



R I V E R
P A R T N E R S

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River Partners Featured on the History Channel, January 24

River Partners' riparian restoration work on the San Joaquin River National Wildlife Refuge will be featured on the History Channel's popular show, "Modern Marvels."

The need for riparian and wetland restoration, especially in light of the Hurricane Katrina disaster, led Modern Marvels to River Partners and its expertise in large scale habitat restoration. Developing an episode about environmental technologies, the show's production team filmed the large-scale Vierra Unit planting in October 2006. They interviewed John Carlon, River Partners President, Dr. Tom Griggs, Senior Restoration Ecologist, Stephen Sheppard, Director of Field Operations, and Kim Forrest, Wildlife Refuge Manager of the San Luis National Wildlife Refuge Complex.

Funding for the restoration of the more than 500-acre Vierra Unit of the San Joaquin River National Wildlife Refuge was generously granted by the following agencies:

- The California Department of Water Resources, through its Flood Corridor Protection Program – www.dfm.water.ca.gov/fpcp
 - The U.S. Fish & Wildlife Service – www.fws.gov
- For more information, visit
- Modern Marvels website: www.history.com/minisites/modernmarvels
 - River Partners website: www.RiverPartners.org
 - San Luis NWR Complex: www.fws.gov/sanluis

MODERN MARVELS

The episode with River Partners will premiere on the History Channel on

Wednesday, January 24th:

- 10:00 pm (Eastern/Pacific Times)
- 9:00 pm (Central Time)
- 8:00 pm (Mountain Time)



River Partners' new plantings at the Vierra Unit of the San Joaquin River National Wildlife Refuge.



Sherrie Russell Meline

River Partners to Lead Several Snow Goose Festival Tours January 26-28

Dan Efseaff and Dr. Tom Griggs will lead two different nature walks which will showcase River Partners restoration work along the Sacramento River. The Festival's schedule and tour registration information can be found at www.snowgoosefestival.org. River Partners is a proud sponsor of this event.

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580 Vallombrosa Ave.

Chico, CA 95926

Ph: 530.894.5401

Fx: 530.894.2970

Modesto, CA 95354

Ph: 209.521.1700

Fx: 209.521.7327

info@riverpartners.org • www.riverpartners.org

The Journal is published quarterly by River Partners, a 501(c)(3) not-for-profit public benefit corporation. Our mission is to create wildlife habitat for the benefit of people and the environment.

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Message from the Board Chair



Board Chair Irv Schiffman

In early December I accompanied five other River Partners board members to view our riparian restoration work along the confluence of the Bear and Feather Rivers. The old levee on Bear River had been dismantled and a new and stronger levee was set back an average of about 1,800 feet from the river. The restoration project we visited contains the 600 acres lying between the river and the new levee and is designed to serve three purposes: a scientifically constructed flood plain designed to absorb and control river

overflow, creation of habitat for native species such as Chinook salmon and Swainson's hawk, and Corp of Engineers Section 404 habitat mitigation, particularly with regard to Elderberry mitigation. Elderberry shrubs are essential habitat for the Valley Elderberry Longhorn Beetle (VELB), a threatened species. Impacts to the VELB from development or other land management and use must be mitigated with transplanting or planting of elderberries within the VELB's range.

The River Partners field crew planting according to the computer designated labels. Photo by Irv Schiffman.



I knew that prior to the work an elaborate and complex computer model had been developed, making use of River Partners database technology to ensure that the restoration would be carried out in a sound ecological manner. But nothing compares to observing this computer model translated into reality by the field crew: from the computer, each plant species is given a number and label and the field crew then follows the labels, implementing the model's design much like a "paint by numbers" set. We watched how cottonwoods, willows, valley oaks and an assortment of shrubs and native grasses were being planted in this most efficient manner

Unless you actually spend time at a River Partners' restoration area, it is hard to imagine the scope of field work involved in completing a project, from removing existing vegetation, creating the correct topography, digging wells, laying irrigation lines, tilling the soil, computer-directed planting, and weed control. To do a professional and quality job, these types of restoration projects take time. Although they could be done quicker and less well, that isn't the River Partners way—and that is why I am delighted to be associated with this organization.

Irv Schiffman

Fish-Friendly Irrigation

By Julie Pokrandt, Development Director

Thanks to a sophisticated piece of equipment—a fish screen and pump designed by Morrill Industries and constructed by Howk Systems—River Partners can draw irrigation water from the San Joaquin River without harming migrating Chinook salmon and steelhead trout. By using a fish screen with an irrigation pump, River Partners’ restoration of the Vierra Unit of the San Joaquin National Wildlife Refuge complies with the Endangered Species Act and NOAA regulations. The fish screen ensures that Chinook salmon runs are not impacted by field-watering activities; that the salmon and trout are not accidentally drawn up into the pump.

