River Partners Acquires 500-Acre Hidden Valley Ranch

**Purchase Expands the Dos Rios Ranch Flood Control and Restoration Project**

By: Julie Rentner, Central Valley Regional Director

One year after the devastating hurricane Sandy destroyed or damaged hundreds of thousands of homes and permanently affected the New Jersey economy, the need to allow our waterways room to expand without damaging property and threatening public safety has become even more essential. River Partners was able to spearhead the acquisition of 500-acre Hidden Valley Ranch adjacent to Dos Rios Ranch in Stanislaus County to do just that — allow the San Joaquin River more room to expand during flood years, and spare local and regional assets from flood damages in the future.

Hidden Valley Ranch — which currently serves as a dairy and farming operation - includes 1.5 miles of San Joaquin River frontage. The adjacent 1600-acre Dos Rios Ranch and the 8,000-acre San Joaquin River National Wildlife Refuge are located at the confluence of the Tuolumne and San Joaquin Rivers. Together, the three properties encompass both sides of the San Joaquin River’s floodplain for a five-mile reach. The land also provides essential habitat for migrating birds along the Pacific Flyway and to fifteen species of animals that are listed as endangered, threatened, or species

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The work of riparian restoration alongside California rivers frequently necessitates the cooperation of local, state and federal agencies. Coordination is essential as plans are developed, funding is sought, and implementation is initiated. Sometimes developments move quickly, as in the purchase of the Hidden Valley Ranch (see page 1), and sometimes things take a bit longer, as in the effort to breach the levees known as Three Amigos.

The disastrous Northern California flood of January 1997 caused forty-one cities to be declared emergency areas and damage to agriculture and livestock was placed in the billions of dollars. In the Central Valley the highest flows recorded since 1862 raced down the Tuolumne River from Don Pedro Reservoir, rushed into the San Joaquin River, overtopped the levees and wiped out farms along the River and breached the associated Federal levees at Reclamation Districts 2099, 2100 and 2102 (later known as the Three Amigos).

Following the flood, the levees were partially repaired and a multi-agency task force was established to consider a long-term solution for flooding in the area. The task force recommended that the US Department of Agriculture partner with the US Fish and Wildlife Service to purchase the flooded farmlands in the three reclamation districts and use the opportunity to investigate non-structural flood management alternatives, including the breaching of the three levees.

The breaches would allow river floodwaters to spread over the former floodplain, optimize transient flood storage on the site, and relieve pressure on downstream levees and communities during times of high flows.

The farms were purchased in 1999 and added to the west unit of the San Joaquin River Wildlife Refuge in an area now referred to as the Hagemann, Lara, and Vierra properties, named after the three former farm owners. Perpetual conservation easements were placed on the properties under the USDA National Resources Conservation Service Floodplain Easement Program and the Wetland Reserve Program.

In June 2000 a Memorandum of Agreement was signed amongst the US Army Corps of Engineers, Fish and Wildlife and the State Reclamation Board (now Central Valley Flood Protection Board) in which all parties agreed to the non-structural alternative for the Three Amigos levees. Additional activity included the purchase of flood easements over adjacent lands by the Corps, and the Corps’ agreement to amend the Operation and Maintenance Manual for the subject levees to allow their operation in a permanent breached condition. An environmental assessment for the project was subsequently completed by the Corps.

Two studies by Phillip Williams and Associates in 2001 and 2004 (now ESA PWA) produced a hydrodynamic model of water flows relative to levee breaches including several alternative configurations. Two years later, the 2006 Refuge Comprehensive Conservation Plan endorsed the breaching of the levees as did the Central Valley Flood Protection Plan of 2012.
Meanwhile, in 2002 River Partners began restoration work on the Refuge, planting 777 acres of riparian habitat. Since then some 2500 acres have been restored. Beyond flood protection, the breaching of the levees and the reconnection of the San Joaquin River with the west unit of the Refuge will also assume additional ecological functions: enhancing habitat management by fostering drainage to combat standing floodwaters and rejuvenating the floodplain by providing deep percolation of water every few years and pushing salts down in the soil profile. The flooding of the area would also provide access to rich foraging habitat for salmonids and other native fish.

