

## RESTORATION

# Irrigation of Riparian Habitat Restoration along the Rio Grande Canalization Project



The United States Section of the International Boundary and Water Commission (USIBWC) constructed, operates, and maintains the Rio Grande Canalization Project (RGCP), a flood control project spanning 105 miles of the Rio Grande in New Mexico and West Texas. In 2009, USIBWC committed to restoring over 550 acres of riparian habitat, including acquiring water for irrigation. USIBWC partnered with Elephant Butte Irrigation District (EBID) to develop an environmental water rights program, and with U.S. Fish and Wildlife Service (USFWS) San Andres National Wildlife Refuge to assist with irrigation planning and implementation at restoration sites.



## KEY ISSUES ADDRESSED

Shallow groundwater levels in this stretch of the Rio Grande are highly variable throughout the year depending on the presence of irrigation flows, and limited groundwater availability can be an additional stressor to plantings.

To account for water shortages and varying shallow groundwater levels, supplemental water is necessary for riparian vegetation plantings to thrive and for natural recruitment of other native species such as grasses, shrubs, and forbs.

Unique logistical challenges exist for water deliveries to restoration sites.

## PROJECT GOALS

- Construct infrastructure to irrigate restoration sites, including some upstream of the existing irrigation ditches
- Efficiently irrigate restoration sites to help the plantings get established and thrive

## INFORMED SITE SELECTION

Pre-construction site visits facilitated valuable discussions on irrigation methods and which sites were the most feasible for irrigation and highest priority for the application of water rights.



*Check Structure to Control Water Levels and Distribution*

## PROJECT HIGHLIGHTS

**Water Rights for Restoration:** USIBWC acquired initial water rights in 2014, and the first irrigation began at Leasburg Extension Lateral Wasteway # 8 Restoration Site near Las Cruces, NM, supporting about 5,100 riparian trees planted over several years. The site is located adjacent to an irrigation spillway, allowing efficient delivery of water using existing infrastructure.

**Water Delivery Infrastructure:** In 2017, USIBWC and EBID entered into an agreement to build irrigation infrastructure for two additional sites. Construction was completed in 2018. These sites were irrigated using different delivery methods, one a gator pump and the other a check structure to divert water. Both sites are located upstream of the existing irrigation ditches, so large (12"-diameter) PVC was used to pipe water upstream.

**Flexibility during Shortage:** In water shortage years, when water deliveries were delayed into May or June (after the spring leaf-out of recently planted trees), a meter connected to a municipal hydrant allowed USFWS to fill up 4000-gallon water tender trucks for transport. Once at the restoration sites, a hose was used to irrigate young trees.

### Collaborators

- United States Section of the International Boundary and Water Commission
- US Fish and Wildlife Service
- Elephant Butte Irrigation District

### Funding Partners

- United States Section of the International Boundary and Water Commission

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Photos courtesy of USIBWC

## LESSONS LEARNED

Using irrigation PVC piping systems was a successful way to get water to a site upstream of existing irrigation infrastructure. Several distribution pipes, each with its own gate, allowed for irrigation of multiple sections of restoration sites at the same time.

Site planning before irrigation was essential to determine where water would flow and where it needed to be held back. Berms and flow channels can then be constructed prior to irrigation.

Delivering water by truck during shortage years was labor intensive. However, the cost was relatively low, and these measures helped sustain the trees until the irrigation flows could be delivered.

During the first irrigation, crews noted areas requiring minor resurfacing or changes to berms or flow channels. It is also important to have heavy equipment on-site to fix berms that breach during irrigation events.

## NEXT STEPS

- Work with the irrigation district to design and construct additional check structures to facilitate irrigation at two additional sites
- Continue ongoing maintenance of irrigation infrastructure
- Update the River Management Plan, USIBWC's long-term management plan

## PROJECT RESOURCES

For more information on this project, contact Elizabeth Verdecchia: [elizabeth.verdecchia@ibwc.gov](mailto:elizabeth.verdecchia@ibwc.gov)

For additional project resources and case studies, visit the Collaborative Conservation and Adaptation Strategy Toolbox:

[WWW.DESERTLCC.ORG/RESOURCE/CCAST](http://WWW.DESERTLCC.ORG/RESOURCE/CCAST)



*Irrigation of Mesilla East*