitive habitat and open spaces by public access ways, encourage landowners to consolidate habitat and open spaces, establish City standards and plans for designating and maintaining sensitive habitat areas, and acquire and preserve City's open spaces for passive and active use (*source: City of Waterford General Plan*) **[4]**<br>▪ Maintain natural areas as open space through native plantings and continue to use the Williamson Act (*source: Stanislaus County General Plan*) **[10]**<br>▪ Preserve and expand stream meander belts by adding riparian lands in the meander zone by purchase from willing sellers, incentives to preserve and manage private riparian areas, establish property owner reimbursement mechanism for lands lost to meander processes, and develop a program to remove riprap and relocate other structures that impair stream meander. *(Source: CALFED Ecosystem Restoration Program)* **[10]**<br>▪ Natural Resource Protection is measured through securing lands that contribute to sustainable ecosystems (providing or creating linkages to existing protected areas, contributing to complete watershed protection, provide buffers from urban impacts); the control and management of exotic species; continuing the Inventory, Monitoring, and Assessment Program for flora and fauna; restoring natural processes (e.g. prescribed fires); increasing visitor satisfaction; and Paleontological Resource Management (*California State Parks Performance Management Report 2004*) **[10]** |
| ✓Agriculture | ▪ Support efforts to promote location of new agriculture-related businesses and industries throughout the County *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ Continue to implement right-to-farm ordinance *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ Protect agricultural operations from conflicts with and adverse impacts of non- agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations and establishing setbacks from agricultural area *(source: Stanislaus County General Plan Agricultural Element)* **[10]** |

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| | ▪ Continue to work with local, state, and federal agencies to regulate the application of agricultural chemicals to prevent air and water quality problems, while ensuring the economic viability of agriculture *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ Provide property tax relief to agricultural landowners by participating in the Williamson Act (which is intended to conserve opens space and agricultural land by providing property owners with tax relief) and support reasonable measures to strengthen the Act, making it a more effective tool for protecting agricultural land, such as encouraging State legislators to increase Act subvention payments to local governments based on Cost of Living Adjustments and implementing the Act aloing with other conservation tools *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ When considering amendments to the General Plan for conversions of agricultural land, include adjacent uses, proposed methods for sewage treatment, availability of water, impacts on air and water quality, wildlife habitat, endangered species, and sensitive lands and other elements to enhance the evaluation process *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ When the proposed conversion of agricultural land to non-agricultural uses could have a significant effect on the environment, the County shall evaluate the direct, indirect, and cumulative effects on a site-specific basis, enhancing the standards outlined in the EIR process and requiring mitigation by including elements in the evaluation process such as destruction or fragmentation of native ecological communities, loss of nesting or foraging habitat, adverse impacts on rare species, impediments to wildlife migration patterns, reductions in the availability of water supplies or beneficial uses of water, and other impacts resulting from air and water pollution *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ Land designated agricultural shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation, and enjoyment of scenic beauty (*source: Stanislaus County General Plan*) **[10]**<br>▪ Agricultural land conservation efforts must be on the best soils – prime farmland or farmland of statewide importance (*source: Stanislaus County Policy Regarding Criteria for Agricultural Lands Transactions*)<br>▪ Eligible property (for conversation easements) must be close to urban boundaries and subject to urbanization pressure, but not substantially surrounded by urban development and not within the urban boundary (*source: Stanislaus County Policy Regarding Criteria for Agricultural Lands Transactions*)<br>▪ Eligible property (for conservation easements) must have access to high quality and economical water resources that would ensure its continued agricultural productivity (*source: Stanislaus County Policy Regarding Criteria for Agricultural Lands Transactions*)<br>▪ Eligible property (for conservation easements) must be large enough to sustain commercial agricultural production (*source: Stanislaus County Policy Regarding Criteria for Agricultural Lands Transactions*)<br>▪ Public acquisitions and easements on the San Joaquin and Tuolumne Rivers impose no significant economic impacts on Stanislaus County. While there is an adverse effect on the county economy from reduced agricultural |

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| | production, the sum of the positive impacts from channel and habitat restoration, recreational use by residents and visitors, and the value of non-user benefits offset the agricultural income losses (*source: The Economic Impact on Stanislaus County of Public Land Acquisitions and Conservation Easements on Flood plain Lands Along the Lower Tuolumne and San Joaquin Rivers)*<br>▪ Promote more compact and clearly defined urban boundaries that avoid unnecessary conversion of farmlands (*source: Approve an Update on the Countywide Visioning Statements and Related County Policies*)<br>▪ Encourage protection of farmland outside the urban boundaries (i.e., continuation of the Williamson Act; discussions with Riverbank and Oakdale about a community separator, that protects farmland beyond urban boundaries) (*source: Approve an Update on the Countywide Visioning Statements and Related County Policies*)<br>▪ Support the creation of the Stanislaus Farmland Trust (*source: Approve an Update on the Countywide Visioning Statements and Related County Policies*)<br>▪ **Promote the expansion of other major economic sectors that are compatible with agriculture (s*ource: Approve an Update on the Countywide Visioning Statements and Related County Policies*)**<br>▪ **Preserve farming, food processing and agricultural business services (*source: Approve an Update on the Countywide Visioning Statements and Related County Policies*)**<br>▪ Purchase agricultural development rights outside the ultimate sewer service boundary of the city *(source: City of Modesto, Visioning Project 2000)*<br>▪ Encourage the use of voluntary agricultural land trust methods *(source: City of Modesto, Visioning Project 2000)*<br>▪ Identify and prioritize farmland/open space areas for preservation as community buffers *(source: City of Modesto, Visioning Project 2000)*<br>▪ Agricultural Lands Enhancement: Enhance 332,300 acres of privately owned grain fields and 110,800 acres of upland nesting habitat through existing programs, incentive payments to cooperating landowners who conduct land use practices favorable to waterfowl, outreach extension and education programs (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Use information gathered in avian monitoring programs to improve the effects of agricultural and land management techniques on birds (work with agricultural researchers to asses potential of ag adjacent to riparian habitat to be more "bird friendly") (*source: RHJV Riparian Bird Conservation Plan*) **[10]** |
| ✓Riparian Habitat | ▪ The NWR will support a variety of native habitats ranging from valley oak gallery and mixed riparian forests/woodlands to seasonal and permanent wetlands, to native grasslands as well as modified habitats (*source: San Joaquin NWR Comprehensive Conservation Plan*) **[1]**<br>▪ Restore floodplain land along the river to improve channel-floodplain connectivity to allow inundation at a greater frequency, improve regeneration of native riparian species, and improve spawning habitat for Sacramento splittail and rearing habitat for juvenile Chinook salmon and steelhead; remove invasive vegetation; preserve existing riparian vegetation and plant native riparian hardwoods on floodway surfaces appropriate for each species' life history; and provide public education and involvement opportunities in the replanting project; Maintain compatibility with the HRP and NRCS Floodplain Easement Program (*source: River Partners*) **[1]** |

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| | ▪ Implement a biotic resources evaluation to identify and preserve rare, threatened, or endangered plant species and support management or wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchments and habitat (*source: City of Ceres General Plan*) **[2]**<br>▪ Develop Phases I-III of the Ceres River Bluff Regional Park to include soccer fields, paths and fencing, parking lots, basketball courts, play areas, restrooms, softball facilities, other formal recreation elements, and pathways and overlooks on this upper-bluff area. Develop Phase IV along the lower terrace to include a natural recreation area with river cleanup, removal of the existing orchard to restore natural riparian habitat, seasonal wetlands constructed as water detention areas, trail systems, overlooks, picnic areas, other native and riparian plantings, and enhanced vehicular access and a parking lot for the non-motorized boating access (*source: Hatch Road Regional Park Master Plan*) **[2]**<br>▪ Improve Tuolumne River Regional Park by increasing area of native riparian trees (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[2]**<br>▪ Riverfront vegetation will be maintained to be consistent with riparian habitat zones (*source: City of Modesto General Plan*) **[2]**<br>▪ Protect and conserve sensitive habitats, restore native riparian plantings, preserve and enhance existing mature trees, encouraged native plantings in landscaping, and remove invasives (*sources: Friends of the Tuolumne, Inc, City of Ceres General Plan, Tuolumne River Regional Park Master Plan*) **[2, 10]**<br>▪ Protect and restore self-sustaining, dynamic, native riparian habitat and enhance the existing public and private wetlands of the Central Valley *(sources: Habitat Restoration Plan for the Lower Tuolumne River Corridor; AFRP; Central Valley Habitat Joint Venture)* **[10]**<br>▪ Discretionary projects with potential impacts are to have an oak woodland management plan and for adoption of an ordinance for protection of oak woodlands. *(source: Stanislaus County General Plan)* **[10]**<br>▪ Adoption of an ordinance for protection of trees with historic significance including heritage trees. *(source: Stanislaus County General Plan)* **[10]**<br>▪ Discretionary projects adjacent to or within riparian habitat include measures for protecting that habitat and riparian habitat along rivers and natural waterways of the County will to the extent possible be protected. *(source: Stanislaus County General Plan)* **[10]**<br>▪ Reduce riparian encroachment onto active channel; Reduce grazing impacts to promote riparian regeneration of floodplains (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Restore functional floodplains and native riparian forests (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Create vegetative buffer to reduce soil erosion and filter agricultural runoff (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Areas of sensitive wildlife and plant habitat shall be protected from development (*source: Stanislaus County General Plan*) **[10]**<br>▪ Preserve vegetation to protect waterways from bank erosion and siltation (*source: Stanislaus County General Plan*) **[10]**<br>▪ Develop a minimum 500-ft wide riparian corridor and floodway along the entire river that is protected by conservation easements, private ownership, and/or public ownership (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]** |

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| | ▪ Preserve remaining valley oak and Fremont cottonwood stands to provide future seed sources (e.g. the valley oak stand at RM 38.1-34.2, valley oak and cottonwood stands at RM 47.3, the cottonwood stand at RM 6.8) (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Reconstruct floodplains and terraces at an elevation inundated by flows exceeding 4,000 cfs to 6,000 cfs (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Incorporate silt importation on floodplain restoration projects wherever possible to improve oil moisture retention and promote natural regeneration (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Reconstruct floodplains and terraces that are topographically variable, to allow some depressions a longer period of saturated soil conditions (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Encourage channel migration at all sites where no human structures are at risk so the channel can construct a contemporary floodplain (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Target Fremont cottonwood and valley oak at riparian restoration projects to replace dying pre-NDPP generations (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Remove exotic plants wherever possible (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Encourage floodplain inundation during flood control releases to deposit fine sediment and saturate floodplain soils (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Increase flood flow magnitude and variability over different water years to create and maintain topographic diversity on bars and floodplains (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ During springtime flood control releases in wetter years, maintain dam ramping rates less than 8cm/day to facilitate cottonwood seedling survival (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Improve management of riparian zones that would encourage natural regeneration (e.g. eliminate grazing, landscaping maintenance in parks, etc.) (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Endangered and other at-risk species and native biotic communities: Achieve recovery of at-risk native species dependent on the Delta and Suisun Bay as the first step in establishing large, self-sustaining populations of these species; support similar recovery of at-risk native species in SF Bay and the watershed above the estuary; and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Ecological processes: Rehabilitate natural processes in the Bay-Delta estuary and its watershed to fully support, with minimal ongoing human intervention, natural aquatic and associated terrestrial biotic communities and habitats, in ways that favor native members of those communities (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Habitat: Protect and/or restore functional habitat types in the Bay-Delta estuary and its watershed for ecological and public values such as supporting species and biotic communities, ecological processes, recreation, scientific research, and aesthetics. (*source: CALFED Ecosystem Restoration Plan*) |

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| | ▪ Nonnative invasive species: Prevent the establishment of additional nonnative invasive species and reduce the negative ecological and economic impacts of established nonnative species in the Bay-Delta estuary and its watershed. (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Commitment to a science-based, adaptive management approach to ecosystem restoration (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Improve watershed management and restore and protect instream and riparian habitat, including consideration of restoring and replenishing spawning gravel and performing an integrated evaluation of biological and geomorphic processes (*source: AFRP Final Restoration Plan*)<br>▪ Coordinate the AFRP with appropriate activities supported by the Riparian and Recreation Improvement fund that was established by the New Don Pedro Settlement Agreement (*source: AFRP Final Restoration Plan*)<br>▪ Prioritize riparian sites for protection and restoration according to current avian health, proximity to high quality sites, lands adjacent to upland habitats, presence of intact natural hydrology, surrounding land uses (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Promote riparian ecosystem health (i.e. a self-sustaining functioning system) by ensuring patch size, configuration and connectivity support desired populations and by restoring natural hydrological processes (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Increase the value of ongoing restoration projects for bird species by restoring riparian fprests to promote structural diversity and volume of understory and restoring the width of the riparian corridor (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Ensure that large landscape-scale management and flood control projects maximize benefits to wildlife while benefiting agriculture and urban populations. Achieving multiple goals simultaneously enhances the overall value of such projects to residents (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Design and implement cultivated restoration projects that mimic the diversity and structure of a natural riparian habitat community through planting native species, increasing shrub richness and density, planting early successional species in a mosaic design, retaining some trees, connecting patches of habitat with dense vegetation areas, cultivate shrubs that benefit Central Valley birds and provide valley oak and shrub cover for open-cup nesters. (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Implement and time land management activities to increase avian reproductive success and enhance populations (maintain diverse and vigorous understory and herbaceous layer, create "soft" edges, avoid structures or plantings that attract brown-headed cow birds, influence management at the landscape level, limit restoration activities and disturbance events to non-breeding seasons or minimize its length) (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Protect, enhance or recreate natural riparian processes, particularly hydrology and associated high-water events, to promote the natural cycle of channel movement, sediment deposition, and scouring that create a diverse mosaic of riparian vegetation types (control all nonnative species, manage flows and avoid impacts on the natural hydrology of river channels) (*source: RHJV* |

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| | *Riparian Bird Conservation Plan*) **[10]** |
| ✓Fish | ▪ Support native habitats that support a wide variety of native fish (anadromous fish) (*source: San Joaquin NWR Comprehensive Conservation Plan*) **[1]**<br>▪ Restore floodplain land along the river to improve channel-floodplain connectivity to allow inundation at a greater frequency, improve regeneration of native riparian species, and improve spawning habitat for Sacramento splittail and rearing habitat for juvenile Chinook salmon and steelhead; remove invasive vegetation; preserve existing riparian vegetation and plant native riparian hardwoods on floodway surfaces appropriate for each species' life history; and provide public education and involvement opportunities in the replanting project; Maintain compatibility with the HRP and NRCS Floodplain Easement Program (*source: River Partners*) **[1]**<br>▪ Support the California Department of Fish and Game to maintain and enhance the productivity of fisheries in the River (*source: City of Ceres General Plan*) **[2]**<br>▪ Restore coarse sediment supply and Chinook salmon and O. mykiss spawning gravels to the gravel-bedded reaches below La Grange Dam in a manner that protects existing habitat values for both salmon and O. mykiss (*source: Course Sediment Management Plan*) **[9]**<br>▪ Introduce coarse sediment to create immediately usable spawning habitat for both Chinook salmon and O. mykiss to supplement existing degraded habitat and/or create new habitat where none currently exists (*source: Course Sediment Management Plan*) **[9]**<br>▪ Prioritize potential coarse sediment supplies for sediment augmentation, as well as channel/floodplain reconstruction projects, to minimize additional demands on commercial aggregate supplies (*source: Course Sediment Management Plan*) **[9]**<br>▪ Identify alternative strategies for the environmental compliance process for coarse sediment management and other large-scale restoration projects (*source: Course Sediment Management Plan*) **[9]**<br>▪ Establish monitoring and adaptive management guidelines for evaluating the long-term coarse sediment management needs and the success of this program in restoring coarse sediment supply equilibrium, geomorphic processes, spawning gravel availability, and spawning habitat quality (*source: Course Sediment Management Plan*) **[9]**<br>▪ Instream gravel augmentation improvements for spawning and fish rearing habitat; Slough construction, Enforcing fishing regulations (catch and release) (*source: Friends of the Tuolumne, Inc*) **[9]**<br>▪ Reduce sand input into river and storage in riverbed (especially in spawning gravels); Increase and maintain spawning gravel supply; Restore riffles to increase salmon spawning and rearing habitat; Regrade floodplains to reduce salmon stranding and promote riparian regeneration; Isolate off-channel mining pits to prevent river connection during floods up to 15,000 cfs to reduce salmon stranding and bass predation on juvenile salmon (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[9]**<br>▪ Spawning (salmon and steelhead) (*source: Central Valley Regional Water Quality Control Board*) **[10]**<br>▪ Implement measures to improve and increase habitat and populations through eComplete evaluatingion and implementing measures forof spawning, rearing, |

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| | and migration habitat restoration needs *(sources: FERC Settlement Agreement)* **[10]**<br>▪ Evaluate spawning gravel quality and renovate or supplement gravel supplies to enhance substrate quality and employ actions to reduce predation on juvenile salmon, including actions to reduce or isolate "ponded" sections. *(sources: FERC Settlement Agreement; Habitat Restoration Plan for the Lower Tuolumne River Corridor; CALFED Ecosystem Restoration Program; AFRP)* **[10]**<br>▪ Restore and improve opportunities to inundate the floodplain on a seasonal basis. *(sources: FERC Settlement Agreement; Habitat Restoration Plan for the Lower Tuolumne River Corridor; CALFED Ecosystem Restoration Program; AFRP)* **[10]**<br>▪ Increase naturally occurring and naturally reproducing populations (*sources: CALFED Ecosystem Restoration Program; FERC Settlement Agreement*) **[10]**<br>▪ Increase the naturally occurring salmon population, protect the remaining genetic distinction, and improve salmon habitat through the use of flow and non-flow (habitat rehabilitation and improvement) measures (*source: FERC Settlement Agreement*) **[10]**<br>▪ AFRP-CVPIA Program objectives include: Improve habitat for all stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, And improved physical habitat; Improve survival rates by reducing or eliminating entrainment of juveniles at diversions; Improve the opportunity for adult fish to reach their spawning habitats in a timely manner; Collect fish population, health, and habitat data to facilitate evaluation of restoration actions; Integrate habitat restoration efforts with harvest and hatchery management and involve partners in the implementation and evaluation of restoration actions (*AFRP-CVPIA Workplan for Fiscal Year 2003*) **[10]**<br>▪ AFRP-CVPIA objectives for the Central Valley include: Understand salmon and steelhead life history characteristics and population structures in CV streams; Expand distribution of steelhead in CV; Reduce loss of Chinook salmon smolts due to predation; Increase natural production of anadromous fish through educational outreach programs; Insure continued long-term salmonid life history evaluations both within and beyond the CV; Insure continued long-term life history evaluations of green sturgeon both within and beyond the CV; Increase natural production of anadromous fish through improved spawning and rearing habitat quality and quantity; Reduce detrimental effects of introduced fish on anadromous fish (*AFRP-CVPIA Workplan for Fiscal Year 2003*) **[10]**<br>▪ AFRP-CVPIA objectives specific to the Tuolumne River include: Enhance stream flow for Chinook and steelhead life history requirements to increase natural production of salmonids (Tuolumne river flow supplementation and determine the effectiveness of pulse flows); Provide suitable water temperatures for Chinook salmon and steelhead (temperature monitoring and adjustment); Enhance river management by better understanding life history requirements of Chinook salmon and steelhead (juvenile salmon habitat utilization and ecology and steelhead trout abundance and distribution); Restore proper river function and improve spawning and rearing habitat for anadromous salmonids (Warner-Deardorff, Big Bend, Bobcat Flat restoration); Prevent losses of juvenile fish due to pump diversion intakes (diversion screening); Increase public involvement in river management(stakeholder group development and facilitation to establish a |

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| | "streamwatch" program) (*AFRP-CVPIA Workplan for Fiscal Year 2003*) **[10]**<br>▪ Integrated restoration and a tributary-scale, ecosystem perspective: link projects in the gravel bed to projects downstream and eventually other parts of fall-run Chinook salmon system with restoration efforts of other rivers (passive or active adaptive management) (*source: Lower Tuolumne River Adaptive Management Forum Report -AFRP*) **[10]**<br>▪ Study additional experiments that relate to or include: low-flow investigations, riparian vegetations ecology, physical site factors, predation for the SRPs, spawner distribution, nursery habitat-fry retention, gravel augmentation/infusion, and riparian vegetation as fish nursery habitat (*source: Lower Tuolumne River Adaptive Management Forum Report - AFRP*) **[10]**<br>▪ Focus on restoring natural pattern of periodic disturbance and continual re-growth that creates a mosaic of high quality habitat for many species, including salmon (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Attributes of river integrity: spatially complex channel shape, variable streamflow patterns, frequently disturbed riverbed surface, periodic riverbed scour and fill, balanced fine and course sediment volumes, periodic channel migration and/or avulsion, a functional floodplain, infrequent channel resetting floods, self-sustaining, diverse riparian corridor, naturally fluctuating groundwater table (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Protect fish species by ensuring adequate water flows to support the salmon migration and protecting habitats of rare and endangered fish and wildlife species (*source: Stanislaus County General Plan*) **[10]**<br>▪ Design and implement in-stream, channel, and floodplain projects with a tributary-scale, ecosystem perspective: Develop conceptual models for the Lower Tuolumne River which integrate the models for the gravel-bedded reach with the models for the sand-bedded reach; Define a project's success in terms of its contribution to overall ecosystem functions at the tributary scale; Determine and identify the metrics of ecosystem response to the Lower Tuolumne River restoration efforts (Adaptive Management Forum Report)<br>▪ Integrate a monitoring plan into the HRP that defines a monitoring network, sampling methods, or data processing protocol that integrates required monitoring with proposed monitoring: Collect sufficient baseline data to detect change (hydraulic modeling, topographic map of river bottom and overbanks, vegetation map); Stronger commitment to monitoring (include a list of variables, monitor predation at a scale to detect change, expand and improve river-wide monitoring, early collection of adequate information on salmon survival or bass predation rates); Consider monitoring invertebrate production; Avoid monitoring activities that could harm the ecosystem; Develop O&M plans regarding monitoring; Consider multivariate design and analysis; Document failures and lessons learned (Adaptive Management Forum Report)<br>▪ For project design and implementation, identify gains and losses of river flow and ensure that ecological objectives of restoration projects are adequately captured in the engineering design and are the primary consideration during construction (Adaptive Management Forum Report)<br>▪ Endangered and other at-risk species and native biotic communities: Achieve |

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| | recovery of at-risk native species dependent on the Delta and Suisun Bay as the first step in establishing large, self-sustaining populations of these species; support similar recovery of at-risk native species in SF Bay and the watershed above the estuary; and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Harvested species: Maintain and/or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with other ERP strategic goals (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Nonnative invasive species: Prevent the establishment of additional nonnative invasive species and reduce the negative ecological and economic impacts of established nonnative species in the Bay-Delta estuary and its watershed. (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Implement flow schedule as specified in the terms of the FERC proceeding. Supplement these flows with water acquired from willing sellers consistent with applicable guidelines or negotiate agreements as needed to improve condition for all life history stages of Chinook salmon (*source: AFRP Final Restoration Plan*)<br>▪ Improve watershed management and restore and protect instream and riparian habitat, including consideration of restoring and replenishing spawning gravel and performing an integrated evaluation of biological and geomorphic processes (*source: AFRP Final Restoration Plan*)<br>▪ Screen all diversions to protect all life history stages of anadramous fish (*source: AFRP Final Restoration Plan*)<br>▪ Utilize an integrative approach to reestablish critical ecological functions, processes and characteristics tat, under regulated flow and sediment conditions, best promotes recovery and maintenance of a resilient, naturally reproducing salmon population and the river's natural animal and plant communities (*source: AFRP*)<br>▪ Evaluation: Identify and implement actions to provide suitable water temperatures for all life stages of Chinook salmon; Evaluate and implement actions to reduce predation on juvenile Chinook salmon, including actions to isolate ponded sections of the river; Evaluate the effects of flow fluctuations established by the guidelines of the FERC settlement Agreement on spawning, incubation, and rearing of Chinook salmon, and modify guidelines if adverse effects are indicates; Evaluate fall pulse flows for attraction and passage benefits to Chinook salmon and steelhead; Implement all Central-Valley wide evaluation recommendations as well (*source: AFRP Final Restoration Plan*) |
| ✓Birds | ▪ Management emphasis on native wildlife and actions that focus on the recovery of Federal and State listed endangered/threatened species and other species of special concern, protection and/or enhancement of migratory bird resources, as well as serving as part of a riparian corridor for natural resources in the Central Valley (*source: San Joaquin NWR Comprehensive Conservation Plan*) **[1]**<br>▪ Management priorities will be waterfowl and other waterbirds, in particular the Aleutian Canada goose, and neotropical migratory birds. The NWR will be a key link in the Pacific Flyway (*source: San Joaquin NWR Comprehensive Conservation Plan*) **[1, 10]** |