In September 2013, a draft workplan prepared for River Partners for the breaching of the levees was completed by ESA PWA as part of the Ecosystem Restoration and Floodplain Attenuation Project (ERFA) underway at the Refuge. Funding for this plan is provided through a grant from the state Department of Water Resources Flood Corridor Program. The plan seeks to update the existing hydrodynamic model and preliminary structure design. Stakeholder meetings are presently underway with the participation of federal, state and local agencies and a final project report is due in May of 2014.

It has taken more than 15 years to reach this stage in the process of breaching the Three Amigos levees. While the flood control and ecological benefits of the non-structural approach remains obvious to all, the technical and coordination complexities have challenged even the most avid proponents. Nonetheless, I hope to report the successful breaching of the levees in a not-too-distant Journal.
The Value of Native Understory Species in Riparian Restoration Projects

By Andrew Rayburn, Restoration Ecologist, River Partners

River Partners has developed a highly successful formula for riparian restoration that focuses on a combination of cost-effective agronomic practices, sound science, and productive relationships with landowners, public agencies, local governments, irrigation districts, and nonprofit organizations. Our restoration projects provide numerous recreational and employment opportunities for people, in addition to enhancing ecosystem services related to wildlife, pollinators, plants, water, and soil.

From a vegetation perspective, we tend to connect most deeply with the charismatic macro-habitat – the restoration of overstory forests of cottonwoods, willows, and oaks. While the 30-foot cottonwoods of a 5-year old restoration site seem very impressive to us, it turns out that the smallest components of the vegetation community – the grasses, herbs, and shrubs – may play an even more important role in wildlife recovery and restoration success than those gentle giants. Thanks to significant developments in our understanding of wildlife response to restoration, and the horticultural realities of weed infestations on floodplains, we now recognize the importance of actively restoring riparian understory communities, especially because recent research suggests native understory species are unlikely to naturally colonize restored riparian forests along California rivers (McClain et al. 2011).

River Partners’ approach to riparian restoration blends modern agricultural and horticultural techniques, restoration ecology, and adaptive management. To date, we’ve planted over 1.5 million native trees and shrubs on 8,000 acres of floodplains along streams and rivers across California. Common native grasses used by River Partners in riparian restoration projects include creeping wildrye (Elymus triticoides), blue wildrye (Elymus glaucus), saltgrass (Distichlis spicata), and purple needlegrass (Stipa pulchra) (Fig. 1). River Partners also strives to utilize native forbs (Fig. 2), such as gumplant (Grindelia campestris), mugwort (Artemisia douglasiana), and goldenrod (Euthamia occidentalis), in addition to native rushes and sedges, such as Santa Barbara sedge (Carex barbara).

Different understory species have different soil and water requirements for effective establishment. Native grasses are often drill-seeded, while forbs and sedges are often established using broadcast seeding or plug planting. After planting, the understory is adaptively managed for at least one additional year through a combination of irrigation, mowing, and herbicide application to control exotic species.

Native understory species are now recognized as critical components of riparian restoration projects in California since they enhance the provision of ecosystem services and contribute to restoration success (Golet et al. 2008, Tjarks 2012, Rogner 2013). Native understory species are critical components of foraging patches for the endangered riparian brush rabbit (Sylvilagus bachmani riparius), a frequent target of riparian restoration efforts in the northern San Joaquin Valley. The endangered Least Bell’s Vireo (Vireo bellii pusillus) favors riparian habitat with a dense, mugwort-dominated understory (Wood et al. 2006). Following the recommendations of the California Partners in Flight Riparian Bird Conservation Plan (RHJV 2004), River Partners restored such habitat in the San Joaquin River National Wildlife Refuge (SJRNWR) as part of a large-scale riparian restoration project that continues to this day. Happily, Least Bell’s Vireos were observed breeding successfully in this habitat at SJRNWR in 2005 and 2006, the first such occurrence in over 60 years.

We have also observed that native-planted understories may also be more resistant to invasion of problematic riparian weeds such as yellow starthistle (Centaura solstitialis), perennial pepperweed (Lepidium latifolium), salt cedar (Tamarisk spp.) and giant reed (Arundo donax) (Tjarks 2012). Native grasses, such as creeping wildrye, are highly competitive and can form dense mats that prevent exotic weed establishment. The inclusion of fast-growing native forbs, such as mugwort and gumplant, further contributes to invasion resistance by reducing available light...
and soil resources for newly germinated weed species. Monitoring data suggests both rapid and sustained replacement of exotic species by mugwort and other native understory species, which grow and spread rapidly in shady conditions beneath overstory vegetation and respond well to disturbances like fire and flood (Tjarks 2012, Fig. 2).

