

## CURRENT CONSERVATION AND MANAGEMENT OF RIPARIAN HABITAT ALONG THE SACRAMENTO RIVER

There are currently several programs that conserve or restore riparian habitat along the Sacramento River. The main objective of these programs varies, but includes conservation, mitigation, and flood management.

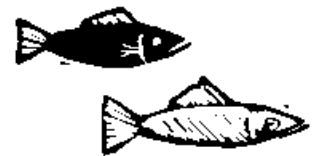
### CONSERVATION PROGRAMS

#### *Sacramento River Project (The Nature Conservancy)*

The Nature Conservancy's Sacramento River Project is a riparian protection, restoration, and sustainable agriculture project focusing on sites along the main stem of the river between Red Bluff and Colusa (100 river miles). The Nature Conservancy (TNC) works with a number of public and private partners to protect and restore flood-prone lands. Aspects of the project include land protection, riparian restoration research and development, large-scale restoration implementation, and a sustainable farming program. Outreach to local communities is a component of all aspects. The Project contributes to the improvement of the river's ecological health and the protection of the area's rich diversity of plant and animal life. As a crucial part of this project, TNC seeks to develop and demonstrate examples of successfully integrated land use along the Sacramento River.

#### *Acquisition and Restoration*

To address the drastic reduction of riparian habitat along the Sacramento River (Chapter 2), TNC has been involved in acquiring flood-prone lands since the 1980s, with the goal of restoring these lands to create large contiguous blocks of riparian forest. Working closely with a variety of public partners and willing sellers, TNC acquires existing riparian forest habitat for protection and flood-prone agricultural lands for restoration. Through riparian restoration research conducted over several years, TNC has explored biologically and economically feasible methods of restoration and monitoring to assess the effectiveness of the restoration, including wildlife of restoration sites. This has involved developing of large-scale, cost-effective techniques that can be demonstrated to public and private landowners and managers



interested in implementing riparian restoration. These techniques have been refined to include methods that can be duplicated using some traditional farming techniques. Restoration plans have been provided to local landowners and restoration manuals have been prepared that outlines tools and techniques for riparian restoration based on TNC's research and implementation.

### ***Sustainable Farming***

Recognizing the critical role that agriculture plays in both the environmental and economic health of the Sacramento River watershed, TNC initiated a sustainable farming program in 1994 to address the long-term compatibility of agriculture and wildlands. The goal is to promote farming methods that are both economically viable and environmentally sound. Working with California State University, Chico (CSUC), UC Extension, and local farmers, TNC has encouraged field trials of biological pest control practices on several TNC managed farms. In 1996, with funding from Department of Pesticide Regulation, TNC launched the Biological Prune System Program that provides free education and technical support to growers interested in adopting sustainable practices. Nine growers currently are enrolled in this voluntary program.

### ***Kopta Slough Partnership***

In the 1980s, TNC took on its first riparian restoration project at Kopta Slough, near Corning. TNC manages this 700-acre property, owned by the State Controller's Trust. It serves as the main research and development site for refining riparian restoration technology. This includes experimenting with techniques potentially compatible with both agricultural production and riparian restoration, with the intent of keeping the land productive during the time that restoration plantings are maturing. Development of successful techniques may also lower the cost of restoration per acre. To date, 140 acres have been planted with riparian forest species.

### ***Phase I Mitigation Partnership***

In 1990, TNC entered into an agreement with the U.S. Army Corps of Engineers (USACE), Bureau of Reclamation (USBR), and U.S. Fish & Wildlife Service (USFWS) to restore 260 acres of land adjacent to the river as mitigation for an USACE bank stabilization project (Chapter 2). Five sites, a total of 203 acres, have been planted to date: River Unit in 1990; Sam Slough Unit in 1991; Princeton Ferry Unit in 1992; Loman Unit in 1994; and Shaw Unit in 1995. After the first year of planting, two years of irrigation and weed control are conducted. After the third year, active management and maintenance cease and the unit becomes self-sustaining. River, Sam Slough and Princeton Ferry Units are no longer under active management/maintenance. Loman and Shaw Units are still being actively managed and maintained. All sites are monitored annually.

### ***Llano Seco Ranch Partnership***

TNC purchased a conservation easement in 1991 from the Parrott Investment Company, owner of Llano Seco Ranch, in Butte County. The easement applies to 2,900 acres of riparian forest, oxbow lakes, and cultivated field cropland on the 18,000 acre ranch. A goal for riparian and grassland restoration work on the easement site is to work cooperatively with the landowner to conduct restoration in a compatible manner with ongoing farming activities.