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| | ▪ Restore, acquire, or establish easements for seasonal wetlands and other riparian habitat; Revegetate with native plantings and restore floodplains (*sources: Central Valley Habitat Joint Venture Implementation Plan, Proposed Addition to the San Joaquin National Wildlife Refuge*) **[10]**<br>▪ Attain key peak population objectives for the Central Valley (4.7M ducks, 865,000 geese & swans), and key breeding populations (490,00 ducks) **[10]**<br>▪ Increase wetlands area in Central Valley to total of 412,000 acres including acquiring or placing easements on 80,000 acres (acquire 52,500 acres in the San Joaquin Basin out of 67,000 unprotected acres); Enhance wetlands on 291,555 acres in the Central Valley and enhance waterfowl habitat on 443,000 agricultural acres (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Habitat acquisitions: Protect 62,060 acres in the Central Valley through conservation easements. Prioritize habitat with high waterfowl value, wetlands with lower waterfowl use adjacent to restorable wetlands, and wetlands with lower waterfowl use not adjacent to restorable wetlands (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Water and Power: address severe water shortages, initiate legislation to reauthorize CVP to include wildlife as a project purpose (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Wetland Restoration: Restore and protect an additional 112,700 acres of wetlands. 75% through perpetual conservation easements and 25% through fee title acquisition by USFWS ad DFG. (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Expand research and monitoring of selected special-status species to address pressing conservation issues (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Use information gathered in avian monitoring programs to improve the effects of agricultural and land management techniques on birds (work with agricultural researchers to asses potential of ag adjacent to riparian habitat to be more "bird friendly") (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Encourage regulatory and land management agencies to recognize that avian productivity is a prime criterion for determining protected status of specific habitats, mitigation requirements for environmental impacts, and preferred land managed practices (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Increase protection and management actions to benefit severely declining or locally extirpated bird species (through research committees, maping of existing riparian and associated oak woodland habitats) (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Wetland Enhancement: Enhance an additional 291,555 acres through supplemental incentive payments to private landowners, disease control, technical assistance, and coordination with other agencies such as agricultural departments and irrigation districts (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Agricultural Lands Enhancement: Enhance 332,300 acres of privately owned grain fields and 110,800 acres of upland nesting habitat through existing programs, incentive payments to cooperating landowners who conduct land use practices favorable to waterfowl, outreach extension and education programs (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Conduct on-going monitoring and evaluation of habitat and waterfowl |

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| | population objectives(*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Harvested species: Maintains and/or enhance populations of selected species for sustainable commercial and recreational harvest, consistent with other ERP strategic goals (*source: CALFED Ecosystem Restoration Plan*) |
| ✓Mammals (general wildlife habitat) | ▪ Conserve, protect, and enhance native communities of the San Joaquin Valley with a focus on wildlife and the ecological processes on which they depend (*source: San Joaquin NWR Comprehensive Conservation Plan*) **[1, 10]**<br>▪ Establish wildlife corridors and preserve habitat features where possible (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Land acquisition and easements for floodplain restoration and native re-vegetation; Protect and restore habitats to maintain viable fish and wildlife populations (*sources: City of Ceres General Plan, Friends of the Tuolumne, Inc*) **[10]**<br>▪ Enhance riparian habitat areas (balanced with active restoration) and active management for River's ecological health (*source: Stanislaus County Parks Master Plan*) **[10]**<br>▪ Restore off-channel wetlands to increase wildlife habitat (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Areas of sensitive, rare, and endangered wildlife and habitat shall be protected from development (*source: Stanislaus County General Plan*) **[10]**<br>▪ Endangered and other at-risk species and native biotic communities: Achieve recovery of at-risk native species dependent on the Delta and Suisun Bay as the first step in establishing large, self-sustaining populations of these species; support similar recovery of at-risk native species in SF Bay and the watershed above the estuary; and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed (*source: CALFED Ecosystem Restoration Plan*)<br>▪ Utilize an integrative approach to reestablish critical ecological functions, processes and characteristics tat, under regulated flow and sediment conditions, best promotes recovery and maintenance of a resilient, naturally reproducing salmon population and the river's natural animal and plant communities (*source: AFRP*) |
| ✓Stewardship & Education | ▪ The NWR will provide an ideal location for environmental education on native California habitats/wildlife and their conservation/restoration, and will provide the public with excellent wildlife viewing and photographic opportunities as well as offering traditional areas activities such as waterfowl hunting and fishing (*source: San Joaquin NWR Comprehensive Conservation Plan*) **[1]**<br>▪ Restore floodplain land along the river to improve channel-floodplain connectivity to allow inundation at a greater frequency, improve regeneration of native riparian species, and improve spawning habitat for Sacramento splittail and rearing habitat for juvenile Chinook salmon and steelhead; remove invasive vegetation; preserve existing riparian vegetation and plant native riparian hardwoods on floodway surfaces appropriate for each species' life history; and provide public education and involvement opportunities in the replanting project; Maintain compatibility with the HRP and NRCS Floodplain Easement Program (*source: River Partners*) **[1]**<br>▪ Emphasize individual and community responsibility for appreciation, protection, and conservation of the River through: scientific studies of the |

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| | river, natural resource education programs, interpretive programs for the entire San Joaquin Basin and the Anadromous fish cycle, community work days, and the production of maps, brochures, and signage; Use ecologically compatible construction materials and adopt ecologically appropriate maintenance practices (*source: Tuolumne River Regional Park Master Plan*) **[2]**<br>▪ Environmentally sensitive habitat areas shall be protected against any significant disruption, and only uses dependent upon such resources will be allowed (e.g. nature education, research, fishing, and habitat protection) (*source: City of Modesto General Plan*) **[2]**<br>▪ Habitat sites, burials, and concentration of artifacts will be protected and preserved (*source: City of Modesto General Plan*) **[2]**<br>▪ Evaluation and monitoring (*sources: Central Valley Regional Water Quality Control Board, Central Valley Habitat Joint Venture Implementation Plan, AFRP, FERC Settlement Agreement*) **[10]**<br>▪ Continual revision of the Adaptive Management Program, addressing areas of scientific uncertainty that will improve our understanding of river ecosystem processes and refine future restoration and management. *(Source: Habitat Restoration Plan for the Lower Tuolumne River Corridor)* **[10]**<br>▪ Conduct a detailed annual review to assess progress toward meeting the goals. *(Source: FERC Settlement Agreement)* **[10]**<br>▪ Establish a "streamwatch" program to increase public participation in river management. *(source: AFRP)* **[10]**<br>▪ Support an Interpretive Center. *(source: AFRP)* **[10]**<br>▪ 8 Control illegal harvest and protect habitat through increased enforcement *(source: CALFED Ecosystem Restoration Program)* **[10]**<br>▪ Use an Adaptive Management Strategy, initially employing feasible measures with a high chance of success. (*sources: FERC Settlement Agreement; CALFED Ecosystem Restoration Program)* **[10]**<br>▪ Public awareness and involvement in the ecosystem restoration effort (*sources: Habitat Restoration Plan for the Lower Tuolumne River Corridor; CALFED Ecosystem Restoration Program)* **[10]**<br>▪ Increase access and ADA compliance **[10]**<br>▪ Encourage more recreational use to protect unique resources (*source: Stanislaus County Parks Master Plan*) **[10]**<br>▪ Encourage and facilitate easements (*sources: Friends of the Tuolumne, Inc, Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Interpretive centers and trails systems (*sources: cities of Waterford and Ceres, and Stanislaus County*) **[10]**<br>▪ Improve inter-agency coordination, produce written materials, and develop incentive funds and education for farmers to enhance wetlands (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Enhancements that benefit all existing riparian habitat (multi-purpose) and encourages recreation and access (*source: FERC Settlement Agreement*) **[10]**<br>▪ Increase public awareness of the Tuolumne and promote cleanup, restoration, and monitoring; Remove trash and debris, eliminate chronic sources of pollution, and actively prohibit illegal dumping (*source: Habitat Restoration Plan for the Lower Tuolumne River Corridor*) **[10]**<br>▪ Support the preservation of the County's cultural legacy of historical and |

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| | archaeological resources and preserve historic buildings for future generations (e.g. continue to use historic suite zoning at La Grange to protect the historical character) (*source: Stanislaus County General Plan*) **[10]**<br>▪ Coordinate provision of recreation opportunities with other providers such as the Army Corps of Engineers, State Resource Agency, school districts, river rafters, horse stables, and private organizations such as the Sierra Club and Audubon Society (*source: Stanislaus County General Plan*) **[10]**<br>▪ Encourage the establishment of voluntary regional government associations of governments for the Central Valley to coordinate planning and development activities of counties and cities *(source: Stanislaus County General Plan Agricultural Element)* **[10]**<br>▪ Education and interpretation are measured by increasing visitor satisfaction; participant hours in education and interpretation programs; and congruity with educational curricula (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Cultural Resource Protection is measured through cataloging, scanning, and documenting objects and photographs; continuing archaeological site assessment, protection, and maintenance; conducting condition assessments of historic buildings and structures; securing appropriate housing for artifacts; conducting the Cultural Stewardship Program; securing land of cultural resources; and increasing visitor satisfaction (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Increase public involvement in river management(stakeholder group development and facilitation to establish a "streamwatch" program) (*AFRP-CVPIA Workplan for Fiscal Year 2003*) **[10]**<br>▪ On-going coordination between ERP and the Science Program, Environmental Justice Subcommittee, Tribal Forum, and other CALFED programs and efforts to ensure plan integration and consistent collaboration. (*source: CALFED Ecosystem Restoration Program*)<br>▪ Support programs to provide educational outreach and local involvement in restoration, including programs like Salmonids in the Classroom, Aquatic Wild, and Adopt a Watersehd and school district environmental camps (*source: AFRP Final Restoration Plan*)<br>▪ Develop programs to educate the public about anadramous fish issues, such as the effects of poaching and environmental contaminants, especially contaminants I urban runoff (*source: AFRP Final Restoration Plan*)<br>▪ Provide additional funding for increased law enforcement to reduce illegal take of anadramous fish, stream alteration, and water pollution and to ensure adequate protection for juvenile fish at pumps and diversions (*source: AFRP Final Restoration Plan*)<br>▪ Agricultural Lands Enhancement: Enhance 332,300 acres of privately owned grain fields and 110,800 acres of upland nesting habitat through existing programs, incentive payments to cooperating landowners who conduct land use practices favorable to waterfowl, outreach extension and education programs (*source: Central Valley Habitat Joint Venture Implementation Plan*) **[10]**<br>▪ Provide data on pressing conservation issues affecting birds through targeted and long-term monitoring and research (*source: RHJV Riparian Bird Conservation Plan*) **[10]**<br>▪ Maximize the effectiveness of ongoing monitoring and management efforts |

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| | through increasing coordination between land managers, and incorporating a monitoring program to assess avian response to riparian habitat restoration into CALFED (*source: RHJV Riparian Bird Conservation Plan*) **[10]** |
| ✓Access | ▪ Visual corridors and access points along the Riverfront will be re-created through redevelopment; Public access points and linear footpaths and bike paths will be incorporated into residential development; Development of a Riverfront Greenway trail element identifying access points and interconnection with other pathways as well as operation and maintenance standards and land dedications to guarantee access is permanent (*source: City of Modesto General Plan*) **[2]**<br>▪ Increase overall access to the river; Comply with ADA standards; Establish bike and pedestrian trail systems, develop connections with neighboring communities, build additional motorized and non-motorized boat access and increase parking and road access where needed for cars and public transit (*sources: all*) **[10]**<br>▪ Restore riparian environments and preserve river corridors for public access and use, including regional park facilities and trail systems (*source: Stanislaus County Visioning Statements and City of Modesto Visioning Project 2000*) **[10]**<br>▪ Purchase riparian properties along the Tuolumne River, and the development and/or restoration of existing river accesses (see Capital Improvement Plan) (*source: Stanislaus County Visioning Statements*) **[10]**<br>▪ Recreation is measured by increasing visitor satisfaction; visitor attendance rates; and accessibility (recreational activities are ADA compliant) (*California State Parks Performance Management Report 2004*) **[10]**<br>▪ Facilities are measures through increasing visitor satisfaction; documentation of repair and maintenance; and the accessibility of facilities (compliance with ADA) (*California State Parks Performance Management Report 2004*) **[10]** |

# Appendix D: Summary of Shared Goals, Potential Conflicts and Opportunities From Existing Plans and Reports[1]

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| **Water Supply** | |
| **WS-1** | Enhance support for innovative means to accommodate diverse water uses.<br>▪ Commonly proposed approaches focus on water conservation, reclaimed wastewater groundwater management, and conjunctive-use programs. |
| **WS-2** | Limited water resources across diverse urban, agricultural, environmental, and recreational needs often lead to competition for resources.<br>▪ Water management may affect the degree to which a natural functioning river ecosystem is restored to the Lower Tuolumne.<br>▪ Boating and other recreational opportunities are affected by river flows<br>▪ Flow and water temperatures influence the status (e.g., health, numbers) of aquatic species. |
| **Water Quality** | |
| **WQ-1** | Maintain or improve current water quality of the Lower Tuolumne and its tributaries to support human uses and diverse aquatic ecosystems.<br>▪ Approaches to enhancing water quality include developing and integrating Best Management Practices such as water quality and wastewater planning, monitoring, management of agricultural and urban run-off, and riverbank restoration.<br>▪ There is widespread support for significant efforts to address dumping of refuse in the river. |
| **WQ-2** | Water quality (temperature, dissolved oxygen, cleanliness) may be decreased due to water diversions that decrease flows in the river. |
| **WQ-3** | Excessive sedimentation in the river due to land uses and water diversions may be limiting water quality improvement efforts. |
| **WQ-4** | Water quality improvement efforts may be inhibited by a lack of coordination across cities and other entities that manage land along the river. |

[1] Although the strategies proposed by the Coalition build upon or address these common goals or potential conflicts, the statements included in this table are simply findings. They reflect the wording and approach of existing reports and are not necessarily statements that are endorsed by the Coalition.

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| **Floodplain and Floodwater Management** | |
| **FM-1** | Manage floodwaters to protect people and developed areas, and enhance habitat through diverse mechanisms.<br>▪ Flood management approaches include non-structural approaches (utilizing the natural floodplain to accommodate flood waters).<br>▪ Possible flood management approaches include allowing inundation where it could contribute to the ecological value of the corridor and not threaten people or development.<br>▪ Filling, dredging, or grading that could increase flood damage can be controlled. |
| **FM-2** | Existing land uses will influence floodplain management approaches.<br>▪ Existing mining practices may intensify flood damage.<br>▪ Natural floodplain and channel processes may be limited by urban development and other land uses.<br>▪ Existing or potential development may restrict the use of non-structural approaches to flood damage reduction.<br>▪ Safety of residential developments must be of primary concern in considering alternative floodplain management approaches.<br>▪ Some floodplain management approaches may limit habitat restoration opportunities. |
| **Geomorphology** | |
| **GM-1** | Achieve an active and vegetated floodplain that supports multiple uses and resources.Natural river processes could be achieved through managing coarse sediment supplies and flood management that contributes to the ecological value of the river corridor. |
| **GM-2** | Potential competition for finite sediment resources between gravel mining, habitat restoration, natural river processes, and flood management. |
| **GM-3** | Upstream water management may limit the potential to achieve naturally functioning processes (such as a balance of coarse and fine sediments. |
| **Riparian Habitat** | |
| **RH-1** | Protect and conserve riparian habitat.<br>▪ Native, sensitive, and self-sustaining habitats are prioritized for protection.<br>▪ Valley oak and Fremont cottonwood stands in particular are identified for protection.<br>▪ Emphasis is placed on preserving habitat for both ecological and public values. |
| **RH-2** | Habitat Restoration Plan Goals to establish a riparian corridor of 500-2,000ft along the Lower Tuolumne and other existing or projected land uses. |
| **RH-3** | Habitat restoration could require a multi-pronged approach. |

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| | ▪ Adequate flows and managed floods could assist in restoration.<br>▪ Restoration could include mitigation from neighboring land uses.<br>▪ Restoration could be assisted, where possible, by widening of the river corridor.<br>▪ Individual volunteers, especially landowners along the river, could significantly enhance habitat improvements through restoration of their properties. |
| **Terrestrial Species** | |
| **TS-1** | Enhance the river corridor as a bird habitat for native bird species. |
| **TS-2** | Achieve species recovery through habitat restoration efforts..<br>▪ Emphasis is placed on protecting wildlife habitat through working with public and private landowners.<br>▪ The recovery and protection of Federally and State listed endangered, threatened, sensitive and rare wildlife is prioritized. |
| **Aquatic Species** | |
| **AS-1** | Enhance fisheries, particularly native anadromous fish.<br>▪ Common goals focus on maintaining or improving overall instream habitat, water quality and river flows that support species recovery. |
| **AS-2** | There are simultaneous demands for water for fish species, especially steelhead, and other uses such as irrigation. |
| **AS-3** | Broadly share information regarding annual anadromous fish counts to integrate the community into observing and tracking fish species. |
| **AS-4** | Examine fisheries projects with an ecosystem perspective.<br>▪ There is a need to develop complementary and linked fish habitat and riparian habitat restoration efforts.<br>▪ Upstream and downstream projects should be integrated to the greatest degree possible. |
| **Land Use** | |
| **LU-1** | Support continued land use controls to help guide growth.<br>▪ The use of urban boundaries so that the County will grow in a compact and efficient manner is highly supported.<br>▪ Priority is placed on the continued use of the Williamson Act and other mechanisms such as easements to preserve agricultural lands, to conserve agriculture as open space, and preserve open space itself. |

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| **LU-2** | Maintain, expand and link open space.<br>▪ Priority is placed in preserving open space in the floodway.<br>▪ Open space can provide urban and riparian buffers.<br>▪ Open space can provide scenic corridors.<br>▪ Open space provides recreation opportunities.<br>▪ Open space provides sensitive habitat protection. |
| **LU-3** | Preserve Important Farmland (such as prime farmland and farmland of local and statewide importance) from conversion and urbanization. |
| **LU-4** | Recognize farm and ranch land as an important component in open space networks of wildlife habitat and scenic corridors. |
| **LU-5** | Collaborate and partner with farmers and landowners concerning water quality and supply enhancements as well as habitat restoration and other efforts. |
| **LU-6** | There are real and perceived effects of removing crops from production owith regards to individual profitability, the County's economy, and a sense of community identity. |
| **LU-7** | Define and balance different types of open space. |
| **LU-8** | Define urban and riparian "buffers" and how they function in different roles. |

**Recreation and Access**

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| **RA-1** | Enhance human interactions with the river. |
| **RA-2** | Develop linked systems of bicycle and pedestrian trails along or near the river on public lands. |
| **RA-3** | Support increasing collaborations across agencies to discuss multi-purpose and appropriate recreation opportunities along and near the river. |
| **RA-4** | Conduct a region-wide recreation needs assessment. |
| **RA-5** | Emphasize the role of non-motorized boat access to the river as an existing and future beneficial use. |
| **RA-6** | Support the enhancement of existing river access sites. |
| **RA-7** | Manage access to reduce or eliminate potential threats to very sensitive habitats and to private properties, through increased security or other means. |
| **RA-8** | Provide recreation and access opportunities to all residents, by complying with ADA regulations and recommendations (public agencies must ensure this at all locations). |
| **RA-9** | Enhance the aesthetics and attractiveness of the river by addressing dumping, trespassing, drug use and other illegal activities along the river. |
| **RA-10** | Current management practices and land uses have not sufficiently addressed issues of public safety along the river including drug use, trespassing, homeless encampments, and the dumping of refuse. |
| **RA-11** | Types of recreation may limit or conflict with each other.<br>▪ Motorized boating may not be compatible with non-motorized boating and other activities on the river.<br>▪ Passive and active recreation may compete for limited space and resources. |
| **RA-12** | Improve clarity between passive and active recreation.<br>▪ Plans often call for passive recreation at some locations and active recreation in others. |

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| **RA-13** | Plan for increased maintenance needs that will be required by enhanced river accesses. |
| **RA-14** | Increase opportunities for public access and park patrols to decrease trespass and improve safety. |
| **Stewardship and Education** | |
| **SE-1** | Support for increasing access to and awareness of the river to increase stewardship.<br>▪ Stewardship is encouraged through public participation in design workshops, educational venues and classes, volunteerism and frequent access to the river and its multiple values.<br>▪ Stewardship would be encouraged through the development of interpretive centers and interpretive trails, community monitoring and research projects, and the preservation of the area's archaeological and historical legacy. |
| **SE-2** | Provide information to private landowners on the river about stewardship opportunities, including the use of conservation easements. |
| **SE-3** | Further develop sites for environmental education along the river and corresponding school outreach programs. |
| **SE-4** | Integrate evaluation into the planning and development of projects in the Lower Tuolumne River Parkway as a means for sustaining on-going involvement and stewardship of river-oriented projects. |
| **Upper Reach** | |
| **UR-1** | Emphasize improving anadromous fish spawning and rearing habitat in the upper (gravel-bedded) reaches.<br>Improving fish habitat can include securing gravel supply, reducing fine sediment influx, adding spawning gravel, and reducing stranding potential. |
| **UR-2** | Reduce impacts on water quality and riparian habitat from surrounding land uses.<br>There are common goals to reduce grazing along the banks of the upper reaches and tributaries |
| **UR-3** | Proposed active recreation in the upper reaches and recommendations to widen the riparian corridor and reduce land use impacts on habitat restoration may be incompatible.<br>▪ There may be conflicts between existing grazing along the upper reaches, County plans for an amphitheater, interpretive center, camps, sports field, and trails near La Grange, plans for linked trail systems near Waterford, and Habitat Restoration Plan recommendations to widen the riparian corridor to 500 feet in some areas of the upper reaches. |
| **UR-4** | Address and balance the effects of activities in the upper reaches that remove or deposit sediment in ways that may alter the delicate balance of river sediment: aggregate mining, the use of gravel for spawning habitat, land uses in the floodplain, flows allowed, and flood management. |
| **UR-5** | Develop additional information on the water quality of the upper reaches. |
| **Urban Reach** | |
| **URB-1** | Focus on the importance of preserving and/or extending riparian buffers, existing setbacks, and scenic corridors around urban growth and development. |

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| **URB-2** | Enhance and promote key river access sites near urbanized areas in order to provide access where residents need it most and to preserve other less developed areas as such. |
| **URB-3** | Future urban growth and development as well as open space preservation may focus on the river corridor. |
| **URB-4** | Existing urban and industrial land uses may limit restoration opportunities. |
| **URB-5** | Protect an active and vegetated floodplain that supports multiple uses and accommodates current and expected urban development. |
| **URB-6** | Make the most of opportunities for storm-water run-off and reclaimed wastewater programs. |
| **URB-7** | Uphold diverse passive and active recreation opportunities that minimize impact on surrounding habitat restoration and water quality. |
| **URB-8** | Explore the possibility for economic development opportunities built around parks and open space. |
| **Lower Reach** | |
| **LR-1** | Maintain land uses in the lower reach as primarily agricultural lands or open space, with minimal public river access sites. |
| **LR-2** | Revegetate restored floodplains and terraces along the lower reach. |
| **LR-3** | Enhance the role of the San Joaquin River National Wildlife Refuge as a key link in the Pacific Flyway. |
| **LR-4** | Restore functional floodplains and off-channel wetlands to increase and support wildlife habitat. |
| **LR-5** | Habitat Restoration Plan recommendations to widen the riparian corridor up to 2,000 feet in lower reach areas may conflict with existing agricultural and other private and public uses along the lower reaches. |
| **LR-6** | Expand the riparian corridor and wetlands surrounding San Joaquin River National Wildlife Refuge through conservation easements and land acquisition. |
| **Balanced River Management** | |
| **BRM-1** | Balance diverse efforts (including fish habitat restoration, floodplain restoration, and riparian habitat restoration that may compete for limited water supply, sediment, and other resources. |
| **BRM-2** | Explore management of run-off from land uses (grazing, farming, urban) that impact the river and its tributaries. |
| **BRM-3** | Engage and encourage diverse voices and interests. |
| **BRM-4** | Key land uses to consider in reaching a balance:<br>▪ Riparian corridor of up to 500-2000 feet in some areas<br>▪ Passive and active recreation opportunities.<br>▪ Population growth in Stanislaus County<br>▪ Reduction of riparian encroachment<br>▪ Riparian habitat restoration opportunities<br>▪ Marginality of certain farmland in the floodplain due to frequent flooding |
| **BRM-5** | An abundance of opportunities exist along the river, and recent efforts represent a positive movement in enhancing habitat, recreation, and other enhancement of the river corridor. |

| **Information Needs** | |
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| **IN-1** | Comprehensive water quality assessments for the Lower Tuolumne and its tributaries to identify specific pollutants and their sources, as well as barriers to improving water quality. |
| **IN-2** | Additional information about the impacts of restoration on urban uses and vice versa, to inform balancing these uses with one another, spatially and temporally. |
| **IN-3** | Mapping of current locations of key wildlife species along the river that rely on a riparian corridor (such as river otters, coyotes, and deer) or are Threatened, Endangered, or Species of Concern (such as Riparian Brush Rabbits, San Joaquin Kit Fox, and others). |
| **IN-4** | Information regarding the effects of current or projected flows on wildlife and vegetation. |
| **IN-5** | Information on feeding, resting, nesting, and roosting patterns in the Lower Tuolumne River floodplain, and how human activities impact these activities. |
| **IN-6** | Additional information concerning regional recreation needs, such as through a river-oriented recreation needs assessment survey. |
| **IN-7** | Additional evaluation and monitoring of key efforts as outlined in the Habitat Restoration Plan for the Lower Tuolumne River Corridor relating to channel and floodplain morphology.<br>▪ It is necessary to understand how changes to channel and floodplain morphology impact fish recovery, what the positive and negative effects are from various flows, and to assess ecosystem response in general through on-going monitoring and criteria for success. |