Design and Construction

Morrill Industries, headed by Ken Morrill, are the designers of the irrigation pump and fish screen for the Vierra project (See photo at top right). An expert in irrigation and waste water systems, Morrill Industries has clients throughout North America, Mexico, and Peru. Morrill’s systems, in addition to protecting fish, are used for cleaning waterways by filtering garbage or for irrigating agricultural fields. In River Partners’ case, Morrill’s rotating drum creates a low approach velocity. It is also self-cleaning. This allows fish to either swim away or be gently blown off the small diameter screens when the screen drum is lowered into the river and the pump is activated.

Howk Systems takes Morrill’s design and makes it a working piece of equipment. General contractors since 1938, Howk’s team conducts the complete installation of the pump and screen, including the mechanical and electrical systems. Though working along the San Joaquin is challenging, often there is only a small time window to install the equipment, Howk has successfully built a pump that can move at least 4,500 gallons of water per minute.

“It’s amazing how this technology



A high tech irrigation pump and fish screen enables River Partners to flood irrigate its new plantings, while protecting migrating salmon and steelhead in the San Joaquin River. Photo by River Partners.

works,” says Tom Weimer, president of Howk Systems. “You have a self cleaning irrigation pump, designed to be animal friendly and give you fish free water. This is relatively new technology and River Partners is a driving force in using this equipment.”

Morrill Industries and Howk Systems have worked on several other pumps for River Partners’ projects along the San Joaquin River.

Benefits of Flood Irrigation

So that newly planted trees, shrubs and grasses will grow and establish thriving communities, River Partners irrigates, or waters, its project sites for at least three years. Depending on the site conditions,

River Partners’ field team installs either a drip irrigation system or a flood irrigation system. A former agricultural field, the 500+ acre Vierra Unit is ideal for flood irrigation. Vierra’s large level area is capable of receiving the massive amount of water from the pump designed by Morrill and constructed by Howk.

“All our plants do better with more water,” says Senior Restoration Ecologist Dr. Tom Griggs. “Flood irrigation gives us the flexibility to grow understory plants — gumplant, mugwort, native grasses—really fast.” An established understory helps crowd out the invasive weeds during the first few years within an active restoration site. “Understory vegetation, by providing food and nesting sites, also benefits wildlife,” adds Dr. Griggs.

Stony Creek: Erosion and Invasive Weeds Threaten Agriculture and Creek

By Christiana Conser
Biological Technician

Private landowners along Lower Stony Creek in Glenn County have been losing acres of their land every year and until recently there’s been little they could do about it. Since 1963, creek banks have widened by almost 40% and the channel elevation has downcut five feet, causing devastating soil erosion and loss of land to the private landowners who own 96% of the property along the creek. So what happened in 1963 that caused

such dramatic changes to the creek? The U.S. Army Corps of Engineers completed Black Butte Dam, which drastically altered the creek’s physical integrity and created an erosion and ecological nightmare in the lower watershed. Due to the construction of the dam there has been an alteration of the hydrology and the complete cut off of sediment recruitment. The Army Corps regulates water releases from the dam for flood control, power

Continued on page 6

A New Chapter for Bidwell Ranch

By Dan Efsseff, Restoration Ecologist

Sitting on the doorstep of upper Bidwell Park, the environmentally rich Bidwell Ranch property has been in the public eye for decades.

River Partners recently began work for the City of Chico to develop a conservation and mitigation bank on the Bidwell Ranch property. Exploration of the site as a conservation and mitigation bank stemmed from a directive from the Chico City Council to staff in 2006.

We are hopeful that the River Partners' work begins a new chapter that resolves several issues on the property.

Working closely with City of Chico staff, agency partners, and the community,



Bidwell Ranch. Photo by Dan Efsseff.

River Partners will develop the technical information necessary to submit to federal and state agencies to establish the site as a conservation and mitigation bank. Once the agencies authorize the bank, it will be

up to the City to decide on whether to move forward with the mitigation bank.

Conservation or mitigation banks set aside land for environmental benefits in exchange for allowing development or

Bidwell Ranch Mitigation Bank: Q & A

What is a conservation or mitigation bank?

A conservation or mitigation bank is land managed for its natural resource values. Habitat credits are sold to entities that need to remedy environmental impacts. Conservation banks protect species on upland habitat, while mitigation banks protect species on wetlands. Conservation or mitigation banks:

- Offer landowners economic incentives to protect natural resources;
- Save developers time and money by providing them with the certainty of pre-approved compensation lands; and
- Provide for long-term protection and management of habitat.

