

**Mapping Conservation Priorities in the Colorado River Delta:
A State-of-Knowledge Workshop
October 15-17, 2002**

Background: The Colorado River Delta, which extends from Morelos Dam at the US-Mexico border to the near-shore marine habitats of the upper Gulf of California, and includes associated wetlands in the San Luis and Mexicali Valleys, is a key part of the Lower Colorado River Ecoregion (see figure 1; note that the shaded area includes the important delta ecosystems, as well as other private lands). Once regarded as a dead ecosystem, recent surveys have shown it contains more native trees and wetlands than the rest of the Colorado River in the United States. These habitats support over 200 species of resident and migratory birds, plus numerous invertebrates, fish, reptiles and aquatic and marine mammals. The value of these habitats has been recognized in numerous ways: protection afforded by the Mexican government in the designation of the Biosphere Reserve of the Colorado River Delta and the Upper Gulf of California; classification as one of North America's ten most endangered rivers¹; and identification as an Area of Biological Importance at the Workshop to Establish Biodiversity Conservation Priorities in the Gulf of California,² and as a landscape-scale conservation site in the Ecological Analysis of the Conservation Priorities in the Sonoran Desert Ecoregion.³

While there is much left to be learned about the delta and its water requirements, considerable information has been collected but not assimilated. Most studies on the delta are so recent that results have not yet been exchanged among scientists, let alone non-experts. Of the 56 articles on the delta listed in WEB of Science since 1945, 41 were published in the last five years, and a great deal more data has been gathered but not yet published.

Minute 306 calls for binational studies on the hydrology and ecology of the Colorado River delta, with an aim to conserve the delta's environmental assets. Under the auspices of Minute 306, the U.S. International Boundary and Water Commission and the Mexican Comisión Internacional de Límites y Aguas sponsored a conference in Mexicali in September 2001. The conference was a series of presentations by Mexican and U.S. specialists conducting science and conservation work in the delta. Many of the specialists were exposed to each other's findings for the first time at the workshop. However, the experts did not present a coherent vision of the conservation needs of the Colorado River delta, without which conservation efforts are unlikely to succeed.

Goal: Centro de Investigación en Alimentación y Desarrollo (CIAD), Environmental Defense, the Sonoran Institute, and the University of Arizona propose to bring this binational group of experts together again in a highly focused workshop to develop a "map of the possible." The goal of this project is to synthesize existing information to guide conservation goals in the lower delta over the next two decades. From the workshop we will develop a suite of products, including a map, a GIS database, workshop proceedings, and an interactive website that allows users to explore the GIS database.

1 American Rivers Ten Most Endangered Rivers List, 1998

2 Workshop organized by the Coalition for Sustainability of the Gulf of California.

3 Report prepared by the Nature Conservancy, IMADES, and the Sonoran Institute.

Implementation: We will convene the workshop to complete three key aspects of the map:

1. Ecological assessment of specific sites within each delta ecosystem type, including:
 - a. risk potential, specifically related to possible depletion of water and/or possible inundation with too much water (e.g. scouring from floods), vegetation clearing, and water quality; and
 - b. restoration potential based on habitat fragment size, relation to wildlife corridors, distance from the Colorado River, and proportion of native to non-native species.
2. A hydrologic component that indicates the quantity, quality, and timing of water flows required to support each habitat type.
3. A gap analysis identifying additional research needs for developing a detailed restoration plan.

In preparation for the workshop, using expert and local knowledge, and Geographic Information System (GIS) methods, we will map the different natural habitats of the delta, from the riparian corridor south of Morelos Dam into the marine zone in the Gulf of California. The assessment will be conducted with realization of the human demands already placed on the river, and the need for water for adjacent ecosystems such as the Salton Sea.

The map (superimposed in layers over a recent satellite image of the delta), will break the area into a mosaic of habitat types and will indicate the abundance of wildlife and vegetation of concern in each mapping unit. The wildlife component will include the status of species of concern as well as more common inhabitants. The scale of the map will be sufficiently detailed to indicate where key populations occur; as examples, the Yuma clapper rails of Cienega de Santa Clara, the remaining delta clams of the marine zone, the willow flycatcher migration route in the riparian corridor, the Cucupá fishing camps along the Rio Hardy. Other map layers will show land ownership patterns and settlements within or adjacent to the delta natural areas.

The workshop will not result in a Restoration Plan per se, but is a very important step towards that goal. As a follow up, the biophysical data collected and synthesized in this workshop will be supplemented with information about potential water acquisition and delivery, land tenure, water rights, and other economic, social, political, and legal considerations, all necessary for the eventual development of a Restoration Plan.

Workshop Participation: Workshop participation would be restricted to experts with personal experience and knowledge in the area, including scientists from universities, NGOs, and government agencies, and representatives of resource user groups such as fishers and tribes. The litmus test for active participation is personal knowledge of the Delta. The workshop would add synergy to the precision of the base map.

Observers from stakeholder groups that may not have direct knowledge but do have a vested interest in the process and the products would be encouraged to attend. These may include representatives from NGOs, federal and state agencies, water user groups from both countries.

Workshop Coordinators: CIAD, Environmental Defense, Pronatura Sonora, the Sonoran Institute, and the University of Arizona will convene the workshop. These five organizations have committed to: secure funding; convene the Advisory Committee; design, plan, and convene the workshop; prepare information and GIS maps that will be used as a starting point when the experts are gathered; and prepare follow up products including databases, maps, proceedings, and websites.

Advisory Committee: Because of the international importance of developing scientifically rigorous and politically unbiased information about the Colorado River delta, the workshop coordinators will convene a group of 10-15 individuals to help guide this work. The Advisory Committee, representing NGOs, research institutions, and government agencies from both Mexico and the United States, will provide technical and outreach assistance in the implementation of the workshop, helping to coordinate participation, funding, and outcomes. The Advisory Committee will also provide advice to the workshop coordinators regarding additional workshop follow-up steps such needed to develop a restoration plan for the delta.

The Advisory Committee will communicate periodically through conference calls and email as needed during the months prior to and following the workshop. The advice and guidance of the Advisory Committee is critical to the coordinators' success in this project. However, the coordinators will have ultimate responsibility for making decisions and producing results.

Figure 1. Map of the Colorado River Delta. The highlighted portion shows the area of interest of the workshop, which also includes the marine portion of the Upper Gulf and Colorado River Delta Biosphere Reserve.