# Appendix E: Action Plans for River Enhancement Strategies and Implementation Tools[2]

| **Strategy 1 (S1): Identify Multi-Objective Projects in Urban and Rural Reaches of the River** | **Project Lead: TBD** | **Partners:** RWQCB; Cities; County; Landowners |
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| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 1.1 Compile case studies and Best Management Practices concerning the co-existence of recreational uses and habitat. Provide specific information on how to enhance and/or restore natural river processes where urban development and river accesses exist, and vice versa. | **M** | **L** |
| 1.2 Develop an outreach program targeted to landowners along the river corridor to learn about landowner concerns and to educate them about natural river processes. | **M** | **L** |
| 1.3 Encourage and facilitate a comprehensive and on-going assessment of water quality in Dry Creek, a major polluter to the urban reaches of the Lower Tuolumne River. | **M** | **L** |
| 1.4 Identify key river access sites in the urban reaches for enhancement and expansion. | **M** | **L** |

[2] This action plan provides broad prioritization for the action steps and identifies key partners for each strategy. The priorities do not necessarily reflect the priorities of individual member organizations but those of the Coalition as a whole at this time. The Coalition intends to revisit and amend the strategies, action steps, and prioritizations regularly to update and adapt them as the river, community, and circumstances change.

| **Strategy 2(S2): Support the Coordination of a Water Quality Monitoring and Enhancement Program** | **Project Lead: SWRCB** | **Partners:** RWQCB; San Joaquin River Water Quality Management Group; San Joaquin Basin National Water Quality Assessment Program, Stanislaus County CURES Program. City of Hughson; SJRNWR; ESRCD; Landowners; Local educational institutions |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 2.1 Encourage a comprehensive, on-going assessment of water quality in the Tuolumne and its tributaries. | **H** | **L; On-going** |
| 2.2 Compile and distribute Best Management Practices for water quality enhancement that include: bank protection, riparian restoration and constructed wetlands as filters, and management of run-off from various land uses. | **M** | **L** |
| 2.3 Continue to integrate water reclamation, filter, and riverbank restoration projects in Lower Tuolumne River Parkway projects where possible. | **M** | **L** |
| 2.4 Initiate a tributary restoration program with nearby landowners to manage run-off for Dry Creek. | **M** | **L** |
| 2.5 Spearhead or partner with a stream-watcher program for local volunteers and schools. | **M** | **L** |
| 2.6 Encourage Sewage Treatment plans to complement Lower Tuolumne River Parkway projects. | **M** | **L** |

| **S3: Identify Potential Natural Area and Working Landscapes Projects Along the Lower Tuolumne River** | **Project Lead: TBD** | **Partners:** CALFED Working Landscapes; NRCS Conservation Security; Cities and County; Landowners |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 3.1 Inventory and map all existing open space areas of the Lower Tuolumne River | **H** | **S** |
| 3.2 Compile and distribute potential criteria for prioritizing open space preservation for the Lower Tuolumne River Corridor | **H** | **S** |
| 3.3 Compile and distribute guidelines for acquisition and maintenance of open space areas | **M** | **L** |

| **S4: Implement Habitat Restoration Projects** | **Project Lead:** TID/MID; Tuolumne River Trust; Sierra Club; Friends of the Tuolumne, Inc., | **Partners:** TRTAC; ESRCD; Landowners; SJRNWR; TID; MID; County |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 4.1 Develop criteria for prioritizing habitat restoration or mitigation opportunities. These could include:<br>▪ Location (Can this site be linked to other restoration sites? What will the positive and negative effects be on surrounding land uses, recreation and restoration opportunities? What is the habitat type?)<br>▪ Potential to be a self-sustaining corridor<br>▪ Availability of public land, potential of acquiring private land, or potential to partner with the existing landowner<br>▪ Ability to integrate and allow for natural flow and flooding processes<br>▪ Potential to protect rare, threatened, endangered or otherwise sensitive species or habitat (such as those listed in the riparian inventory of the Habitat Restoration Plan for the Lower Tuolumne River Corridor) | **M** | **L** |

| | | |
|---|---|---|
| 4.2 Review and update as needed the identified habitat restoration opportunities from the Restoration Plan<br>▪ Compile information on potential opportunities for securing off-river gravel sources for gravel augmentation.<br>▪ Gather Best Management Practices regarding issues such as incorporating restoration into gravel-mining permits and alternative grazing strategies, especially ways to eliminate illegal cattle grazing on County land at La Grange.<br>▪ Support implementing operation of the Geer Road irrigation water diversion and the Turlock Area Drinking Water Project. | **L** | **L** |
| 4.3 Develop recommendations to reduce potential conflicts with public and private landowners. | **M** | **L** |
| 4.4 Encourage project demonstration sites of natural river processes (e.g., through passive levee breaches) and low-impact design (e.g., alternative bank protection mechanisms) at the San Joaquin River National Wildlife Refuge. | **M** | **L** |

| **S5: Increase Recreation Opportunities** | **Project Lead: City of Ceres, TRRP JPA; Stanislaus County Parks and Recreation** | **Partners:** |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 5.1 Support or conduct a region-wide recreation needs survey, focusing on uses of and interest in the river corridor. | **H** | **S** |
| 5.2 Identify areas along the river where additional recreational lands could be acquired in areas least impactful to sensitive habitats. | **H** | **L** |

| **S6: Enhance and Expand Public River Access Points** | **Project Lead: City of Ceres, TRRP JPA; Stanislaus County Parks and Recreation** | **Partners:** Fishing and sports groups; Local police: City and County Parks maintenance and security staff; Restorationists; Public landholders |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 6.1 Use public outreach and information strategies (described below in Strategy 8) to help clean, maintain, and promote existing river access sites. | **H** | **S** |
| 6.2 Assess key issues of safety at river access sites and support the implementation of enhanced security and patrols at access sites. | **H** | **L** |
| 6.3 Sponsor or support activities and other community events at existing access sites that highlight recreational opportunities unique to the Lower Tuolumne River Parkway. | **L** | **L** |

| **S7: Provide Information and Support for a Scenic Trailway Area Compatible with Private Interests** | **Project Lead: TBD** | **Partners:** Caltrans; Cities; County; Developers; Bicycle and pedestrian advocacy groups; Transit agencies |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 7.1 Support the the planned development of a bike lane along Scenic Highway 132 and potential connections between this bike lane and other trails that lead to the river on public lands. | **M** | **L** |
| 7.2 Identify all existing and potential bicycle and pedestrian paths or trails bordering the Lower Tuolumne River by identifying areas where trails could be linked without negatively impacting sensitive habitat or private property, including through the use of existing public rights-of-way. | **M** | **L** |
| 7.3 Create a trailway map and identify the trailway sections on Lower Tuolumne River Parkway signage (e.g., establish wayfinding signs along bike lanes and pedestrian paths that identify mileage, directions to points of interest, river overlooks, viewpoints, or other sites where visitors interact with the river). | **L** | **L** |

| **S8: Study and Recommend Best Management Practices Regarding the Use of Boats on the Lower Tuolumne** | **Project Lead: TBD** | **Partners:** Recreation groups |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 8.1 Evaluate policies regarding watercraft use (e.g., use of motorized or non-motorized craft, speeds allowed) on the Tuolumne and other local rivers and support the implementation of boating laws. | **H** | **S** |
| 8.2 Improve and/or support the development of additional non-motorized access sites to expand the "canoe trail" that does not conflict with private property or sensitive habitats. | **M** | **L** |
| 8.3 Identify all put-in or take-out sites for canoes on Lower Tuolumne River Parkway maps, signs, and guidebooks. | **M** | **S** |
| 8.4 Host fall canoe trips to view spawning salmon and other trips when possible to educate stakeholders about the river, the Coalition and Parkway projects. | **H** | **S; On-going** |

| **S9: Create Lower Tuolumne River Parkway Maps and Signage** | **Project Lead: TBD** | **Partners:** |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 9.1 Create a Parkway image and identity program including a common logo and graphics for way-finding signage, and place at key locations. | **M** | **L** |
| 9.2 Develop and distribute a Parkway recreation and use guidebook that highlights:<br>▪ Parks, paths, trails, public recreation and access areas, overlooks, and public facilities.<br>▪ Habitat and wildlife information and other significant areas on the river.<br>▪ Information, if applicable, on how and when private properties can be accessed by the public. | **M** | **L** |

| **S10: Develop a Lower Tuolumne River Parkway Interpretive Program** | **Project Lead: TBD** | **Partners:** City and County Planning Agencies; Town of La Grange; Department of Fish and Game |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 10.1 Support the development of an interpretive center along the river. | **L** | **L** |
| 10.2 Support interpretive trails in and along the river corridor that link existing and proposed trails, where appropriate, on public lands. | **M** | **L** |
| 10.3 Develop interpretive signage for unique features along the river corridor. | **L** | **L** |
| 10.4 Compile written educational materials that illustrate the important roles of unique and native plant and animal species. | **M** | **L** |

| **S11: Enhance Cleanliness, Safety, and Security for the Users of the Lower Tuolumne River Parkway and Surrounding Communities** | **Project Lead: TBD** | **Partners:** City and County Planning Agencies; Town of La Grange; Department of Fish and Game |
|---|---|---|
| **Potential Strategy Actions** | **Priority** (High, Medium, Low) | **Timeline** (Short-term=1-3 years; Long-term=3-10 years) |
| 11.1 Develop education and outreach programs in partnership with law enforcement to protect open space areas, habitat, and quality of experience for visitors. | **M** | **L** |
| 11.2 Integrate river clean-ups and adopt-a-river-mile efforts into a Tuolumne River Coalition Volunteer Program (see S12.2, below) | **M** | **L** |
| 11.3 Develop a Lower Tuolumne River Parkway security and patrol program by advocating for increased river policing and developing a community-based monitoring program. | **M** | **L** |

| **S12: Continue Public Outreach and Involvement** | **Lead: TBD** | **Partners:** Regional media; CSU-Stanislaus; Great Valley Museum; Local educational and community institutions; Landowners |
|---|---|---|
| **Potential Strategy Actions** | **Priority**<br>(High, Medium, Low) | **Timeline**<br>(Short-term=1-3 years; Long-term=3-10 years) |
| 12.1 Develop education and outreach programs in partnership with, and specifically targeted for, the following groups:<br>▪ Students and youth groups.<br>▪ California State University-Stanislaus Biology and other students for research projects.<br>▪ Community organizations such as the Great Valley Museum to educate the community about the river and its ecology.<br>▪ Farmers and other landowners. | **M** | **L** |
| 12.2 Structure an on-going Tuolumne River Coalition Volunteer Program that could include a Stream-watcher Program and project monitoring. | **M** | **L** |
| 12.3 Update the public on on-going meetings and community forums through the use of a Tuolumne River Newsletter as well as the Coalition website, brochure, and other outreach materials. | **M** | **L** |
| 12.4 Appeal to print and news media to produce or write public interest pieces concerning the river (e.g., request a slot on the television show "Valley Mosaic" and submit information to the Modesto View website). | **M** | **L** |
| 12.5 Place Coalition projects and efforts on relevant regional and statewide inventories, such as the EPA's Watershed site and the Natural Resource Projects Inventory. | **H** | **S** |
| 12.6 Publish a master map of the Lower Tuolumne River Parkway (with pedestrian trails, bike lanes and paths, the canoe trail, access sites, interpretive centers and trails, and all Coalition projects). | **H** | **S** |

# Appendix F: Summary of Strategies and Goals or Conflicts Addressed

| Strategy[3] | Goals or Conflicts Addressed[4] |
|---|---|
| S1: Identify Multi-Objective Projects in Urban and Rural Reaches of the River | WS-1; WS-2; FM-2; LU-1; LU-3; LU-4; LU-8; RA-1; RA-6; RA-7; RA-9; RA-10; RA-11; SE-2; SE-1; URB-1; URB-2; URB-3; URB-4; URB-5; URB-6; URB-7; URB-8 |
| S2: Support the Coordination of Water Quality Monitoring and Enhancement Program | WS-1; WS-2; WQ-1; WQ-2; WQ-3; WQ-4; BM-2; IN-1 |
| S3: Identify Potential Natural Area and Working Landscapes Projects Along the Lower Tuolumne River | FM-1; RH-2; LU-1; LU-2; LU-3; LU-4; LU-5; LU-6; LU-7; LU-8; RA-7; RA-9; RA-10; LR-6 |
| S4: Implement Habitat Restoration Projects | GM-1; GM-2; AS-1; AS-2; AS-3; AS-4; LU-4; LU-5; SE-2; UR-1; UR-2; UR-3; UR-4; UR-5; BRM-2; BRM-5; WS-1; WS-2; WQ-1; FM-1; FM-2; TS-1; LU-4; SE-2; SE-3; LR-3; LR-4; LR-5; LR-6; RH-1; RH-2; RH-3; TS-1; TS-2; |
| S5: Increase Recreation Opportunities | RA-1; RA-4; RA-7; URB-8: SE-1; LU-2; BRM-5 |
| S6: Enhance and Expand Public River Access Points | RA-1; RA-3; RA-6; RA-8; RA-9; RA-10; RA-134; RA-14; SE-1; LU-2; UR-3; URB-3; URB-5; BRM-1; BRM-5 |
| S7: Provide Information and Support for a Scenic Trailway Area Compatible with Private Interests | LU-2; RA-2; RA-3; RA-8; SE-1; BRM-4 |
| S8: Study and Recommend Best Management Practices Regarding the Use of Boats on the Lower Tuolumne | WS-2; RA-1; RA-5; RA-11; SE-1; BRM-5 |
| S9: Create Lower Tuolumne River Parkway Maps and Signage | RA-1; RA-2; RA-3; RA-6; RA-7; RA-8; RA-9; RA-10; SE-1 |
| S10: Develop a Lower Tuolumne River Parkway Interpretive Program | RA-1; RA-5; RA-6; SE-1; SE-3; BRM-5 |
| S11: Enhance Cleanliness, Safety, and Security for the Users of the Lower Tuolumne River Parkway and Surrounding Communities | RA-1; RA-7; RA-9; RA-10; RA-13; RA-14; BRM-5 |
| S12: Continue Public Outreach and Involvement | RH-3; RA-7; RA-9; RA-10; SE-1; SE-2; SE-3; SE-4; BRM-3 |

[3] See Potential Strategy Actions in Chapter Four for more detail
[4] Refer to Appendix D for a detailed list of all findings

# Appendix G: Detailed Species Lists: Species Found in the Lower Tuolumne River Region (A Provisional List)[5]

*Note that State or Federal Threatened or Endangered are identified with an asterisk (*) and species of concern with two (**)*

## Native Plant Species

### Trees

- Box Elder
- California Buckeye
- White Alder
- Southern California Walnut
- California Sycamore
- Fremont Cottonwood*
- Blue Oak
- Valley Oak*
- Roble Oak
- Interior Live Oak
- Black Willow
- Red Willow
- Sandbar Willow
- Pacific Willow
- Red Osier Dogwood
- Gray Pine

### Shrubs

- Buttonbush
- Bush Lupine
- Narrow-Leaved Willow
- Arroyo Willow
- Dusky Willow
- Blue Elderberry

[5] Habitat Restoration Plan for the Lower Tuolumne River Corridor; TRRP Master Plan; TID Special Run Pool Mitigated Negative Declaration; USFWS Working Paper on Restoration Needs; Stanislaus Audubon

- Poison Oak
- California Coffeeberry
- California Rose
- Coyote Brush

**Vines**

- California Grape
- Coyote Melon
- California Blackberry

**Herbs and Grasses**

- Black Cap Raspberry
- Mugwort
- Mule fat
- Seep willow
- Water wally
- Rattlesnake Spurge
- Jimson Weed
- Willow Herb
- Goose Grass
- Everlasting
- Sun Flower
- Blazing Star
- Monkey Flower
- Waterpepper
- Hoary Nettle
- Common Cocklebur
- Turkey Mullien
- Evening Primrose
- California Sweetcicely
- Common Plantain
- Nightshade
- Mullien
- American Vetch

- Hornwort
- Common coon s tail
- Spike Rush
- Common Waterweed
- Duckweed
- Water Primrose
- Western Milfoil
- Tule
- Broad-Leaved Cattail
- Blue wildrye
- Creeping wildrye
- Meadow barley
- Basket sedge
- Dogbane
- Gumplant
- Deergrass
- Purple needlegrass
- Squirreltail

**Ferns**

- California Maidenhair fern
- Spike Moss
- Golden Backed Fern
- Giant Chain Fern
- Common Horsetail

**Parasites**

- Dodder
- Poplar Mistletoe

## Non-Native Plant Species

### Trees

- Tree of Heaven
- Red Gum,
- River Red Gum
- Gum Tree
- Persian or English Walnut
- Fruitless Mulberry
- Foothill Pine
- Black Locust
- Weeping Willow
- Tamarisk
- Silver Maple
- Catalpa
- American Elm

### Shrubs

- Edible Fig
- Tree Tobacco

### Vines

- Bindweed
- Orchard Morning Glory

### Herbs

- Himalayan Berry
- Yellow Star Thistle
- Pig weed
- Lambs Quarters
- Pokeweed
- Pokeberry
- Pigeon Berry
- Plantain
- Curly Dock
- Black Mustard
- Poison Hemlock
- White Sweet Clover
- Yellow Sweet Clover
- Oxallis
- Castor Bean
- Moth Mullien
- Brazilian Waterweed
- Parrots Feather
- Crispate-Leaved Pondweed

### Aquatic Plants

- Hydrilla
- Water Hyacinth

### Grasses

- Giant Reed
- Wild Oat
- Cheat Grass
- Bermuda Grass
- Beard Grass

## Wildlife Species

### Fish

- Central Valley Steelhead*
- Fall-run Chinook Salmon*
- Kern Brook Lamprey**
- Hardhead**
- Pacific Lamprey**
- River Lamprey
- Sacramento Splittail**

### Invertebrates

- California Linderiella
- Valley Elderberry Longhorn Beetle*
- Moestan Blister Beetle
- Redheaded Sphecid Wasp

### Amphibians

- California Tiger Salamander*
- Western Spadefoot
- California Red-legged Frog*
- Foothill Yellow-legged Frog

### Reptiles

- Western Pond Turtle**
- California Horned Lizard
- Silvery Legless Lizard
- Giant Garter Snake*
- Western Whip Tail

### Birds

Ducks, Geese & Swans:

- Greater White-fronted Goose
- Snow Goose
- Ross's Goose
- Canada Goose
- Cackling Goose
- Aleutian cackling goose**
- Tundra Swan
- Wood Duck
- Gadwall
- Eurasian Wigeon
- American Wigeon
- Mallard
- Blue-winged Teal
- Cinnamon Teal
- Northern Shoveler
- Northern Pintail
- Green-winged Teal
- Canvasback
- Redhead
- Ring-necked Duck
- Greater Scaup
- Lesser Scaup
- Long-tailed Duck
- Bufflehead
- Common Goldeneye
- Hooded Merganser
- Common Merganser
- Ruddy Duck

Pheasants and Turkeys:

- Ring-necked Pheasant -I
- Wild Turkey - I

New World Quail:

- California Quail

Loons:

- Common Loon

Grebes:

- Pied-billed Grebe
- Horned Grebe
- Eared Grebe
- Western Grebe
- Clark's Grebe

Pelicans:

- American White Pelican**

Cormorants:

- Double-crested Cormorant**

Herons, Bitterns, and Allies:

- American Bittern
- Great Blue Heron
- Great Egret
- Snowy Egret*
- Cattle Egret
- Green Heron
- Black-crowned Night-Heron

Ibises:

- White-faced Ibis**

New World Vultures:

- Turkey Vulture

Hawks, Kites, Eagles, and Allies:

- Osprey**
- White-tailed Kite
- Bald Eagle*
- Northern Harrier**
- Sharp-shinned Hawk
- Cooper's Hawk**
- Red-shouldered Hawk
- Swainson's Hawk*
- Red-tailed Hawk
- Ferruginous Hawk**
- Rough-legged Hawk
- Golden Eagle**

Faclons:

- American Kestrel
- Merlin
- Peregrine Falcon*
- Prairie Falcon**

Rails, Galllinules, and Coots:

- Virginia Rail
- Sora
- Common Moorhen
- American Coot

Cranes:

- Sandhill Crane*

Lapwings and Plovers:

- Black-bellied Plover
- Snowy Plover*
- Semipalmated Plover
- Killdeer
- Mountain Plover

Stilts and Avocets:

- Black-necked Stilt
- American Avocet

Sandpipers, Phalaropes, and Allies:

- Greater Yellowlegs
- Lesser Yellowlegs
- Willet
- Spotted Sandpiper
- Whimbrel
- Long-billed Curlew
- Marbled Godwit
- Sanderling
- Western Sandpiper
- Least Sandpiper
- Baird's Sandpiper
- Pectoral Sandpiper
- Dunlin
- Short-billed Dowitcher
- Long-billed Dowitcher
- Wilson's Snipe
- Wilson's Phalarope

Gulls and Terns:

- Bonaparte's Gull
- Mew Gull
- Ring-billed Gull
- California Gull
- Herring Gull
- Thayer's Gull
- Glaucous-winged Gull
- Caspian Tern**
- Forster's Tern**

Pigeons and Doves:

- Rock Pigeon - I
- Band-tailed Pigeon
- Mourning Dove

Barn and Typical Owls:

- Barn Owl
- Western Screech-Owl
- Great Horned Owl
- Northern Pygmy-Owl
- Burrowing Owl**
- Long-eared Owl**
- Short-eared Owl**

Goatsuckers:

- Lesser Nighthawk

Swifts:

- Vaux's Swift
- White-throated Swift

Hummingbirds:

- Black-chinned Hummingbird
- Anna's Hummingbird
- Costa's Hummingbird
- Rufous Hummingbird

Kingfishers:

- Belted Kingfisher

Woodpeckers and Allies:

- Lewis's Woodpecker
- Acorn Woodpecker
- Red-breasted Sapsucker
- Nuttall's Woodpecker
- Downy Woodpecker

Tyrant Flycatchers:

- Northern Flicker

- Olive-sided Flycatcher
- Western Wood-Pewee
- Willow Flycatcher
- Pacific-slope Flycatcher
- Black Phoebe
- Say's Phoebe
- Ash-throated Flycatcher
- Western Kingbird

Shrikes:

- Loggerhead Shrike**

Vireos:

- Cassin's Vireo
- Hutton's Vireo
- Warbling Vireo

Crows and Jays:

- Steller's Jay
- Western Scrub-Jay
- Yellow-billed Magpie
- American Crow
- Common Raven

Larks:

- Horned Lark

Swallows:

- Tree Swallow
- Violet-green Swallow
- N. Rough-wingd Swallow
- Bank Swallow
- Cliff Swallow
- Barn Swallow

Chickadees and Titmice:

- Oak Titmouse

Bushtits:

- Bushtit

Nuthatches:

- Red-breasted Nuthatch
- White-breasted Nuthatch

Creeper:

- Brown Creeper

Wrens:

- Rock Wren
- Canyon Wren
- Bewick's Wren
- House Wren
- Winter Wren
- Marsh Wren

Dippers:

- American Dipper

Kinglets:

- Golden-crowned Kinglet
- Ruby-crowned Kinglet

Gnatcatchers:

- Blue-gray Gnatcatcher

Thrushes:

- Western Bluebird
- Mountain Bluebird
- Townsend's Solitaire
- Swainson's Thrush

- Hermit Thrush
- American Robin
- Varied Thrush

Babblers and Wrentit:

- Wrentit

Mockingbirds and Thrashers:

- Northern Mockingbird
- California Thrasher

Starlings:

- European Starling - I

Pipits:

- American Pipit

Waxwings:

- Cedar Waxwing

Silky-flycathers:

- Phainopepla

Wood-warblers:

- Orange-crowned Warbler
- Nashville Warbler
- Yellow Warbler**
- Yellow-rumped Warbler
- Black-throated Gray Warbler
- Townsend's Warbler
- Hermit Warbler
- MacGillivray's Warbler
- Common Yellowthroat**
- Wilson's Warbler
- Yellow-breasted Chat**