How long will the project take and what's involved?

The project will take approximately two years to complete. The main tasks of this project are to:

- Review and summarize existing documents and information.
- Establish a Citizens and Stakeholder Advisory Group (SAG) to provide input on the project approach and

review key documents.

- Complete and submit a Site Inventory of biological resources and Preliminary Mitigation Proposal to State and Federal agencies.
- Develop a Management Plan and Mitigation Bank Enabling Instrument (MBEI).
- Prepare and record a conservation agreement. The entity that holds the agreement will be determined during the course of the project.
- Establish the mechanism for the endowment account with the appropriate entity.

What is the role of the public on the project?

Public input is very important to the project, River Partners will seek input through the Citizen and Stakeholder Advisory Group (SAG). The SAG welcomes interested citizens to provide input on the development of the site as a conservation and mitigation bank. Please contact River Partners to get on the mailing list.

For More Information

Please contact Dan Efsseff (defseaff@riverpartners.org (530) 894-5401 ext 21) or visit our website www.riverpartners.org.

improvements in public infrastructure in other areas. Habitat credits are sold to entities to mitigate for unavoidable environmental impacts associated with land development or infrastructure improvements.

As a city-owned mitigation bank, Bidwell Ranch would be permanently protected as habitat and open space, and would keep the profits of the bank for the citizens of Chico. The bank would provide the means to mitigate for environmental wetland impacts associated with key City capital projects, as well as streamline mitigation requirements for new local development.

River Partners is committed to an open, transparent process, and will establish a citizens and stakeholders advisory group to focus on the development of the property as a mitigation bank. The group will provide opportunities for citizens

As a city-owned mitigation bank, Bidwell Ranch would be permanently protected as habitat and open space, and would keep the profits of the bank for the citizens of Chico.

Bidwell Park are likely to be compatible with the property as a conservation or mitigation bank, but we will work with the agencies to find compatible uses.

The project is in the early stages and much of the available information will be refined over a two-year process. However,

we believe that this project provides an extraordinary opportunity to protect the environment and Chico's open space, partially offsetting the costs of the property, and streamline local mitigation issues.

The opportunity for public input begins with the first public workshop on the project in late February or early March.

River Partners will announce meeting details in the next few weeks. As the project progresses, information will be shared on the River Partners website: www.RiverPartners.org.



Butte County Meadowfoam, a rare wetland plant found on the Bidwell Ranch property. Photo by Butte Environmental Council.

to become familiar with the process and project and provide input.

During River Partners' project, opportunities for public access will be thoroughly examined. Not all recreational activities that people enjoy in upper

Dan Ejfseaff works for River Partners and has called Chico home since 1993. Comments or questions may be submitted to him by email (dejfseaff@riverpartners.org) or mail at: River Partners, 580 Vallombrosa Avenue, Chico, California 95926. He may also be reached at (530) 894-5401.

River Partners Project Updates

Vierra Unit, San Joaquin River National Wildlife Refuge

River Partners has installed more than 41,000 plants on this 511-acre site. The newly planted fields will be irrigated with a pump protected by a state-of-the-art fish screen (see article on page 3). Once fallow, abandoned agricultural land, the Vierra Project is at the center of a wildlife corridor connecting the San Joaquin, Tuolumne, and Stanislaus rivers to the south Delta. This project is featured this month in "Modern Marvels" on the History Channel.

La Barranca Unit

River Partners' field specialists have planted more than 23,000 native trees and shrubs on more than 200 acres. Located in Tehama County, approximately five miles southeast of Red Bluff, the La Barranca Unit project area is part of the Sacramento River National Wildlife Refuge (SRNWR), and is the most upstream property in a 10 mile contiguous block of Refuge-owned land along the west bank of the river. The goals of this project are to decrease flood damage while benefiting salmon, songbirds and endangered species.

Bear River Levee Set-back

River Partners field and science teams have planted more than 97,000 native trees and shrubs on this 640-acre restoration site, located at the confluence of the Bear and Feather rivers in Yuba County. River Partners is working with the Three Rivers Levee Improvement Authority, who has used our plan, budget and design as the blueprint for this project. (Please see Irv Schiffman's column, page two, for more details.)

Stony Creek: Erosion and Invasive Weeds Threaten Agriculture and Creek

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generation and irrigation purposes, and their management of the creek's hydrology has drastically altered the size and shape of the streambed. Gravel mines and invasive species have further accelerated the bank erosion, and made the problem even more difficult to solve. As a result, Lower Stony Creek has been transformed over 40 years from a thriving stream to a barren, weed infested landscape.