### ***U.S. Fish and Wildlife Service Partnership***

TNC has been working with the USFWS since 1991 to protect and restore riparian forest along the River (see following section). TNC assists USFWS with acquisitions of land to be included in the Sacramento River National Wildlife Refuge and manages these properties under a Cooperative Land Management Agreement. Agricultural lands are leased to local farmers, with some of these farmers involved in the restoration implementation. Recently, a local landowner under contract with TNC restored 50+ acres of USFWS property adjacent to his own lands to reduce the risk of flood damage to his fields.

Another partner is the Point Reyes Bird Observatory which has been monitoring birds in riparian forest adjacent to farmlands and in restoration sites to help determine wildlife use in these areas. Additionally, TNC has been working with CSUC, giving students direct, hands-on experience with sustainable farming and riparian restoration. CSUC is propagating more than 29,000 native plants for use in riparian restoration sites along the River. Additional partners include UC Cooperative Extension and private pest management companies.

### ***The Sacramento River National Wildlife Refuge (U.S. Fish and Wildlife Service)***

The purpose of the Sacramento River National Wildlife Refuge (NWR) is to preserve, restore, and enhance riparian habitat for threatened and endangered species, neotropical migrants, waterfowl and other migratory birds, anadromous fish, residential riparian wildlife, and plants. The riparian community is one of the most important wildlife habitats in California and North America.

Sacramento River NWR is a part of the Sacramento NWR Complex within the Sacramento Valley, is composed of fifteen separate units along an 80-mile stretch of the Sacramento River between Red Bluff and Butte City. The Refuge consists of 6,544 acres in fee title of a mixture of riparian habitat, wetland/uplands, intensively managed walnut and prune orchards, and row crops in Tehama, Butte, and Glenn counties. The Refuge administers 1,281 acres of riparian conservation easements which brings the total riparian acreage under the Refuge system to 7,825 acres.

The Refuge was established in 1989 by authority provided under the Endangered Species Act of 1973 and the Emergency Wetlands Resources Act of 1986, using funds available through the Land and Water Conservation Fund Act of 1965. The USFWS proposed acquisition of 18,000 acres of land for establishment of the Sacramento River NWR. The area considered for acquisition is located along the Sacramento River between Colusa and Red Bluff in Colusa, Glenn, Butte, and Tehama counties. A combination of fee title and conservation easement acquisitions will be used to protect this habitat.

Many of the activities of the Refuge are carried out in cooperation with other efforts. The Llano Seco Ranch is an example of one of these cooperative efforts. This historic wetland and riparian area, also known as the Parrot Ranch, covers 18,000 acres in Butte County. In 1991, a cooperative partnership involving the landowner, TNC, USFWS, and The Wildlife Conservation Board, completed an acquisition process that now protects 14,000 acres of the ranch under fee title or conservation easements.

### ***The Sacramento River Wildlife Area and Other Properties (California Department of Fish and Game)***

The California Department of Fish and Game (DFG) is managing riparian habitat within its Sacramento River Wildlife Area, as well as other locations on the river. These lands were acquired to preserve, enhance, and restore Sacramento River riparian wetland habitats, and to provide habitat for the wildlife species associated with the area, particularly threatened and endangered species. The Wildlife Area is between River Mile 215 (near the Butte-Tehama County Line) and River Mile 145 (near Colusa), and consists of 13 units totaling 3,615 acres. The management goal for this area is to allow river processes to maintain the components of the ecosystem, including channels, oxbow lakes, backwaters, banks, and associated terrestrial habitats. Long-range goals are to restore an unfragmented riverine-riparian ecosystem within the boundaries of the Wildlife Area, and to allow river processes to restore habitat types where feasible. These goals will ensure that habitat and species diversity will be maintained, and that listed species and their habitats will be preserved. In addition, future management will include the control of exotic species such as fig, tamarisk, and giant reed, and an agricultural component. Management will emphasize low-impact nonintensive public uses such as nature study, hunting and fishing. Public use will be affected by limited access, neighboring landowner and public safety concerns, and area closures and use constraints required for habitat and species protection.

#### ***Riparian Restoration-Agricultural Operations Program***

DFG currently contracts with the CSUC University Farm to manage prune and almond orchards and field crops at the Pine Creek Unit (Jenny Lind Bend: RM 195-197). Agricultural operations at the site are integrated with riparian restoration needs and provide a source of funding for restoration of the site.