Tanagers:

- Summer Tanager
- Western Tanager

Towhees, Sparrows, and Allies:

- Spotted Towhee
- California Towhee
- Rufous-crowned Sparrow
- Chipping Sparrow
- Vesper Sparrow
- Lark Sparrow
- Sage Sparrow
- Lark Bunting
- Savannah Sparrow
- Fox Sparrow
- Song Sparrow**
- Lincoln's Sparrow
- White-throated Sparrow
- White-crowned Sparrow
- Golden-crowned Sparrow
- Dark-eyed Junco

Grosbeaks and Buntings:

- Black-headed Grosbeak**
- Blue Grosbeak**
- Lazuli Bunting

Blackbirds, Orioles, and Allies:

- Red-winged Blackbird
- Tricolored Blackbird**
- Western Meadowlark
- Yellow-headed Blackbird
- Brewer's Blackbird
- Great-tailed Grackle
- Brown-headed Cowbird

- Hooded Oriole
- Bullock's Oriole

Finches and Allies:

- Purple Finch
- House Finch
- Red Crossbill
- Pine Siskin
- Lesser Goldfinch
- Lawrence's Goldfinch
- American Goldfinch

Old World Sparrows:

- House Sparrow –

**Mammals**

- Myotis (Long-eared, Fringed, Long-legged and small-footed)
- Townsend's Western Big-eared Bat
- Pallid Bat
- California Mastiff Bat
- Beaver
- River Otter
- Mink
- Long-tailed Weasel
- Striped Skunk
- Raccoon
- Riparian Brush Rabbit
- Desert Cottontail
- Black-tailed Hare
- San Joaquin Pocket Mouse**
- San Joaquin Valley Woodrat*
- San Joaquin Kit Fox*
- Coyote
- Deer (Mule and Black-tailed)
- Mountain Lion
- Bobcat

*Tuolumne River Coalition*
*Project Funding Matrix*

● = Primary Plan Element or Opportunity
● = Secondary Plan Element or Opportunity
○ = Potential Element or Opportunity

| STAKEHOLDER PROJECTS | | | | PLAN ELEMENTS | | | | | | | | | PROJECT STATUS | PROJECT COSTS | FUNDING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PROJECT INFORMATION | | | | | | | | | | | | | | | |
| | Project Name | Project Description | Primary Project Coordinator & Funding Partners | Flood Damage Reduction | Land Acquisition | Habitat | Water Supply | Water Quality | Education | Recreation | Open Space | Land Reclamation / Economic Dev't | | (Estimated Land Acquisition; Predevelopment and Planning; Design & Construction; TOTAL Costs) | (Amount Committed; Funding Gap; Potential Funding Gap Sources) |
| 1 | San Joaquin River National Wildlife Refuge<br>**Reach 1**<br>**River mile 0-1** | 12,887-acre refuge established to support endangered and threatened species; protect wetland habitat for migratory shorebirds, waterfowl, herons, waterbirds, and other species; and to provide winter forage habitat for Aleutian Canada geese and sandhill cranes. Project includes modifying existing flood control levees, restoring historic floodplains, and restoring wetlands and riparian forest. Currently, there is approximately 3,272 acres within the approved Refuge boundary left to acquire. NWR also plans on constructing additional public use facilities that would include enhanced access and interpretive signage. | U.S. Fish & Wildlife Service, Kim Forrest (209) 826-3508 | ● | ● | ● | ○ | ○ | ● | ● | ● | | § Acquisition<br>§ Restoration Planning<br>§ Restoration Implementation | **Land Acquisition:** $60M Restoration: $11M<br>**Predevelopment & Planning:** $4.5M (including AFRP hydraulic modeling for non-structural alternative at the SJRNWR and refinement of habitat enhancement)<br>**Design & Construction:** $2.5M U.S.ACOE non-structural alternative<br>**Public Use Facilities:** $700,000<br>**Total Cost:**$78.7M | **Committed:** CALFED ($16.7M riparian and brush rabbit habitat acquisition and restoration); The Resources Agency/Proposition 13 ($5M land acquisition), DWR/Flood Protection Program ($1.7M for 511-acre habitat restoration project with River Partners); USFWS Migratory Bird Conservation Fund ($9.7M); NRCS/Federal Flood Emergency Appropriations ($11.6M); Private funds; USFWS/Anadromous Fish Restoration Program ($0.5M); USACOE ($2.5M); Land & Water Conservation Fund ($6.3M).<br>**Funding Gap:** $20M (land acquisition), $4M (restoration) and $700,000 (Public use facilities)<br>**Potential Funding Gap Sources:** CALFED, State proposition funding, MBCF, LWCF |
| 2 | Dos Rios Conservation Easements<br>**Reach 1**<br>**River miles 0-3** | The Dos Rios project is a working landscape, floodplain protection, and riparian restoration project located along the Tuolumne and San Joaquin Rivers. The project will have direct benefits to the critically endangered riparian brush rabbit by developing riparian brush rabbit habitat and establishing a brush rabbit colony within the riparian corridor on the property. Through purchase of perpetual habitat and agricultural conservation easements, we expect to increase the riparian zone up to 1000 feet wide, restrict development of the properties, including dairies, orchards, and vineyards, and confined animal facilities while protecting other agricultural uses of the land in perpetuity. Long-term management will incorporate adaptive management and monitoring and best management practices to ensure long-term success of habitat restoration. | Tuolumne River Trust, Patrick Koepele (209) 236-0330 | ● | ● | ● | | | ○ | | ● | | § Acquisition | **Land Acquisition**: $9M<br>**Predevelopment & Planning**:$500,000<br>**Design & Construction**: $3,000,000<br>**Total Cost**: $12,500,000 | **Committed**: $0<br>**Funding Gap**: $9M<br>**Potential Funding Gap Sources:** Land and Water Conservation Fund; Farm Bill (various) |
| 3 | Shilo Fishing Access<br>**Reach 1**<br>**River mile** 3.7 | Provides river facilities with opportunities for boating, places for passive recreation, picnic, informal play, and overnight camping. | Stanislaus County Department of Parks & Recreation, Terri Sanders (209) 525-6771 | | ● | | | | | ● | ● | | § In Master Plan | **Land Acquisition**:<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>**Total Cost**: $45,764 | **Committed**: **$0**<br>**Funding Gap**: $45,764<br>**Potential Funding Gap Sources:** |

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| PROJECT INFORMATION | | | | | | | | | | | | | | | |
| | Project Name | Project Description | Primary Project Coordinator & Funding Partners | Flood Damage Reduction | Land Acquisition | Habitat | Water Supply | Water Quality | Education | Recreation | Open Space | Land Reclamation/ Economic Dev't | | (Estimated Land Acquisition; Predevelopment and Planning; Design & Construction; TOTAL Costs) | (Amount Committed; Funding Gap; Potential Funding Gap Sources) |
| 4 | Bancroft-Ott<br>**Reach 1**<br>**River mile 4** | NRCS floodplain easement on the Bancroft-Ott property northeast of the Shiloh Bridge. The project will include active floodplain and habitat restoration activities. | East Stanislaus Resource Conservation District, Martin Reyes (209) 605-4079 | ● | ● | ● | | ● | | | | | | **Land Acquisition**:<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>**Total Cost**: | **Committed**: Funded by NRCS<br>**Funding Gap**: None<br>**Potential Funding Gap Sources:** |
| 5 | Grayson River Ranch<br>**Reach 1**<br>**River mile 5.5** | This is a one-mile long floodplain restoration project on 140 acres downstream near the Tuolumne River confluence with the San Joaquin. Project wide floodplain contouring and extensive native planting have been completed and maintenance and monitoring will continue for several years. | Friends of the Tuolumne, Inc, Allison Boucher (209) 477-9033; CALFED, AFRP, NRCS, SFPUC | ● | ● | ● | | ◐ | | | ● | ○ | § Completed (On-going maintenance) | **Land Acquisition**: $377,200 AFRP (acquisition & restoration)<br>**Predevelopment & Planning**:<br>**Design & Construction**: $332,000 CALFED (restoration) and $24,000 NRCS (restoration)<br>**Total Cost**: $1.5M | **Committed**: AFRP, CALFED, NRCS, FERC Settlement<br>**Funding Gap**: On going O&M<br>**Potential Funding Gap Sources:** |
| 6 | Big Bend Floodplain Protection and Restoration Project<br>**Reach 1**<br>**River miles 6-7; 250 acres** | The first phase of the project protected flood-prone land of Tuolumne River floodplain west of Modesto through a combination of fee title and conservation easement acquisitions. During the second phase of the project, riparian and floodplain habitat at the project site will be restored. Restoration activities include earthwork to encourage natural floodplain function and planting native vegetation to restore the riparian forest on approximately 254 acres of river bottom. | Tuolumne River Trust, Patrick Koepele (209) 236-0330; CA Dept. of Water Resources, UDSA – Natural Resources Conservation Service, East Stanislaus Resource Conservation | ● | ● | ● | | ◐ | ● | | ● | | § Implementation (revegetation) | **Land Acquisition**: 250 acres<br>**Predevelopment & Planning**: Current phase; Funding from (DWR) Prop 13, NRCS, ESRCD/SFPUC FERC Settlement, and NOAA Community Restoration Program<br>**Design & Construction**:<br>**Total Cost**: $2,928,519 | **Committed**: $2,378,519, (some from SFPUC FERC Settlement)<br>**Funding Gap**: $734,700 for Phase II<br>**Potential Funding Gap Sources:** for Revegetation - amount TBD |
| 7 | Riverdale Park<br>**Reach 2**<br>**River mile 12-13** | Improvement plans for this currently unimproved 5 acre park include amenities for both regional use as well as neighborhood-type facilities for the surrounding unincorporated community. Near Parkdale Drive are proposed picnic facilities, children's play equipment, an informal play area, as well as security lighting, restrooms, and a small parking area. The river-oriented put-in facilities are aimed at non-motorized or car-top boats. | Stanislaus County Department of Parks & Recreation, David Piper (209) 525-6768; SFPUC | | | | | | | ● | ● | | § Design phase beginning § Grants paperwork 25% completed | **Land Acquisition**:<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>**Total Cost**: $282,500 | **Committed**: Fully funded. Prop 12; Per capita funds from Prop 13 or 40; FERC settlement (FOTT, INC), 40 Riverway Grant<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |

| STAKEHOLDER PROJECTS | | | | PLAN ELEMENTS | | | | | | | | | PROJECT STATUS | PROJECT COSTS | FUNDING |
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| | Project Name | Project Description | Primary Project Coordinator & Funding Partners | Flood Damage Reduction | Land Acquisition | Habitat | Water Supply | Water Quality | Education | Recreation | Open Space | Land Reclamation/ Economic Dev't | | (Estimated Land Acquisition; Predevelopment and Planning; Design & Construction; TOTAL Costs) | (Amount Committed; Funding Gap; Potential Funding Gap Sources) |
| **8** | Tuolumne River Regional Park<br>**Reach 2**<br>**River miles 12.4-19.3** | The Tuolumne River Regional Park Gateway Parcel is located adjacent to the Modesto and Ceres Downtowns. It creates a greenspace through the heart of these growing urbanized communities. The intent of the design to create a place where people can enjoy the Tuolumne River, gain access to it's multple benefits, gather for community events, operate educational venues, and attract regional interest to the park. By virtue of it's location under Highway 99, the Seventh Street and Ninth Street Bridges, this Parcel is highly visible. The intent of the design is to enhance the river corridor, improve circulation, improve recreational opportunities, improve water quality, create a connection between the urban and river environments. The FY 05-06 funding request is for Phase I of the Gateway Precise Plan Development. Phase I will include Site Preparation, Grading and Drainage, Irrigation System and Planting for the entire site. Included is the restoration work on the Tuolumne and Dry Creek areas. | City of Modesto, Doug Critchfied (209) 577-5353 | ● | ● | ● | | ● | | ● | ● | | § Construction § Restoration Planning § Restoration Implementation | **Land Acquisition:**<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** $7,500,000 | **Committed**: $1,140,000 from Proposition 40 line item funds, $420,600 annually from the JPA (Ceres, Modesto, Stanislaus); $70,900 annually from revenue-generating facilities and grants **Total -** $7.5 m<br>**Funding Gap**: $6M<br>**Potential Funding Gap Sources:** Cities of Modesto, Ceres; Stanislaus County; Prop 50 Funds; Grants and private donations (Pakard Foundation, GVC - LEGACI Grants); User fee and Development Impact revenues; General Obligation Bond; Land and Water Conservation Fund; Recreational Trails Program (through FHWA/CA Department of Parks and Recreation); Habitat Conservation Fund; Calfornia Riparian Habitat Conservation Program (WCB); TEA 21 Grants; Solid Waste Disposal and Cidisposal Site Cleanup Program; |
| **9a** | Ceres River Bluff Regional Park<br>**Reach 3**<br>**River mile 20** | Parkway expansion: Future acquisition of neighboring properties | City of Ceres, Doug Lemcke (209)538-5650 | | ● | ● | | | ◉ | ● | | | | **Land Acquisition**:<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>Total Cost: $18 m | **Committed**: $1 million Ceres Redevelopment, $.55 TEA-Trans, State Prop12/40 $.750<br>Funding Gap: $8.5 m<br>**Potential Funding Gap Sources:** Land and Water Conserve Fund-Federal |
| **9b** | Ceres River Bluff Regional Park<br>**Reach 3**<br>**River mile 20** | The lower 38 acres is in a floodplain next to the River and contains outlets for stormwater, as well as a wetlands area and biking and hiking trails. | City of Ceres, Doug Lemcke (209)538-5649 | | ● | ● | | | ● | | ● | | § Partial Design of Lower 38 acres | **Land Acquisition**: $300,000<br>**Predevelopment & Planning**: $720,000 (Prop 40- includes partial construction);<br>**Design & Construction**: $1,000,000<br>**Total Cost**: $2,020,000 | **Committed**:$300,000 (Ceres Redevelopment); $720,000 from Prop 40<br>**Funding Gap**:$1,000,000<br>**Potential Funding Gap Sources:** |
| **9c** | Ceres River Bluff Regional Park<br>**Reach 3**<br>**River mile 20** | Recreational sports facilities on the upper 38 acres. | City of Ceres, Doug Lemcke (209)538-5648 | | ● | | | | | ● | | | § Design | **Land Acquisition**:$650,000 (Master Planning)<br>**Predevelopment & Planning**:<br>**Design & Construction**:$1.08M (developer fees); $800,000 (construction)<br>**Total Cost**: $7.4M | **Committed**:$1.0M<br>**Funding Gap**: $6.4M<br>**Potential Funding Gap Sources:** ~$1.4M from the County; Future park development fees; grants, bonds, private donations |
| **10** | Special Run Pool 10<br>**Reach 4**<br>**River mile 25.3** | SRP 10 has the potential to add river access and parklands as an extension of the County owned Geer Road Landfill site. | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8317; CALFED, AFRP | | ● | ● | ● | | | ● | ● | | § In Design | **Land Acquisition**: $1,200.000<br>**Predevelopment & Planning**: $543,000<br>**Total Cost**: $4,593,000 | **Committed**: SRP 10 funded to date $543,530 (for Phase 1:design, permits, appraisals, & monitoring); CALFED administered by NFWF<br>**Funding Gap**: $4,200,000 (Phase II - $1.4M for Land Acquisition and $2.8M for construction/revegetation)<br>**Potential Funding Gap Sources:** |
| **11** | Special Run Pool 9<br>**Reach 4**<br>**River mile 25.8** | Large-scale restoration projects adjacent to Fox Grove Park designed to enhance fall run Chinook salmonid habitat. SRP 9 became an extension of the Fox Grove Park. | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8317; CALFED, | | | ● | ● | | | ● | ● | ● | § Completed-no Request Form | **Land Acquisition**:<br>**Predevelopment & Planning**: $388,000<br>**Design & Construction**: $2,353,000<br>**Total Cost**: $2,741,000 | **Committed**: FERC Settlement; MID/TID<br>**Funding Gap**: None<br>**Potential Funding Gap Sources:**CALFED/AFRP; FERC Settlement; Drainage Assessment |

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| PROJECT INFORMATION | | | | | | | | | | | | | | | |
| | Project Name | Project Description | Primary Project Coordinator & Funding Partners | Flood Damage Reduction | Land Acquisition | Habitat | Water Supply | Water Quality | Education | Recreation | Open Space | Land Reclamation/ Economic Dev't | | (Estimated Land Acquisition; Predevelopment and Planning; Design & Construction; TOTAL Costs) | (Amount Committed; Funding Gap; Potential Funding Gap Sources) |
| 12 | Foxgrove County Park<br>**Reach 4**<br>**River mile 26** | 64-acre site located on the Tuolumne River. It is the largest and most developed river access point with an existing boat ramp, parking areas, restrooms, and picnic facilities. Proposed improvements include upgrade of many of these facilities. | Stanislaus County Department of Parks & Recreation, David Piper | | ● | ○ | | | ○ | ● | ● | | § In Master Plan | **Land Acquisition**: $4.1 m<br>**Predevelopment & Planning**:<br>**Design & Construction**: $.750<br>**Total Cost**:$5.4 m These estimates are for all Stanislaus County New River Accesses @ Fox Grove, Riverdale, Basso Bridge, La Grange Shiloh Appling Way | **Committed**: **$ .282 Prop 40, RCD,**<br>**Funding Gap**: $4.9 million<br>**Potential Funding Gap Sources:** |
| 13 | Waterford Percolation Pond Restoration<br>**Reach 4**<br>**River mile 31.5** | Two-phase planting and maintenance along the lower and upper part of this parcel. | City of Waterford, Chuck Deschenes (209) 874-2331; Friends of the Tuolumne, Inc, Allison Boucher (209) 477-9033 | | ● | ● | | | ● | ● | ● | | § Looking for additional funding | **Land Acquisition:**<br>**Predevelopment & Planning:**<br>**Design & Construction:** $205,000 (planting & maintenance, first 2 years); $20,000 (This is designed to be a 5 to 10 year project.)<br>**Needed 04/05 Funding**: $35,000. Estimates may be revised in future years.<br>**Total Cost:**$225,000 | **Committed:** $8,000 (Friends of the Tuolumne, Inc)<br>**Funding Gap:** $8,000 (lower parcel)<br>**Potential Funding Gap Sources:** |
| 14 | Waterford Urban River Park Acquisitions<br>**Reach 4**<br>**River miles 31-32** | | City of Waterford, Chuck Deschenes (209) 874-2328; SFPUC | | ● | | | ◍ | | ● | ● | | | **Land Acquisition:**<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** $14.3 m for Acquisitions and Improvements for all Waterford Projects. Multi-year-per Waterford TRC Request Form (s) State and Fed Combined | **Committed**: State $.625 m, Local $.580 million (some from FERC Settlement) Total $1.2 m<br>**Funding Gap: $13.1 m**<br>**Potential Funding Gap Sources:** State $4.8 Fed: $4.7 |
| | Big Bear Park Parcel: Public access, open space, and passive use along the river near river mile 31.95. | | City of Waterford, Chuck Deschenes (209) 874-2329 | | ● | | | | ● | ● | ● | ● | § In negotiation | **Land Acquisition:**<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** $150,000 | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |
| | Caro Parcel: Boat ramp, restrooms, picnic tables as well as road access, trail improvements, and parking improvements near river mile 31.7. | | City of Waterford, Chuck Deschenes (209) 874-2330 | | ● | | | | ● | ● | ● | ● | § Parcel in escrow (hope to close at end of year) | **Land Acquisition:** $290,000<br>**Predevelopment & Planning:**<br>**Design & Construction:** $30,000 (plus additional funds)<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** Prop 40; FERC Settlement |
| | Lambert Parcel: Extensive restoration with improved trail, access, and parking near Riverdale 31.65. | | City of Waterford, Chuck Deschenes (209) 874-2331 | | ● | ● | | | ● | ● | ● | ● | § In negotiation | **Land Acquisition:** $550,000 -$600,000 (?)<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |
| | Lucinda Rae Parcel #1: 7 acres with Wastewater Treatment Plant facilities and open space. Upper area could include restoration and trail improvements. Near river mile 30.9. . | | City of Waterford, Chuck Deschenes (209) 874-2332 | | ● | ● | | | ● | ● | ● | ● | § In negotiation | **Land Acquisition:** $300,000<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |
| | Matroni Parcel: Open space and passive use parkland Possible restoration and trail improvements. Near river mile 30.75.. | | City of Waterford, Chuck Deschenes (209) 874-2333 | | ● | ● | | | ● | ● | ● | ● | § In negotiation | **Land Acquisition:** $100,000<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |
| | Lucinda Rae Parcel #2: Restoration and trail improvements near river mile 30.65. | | City of Waterford, Chuck Deschenes (209) 874-2334 | | ● | ● | | | ● | ● | ● | ● | § In negotiation | **Land Acquisition:** $200,000 (?)<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |
| | Appling Road ROW: Pedestrian, equestrian, and bicycle access along the old road near river mile 31.72.. | | City of Waterford, Chuck Deschenes (209) 874-2335 | | | | | | | ● | | ● | | **Land Acquisition:**<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |

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| | Project Name | Project Description | Primary Project Coordinator & Funding Partners | Flood Damage Reduction | Land Acquisition | Habitat | Water Supply | Water Quality | Education | Recreation | Open Space | Land Reclamation/ Economic Dev't | | (Estimated Land Acquisition; Predevelopment and Planning; Design & Construction; TOTAL Costs) | (Amount Committed; Funding Gap; Potential Funding Gap Sources) |
| | Balkey Property: Possible trail construction in conjunction with residential development. | | City of Waterford, Chuck Deschenes (209) 874-2336 | | ● | | | | ● | ● | ● | ● | § In negotiation | **Land Acquisition:** $50,000 (?)<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**:<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |
| **15a** | Gravel Mining Reach Phase 4: Reed<br>**Reach 5**<br>**River miles 34-35** | | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8318; SFPUC | ● | ● | ○ | | | | | | | § Concept Only | **Land Acquisition:**<br>**Predevelopment & Planning:**<br>**Design & Construction:**<br>**Total Cost:** | **Committed**: FERC Settlement<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** CALFED/AFRP; FERC Settlement; Drainage Assessment? |
| **15b** | Gravel Mining Reach Phase 3: Warner-Deardorff<br>**Reach 5**<br>**River miles 35-37** | 1.2 miles of salmonid habitat restoration the first segment of the Mining Reach of the river. Includes planting of over 73 acres of riparian forest and the construction of a 500 -foot wide riparian floodway. No public access. | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8316; CALFED, AFRP; SFPUC | ● | ● | ● | | | | | | | § In pre-design and permitting | **Land Acquisition:** $2,000,000<br>**Predevelopment & Planning:** $518,670 AFRP<br>**Design & Construction:** $8,800,000<br>**Total Cost:** $11,318,000 | **Committed**: Warner-Deardorff fully funded, but contract issued with only $518,670 (AFRP) for Phase I design, permits, appraisal, & monitoring; FERC Settlement<br>**Funding Gap**: None, pending approval as Directed Action<br>**Funding Sources:** CALFED/AFRP; FERC Settlement; One of 10 projects. |
| **15c** | Gravel Mining Reach Phase 2: MJ Ruddy<br>**Reach 5**<br>**River miles 37-38** | 1.3 miles of salmonid habitat restoration the first segment of the Mining Reach of the river. Includes planting of over 54 acres of riparian forest and the construction of a 500 -foot wide riparian floodway. No public access. | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8316; CALFED, AFRP; SFPUC | ● | ● | ● | | | | | | | § In Land Acquisition | **Land Acquisition:** $1,600,000<br>**Predevelopment & Planning:** $300,000<br>**Design & Construction:** $5,873,000<br>**Total Cost:** $7,737,000 | **Committed**: Fully funded (some from FERC Settlement), but construction not started<br>**Funding Gap**: none<br>**Potential Funding Gap Sources:** CALFED/AFRP; FERC Settlement |
| **15d** | Gravel Mining Reach Phase 1: 7/11 Project<br>**Reach 5**<br>**River miles 38-40** | 2.6 miles of salmonid habitat restoration the first segment of the Mining Reach of the river. Includes planting of over 30 acres of riparian forest and the construction of a 500 -foot wide riparian floodway. No public access. | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8316; CALFED, AFRP; SFPUC | ● | ● | ● | | | | | | | § Completed | **Land Acquisition:**<br>**Predevelopment & Planning:** **$300,000**<br>**Design & Construction:**<br>**Total Cost:** $7,264,000 | **Committed**: FERC settlement & CALFED funds<br>**Funding Gap**: None<br>**Funding Sources:** CALFED, USF&W-AFRP; FERC Settlement |
| **16** | Bobcat Flat<br>**Reach 6**<br>**River miles 43-44** | This project comprises 1.6 miles (approximately 300 acres) along the river of floodplain and channel restoration. The project includes native tree, shrub & vine replantings to repair dredging damage. It also includes instream steelhead habitat restoration along the spawning reach. The project complements the current TID/MID restoration project at River Mile 43. | Friends of the Tuolumne, Inc, Allison Boucher (209) 477-9033; CALFED; SFPUC; Local | ● | ● | ● | | ● | | | ● | ● | | **Land Acquisition**: $2.1M (purchase & Phase I of restoration)<br>**Predevelopment & Planning**:<br>**Design & Construction**:$300,000 (Phase II restoration)<br>**Total Cost**: $6.0M (Restoration=$3.6M) | **Committed**: CALFED<br>**Funding Gap**: $1,000,000 (for implementation)<br>**Potential Funding Gap Sources:** CALFED; USFWS AFRP: Local funds |
| **17** | Floodplain Acquisitions<br>**Reach 7**<br>**River mile 50** | Floodplain acquisition and restoration. A small parcel of floodplain is available at River Mile 50. Purchase of this property would cease cattle grazing in the riparian habitat. Minimal restoration will be required once the cattle are fenced out. | Friends of the Tuolumne, Inc, Allison Boucher (209) 477-9033 | ● | ● | ● | | ● | | | ● | ○ | | **Land Acquisition**: $50,000,000 (for acquisitions and restoration)<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>**Total Cost**: $50,000,000 | **Committed**:<br>**Funding Gap**: $50,000,000<br>**Potential Funding Gap Sources:** |
| **18** | Basso Bridge County Park<br>**Reach 7**<br>**River mile** 47.5 | Provides river facilities with opportunities for boating, places for passive recreation, picnic, informal play, and overnight camping. | Stanislaus County Department of Parks & Recreation, | | | | | | | ● | ● | | § In Master Plan | **Land Acquisition**:<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>**Total Cost**: See total Stanislaus Budget-Above | **Committed**: **$0**<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |

