

## Delta Restoration



Cucapá craftswomen sell their chaquira jewelry in El Mayor.

sector in the Mexicali Valley to increase efficiencies in conveyance and irrigation, and by extending the intentionally created surplus (ICS) concept to Mexico to allow for bi-national water transfers.

No restoration strategy will be successful in the long run if it ignores the relationship between nature and culture, particularly in the indigenous tribes that lived in the Delta for hundreds of years before the arrival of explorers and surveyors in the 1850s. The Institute will continue to work with the Cucapá community in Mexico to promote its cultural recognition and access to natural resources.

Expanded restoration efforts will recognize the importance of the Río Hardy area and its potential as an ecotourism destination. This year, the Department of Tourism in Baja California decided to create an ecotourism corridor called the Ruta del Río Hardy, similar to other routes such as the Ruta del Vino near Ensenada. A key

component of this initiative is the development of the Campo Ecologico Río Hardy, described above.

The Ruta del Río Hardy will also include two new centers. The first is the Villa Cucapá, an extension of the museum in El Mayor into a living-history museum with exhibits and demonstrations of arts and crafts, Cucapá cultural traditions, and the day-to-day use of natural resources in traditional Cucapá society. The second is a visitor's center to serve as a central information point for Mexican and American tourists and to educate them about fishing and hunting opportunities and the importance of water to wildlife.

### Why Your Support Is Important

When the Sonoran Institute initiated the Colorado River Delta project 10 years ago, we knew it would take a long time to reverse the damage caused by decades of indifference on both sides of the border. Through strong partnerships with non-governmental organizations, research institutions, government officials, and Mexican and U.S. community leaders, and with the support of generous, visionary funders, the Institute has laid the groundwork for comprehensive restoration that integrates environmental research, policy and community development. The next decade offers the opportunity to greatly expand on these successes and realize the ambitious vision of a renewed Delta with healthy ecosystems and vibrant communities.

**"The Sonoran Institute's conservation vision in the Delta includes the human element and is therefore effective in inspiring partnerships and real action."**

Enrique Villegas  
Secretary of Environmental Protection for Baja California



Great blue heron and egrets in the Ciénega de Santa Clara.



*So ended the Colorado. Two thousand miles above, it was a beautiful river, born of a hundred snow-capped peaks and a thousand crystal streams; gathering strength, it became the masterful river which had carved the hearts of mountains and slashed the rocky plateaus, draining a kingdom and giving but little in return. Now it was going under, but it was fighting to the end. Waves of yellow struggled up through waves of green and were beaten down again...The last vestige of day was swallowed in the gloom, just as the Colorado was buried 'neath the blue.*

E.L. Kolb, *Through the Grand Canyon from Wyoming to Mexico*, 1915

The Delta was dead. At least, that was the general presumption. And nobody really seemed to care. From 1964 to 1981, when Lake Powell was filling up behind newly built Glen Canyon Dam, virtually no fresh water reached the Delta, and it dried up into oblivion. By the late 1970s, only a few indigenous Cucapá were still eking out a living along the Río Hardy, a tributary to the Colorado, where generations before them had hunted and fished. Gone were the days of plentiful beavers, lynxes, foxes, raccoons, coyotes and big cats, like bobcats and pumas. Gone were the gigantic flocks of green- and blue-winged teals that had nearly obscured the skies.

Then came the floods. Beginning in 1979, large amounts of water were released down the Colorado River due to exceptionally wet El Niño winters.



Doña Inocencia is a Cucapá elder in El Mayor.

## Colorado River Delta Restoration: 10 Years Past and Future



Looking south into the Gulf of California, Isla Montague lies at the mouth of the Colorado River. Ocean tides now flood the area because freshwater from the river rarely reaches the sea.

These waters flooded hundreds of homes and businesses, but they also brought back to life a portion of the formerly defunct Delta. While devastating to some people's lives, the floods brought hope for a brighter future. The Delta was not dead after all.

### Why the Delta is Important

While less than 10 percent of its original size, the Colorado River Delta is crucial to several threatened and endangered species and is a key stopover for birds along the Pacific Flyway. It is also crucial to the cultural survival of indigenous communities on both sides of the border, particularly the Cocopah in the U.S. and their brethren the Cucapá in Mexico.