#### ***Other Parcels***

In addition to the 13 units within the Sacramento River Area, Island Fishing Access, Mouth of Cottonwood Wildlife Area, Battle Creek Public Access, Bonnyview Road Fishing Access, Bend Bridge Public Access, Anderson Fishing Access, DFG owns and manages several other parcels of riparian habitat; about 950 acres, within the proposed Conservation Area. These include Turtle Bay East Fish Access, Reading Red Bluff River Park and Fishing Access, Beaver Lake and Collins Eddy. The fishing access sites are generally managed by local cities or counties, generally managed the fishing access sites under a cooperative agreement with the state.

Private landowners also work with DFG to conserve riparian habitat through conservation easements. Along the Sacramento River, these easements total approximately 350 acres.

### ***Sacramento River Area (Bureau of Land Management)***

The Bureau of Land Management (BLM) is working to acquire 19,000 acres of undeveloped lands within Tehama County north of Red Bluff (Redding Reach) to protect the area's riparian and wetland values, enhance the river's anadromous fisheries and provide continued recreation opportunities. Acquisitions and land exchanges are being carried out with monies from the Land and Water Conservation Fund.

BLM also owns and manages two parcels in the Red Bluff - Chico Reach, Foster Island, a 250 acre parcel of riparian habitat at River Mile 211, and Todd Island, a 223 acre parcel at River Mile 237.

The Sacramento River Area, located in Tehama County, encompasses 40,000 acres in a 26-mile river corridor. Nearly 27,500 acres are in private ownership, the state owns 500 acres, and the remaining 12,000 acres are in BLM ownership. Nearly 90 percent of the total area remains in pristine condition.

BLM has been working to consolidate federal ownership within the Sacramento River Area for more than 20 years. Included in BLM's ownership are 14 miles of critical river frontage, 100 acres of wetlands and 600 acres of nesting habitat for waterfowl and shore birds. Through BLM's 1993 Redding Resource Management Plan (RMP), portions of the river and its tributaries were determined eligible for inclusion in the National Wild and Scenic River System. The area provides habitat for the endangered bald eagle and tadpole shrimp and numerous sensitive and proposed listed species plants. The river's waters provide habitat for the federally listed endangered Chinook salmon. BLM partnerships include:

- Working with DFG is to preserve wildlife and fish habitat within the area.
- The Wildlife Conservation Board (WCB) has provided funding for acquisition and wetland projects and the American Land Conservancy, the Trust for Public Land, and Sierra Pacific Industries have played a major role in land acquisitions.
- BLM entered into a cooperative agreement with the Santa Clara Unified School District in 1987 to facilitate the construction and maintenance of various trails and facilities within the area. The school district also uses the area for summer environmental programs.
- Cooperative agreements completed with CSUC and Shasta College have been integral to the conservation and inventory of important cultural sites.
- BLM has worked with the California State Lands Commission to develop an agreement to give BLM management responsibility over two state-owned Islands where there was extensive and uncontrolled public use.
- Tehama County, Wildlife Conservation Board, Department of Boating and Waterways, and BLM are working together to provide a well designed and managed boat launching and day use facility near the community of Bend. Orientation/Information displays and a wheelchair accessible fishing platform and dock have been provided in part by a grant from the El Paso Natural Gas Company. The Bend School District has entered into a cooperative environmental education program with the BLM, and has adopted the Bend Facility.

### ***State Parks (California Department of Parks & Recreation)***

The California Department of Parks and Recreation (DPR) owns and manages five parcels of riparian habitat along the Sacramento River. These are the William B. Ide Adobe State Historical Park, Woodson Bridge State Recreation Area, Irvine Finch River Access, Bidwell River Park State Recreation Area, and the Colusa-Sacramento River State Recreation Area. These holdings total approximately 700 acres with many types of riparian habitat. The Woodson Bridge State Recreation Area includes

both sides of a river bend and contains one of the best remaining remnants of high terrace valley oak woodland along the river.

### ***Other Holdings (Various Agencies)***

In addition to these established programs, a few miscellaneous parcels exist on which the habitat is protected under public ownership. These include city parks and a few parcels owned by the State Lands Commission (SLC). The largest SLC holdings are a 50-acre site at Battle Creek (managed by BLM), a 40-acre site at Lawrence Island (RM 269, Redding to Red Bluff Reach) and a 127-acre site at Mary Lake (RM 87-88, Colusa to Verona Reach).

## **MITIGATION PROGRAMS**

Riparian vegetation may be removed during the course of USACE bank protection work. The resulting bank protection and associated maintenance activities may preclude the natural reestablishment of the lost habitat. As a result, USFWS has required mitigation for these activities. Mitigation measures have taken several forms; one of which is the protection of riparian habitat through environmental easements and on lands that the Reclamation Board has purchased in fee from willing sellers.