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| | Project Name | Project Description | Primary Project Coordinator & Funding Partners | Flood Damage Reduction | Land Acquisition | Habitat | Water Supply | Water Quality | Education | Recreation | Open Space | Land Reclamation/ Economic Dev't | | (Estimated Land Acquisition; Predevelopment and Planning; Design & Construction; TOTAL Costs) | (Amount Committed; Funding Gap; Potential Funding Gap Sources) |
| **19** | La Grange Spawning Gravel Infusion<br>**Reach 7**<br>**River miles 47-52** | Develop long-term supply of aggregates for infusion in the river a key locations to maintain fluvial processes and improve the quantity and quality of spawning riffles. | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8317; SFPUC | | | ● | | | | | | | § Major Amendment in scope | **Land Acquisition:**<br>**Predevelopment & Planning**: $300-500,000<br>**Design & Construction:** $3,900,000<br>**Total Cost:**$4,400,000 | **Committed**: Fully funded at $4.4 M (some from FERC Settlement)<br>**Funding Gap**:<br>**Potential Funding Gap Sources:**CALFED/AFRP; FERC Settlement |
| **20** | Gasburg Creek<br>**Reach 7**<br>**River mile 50.2** | Sediment reduction | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8317; SFPUC | | | ● | | ● | | | | | § Design Only | **Land Acquisition:**<br>**Predevelopment & Planning:** $235,000<br>**Design & Construction:** $995,000<br>**Total Cost:** $1,230,000 | **Committed**: AFRP & FERC Settlement<br>**Funding Gap**: none<br>**Potential Funding Gap Sources:**CALFED/AFRP; FERC Settlement |
| **21** | La Grange Regional Park<br>**Reach 7**<br>**River mile 50-51** | Floodplain and Riparian restoration on 200 acres of county-owned floodplain. Also will improve park facilities, including hiking trail, educational opportunities, picnic areas, etc. | Tuolumne River Trust, Patrick Koepele (209) 236-0330/Stanislaus County Department of | | ● | ● | | | ● | ● | | | § Looking for Funding (Planning, Design & Implementation) | **Land Acquisition** $0<br>**Predevelopment & Planning** $185,000<br>**Design & Construction:** $2,315,000<br>**Total Cost $4.7** $1.5M for projects in the floodplain; $3.2M for projects in the surrounding area | **Committed**: **$.70** (some from FERC Settlement)<br>**Funding Gap**: $1.5M for floodplain projects; $2.5M for other<br>**Potential Funding Gap Sources:** CALFED/AFRP; WCB; County Parks & Recreation |
| **22** | Sediment Management Plan | Sediment management planning document for the lower Tuolumne River | Turlock & Modesto Irrigation Districts, Wilton Fryer (209) 883-8318; AFRP, SFPUC | | | ● | | | ● | | | | § Complete | **Land Acquisition**:<br>**Predevelopment & Planning**:<br>**Design & Construction**:<br>**Total Cost**: | **Committed**: $202,300 AFRP **;** Other from FERC Settlement<br>**Funding Gap**:<br>**Potential Funding Gap Sources:** |

# Appendix I: Case Studies, Resources and Planning Tools

This section includes case studies, planning resources and tools to assist the Coalition in envisioning and implementing the strategies laid out in the Framework for the Future document. This section begins with six case studies that demonstrate a variety of means to achieving a balance of river restoration, recreation, public involvement, and other objectives. Following these case studies is a list of resources and references that may assist the Coalition in carrying out its primary strategies.

## Case Study 1:

### The Bresee-Bimini Slough Ecology Park, City of Los Angeles, California

***Project Background***

Bresee-Bimini Slough Ecology Park was financed by the Bresee Foundation along with a new community center in Koreatown to offer local youth a safe place for after-school activities.

The Bresee- Bimini Slough Ecology Park was designed by the non-profit North East Trees to provide space for play, reflection, and group gatherings while also cleansing stormwater runoff through a biofiltration swale running through the site. The project located adjacent to the community center also involves a street closure; a one-block stretch of 2nd Street is being closed to vehicular traffic for the creation of this park. The project is a unique example where a city-owned street right-of-way was deeded over to a private foundation on the condition that it be developed and maintained solely as a public park.

***Project Outcomes***

The park development has achieved multiple purposes: 1) public community open space in a park poor urban neighborhood, 2) demonstration of a water quality bio-swale as a focal park element and other sustainable concepts, 3) environmental education and 4) improved pedestrian circulation and traffic-calming.

Several sustainable elements have been incorporated into the park design including a state-of-the-art drip irrigation system, a native/low flow water usage plant palette, recycled broken concrete, permeable surfaces, a 180 foot bio-filtration vegetated swale, and a trash interceptor. The environmentally friendly irrigation and indigenous vegetation minimizes water usage. The bio-swale filters storm water runoff from a 5.85 acre local drainage area, which eliminates some of the gross pollutants and toxins from the water that flows out to the ocean, addressing the Total Maximum Daily Load (TMDL) for trash established for the Ballona Creek watershed, where the park is situated.

The structural design of the swale needed to ensure permeability and swale alignment eliminates the need for concrete retaining walls. The swale banks are retained by the placement of boulders.

***Sources:***

NorthEast Trees (http://northeastrees.org)
Park2parkLA (www.park2parkla.com)

# Case Study 2:

## Lititz Run Watershed Alliance – Lancaster County, Pennsylvania*

### *Project Background*

Lancaster County is changing from rural to rural/suburban and community members are concerned about the rate of change and the potential impacts on their natural resources. In particular, the community is concerned about active agricultural lands adjacent to residential properties that surround the historic town of Lititz and resulting non-point source pollution problems now prevalent in Lititz Run. In addition, the community has begun to recognize the degrading effects of converting open space to impervious surfaces associated with suburban sprawl development. In response, community members formed the Lititz Run Watershed Alliance (LRWA) to promote collaborations and participation among citizens, businesses, non-profit affiliations, farmers, and local, county, state and federal governments for the sake of the Lititz Run.

### *Project Outcomes*

In order to improve the water quality in Lititz Run, the community determined that a comprehensive long-term watershed management strategy combining techniques in natural resource management, land use planning, education and community involvement in addressing non-point source pollution was necessary. Today, the LWRA has over 16 projects in various stages of planning and implementation. The map above highlights several of those projects; others include developing agricultural management plans throughout the watershed, designing natural channel design using fluvial geomorphology, planning and constructing a regional water quality facility, creating a GIS database and mapping of mitigation banking sites and water quality monitoring data, stabilizing streambanks and establishing forested riparian buffers along the stream, and disseminating public educational material.

After two years, the group of 15 – 20 community residents continues to meet once a month. The success of the LWRA is largely evident through the receipt of over $400,000 in grants and donations for improving the watershed. Water quality has noticeably improved and has been supported through a monitoring program established by faculty and students from the local high school, sighting of a Black Crowned Night Heron at the created wetland of the regional water quality facility, improved wildlife habitat along a restored section of a stream, and the revegetated banks of Lititz Run. Other benefits associated with the group's efforts include the increase in community awareness regarding the aesthetic beauty of wetlands and natural resource issues.

### *Source:*

National Showcase Watersheds (US EPA)
http://www.epa.gov/owow/showcase/projects.html

* Recognized as a National Showcase Watershed by the Clean Water Action Plan program; the above information and/or pictures were obtained from the following website: http://www.cleanwater.gov/anniv2/showcase.html.

# Case Study 3:

# Bear Creek Watershed Project – Story and Hamilton Counties, Iowa*

### *Project Background*

The Bear Creek Watershed encompasses 30 square miles of land and water in the Western Corn Belt Plains Ecoregion of the Midwest. The Bear Creek Restoration Project has merged academic research and development with landowner cooperation in developing a stream restoration approach that has broad applicability to agricultural watersheds. Major components include a multi-species riparian buffer, soil bioengineering and grade control technologies for streambank stabilization, constructed wetlands to intercept and process nonpoint source pollutants in agricultural drainage tile water, and rotational grazing systems that limit livestock access to the stream channel.

### *Project Outcomes*

The challenge faced by the Agroecology Issue Team of the Leopold Center for Sustainable Agriculture and researchers at Iowa University was to develop and implement restoration based management that complement and build upon traditional soil and water conservation and pollution control efforts already in place. The Bear Creek Watershed Project was developed to contribute to a management approach for the environmental enhancement of intensively modified agricultural watersheds in the Midwest. Accordingly, a major goal was to develop a riparian management system that has broad scale applicability to watersheds in the Midwestern agroecosystem. This enables farmers, and other landowners or community members interested in restoring the watershed to select from a pool of restoration measures that are aligned with their objectives, whether they wish to intercept eroding soil and agricultural chemicals from adjacent crop fields, slow floodwaters, stabilize streambanks, improve wildlife habitat, or provide alternative, marketable products.

Restoration efforts in the Bear Creek watershed began in 1990 and focused on the upper half of the watershed. Initial efforts were focused on a 3/5-mile portion of privately owned land along Bear Creek with the implementation of a buffer system. Subsequently, the effort was expanded to 5 miles of Bear Creek across five privately owned farms. The success of this effort supports the need for a system consisting of a variety of components that can be selected for implementation based on the different ecological and agricultural needs within the watershed. Similarly, such a system including its various components can be modified according to different landscape conditions and landowner objectives for application elsewhere.

***Source:***

National Showcase Watersheds (US EPA)
http://www.epa.gov/owow/showcase/projects.html

* Recognized as a National Showcase Watershed by the Clean Water Action Plan program; the above information and/or pictures were obtained from the following website: http://www.cleanwater.gov/anniv2/showcase.html.

# Case Study 4:

# Mattole Restoration Council – Humboldt County, California

### *Project Background*

The Mattole Restoration Council (MRC) is among the oldest citizen-based watershed groups seeking to restore and protect the natural systems within the local watershed. Founded in 1983 to provide community support for restoration projects in the watershed, the not-for-profit organization remains at the forefront of community based watershed restoration. The MRC has shared its successes and failures with other watershed communities and the general public through its website, newsletters, publications and books including *Totem Salmon: Life Lessons From Another Species* by Freeman House, the former MRC Executive Director. In addition, the MRC has filmed a video titled, *Thinking Like a Watershed*, which documents the watershed and salmon restoration efforts that have taken place in the Mattole watershed since the late 1970s.

### *Project Outcomes*

The Mattole River in Humboldt County, California runs parallel to the Eel River and empties into the Pacific Ocean, just above California's Lost Coast. The remote location combined with the geological composition of the area, has resulted in minimal population growth and minor development. However, intensive logging beginning in the 1940's combined with other land use changes created hundreds of miles of poorly built-and later abandoned-roads, and hillsides denuded of the vegetation that holds soil in place. This land use change, compounded by floods in the 1950s and 1960s, increased sedimentation in the watershed beyond the river's carrying capacity. The result has been the filling of many of the deep pools that used to exist in the river, and a flattening and widening of the river channel. These changes in the river's geomorphology have resulted in adverse impacts on the habitats of the Chinook salmon, coho salmon and steelhead trout. The MRC seeks to restore and protect the river by developing watershed-based strategies and assisting landowners to use sustainable management practices on their properties. Currently, the MRC offers free programs and services such as GIS mapping, reforestation and tree planting, resource centers, and forest practice reviews to landowners and residents that promote ecological and economic health in the watershed.

The MRC has recently been recognized in studies of watershed councils for several reasons. The MRC is one of the oldest, continuous watershed groups in California. Unlike other groups, the MRC has implemented actions to treat problems at the watershed level as opposed to more narrowly focused riparian restoration projects. Finally, the MRC is considered unique due to the group's emphasis on data collection regarding aquatic conditions and salmonid populations. The majority of the information about the watershed is available because of the MRC's data collection efforts.

### *Source:*

Mattole Restoration Council
http://www.mattole.org/

# Case Study 5:

# The Blackfoot Challenge — Missoula, Montana*

### *Project Background*

The Blackfoot Challenge was formerly chartered in 1993 to coordinate the management of the Blackfoot River watershed. However, the concern among the private landowners participating in the grassroots group can be traced back to the 1970's when residents and ranchers in the Blackfoot Valley demanded conservation easement legislation, walk-in hunting areas and recreation corridor management. The group does not have formal membership but operates through committees aligned with the Challenge's mission to enhance, conserve and protect the natural resources and rural lifestyle of the Blackfoot River Valley for present and future generations.

### *Project Outcomes*

The Blackfoot River runs 132 miles in length through some of the most productive fish and wildlife habitat in the Northern Rocky Mountains. The valley floor contains glaciated wetland complexes, native scrub/shrub riparian areas and blue ribbon trout streams. The valley, though sparsely populated by humans, is characterized by the rich diversity of its native species. In particular, the tributary streams emptying into the Blackfoot River provide crucial spawning and rearing habitat for bull trout and the westslope cutthroat trout, both listed under the Federal Endangered Species Act. The valley is at the southern edge of the Northern Continental Divide Ecosystem, which supports the largest population of grizzly bears in the lower 48 states. The biological diversity that remains in the Blackfoot Valley can largely be attributed to the individual management activities of the local ranchers.

The Blackfoot Challenge focuses its restoration efforts in three areas: education, weed management and habitat restoration and protection. The group sponsors annual workshops and maintains a weed calendar contest for youth in schools as one program to involve the community. The Challenge participated in the process of dividing the 350,000 acres comprising the Blackfoot Valley into seven different Weed Management Areas (WMA) and assists the Weed Management Coordinator within each WMA hired to work with the individual landowners on mapping noxious weeds, providing information on the different weeds, coordinating control measures and grant writing. Habitat restoration and protection programs began with comprehensive studies of the watershed and developed into activities targeted toward the restoration of fisheries and the preservation of the landscape surrounding critical wildlife areas.

### *Source:*

National Showcase Watersheds (US EPA)
http://www.epa.gov/owow/showcase/projects.html

* Recognized as a National Showcase Watershed by the Clean Water Action Plan program; the above information and/or pictures were obtained from the following website: http://www.cleanwater.gov/anniv2/showcase.html.

# Case Study 6:

## The Napa River Flood Management Plan; Napa County, California

### *Project Background*

The Napa River Flood Management Plan, designed by a unique Community Coalition, is a creative solution, to an age-old problem: How to provide flood protection and watershed management to the Napa River Valley while meeting environmental restoration and economic revitalization goals? The Community Coalition's plan was built on a set of "living river" principles, developed and refined by an unprecedented coalition of political and community leaders, private industry, natural resource agencies, non-profit groups, local governments and private citizens.

The Napa River Watershed historically supported a dense riparian forest, significant wetland habitat and spawning areas for fish such as salmon and steelhead. The pressures of urbanization, agriculture, and grazing have degraded the watershed's habitats and drastically increased the rates of erosion and sedimentation. Since 1800, an estimated 6,500 acres of historical valley floor wetlands have been drained or filled, 19,700 acres of the watershed are now under hardened pavement or rooftops and another 26,000 acres have been developed to intensive cultivated agriculture. At the same time, much of the river system has been altered by straightening channels, hardening banks, changing the flow, and constructing levees. These alterations made the natural drainage system insufficient to prevent extensive flooding in the area. Since 1862, more than 27 major floods have plagued Napa Valley, resulting in significant loss of life and property. The 1995 flood damaged 277 businesses and residences at a cost of over $100 million.

In response the U.S. Army Corp of Engineers offered a new plan in 1995 to address the flood control problem. The plan's traditional approach –enlarging the channel and constraining the river within the channel – was met with an underwhelming response in Napa. The Community Coalition came together in 1996, and using the Army Corp as a resource, began the extensive process of formulating an alternative flood control approach. Thousands of hours of meetings later, a "living river" design achieved consensus. Less than one year later, in March 1998, a proposal to add a half-cent to the Napa County sales tax to fund the local share of this Flood Project was put before the voters. A two-thirds majority was required to approve the tax increase. More than 27,000 voters cast a ballot on that election day, and Measure A passed with just 308 votes to spare.

### *Project Outcomes*

Major objectives of the "Living River" design include reconnecting the River to its historic flood plain; maintaining the natural slope and width of the River; allowing the River to meander as much as possible; retaining natural channel features like mud flats, shallows and sandbars; and supporting a continuous fish and riparian corridor along the River.

The measures designed to provide 100-year flood protection include some traditional approaches and many innovative concepts. Old dikes have been breached to restore tidal marshlands; bridges are being replaced to remove obstacles to water flow; riverbank terracing is creating more room for large volumes of water; a new dry bypass channel will provide a shortcut for the River through the slow moving Oxbox; new dikes, levees and floodwalls will be built; bank stabilization will be used in specific areas; and detention basins and pump stations will accommodate runoff behind the floodwalls.

The project is viewed as having three inter-locking elements:

- Increased public safety through flood protection
- Watershed stewardship through environmental remediation and restoration
- Enhanced prosperity through the reduction of insurances costs and flood risk, and stimulation of economic development

The end result is a Living River that can sustain migrating fish and wildlife and a system that will help protect all County residents from damages caused by regular flooding.

***Sources:***

Clean Water Action Plan (www.cleanwater.gov), Watershed Success Stories: Applying the Principles and Spirit of the Clean Water Action Plan.

Napa County Flood Control and Water Conservation District, The Napa River Flood Protection Project – Progress and Plan Summary 2004

U.S Army Corp of Engineers and Napa County Flood Control and Water Conservation District, A Citizen's Guide to the City of Napa, Napa River, and Napa Creek Flood Protection Project.

# Resources and Planning Tools

## Project Tools and Resources:

**1) California Buffer Initiative**
http://www.ca.nrcs.usda.gov/programs/buffer.html
This information and links provide NRCS staff and partners with support to implement the California Buffer Initiative. Conservation buffers and filter strips are small areas or strips of land in permanent vegetation, designed to intercept pollutants and manage other environmental concerns. Strategically placed buffer strips in the agricultural landscape can effectively mitigate the movement of sediment, nutrients, and pesticides within farm fields and from farm fields.

**2) Natural Resource Conservation Service-Farm Bill Programs**
http://www.nrcs.usda.gov/programs/farmbill/2002/products.html

## Inventories:

The inventories listed below provide information on current rivers and watersheds projects. They could provide references and case studies for Lower Tuolumne River Parkway projects and Parkway projects could be included in such inventories.

**1) The Natural Resource Projects Inventory**
www.ice.ucdavis.edu/nrpi

**2) EPA Watersheds: Adopt Your Watershed**
http://www.epa.gov/adopt/

**3) California State Parks Central Valley Strategy**
http://www.parks.ca.gov/default.asp?page_id=23483

## Resources for Community Engagement:

**1) San Francisco Bay Keeper-DeltaKeeper Chapter**
DeltaKeeper offers a model for engaging volunteers in water quality monitoring and could act as a partner organization to assist in mobilizing efforts on the Tuolumne.
http://www.baykeeper.org/html/pages_link_to_index/deltalinks.htm

**2) EPA's Kids' Page**
EPA's Kids's Page provides tools for involving children and youth in water-related activities and provides a link to their Water Drop Patch Program, as a model and resource for encouraging youth to become watershed stewards.
http://www.epa.gov/owow/kids.html

**3) American Rivers' Citizens' Agenda for Rivers**
This website provides a "toolkit" for river stewardship and community involvement.
http://www.healthyrivers.org/toolkit.html

**4) CREEC Network (California Regional Environmental Education Community)**
CREEC is a communication network which provides educators with access to environmental education resources to enhance the environmental literacy of California Students.
http://www.creec.org

**5) Getting in Step: Engaging and Involving Stakeholders in Your Watershed (US EPA)**
This stakeholder guide provides the tools needed to identify, engage, and involve stakeholders throughout a watershed to restore and maintain healthy environmental conditions.
http://www.epa.gov/owow/watershed/outreach/documents/stakeholderguide.pdf

**6) Volunteer Monitoring Tools and Resources (US EPA)**
http://www.epa.gov/owow/monitoring/volunteer/

## Sources for Promising and Best Management Practices:

**1) The California Stormwater Quality Association**

www.cabmphandbooks.com

The CSQA has produced a series of four BMP Handbooks for various applications. These handbooks are available for free downloading at www.cabmphandbooks.com.

The four handbooks include information and Best Management Practices for:

- New Development and Redevelopment
- Construction
- Industrial and Commercial
- Municipal Activities

**2) The California Rivers Assessment (CARA)**
http://endeavor.des.ucdavis.edu/newcara/
CARA is a computer-based data management system designed to give resource managers, policy-makers, landowners, scientists and interested citizens rapid access to essential information and tools with which to make sound decisions about the conservation and use of California's rivers.

**3) Protecting and Restoring America's Watersheds: Status, Trends, and Initiatives in Watershed Management (US EPA)**
http://www.epa.gov/owow/protecting/restore725.pdf
See unique case studies highlighted throughout the document. Tools and recommendations are included in the section entitled, "What Can Be Done to Improve Progress?" starting on Page 38.

**4) Stream Corridor Restoration: Principles, Processes and Practices (Federal Interagency Stream Restoration Working Group)**

http://www.nrcs.usda.gov/technical/stream_restoration/newgra.html
This document provides numerous case studies (accessible from the website) and best practices relevant to the strategies adopted by the Coalition in the Framework for the Future. Such practices include "Developing a Monitoring Plan" (page 6-25) and "Designing Urban Stream Buffers" (page 8-12).

**5) National Resources Defense Council: Stormwater Strategies**
This site provides links to case studies and practices regarding Stormwater run-off management.
http://www.nrdc.org/water/pollution/storm/stoinx.asp

**6) Center for Watershed Protection: Urban Subwatershed Restoration Manual Series**
This series organizes information needed to restore small urban watersheds into a format that can easily be accessed by watershed groups, municipal staff, environmental consultants and other users.
http://www.cwp.org/USRM_verify.htm

**7) California Department of Parks and Recreation Planning Division: Parks and Recreation Technical Services**

- Innovative Practices: Case Studies Volume I; Suggested by California Park and Recreation Providers October 2004
- Directory of Grant Funding Sources for California Parks and Recreation Providers June 2004
- Getting a Grip on Grants: A How-to Guide for Park and Recreation Providers 2004

http://www.parks.ca.gov/?page_id=22226

# Appendix J: Organizational Development Options Analysis

***Introduction and Overview***

To date, the Coalition received information about several of the organizational options currently being considered by the group. These options as well as the current structure of the Coalition are noted below in bolded text (summarized information for each is available as an appendix to this document, upon request). The second section of this document contains a preliminary analysis of these organizational options including possible structural models and pros and cons.

The purpose of this handout is to assist the Coalition in thinking about the advantages and strengths as well as the drawback and limitations of each organizational option. The Coalition may decide that more information is needed for the options or other alternatives that need to be tested with the evaluation criteria previously identified by the Coalition Steering Committee.