Conservation efforts hold special promise for the Delta. It is possible that relatively modest flows of freshwater and appropriately managed brackish water could stimulate ecological recovery and conserve existing priority areas. The Colorado River remains the most important freshwater input into the Upper Gulf of California and is key to the health of its nurseries, particularly for totoaba, shrimp and corvina. This promise and potential spur the Sonoran Institute's work with our partner non-governmental organizations, research institutions, government officials, and local residents in Mexico and the U.S. to protect and restore conservation priority areas in the Delta.



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### A Decade of Accomplishments

Florentino Flores, president of the local fishermen's association in the Colorado River Delta, was one of the first community leaders that the Sonoran Institute and Pronatura Northwest met in 1996 when they began holding workshops to bring local people together to promote restoration of the Delta. The organization that emerged from these initial meetings is the Asociación Ecológica de Usuarios del Río Hardy y Colorado (Ecological Association of Hardy and Colorado River Users) or AEURHYC, which includes fishermen, farmers, small-scale tourism operators, and members of the Cucapá tribe.

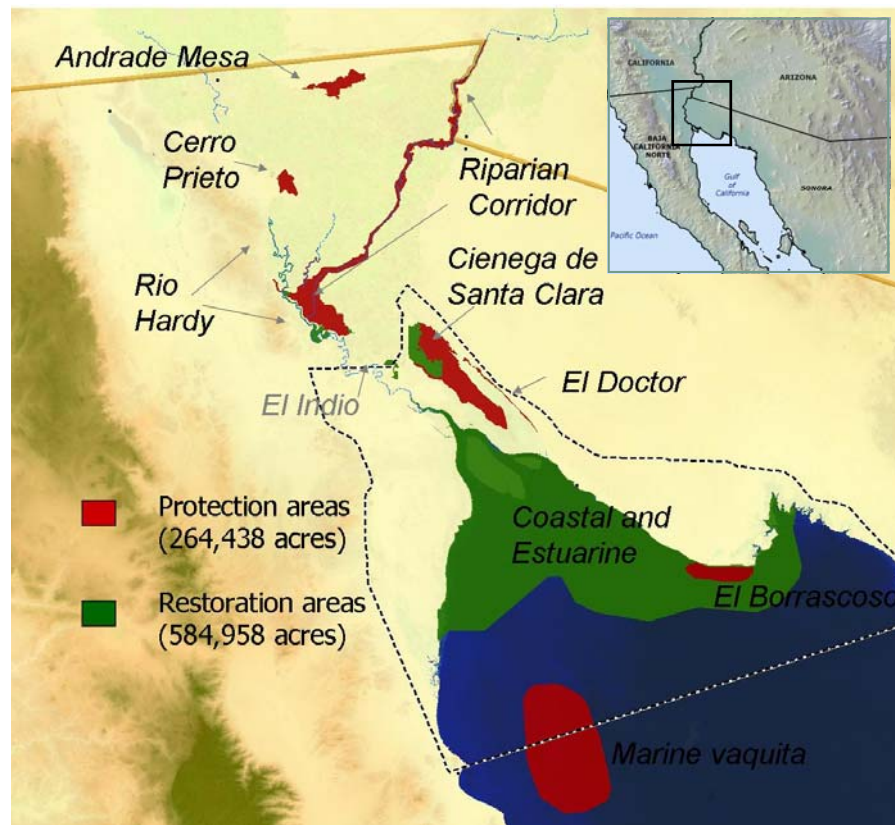
Flores, now the president of AEURHYC, longingly recalls the wet years after the big floods: "You wouldn't believe how many animals [fish, turtles] were in the water. All you had to do to earn your supper was throw out a net!" Nowadays, much of the Colorado River Delta is too dry to support fishing, but areas where the Sonoran Institute, Pronatura and AEURHYC have been working are making a comeback.

Most of the work to date and thus the majority of habitat changes are evident along the Río Hardy. Where marsh wetlands were previously dry and reed-choked, inhibiting the passage of even small fishing boats and kayaks, the creation of a small check-dam has augmented water levels significantly.



Community leaders review restoration plans.

Current water levels in the Río Hardy not only support fishing, hunting, and an historic, small-scale tourism industry, but the presence of this water is naturally restoring about 2,500 acres of marsh wetlands. These 10 years have also seen the successful restoration of seven small sites in the Delta totaling about 36



Conservation Priorities in the Colorado River Delta

acres. A brigade of volunteers, school groups and scientists from the U.S., Canada and Mexico have donated hundreds of hours to help with restoration plans, recreation site designs, tree plantings and clean up.