Stony Creek is the second largest tributary of the Sacramento River, and its watershed encompasses 741 square miles of the Coast Range in Glenn, Tehama, Colusa, and Lake Counties. Black Butte Reservoir is the apex of the Lower Stony Creek alluvial fan, which flows eastward for 20 miles to its confluence with the Sacramento River near Hamilton City. Historically, the creek experienced flash-flood like winter flows that washed huge amounts of sediment downstream from the Coast Ranges. In the summer, aquifers recharged the summer base flow of the creek.

Today the U.S. Army Corps of Engineers releases water from the dam in prolonged discharges to provide flood control and year-round irrigation water for the county, and turbines provide power for the city of Santa Clara. The dam holds back about 95% of the creek's huge sediment load, releasing only clear, sediment-free water that severely erodes the streambanks. This "hungry-water" scours the fine sediment that glues the streambank together, leaving unstable banks composed of exposed cobble. Over time, this has caused the active braided stream channel to incise, resulting in a widening, laterally migrating, stream channel. As the streambanks incise and widen, native riparian vegetation falls into the channel and the banks are left even more unstable.

The invasion of *Arundo* and *Tamarisk* into the stream channel of the creek has further exacerbated the problem. Both plants establish readily in the streambed and their substantial size redirects the streamflow toward the banks, further accelerating bank erosion. *Arundo* and *Tamarisk* were introduced to the creek in the 1950's and have spread downstream to the Sacramento River, mostly replacing the native riparian vegetation that provides natural erosion control along the banks. *Arundo* (*Arundo donax*) and *Tamarisk* (*Tamarix sp.*) are native to Eurasia, and were originally brought to the U.S. in the 19th century for erosion control and as ornamental plants. They have since escaped into wildlands where they have invaded millions of acres of riparian habitat throughout

the western U.S. Both plants have a negative impact on wildlife because they replace native vegetation, which provides critical food resources and nesting sites.

Private landowners have tried to address the bank erosion problems on their own for years, with little success. Most eventually began to recognize that the creek's problems had to be addressed on the watershed level, that no individual could solve them alone. The 486 private landowners approached the Glenn County Resource Conservation District (RCD) in 1998 to see if they could get some help. The RCD set to work to develop a plan to address streambank erosion and control *Arundo* and *Tamarisk* on the lower watershed. The RCD created Landowner and Technical Advisory Committees to provide input and expertise on the development of a cost-effective plan to restore the creek. The RCD has partnered with the CALFED Watershed Program, the Department of Water Resources, H.T. Harvey & Associates, and River Partners to develop and implement the plan. The RCD is working with the Army Corps to find a long-term management solution to the erosion issues created by Black Butte Dam.



Stony Creek in Glenn County is being seriously eroded by Black Butte Dam and the invasion of the non-native giant reed, *Arundo*, seen here along its banks. Photo by Ajay Singh.

An important part of the RCD's vision for the creek involves teaching landowners to address erosion problems by restoring their own property. RCD hired River Partners to teach landowners restoration techniques.

An important part of the RCD's vision for the creek involves teaching landowners to address erosion problems by learning how to restore their own property. To accomplish this goal, the RCD hired River Partners to teach landowners restoration techniques through a series of workshops held at a demonstration site on Lower Stony Creek, approximately 3 miles west of Orland, CA. The Lower Stony Creek Demonstration Project will demonstrate *Arundo* and *Tamarisk* removal techniques and streambank erosion control techniques using bioengineering, a method that uses living native woody plants and other materials to stabilize streambanks. The most effective techniques will be implemented cooperatively by the RCD and private landowners throughout the lower watershed. Cost for *Arundo* and *Tamarisk* removal alone in the lower watershed is estimated to be \$4.5 million. In addition to providing technical expertise, the RCD will help landowners comply with state and federal environmental regulations such as the Clean Water Act. After years of landowner frustration and ecological decline, it looks like changes are finally coming to Lower Stony Creek and according to Ajay Singh, Watershed Coordinator for the RCD, "The landowners want it to happen."



580 Vallombrosa Avenue
Chico, California 95926
www.riverpartners.org

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River Partners Annual Dinner & Silent Auction: March 23

Celebrating Restoration and California State Parks

Time and Place

Friday, March 23, 2007, 6 pm to 9 pm
The Big Room at the Sierra Nevada Brewery
1075 E. 20th St, Chico, CA 95928

Program Highlights

Silent Auction & Hors d'oeuvres
No Host Bar
Dinner, Awards, & Multi-Media Celebration

Admission

\$40 per person for tickets purchased before March 16
\$45 per person for ticket purchased after March 16.



California quail.

For early reservations, call (530) 894-5401 ext 22. Or mail in the form on page 7.

We accept MC and Visa payments.

Additional program highlights will be posted on our website: www.RiverPartners.org