The organizational options listed below in bold (and examples for each in italics) are analyzed on the following pages of this document:

1. **Informal Alliance — *Tuolumne River Coalition***
2. **Coordinated Resource Management and Planning (CRMP) Group — *San Francisquito Watershed Council***
3. **Memorandum of Understanding (MOU) Collaborative**
4. **Nonprofit Organization / 501(c)(3) — *San Joaquin River Parkway and Conservation Trust***
    - Legal Limitations
    - Reasons to Incorporate a Nonprofit Association
    - 501(c)(3) Organization Classifications
        A. Public Charity
            i. Watershed Conservancy
            ii. Trust
            iii. Regional Watershed Council
        B. Foundation

## Preliminary Analysis of Organizational Options

***The Role of the Coalition***

The Coalition has been formed to fulfill the following roles:

- Educate and inform the State and Federal Governments for political and funding support to implement projects in support of the Vision statement (e.g. restoration, recreation, flood management, buffering productive agriculture, etc.);
- Conduct fundraising activities, as necessary, for project implementation;
- Help implement projects through strong coordination with agencies and other partners;
- Serve as a project, information "clearinghouse" to ensure coordination among agencies and other partners; and
- Develop educational tools and materials to increase public knowledge and community awareness of the Tuolumne River and its multiple values.

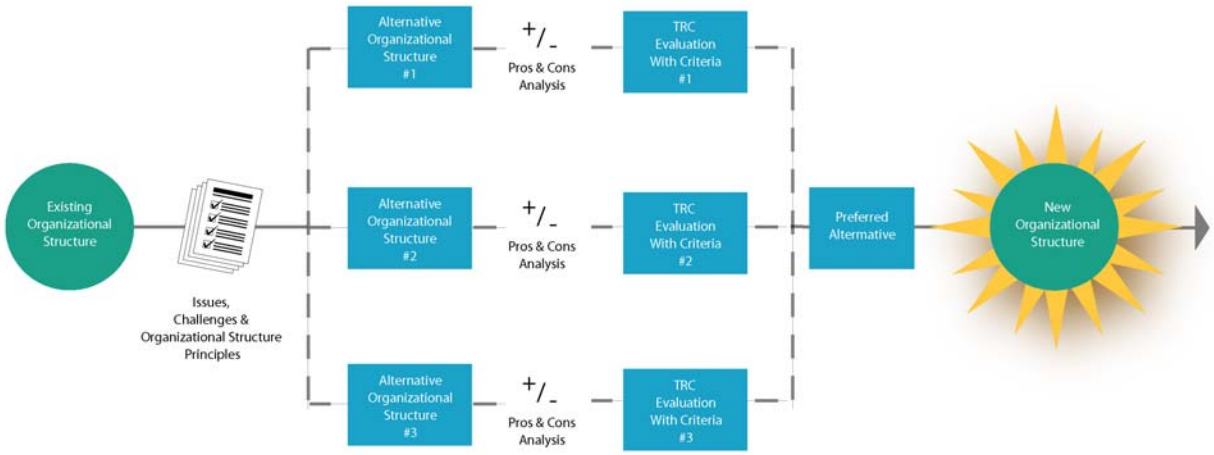
***Issues and Challenges***

Steering Committee members suggested the following issues and challenges for consideration during the Coalition organizational development process and identification of an alternative organizational structure:

- Establish an organizational structure with legal status to help obtain additional funding and create outreach materials that describe the Coalition as one entity.
- Enhance the Coalition's credibility by supporting restoration of habitat and flood capacity, while supporting sound planning and implementation principles of public use areas.
- Include clear and concise operating procedures outlining new membership guidelines and decision-making processes.

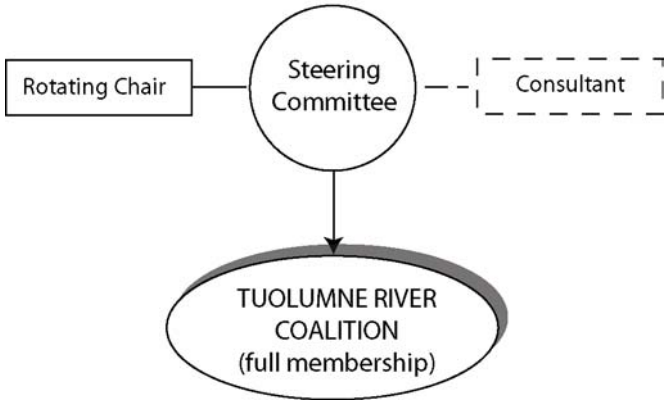
***The Process***

The diagram below illustrates a process for conducting a preliminary analysis of potential organizational options:



## 1. *Informal Alliance* — Tuolumne River Coalition

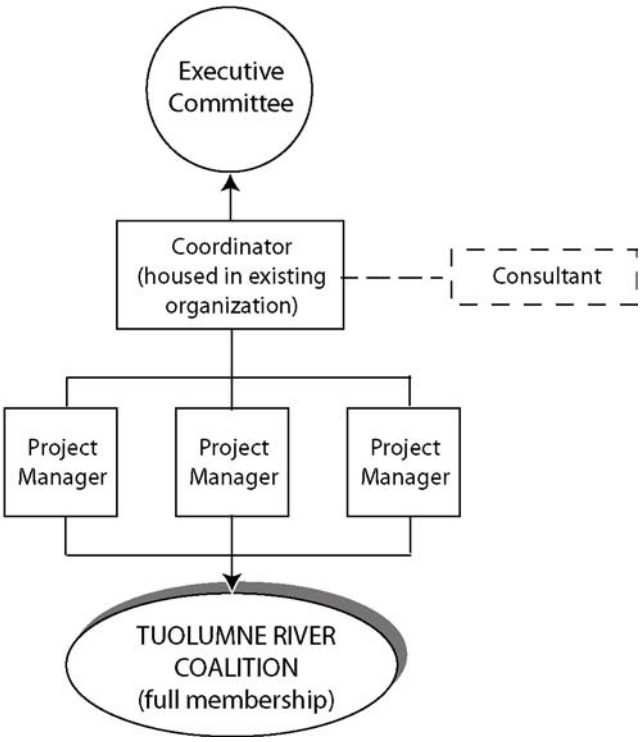
**Potential Organizational Structure**




| Potential Pros | Potential Cons |
|---|---|
| 1. Familiar in that it requires no change | 1. Coordination, obtaining information and decision-making is difficult |
| 2. Flexible due to limited bureaucratic processes and procedures | 2. Participation/meeting attendance could be less consistent |
| 3. | 3. Limited volunteer time is stretched too thin |
| 4. | 4. Limited authority to influence policy; Potentially less authority to obtain funding |
| 5. | 5. Effectiveness is dependent on a high degree of participant and community commitment, support and good faith or overall trust |
| 6. | 6. May requires use of a separate fiscal agent |

## 2. *Coordinated Resource Management and Planning (CRMP) Group* — San Francisquito Watershed Council

**Potential Organizational Structure**




| Potential Pros | Potential Cons |
|---|---|
| 1. Minimal change to current structure | 1. No legal authority to influence policy or obtain funding |
| 2. Implementation of model policies and procedures | 2. Participation/meeting attendance is inconsistent |
| 3. Existing network of other CRMP's | 3. Limited volunteer time is stretched too thin |
| 4. Increased access to federal programs and grants | 4. Funding opportunities dependent on socioeconomic status of the community (i.e., tax base) |
| 5. Emphasis on reducing tensions and increasing cooperation between landowners and public agencies | 5. Dependent on the commitment, continuous and regular participation, good faith and overall trust of all participants, community support and good information |
| 6. Often housed within an established organization (with designated staff, grant-writing capacity and other existing resources) | 6. |

***3. Writing Memorandums of Understanding***

Memorandums of Understanding (MOUs) are typically written as work plans that outline parties' work roles and financial responsibilities. They must be signed and dated by all parties involved.
MOUs will typically include the following:

I. Statement of Work

II. Period of Performance

III. Clarification of Agency Roles & Expectations

IV. Key Deadlines or Dates

V. Confidentiality Agreement

VI. Financial Agreements

VII. Identification of Liaisons or Interagency Coordination

MOUs may also include:

I. Training

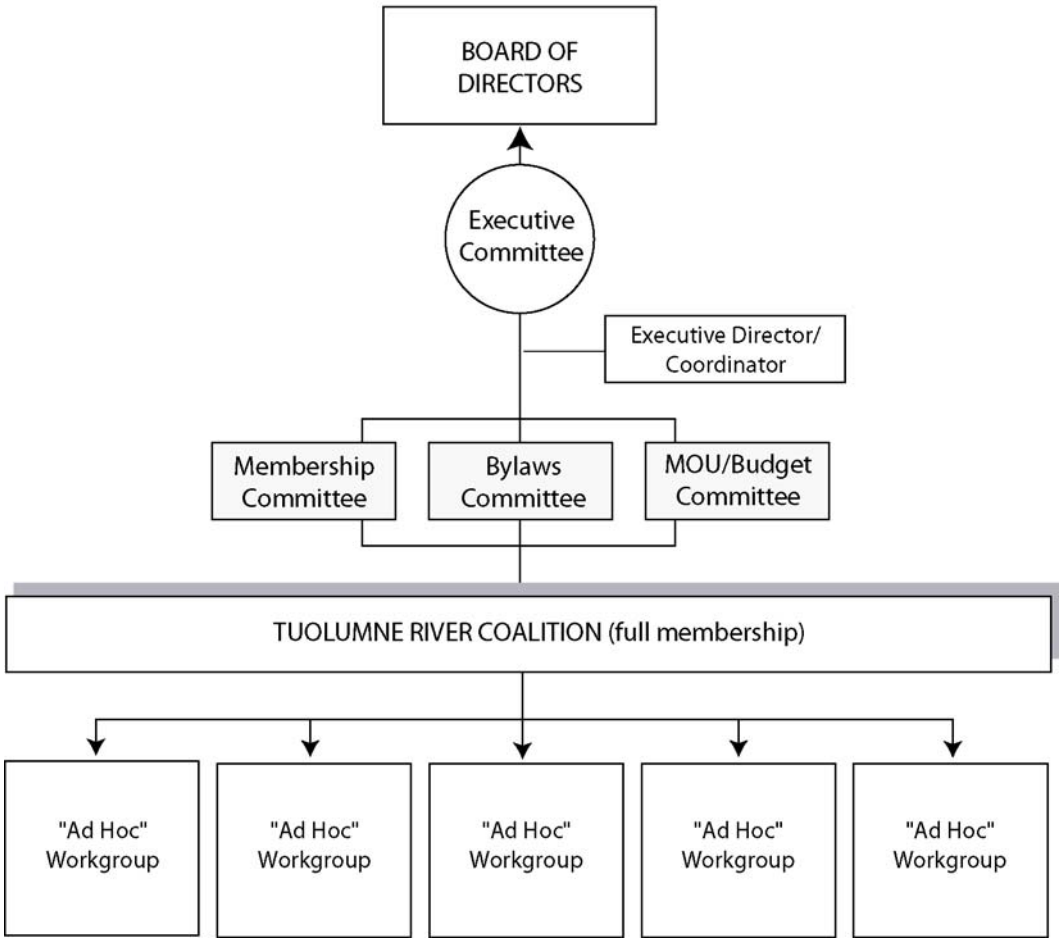
II. Assessment Protocol

III. Process for Resolving Conflict

IV. Periodic Review

### *4. Nonprofit Organization / 501(c)(3) — San Joaquin River Parkway and Conservation Trust*

**Potential Organizational Structure**




| Potential Pros | Potential Cons |
|---|---|
| 2. Easier to obtain private and public grants | 1. May be difficult to achieve balanced Board representation |
| 3. Group can fund activities/projects through surpluses | 2. Director/Officer liability issues could potentially make it too costly or difficult to form a Board |
| 4. Donations received are tax-deductible | 3. Can engage in only limited lobbying activities |
| 5. Protection from personal liability for members' activities and advocacy efforts | 4. Cannot contribute money to political campaigns |
| 6. | 5. Cannot make substantial profits from unrelated activities |
| 7. | 6. Assets must be distributed to another tax-exempt group if group dissolves |

### *Non-Profit Resources*

"Get Ready Get Set" is a California-specific book on starting a Non-Profit, from the Center for Non-Profit Management in Southern California:
http://www.cnmsocal.org/Services/GetReadyGetSet.pdf

Nonprofit Start-up Checklist (not California-specific):

The Center for Non-Profit Management (http://www.cnm.org/) provides the following as a way for you to track your progress through the start-up process:

- Has a unique name been selected?
- Have state articles of incorporation been filed? Forms are available from the Secretary of State.
- Have Publication 557 (Tax Exempt Status for Your Organization), Form 1023 and instructions, Form 872-C, and Form 8718 been obtained from the IRS?
- Has a federal employer identification number (EIN) been obtained from the IRS (Use Form SS-4)?
- Has a mission statement been developed which clearly defines the purpose of your organization in terms of why you exist and who you serve?
- Has a narrative of your services been developed that describes what services you provide, how they are delivered, to whom, by whom, and where?
- Have by-laws been developed?
- Do you intend to engage in political activities or lobbying as part of your services?
- Has a board of directors been established?
- Have the sources of funds and volunteers been identified? Will you engage in unrelated activities which will generate revenue?
- Has a plan for fundraising been developed?
- Has paid staff, if any, been hired?
- Have all those with special interests and relationships been identified?
- Has a financial history (3 years) and projection been developed, and has a balance sheet been prepared?
- Has an application been made to the Department of Revenue for a tax exempt certificate? (A copy of the IRS letter of determination is required.)

# Appendix K: Glossary of River and Watershed Planning Terms

## Adaptive Management:

The process of refining or redefining management actions as a process unfolds and results are obtained. Adaptive management is an interactive and iterative approach to decision making that incorporates feedback loops for evaluating actions and injecting new information as it becomes available.

## Anadromous:

Fish that spawn in freshwater streams or rivers and migrate early in their life cycle to the ocean where the mature. They return as mature adults to spawn in the fresh water of their origin.

## Anadromous Fish Restoration Program:

Efforts by State and Federal agencies and local irrigation districts to restore anadromous fish populations to recent historical levels.

## Baseline Assessment:

An assessment intended to help characterize existing watershed conditions and/or to establish a background for planning or future comparisons.

## Beneficial Use:

Actual or reasonable potential use that may be made of waters of the state, including but not limited to domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and propagation and enhancement of fish, wildlife, and other aquatic resources.

## Best Management Practices (BMP):

An urban water conservation measure that the California Urban Water Conservation Council agrees to implement among member agencies.

## Buffer zones:

Areas where management activities are restricted or prohibited to reduce magnitude of impacts to fish and wildlife habitat, recreational areas, agriculture, or other land uses.

## Candidate species:

Any species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that is being considered for listing as endangered or threatened but is not yet the subject of a proposed rule.

## Capital cost:

A lump-sum cost that includes those costs associated with the start-up of a project or program. For example: planning, design, construction, power costs for initial filling of reservoirs, activation costs, operation and maintenance costs prior to initial operation.

## Conceptual Model:

An explicit description of the critical cause-and-effect pathways in ecosystem function. A conceptual model includes a summary of current knowledge and hypotheses about ecosystem structure and function, and highlights key uncertainties where research might be necessary. Alternative or competing conceptual models illustrate areas of uncertainty, paving the way for suitably-scaled experimental manipulations designed both to restore and explore the ecosystem. Conceptual models also help to define monitoring needs, and bases for quantitative modeling.

## Conservation:

Careful preservation and protection of resources, usually referring to land and related natural resources, includes planned management of resources to protect their future integrity and value.

## Conveyance:

A pipeline, canal, natural channel or other similar facility that transports water from one location to another.

## Critical habitat:

(1) Specific areas within the geographical area occupied by a species at the time it is listed in accordance with the Endangered Species Act; (2) Specific areas outside the geographical area occupied by a species at the time it is listed if there is a determination that such areas are essential for conservation of the species.

## Designated floodway:

The channel of the stream and that portion of the adjoining floodplain required to reasonably provide for passage of a design flood.

## Diversions:

The action of taking water out of a river system or changing the flow of water in a system for use in another location.

## Ecosystem (1):

A recognizable, relatively homogeneous unit that includes organisms, their environment, and all the interactions among them.

## Ecosystem (2):

An interactive system that includes the organisms of a natural community in association together with their abiotic physical, chemical, and geochemical environment.

## Ecosystem-based Management:

Ecosystem-based management is a resource management concept of achieving species management objectives by sustaining and enhancing the fundamental ecological structures and processes that contribute to the well being of the species.

## Ecosystem Management:

Management of land and aquatic resources based on perspective of ecosystem structure, function, and dynamics aimed at long-term sustainability of watershed productivity. Ecosystem management integrates scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting ecosystem integrity over the long term.

## Ecosystem Element:

An ecosystem element is a basic component or function which, when combined with other ecosystem elements, makeup an ecosystem. An ecosystem element can be categorized as a process, habitat, species, species community, or stressor.

## Ecosystem Restoration:

Ecosystem restoration is a term sometimes used to imply the process of recreating the structural and functional configurations of an ecosystem to that present at some agreed to time in the past. Ecosystem restoration is more realistically defined as the process by which resource managers ensure that the capacity of the ecosystem to provide ecological outcomes valued by society is maintained, enhanced, or restored.

## Ecological Process:

Ecological processes act directly, indirectly, or in combination, to shape and form the ecosystem. These include streamflow, stream channel, and floodplain processes. Stream channel processes include stream meander, gravel recruitment and transport, water temperature, and hydraulic conditions. Floodplain processes include overbank flooding and sediment retention and deposition.

## Endangered species:

Any species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that is in serious danger of becoming extinct throughout all or a significant portion of its range.

## Endangered Species Act (ESA):

Federal legislation that provides protection for species that are in danger of extinction.

## Exotic Species:

Also called introduced species; refers to plants and animals that originate elsewhere and migrate or are brought into a new area, where they may dominate the local species or in some way negatively impact the environment for native species.

## Feasibility study:

The detailed investigation of project alternatives that were not eliminated during reconnaissance investigations.

## Floodplain:

Part of a river valley made of unconsolidated, river-borne sediment that is periodically flooded.

## Floodway:

The channel of a river or other watercourse and adjacent land areas that convey flood waters.

## Fragmentation of habitat:

Division of a large piece of habitat into a number of smaller, isolated patches.

## GIS:

Geographical Information System. A specialized form of computerized, geographically referenced data bases that provide for manipulation and summation. A GIS may also be defined as a system of hardware, software, data, and personnel for collecting, storing, analyzing, and disseminating information about geographical areas.

## Government Agencies:

Federal, state, county, city and town governments; Native American governments; and special districts.

## Habitats:

Habitats are areas that provide specific conditions necessary to support plant, fish, and wildlife communities. Some important habitats include gravel bars and riffles for salmon spawning, winter seasonal floodplains that support juvenile fish and water birds, and shallow near-shore aquatic habitat shaded by overhanging tule marsh and riparian forest.

## Heavy metals:

A metal of atomic weight greater than 23 that forms soaps on reaction with fatty acids. Examples are aluminum, lead, cobalt.

## Hydrologic Area:

A geographical area representing part or all of a surface drainage basin or distinct hydrologic feature such as a reservoir, lake, etc.

## Land retirement:

The process of taking agricultural lands out of production.

## Meander Belt:

Protecting and preserving land in the vicinity of a river channel in order to allow the river to meander. Meander belts are a way to allow the development of natural habitat around a river.

## Mitigation:

Measures to avoid, minimize, rectify, reduce, or compensate for project impacts.

## Monitoring:

The organized collection of information over time to aid the understanding process of a watershed system. The information may be used in watershed assessment, watershed planning, and in overall watershed management decision making. Monitoring is also used to track the implementation accuracy and effectiveness of specific policies and projects.

## Restoration:

The reestablishment of processes, functions, and related biological, chemical, and physical linkages between the aquatic and associated riparian ecosystems; it is the repairing of damage caused by human activities.

## Riparian:

Pertaining to the banks and other terrestrial environs adjacent to water bodies, watercourses, and surface-emergent aquifers (springs, seeps, and oases) whose water provides soil moisture significantly in excess of that otherwise available through local precipitation. Vegetation typical of this environment depends on availability of excess water.

## Riparian Habitat:

The strip of land adjacent to a natural water course such as a river or stream. Often supports vegetation that provides the best fish habitat values when growing large enough to overhang the bank.

## Riparian Corridor:

Land adjacent to creeks, rivers, and streams where vegetation is strongly influenced by the presence of water.

## River Basin:

A part of the earth's surface which is occupied by a drainage system which consists of a surface stream with all its tributaries and impounded bodies of water. Also known as watershed, catchment area, and drainage area.

## Riverine:

Habitat within or alongside a river or channel.

## Set-aside lands:

Agricultural lands temporarily not farmed.

## Setback Levee:

A constructed embankment to prevent flooding that is positioned some distance from the edge of the river or channel. Setback levees allow wildlife habitat to develop between the levee and the river or stream.

## Stakeholder:

Anyone who lives in a watershed or has land management, administrative, or other responsibilities or interests in it. Stakeholders include private individuals, businesses, government agencies, and special interest groups, wildlife and fisheries, among others.

## Stressors:

Stressors are natural and unnatural events or activities that adversely affect ecosystem processes, habitats, and species. Environmental stressors include water diversions, water contaminants, levee confinement, stream channelization and bank armoring, mining and dredging in streams and estuaries, excessive harvest of fish and wildlife, introduced predator and competitor species, and invasive plants in aquatic and riparian zones. Some major stressors affecting the ecosystem are permanent features on the landscape, such as large dams and reservoirs that block transport of the natural supply of woody debris and sediment in rivers or alter unimpaired flows.

## Total Maximum Daily Loads (TMDL):

A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards identify the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. A TMDL is the sum of the

allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality.

## Terrestrial:

Types of species of animal and plant wildlife that live on or grow from the land.

## Threatened Species:

Any species or subspecies of bird, mammal, fish, amphibian, reptile, or plant likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

## Tributary:

Stream flowing into a lake or larger stream.

## Toxins:

Substances that cause damage to a living tissue, impairment of the central nervous system, severe illness, or death when ingested, inhaled, or absorbed by the skin.

## Trace Elements:

A chemical element used by organisms in minute quantities and essential to their physiology.

## Upland:

Generally a land zone sufficiently above or away from freshwater bodies, watercourses, and surface-emergent aquifers to be largely dependent on precipitation for its water supplies. Also refers to lands other than those that are seasonally or permanently wet.

## Water Conservation:

Practices that encourage consumers to reduce the use of water. The extent to which these practices actually create a savings in water depends on the total or basin-wide use of water.

## Watershed:

An area that drains ultimately to a particular channel or river, usually bounded peripherally by a natural divide of some kind such as a hill, ridge, or mountain.

### Wetlands:

Zone periodically or continuously submerged or having high soil moisture that has aquatic and/or riparian vegetation components and is maintained by water supplies significantly in excess of those otherwise available through local precipitation.

### Wildlife Habitat:

Area that provides a water supply and vegetative habitat for wildlife.

## Sources of Definitions for Terms in The Glossary

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CALFED Bay-Delta Program. *Ecosystem Restoration Program Plan, Vol. I*. July 2000.
CALFED Bay-Delta Program. *Watershed Program Plan*. July 2000.

# Appendix L: List of Acronyms

| | |
|---|---|
| AFRP | Anadromous Fish Restoration Program |
| CALFED | California Bay-Delta Authority |
| DFG | California Department of Fish and Game |
| ESRCD | East Stanislaus Resource Conservation District |
| FERC | Federal Energy Regulation Commission |
| FSA | FERC Settlement Agreement |
| MID | Modesto Irrigation District |
| NOAA | National Oceanic and Atmospheric Administration |
| NRCS | Natural Resources Conservation Service |
| RWQCB | Regional Water Quality Control Board |
| TID | Turlock Irrigation District |
| TRRP | Tuolumne River Regional Park |
| TRTAC | Tuolumne River Technical Advisory Committee |
| SFPUC | San Francisco Public Utilities Commission |
| SJRNWR | San Joaquin River National Wildlife Refuge |
| USFWS | United States Fish and Wildlife Service |

# Appendix M: Footnote Bibliography

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## Staples, Rose

**From:** Stephen_Bowes@nps.gov
**Sent:** Thursday, September 08, 2011 7:04 PM
**To:** Annie Manji; hbwillia44[redacted] James.Hastreiter@ferc.gov; jhorn@ca.blm.gov; Devine, John; Craig, Nancy; Staples, Rose; jessie@tuolumne.org; peter@tuolumne.org; BHackamack[redacted]; patrick@tuolumne.org; Barbara Rice@nps.gov
**Subject:** NPS comments on Studies RR-1, RR-2, and RR-3
**Attachments:** Study RR-01 Recreation Facility Condition, NPS 08-29-11.doc; Study RR-02 White Water Boating, NPS 9-1-11.doc; Study RR-03 Boatable Flow.doc; Study RR-01, ATT B, NPS & DFG, 9-7-11.doc

Nancy,

Here are the comments we have on the three recreation study plans.