The diverse palette of native understory species used by River Partners also benefits pollinators that support agricultural production and provide critical ecosystem services in California landscapes. Diversity in pollen sources and diversity in the timing of nectar availability has been identified as an important restoration objective to support native pollinator populations (Harmon-Threatt 2009). With over 12 species of perennial flowering herbs and numerous shrub species that provide nectar and pollen throughout the year, we can expect that our efforts likely support native pollinator populations in meaningful ways.

The use of native understory species in riparian restoration projects has additional benefits related to forage provision and soil fertility. Native grasses (such as *Stipa palustre*, George et al. 2013) and native forbs (such as *Trifolium spp.* can provide high-quality forage for both livestock and wildlife, supporting restoration goals and facilitating the control of exotic species through carefully timed grazing by cattle, sheep, or goats. Leguminous forbs also fix nitrogen and have positive effects on soil fertility.

Thanks in part to River Partners’ innovative restoration approach, inclusion of native understory species has become an integral part of “state-of-the-art” riparian restoration projects in California. This is turn has helped motivate state-wide research on the weed-control benefits of native understory species, their value to wildlife and pollinator species, and their long-term response to flooding and other forms of disturbance. In the future, River Partners will continue to experiment with new understory species and planting methods to enhance the provision of ecosystem services in our riparian restoration projects.

References


Figure 2. A River Partners’ biologist conducts measurements in a patch of gumplant (*Grindelia camporum*) planted in the understory of a riparian restoration project at the San Joaquin River National Wildlife Refuge.
Rancho Jamul Riparian Restoration: Wildfire Recovery

By David Neubert, River Partners

In October 2007, the Harris wildfire began burning near the town of Potrero, just north of the U.S. and Mexico border in south San Diego County. The fire burned in a northwest direction, enveloping the California Department of Fish and Wildlife, Rancho Jamul Ecological Reserve and the Hollenbeck Wildlife Area. In total, the fire consumed over 90,000 acres and devastated the local community with loss of life and property.

In 2008, River Partners began to evaluate the Rancho Jamul/Hollenbeck site for its restoration potential. The wildfire destroyed habitat for numerous Neotropical migratory birds and listed species, including Least Bell’s Vireo, California gnatcatcher, Quino checkerspot butterfly, and the Arroyo toad. Additionally, the fire devastated habitat for eight other bird noted on California’s list of “Special Concern Species,” along with five bats, four reptile species and two mammals.

After the wildfire, invasive weed species such as arundo were some of the first plants to regenerate (see photo). The California Department of Fish and Wildlife (DFW) was concerned that habitat at the Ecological Reserve and Wildlife Area would be permanently altered in ways that would make it difficult for listed and non-listed species to reestablish themselves after the fire. In early 2009, River Partners prepared a habitat restoration proposal for 178 acres of riparian habitat on DFW property along Dulzura Creek and Jamul Creek. These riparian areas contain some of the most biologically valuable habitat in the county.

San Diego is unique in that it has more threatened and endangered listed species than any other county in the U.S. Given the pressure that wildlife is under in high growth areas such as San Diego, it is imperative that wildlife managers and conservation officials keep existing habitat in a state that will support the many species that rely on this unique resource.

The Wildlife Conservation Board provided a grant to River Partners in the amount of $1.6 million to restore riparian habitat at the Rancho Jamul Ecological Reserve and Hollenbeck Wildlife Area in the spring of 2011. The award of the grant was in part delayed due to the 2008/2009 recession that resulted in many State agencies, including WCB, to slow or freeze spending on new projects.

River Partners began restoration planning at the Rancho Jamul/Hollenbeck sites in mid-2011. By this time some herbaceous species had already started to establish along the creek banks. Some of this new growth included native species, but much of it contained invasive species such as castor bean, salt-cedar and arundo. Areas away from the creeks remained largely devoid of native vegetation.