### ***Land and Easements—Sacramento River Bank Protection Project Mitigation ( U.S. Army Corps of Engineers, California Department of Water Resources)***

The easements purchased between Chico Landing (RM 194) and Collinsville (in the Sacramento-San Joaquin Delta) are between the waterside levee toe and the river on the waterside berms along the levees of the Sacramento Valley Flood Control Project. Easements purchased above Chico Landing include additional strips along the top of Chico Landing to Red Bluff Project rock riprap. DWR's Encroachment Control Section inspects the easements twice yearly. Inspectors look for any encroachments or unauthorized activity in these areas. There are approximately 32 of these easements totaling 300 acres.

The Reclamation Board owns two mitigation parcels (Phelan Island and Murphy Slough) totaling approximately 780 acres within the Conservation Area in the vicinity of Chico Landing. These two parcels were acquired as mitigation for construction and maintenance of the Sacramento River Bank Protection Project.

### ***Evaluation of Mitigation Measures***

USFWS completed an evaluation of selected bank protection sites (Units 27-36) in 1987. The results of this evaluation indicated that one environmental measure (rock fill), which was to help protect berm areas, was costly and generally failed to ensure preservation of riverbank wildlife habitat. A second measure, acquisition of environmental easements, was also determined to be costly and only partially successful, determining that the major problem and habitat-limiting factor at most sites was the overuse of fire and discing by landowners and reclamation districts to eliminate vegetation cover, USFWS made several recommendations for improving the success of mitigation work.

In 1991, the USFWS completed a second evaluation of the effectiveness of mitigation measures employed under the SRBPP. Mitigation measures evaluated included land acquisition, experimental artificial bank swallow nesting habitat, and experimental fishery mitigation structures (rock fill was not evaluated due to a lack of information regarding sites where this measure was used). The results of this evaluation indicated that while replanting efforts were successful, lands acquired generally remained in the same condition as when acquired. In addition, the USFWS found that experimental bank swallow and fishery mitigation structures did not fully replace habitat values lost by conversion of natural banks to rock revetment.

## FLOOD MANAGEMENT PROGRAMS

### ***Murray, Burns and Kienlen Sites (The Reclamation Board)***

The Reclamation Board has adopted policies to preserve riparian vegetation within the Sacramento Flood Control Project. The Board contracted with the engineering firm of Murray, Burns and Kienlen (MBK) to conduct a study to determine if riparian vegetation could help to the course of the river. The 1978 report of that study identified 38 riparian vegetation sites totaling 4,100 acres that serve a flood control function by contributing to the overall stability of the Sacramento River and its overflow areas between Tisdale Weir and Hamilton City. The Board accepted the findings of that report as a plan of flood control. The vegetation on some of these sites provides important benefits to flood control by reducing the effects of high velocity flows. These floodflows cause serious erosion to river banks and levees and subsequent sedimentation of downstream facilities.

About 440 acres of these sites have been purchased from willing sellers through 1990 and are currently owned by the State of California (Reclamation Board). In addition, other sites have been acquired as part of the Sacramento River National Wildlife Refuge, the Sacramento Wildlife Area (see above descriptions), or other programs.

### ***Designated and Regulatory Floodways (The Reclamation Board and the National Flood Insurance Program)***

Both the Reclamation Board and the National Flood Insurance Program (NFIP) have regulations and guidelines regarding land use in floodways. A *designated floodway*, as defined by the Board, is the river channel and that portion of the adjoining overflow floodplain required to reasonably provide for passage of the 100 year flood (Chapter 2). A *regulated floodway*, as defined by the National Flood Insurance Program, is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. Many portions of the Sacramento River fall under one or both of these designations.

The Board's designated floodway is a nonstructural means of preventing uses and structures from encroaching into waterways, obstructing floodflows and increasing flood damage. It reduces the impact of flooding by preserving the reasonable flood-passage capacities of natural watercourses and floodways. Local communities, as well as special districts and county governments, are encouraged to enter actively

into the Designated Floodway Program, to incorporate designated floodway maps as part of their zoning ordinances, and to develop sound floodplain management practices. The NFIP prohibits development within the regulatory floodway unless it can be proven that there will be no rise in the base flood elevation, i.e., the water surface elevation of the 100-year flood. Development, including structures, is permitted in fringe areas of the 100-year floodplain outside the regulatory floodway, but must meet specific development standards.