Stephen M. Bowes
Hydropower Assistance Program
National Park Service
333 Bush Street, Suite 500
San Francisco, CA 94104
Phone: 415-623-2321
Fax: 415-623-2387

(See attached file: Study RR-01 Recreation Facility Condition, NPS 08-29-11.doc)(See attached file: Study RR-02 White Water Boating, NPS 9-1-11.doc)(See attached file: Study RR-03 Boatable Flow.doc)(See attached file: Study RR-01, ATT B, NPS & DFG, 9-7-11.doc)

From: Annie Manji <amanji@dfg.ca.gov>
Sent: Thursday, September 08, 2011 6:04 PM
To: Craig, Nancy
Cc: Jeff Horn; Dean Marston; Jennifer O'Brien; Julie Means; Bob Hughes; Tim Heyne; James.Hastreiter@ferc.gov; Harry Williamson; Devine, John; Staples, Rose; Stephen_Bowes@nps.gov
Subject:Suggested additions to Don Pedro Recreation Resource Study 1 Attachment B
Attachments: RR-1 Attachment B 110824-AManji110908.doc

Nancy

Thank you for the opportunity to comment on the proposed visitor survey. The Calif. Dept. of Fish and Game (CDFG) supports the idea of assessing visitor use at Don Pedro with a survey.

CDFG is particularly interested in assessing angling behavior and success of visitors. I have added a section that approximates a creel survey as an example. Note: CDFG creels usually include physical measurements of any fish in possession if the creel respondents are willing. This might require an extra person to handle the fish while the survey is being administered. This "fish squeezing" component could be focused on areas where anglers are most likely to be encountered, such as boat ramps and fish cleaning stations.

At the last meeting I did not record a complete contact list of the parties interested in this topic (one of the drawbacks to phoning in). Please feel free to circulate these suggestions to additional parties if that helps to prepare for the next recreation meeting.

Thank you,

Annie Manji
Statewide FERC Coordinator
California Department of Fish and Game
601 Locust Street
Redding, CA 96001
(530) 225-2315
amanji@dfg.ca.gov

# ATTACHMENT B

# SAMPLE VISITOR SURVEY INSTRUMENT

**Date** _____ **Time** _____ **Survey No.**

## Recreation Visitor Survey for the Don Pedro Project (FERC Project No. 2299)

The following survey has been designed to help Modesto Irrigation District and Turlock Irrigation District understand the needs of users of the recreational facilities and opportunities at the Don Pedro Reservoir.
These questions are generally for the **overall recreation area** (*i.e.*, the Don Pedro Reservoir). However, some questions are for the **specific recreation facility or site** you are currently visiting (*e.g.*, Fleming Meadows, Blue Oaks, Moccasin Point). Please be aware of this distinction when reading each question.

### Your Trip Characteristics

**1.** Please write the name of the **recreation site/facility** where you have received this survey: _____ .

**2.** If you are staying overnight, where are you staying or camping today? (Check One)

- ❑ **Not staying overnight, this is a day visit only**.
- ❑ RV park or campground. If so, what is the name of the campground you are staying at? _____ .
- ❑ Dispersed shoreline camping
- ❑ Staying at a hotel or motel. If so, which community/town/city? _____ .
- ❑ Other (please specify): _____ .

**3.** When did you **arrive** and **plan to depart** this Don Pedro Reservoir? *(For the time, please specify AM or PM)*

| **Arrival** | | ➡ | **Estimated Departure** | |
|---|---|---|---|---|
| Date | Time (am / pm) | | Date | Time (am / pm) |
| | | | | |

**4.** A) What year did you **first visit** this Don Pedro Reservoir: _____.

B) Approximately **how many times** have you visited since your first visit: _____.

**5.** Which of the following best describes your recreation group? (Check One)

❑ Alone ❑ Friends ❑ Family & Friends ❑ Other (specify): _____.
❑ Family ❑ Multiple Families ❑ Organized Outing Group

**6.** How many people, vehicles, boats, and water-related equipment are included with the **group you traveled with** during your current visit to Don Pedro Reservoir? (Write a number for each)

_____ People (include yourself)
_____ Vehicles used to travel to the area (include trucks, cars, RVs, etc.)
_____ Off-Highway Vehicles (OHVs) – 2, 3, or 4 wheels
_____ Trailer for OHV
_____ Trailer for Boat/PWC/Raft
_____ RV/Camper ➔ Length in ft. _____ *(if more than 1, give range)*
_____ Camper Trailer ➔ Length in ft. _____ *(if more than 1, give range)*
_____ Tents
_____ Powerboats (under 15 horsepower)
_____ Powerboats (15 horsepower or larger)
_____ Personal Watercraft (PWC)
_____ Canoes/kayaks/other non-motorized watercraft
_____ Fishing tubes
_____ River tubes
_____ Other, specify: _____

**7.** Check each of the activities that **you expect to participate in** during your current visit to Don Pedro Reservoir. (Check All That Apply)

- ❑ Camping
- ❑ Driving for pleasure
- ❑ Fishing
- ❑ Houseboating
- ❑ Flat-water, motorized boating
- ❑ Flat-water, non-motorized boating (*e.g.*, kayaks, canoes)
- ❑ Gold panning
- ❑ Hiking or walking
- ❑ Horseback riding
- ❑ Hunting (specify type): _____
- ❑ Mountain biking
- ❑ OHV use
- ❑ Picnicking
- ❑ River/stream boating (*e.g.*, raft, kayak, canoe)
- ❑ Swimming
- ❑ Target Shooting
- ❑ Water skiing
- ❑ Wildlife viewing (birding, etc)
- ❑ Other (specify): _____
- ❑ Other (specify): _____

**8.** Please list your **primary recreation activity** for your current visit**:**_____ .

**9.** Please list (up to 3) other areas in central California where you visit to participate in your **primary recreation activity**.

1) _____ 2) _____ 3) _____

**If you have fished or expect to fish in this area on this trip please complete questions F1 through F7. Otherwise skip to the next section.**

**F1**. Have you fished in the Don Pedro Reservoir area before this trip?

- ❑ Yes. If yes, approximately how many times over the past 12 months?_____
- ❑ No

**F2**. Have you participated in fishing tournaments in the Don Pedro Reservoir area in the last 12 months?

- ❑ Yes (Which ones? _____
- ❑ No

**F3**. Please indicate how crowded you felt at the area you fished today.

1----------2----------3----------4----------5----------6----------7----------8----------9
Not at all Slightly Moderately Extremely

**F4.** Please describe your fishing trip today.

# of anglers in your party _____
Area(s) Fished _____
Hours Fished _____

**F5.** Please circle all of the following techniques that apply to your trip today:

| | | | |
|---|---|---|---|
| Mode: | Boat | Shore | |
| Lure: | Bait | Artificial | |
| Method: | Casting | Trolling | Still |

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**F6**. Complete the following table about the species you are fishing for today and whether or not you caught any fish. If you have not fished today, skip to Question ___

| Are you fishing for: | Number of fish caught in each size category | | | # Released |
|---|---|---|---|---|
| | 0 -11" | 12-24" | >24" | |
| Black Bass | | | | |
| Bluegill | | | | |
| Catfish | | | | |
| Crappie | | | | |
| Trout | | | | |
| Salmon | | | | |
| Other | | | | |

F7. Overall, are you satisfied with you fishing experience on this trip to Don Pedro Reservoir?

1----------2----------3----------4----------5----------6----------7----------8----------9

Dissatisfied — Moderately Satisfied — Extremely Satisfied

**Your Thoughts on Existing Conditions at Don Pedro Reservoir …**

**10.** Please indicate whether or not the **level of the reservoir** or **river** was a problem for each of the following at the recreation area you are currently visiting. (Check One For Each Item)

| *(Circle one number for each)* | Not a problem | A small problem | Neither | A moderate problem | A large problem | No Opinion/ Not Applicable |
|---|---|---|---|---|---|---|
| Ability to use beach area | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to safely swim | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to launch or take out boat | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to safely boat | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to utilize trails | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to fish along the shoreline | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to access the shoreline | 5 | 4 | 3 | 2 | 1 | ❑ |
| Ability to moor or dock boat | 5 | 4 | 3 | 2 | 1 | ❑ |
| Scenic quality of shoreline | 5 | 4 | 3 | 2 | 1 | ❑ |
| Other (specify):_____ | 5 | 4 | 3 | 2 | 1 | ❑ |

**11.** A) Did you experience any **conflict** with other recreation users in Don Pedro Reservoir (*i.e.*, anyone who negatively impacted your experience)?

❑ Yes ❑ No

B) If **YES**, what was the activity of the other recreation user? (Check One)

❑ Bird watcher ❑ Motorized boater ❑ OHV (2, 3, or 4 wheels)
❑ Camper ❑ Non-motorized boater ❑ Unsure
❑ Hiker ❑ Mountain biker ❑ Other (specify): _____

C) If you experienced conflict, please check the reasons that contributed to the conflict. (Check All That Apply)

❑ Proximity to where we were ❑ Rowdiness ❑ Loudness ❑ Other (specify): _____

**12.** Please rate the **acceptability** of the following **Existing Conditions** at the Recreation Facility / Site you are currently visiting (*this site is identified at the start of the survey*).

**Important**: Please only circle a number for the items that you used during your visit to this Specific Recreation Facility / Site. Please **check** the "*Did Not Use*" box, if you did not use the item or it does not exist at the Specific Recreation Facility / Site.

| FACILITIES | Acceptable | Slightly Acceptable | Neither | Slightly Unacceptable | Unacceptable | Did Not Use/ Not Applicable |
|---|---|---|---|---|---|---|
| Camp sites | 5 | 4 | 3 | 2 | 1 | ❑ |
| Camp site parking spur size | 5 | 4 | 3 | 2 | 1 | ❑ |
| Vegetation or screening between camp sites | 5 | 4 | 3 | 2 | 1 | ❑ |
| Shading of camp sites | 5 | 4 | 3 | 2 | 1 | ❑ |
| Picnic sites | 5 | 4 | 3 | 2 | 1 | ❑ |
| Vegetation or screening between picnic sites | 5 | 4 | 3 | 2 | 1 | ❑ |
| Shading of picnic sites | 5 | 4 | 3 | 2 | 1 | ❑ |
| Food storage locker | 5 | 4 | 3 | 2 | 1 | ❑ |
| Restroom | 5 | 4 | 3 | 2 | 1 | ❑ |
| Potable water | 5 | 4 | 3 | 2 | 1 | ❑ |
| Trash receptacle | 5 | 4 | 3 | 2 | 1 | ❑ |
| Vehicle parking areas | 5 | 4 | 3 | 2 | 1 | ❑ |
| Trailer parking areas | 5 | 4 | 3 | 2 | 1 | ❑ |
| Boat ramp parking area | 5 | 4 | 3 | 2 | 1 | ❑ |
| Boat launch/take out | 5 | 4 | 3 | 2 | 1 | ❑ |
| Boat mooring/docking | 5 | 4 | 3 | 2 | 1 | ❑ |
| Other (specify):_____ | 5 | 4 | 3 | 2 | 1 | ❑ |

If you rated a condition **"unacceptable"**, please identify the item from the table & describe the location and nature of the unacceptable condition:

| ACCESS | Acceptable | Slightly Acceptable | Neither | Slightly Unacceptable | Unacceptable | Did Not Use/ Not Applicable |
|---|---|---|---|---|---|---|
| Width of roads within the site | 5 | 4 | 3 | 2 | 1 | ❑ |
| Condition of roads within the site | 5 | 4 | 3 | 2 | 1 | ❑ |
| Foot trails to the shoreline | 5 | 4 | 3 | 2 | 1 | ❑ |
| Foot trails around the shoreline | 5 | 4 | 3 | 2 | 1 | ❑ |
| Signage to the recreation site | 5 | 4 | 3 | 2 | 1 | ❑ |
| Signage within the recreation site | 5 | 4 | 3 | 2 | 1 | ❑ |
| Other (specify):_____ | 5 | 4 | 3 | 2 | 1 | ❑ |

If you rated a condition **"unacceptable"**, please identify the item from the table & describe the location and nature of the unacceptable condition

| INFORMATION RESOURCES | Acceptable | Slightly Acceptable | Neither | Slightly Unacceptable | Unacceptable | Did Not Use/ Not Applicable |
|---|---|---|---|---|---|---|
| Interpretive/education information | 5 | 4 | 3 | 2 | 1 | ❑ |
| Recreation visitor information | 5 | 4 | 3 | 2 | 1 | ❑ |
| Reservoir water surface elevation information | 5 | 4 | 3 | 2 | 1 | ❑ |
| River/stream flow information | 5 | 4 | 3 | 2 | 1 | ❑ |
| Other (specify):_____ | 5 | 4 | 3 | 2 | 1 | ❑ |

If you rated a condition **"unacceptable"**, please identify the item from the table & describe the location and nature of the unacceptable condition:

**13.** A) Did/do you feel **crowded** at any of the following locations during your visit to Don Pedro Reservoir today? (Circle One Number For Each Item)

| LOCATION/AREA | Not At All Crowded | | | Slightly Crowded | | | Moderately Crowded | | | Extremely Crowded | | Did Not Use/ Not Applicable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Campground | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Shoreline camping area | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Picnic area | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Boat launch | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Boat docking/mooring | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Trail | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Trailhead | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Other shoreline area | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Water surface | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |
| Other (specify): _____ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | | ❑ |

B) **If you felt crowded**, did you modify your recreation plans because you felt crowded? ❑ Yes ❑ No ❑ Did Not Feel Crowded

C) If **YES,** what did you do? ❑ Moved to a new location ❑ Changed your activity ❑ Did nothing
❑ Changed the time of day ❑ Choose not to recreate ❑ Other (specify): _____

**14.** A) Are you recreating at your preferred location today? ❑ Yes ❑ No

B) If **NOT**, what was your preferred location? _____ .

C) **Why** were you unable to use or go to your preferred location? _____ .

**15.** A) Are there any places in Don Pedro Reservoir where you feel unsafe? ❑ Yes ❑ No

B) If **YES**, please identify why you feel unsafe. (Check All That Apply)

❑ Wild animals ❑ Unattended campfires ❑ Speeding boats/PWC ❑ Other visitors behavior (specify): _____
❑ Unleashed dogs ❑ Firearm discharge ❑ Speeding vehicles ❑ Other (specify): _____

C) If **YES**, please identify the location where you feel unsafe:_____.

**16.** Are there any barriers that prevent you or a member of your group from participating in desired recreation activities at Don Pedro Reservoir?

❑ Yes ❑ No If **YES**, please identify the location(s), the type of barrier(s) in the space below.

**17.** A) Please rate the relative uniqueness of the **recreation opportunities** at Don Pedro Reservoir relative to similar to opportunities within central California:

**Extremely Common Opportunity** ⟷ **Extremely Unique Opportunity**

1 2 3 4 5

B) Please explain, what, if anything is **special** or **unique** about this recreation area relative to other recreation areas in central California.

**About You**

**18.** How did you learn about Don Pedro Reservoir? ❑ Word of mouth ❑ Internet ❑ Don Pedro Recreation Agency ❑ Other: _____

**19.** What is the zip code for your primary residence? _____ **OR** _____.

**Any Additional Comments?**

**20.** Please let us know if you have any additional comments regarding your recreation experience during your visit in the space below.

**Thank You For Taking The Time To Participate In This Survey!**

-----Original Message-----
From: Shelly Schubert [mailto:SSCHUBERT@dfg.ca.gov]
Sent: Monday, October 10, 2011 12:54 PM
To: Vertucci, Charles
Subject: Re: Tuolumne River temps

Charles,

I am sending you the Tuolumne data that we have available. I know our crews have not been able to access a lot of sites until recently because of the high flows. Some of the data has not been entered. I will plan on sending you this data when we process it. I am also sending MGAL2 data for the Merced.

MGAL for the Merced is no longer a site.
A few sites on the Tuolumne are no longer being monitored also: TOLGB, TRST, and TRG2.

Shelly Schubert

>>> "Vertucci, Charles" <Charles.Vertucci@hdrinc.com> 9/29/2011 3:08 PM >>>
Shelly,

I looked at the few stations you provided for the Tuolumne and there were some more data gaps, similar to those on the Merced. I made a table below so you can see the last date from each station.

Thanks for the help.

LOCATION

Station

Start

End

Start of 9/19/11 Data

Tuolumne River at Grayson Rotary Screw Trap

TRST

1/14/00

5/28/01

Tuolumne River at Shiloh Bridge

TRSHILO1

2/16/05

3/28/10

8/9/10

Tuolumne River at Carpenter Road Bridge

TRCRDB

8/12/05

3/28/10

Tuolumne River at 9th Street Bridge

TR9STB

8/12/05

3/28/10

Dry Creek above Tuolumne River

TDRYCK

2/3/06

3/28/10

Tuolumne River above Dry Creek

TRADRY

7/25/06

3/28/10

Tuolumne River at Mitchell Road Bridge

TRMRDB

8/12/05

3/28/10

Tuolumne River above Santa Fe Bridge

TRASFB

8/12/05

2/26/10

Tuolumne River near Fox Grove Bridge

TRFGB

9/9/05

7/27/10

Tuolumne River at Hickman Bridge

THB

7/15/02

1/26/10

Tuolumne River below Hickman Spill

TBHCKSP

3/9/05

7/23/10

Tuolumne River above Hickman Spill

TAHCKSP

3/9/05

7/27/10

Tuolumne River at Riffle Q3

TRQ3

5/31/02

7/27/10

Tuolumne River at Sante Fe Gravel

TSF

5/31/02

7/27/10

Tuolumne River at 7-11 Gravel Company

T7-11

6/16/01

7/27/10

Tuolumne River at Riffle K1

TRK1

6/16/01

7/26/10

Tuolumne River at Riffle I2

TRI2

6/15/01

7/26/10

Tuolumne River at Riffle G3

TRG3

6/15/01

7/26/10

Tuolumne River at Riffle G2

TRG2

9/2/05

8/10/06

Tuolumne River at Basso Bridge

TBAS

Tuolumne River at Riffle D2

TRD2

6/14/01

7/26/10

Tuolumne River at Riffle C1

TRC1

6/14/01

7/26/10

Tuolumne River at Old La Grange Bridge

TOLGB

6/23/00

12/18/02

Tuolumne River at Riffle A1

TRA1

6/18/01

6/14/09

Tuolumne River upstream of Wards Ferry Bridge

TRWARDS

5/24/05

4/6/10

Tuolumne River above the South Fork

TASFRK

4/27/05

2/24/10

Tuolumne River below the South Fork

TBSFRK

4/27/05

7/12/10

2/1/11

Cherry Creek Power House

TCKPH

4/27/05

9/8/09

2/2/11

Tuolumne River at Early Intake

TREARLY

7/19/05

2/24/10

2/2/11

South Fork of the Tuolumne near Confluence

TSFRK

4/27/05

7/9/10

2/1/11

Charles vertucci

HDR Engineering, Inc.
Scientist - Water Resources and Aquatic Biology, Hydropower Services

2379 Gateway Oaks Drive, Suite 200 | Sacramento, CA 95833
O: 916.564.4214 | D: 916.679.8768
charles.vertucci@hdrinc.com<mailto:charles.vertucci@hdrinc.com> |
hdrinc.com<http://www.hdrinc.com/>

HOME EMAIL ADDRESS REMOVED PER SECTION 2.4.3 DON PEDRO PAD

**From:** Imholt, Susan
**To:** Alison Willy; Cranston, Peggy; Eicher, James M
**Cc:** Michelle Reimers (mareimers@tid.org); Robert Nees (rmnees@tid.org); Bill Johnston [redacted]; Steve Boyd (seboyd@tid.org); Melissa Williams (MelissaW@mid.org); Joy Warren (joyw@mid.org); Greg Dias (gregd@mid.org); Regina Cox (reginac@mid.org); Devine, John; Borovansky, Jenna; Malkin, Devin
**Subject:** Don Pedro Project FERC Relicensing - CRLF Site Assessment Field Notice
**Date:** Friday, January 06, 2012 4:32:00 PM

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**ESA-Listed Amphibians – California Red-legged Frog Study (Study TR-7)**
**Notice of Site Assessment Fieldwork**

On behalf of Modesto Irrigation District and Turlock Irrigation District (the Districts), who own and operate the Don Pedro Project, HDR Engineering, Inc. (HDR) is commencing Study TR-7, ESA-Listed Amphibians – California Red-legged Frog, which includes field site assessments of aquatic habitats within the existing FERC Project Boundary and other accessible areas of potentially suitable aquatic habitat within 1.0 mile of the existing FERC Project Boundary.

The FERC-approved study plan requires the Districts provide advance notice of the field assessments and invitation to observe the field work to USFWS. Field work is scheduled to begin February 6-10, 2012, weather permitting. During this first week of fieldwork, it is anticipated that site assessments will be performed at accessible locations in the study area within the FERC Project Boundary.

HDR biologists performing the assessments can be met each day at 8:00 AM at the Best Western in Sonora, CA (19551 Hess Avenue, Sonora, California, 95370-9720, phone: 209-533-4400). Interested observers are asked to please contact Susie Imholt (office: 206-826-4693, cell: 360-318-5333) at least 1 week in advance.

Observers are asked to be prepared for work in the elements with the proper clothing, foot-wear, food, and water. Please also be aware that the terrain may be rigorous. HDR cannot provide transportation for observers due to liability constraints.

Locations and logistics of subsequent site assessments will be provided to USFWS at least 30 days in advance of field work.

If you have any questions regarding this e-mail, please contact Susie Imholt.

**SUSAN IMHOLT**
**HDR Engineering, Inc.**
Scientist - Wildlife, Fisheries, Botanical

601 Union St, Suite 700 | Seattle, WA 98101
206.826.4693 | c: 360.318.5333
susan.imholt@hdrinc.com | hdrinc.com

**From:** Mary Nicholl <mary.nicholl@noaa.gov>
**Subject: Re: Modification to 4(d) application**
**Date:** January 20, 2012 11:07:19 AM PST
**To:** Jason Guignard <Jasonguignard@fishbio.com>

Hey Jason,
That's a by-product of putting it in draft. It probably prompted you do that. I fixed it to be January again. Thanks for letting me know. Have a great weekend.

Mary

On Fri, Jan 20, 2012 at 10:47 AM, Jason Guignard <Jasonguignard@fishbio.com> wrote:
Hi Mary,
One thing that came up yesterday when I was editing the Project info.
On the 1st page it would not allow me to keep the start date as 1/1/2012, so I changed it to 2/2/2012. Don't know if this matters, but thought I should let you know.

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Jan 19, 2012, at 12:41 PM, Mary Nicholl wrote:

Awesome, thank you for following up. I am making these changes now. Please review your application and make sure I have incorporated your information as requested.
Mary

On Thu, Jan 19, 2012 at 12:13 PM, Jason Guignard <Jasonguignard@fishbio.com> wrote:
We will not need to anesthetize the adults. They will be placed upside down in the measurement cradle (like we do with adults on our weirs) while samples are taken. This should work for all individuals, so anesthetize can also be removed from our permit.

Jason Guignard
Fisheries Biologist

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1617 S. Yosemite Ave.

Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Jan 19, 2012, at 12:03 PM, Mary Nicholl wrote:

What is the anesthetizing agent that will be used? Please note that adult salmonids may not be anesthetize with MS-222 because of a 21-day hold.

On Thu, Jan 19, 2012 at 12:00 PM, Jason Guignard <Jasonguignard@fishbio.com> wrote:

Hi Mary,

You can remove the acoustic tagging procedures, and change the Project title to scale collection and age determination. Below are our sampling methods, let me know if you nedd any additional information.

Methods: Juvenile and adult *O. mykiss* will be captured in the Tuolumne River at selected locations from RM 52 (La Grange Dam) downstream to approximately RM 39.5 (Roberts Ferry Bridge), which is the portion of the river where *O. mykiss* have been historically observed (Stillwater Sciences 2011).

The survey crew will record the location (GPS coordinates), habitat type, and length of each captured *O. mykiss*. Fish will be transferred to a measurement cradle and data recorded for all fish meeting the required length criterion, including fork length (FL, mm), total length (TL, mm), and general condition. If possible, the sex of each fish will be determined, and any marks that would aid in determining hatchery vs. wild origin (e.g., adipose fin clip) will be noted.

Scales will be removed from the region between the posterior end of the dorsal fin and the lateral line on the left side, roughly two scale rows above the lateral line. Prior to scale removal, mucous and debris will be cleaned from the sampling location for ease in scale processing. Scales will be removed by scraping a dull knife from the posterior to anterior of the sample area. Approximately 10 scales will be removed per fish.

All collected scales from individual fish will be placed on a square of "Rite in the Rain" paper. The paper will be folded over the blade and pinched to remove the scales. The folded paper will be immediately inserted into an envelope. Each individual envelope will be clearly labeled with species, site location, fork length, weight, date, condition, and any other applicable information. All envelopes will be pressed flat to reduce scale curling and increase analytical accuracy. Only one envelope will be used for each fish. Knives will then be thoroughly cleaned with ethanol to prevent cross-contamination of scale samples.