The area around the restoration site had once been used extensively by Native Americans and contained a number of historical sites that needed to be protected during the restoration process. To do this, River Partners hired a local archaeologist to provide guidance in restoration planning and implementation. The archaeologist worked with our field staff and was present whenever any ground-disturbing activities occurred (discing, trenching, drilling, etc.). As a result of the extensive archaeological sites at Rancho Jamul and Hollenbeck, River Partners modified our restoration plan footprint to avoid Native American campsites and the location of a settler’s adobe house.

With planning and permitting behind us, River Partners began planting the Rancho Jamul site in the fall of 2013. When completed, the site will contain over 19,000 native plants maintained on drip irrigation through the end of 2016. Additionally, we will control invasive species on the 178-acre site to ensure that the native species are well established and able to out-compete the invasive species. The outcome of all of this work will provide habitat for numerous threatened and endangered species, as well as Species of Special Concern and Neotropical migratory birds. The citizens of our state will be the ultimate beneficiaries through this project’s efforts to maintain biodiversity in one of the most complex ecological regions in our nation.
2013 Mud Blasts links Fun, Fitness, and River Conservation in Colusa and Modesto

More than 1500 runners turned out for mud pits, hay bales, climbing walls, and river running at the 3rd annual Colusa Mud Blast at the Willow Bend Preserve on September 19th and the 2nd annual Modesto Mud Blast at Dos Rios Ranch on October 26th. The number of running teams hit a record of 150 between the two events and the costumes were fantastic! This annual fundraiser contributes to River Partners’ conservation work in the Central Valley by providing needed funds to plant trees, maintain irrigation systems, purchase land for conservation, and enhance environmental quality for California residents. It is also an excellent excuse to get the blood pumping across a beautiful 5K course full of intense obstacles. One new addition this year: a 15-foot hay bale pyramid was erected at Dos Rios Ranch that had everyone wondering “Is this really safe?” (It was). Special thanks to all the volunteers who graciously offered their Saturdays to register runners, watch out for obstacle mis-haps, and of course, pour beer for our thirsty athletes. Hope to see you next year!

Thanks to Our 2013 MudBlast Sponsors who helped to make our event a success: Sierra Nevada Brewing Company • PG&E • Tri Counties Bank • Modesto Subaru • Kinder’s • Fleet Feet Sports Authority • Mape’s Ranch • Mt. Shasta Water • Sierra Horticulture • Recology • Colusa • Superior Tire • Floral Native Nursery • MBK Engineers • California Highway Patrol • B&J’s Concrete

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As I retire this year, I have been asked by the Board Chair to write my reflections about my tenure at River Partners. What immediately comes to my mind has been River Partners on-going development of Restoration Technology that results in quality wildlife habitat. During my tenure, beginning in 2002, RP staff advanced our knowledge of the horticulture requirements for establishing native plants, that is, how to design the vegetation for the needs of target wildlife, and how to translate the design into the field.

The implementation of RP restoration projects today routinely achieves 90 percent establishment efficiency (achieving targets) by: a) the refinement of the tile-labeling system (invented by RP co-founder Barney Flynn) which allows for the accurate translation of a plant design map into a planted field. (See Summer 2006 Journal); and b) the development of diverse understory plantings composed of grasses and forbs.

The planting of the diverse understory accomplished two important ecological goals: the virtual elimination of invasive weeds (we now routinely expect to cover 100 percent of a restoration field with native plants!); and the improvement of the ecological quality of our projects to attract more species of wildlife, including the endangered least Bell’s vireo. (Fall 2005 and Fall 2007 Journal).

We have developed partnerships with other floodplain managers including landowners, and significantly, flood management engineers who are the final word in how riparian areas are managed in the Central Valley. (Dec 2012 Journal).

I am especially pleased with my role in the development of the California Riparian Restoration Handbook.

My last professional job is participating in the development of a workshop to explore the behavior of plants when they are inundated by flood flows and how they respond to the various hydraulic forces of river flows: how do plants affect flood flows and to explore possible uses of plants in the floodway for better management of flood flows for Public safety. The workshop is aimed at an audience of flood management engineers.

I have been fortunate to work at River Partners with a group of bright, enthusiastic people in an environment that cultivates creative thinking and actions.

“We don’t have any rules around here. We are trying to accomplish something.”

-Thomas Edison