Capitalizing on these restored resources, AEURHYC and the Sonoran Institute are fashioning Campo Ecológico Río Hardy out of an abandoned hunting camp. The Campo will be a recreation, environmental education and restoration research area that will highlight the importance of conserving and restoring the Delta. The 2.5 acre eco-camp will include a small visitor's center, shade structures with barbecues, interpretive trails, observation and boat decks, an amphitheater, a fountain, restoration areas and a greenhouse. It will welcome Mexicali families on weekends, school groups during the week and American tourists throughout the fall, winter and spring. Proceeds generated will be reinvested into conservation and restoration efforts.

The best ways to protect and restore the Delta are identified in the *Conservation Priorities for the Colorado River*

**"The Sonoran Institute puts theory into practice by implementing on-the-ground restoration in the Delta."**

Eduardo Peters, National Institute of Ecology-SEMARNAT, Mexico

*Delta* report, which includes input from 55 scientific experts and resource managers, together representing more than 400 years of Delta experience. The U.S. and Mexican governments, through an international working group, adopted the report in 2006 as the official "game plan" for protecting the Delta. (A PDF of *Conservation Priorities for the Colorado River Delta* is available at [sonoran.org/reports](http://sonoran.org/reports), or contact the Sonoran Institute for a print copy.)

Scientists now know enough about the hydrology, soils, plants and animals of the region to create detailed restoration and monitoring plans at various scales. Any successful restoration plan for the Delta requires a minimum base flow of fresh water. Mexico's first water trust, which holds water rights for environmental purposes, is nearing completion, and 320 acre-feet of water have already been secured.

The partnership of AEURHYC, Sonoran Institute and Pronatura is a successful model for community-based conservation that integrates applied science, local knowledge and values, and community stewardship to restore degraded ecosystems and promote sustainable development. A *Río Hardy Sustainable Management Plan*, crafted by local river users and government agencies, is guiding creation of eco-tourism and recreation sites, self-regulation by local fishermen, and investigation of new water augmentation mechanisms. Local leaders from municipal government, irrigation modules, schools and agricultural cooperatives are engaged in the project and ready to help with outreach to a broader audience. Cucapá craftsmen are selling their chaquira jewelry in Mexicali and at fairs on both sides of the border, increasing their annual income by 50 percent, while Cucapá youth have been trained as river guides for eco-tourists. So far, seven full-time local jobs related to Delta conservation have been created.

In short, the fruits of the past decade are very promising. Working closely with partner non-governmental organiza-



Top: Ecotourists enjoy boat trips in the Ciénega de Santa Clara. Bottom: AEURHYC members take a break from removing invasive plants along the Río Hardy.

tions, such as Environmental Defense in the U.S. and AEURHYC and Pronatura in Mexico, the Institute has laid the scientific, political and social foundations for large-scale restoration along the Colorado and Hardy Rivers, conservation of priority areas like the Ciénega de Santa Clara, and the development of a vibrant, sustainable economy in the Delta. The Institute's partnerships with local, state, federal and bi-national agencies create common ground for the necessary reform of land and water policy, which will guarantee that conservation results are not only possible but long-lasting.

### The Path Ahead

During the next 10 years, the Institute intends to build on these solid foundations to restore and protect the Delta's conservation priority areas and demonstrate that conservation and economic development can go hand in hand.

The ultimate restoration goal is to develop an 80,000-acre functional riparian corridor from Morelos dam to the Río Hardy. To accomplish this, we will scale up restoration activities along both the Colorado River and the Río Hardy. In the next ten years, we will develop several areas of healthy terrestrial and

aquatic habitat by planting native trees and securing a base flow for the river. Each year we will enhance about 100 acres of riparian habitat and 100 acres of marsh wetlands to create two ecologically functional demonstration sites by the year 2017: the Colorado River Demonstration site (4,400 acres) and the Lower Río Hardy Demonstration site (4,500 acres). Within these areas, we will create a number of safe and inspiring recreational sites for the region's more than 1 million inhabitants.

A key to the success of any large-scale restoration strategy in the Delta is the acquisition of water for environmental purposes. Pronatura and the Institute are working to secure 50,000 acre-feet for instream flows and 260,000 acre-feet for pulse flows every four years (320 acre-feet are already secured). These amounts will likely come from water acquisitions, win-win partnerships with the agricultural