Jason Guignard

Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Jan 19, 2012, at 11:45 AM, Mary Nicholl wrote:

Hey Crissy,

To clarify you will not be acoustically tagging any fish under this permit, may I remove that procedure from the two lines of take that you have it under? Also, should I remove it from the title of the project and replace it with age data? I will add the scale sampling procedure and anesthetizing to your permit. However, You will need to provide a paragraph for the methods section that details how the fish (each life stage) will be processed as soon as possible. We are trying to avoid moving the applications into draft. Please provide this information as soon as possible I will follow up with you once it is complete.

Mary

On Thu, Jan 19, 2012 at 11:34 AM, Jeffrey Jahn <jeffrey.jahn@noaa.gov> wrote:
Chrissy,
Mary should be able to make the requested updates and will follow up with you if more info is needed.

From,

Jeff

~~~~~~~~~~~~~~~~
Jeffrey Jahn
Fishery Biologist ~
Regional ESA Research & Enhancement Coordinator

NOAA's National Marine Fisheries Service
Southwest Region, Protected Resources Division
North Central Coast Office
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

Phone: 707-575-6097, Fax: 707-578-3435
~~~~~~~~~~~~~~~~

HOME EMAIL ADDRESS REMOVED PER SECTION 2.4.3 DON PEDRO PAD

"Our mission is to conserve and recover NOAA's National Marine Fisheries Service's trust resources and the ecosystems upon which they depend"

On Thu, Jan 19, 2012 at 10:21 AM, Chrissy Sonke <sonke[redacted]> wrote:
Hi Jeff,

How do I go about modifying one of our 2012 4(d) applications? I don't think the on-line system allows for modification requests since the 2012 permit has not yet been issued. The Tuolumne River Acoustic Tracking Study (file # 16875) is currently permitted for a total take of 85 *O. mykiss*. We do not need to increase the take or the method of take, we would just like to change the procedures. Our recent tracking data results indicate a large majority of the Tuolumne River *O. mykiss* reside in-river. We would like to change the focus of the study and collect some age growth data. For this, we are requesting to change the procedures for all fish captured under this permit to allow anesthetize and collect a scale sample for scale sample analysis. We will not acoustically tag any additional fish in 2012. We would only like to obtain scale samples from all fish captured by hook-and-line.

Please let me know if there is anything additional you need from me to complete this request.

Thank you!
Chrissy
---
Chrissy Sonke
Fisheries Biologist

FISHBIO
9330 E. Lathrop Rd.
Manteca, CA 95336

209.614.0813

www.fishbio.com
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Mary Nicholl

Contractor - Research Permits
NOAA's National Marine Fisheries Service
Southwest Region, Protected Resources Division
777 Sonoma Avenue, Room 325
Santa Rosa, CA. 95404
(707) 575-6054, Fax (707) 578-3435

**From:** Sunil Rajappa <SRAJAPPA@dfg.ca.gov>
**Subject: Re: SCP amendments**
**Date:** January 26, 2012 10:38:57 AM PST
**To:** Jason Guignard <jasonguignard@fishbio.com>
**Cc:** Jamie Cary <JCARY@dfg.ca.gov>

We'll keep an eye out for them.

Jason Guignard <jasonguignard@fishbio.com> 1/26/2012 8:07 AM >>>
Hi Sunil,

We mailed another package of SCP amendments yesterday. These amendments are for a "Tuolumne River Predation Study", which is part of the FERC relicensing of the Don Pedro Project. This Project includes boat electrofishing in the Tuolumne River to determine predator abundance and predation rates on Chinook salmon. We will be working with Stillwater Sciences who has a Section 10 permit (#1282), which allows boat electrofishing during the proposed sampling periods.
Like the previous SCP amendments we submitted, this FERC project has a short timeline which will require us to begin sampling in March (if permitted).

I just wanted to make you aware of these amendments, and hope that these amendments can be pushed through a quickly as possible. The local DFG biologists (Tim Heyne & Steve Tsao, La Grange) are aware of this study, please contact me if you have any questions or concerns.

Thank You,

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

**From:** Sunil Rajappa <SRAJAPPA@dfg.ca.gov>
**Subject: Re: Tuolumne River Predation Study SCP amendments**
**Date:** February 14, 2012 10:20:48 AM PST
**To:** Jason Guignard <jasonguignard@fishbio.com>
**Cc:** Jamie Cary <JCARY@dfg.ca.gov>

Jason,

My colleague Jamie is currently working on your permits. I'll have her update us tomorrow.

Sunil

Sunil Rajappa
Scientific Aide
Fisheries Branch
California Department of Fish and Game
830 S Street
Sacramento, CA 95811
916.327.8335

Jason Guignard <jasonguignard@fishbio.com> 2/14/2012 9:56 AM >>>
Hi Sunil,

I wanted to check on the status of the SCP amendment package I submitted for the "Tuolumne River Predation Study". Can you tell me if these are being processed, and possibly a timeframe for us to expect them to be completed?
This study is fairly time sensitive, with sampling scheduled to begin in March.
Any information you could give me regarding the status of these amendments would be very much appreciated.

Thank You

Jason Guignard
Fisheries Biologist

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1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

HOME EMAIL ADDRESS REMOVED PER SECTION 2.4.3 DON PEDRO PAD

**From:** Imholt, Susan
**To:** Alison Willy; "Cranston, Peggy"; Eicher, James M
**Cc:** Michelle Reimers (mareimers@tid.org); Robert Nees (rmnees@tid.org); Bill Johnston (Agengr6[redacted]; Steve Boyd (seboyd@tid.org); Melissa Williams (MelissaW@mid.org); Joy Warren (joyw@mid.org); Greg Dias (gregd@mid.org); Regina Cox (reginac@mid.org); Devine, John; Borovansky, Jenna; Malkin, Devin
**Subject:** Don Pedro Project FERC Relicensing - CRLF Site Assessment Field Notice
**Date:** Tuesday, February 28, 2012 12:16:00 PM

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**ESA-Listed Amphibians – California Red-legged Frog Study (Study TR-7)**
**Notice of Continuation of Site Assessment Fieldwork**

On behalf of Modesto Irrigation District and Turlock Irrigation District (the Districts), who own and operate the Don Pedro Project, HDR Engineering, Inc. (HDR) is continuing fieldwork for Study TR-7, ESA-Listed Amphibians – California Red-legged Frog Study, which includes field site assessments of aquatic habitats within the existing FERC Project Boundary and other accessible areas of potentially suitable aquatic habitat within 1.0 mile of the existing FERC Project Boundary.

The FERC-approved study plan requires the Districts provide advance notice of the field assessments and invitation to observe the field work to USFWS. Field work is scheduled to occur April 2 - 4, 2012, weather permitting. It is anticipated that site assessments will be performed at accessible locations in the study area outside of the FERC Project Boundary. Site assessment locations have not yet been finalized, but it is anticipated that some locations will be located on BLM land.

HDR biologists performing the assessments can be met each day at 8:00 AM at the Best Western in Sonora, CA (19551 Hess Avenue, Sonora, California, 95370-9720, phone: 209-533-4400). Interested observers are asked to please contact Susie Imholt (office: 206-826-4693, cell: 360-318-5333) at least 1 week in advance.

Observers are asked to be prepared for work in the elements with the proper clothing, footwear, food, and water. Please also be aware that the terrain may be rigorous. HDR cannot provide transportation for observers due to liability constraints.

Locations and logistics of subsequent site assessments will be provided to USFWS at least 30 days in advance of field work.

If you have any questions regarding this e-mail, please contact Susie Imholt.

**SUSAN IMHOLT**

**HDR Engineering, Inc.**
Scientist - Wildlife, Fisheries, Botanical

601 Union St, Suite 700 | Seattle, WA 98101
206.826.4693 | c: 360.318.5333
susan.imholt@hdrinc.com | hdrinc.com

**From:** Jason Guignard <jasonguignard@fishbio.com>
**Subject: Re: SCP's**
**Date:** February 29, 2012 2:57:32 PM PST
**To:** Jamie Cary <JCARY@dfg.ca.gov>, spu@dfg.ca.gov

Attached are the SCP amendments for Jeremy Pombo and Robert Fuller.

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Feb 29, 2012, at 2:45 PM, Jamie Cary wrote:

Jason, When you send Jeremy's SCP can you also send Rob Fuller's? I don't have a complete copy of his SCP so LRB can't take what I have.

Sorry for all this.

Jamie

>>> Jason Guignard <jasonguignard@fishbio.com> 2/28/2012 12:08 PM >>>
Thank you Jamie. Jeremy Pombo and Mike Kersten's permits had recently expired, but the renewals have been submitted.

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Feb 28, 2012, at 11:51 AM, Jamie Cary wrote:

I did not hear back from the biologist but I had my supervisor review and I am in the process of approving them. It looks like Jeremy Pombo's (8035) was just submitted? Is that right? I've been working off of Robert Fuller's.

They should be done today or tomorrow and then they are in the hands of the LRB to finish processing (not sure how long that takes).

Jamie

>>> Jason Guignard <jasonguignard@fishbio.com> 2/28/2012 10:13 AM >>>
Hi Jamie,
Have you been updated by the regional biologist regarding our SCP amendment? Our proposed sampling start date is quickly approaching, so want to make sure this is still moving forward.

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Feb 16, 2012, at 10:18 AM, Jamie Cary wrote:

Hi Jason

I'm working on getting your SCP's processed. They are being reviewed by the regional biologist; who I emailed yesterday asking for an update. I will contact them again and tell them we need to process these quickly.

Thanks

Jamie

**From:** Jason Guignard <jasonguignard@fishbio.com>
**Subject: Re: SCP's**
**Date:** March 5, 2012 3:37:29 PM PST
**To:** Jamie Cary <JCARY@dfg.ca.gov>, spu@dfg.ca.gov

Attached are the SCPs for Robert Fuller & Jeremy Pombo. Jeremy's SCP expired in October, and his renewal package was mailed in early Feb (also attached).

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
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(209) 840-9019 cell
www.fishbio.com

On Mar 5, 2012, at 1:51 PM, Jamie Cary wrote:

Jason

Hello, I'm so sorry. I don't think I was very clear the last time we spoke. I need a copy of Robert Fuller's **entire** SCP permit sent to the LRB (not just the amendment). For some reason they have no hardcopy of his complete file.

It'll come together soon

Jamie

>>> Jason Guignard <jasonguignard@fishbio.com> 2/29/2012 2:57 PM >>>
Attached are the SCP amendments for Jeremy Pombo and Robert Fuller.

**From:** Gina De La Rosa <GDELAROSA@dfg.ca.gov>
**Subject: Re: SCP's**
**Date:** March 5, 2012 3:42:49 PM PST
**To:** Jason Guignard <jasonguignard@fishbio.com>

Good news all the SCP's that need to be expedited have been scanned in, this includes Jeremy's also.

Gina de la Rosa
Program Technician II
Special Permits Unit
CA. Dept of Fish and Game
License and Revenue Branch
gdelarosa@dfg.ca.gov
Office 916-928-5849
fax 916-419-7586

>>> Jason Guignard <jasonguignard@fishbio.com> 3/5/2012 3:37 PM >>>
Attached are the SCPs for Robert Fuller & Jeremy Pombo. Jeremy's SCP expired in October, and his renewal package was mailed in early Feb (also attached).

**From:** Jim Inman <jiminman@fishbio.com>
**Subject: Fwd: SCP's**
**Date:** March 6, 2012 9:55:20 AM PST
**To:** JCARY@dfg.ca.gov
**Cc:** Jason Guignard <jasonguignard@fishbio.com>

Hi Jamie,

Jason is out of the office today so he asked me to help you with this. I have attached Robert Fuller's current SCP (permanent ID SC-911) pages 1-4. It is valid from 4-13-11 to 4-13-13, it has a CDFG stamp as well as a signature on page 1. Please let me know if you have any other questions.

Jim

Begin forwarded message:

**From:** Jamie Cary <JCARY@dfg.ca.gov>
**Date:** March 6, 2012 9:31:07 AM PST
**To:** Jason Guignard <jasonguignard@fishbio.com>
**Subject: Re: SCP's**

Was Robert issued a permit w/approval signatures on it? It should also have a stamp saying how long the permit is valid for (on the first page).

>>> Jason Guignard <jasonguignard@fishbio.com> 3/5/2012 8:53 PM >>>
Jaime,
Here is Robert's approved SCP. I believe this is what you are looking for, but if you need something else please let me know.

Jim Inman
Wildlife Biologist
FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 988-2314 cell
www.fishbio.com

**From:** Imholt, Susan
**To:** "Cranston, Peggy"
**Cc:** Eicher, James M; Devine, John; Borovansky, Jenna
**Subject:** Don Pedro herp record request
**Date:** Thursday, March 08, 2012 3:42:00 PM

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Hi Peggy,

I hope you are doing well.

For the Don Pedro Project Special-Status Amphibian and Aquatic Reptiles, CA Red-legged Frog, and CA Tiger Salamander studies, I wanted to ask if BLM has any records of western pond turtle, foothill yellow-legged frog, CRLF or CTS in the vicinity of the project.

If you have GIS shapefiles with this information or locations on a map, that would be wonderful.

Also, we will be conducting reconnaissance for FYLF and WPT in early April (as well as finishing CRLF and CTS habitat assessments); I will send out an email notice of field locations we will be visiting that occur on BLM land prior to that fieldwork.

Thank you,
Susie

**SUSAN IMHOLT**

**HDR Engineering, Inc.**
Scientist - Wildlife, Fisheries, Botanical

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206.826.4693 | c: 360.318.5333
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## Tortosa, Justin

**From:** Cranston, Peggy [pcransto@blm.gov]
**Sent:** Friday, March 09, 2012 12:22 PM
**To:** Tortosa, Justin
**Subject:** RE: Don Pedro LTAM site locations

Hi Justin,

These sites seem reasonable.

Take Care

Peggy Cranston
Wildlife Biologist
BLM, Mother Lode Field Office
5152 Hillsdale Circle
El Dorado Hills, CA 95762
(916) 941-3136

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**From:** Tortosa, Justin [mailto:Justin.Tortosa@hdrinc.com]
**Sent:** Friday, March 09, 2012 12:04 PM
**To:** Cranston, Peggy
**Cc:** Borovansky, Jenna
**Subject:** Don Pedro LTAM site locations

Peggy,

Thanks for Allison's contact information, I will call her right away.

As we discussed, I pulled together some maps (quick and crude) of the LTAM sites, and they are attached. One is an overview map (Don Pedro LTAM sites) and the other two are close-ups of the sites (LTAM below spillway and LTAM at base of Dam tunnel entrance). Like I had mentioned on the phone our choices are pretty limited with respect to equipment security and habitat diversity occurring in such close proximity to each other. I really feel that these two locations offer two very different habitat types (small open body of water and deep canyon) that are common around this project, and yet in this case happen to be close to secure Project facilities. Please let me know if you agree with the two locations.

Respectfully,

**JUSTIN TORTOSA**
**HDR Engineering, Inc.**
Senior Wildlife Biologist

2379 Gateway Oaks Dr. Suite 200 | Sacramento, CA 95833
D: 916.679.8766
justin.tortosa@hdrinc.com| hdrinc.com

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**From:** Cranston, Peggy [mailto:pcransto@blm.gov]
**Sent:** Friday, March 09, 2012 11:37 AM

**To:** Tortosa, Justin
**Subject:** alison wily contact info

Hi Justin,

Here is Alison Willy's contact information. Alison_Wily@fws.gov and (916) 414—6534.

Take Care

Peggy Cranston
Wildlife Biologist
BLM, Mother Lode Field Office
5152 Hillsdale Circle
El Dorado Hills, CA 95762
(916) 941-3136

**From:** Tortosa, Justin
**To:** Cranston, Peggy
**Cc:** Borovansky, Jenna
**Subject:** Don Pedro Bald Eagles
**Date:** Wednesday, March 14, 2012 4:11:57 PM

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Peggy,

I just wanted to touch base with you and let you know that we are planning to do our first bald eagle nesting survey next week for the Don Pedro Project. In the study plan there is mention of at least 6 historic nests, most in the southern half of the reservoir. I was wondering if you have any additional information regarding the exact location of these nests so that we can be sure not to miss them during our survey.

Thanks, and I look forward to hearing back from you.

Respectfully,

**JUSTIN TORTOSA**

**HDR Engineering, Inc.**
Senior Wildlife Biologist

2379 Gateway Oaks Dr. Suite 200 | Sacramento, CA 95833
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justin.tortosa@hdrinc.com| hdrinc.com

**From:** Jamie Cary <JCARY@dfg.ca.gov>
**Subject: Re: Tuolumne Predation SCP amendment**
**Date:** March 15, 2012 2:15:27 PM PDT
**To:** <jasonguignard@fishbio.com>

I checked w/my supervisor about the two weeks sampling period and you get two weeks for each of your sampling activities. As for getting you the permits the LRB said that after I finish them tomorrow morning and approve them then they can email them to you tomorrow and you can print them up. So you should be good for your Monday sampling.

Jason Guignard <jasonguignard@fishbio.com> 03/15/12 10:30 AM >>>
Hi Jamie,
I just wanted to check in on the status of our permits and the possibility of us beginning our sampling next week.

Jason Guignard
Fisheries Biologist

FISHBIO
1617 S. Yosemite Ave.
Oakdale, CA 95361
(209) 847-6300 office
(209) 840-9019 cell
www.fishbio.com

On Mar 13, 2012, at 4:54 PM, Jamie Cary wrote:

Jason,

I'll check with my supervisor tomorrow about the sampling dates. I've also asked LRB if they can email you the pdf's of your permits once they process them (hopefully on Friday) so that you can have them for Monday. I'll let you know tomorrow once I hear back from everyone.

Jamie

Jason Guignard <jasonguignard@fishbio.com> 03/13/12 10:22 AM >>>
Hi Jamie,
Is the limit of 2 weeks sampling for each activity or for the entire Project? We have 3 sample periods planned (1) predation rate in March, (2) predation rate in April/May, and (3) predator abundance in July-Sept. Each of these activities were scheduled for ~10 days each, but we may have to make changes if we are limited to 2 weeks total.

Also, if you finish processing these today will we have them by monday? If not, is it possible for us to work off of a verbal agreement?

Thank You,

Jason Guignard
Fisheries Biologist

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On Mar 12, 2012, at 9:18 AM, Jamie Cary wrote:

Jason

I'm processing the predation study amendments today and tomorrow (they should be done tomorrow). One of the conditions is that you are authorized only 2 weeks of sampling (after your start date). The other one is that you must get written permission from Steve Tsao for EACH electroshocking activity.

Jamie

Jason Guignard <jasonguignard@fishbio.com> 3/12/2012 7:39 AM >>>
Jamie,
What is your phone number? I am in the field today but will try to have someone call you. Pombo and Fuller will only be needed for the predation study.

Jason Guignard
FISHBIO

Sent from my iPhone

On Mar 12, 2012, at 7:36 AM, Jamie Cary <JCARY@dfg.ca.gov> wrote:

Hi Jason,

Would it be possible for you to call me today before 9 am? I have been focusing on your amendments that are for the Don Pedro Project/FERC project since that was the one we received first. I haven't even had a chance to review the predation study yet. I see that Robert Fuller's permit is now in the system but is only for the predation study. Is he not involved with the other project? For the Don Pedro Project I have Tim Leigh, Mike Phillips, and Scott Wucherer. Will you need Pombo and Fuller to have a permit for this study or only the predation study?

Jason Guignard <jasonguignard@fishbio.com> 3/7/2012 3:25 PM >>>
Hi Jaime,

With the problems we have had with Robert's incomplete SCP, do you think there is any chance that we will have the amendment for the Tuolumne River Predation Study in the next week?
The study calls for 2 weeks of sampling in March, so we would need to start sampling on March 19th.
I appreciate your effort to try expediting this process, but I am at a point that I need to call off the march sampling if our permits will no be ready.

Thanks,

Jason Guignard
Fisheries Biologist

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**From:** Jamie Cary <JCARY@dfg.ca.gov>
**Subject: Re: Tuolumne Predation SCP amendment**
**Date:** March 16, 2012 8:29:12 AM PDT
**To:** Jason Guignard <jasonguignard@fishbio.com>

Jason

I wanted to give you a heads up regarding the conditions Steve Tsao placed on your permits. You are required to email confirmation from either him or Tim Heyne prior to each electrofishing activty. After your first e-fishing event you need to include all fish caught in subsequent emails. You will also have 2 weeks for each sampling event.

So I'd recommend getting in touch with him today regarding your Monday activites.

Jamie

>>> Jason Guignard <jasonguignard@fishbio.com> 3/13/2012 10:21 AM >>>
Hi Jamie,
Is the limit of 2 weeks sampling for each activity or for the entire Project? We have 3 sample periods planned (1) predation rate in March, (2) predation rate in April/May, and (3) predator abundance in July-Sept. Each of these activities were scheduled for ~10 days each, but we may have to make changes if we are limited to 2 weeks total.
Also, if you finish processing these today will we have them by monday? If not, is it possible for us to work off of a verbal agreement?

Thank You,

Jason Guignard
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On Mar 12, 2012, at 9:18 AM, Jamie Cary wrote:

Jason

I'm processing the predation study amendments today and tomorrow (they should be done tomorrow). One of the conditions is that you are authorized only 2 weeks of sampling (after your start date). The other one is that you must get written permission from Steve Tsao for EACH electroshocking activity.

**From:** Jason Guignard <JASONGUIGNARD@FISHBIO.COM>
**Subject: Re: Amendment Approved!**
**Date:** March 21, 2012 1:04:12 PM PDT
**To:** Nicole Stowe <NSTOWE@dfg.ca.gov>

Hi Nicole,

Rob Fuller did not receive an SCP amendment for the Tuolumne Predation study in his email. Could you please send a copy of his amendment to me in case it is an issue with his email address.

Thanks You,

Jason Guignard
Fisheries Biologist

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Oakdale, CA 95361
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On Mar 16, 2012, at 4:39 PM, Nicole Stowe wrote:

Attached is your approved amendment, please read carefully as your amendment may not have been approved for all your requests. Please attach your amendment form to the back of your permit when collecting.

Thanks!

**From:** Domenic Giudice <dgiudice@dfg.ca.gov>
**Subject: Re: Tuolumne predation rate sampling**
**Date:** March 21, 2012 9:43:06 AM PDT
**To:** Steve Tsao <STSAO@dfg.ca.gov>
**Cc:** <jasonguignard@fishbio.com>

Sounds good Steve, I will get to the office in Oakdale at 5 and Friday.

Steve Tsao 03/21/12 8:30 AM >>>
Jason,

Domenic Giudice will work with you on Friday night and Gretchen Murphey will work with you on Saturday night.

H. Steve Tsao
Environmental Scientist(Marine/Fisheries)
California Dept. of Fish and Game
Tuolumne River Restoration Center
P.O. Box 10 La Grange, CA 95329
(209) 853-2533 ext. 6#
Fax:(209) 853-9017

Jason Guignard <jasonguignard@fishbio.com> 3/19/2012 11:28 AM >>>
Steve,
We will likely be meeting here at the shop around 5:00 each afternoon, and will likely be out until 2 or 3 am each morning. Please let me know who and when you will have staff coming out ASAP so that we can work them into our schedule.

Thanks

Jason Guignard
Fisheries Biologist

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On Mar 19, 2012, at 11:16 AM, Steve Tsao wrote:

Andrea,

Any staff we send to work with your crew on this sampling will work as hard as your crew. Please provide me with time and place to meet for this sampling. I will let you know who we will send by tomorrow.

Thank you

H. Steve Tsao
Environmental Scientist(Marine/Fisheries)
California Dept. of Fish and Game
Tuolumne River Restoration Center
P.O. Box 10 La Grange, CA 95329
(209) 853-2533 ext. 6#
Fax:(209) 853-9017

Andrea Fuller <andreafuller11@comcast.net> 3/19/2012 10:53 AM >>>
Hi Steve,

All of the sampling will occur at night. Since we are limited on space, anyone participating in the sampling will need to be an active member of the crew for the duration of the sampling that night. Please let us know who and when so we can plan accordingly.

Thanks,
Andrea

-----Original Message-----
From: Steve Tsao [mailto:STSAO@dfg.ca.gov]
Sent: Monday, March 19, 2012 9:48 AM
To: Tim Heyne; Jason Guignard
Cc: Andrea Fuller; John Devine
Subject: Re: Tuolumne predation rate sampling

Jason,

Will all sampling occur at night? We also would like to send some staff out to participate the shocking for few days.

Thanks

H. Steve Tsao
Environmental Scientist(Marine/Fisheries)
California Dept. of Fish and Game
Tuolumne River Restoration Center

P.O. Box 10 La Grange, CA 95329
(209) 853-2533 ext. 6#
Fax:(209) 853-9017

Jason Guignard <jasonguignard@fishbio.com> 3/19/2012 9:35 AM >>>
Hi Steve,

We received our SCP amendment for the Tuolumne Predation Study on Friday. We plan to begin the predation rate sampling on Thursday (3/22), and sample nightly through the 29th. Sampling will occur at 12 sites between Hickman Bridge and Santa Fe Bridge.

Jason Guignard
Fisheries Biologist

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