

Ecological Restoration Brief

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Cooperative Management of Riparian Vegetation on the Big Bend Reach of the Rio Grande/Rio Bravo

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In 2012 and 2013, Big Bend National Park and Área de Protección de Flora y Fauna Maderas del Carmen, our sister protected area in Coahuila, Mexico, have stepped up our cooperative



Fire crews from the US and Mexican Diablos crews from Boquillas and San Vicente, Coahuila, prepare sites for treatment using prescribed fire, 2012.

management of riparian vegetation on the Big Bend reach of the Rio Grande (named Rio Bravo in Mexico). We began working on small projects several years ago, working out the most effective methods. But in the past two years, together with our agency partners in the Big Bend Conservation Cooperative, the Commission for Environmental Cooperation (CEC), and NGO partners Profauna, Mexico and World Wildlife Fund, we have successfully removed exotic giant cane from nearly 25 miles of the Rio above and through Boquillas Canyon.

Using a combination of 1) prescribed fire to gain access to dense stands and promote re-growth of green tissue, and 2) canoes modified to mount gas-powered high-pressure spray systems – affectionately termed “death-boats” – to apply aquatic-approved herbicide (active ingredient: Imazapyr), teams of US and Mexican firefighters and technicians have mounted nearly a dozen work trips and have reduced the once impenetrable stands of

river cane to a handful of remaining patches, which we plan to tackle this fall. Monitoring plots are in place to both assess the effectiveness of treatments and track changes in channel morphology and riparian vegetation.

Using a combination of 1) prescribed



US and Mexican agency personnel and non-governmental partners (WWF & Profauna) spray cane in Boquillas Canyon on the Rio Grande, 2013.



Typical riparian vegetation of the Big Bend reach of the Rio Grande before project initiation.

Other projects include monitoring the effects of the saltcedar leaf beetle (*Diorhabda* spp.), a biocontrol agent released in the area in 2009 which has now effectively reduced exotic saltcedar (*Tamarix ramosissima*) to a sub-dominant species in the reach. Unfortunately, the beetle will also sometimes damage athel (*Tamarix aphylla*), which, although exotic and potentially invasive, is an important shade tree in many riverside communities in the Big Bend. We are working with partners at Sul Ross State University and Universidad Autónoma Agraria Antonio Narro in Saltillo, Coahuila to assess these affects and protect shade trees.

These efforts are part of a larger bi-national Action Plan to cooperatively manage the Big Bend reach of the Rio. Implementation of these projects has been greatly enhanced by the recent re-opening of the Boquillas Port of Entry in Big Bend National Park , which allows park managers and crews to more effectively plan and implement bi-national projects.

In August, 2013, in Big Bend National Park, several NPS units held a Sister Park Planning Workshop with our sister parks in Mexico. At this meeting, we made plans for future collaborations on riparian management, river science, climate change planning, training and student exchanges, and forest and grassland management.



Same location two years after prescribed fire, herbicide treatment, and channel reset flood event.

The Society for Ecological Restoration, Texas Chapter promotes ecological restoration as a means of sustaining the diversity of life on Earth and re-establishing an ecologically healthy relationship between nature and culture.

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