

## The Binational Effort to Restore the Colorado River Delta

**Karl W. Flessa**<sup>1</sup>, *Martha Gómez-Sapiens*<sup>1</sup>, *Roberto Real Rangel*<sup>2</sup> and the Binational Science Team

<sup>1</sup>University of Arizona, Tucson, AZ, USA

<sup>2</sup>The Nature Conservancy, Mexicali, B.C., Mexico

Treaty agreements between Mexico and the United States allocate water and funding for the restoration of riparian habitat along the 136 km course of the Colorado River from the border to the Gulf of California. A binational team of scientists from government agencies, universities and non-government organizations monitors restoration progress.

Efforts began in 2014 with a two-month long “pulse flow” that briefly re-connected the river to the sea. Active restoration followed: removing invasive saltcedar, grading and contouring sites, planting native vegetation, post-planting care and irrigation. Pronatura Noroeste, Restauremos el Colorado and the Sonoran Institute each manage a restoration area. Each group now builds community support through outreach programs. Raise the River/Alianza Revive el Río Colorado, a consortium of six environmental groups, provides funding for purchase or lease of water rights held by local farmers. Water is delivered to sites through the regional system of irrigation canals. Efforts have resulted in a total of 572 hectares of marsh, cottonwood-willow, mesquite bosque and adjacent upland vegetation. The restored habitat has increased the abundance and diversity of priority bird species and attracts other wildlife – including beavers.

The U.S. and Mexico each provide water equal to the amount arranged by the environmental consortium. To date, half of this “federal water” has been delivered as two five-month, in-channel flows delivered just upstream of two of the restoration areas. In-channel flows recharged local groundwater, reduced salinity in the upper estuary and provided recreational benefits to local communities. Benefits to vegetation and birds from the in-channel flows have been relatively modest.

Ten years of efforts have been successful. The current treaty agreement extends through 2026. Continuation and expansion of restoration efforts depend on funding, the availability of water and a new binational agreement.

Contact Information: Karl W. Flessa, Geosciences, University of Arizona, Tucson, AZ, USA, Phone 520-621-7336, Email: [kflessa@arizona.edu](mailto:kflessa@arizona.edu)